

INTERNATIONAL ASTRONOMICAL UNION COMMISSION 26

(DOUBLE STARS)

INFORMATION CIRCULAR No. 182 (FEBRUARY 2014)

NEW ORBITS

ADS α 2000 δ	Name n	P a	T i	e ω	Ω (2000) Last ob.	2014 2015	Author(s)
382 00287+3718	A 1504 AB 0°3685	977 ^y 0''843	2071. 70°2	0.29 17°6	51°9 2009.7477	44°5 0''593 44.7 0.594	ZIRM
746 00546+1911	STT 20 AB 1.0496	343. 0.704	1904. 129.9	0.292 151.2	120.9 2010.050	179.0 0.584 178.1 0.588	DOCOBO & LING
819 00593-0040	A 1902 3.80670	94.57 0.313	1963.72 50.9	0.812 273.2	0115.3 2008.8876	213.6 0.359 214.6 0.359	DOCOBO & LING
1451 01497-1414	HU 422 3.1035	116.0 0.264	1949.8 120.1	0.478 130.4	0.0 2008.7699	24.2 0.316 23.3 0.319	DOCOBO & LING
3172 04236+4226	STT 80 0.9137	394. 0.522	2181. 106.7	0.52 67.7	13.9 1997.1364	140.3 0.273 139.4 0.270	ZIRM
4032 05270+2737	HO 226 AB 0.9626	374. 0.617	2097. 57.6	0.41 318.1	84.4 2009.1530	271.2 0.663 271.6 0.658	ZIRM
- 05354-3316	HU 1393 2.5333	142.1 0.624	2017.5 119.4	0.984 86.9	238.5 2013.737	297.0 0.150 292.3 0.124	RICA
4349 05460+2119	STF 787 AB 0.3913	920. 0.900	2091. 136.1	0.80 146.9	65.7 2008.8499	55.0 0.690 54.7 0.684	ZIRM
4472 05535+3720	BU 1053 0.7045	511. 1.387	1899. 34.9	0.88 62.4	138.1 2010.1050	359.4 1.872 359.5 1.878	ZIRM
7341 09245+1808	A 2477 1.4400	250.0 0.392	2111.3 38.0	0.140 313.3	195.7 2013.252	2.4 0.430 3.1 0.430	RICA
7769 10260+0256	A 2570 1.1576	311. 0.447	2018. 107.1	0.84 287.6	114.7 2006.1280	283.9 0.092 278.2 0.070	ZIRM

NEW ORBITS (continuation)

ADS α2000δ	Name n	P a	T i	e ω	Ω(2000) Last ob.	2014 2015	Author(s)
8177 11293+3025	L 11 0.6475	556. 1.354	2063.46 127.8	0.294 217.1	88.9 2013.3041	281.4 1.026 280.7 1.026	ZIRM
8751 13029+1328	STF1711 0.6642	542. 1.032	2126. 97.0	0.78 51.6	179.8 2008.3090	332.1 0.349 331.7 0.342	ZIRM
- 13175-0041	FIN 350 39.4218	9.132 0.078	2008.382 52.6	0.647 167.9	21.6 2012.184	21.5 0.124 29.7 0.107	DOCOBO et al. I (*)
- 13175-0041	FIN 350 19.5207	18.442 0.129	2009.328 73.5	0.021 279.3	15.8 2012.184	19.5 0.126 26.0 0.112	DOCOBO et al. II (*)
9174 14139+2906	STF1816 0.2687	1340. 1.642	2079. 81.7	0.54 125.3	80.2 2011.4960	97.2 0.411 97.7 0.400	ZIRM
9177 14142+2642	STF1817 0.4327	832. 1.115	2085. 99.3	0.55 165.9	6.3 2005.3900	334.4 0.233 333.0 0.223	ZIRM
- 14383-4954	FIN 371 13.0372	27.61 0.070	1998.61 117.3	0.548 152.3	37.6 2013.1292	47.3 0.103 45.0 0.103	ZIRM
- 14494-6714	DON 680 1.3773	261.4 1.945	1943.69 102.4	0.436 203.8	238.9 2013.1292	242.6 2.256 242.4 2.279	ZIRM
9554 15151+3650	STT 295 1.5451	233. 0.487	2021. 41.7	0.94 173.3	133.8 2009.4413	157.6 0.212 159.9 0.189	ZIRM
9742 15405+1840	A 2076 0.4639	776. 0.823	1895. 73.8	0.38 95.0	1.3 2008.4700	185.3 0.729 185.4 0.730	ZIRM
9918 16057-0617	BU 948 AB 0.7843	459. 1.123	2050. 152.5	0.65 70.4	52.6 2010.5907	83.3 0.746 82.1 0.735	ZIRM
9952 16115+1507	A 1799 0.6667	540. 0.693	1833. 123.1	0.48 163.6	90.1 2010.5820	115.9 0.784 115.7 0.788	ZIRM
10093 16309+3804	STF2059 0.3770	955. 1.114	2059. 102.8	0.52 297.9	23.8 2009.6120	181.5 0.324 180.6 0.314	ZIRM

NEW ORBITS (continuation)

ADS α2000δ	Name n	P a	T i	e ω	Ω(2000) Last ob.	2014 2015	Author(s)
10169 16422+4112	STF2091 0.4054	888. 0.877	2059. 64.7	0.72 321.9	126.5 2010.6010	328.8 0.366 329.5 0.357	ZIRM
10866 17529+2941	AC 8 0.2025	1778. 0.976	2018. 67.5	0.94 256.5	123.9 2008.5220	309.5 0.077 314.6 0.065	ZIRM
11001 18017+4011	STF2267 0.2169	1660. 1.368	2121. 55.5	0.69 351.9	37.3 2011.6600	274.1 0.533 274.6 0.528	ZIRM
- 18434-5546	B 398 4.9006	73.46 0.281	2008.83 111.0	0.371 260.5	162.3 2013.747	181.9 0.150 177.0 0.173	DOCOBO & CAMPO
12296 19169+6312	STF2509 0.5742	627. 1.345	1737. 101.2	0.75 325.4	139.6 2011.7070	328.6 1.829 328.6 1.833	ZIRM
13449 20089+6205	STF2652 0.7273	495. 0.495	2185. 111.2	0.72 85.8	141.3 2005.7100	206.6 0.312 206.2 0.312	ZIRM
14570 21026+2141	BU 69 AB 0.8126	443. 0.996	2256. 76.9	0.40 88.7	127.9 2007.7070	2.7 0.380 3.9 0.376	ZIRM
14784 21141+5818	STF2783 0.2045	1760. 1.685	1835. 113.8	0.22 18.9	48.3 2011.8870	353.1 0.674 352.6 0.671	ZIRM
15313 21469+0051	STF2825 0.5389	668. 0.990	2136. 69.8	0.05 142.4	110.2 2005.9350	155.6 0.445 156.5 0.440	ZIRM
15610 22052+2952	A 893 3.3998	105.9 0.225	1990.8 147.7	0.438 190.1	195.3 2012.707	233.1 0.231 230.7 0.238	RICA
- 22107+0755	WOR 10 1.0714	336. 1.388	1971. 119.5	0.412 33.6	154.7 2008.7018	8.3 0.841 7.0 0.863	ZIRM
16345 22537+4445	BU 382 AB 3.4335	104.85 0.626	2043.80 47.2	0.541 9.0	29.9 2011.907	239.1 0.735 240.5 0.716	SCARDIA et al. (**)
16393 22562+7250	STT 484 AB 2.5245	142.6 0.366	1937.71 111.4	0.866 247.7	142.2 2007.589	97.9 0.333 97.3 0.330	SCARDIA et al. (**)

NEW ORBITS (continuation)

ADS α 2000 δ	Name n	P a	T i	e ω	Ω (2000) Last ob.	2014 2015	Author(s)
- 22586-4531	HU 1335 8.2154	43.82 0.338	2016.26 59.0	0.446 197.7	82.7 2009.668	244.6 0.187 256.6 0.192	SCARDIA et al. (**)
- 23100-4252	DON1042 3.6635	98.27 0.804	1994.91 39.7	0.553 124.0	232.4 2013.7366	124.9 0.697 127.9 0.712	ZIRM

(*) DOOCOBO, AL-WARDAT & CAMPO

(**) SCARDIA, PRIEUR, PANSECCHI, ARGYLE & ZANUTTA

NEW LINEAR FITS

Authors: J. L. HUROWITZ, W. I. HARTKOPF & B. D. MASON

ADS α 2000 δ	Name -	X_0 Y_0	X_A Y_A	ρ_0 θ_0	T_0 Last ob.	2014 2015
- 08057+6823	STF 1164 -	-15.881000 -15.742000	0.215650 -0.217550	22.361 314.800	1859.0400 2004.0100	19°5 52''471 19.7 52.748
- 08161+5706	ENG 34 AB -	69.908997 106.247002	0.348000 -0.229040	127.184 146.700	1995.1639 2007.9590	143.1 127.428 142.9 127.452
- 08179-5910	HJ 4084 AB -	31.657000 20.952000	0.024180 -0.036530	37.962 123.500	2426.2629 2000.0000	149.0 42.039 148.9 42.020
6728 08190+4927	HU 1124 AB -	3.329000 0.030000	0.000500 -0.055040	3.329 90.500	1925.7729 2006.9580	35.0 5.889 34.7 5.934
6900 08379-0648	HJ 99 AB -	-9.159000 58.928001	0.295120 0.045870	59.635 188.800	1964.6470 2010.1100	175.0 61.432 174.7 61.502
- 08398+1131	ENG 36 AB -	-97.564003 -19.802999	0.099970 -0.492540	99.554 281.500	1724.4020 2000.9320	337.1 176.339 337.1 176.753
7082 08549+2612	HO 357 AB,C -	8.811000 -1.199000	-0.059820 -0.439460	8.892 82.300	1824.7271 2011.3870	358.3 84.414 358.3 84.855
- 09006+4147	STT 566 AB,C -	41.077000 71.197998	0.405870 -0.234160	82.198 150.000	2122.7100 2004.0680	181.8 96.705 181.6 96.456
7141 09012+0245	STF 1302 AC -	-8.915000 14.344000	0.077690 0.048290	16.888 211.900	2187.4829 2010.2061	255.1 23.175 254.9 23.112
- 09032-6221	HJ 4175 AB -	5.315000 -3.135000	0.047380 0.080310	6.171 59.500	1720.1350 1991.4600	136.8 28.086 136.8 28.177
- 10160+1200	HJ 156 BC -	13.585000 -13.563000	-0.037410 -0.037470	19.197 45.000	1584.9720 2003.3470	355.3 29.740 355.2 29.780
7826 10332+4026	HJ 2534 -	1.248000 -16.944000	0.128540 0.009470	16.990 4.200	2024.9091 2010.0959	359.5 17.050 359.9 17.038
- 11246+5651	STI 2270 -	2.387000 1.788000	-0.021380 0.028540	2.982 126.800	1663.0450 2010.2090	203.5 12.863 203.5 12.898

NEW LINEAR FITS (continuation)

Authors: J. L. HUROWITZ, W. I. HARTKOPF & B. D. MASON

ADS α2000δ	Name -	X_0 Y_0	X_A Y_A	ρ_0 θ_0	T_0 Last ob.	2014 2015
8250 11387+4507	STF 1561 BE -	-0.672000 -60.058998	0.537670 -0.006020	60.063 359.400	2042.5620 2009.4840	345.0 62.004 345.5 61.864
- 11411+3412	STT 574 -	157.507004 8.249000	0.020110 -0.383960	157.723 93.000	1962.1780 1998.3600	85.8 158.978 85.7 159.025
- 11416+3145	STT 575 AB -	5.415000 -17.049000	0.361850 0.114920	17.888 17.600	2125.1169 2012.4139	310.6 45.824 310.8 45.474
8314 11491+1434	BU 604 AC -	-19.688000 -75.153000	0.465870 -0.122050	77.689 345.300	1880.9130 2007.3621	24.9 100.718 25.1 101.022
- 12180-1456	RST 3783 -	-2.222000 2.671000	0.145840 0.121350	3.474 219.800	1935.4290 2000.0820	142.9 15.306 142.7 15.491
8579 12307+5352	ES 726 AB -	-0.443000 8.559000	0.020910 0.001080	8.570 183.000	1832.9460 2006.4000	159.1 9.372 159.0 9.380
- 12456-6059	HJ 4547 -	12.824000 -23.488001	-0.124670 -0.068070	26.761 28.600	1919.2889 2012.0150	1.9 29.953 1.7 30.016
- 13304-1256	HJ 2656 -	14.855000 -3.050000	0.005450 -0.026540	15.165 281.600	1440.9620 2008.4470	327.3 21.702 327.3 21.721
8949 13343-0019	STF 1757 AC -	-4.725000 34.320999	0.192720 0.026530	34.645 187.800	1782.7860 2003.2670	135.4 56.777 135.3 56.931
8956 13344+3847	HJ 1234 AB -	-3.967000 -27.649000	-0.091000 0.013060	27.933 351.800	2085.9929 2008.1290	5.2 28.707 5.0 28.685
8990 13408-2815	HO 382 AB -	-4.177000 -13.277000	0.056690 -0.017830	13.919 342.500	1943.1410 1999.2300	359.4 14.542 359.6 14.559
- 13546-3436	SEE 191 -	9.739000 16.539000	0.099000 -0.058830	19.194 149.500	1913.1310 2000.0000	118.2 22.476 117.9 22.536
- 14295-3702	SEE 205 AB -	-0.487000 -1.993000	0.112710 -0.027530	2.052 346.300	1803.0920 2000.0000	71.5 24.556 71.5 24.672

NEW LINEAR FITS (continuation)

Authors: J. L. HUROWITZ, W. I. HARTKOPF & B. D. MASON

ADS $\alpha 2000\delta$	Name -	X_0 Y_0	X_A Y_A	ρ_0 θ_0	T_0 Last ob.	2014 2015
9413 14514+1906	STF 1888 AC -	21.691999 -45.063999	-0.144780 -0.069690	50.014 25.700	1700.3101 2008.3110	340.5 71.006 340.4 71.120
- 14557-3351	HO 390 -	12.857000 17.827999	-0.032080 0.023130	21.981 144.200	1642.7720 1999.5200	177.9 26.433 178.0 26.455
9446 14575-2125	HN 28 AF -	-12.717000 7.752000	-1.054460 -1.729740	14.893 238.600	1818.6121 1998.3700	326.5 396.099 326.5 398.123
9492 15041-0653	HO 391 AC -	-1.712000 -22.024000	0.198330 -0.015420	22.090 355.600	2084.2930 2000.2510	323.2 26.146 323.6 26.038
- 15073+2452	ENG 52 AC -	129.108002 -203.959000	-1.032780 -0.653760	241.388 32.300	1947.5690 2002.3400	13.8 254.690 13.5 255.072
- 15106+3923	NI 34 -	6.859000 -0.186000	0.008890 0.327690	6.862 88.500	2014.2820 2003.1770	87.7 6.894 90.4 6.866
- 15226-5910	COO 186 -	6.130000 -0.295000	-0.002060 -0.042770	6.137 87.200	1919.4110 2004.3600	53.8 7.354 53.5 7.377
9617 15232+3017	STF 1937 AB,C -	34.071999 -25.695999	-0.152490 -0.202200	42.675 53.000	1769.2880 2006.5710	357.5 75.248 357.4 75.456
- 15249+1359	HJ 252 AC -	36.273998 15.026000	0.040270 -0.097230	39.263 112.500	1699.6890 2012.4860	72.4 51.340 72.3 51.408
- 15413+0350	BAL 2870 -	1.785000 1.099000	0.034230 -0.055610	2.096 121.600	1869.5850 2010.5000	44.2 9.661 44.1 9.725
- 15532+1312	STT 583 -	93.315002 24.864000	0.148360 -0.556810	96.571 104.900	1939.2830 1998.1500	80.9 105.739 80.6 105.970

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ANNOUNCEMENTS

NEW SPECTROSCOPIC BINARY J20354703+4053012

The star J20354703+4053012 (magnitude $B = 13.8$) was reported as a likely new member of the Cygnus OB2 association by Comerón & Pasquali (2012, A&A 543, 101), who classified it as B2V using low-resolution spectroscopy in the blue. A single-epoch follow-up observation at intermediate resolution carried out on 26 August 2012 using the ISIS spectrograph at the William Herschel Telescope on La Palma (Spain) revealed a high heliocentric radial velocity of this star, amounting to -150 km s^{-1} .

J20354703+4053012 is at a projected distance of only $3'$ from A37, another member of Cygnus OB2 first identified by Comerón et al. (2002, A&A 389, 874) and classified as O5V by Hanson (2003, AJ 597, 957). A37 was found to be a runaway star by Kobulnicki et al. (2010, ApJ 710, 549) based on the presence of a clearly delineated bow shock ahead of it revealed by Spitzer images, caused by the interaction between the stellar wind and the interstellar medium as A37 moves supersonically through the latter. The angular proximity between both stars and the high radial velocity of J20354703+4053012 raise the possibility that both J20354703+4053012 and A37 may be former members of a multiple system, expelled from it in relatively recent times given their proximity on the sky.

Observations of J20354703+4053012 were carried out in September and October 2013 using the TWIN spectrograph at the 3.5m telescope on Calar Alto, with the goal of discerning between a runaway origin of the high radial velocity and the alternative possibility of spectroscopic binarity. The results conclusively show that J20354703+4053012 is a spectroscopic binary, with measured radial velocities of -100 km s^{-1} on 19 September 2013 and $+50 \text{ km s}^{-1}$ on 8 October 2013, based on photospheric lines in the 400 nm to 500 nm interval. A third spectrum obtained on 14 October using a grating setting that covers only the $H\alpha$ line yields a radial velocity of -50 km s^{-1} , albeit at lower accuracy. Hints of a secondary star spectrum are seen in the shapes of the Balmer absorption lines, which show asymmetric wings extending redward when the center of the line is blueshifted, and blueward when the center is redshifted. The limited number of epochs available suggests an orbital period around one month, and the detectability of the secondary star spectrum in the form of Balmer lines asymmetries suggest that its spectral type is probably around mid-B.

Having reached the main goal of discarding the runaway nature of J20354703+4053012, the authors do not have any further follow-up observations of this system planned. With this note the authors want to encourage other teams to carry out new observations for the goal of determining the accurate orbital parameters of the binary system.

F. Comerón¹, A. Pasquali², A. Herrero³, S. Simón-Díaz³, T. de Zeeuw^{4,5}

¹ European Southern Observatory, Santiago de Chile, Chile

² Astronomisches Rechen-Institut, Zentrum für Astronomie der Universität Heidelberg, Germany

³ Instituto de Astrofísica de Canarias, Tenerife, Spain

⁴ European Southern Observatory, Garching bei München, Germany

⁵ Sterrewacht Leiden, Leiden University, The Netherlands



WDSTOOL is intended for professional astronomers and amateurs specialized in the field of double stars. This software is only available on the internet. It can perform multiple searches in the Washington Double Star catalog and create listings of double stars based on many criteria. The software and database are regularly updated by the author.

David Chiron

The deadline for contributions to Information Circular No. 183 is:

June 15th 2014

J. A. Docobo (joseangel.docobo@usc.es)

J. F. Ling (josefinaf.ling@usc.es)

Tel: +34 881 815 016

Fax: +34 881 813 197

Observatorio Astronómico R. M. Aller

P. O. Box 197

<http://www.usc.es/astro>

Universidade de Santiago de Compostela

SPAIN

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