

INTERNATIONAL ASTRONOMICAL UNION

COMMISSION G1 (BINARY AND MULTIPLE STAR SYSTEMS)

DOUBLE STARS INFORMATION CIRCULAR No. 210 (JUNE 2023)

NEW ORBITS											
WDS HIP	Name ADS	P(yr) σ_P	T(yr) σ_T	e σ_e	a('') σ_a	i(°) σ_i	$\Omega(^{\circ})$ σ_{Ω}	$\omega(^{\circ})$ σ_{ω}	2023 2024	Author(s) Last obs.	
00036-3106 290	TOK 686 —	14.0 ...	2013.79 ...	0.233 ...	0.131 ...	71.2 ...	11.8 ...	264.9 ...	165.1 0.092 177.9 0.116	TOK 2023.418	
00135-3650 1083	HDS 32 —	15.272 0.054	2009.080 0.078	0.242 0.005	0.223 0.002	159.6 1.8	101.2 3.8	266.0 3.4	248.1 0.179 210.3 0.161	TOK 2023.418	
00348-5853 2726	I 439 —	350.0 ...	2020.574 ...	0.958 ...	0.709 ...	47.8 ...	122.2 ...	141.1 ...	22.0 0.080 34.0 0.103	TOK 2023.418	
00460-3043 3592	HDS 100AB —	62.65 ...	2024.605 ...	0.830 ...	0.179 ...	103.8 ...	27.9 ...	247.5 ...	216.3 0.055 205.4 0.038	TOK 2022.445	
01419+8053 8519	STT 34 1411	177. 6.	1937.7 2.6	0.84 0.03	0.37 0.04	39.9 8.7	1.9 11.7	108.8 8.0	294.6 0.539 295.0 0.539	ALZ [I] 2022.17	
01419+8053 8519	STT 34 1411	360. 110.	2017.7 40.	0.136 0.12	0.608 0.09	70.7 4.4	111.2 4.3	185.4 40.	295.4 0.515 295.8 0.513	ALZ [II] 2022.17	
03417-5126 17255	HIP 17255 —	3.0 ...	2021.762 ...	0.196 ...	0.075 ...	51.3 ...	66.2 ...	136.9 ...	13.1 0.062 81.6 0.074	TOK 2023.006	
04237+1131 20511	LSC 30 —	46.05 ...	2036.02 ...	0.0 ...	0.064 ...	50.0 ...	181.9 ...	0.0 ...	74.0 0.042 85.8 0.041	TOK 2022.683	
04502-3113 22484	B 1474	100.85 3.15	2045.75 3.25	0.038 0.038	0.295 0.005	0.0 3.0	125.7 13.2	281.0 19.0	321.2 0.294 324.8 0.293	D et al. 2021.7324	
04523-3619 22641	HDS 630 —	30.58 ...	2010.455 ...	0.500 ...	0.118 ...	105.5 ...	113.6 ...	226.4 ...	103.4 0.146 101.6 0.140	TOK 2022.842	
05010-1112 23326	A 2629 3610	221.0 15.0	2045.14 0.60	0.733 0.017	0.321 0.005	99.7 1.5	166.8 2.5	255.7 6.0	358.9 0.170 358.2 0.170	D et al. 2023.1787	

NEW ORBITS (continuation)											
WDS HIP	Name ADS	P(yr) σ_P	T(yr) σ_T	e σ_e	a(") σ_a	i(°) σ_i	Ω (°) σ_Ω	ω (°) σ_ω	2023 2024	Author(s) Last obs.	
05352-4657 26217	RST 141	121.43 5.55	1965.66 0.94	0.727 0.006	0.362 0.005	48.1 2.0	59.3 3.0	47.3 3.0	273.0 0.531 273.7 0.529	D et al. 2022.8425	
06236+1739 30400	A 2517 5002	144.0 ...	2040.082 ...	0.300 ...	0.119 ...	115.3 ...	14.1 ...	296.2 ...	172.4 0.078 169.9 0.074	TOK 2022.930	
08075-1212 39753	A 2749 6606	421.4 ...	1929.436 ...	0.500 ...	0.519 ...	44.2 ...	139.3 ...	17.9 ...	298.3 0.563 298.8 0.567	TOK 2022.195	
08075-1212 39753	A 2749 6606	340.9 20.0	1925.38 0.50	0.447 0.010	0.477 0.010	44.2 5.8	140.5 3.0	7.3 3.0	298.9 0.562 299.4 0.566	D et al. 2022.1948	
08250-4246 41250	CHR 226Ba,Bb —	33.36 5.89	2020.33 2.50	0.158 0.098	0.050 0.002	103.2 2.7	88.4 1.6	301.0 37.2	93.1 0.041 89.8 0.044	TOK 2023.370	
09180-5453 —	JNN 69Aa,Ab —	6.45 ...	2020.80 ...	0.339 ...	0.049 ...	38.1 ...	214.6 ...	76.2 ...	72.4 0.055 106.2 0.052	TOK 2023.179	
09525-0806 48437	AC 5AB 7555	77.61 0.59	1956.84 0.69	0.741 0.019	0.380 0.012	143.2 3.4	198.5 5.2	306.2 6.5	30.7 0.401 28.3 0.381	TOK 2023.417	
09586-2420 48906	TOK 437 —	15.0 ...	2012.429 ...	0.223 ...	0.065 ...	92.3 ...	112.6 ...	90.2 ...	114.5 0.056 113.4 0.063	TOK 2023.417	
10407-0211 —	A 1351 7881	168.7 ...	1992.87 ...	0.90 ...	0.474 ...	115.2 ...	74.2 ...	250.1 ...	45.1 0.441 44.7 0.446	TOK 2022.441	
11286-4508 56004	I 885AB —	1000.0 ...	2484.2 ...	0.746 ...	2.458 ...	98.0 ...	38.3 ...	84.6 ...	144.8 0.620 144.3 0.618	TOK 2021.316	
12243+2606 60514	YSC 97 —	27.25 1.76	2017.797 0.104	0.868 0.021	0.170 0.012	32.3 7.3	164.0 8.2	275.1 7.1	237.0 0.197 240.8 0.214	TOK 2023.106	
12325-5954 61202	JSP 539 —	600.0 ...	1828.67 ...	0.0 ...	0.409 ...	110.6 ...	331.2 ...	0.0 ...	186.2 0.224 185.5 0.227	TOK 2022.441	
12455-4552 62252	HDS1789Aa,Ab —	23.41 0.45	2024.00 0.38	0.248 0.059	0.127 0.005	33.2 5.4	33.8 13.5	357.7 21.4	9.5 0.094 31.8 0.096	TOK 2023.010	
12456-6211 62270	HDS 1791 —	105.29 ...	2027.17 ...	0.50 ...	0.204 ...	117.0 ...	143.6 ...	55.5 ...	139.2 0.112 134.4 0.104	TOK 2022.047	

NEW ORBITS (continuation)											
WDS HIP	Name ADS	P(yr) σ_P	T(yr) σ_T	e σ_e	a(") σ_a	i(°) σ_i	Ω (°) σ_Ω	ω (°) σ_ω	2023 2024	Author(s) Last obs.	
12479-5127 62445	TOK 720 –	10.78 1.14	2023.77 0.18	0.292 0.084	0.051 0.004	152.2 11.1	85.7 16.1	134.1 15.1	358.7 0.034 294.0 0.035	TOK 2023.179	
12528+1225 62933	TOK 401 –	9.964 0.080	2015.562 0.128	0.098 0.011	0.111 0.001	75.1 0.6	117.3 0.6	294.5 5.0	300.4 0.110 314.0 0.071	TOK 2023.106	
13133+1621 –	DOC 1 –	25.44 0.17	2014.81 0.16	0.424 0.013	0.085 0.002	61.0 3.6	95.0 2.1	18.6 4.2	269.2 0.108 272.8 0.114	T+RV 2023.106	
13229-7209 65289	B 1736 –	73.04 ...	1962.49 ...	0.626 ...	0.163 ...	54.2 ...	156.4 ...	324.4 ...	342.4 0.174 344.4 0.165	TOK 2023.324	
13325-6914 66057	I 298 –	500.0 ...	1812.95 ...	0.20 ...	0.821 ...	113.1 ...	16.7 ...	89.6 ...	149.7 0.490 148.9 0.486	TOK 2022.447	
13401-6033 –	TOK 292Ca,Cb –	40.0 ...	2019.06 ...	0.267 ...	0.199 ...	155.5 ...	131.9 ...	195.4 ...	239.0 0.149 225.4 0.155	TOK 2023.010	
13513-2423 67620	WSI 77 –	10.475 0.007	2009.290 0.013	0.339 0.002	0.285 0.001	96.5 0.1	171.6 0.1	140.9 0.4	199.3 0.081 181.6 0.203	T+RV 2023.324	
14147-4412 69597	HDS 2000 –	90.0 ...	2032.28 ...	0.219 ...	0.213 ...	150.0 ...	19.7 ...	144.9 ...	291.1 0.156 284.8 0.154	TOK 2022.209	
14490-5807 72455	HDS 2087 –	28.82 ...	2027.68 ...	0.32 ...	0.167 ...	121.4 ...	111.7 ...	14.4 ...	184.5 0.083 160.9 0.089	TOK 2023.179	
14509-1603 72603	BEU 19Ba,Bb –	16.229 0.043	2021.954 0.118	0.244 0.008	0.346 0.006	54.4 1.5	122.7 1.4	184.1 3.3	330.6 0.229 6.3 0.187	T+RV 2023.324	
15006+0836 73449	YSC 8AB –	6.922 0.003	2016.878 0.007	0.376 0.002	0.116 0.001	95.9 0.3	149.4 0.3	99.7 0.4	147.4 0.090 338.0 0.042	T+RV 2023.324	
16054-1948 78820	BU 947 AB 9913	220.0 fixed	2054.52 3.47	0.685 0.021	0.851 0.032	75.7 0.9	80.2 1.5	242.2 1.8	223.4 0.337 225.3 0.343	TOK 2023.180	
16054-1948 78821	MCA 42CE 9913	18.953 0.064	2006.003 0.115	0.610 0.010	0.105 0.002	45.4 1.3	108.0 2.9	80.8 1.7	86.8 0.078 112.3 0.056	TOK 2023.180	
16076+0002 79008	HDS 2276 –	161.76 ...	2024.28 ...	0.774 ...	0.601 ...	71.5 ...	172.0 ...	172.2 ...	336.4 0.114 347.0 0.132	TOK 2023.180	

NEW ORBITS (continuation)											
WDS HIP	Name ADS	P(yr) σ_P	T(yr) σ_T	e σ_e	a(") σ_a	i(°) σ_i	Ω (°) σ_Ω	ω (°) σ_ω	2023 2024	Author(s) Last obs.	
16245-3734 80390	B 868AB —	3.410 0.014	2021.880 0.026	0.000 fixed	0.039 0.001	78.5 2.4	105.4 1.6	0.0 fixed	264.9 0.020 296.2 0.029	TOK 2023.180	
16249-2240 —	KSA 129Aa,Ab —	13.13 0.34	2019.45 0.37	0.290 0.048	0.058 0.009	165.2 33.5	67.5 154.9	143.0 143.6	157.1 0.063 137.1 0.069	TOK 2023.324	
16278-0822 80628	RST3949Aa,Ab —	81.72 0.68	1996.28 0.17	0.485 0.006	0.772 0.004	25.7 1.6	245.4 4.0	24.4 4.7	63.7 1.045 65.6 1.060	TOK 2022.288	
16283-1613 80677	RST 3950 —	26.225 0.172	2000.656 0.347	0.808 0.018	0.157 0.005	157.9 12.8	88.7 16.1	210.7 16.6	28.7 0.167 20.7 0.138	TOK 2023.417	
16385+1240 81475	TOK 727 —	9.0 ...	2022.39 ...	0.486 ...	0.103 ...	92.9 ...	171.8 ...	312.4 ...	170.7 0.062 162.2 0.030	TOK 2023.418	
16453-3848 —	RST1900Aa,Ab —	40.81 ...	2015.57 ...	0.216 ...	0.916 ...	98.5 ...	64.7 ...	118.9 ...	240.0 0.766 238.1 0.715	TOK 2022.195	
16458-0046 82062	A 1141 10196	31.15 0.21	2019.220 0.080	0.877 0.005	0.114 0.003	164.0 8.8	302.1 21.5	107.0 20.5	42.5 0.116 38.0 0.133	TOK 2023.180	
17184-0147 84652	BAG 51 —	30.37 ...	2000.506 ...	0.20 ...	0.464 ...	58.2 ...	121.5 ...	309.8 ...	309.2 0.476 315.5 0.436	TOK 2023.180	
17400-0038 86463	BU 631 10696	160.07 5.22	1978.00 0.11	0.803 0.007	0.211 0.004	159.4 3.8	36.7 10.8	152.6 10.9	78.2 0.320 77.6 0.323	TOK 2022.444	
17535-0355 —	TOK 54 —	47.3 ...	2032.61 ...	0.242 ...	0.093 ...	180.0 ...	151.1 ...	0.0 ...	252.2 0.092 244.4 0.089	TOK 2023.180	
18520+1358 92593	CHR 80 —	64.61 3.12	1990.18 0.84	0.662 0.052	0.161 0.019	121.4 5.4	98.5 2.4	280.2 2.3	348.0 0.146 345.4 0.148	TOK 2023.418	
19035-6845 93574	FIN 357 —	14.102 0.042	2018.104 0.018	0.383 0.004	0.149 0.001	155.5 1.4	148.8 3.5	234.7 3.8	124.0 0.189 111.1 0.195	TOK 2023.325	
19040-3804 93625	I 1391 —	48.75 0.72	2003.88 0.59	0.505 0.028	0.187 0.002	52.3 2.6	123.4 3.0	194.7 6.1	123.1 0.272 124.9 0.275	TOK 2023.324	
19301-4904 95891	HDS 2772 —	290.0 ...	2019.61 ...	0.823 ...	0.591 ...	64.4 ...	175.9 ...	111.2 ...	353.1 0.138 358.1 0.155	TOK 2023.325	

NEW ORBITS (continuation)											
WDS HIP	Name ADS	P(yr) σ_P	T(yr) σ_T	e σ_e	a(") σ_a	i(°) σ_i	Ω (°) σ_Ω	ω (°) σ_ω	2023 2024	Author(s) Last obs.	
19377-4128 96545	VOU 34 —	61.29 1.95	2001.24 2.78	0.065 0.043	0.165 0.003	97.6 0.6	133.9 0.4	70.6 17.1	310.5 0.157 309.6 0.151	TOK 2023.325	
20205-2749 —	RST 3255 —	54.64 ...	2027.24 ...	0.929 ...	0.101 ...	0.0 ...	266.9 ...	0.0 ...	112.4 0.085 116.4 0.072	TOK 2022.441	
20217-3637 100417	HDS 2908 —	12.699 0.056	2007.368 0.110	0.536 0.007	0.111 0.002	81.8 0.6	107.9 0.4	336.2 3.2	271.0 0.059 278.1 0.099	TOK 2023.325	
20306+1349 101181	HDS 2932 —	48.64 0.93	1984.84 0.90	0.280 fixed	0.171 0.002	79.9 0.4	147.4 0.6	272.0 3.1	324.2 0.166 325.5 0.165	TOK 2022.682	
20311-1503 101221	FIN 336 —	51.72 0.46	2000.26 0.71	0.751 0.025	0.189 0.011	73.7 1.4	105.4 1.3	83.0 1.2	339.0 0.112 342.8 0.109	TOK 2022.441	
20408+1956 —	RAO 23Ca,Cb —	8.76 0.12	2020.579 0.039	0.900 fixed	0.207 0.006	38.1 3.8	25.2 3.1	56.5 2.5	244.2 0.306 250.1 0.334	TOK 2022.442	
20452-3120 102141	LDS 720BC —	145.4 4.7	2033.20 0.42	0.574 0.022	2.529 0.024	166.1 8.0	100.0 18.8	65.0 16.3	119.0 1.605 113.9 1.531	TOK 2022.441	
20507-3116 102892	B 997 —	63.63 0.88	2015.03 0.33	0.208 0.008	0.199 0.002	40.3 1.7	95.9 2.1	138.5 3.4	294.5 0.169 300.4 0.169	TOK 2022.441	
20527-0859 103045	MCA 64Aa,Ab —	2.404 0.002	2018.973 0.068	0.150 0.024	0.057 0.001	85.7 1.2	136.6 0.7	308.0 9.8	316.4 0.061 136.0 0.049	TOK 2023.418	
21199-5327 105319	HJ 5258 AB —	3000 ...	1686.5 ...	0.6 ...	10.313 ...	113.6 ...	73.2 ...	35.0 ...	268.5 7.370 268.3 7.384	Z & T 2016.0	
21199-5327 —	HJ 5258 Ba,Bb —	26.8 ...	2000.52 ...	0.63 ...	0.346 ...	36.6 ...	18.7 ...	310.6 ...	197.6 0.361 206.7 0.306	Z & T 2023.325	
21223+5734 105522	A 764 AB 14926	470.0 ...	1901.8 ...	0.552 ...	1.033 ...	10.0 ...	110.8 ...	125.2 ...	21.6 1.300 22.0 1.305	TOK 2015.500	
21278-5922 105976	TOK 731 —	12.77 0.72	2022.555 0.043	0.613 0.017	0.059 0.002	27.2 4.6	194.3 12.5	133.3 14.9	24.2 0.028 79.7 0.045	TOK 2023.325	
21310-3633 106224	B 1008AB —	75.05 1.92	2019.74 0.12	0.636 0.007	0.222 0.002	102.9 0.4	32.3 0.3	163.3 1.5	194.0 0.066 182.1 0.052	TOK 2023.418	

NEW ORBITS (continuation)											
WDS HIP	Name ADS	P(yr) σ_P	T(yr) σ_T	e σ_e	a(") σ_a	i(°) σ_i	$\Omega(^{\circ})$ σ_{Ω}	$\omega(^{\circ})$ σ_{ω}	2023 2024	Author(s) Last obs.	
21543+1943 108119	COU 432BC —	33.87 0.59	2024.47 0.23	0.750 fixed	0.122 0.006	129.5 4.7	32.1 2.8	213.7 2.8	265.0 0.043 220.8 0.035	TOK 2022.682	
22006-1345 108547	HU 282 15534	500.0 ...	2029.823 ...	0.90 ...	0.485 ...	25.1 ...	102.4 ...	93.1 ...	92.1 0.118 97.4 0.106	TOK 2023.418	
22056-5858 109060	B 548 —	36.91 0.87	2025.25 0.34	0.628 0.046	0.148 0.004	56.0 3.5	36.0 1.9	336.9 3.7	272.3 0.055 319.9 0.039	TOK 2023.418	
22343+0345 111413	HDS 3201 —	27.77 ...	2000.16 ...	0.451 ...	0.122 ...	52.0 ...	36.8 ...	98.0 ...	25.1 0.118 33.3 0.108	TOK 2023.418	
22504-1744 —	DON 1038 —	163.0 5.6	1992.09 0.61	0.432 0.017	0.393 0.007	137.7 1.6	0.0 fixed	0.0 fixed	255.9 0.402 257.7 0.409	TOK 2023.418	
23025-4605 —	I 1462 —	155.0 ...	2035.714 ...	0.619 ...	0.194 ...	160.0 ...	105.0 ...	282.4 ...	283.1 0.135 279.4 0.129	TOK 2023.418	
23126+0241 114576	A 2298AB 16591	29.161 0.054	2012.529 0.092	0.401 0.005	0.199 0.001	102.7 0.3	287.0 0.3	312.9 1.1	140.6 0.099 132.6 0.124	T+RV 2023.418	
23179-0302 115037	YSC 167 —	15.57 ...	2015.61 ...	0.75 ...	0.107 ...	95.7 ...	32.2 ...	115.7 ...	44.9 0.077 42.4 0.091	TOK 2023.418	
23401+1258 116787	HU 1325 16194	303.7 ...	1957.37 ...	0.402 ...	0.960 ...	29.3 ...	148.1 ...	133.8 ...	43.0 0.906 44.0 0.911	S et al. 2020.675	
23561+2520 118005	A 426 17105	212.1 ...	1889.20 ...	0.198 ...	0.327 ...	141.5 ...	99.1 ...	327.4 ...	278.7 0.377 277.8 0.376	S et al. 2021.729	

TOK = TOKOVININ

ALZ = ALZNER

T+RV = Tokovinin, uses radial velocities

Z & T = ZIRM & TOKOVININ

D et al. = DOCOBO, CAMPO, MÉNDEZ & COSTA

S et al. = SCARDIA, PRIEUR, LING, PANSECCHI, ARGYLE, ARISTIDI, ZANUTTA, ABE, BENDJOYA, RIVET, VERNET & MACCARINI

NEW DOUBLE STARS

Discovered by: Marco Scardia using the speckle camera PISCO attached to the Epsilon telescope of the Calern Observatory

STAR	Coord. FK5 J2000	Mag.	Epoch (Julian)	θ ($^{\circ}$)	ρ ($''$)	Notes
SCA 208 AB,C	11 29 44.44 +33 02 15.6	9.7 - 13.0	2023.347	236.7	4.94	AB is COU 782

The new pair Theta Indi Ba,Bb

The apparent motion of the wide visual pair Theta Indi (WDS J21199-5327, HJ 5258 AB, where A is HR 8140 or HD 202730) was found in 2011 to show a wave indicative of an unresolved subsystem with a period of 26 yr. The Gaia data for star B have increased astrometric noise. The pair Ba,Bb was resolved by the speckle camera at the SOAR 4.1 m telescope on April 29, 2023 (2023.3248) at 0''3445 separation and 200°07 angle, near the predicted position. The magnitude difference is 3.7 mag in the filter I and 5.4 mag in the filter y. A tentative orbit of A,B with a period of 3 kyr and the 26-yr orbit of Ba,Bb are given here in the new orbits table. The estimated masses of Ba and Bb are 1.08 and 0.53 solar, respectively. Considering that the previously reported resolution of Aa,Ab is not confirmed, Theta Indi appears to be a triple system.

H. Zirm

A. Tokovinin

ANNOUNCEMENT

Dear colleagues,

We are preparing to make all measures currently summarized in the Washington Double Star (WDS) Catalog available on our websites. The data format will be virtually identical to our internal catalog and will be very familiar to those who have made data requests in the past.

We will still perform data requests for those preferring to have all data on individual systems from our various catalogs collected, but for those wishing to peruse the entire collection that will now be possible.

It is possible that we could entertain presenting data in formats other than the flat ascii format in which it is presently delivered.

If you have any comments, questions or suggestions, please do not hesitate to let us know. We do not anticipate this change being implemented before early in the second quarter of 2024.

Main WDS website: <https://crf.usno.navy.mil/wds/>

Alternate website: <http://www.astro.gsu.edu/wds/>

Sincerely,

Brian D. Mason & Rachel A. Matson
U.S. Naval Observatory

EDITOR'S NOTES

Dear colleagues,

After 30 years as co-editor of the IAUDS Information Circular, alongside Prof. Docobo, I am informing you that this will be my final issue in this position. On August 31, 2023, I will be retiring and stepping down as a staff member of Santiago de Compostela University.

It has been an immense honor and an absolute pleasure for me to serve the dedicated individuals who share a passion for double and multiple stars through this role. This opportunity has been greatly rewarding.

I would like to express my heartfelt gratitude to all the members of this community who have contributed their exceptional work. It is your valuable contributions that have truly elevated the quality of this publication over the years. I am also grateful to the readers who have engaged with our content and made this publication a respected source in the field.

Please accept my warmest regards,

Josefina F. Ling

The Information Circular was initiated by Paul Muller in 1954. Thirty years later, and after editing 90 issues, Muller passed the responsibility of the edition to Paul Couteau, who dealt with it during ten years (from number 91 to 120, 1983-1993). When Couteau reached the retirement age, he suggested me to be his successor and stated so in the Circular No 120. In that moment, my first thoughts were to try to improve the Circular using the English language and to request an ISSN number as well. Also, and not less important, I proposed J. F. Ling to be a co-editor, because “four eyes see more than two”. Ling had recently prepared her PhD Thesis with us in the Santiago de Compostela University (USC). I wish to express my warmest thanks to Dr. Ling for her co-editorship during all of this time, in which she shared with me the responsibility and served to our Commission.

Currently, I am an “active” Emeritus Professor at USC. In this sense, I will be able to edit the Circular a few years more, at least if the good health continues. However, it is clear that young people should be incorporated in the short term if we want the Circular continues to be our information vehicle. Many thanks to all of you for sending the orbits, notes, and a lot of other valuable information to the Circular during these decades.

José Ángel Docobo

The deadline for contributions to Information Circular No. 211 is:

October 15th 2023

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ISSN: 1024-7769