Using VizieR/Aladin to Measure Neglected Double Stars

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Abstract: The VizierR service of the Centres de Donnes Astronomiques de Strasbourg (France) offers amateur astronomers a treasure trove of resources, including access to the most current version of the Washington Double Star Catalog (WDS) and links to tens of thousands of digitized sky survey plates via the Aladin Java applet. These plates allow the amateur to make accurate measurements of position angle and separation for many neglected pairs that fall within reasonable tolerances for the use of Aladin. This paper presents 428 measurements of 251 neglected pairs from the WDS.

In the January 2013 issue of *The Journal of Double Star Observations*, I outlined how to use the Aladin digitized sky survey plate applet embedded in the VizieR service supported by the *Centre de Donnes astronomiques de Strasbourg* (CDS) of the University of Strasbourg, France. I will not repeat what I wrote in that article about the use of this amazing service and leave it to the reader to secure that resource on his or her own if you want to see how this service was used to compile these measurements. For those interested in the site, here is its URL:

http://cdsarc.u-strasbg.fr/viz-bin/VizieR

Format of the Data Table

The data table that follows reports 428 measurements of 251 neglected pairs from th Washington Double Star Catalog (WDS, URL: http://ad.usno.navy.mil/proj/WDS/wds.html). The table headers describe the following data:

POS (2010): The WDS catalog number and position in hhmmt±ddmm format (where the 5th character, "t", is tenths of a minute)

ID: The traditional discoverer code and catalog number in that discoverer's list

Epoch Orig: The epoch of the last measurement contained in the WDS

ρ : The separation at the epoch of the last measurement on record

θ : The position angle at the epoch of the last measurement on record

Epoch: The epoch of the digitized sky survey plate used for the measurement

Apert: The diameter of the telescope's objective used for that plate

Avg ρ : The average of six measurements of r on that plate

Avg θ : The average of six measurements of q on that plate

Δρ : The difference between the latest and prior measurements of ρ expressed in milli-arcseconds (mas) per year. If more than one measure was made for a pair, the values of Δρ should in the same general range. Wide differences could indicate (a) an unreliable measurement from the original WDS epoch; (b) a very short time gap between the original

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WDS measurement and the digitized sky survey plate epoch; (c) sudden changes in orbital motion of a true binary.

$\Delta\theta$: The difference between the latest and prior measurements of θ expressed in degrees per year. Comments about the changes in values stated for $\Delta\rho$ apply here as well.

Plate Series: The source of the plate for the measurement (POSS I, POSS II, 2 MASS, SERC, AAO, ESO).

Plate Quality: An assessment of the quality of the image used. Generally, the poorer the quality, the less reliable the measurement.

Notes: A number that refers to a footnote after the table containing comments or remarks about that pair.

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POS (2010)	ID	Epoch Orig	r	q	Epoch	Apert	Avg r	Avg q	D r	D q	Plate Series	Plate Quality	Notes
06001+2421	POU 841	1954	12.5	288	1992.062	48-in	11.55	286.9	-24.96	0.0	POSS II	Good	
06016+1248	J 254 AC	1910	12.7	195	1955.939	48-in	17.81	197.9	111.27	0.1	POSS I	Good	
					1990.864	48-in	18.23	197.5	11.93	0.0	POSS II	Good	
06030+2348	POU 854	1954	11.3	118	1992.062	48-in	9.22	120.0	-54.74	0.1	POSS II	Good	
06032+2447	POU 856 AB	1954	18	349	1992.062	48-in	14.29	346.6	-97.43	-0.1	POSS II	Medium	
06033+2340	POU 858	1954	11.4	73	1992.062	48-in	11.30	70.1	-2.76	-0.1	POSS II	Medium	
06036+2446	POU 861	1954	12.6	37	1992.062	48-in	11.40	37.9	-31.44	0.0	POSS II	Good	
06037+2357	POU 866	1954	11.2	87	1992.062	48-in	10.09	85.2	-29.25	0.0	POSS II	Good	
06040+2457	POU 870	1954	16.1	138	1992.062	48-in	15.74	141.9	-9.50	0.1	POSS II	Good	
06042-4109	HJ 3831 AC	1938	15.1	186	1976.961	24-in	16.34	190.6	31.78	0.1	SERC	Very poor	
					1990.128	1 m	17.37	187.5	77.97	-0.2	SERC	Medium	
06044+3906	ALI1065	1928	10.9	178	1953.122	48-in	10.46	177.7	-17.71	0.0	POSS I	Poor	
					1989.769	48-in	10.60	177.7	4.05	0.0	POSS II	Poor	
06051+2412	POU 908	1954	10.5	68	1992.062	48-in	7.81	70.4	-70.59	0.1	POSS II	Poor	
06052+2443	POU 910	1954	14.6	29	1992.062	48-in	14.39	26.2	-5.47	-0.1	POSS II	Good	
06056+2329	POU 918	1954	10	312	1992.062	48-in	11.60	353.8	42.04	1.1	POSS II	Good	
06061+2313	POU 931	1954	13.9	156	1997.026	48-in	13.05	155.9	-19.87	0.0	POSS II	Good	
06067+3611	ALI 317	1930	14.7	146	1989.823	48-in	16.04	62.0	22.37	-1.4	POSS II	Good	1
06079+3853	ALI 816	1929	13.1	164	1953.122	48-in	12.91	161.9	-8.08	-0.1	POSS I	Poor	2
					1989.769	48-in	12.62	164.0	-7.73	0.1	POSS II	Medium	
06097+2342	POU1069	1926	10.6	295	1954.891	48-in	10.04	296.1	-19.50	0.0	POSS I	Medium	
					1997.026	48-in	10.09	296.4	1.15	0.0	POSS II	Medium	
06110+3302	FOX 144 AB	1932	18.8	286	1954.006	48-in	18.43	275.1	-16.97	-0.5	POSS I	Medium	
					1989.823	48-in	23.40	265.4	138.95	-0.3	POSS II	Good	

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POS (2010)	ID	Epoch Orig	ρ	θ	Epoch	Apert	Avg ρ	Avg θ	Δρ	Δθ	Plate Series	Plate Quality	Notes
06152+0631	A 2717 AB-C	1960	14.1	319	1990.817	48-in	13.66	350.1	-14.39	1.0	POSS II	Medium	
06171-2243	HJ 3845	1959	47.6	6	1981.036	1 m	52.76	2.4	234.33	-0.2	SERC	Good	
06173+0506	BUP 87 AC	1911	58.5	265	1950.940	48-in	51.57	258.5	-173.55	-0.2	POSS I	Poor	
					1990.817	48-in	45.31	247.8	-156.94	-0.3	POSS II	Good	
06173+0506	BUP 87 AD	1911	69.3	231	1950.940	48-in	67.98	223.8	-33.05	-0.2	POSS I	Poor	
					1990.817	48-in	67.55	214.5	-10.78	-0.2	POSS II	Good	
06203-1434	DAW 191	1920	12.4	33	1955.942	48-in	12.21	35.6	-5.38	0.1	POSS I	Poor	
					1993.147	24-in	11.45	33.7	-20.43	-0.1	SERC	Medium	
06212+6120	STI 597	1905	12.7	124	1954.012	48-in	12.64	124.6	-1.16	0.0	POSS I	Medium	
					1990.001	48-in	12.69	123.2	1.30	0.0	POSS II	Medium	
06220+3513	ALI 86	1928	14.6	105	1954.006	48-in	13.42	105.1	-45.25	0.0	POSS I	Poor	
					1996.775	48-in	10.05	102.1	-78.95	-0.1	POSS II	Medium	
06237+0155	BAL1312	1910	15.4	64	1955.879	48-in	15.37	65.7	-0.58	0.0	POSS I	Good	
					1986.029	48-in	15.19	64.8	-6.08	0.0	POSS II	Good	
06250-4630	RSS 108	1976	16.6	266	1994.215	48-in	15.61	266.1	-54.63	0.0	POSS II	Medium	
06259+0944	OPI 11 AC	1926	40	120	1951.912	48-in	39.82	126.3	-6.82	0.2	POSS I	Medium	
					1989.845	48-in	38.39	126.8	-37.79	0.0	POSS II	Good	
06290+0335	BAL2172	1910	15.3	263	1953.941	48-in	15.18	261.0	-2.73	0.0	POSS I	Poor	
					1990.817	48-in	14.76	262.3	-11.30	0.0	POSS II	Good	
06309+2342	POU1378	1925	15.6	332	1949.900	48-in	16.08	335.2	19.34	0.1	POSS I	Medium	
					1990.825	48-in	16.93	336.5	20.61	0.0	POSS II	Good	
06310+2353	POU1383	1925	11.6	66	1949.900	48-in	10.55	73.9	-42.24	0.3	POSS I	Poor	
					1990.825	48-in	9.57	88.9	-24.03	0.4	POSS II	Medium	
06311-2037	ARA 863	1920	11.7	188	1979.895	24-in	11.32	189.2	-6.37	0.0	SERC	Good	
					1985.938	1 m	11.82	188.0	83.57	-0.2	SERC	Poor	
06312+2253	POU1390	1925	14.1	324	1949.900	48-in	13.95	322.8	-5.89	0.0	POSS I	Medium	
					1990.825	48-in	13.33	325.6	-15.19	0.1	POSS II	Good	
06314-5737	HJ 3873	1912	18.8	295	1979.984	1 m	14.48	294.2	-63.62	0.0	SERC	Poor	
					1984.904	1 m	14.43	312.3	-9.82	3.7	SERC	Very poor	
06321+0300	BAL2176	1953	12.9	294	1986.029	1 m	12.24	292.0	-20.13	-0.1	SERC	Medium	
06323+5521	STI2146	1918	11.4	235	1954.148	48-in	9.08	236.4	-64.18	0.0	POSS I	Poor	
					1991.104	48-in	7.38	238.8	-46.05	0.1	POSS II	Poor	
06327+2356	POU1421	1925	15.1	350	1949.900	48-in	15.31	353.2	8.37	0.1	POSS I	Poor	
					1990.825	48-in	14.64	351.0	-16.29	-0.1	POSS II	Medium	
06328+3904	ALI1073	1929	10.3	8	1953.187	48-in	8.40	4.8	-78.42	-0.1	POSS I	Poor	
					1986.902	48-in	8.09	7.7	-9.44	0.1	POSS II	Good	
06328-2724	I 755	1921	30	150	1979.986	1 m	34.66	174.6	79.00	0.4	SERC	Good	
					1996.131	48-in	36.29	176.3	100.96	0.1	AAO	Medium	
06353+2351	POU1531	1906	12.9	322	1949.900	48-in	12.58	322.7	-7.40	0.0	POSS I	Poor	
					1990.825	48-in	13.57	323.9	24.27	0.0	POSS II	Good	

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POS (2010)	ID	Epoch Orig	ρ	θ	Epoch	Apert	Avg ρ	Avg θ	Δρ	Δθ	Plate Series	Plate Quality	Notes
06374+0056	BAL1320	1910	16.7	286	1955.879	48-in	16.86	287.4	3.49	0.0	POSS I	Medium	
					1991.178	1 m	16.81	285.6	-1.42	-0.1	SERC	Medium	
06382+2305	POU1714	1906	15.1	139	1949.900	48-in	15.17	138.5	1.56	0.0	POSS I	Good	
					1990.825	48-in	15.22	138.8	1.30	0.0	POSS II	Good	
06383+5611	STI2153	1918	12.7	356	1954.148	48-in	13.15	358.4	12.31	0.1	POSS I	Good	
					1991.104	48-in	12.67	356.9	-12.99	0.0	POSS II	Good	
06389-2846	HJ 2334	1918	10.8	299	1978.998	1 m	11.72	299.9	15.11	0.0	SERC	Poor	
					1993.163	1 m	10.79	301.1	-65.89	0.1	SERC	Medium	
06403+2320	POU1825	1906	15.3	33	1949.900	48-in	16.77	33.3	33.41	0.0	POSS I	Medium	
					1990.825	48-in	18.54	30.3	43.29	-0.1	POSS II	Good	
06404+0344	BAL2184	1910	17.1	205	1953.941	48-in	16.66	205.2	-10.09	0.0	POSS I	Poor	
					1998.872	48-in	16.18	205.8	-10.57	0.0	POSS II	Medium	
06407+6424	STI 617	1908	12.2	148	1953.124	48-in	12.37	151.0	3.77	0.1	POSS I	Very poor	
					1989.971	48-in	11.65	149.1	-19.50	-0.1	POSS II	Poor	
06421+2420	POU1913	1906	15.7	208	1949.900	48-in	15.16	207.9	-12.26	0.0	POSS I	Medium	
					1990.825	48-in	16.73	206.2	38.32	0.0	POSS II	Medium	
06424+2423	POU1921	1925	10.5	106	1949.900	48-in	9.81	106.2	-27.71	0.0	POSS I	Poor	
					1990.825	48-in	10.38	109.0	13.85	0.1	POSS II	Medium	
06426+0000	BAL1013	1893	15.6	282	1955.879	48-in	14.48	286.3	-17.76	0.1	POSS I	Poor	
					1991.178	48-in	14.13	285.8	-10.15	0.0	POSS II	Medium	
06431-0140	BAL 332	1893	12.3	29	1955.879	48-in	12.81	34.2	8.16	0.1	POSS I	Poor	
					1991.178	1 m	13.17	33.4	10.15	0.0	SERC	Medium	
06431-0239	BAL 70	1893	12.3	347	1955.879	48-in	12.00	348.6	-4.82	0.0	POSS I	Poor	
					1985.057	1 m	12.11	347.9	3.71	0.0	SERC	Medium	
					1997.105	48-in	12.31	348.2	16.60	0.0	POSS II	Good	
06432+0022	BAL1019	1893	17.4	174	1955.879	48-in	17.50	174.5	1.62	0.0	POSS I	Medium	
					1991.178	48-in	17.40	174.2	-2.88	0.0	POSS II	Good	
06435+2421	POU1956	1925	16.4	289	1949.900	48-in	16.54	288.3	5.42	0.0	POSS I	Poor	
					1990.825	48-in	16.25	288.4	-7.05	0.0	POSS II	Good	
06437+0024	BAL1020	1893	12.1	228	1955.208	48-in	11.86	227.0	-3.88	0.0	POSS I	Poor	
					1990.959	48-in	11.66	227.0	-5.45	0.0	POSS II	Good	
06442-0117	BAL 333	1897	13.7	8	1955.208	48-in	13.04	6.2	-11.28	0.0	POSS I	Very poor	
					1997.105	48-in	12.52	6.0	-12.53	0.0	POSS II	Medium	
06447-0002	BAL1027 AB	1897	17.7	307	1955.208	48-in	18.23	307.0	9.16	0.0	POSS I	Medium	
					1997.105	48-in	18.27	306.9	0.95	0.0	POSS II	Good	
06449-0119	BAL 336	1893	12.3	293	1955.208	48-in	12.37	301.1	1.13	0.1	POSS I	Poor	
					1997.105	48-in	12.23	300.4	-3.26	0.0	POSS II	Good	
06449-2352	B 117 AC	1928	20.7	264	1979.973	1 m	20.69	269.3	-0.22	0.1	SERC	Medium	
					1996.131	48-in	20.21	267.5	-29.91	-0.1	AAO	Poor	
06451+0251	BAL1715	1910	17.8	314	1953.993	48-in	18.02	313.2	4.93	0.0	POSS I	Poor	
					1997.182	48-in	17.84	2.0	-4.01	-7.2	2 MASS	Poor	

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POS (2010)	ID	Epoch Orig	ρ	θ	Epoch	Apert	Avg ρ	Avg θ	Δρ	Δθ	Plate Series	Plate Quality	Notes
06459+0158	BAL1718	1910	16.6	224	1955.208	48-in	16.29	226.0	-6.93	0.0	POSS I	Medium	
					1997.105	48-in	16.09	226.3	-4.69	0.0	POSS II	Good	
06460-6624	RSS 115	1976	12	326	1982.886	1 m	12.37	324.6	53.49	-0.2	SERC	Poor	
					1996.134	48-in	14.95	321.3	195.12	-0.2	AAO	Medium	
06462+2440	POU2000	1925	10.1	24	1949.900	48-in	10.38	25.7	11.31	0.1	POSS I	Medium	
					1990.825	48-in	10.18	24.4	-4.97	0.0	POSS II	Good	
06477+0005	BAL1039	1893	13.5	275	1955.208	48-in	12.87	272.9	-10.07	0.0	POSS I	Medium	
					1997.105	48-in	12.60	270.2	-6.64	-0.1	POSS II	Good	
06478-0136	BAL 344	1893	11.9	188	1955.208	48-in	10.85	183.7	-16.96	-0.1	POSS I	Medium	
					1997.105	48-in	10.82	182.7	-0.72	0.0	POSS II	Good	
06487-0208	BAL 85	1893	17	132	1955.208	48-in	16.75	131.8	-4.05	0.0	POSS I	Medium	
					1997.105	48-in	16.28	130.8	-11.10	0.0	POSS II	Good	
06490+2345	POU2035	1925	12.7	108	1949.900	48-in	12.17	110.3	-21.29	0.1	POSS I	Poor	
					1990.825	48-in	12.06	108.3	-2.69	0.0	POSS II	Good	
06491+0148	BAL1341	1910	19.7	177	1955.208	48-in	18.36	181.5	-29.60	0.1	POSS I	Poor	
					1997.105	48-in	19.46	179.1	26.10	-0.1	POSS II	Good	
06540-0207	BAL 91	1892	12.3	359	1955.208	48-in	11.49	359.2	-12.81	0.0	POSS I	Poor	
					1992.914	48-in	11.53	1.2	1.02	-9.5	POSS II	Medium	
06543+2328	POU2122	1907	13.4	256	1956.265	48-in	12.89	256.3	-10.39	0.0	POSS I	Good	
					1994.028	48-in	12.40	257.6	-12.93	0.0	POSS II	Medium	
06549-0224	BAL 95	1896	18.4	27	1955.208	48-in	17.82	28.7	-9.82	0.0	POSS I	Poor	
					1992.914	48-in	18.16	28.2	9.11	0.0	POSS II	Good	
06550+2355	POU2134	1907	13.3	35	1956.265	48-in	13.65	34.2	7.17	0.0	POSS I	Good	
					1994.028	48-in	13.62	35.3	-1.02	0.0	POSS II	Medium	
06554-0149	BAL 361	1897	12.7	291	1955.208	48-in	12.62	291.4	-1.43	0.0	POSS I	Medium	
					1992.914	48-in	12.23	288.9	-10.25	-0.1	POSS II	Good	
06555-0150	BAL 362	1897	17.6	338	1955.208	48-in	18.10	340.1	8.62	0.0	POSS I	Medium	
					1992.914	48-in	17.64	339.6	-12.20	0.0	POSS II	Good	
06570-0155	BAL 366	1897	15.7	92	1955.208	48-in	15.48	89.5	-3.84	0.0	POSS I	Medium	
					1992.914	48-in	15.77	86.4	7.74	-0.1	POSS II	Good	
06574-0157	BAL 367	1897	17.8	314	1955.208	48-in	17.81	315.3	0.11	0.0	POSS I	Good	
					1992.914	48-in	17.97	315.3	4.24	0.0	POSS II	Good	
06587-0026	BAL 745	1897	12.4	92	1955.208	48-in	12.08	92.2	-5.55	0.0	POSS I	Poor	
					1992.914	48-in	11.99	92.7	-2.30	0.0	POSS II	Medium	
06588+0235	BAL1748	1910	11.3	255	1955.208	48-in	11.14	254.5	-3.54	0.0	POSS I	Poor	
					1997.237	48-in	11.30	255.2	3.73	0.0	POSS II	Medium	
06588+2605	BUP 95 AB	1925	28.8	34	1956.265	48-in	27.99	46.3	-25.94	0.4	POSS I	Poor	
					1994.028	48-in	31.56	57.8	94.49	0.3	POSS II	Poor	
06589-0106	BAL 746	1897	13.8	109	1955.208	48-in	13.70	109.3	-1.72	0.0	POSS I	Medium	
					1992.914	48-in	13.68	111.7	-0.57	0.1	POSS II	Good	

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POS (2010)	ID	Epoch Orig	ρ	θ	Epoch	Apert	Avg ρ	Avg θ	Δρ	Δθ	Plate Series	Plate Quality	Notes
06594+2356	POU2211	1908	13.2	188	1956.265	48-in	13.13	188.2	-1.38	0.0	POSS I	Good	
					1994.028	48-in	13.31	188.6	4.77	0.0	POSS II	Good	
06598+2438	POU2229	1908	11.1	329	1956.265	48-in	11.87	329.8	15.85	0.0	POSS I	Medium	
					1994.028	48-in	11.28	327.8	-15.62	-0.1	POSS II	Medium	
07012+2304	POU2270	1908	14.9	227	1956.265	48-in	14.65	229.3	-5.18	0.0	POSS I	Good	
					1994.028	48-in	14.86	228.0	5.61	0.0	POSS II	Good	
07014+7049	BLL 18	1910	117	357	1953.114	48-in	117.77	358.2	17.86	0.0	POSS I	Good	
					1989.971	48-in	118.41	358.3	17.36	0.0	POSS II	Good	
07025+2252	POU2319	1908	11.4	292	1956.265	48-in	11.41	293.2	0.14	0.0	POSS I	Good	
					1994.028	48-in	11.38	293.2	-0.75	0.0	POSS II	Medium	
07027+2249	POU2324	1908	14.2	46	1956.265	48-in	14.59	46.6	8.08	0.0	POSS I	Good	
					1994.028	48-in	14.20	48.4	-10.42	0.0	POSS II	Medium	
07052-0237	BAL 114	1896	11.6	75	1955.208	48-in	11.37	77.4	-3.88	0.0	POSS I	Poor	
					1992.914	48-in	11.15	74.8	-5.97	-0.1	POSS II	Medium	
07064-2318	ARA2034	1922	13	99	1979.968	1 m	13.66	99.4	11.33	0.0	SERC	Good	
					1994.201	48-in	13.25	97.9	-28.69	-0.1	AAO	Medium	
07077-0233	BAL 127	1893	12.9	267	1955.890	48-in	12.59	265.2	-4.98	0.0	POSS I	Medium	
					1989.030	48-in	12.10	264.8	-14.84	0.0	POSS II	Good	
07099+2300	POU2515	1956	10.7	7	1956.265	48-in	9.18	9.7	-5723.27	10.3	POSS I	Medium	
					1994.028	48-in	9.25	5.4	1.85	-0.1	POSS II	Good	
07100+0254	J 57 BC	1949	19.8	55	1989.030	48-in	18.30	57.4	-37.56	0.1	POSS II	Medium	
07102-0414	BUP 97 AD	1923	120.4	2	1955.882	48-in	112.48	2.2	-240.86	0.0	POSS I	Poor	
					1989.174	48-in	105.70	2.0	-203.65	0.0	POSS II	Good	
07103+2335	POU2518	1956	15.6	24	1994.028	48-in	15.06	26.5	-14.29	0.1	POSS II	Good	
07128+2328	POU2563	1956	11.6	120	1956.265	48-in	11.55	120.4	-188.68	1.6	POSS I	Excellent	
					1997.026	48-in	11.45	121.7	-2.41	0.0	POSS II	Excellent	
07128-0709	LV 18 AC	1917	20.1	20	1955.882	48-in	19.76	19.6	-8.66	0.0	POSS I	Medium	
					1986.198	48-in	19.99	19.6	7.59	0.0	POSS II	Medium	
07135+0507	HJ 48	1897	27.6	231	1954.173	48-in	26.72	245.3	-15.39	0.2	POSS I	Medium	
					1991.098	48-in	28.63	244.9	51.82	0.0	POSS II	Good	
07135-4438	HJ 3943	1913	62	214	1980.118	1 m	83.87	211.6	325.84	0.0	SERC	Medium	
					1992.194	48-in	88.00	211.1	342.00	0.0	POSS II	Medium	
07139+2501	BUP 98 AB	1910	50.3	156	1956.265	48-in	56.78	137.6	140.10	-0.4	POSS I	Good	
					1997.026	48-in	67.34	107.9	259.03	-0.7	POSS II	Good	
07155+2444	POU2608	1956	11	1	1997.026	48-in	10.60	2.1	-9.83	0.0	POSS II	Good	
07175-2239	ARA1683	1922	14.6	333	1980.208	1 m	14.33	332.4	-4.70	0.0	SERC	Good	
					1995.094	48-in	15.46	328.8	76.25	-0.2	AAO	Medium	
07200-5128	RSS 129	1976	10.8	52	1978.015	1 m	10.31	56.8	-244.00	2.4	SERC	Good	
					1992.178	48-in	10.56	69.6	18.00	0.9	AAO	Good	
07209+2439	POU2705	1954	14.9	51	1954.970	48-in	13.77	52.6	-1164.95	1.6	POSS I	Good	
					1997.026	48-in	13.59	51.2	-4.24	0.0	POSS II	Good	

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POS (2010)	ID	Epoch Orig	ρ	θ	Epoch	Apert	Avg ρ	Avg θ	Δρ	Δθ	Plate Series	Plate Quality	Notes
07225-0215	ROE 29	1910	10.3	212	1990.206	48-in	10.32	210.9	0.27	0.0	POSS II	Medium	
07250-2315	ARA2046	1922	13	151	1980.208	1 m	13.72	157.9	12.40	0.1	SERC	Good	
					1995.094	48-in	13.67	155.5	-3.58	-0.2	AAO	Good	
07251-2230	ARA1686	1922	14.1	40	1980.211	1 m	14.43	39.6	5.58	0.0	SERC	Poor	
					1995.077	48-in	14.12	40.3	-20.40	0.0	AAO	Medium	
07270+2335	POU2783 AC	1954	14.9	77	1954.970	48-in	13.95	248.9	-984.54	177.2	POSS I	Medium	3
					1997.026	48-in	14.20	248.1	5.98	0.0	POSS II	Good	
07290-1908	ARA 376	1918	13.7	138	1980.211	1 m	13.54	142.7	-2.52	0.1	SERC	Poor	
					1995.077	48-in	13.29	141.8	-17.27	-0.1	AAO	Good	
07309-1933	ARA 601	1918	12	3	1980.211	1 m	11.12	0.2	-14.15	0.0	SERC	Poor	
					1995.077	48-in	11.51	2.5	26.35	0.2	AAO	Poor	
07317-2356	ARA2056	1922	14.1	333	1980.208	1 m	12.85	334.0	-21.53	0.0	SERC	Poor	
					1995.094	48-in	13.87	333.6	68.52	0.0	AAO	Poor	
07325-2738	HJ 2398	1919	11.7	43	1978.998	1 m	27.45	52.6	262.43	0.2	SERC	Very poor	
					1992.181	48-in	10.57	51.1	-1279.80	-0.1	AAO	Medium	
07328-2332	ARA2058	1922	15.1	212	1980.222	1 m	17.73	198.8	45.20	-0.2	SERC	Good	
					1995.094	48-in	18.81	195.5	72.17	-0.2	AAO	Good	
07331-2112	ARA 944	1920	13.3	191	1983.957	1 m	13.09	191.6	-3.34	0.0	SERC	Medium	
					1995.077	48-in	12.16	194.6	-83.63	0.3	AAO	Medium	
07365-2024	ARA 964	1920	12.8	90	1983.957	1 m	12.77	91.1	-0.52	0.0	SERC	Good	
					1996.118	48-in	12.74	92.9	-2.47	0.1	AAO	Good	
07365-2106	ARA 965	1920	10.7	340	1983.957	1 m	10.94	336.5	3.67	-0.1	SERC	Poor	
					1996.118	48-in	11.05	336.6	9.18	0.0	AAO	Very poor	
07372-2123	ARA1363	1920	11.4	50	1988.957	1 m	13.42	54.1	29.25	0.1	SERC	Good	
					1996.118	48-in	12.97	55.5	-63.07	0.2	AAO	Poor	
07433+2853	BLL 23	1909	182.2	316	1958.124	48-in	188.28	318.3	123.77	0.0	POSS I	Good	
					1989.083	48-in	194.45	319.3	199.30	0.0	POSS II	Good	
07448-0123	BAL 487	1896	10.4	90	1953.002	48-in	12.51	79.1	37.02	-0.2	POSS I	Good	
					1992.966	48-in	12.85	76.7	8.59	-0.1	POSS II	Good	
07493-0034	HJ 64	1896	15.3	326	1953.002	48-in	15.22	324.0	-1.40	0.0	POSS I	Poor	
					1987.083	48-in	14.14	325.8	-31.64	0.1	POSS II	Good	
07500+0127	BAL1413	1909	10.4	286	1953.002	48-in	10.44	284.3	0.98	0.0	POSS I	Poor	
					1987.083	48-in	9.78	286.0	-19.56	0.0	POSS II	Medium	
07504-3210	HJ 4009 AC	1928	30	180	1983.144	ESO	36.45	179.3	117.00	0.0	ESO	Medium	
					1992.181	48-in	36.76	181.1	33.57	0.2	AAO	Poor	
07517+2104	HO 248	1905	20.4	94	1950.935	48-in	20.39	87.8	-0.33	-0.1	POSS I	Medium	
					1998.001	48-in	20.76	79.2	7.93	-0.2	POSS II	Good	
07550+0036	BAL1123	1893	15.5	41	1953.002	48-in	15.19	45.6	-5.11	0.1	POSS I	Poor	
					1997.182	48-in	14.68	46.7	-11.54	0.0	POSS II	Poor	
07573-2154	ARA1412	1920	11.9	305	1983.957	1 m	11.57	304.8	-5.13	0.0	SERC	Medium	
					1995.091	48-in	11.15	306.8	-38.32	0.2	AAO	Medium	

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POS (2010)	ID	Epoch Orig	ρ	θ	Epoch	Apert	Avg ρ	Avg θ	Δρ	Δθ	Plate Series	Plate Quality	Notes
07577-2317	ARA2090	1922	11.1	112	1978.038	1 m	12.85	121.1	31.26	0.2	SERC	Good	
					1996.123	48-in	14.04	125.6	65.89	0.2	AAO	Poor	
08000-0050	BAL 842	1893	13.3	88	1954.924	48-in	13.17	90.7	-2.18	0.0	POSS I	Medium	
					1988.189	48-in	13.07	92.8	-2.76	0.1	POSS I	Medium	
08029-0242	BAL 194	1931	10.7	147	1954.924	48-in	11.27	148.1	23.62	0.0	POSS I	Very poor	
					1997.182	48-in	11.08	146.5	-4.30	0.0	POSS I	Poor	
08068-2041	ARA1027	1920	11	147	1979.233	1 m	10.84	151.6	-2.70	0.1	SERC	Very poor	
					1995.091	48-in	10.51	149.8	-20.91	-0.1	AAO	Very poor	
08140-4021	HJ 4062	1920	51.1	341	1976.967	1 m	56.37	339.4	92.42	0.0	SERC	Excellent	
					1991.102	48-in	51.20	338.8	-365.64	0.0	AAO	Good	
08248-3240	PRO 56	1914	16.8	230	1980.271	1 m	16.53	230.3	-4.15	0.0	SERC	Poor	3
					1998.324	1 m	16.54	230.2	1.02	0.0	SERC	Poor	
08269-0058	BAL 851	1893	13.1	29	1954.968	48-in	8.15	42.7	-79.88	0.2	POSS I	Very poor	
					1987.020	1 m	8.19	41.9	1.25	0.0	SERC	Poor	
08468-0004	BAL1142	1892	12.9	106	1952.082	48-in	12.70	106.3	-3.27	0.0	POSS I	Poor	
					1992.033	1 m	12.50	105.1	-5.09	0.0	SERC	Poor	
09090-1411	HU 227 AC	1909	33.3	318	1954.233	48-in	30.58	321.9	-60.21	0.1	POSS I	Medium	
					1992.033	1 m	27.59	323.0	-79.06	0.0	SERC	Medium	
09142-2036	ARA1066	1920	14.6	305	1976.986	48-in	14.73	324.0	2.25	0.3	SERC	Very poor	
					1994.248	48-in	14.55	328.7	-10.62	0.3	AAO	Poor	
09347-2509	B 2220	1960	14.4	74	1980.058	48-in	15.69	79.4	64.31	0.3	SERC	Poor	
					1995.091	48-in	17.98	81.5	152.33	0.1	AAO	Medium	
09357-2230	ARA1768	1922	13.3	52	1980.058	1 m	13.46	54.6	2.70	0.0	SERC	Medium	
					1995.091	48-in	13.09	53.0	-24.61	-0.1	AAO	Medium	
10008-1809	ARA 220	1916	13.6	335	1984.122	1 m	9.82	353.4	-55.44	0.3	SERC	Poor	
					1995.302	48-in	9.44	355.6	-34.14	0.2	AAO	Very poor	
10319+3223	HJ 482	1934	46.9	245	1955.282	48-in	49.22	246.0	108.78	0.0	POSS I	Poor	
					1989.177	48-in	52.84	247.4	106.85	0.0	POSS II	Good	
10536-0742	J 90 BC	1936	14	205	1954.152	48-in	13.15	197.2	-46.83	-0.4	POSS I	Poor	
					1996.195	1 m	11.58	192.7	-37.46	-0.1	SERC	Medium	
11330-3151	HJ 4449 AB	1928	68.2	149	1980.137	1 m	71.79	141.0	68.86	-0.2	SERC	Good	
					1991.144	48-in	73.24	138.8	131.73	-0.2	AAO	Good	
11396-5244	SEE 132	1959	29.6	92	1979.411	1 m	35.63	94.1	295.43	0.1	SERC	Medium	
					1997.128	1 m	41.05	95.4	306.11	0.1	SERC	Poor	
12069-6437	HJ 4501 AB	1945	46.4	302	1987.261	1 m	47.23	300.6	19.522	0.0	SERC	Medium	
					1996.298	48-in	47.77	300.0	59.939	-0.1	POSS II	Good	
12251+6348	BU 1432	1908	51.2	245	1953.122	48-in	50.85	244.6	-7.720	0.0	POSS I	Good	
					1993.303	48-in	50.44	243.7	-10.162	0.0	POSS II	Good	
12300+5132	BUP 143 AB	1908	109.2	172	1953.289	48-in	112.35	165.1	69.553	-0.2	POSS I	Medium	
12301-1324	LV 19 AC	1918	91	294	1954.389	48-in	83.63	297.9	-202.534	0.1	POSS I	Good	
					1991.111	48-in	75.75	301.8	-214.585	0.1	POSS II	Good	

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POS (2010)	ID	Epoch Orig	ρ	θ	Epoch	Apert	Avg ρ	Avg θ	Δρ	Δθ	Plate Series	Plate Quality	Notes
12301-1324	LV 19 AD	1918	79.2	183	1954.389	48-in	75.92	177.7	-90.137	-0.1	POSS I	Good	
					1991.111	48-in	76.40	170.5	38.371	0.1	POSS II	Good	
12350-4717	HJ 4530 A-BC	1966	42.1	88	1976.304	48-in	46.45	88.3	421.843	0.0	SERC	Good	
					1996.238	48-in	54.39	86.8	398.649	-0.1	SERC	Poor	
12413-1301	STF1669 BC	1988	57.8	229	1992.394	48-in	58.90	234.2	251.100	1.2	SERC	Good	
12426-2437	HJ 4542	1987	28.2	62	1991.280	48-in	37.49	62.1	2170.171	0.0	AAO	Good	
12428-6405	TOB 114	1987	13.9	148	1997.093	1 m	13.55	148.4	-34.512	0.0	SERC	Poor	
12468-3319	HDO 219	1929	65	226	1976.408	1 m	70.68	222.1	119.811	-0.1	SERC	Good	
					1999.187	1 m	74.69	220.2	176.039	-0.1	SERC	Good	
13119+2753	STT 578	1924	85.8	238	1955.285	48-in	87.41	213.6	51.462	-0.8	POSS I	Good	
					1993.289	48-in	108.69	189.8	559.941	-0.6	POSS II	Good	
13153+1612	SLE 917	1985	22.5	300	1997.346	48-in	27.67	299.7	418.489	0.0	POSS II	Good	
13167-5950	HJ 4577 AD	1874	12	180	1978.319	1 m	8.54	144.0	-33.215	-0.3	SERC	Medium	
					1999.125	1 m	7.90	143.5	-30.760	0.0	SERC	Poor	
13252-6429	HJ 4583	1935	25.7	203	1987.084	1 m	21.84	185.3	-74.047	-0.3	SERC	Medium	
					1997.099	1 m	21.82	180.4	-2.330	-0.5	SERC	Medium	
13343-0019	STF1757 AD	1921	128	72	1952.077	48-in	132.65	72.2	149.628	0.0	POSS I	Medium	
					1997.267	48-in	141.61	74.0	198.274	0.0	POSS II	Medium	
13496-2016	ARA 693	1919	10.4	0	1977.153	48-in	10.19	359.8	-3.554	6.2	SERC	Poor	
					1993.279	48-in	9.17	717.9	-63.665	22.2	SERC	Poor	
13514+6443	HJ 3342 AC	1911	90.2	63	1955.375	48-in	90.66	61.5	10.366	0.0	POSS I	Good	
					1990.075	48-in	89.51	61.3	-33.141	0.0	POSS II	Good	
14195-6838	I 325 AC	1902	44.8	44	1980.391	1 m	49.72	44.0	62.741	0.0	SERC	Medium	
					1993.538	1 m	50.50	44.4	59.456	0.0	SERC	Medium	
14313-1538	BU 117 AC	1911	107.3	335	1955.285	48-in	125.63	333.7	413.910	0.0	POSS I	Poor	
					1996.318	1 m	143.03	333.0	424.049	0.0	SERC	Poor	
14463+0939	STF1879 AB-C	1925	53	208	1954.417	48-in	47.54	214.6	-185.550	0.2	POSS I	Medium	
					1989.245	48-in	42.44	224.6	-146.434	0.3	POSS II	Good	
15010-0831	J 1586 AB	1950	67	90	1953.450	48-in	65.31	90.9	-489.855	0.3	POSS I	Medium	
					1996.231	1 m	68.23	89.7	68.255	0.0	SERC	Good	
15173-3137	PRO 121	1913	10.8	127	1975.300	48-in	10.62	108.5	-2.916	-0.3	SERC	Medium	
					1991.455	48-in	11.28	102.4	40.751	-0.4	SERC	Poor	
15241-3302	HJ 4765	1942	10.5	99	1975.193	48-in	10.31	97.4	-5.624	0.0	SERC	Medium	
					1994.259	48-in	11.18	98.6	45.194	0.1	SERC	Poor	
15255-2309	ARA1806	1922	11.6	224	1976.386	48-in	10.61	225.3	-18.234	0.0	SERC	Poor	
					1993.279	48-in	10.44	228.0	-9.866	0.2	SERC	Poor	
15292+8027	STF1972 AC	1983	153.8	102	1994.436	48-in	152.30	104.6	-131.165	0.2	POSS II	Good	
16218-4935	AOT 66	1987	11.3	178	1980.392	48-in	11.00	176.6	45.904	0.2	SERC	Poor	
					1997.320	48-in	11.51	177.8	30.423	0.1	SERC	Very Poor	
16219+1909	SHJ 227 BC	1910	84.7	298	1950.204	48-in	81.98	296.9	-67.655	0.0	POSS I	Very Poor	
					1991.430	48-in	82.90	297.8	22.316	0.0	POSS II	Medium	

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POS (2010)	ID	Epoch Orig	ρ	θ	Epoch	Apert	Avg ρ	Avg θ	Δρ	Δθ	Plate Series	Plate Quality	Notes
16243-1338	BUP 169 AB	1909	103	281	1954.267	48-in	95.31	287.1	-169.881	0.1	POSS I	Poor	
16288-0808	STF2048 AC	1960	131.9	301	1992.640	48-in	130.22	301.7	-51.471	0.0	SERC	Good	
16435+4544	KZA 109 AC	1984	79.6	189	1991.296	48-in	79.93	189.5	45.230	0.1	POSS II	Poor	
17320+6808	BU 1458	1960	103.4	344	1993.625	48-in	158.34	342.9	1633.903	0.0	POSS II	Medium	
18025+2619	HO 564 AC	1924	80.3	57	1951.485	48-in	81.76	43.4	53.12	-0.5	POSS I	Medium	
					1991.365	48-in	90.08	25.2	208.63	-0.5	POSS II	Good	
18070-2005	ARA1134	1923	12.6	97	1992.581	48-in	11.67	98.0	-13.37	0.0	SERC	Medium	
18070-2121	ARA1510	1923	14.6	267	1992.581	48-in	14.13	266.6	-6.73	0.0	SERC	.	
18079+3042	SLE 138	1982	14	308	1989.349	48-in	9.79	327.0	-572.41	2.6	POSS II	Medium	
18124-2207	ARA1853	1923	10.7	114	1992.581	48-in	11.37	113.7	9.68	0.0	SERC	Poor	
18132-2230	ARA1856	1920	11.5	308	1992.581	48-in	11.02	307.8	-6.61	0.0	SERC	Medium	
18192-2146	ARA1527	1922	12.9	15	1951.646	48-in	13.10	15.2	6.80	0.0	POSS I	Very Poor	
					1992.581	48-in	12.72	13.8	-9.32	0.0	SERC	Poor	
18201+0807	SLE 154	1982	10.5	259	1993.535	48-in	10.10	261.2	-34.82	0.2	POSS II	Poor	
18218+0852	SLE 158	1982	11.1	120	1993.535	48-in	10.72	118.0	-33.23	-0.2	POSS II	Poor	
18222+0734	SLE 160	1982	12.9	305	1993.535	48-in	12.93	306.1	2.31	0.1	POSS II	Poor	
18264-2111	ARA1534	1922	13.1	78	1992.581	48-in	12.90	84.6	-2.83	0.1	SERC	Medium	
18322+1713	SLE 189	1982	16.2	288	1995.638	48-in	12.57	292.3	-266.05	0.3	POSS II	Medium	
18337-1426	SLE 190	1982	14.4	32	1996.701	48-in	14.13	33.9	-18.25	0.1	SERC	Medium	
18384+6708	STF2384 AB-C	1910	113.5	167	1954.428	48-in	123.34	164.3	221.48	-0.1	POSS I	Good	
					1991.378	48-in	130.49	163.0	193.50	0.0	POSS II	Good	
18455-5356	HJ 5057	1913	10.9	81	1991.669	48-in	11.35	91.9	5.66	0.1	AAO	Medium	
18510-1958	ARA1162	1922	10.3	293	1985.529	1 m	9.97	292.5	-5.14	0.0	ESO	Medium	
					1998.538	48-in	10.74	292.5	59.19	0.0	SERC	Poor	
18556-2241	ARA1904	1923	13.1	260	1984.668	1 m	12.35	258.5	-12.11	0.0	ESO	Medium	
					1998.538	48-in	12.00	257.7	-25.84	-0.1	SERC	Poor	
18570+3254	BU 648 AB-C	1960	64.7	289	1992.634	48-in	70.34	292.3	172.83	0.1	POSS II	Good	
18570+3254	BU 648 AE	1934	105.3	320	1992.634	48-in	118.77	318.4	229.73	0.0	POSS II	Good	
18598+2336	POU3636	1950	17.1	42	1992.419	48-in	16.38	40.3	-17.01	0.0	POSS II	Good	
19021+2403	POU3655	1950	14.1	143	1992.419	48-in	13.74	143.9	-8.53	0.0	POSS II	Good	4
19053-0026	BAL 904	1908	14.5	38	1988.469	48-in	13.84	39.8	-8.22	0.0	POSS II	Medium	
19079+4050	HJ 1370 AC	1905	21.2	301	1995.466	48-in	24.76	322.7	39.39	0.2	POSS II	Good	
19082+0859	HJ 876	1914	30.2	5	1950.608	48-in	26.66	1.4	-96.79	-0.1	POSS I	Poor	
					1987.408	48-in	24.59	357.5	-56.07	9.7	POSS II	Good	
19096+2506	POU3732	1905	16.4	315	1950.453	48-in	16.60	315.4	4.47	0.0	POSS I	Poor	
					1992.419	48-in	16.55	317.1	-1.19	0.0	POSS II	Medium	
19134-0545	J 2583 AC	1943	25	315	1986.445	48-in	34.31	314.1	214.37	0.0	POSS II	Medium	
19140+3252	SEI 580	1893	15.5	343	1992.435	48-in	9.65	351.1	-58.88	0.1	POSS II	Poor	
19143-0843	A 98 AB	1937	26	128	1988.449	48-in	23.60	128.4	-46.62	0.0	POSS II	Poor	
19158-0020	BAL 905	1895	11.8	10	1951.641	48-in	12.58	1.1	13.77	-0.2	POSS I	Medium	
					1987.395	48-in	14.71	358.6	59.57	10.0	POSS II	Medium	

Table continues on next page.

Using VizieR/Aladin to Measure Neglected Double Stars

POS (2010)	ID	Epoch Orig	ρ	θ	Epoch	Apert	Avg ρ	Avg θ	Δρ	Δθ	Plate Series	Plate Quality	Notes
19160-2530	J 1841 AC	1941	25	280	1985.532	48-in	19.17	279.8	-130.92	0.0	SERC	Poor	
19260+3555	BU 1286 AD	1908	37.6	39	1955.378	48-in	45.52	36.2	167.10	-0.1	POSS I	Very Poor	
					1992.662	48-in	52.16	34.9	178.05	0.0	POSS II	Medium	
19278-0012	BAL 910	1892	14.9	188	1987.395	48-in	12.13	187.6	-29.05	0.0	POSS II	Poor	
19322+3522	SEI 620	1983	22.4	28	1992.662	48-in	22.53	26.7	13.11	-0.1	POSS II	Medium	5
19324+5702	STI2437	1905	12.2	38	1953.607	48-in	12.31	31.7	2.26	-0.1	POSS I	Medium	6
					1989.642	48-in	11.80	30.7	-14.06	0.0	POSS II	Medium	
19357-0014	BUP 193	1909	113	258	1950.521	48-in	108.32	264.3	-112.71	0.2	POSS I	Medium	
					1985.686	48-in	104.63	270.7	-104.93	0.2	SERC	Medium	
19373+1628	H 6 26 AD	1899	160.8	343	1950.540	48-in	163.83	347.9	58.79	0.1	POSS I	Good	
					1992.432	48-in	162.75	347.6	-25.78	0.0	POSS II	Medium	
19399+3924	ALI1115	1928	10.5	194	1951.518	48-in	11.40	194.9	38.27	0.0	POSS I	Very Poor	
					1988.520	48-in	11.99	192.4	16.04	-0.1	POSS II	Poor	
19436-1528	BUP 197	1960	70.4	127	1985.624	48-in	64.49	125.3	-230.64	-0.1	SERC	Good	
19521+1138	BUP 200	1924	90.5	156	1953.615	48-in	86.70	147.1	-128.31	-0.3	POSS I	Good	
					1991.540	48-in	86.79	135.7	2.37	-0.3	POSS II	Good	
19522-5115	HJ 5150 AC	1925	23.3	258	1985.488	48-in	26.10	255.0	46.24	0.0	SERC	Medium	
19539+2348	POU4134	1906	13	194	1951.520	48-in	12.58	192.2	-9.26	0.0	POSS I	Medium	
					1996.525	48-in	12.71	189.6	3.00	-0.1	POSS II	Medium	
19541-0834	HJ 900	1906	46.4	78	1953.751	48-in	46.32	75.4	-1.71	-0.1	POSS I	Medium	
					1984.643	48-in	45.99	76.2	-10.67	0.0	SERC	Medium	
19547+2402	POU4136	1906	15.9	163	1951.529	48-in	16.35	162.0	9.96	0.0	POSS I	Medium	
					1996.525	48-in	16.90	161.2	12.19	0.0	POSS II	Poor	
19548+3724	SMA 110 AC	1929	13.7	12	1952.539	48-in	12.06	7.7	-69.53	-0.2	POSS I	Very Poor	
					1991.594	48-in	11.05	5.7	-25.86	-0.1	POSS II	Very Poor	
19550+0441	BAL2954 AC	1910	17	212	1950.524	48-in	14.95	213.0	-50.55	0.0	POSS I	Poor	
					1990.699	48-in	13.76	210.2	-29.58	-0.1	POSS II	Poor	
19572+3712	ALI 401	1929	11.1	104	1950.603	48-in	16.25	119.8	238.39	0.7	POSS I	Medium	
					1991.594	48-in	16.09	121.0	-3.98	0.0	POSS II	Medium	
20116+0145	BAL1548	1909	12.3	155	1987.712	48-in	12.70	157.0	5.02	0.0	POSS II	Poor	
20116+5539	STI2511	1917	10.9	155	1989.581	48-in	13.05	156.4	29.58	0.0	SERC	Poor	
20124-1237	BUP 206 AB	1979	83.5	269	1987.710	48-in	84.70	269.1	137.77	0.0	SERC	Medium	
20153+2536	BU 983 AC	1912	115.8	83	1992.716	48-in	115.07	82.7	-9.04	0.0	POSS II	Good	
20247-3445	HJ 5195 AB	1919	19.3	317	1985.687	1 m	20.13	317.2	12.45	0.0	ESO	Medium	
20324-0951	BU 668 AC	1921	103.2	200	1986.650	48-in	117.96	207.8	224.83	0.1	SERC	Good	
20408+1956	BUP 215 AB	1924	93.7	25	1951.513	48-in	84.16	23.9	-346.75	0.0	POSS I	Good	
					1992.665	48-in	71.19	25.1	-315.17	0.0	POSS II	Good	
20481+0224	BAL2035	1910	14.1	305	1987.573	48-in	13.23	303.6	-11.22	0.0	POSS II	Medium	7
21023+3931	WRD 1 EH	1875	35	140	1951.515	48-in	37.25	159.7	29.45	0.3	POSS I	Medium	
					1992.719	48-in	37.37	159.3	2.75	0.0	POSS II	Medium	

Table concludes on next page.

Using VizieR/Aladin to Measure Neglected Double Stars

POS (2010)	ID	Epoch Orig	ρ	θ	Epoch	Apert	Avg ρ	Avg θ	Δρ	Δθ	Plate Series	Plate Quality	Notes
21077-0534	BUP 225	1908	42	296	1953.680	48-in	46.82	279.0	105.41	-0.4	POSS I	Medium	
					1987.704	48-in	52.57	270.1	169.15	-0.3	SERC	Good	
21101+5715	STI2561	1917	14.5	5	1952.708	48-in	15.24	3.1	20.82	-0.1	POSS I	Medium	
					1989.666	1 m	14.38	2.8	-23.36	0.0	ESO	Medium	
21111-2219	ARA1939	1922	11.4	280	1989.759	1 m	13.94	275.7	37.41	-0.1	ESO	Poor	
21115+4115	STT 431 BC	1932	50.6	353	1991.518	48-in	55.23	354.7	77.76	0.0	POSS II	Medium	
21190+0559	HJ 3022 AB	1920	18.1	77	1995.578	48-in	17.13	76.9	-12.83	0.0	POSS II	Medium	
21221+1948	STFB 11 AC	1921	74.3	19	1991.526	48-in	66.72	14.8	-107.48	-0.1	POSS II	Medium	
21243+0327	BAL2561	1909	19.7	286	1952.643	48-in	19.59	287.1	-2.52	0.0	POSS I	Medium	
					1987.641	48-in	19.89	287.4	8.67	0.0	POSS II	Medium	
21290+2211	HJ 1647 AC	1966	40.3	129	1991.526	48-in	39.42	130.1	-34.67	0.0	POSS II	Good	
21323+3839	ALI 974	1929	10.7	206	1987.564	48-in	9.56	210.2	-19.52	0.1	POSS II	Very Poor	
21466+4713	HJ 1692	1907	11.8	250	1952.703	48-in	10.90	243.1	-19.73	-0.2	POSS I	Very Poor	
					1989.677	48-in	9.36	236.3	-41.52	-0.2	POSS II	Very Poor	
21501+3151	BU 692 BC	1913	37.8	297	1954.721	48-in	38.94	294.9	27.20	-0.1	POSS I	Good	
					1987.649	48-in	39.84	293.5	27.59	0.0	POSS II	Good	
21509-4052	CRU 2 AC	1901	47.9	45	1974.634	48-in	54.72	46.7	92.57	0.0	SERC	Good	
					1988.794	48-in	55.46	47.6	52.61	0.1	SERC	Medium	
21529+2525	POU5544	1898	18.8	19	1951.523	48-in	20.20	16.9	26.09	0.0	POSS I	Medium	
					1990.775	48-in	22.29	13.2	53.42	-0.1	POSS II	Medium	
21556-2108	HJ 3065 AB	1921	39.9	131	1984.806	1 m	40.96	128.0	16.59	0.0	ESO	Medium	
21565+6334	STI1074	1903	13.8	63	1991.695	48-in	8.29	63.4	-62.18	0.0	POSS II	Very Poor	
21592+7311	BU 1509	1930	131.4	173	1992.719	48-in	121.47	170.2	-158.33	0.0	POSS II	Good	
22273-0715	HJ 1764	1904	32.6	173	1954.519	48-in	38.14	162.7	109.66	-0.2	POSS I	Poor	
					1987.704	48-in	43.32	157.0	156.04	-0.2	SERC	Good	
22409+1433	HO 296 AB-C	1924	72.2	235	1991.698	48-in	91.01	235.0	277.85	0.0	POSS II	Excellent	
22467+1210	HJ 301 AC	1924	145	15	1953.632	48-in	155.25	11.0	345.91	-0.1	POSS I	Good	
					1990.633	48-in	173.43	6.7	491.34	-0.1	POSS II	Good	
22498-1104	BU 1219 AC	1909	116.6	147	1991.541	48-in	130.18	143.9	164.52	0.0	SERC	Good	8
22587+5731	STI2918	1920	12.9	114	1989.676	48-in	14.33	110.5	20.52	-0.1	POSS II	Medium	
23118+2651	BUP 234 AB	1924	82.9	240	1954.601	48-in	77.07	238.7	-190.52	0.0	POSS I	Good	
					1991.753	48-in	68.89	238.9	-220.18	0.0	POSS II	Excellent	
23134-7821	HJ 5385 AB	1918	40.1	325	1976.655	48-in	49.36	319.5	157.90	-0.1	SERC	Good	
					1984.748	1 m	50.64	319.1	157.34	-0.1	ESO	Good	
					1994.651	48-in	52.52	318.1	189.84	-0.1	SERC	Good	
23198+5543	HJ 1868	1908	14.4	208	1952.706	48-in	17.94	227.1	79.07	0.4	POSS I	Medium	
					1990.786	48-in	22.41	239.7	117.52	0.3	POSS II	Medium	
23354+5534	STI3004	1917	11.9	249	1995.638	48-in	14.61	252.7	34.42	0.0	POSS II	Medium	9

Table Notes on next page.

Table Notes:

1. The closest thing to this description is a pair with primary at 060650.70+361011.6. But θ is off by about 90°. I wonder if Ali misread his micrometer dial.
2. CPM pair.
3. Quadrant reversal is likely.
4. Actual position of primary is 190205.25+240237.3.
5. Actual position of primary is 193209.86+352107.7.
6. Actual position of primary is 193224.10+570143.4.
7. Actual position of primary is 204807.45+022207.0.
8. Actual position of primary is 224941.04-110659.3.
9. Actual position of primary is 233523.48+553351.1.

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Acknowledgements

The author wishes to recognize the following as sources for material for this paper:

The Washington Double Star Catalog (WDS), hosted at http://ad.usno.navy.mil/proj/WDS/wds.html; this exhaustive database is the authoritative source for all modern double star research and is maintained at the U.S. Naval Observatory. This research has also made use of the VizieR catalogue access tool, CDS, Strasbourg, France. The original description of the VizieR service was published in A&AS 143, 23.

Richard Harshaw has been viewing the heavens for 50 years, the last 6 from his home in Cave Creek, Arizona. He served on the board of the Astronomical Society of Kansas City while a resident of that city, and has served two terms as President of Phoenix's Saguaro Astronomy Club and is currently its Secretary and newsletter editor. Richard has logged over 26,000 double star observations, including over 1,400 measurements registered with the WDS. He is the author of several papers for astronomical journals and also one book, The Complete CD Atlas of the Universe (published by Springer Verlag).