Divinus Lux Observatory Bulletin: Report #28

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Abstract: This report contains theta/rho measurements from 133 different double star systems. The time period spans from 2012.552 to 2012.669. Measurements were obtained using a 20-cm Schmidt-Cassegrain telescope and an illuminated reticle micrometer. This report represents a portion of the work that is currently being conducted in double star astronomy at Divinus Lux Observatory in Flagstaff, Arizona.

This article contains a listing of double star measurements that are part of a series, which have been continuously reported at Divinus Lux Observatory, since the spring of 2001. The selected double star systems, which appear in the table below, have been taken exclusively from the 2006.5 version of the Washington Double Star (WDS) Catalog, with published measurements that are no more recent than ten years ago. There are also some noteworthy items that are discussed, which pertain to a few of the measured systems.

To begin with, there are some possible common proper motion pairs, which don't appear to have been previously cataloged, that have been labeled with the ARN prefix in the table below. The first one is identified as ARN 116 (19355+1148) in the constellation of Aquila. The second such double star, listed as ARN 117 (19457+3930), is located in Cygnus. The third one appearing in the table, bearing the label of ARN 118 (19482+3256), is also located in Cygnus. Not far from ARN 118 is a fourth new find labeled as ARN 119 (19486+3258), also located in Cygnus. The final new pair appearing in the table, listed as ARN 120 (19574+2709), is located in Vulpecula.

Two possible corrections are also being suggested for the WDS Catalog. The first one pertains to the STT 592 star system (20041+1704). As listed in the WDS, there are 3 different components that are identified with the "a" suffix. This report identifies "a" as the brightest component of the three, with measurements for "Ba" appearing in the table below. Secondly, TOB 166 (20060+3545) appears to be a duplicate entry for SHJ 325 AD (20060+3546).

Finally, regarding one of the double stars that has been measured for this report, a proper motion shift by one of the components appears to be responsible for some noteworthy changes with the theta/rho parameters. In this regard, ARY 28 AB has displayed a 3% rho increase and a 2 degrees theta decrease, since 2002, because of proper motion by the "A" component.

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Name	RA DEC	Mags	PA	Sep	Date	Notes
STF2426 AB	19000+1253	7.2 8.9	261.1	16.79	2012.552	1
STF2425	19006-0807	7.7 8.5	177.7	29.63	2012.552	2
STF2445 AB	19046+2320	7.2 8.5	262.1	12.34	2012.552	3
STF2445 AC	19046+2320	7.2 8.3	108.8	144.18	2012.552	3
STF2461 AD	19074+3230	5.2 9.0	291.4	137.26	2012.552	4
STF2467	19081+3048	10.1 0.3	262.6	10.37	2012.552	5
STT 177 AC	19126+1651	6.8 7.9	276.5	98.75	2012.552	6
STT 366 AB	19142+3413	7.7 10.5	229.9	21.73	2012.552	7
SHJ 292 AB	19164+3808	4.3 10.1	70.2	99.74	2012.552	8
STF2497	19200+0535	7.6 8.4	356.6	30.12	2012.552	9
STF2511 AC	19205+5020	7.3 10.0	118.1	77.52	2012.552	10
STF 41 AB	19244+1656	6.2 6.8	78.3	342.66	2012.552	11
ARY 17	19254+2542	8.2 8.7	267.7	116.53	2012.552	12
STF2521 AC	19265+1953	5.8 10.5	325.7	75.05	2012.552	13
STF2521 AD	19265+1953	5.8 10.5	62.2	152.08	2012.552	13
BU 1469	19265+0020	4.7 9.4	287.4	200.46	2012.555	14
STF 42	19287+2440	4.4 5.8	28.4	426.60	2012.555	15
ARY 18	19300+2600	8.9 10.4	12.7	109.61	2012.555	16
ARG 104	19302+5525	6.9 9.2	94.1	75.54	2012.555	17
BKO 63 AC	19330+3317	9.3 10.7	99.4	34.56	2012.555	18
ARY 19 AB	19333+2629	8.8 9.3	12.7	48.39	2012.555	19
ARY 19 AC	19333+2629	8.8 9.9	146.3	145.16	2012.555	19
BU 653 AE	19341+0723	4.4 9.4	61.9	165.90	2012.555	20
ARY 20	19352+2601	7.9 8.3	338.3	109.61	2012.555	21
ARN 116*	19355+1148	10.4 10.6	95.3	24.19	2012.555	22
ARY 21	19363+2640	8.2 9.6	274.0	63.20	2012.555	23
H 26 AB	19373+1628	5.7 8.3	82.0	87.69	2012.555	24
S 722	19392-1654	7.1 7.4	235.7	9.88	2012.555	25
SEI 654	19393+3152	9.2 10.6	115.0	14.81	2012.555	26
STF2557 AB	19396+2945	7.5 10.2	102.9	10.86	2012.555	27
ABH 124 AD	19396+2945	7.5 10.6	146.7	47.89	2012.555	27
ABH 124 AF	19396+2945	7.5 10.3	179.5	88.88	2012.555	27
ABH 124 AH	19396+2945	7.5 10.5	92.4	103.69	2012.555	27
STF2561	19409+2708	7.7 10.6	300.0	17.78	2012.557	28
BUP 196	19426+4002	7.9 8.3	165.7	106.65	2012.557	29
STF2562 AB	19428+0823	6.9 8.6	251.2	27.16	2012.557	30
STF2562 AD	19428+0823	6.9 9.7	221.7	117.51	2012.557	30
ARY 22	19441+5054	8.2 9.9	221.8	59.25	2012.557	31
ARN 117*	19457+3930	8.6 9.9	161.5	28.64	2012.557	32
ARN 118*	19482+3256	10.1 10.4	22.4	11.85	2012.557	33
ARN 119*	19486+3258	8.9 9.9	283.2	57.77	2012.557	34
STF2588 A-BC	19490+4423	7.7 8.1	158.8	9.88	2012.557	35
H 99 AB	19500+1757	8.0 10.7	83.1	25.18	2012.557	36
H 99 AC	19500+1757	8.0 9.1	255.7	68.63	2012.557	36
HJ 604	19557+4024	7.4 9.3	92.7	70.61	2012.557	37
BU 1474	19572+4022	5.4 9.3	315.7	64.68	2012.557	38
ARN 120*	19574+2709	9.6 10.2	92.7	93.32	2012.557	39
S 730 AB	20001+1737	7.0 8.4	14.3	112.58	2012.568	40
S 730 AC	20001+1737	7.0 10.2	337.6	78.51	2012.568	40
S 730 AD	20001+1737	7.0 10.7	198.0	40.49	2012.568	40

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Name	RA DEC	Mags	PA	Sep	Date	Notes
H 100 AB	20001+1731	9.9 10.0	255.6	24.19	2012.568	41
H 100 AC	20001+1731	9.9 5.4#	296.2	113.56	2012.568	41
STT 396	20033+1830	6.0 10.3	207.7	46.41	2012.568	42
STF2624 Aa-C	20035+3601	7.1 9.2	327.4	42.96	2012.568	43
STF 592 AB	20041+1704	5.8 9.4	290.2	163.93	2012.568	44
STF 592 AC	20041+1704	5.8 6.9	334.6	216.26	2012.568	44
STT 202 Ba	20041+1704	9.4 8.8#	230.4	181.70	2012.568	44
SHJ 316 AB	20057+3536	7.8 8.8	323.0	69.62	2012.568	45
SHJ 315 AD	20060+3546	7.9 8.7	235.6	20.24	2012.568	46
ENG 70	20062+5310	5.8 9.7	135.3	169.85	2012.568	47
STF2627 AC	20077+0446	9.6 7.5#	260.7	81.96	2012.568	48
ARN 20 AD	20077+0446	9.6 8.7#	126.7	99.74	2012.568	48
STF2693 AB	20093+3529	7.8 8.7	301.8	5.93	2012.568	49
BLL 46 AB	20119+3612	8.1 10.6	108.8	53.33	2012.568	50
AG 249	20123+3451	7.7 10.7	132.4	32.59	2012.568	51
BLL 47 AB	20134+3844	7.6 7.1#	353.9	131.34	2012.571	52
BLL 47 AC	20134+3844	7.6 9.3	105.8	154.05	2012.571	52
S 470	20142+0635	7.7 8.0	191.7	43.45	2012.571	53
ENG 72 AB	20145+3648	4.9 6.6	155.3	216.26	2012.571	54
ENG 72 AC	20145+3648	4.9 9.9	21.5	212.31	2012.571	54
ENG 72 BD	20145+3648	6.6 10.6	119.6	217.25	2012.571	54
S 743	20155+4743	4.0 8.3	174.7	208.36	2012.571	55
STT 404 AB	20158+5230	7.4 9.7	115.1	28.64	2012.571	56
ARY 24	20165+3703	6.4 9.6	306.9	96.78	2012.571	57
AGC 12 AD	20181-1233	3.6 10.4	158.7	153.06	2012.571	58
STF 51 AE	20181-1233	3.6 4.2	290.2	381.18	2012.571	58
WAL 131 AE	20183+2539	7.0 8.1	151.2	122.45	2012.571	59
H 87	20194-1907	5.3 9.2	179.7	56.29	2012.571	60
ARY 26	20209+3657	8.5 10.6	307.2	111.59	2012.571	61
STF 52 Aa-Ba	20210-1447	3.1 6.1	266.5	205.40	2012.571	62
STF 52 Aa-C	20210-1447	3.1 9.0	133.0	226.14	2012.571	62
STF2681 AC	20228+5325	8.0 8.1	199.0	38.51	2012.571	63
ENG 74 AC	20242+1113	8.7 10.7	96.7	159.98	2012.574	64
STF2679 AB	20244+1935	7.9 9.6	77.2	24.69	2012.574	65
S 749 AB	20275-0206	6.7 7.4	188.5	59.74	2012.574	66
STI2535 AB	20289+5655	9.7 10.5	227.3	13.83	2012.574	67
STF2691	20297+3808	8.1 8.5	31.3	17.28	2012.574	68
S 755 AB	20309+4913	6.6 9.7	277.8	60.24	2012.574	69
BU 1489 AB	20339+4642	5.8 9.3	16.0	116.53	2012.574	70
STF2699 AB	20369-1244	8.0 9.1	196.8	9.38	2012.574	71
A 742 A-BC	20378+2943	8.2 10.3	343.3	56.78	2012.574	72
ARY 28 AB	20413+3012	8.2 9.4	332.1	62.21	2012.574	73
ARY 28 AC	20413+3012	8.2 9.7	35.0	102.70	2012.574	73
BUP 217 AD	20433+2549	7.0 9.2	102.2	388.09	2012.574	74
BUP 217 AE	20433+2549	7.0 10.2	286.1	442.40	2012.574	74
SKI 11	20465-1642	9.0 9.6	291.0	3.95	2012.574	75
ARG 93	20469+3252	8.3 9.6	87.9	10.86	2012.577	76
STT 414 AB	20472+4225	7.4 8.9	94.1	9.88	2012.577	77
BOT 4 AC	20472+4225	7.4 9.9	15.5	105.66	2012.577	77

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Name	RA DEC	Mags	PA	Sep	Date	Notes
S 763 AB	20484-1812	7.1 7.7	293.4	15.80	2012.577	78
ES 94 AB	20496+5008	6.6 10.4	14.8	102.70	2012.577	79
GUI 34 AD	20496+5008	6.6 10.6	58.3	86.90	2012.577	79
STF2729 AD	20514-0538	6.3 9.5	323.7	137.26	2012.577	80
BLL 52	20539+3326	5.5 10.2	59.3	186.64	2012.577	81
BU 1034 AC	20569-0942	5.5 9.8	66.0	177.75	2012.577	82
A 756 AC	20577+5849	7.9 9.3	196.5	53.82	2012.577	83
ARN 34 AD	20577+5849	7.9 7.9	265.0	215.28	2012.577	83
STF2738 AB	20585+1626	7.5 8.6	254.3	14.81	2012.577	84
STF2738 AC	20585+1626	7.5 8.1	103.7	209.35	2012.577	84
BU 1138 AC	21028+4551	6.5 7.7	329.5	152.08	2012.593	85
ARN 21 AF	21035+2906	6.9 10.0	232.8	220.21	2012.593	86
HDS3001	21044+4631	9.3 10.7	93.5	18.27	2012.593	87
ROE 45 AB	21061+4448	8.1 10.3	285.8	134.30	2012.593	88
ROE 45 AD	21061+4448	8.1 10.5	240.8	131.34	2012.593	88
ROE 45 BC	21061+4448	10.3 10.5	238.1	123.44	2012.593	88
STF2754 AB	21062+1311	9.0 10.5	298.0	29.63	2012.593	89
SEI1407 AB	21072+3657	8.2 10.7	274.4	13.33	2012.593	90
S 779	21091+3844	7.5 9.6	8.9	110.60	2012.593	91
S 781 AB-D	21135+0713	7.3 7.1#	172.2	183.68	2012.593	92
BU 682 AC	21145+0441	7.5 10.3	179.4	92.83	2012.593	93
STF2787 AB	21218+0202	7.4 8.6	19.2	22.71	2012.593	94
POP1233 AC	21223+5734	8.2 8.6	191.6	83.44	2012.593	95
STF2799 AC	21289+1105	7.3 10.1	331.3	136.28	2012.596	96
STF2803 AB	21299+5256	7.2 9.5	285.0	25.68	2012.596	97
GUI 35 AC	21299+5256	7.2 9.9	1.5	87.39	2012.596	97
HO 603 AB	21321+3412	7.5 9.7	250.9	80.48	2012.596	98
STF2810	21346+5906	8.4 9.0	290.3	16.79	2012.596	99
ES 34 AC	21370+5032	8.4 9.5	70.1	39.01	2012.596	100
H 6	21371-1928	4.5 10.1	46.0	66.66	2012.596	101
HJ 1677	21373+5900	9.8 10.5	127.9	16.29	2012.596	102
STT 447 AE	21395+4144	7.5 8.4	44.6	28.64	2012.596	103
S 796 AB	21416+4048	6.1 9.5	233.4	58.26	2012.596	104
ES 382 AC	21509+3240	8.3 8.3	322.3	58.26	2012.596	105
SHJ 336 AB	21586+0601	8.0 8.8	222.3	93.81	2012.596	106
ARN 23 AD	22150+5703	4.2 10.2	180.8	200.46	2012.631	107
STT 469 AB	22205+3507	7.5 9.7	292.7	27.16	2012.631	108
ARY 30	22221+0045	8.5 9.2	339.8	119.49	2012.631	109
ARY 31	22272-0019	8.8 9.3	257.2	96.28	2012.631	110
ARY 32 AB	22306+0151	9.3 9.9	289.2	97.27	2012.631	111
STF2916 AB	22313+4113	8.0 10.0	336.6	43.94	2012.631	112
S 813	22393+3903	4.8 10.3	49.0	62.71	2012.631	113
S 815	22415+4014	5.2 10.7	14.7	68.64	2012.631	114
H 140 AC	22421-0506	6.5 9.7	185.7	159.98	2012.631	115
ARN 22 AB-D	22514+2623	7.0 9.2	114.1	204.41	2012.631	116
HDS3262	22558+4334	8.0 9.5	166.8	28.14	2012.631	117
STT 536 AB-C	22586+0921	6.4 10.7	78.8	202.44	2012.631	118
HJ 1842 AC	23038+2805	2.3 10.5	101.4	238.98	2012.667	119
STF2985	23100+4758	7.1 7.9	256.3	15.80	2012.667	120
STT 598 AC	23118+2651	6.2 9.6	299.1	218.24	2012.667	121

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Name	RA DEC	Mags	PA	Sep	Date	Notes
STF2992 AB	23131+4000	7.6 9.5	284.4	14.32	2012.667	122
STF3022 AB	23309+5825	8.3 9.9	226.4	20.74	2012.667	123
STF3021 AB	23314+1613	8.0 9.2	308.4	8.89	2012.667	124
STF3021 AC	23314+1613	8.0 10.7	23.4	118.50	2012.667	124
STT 499 A-BC	23332+5724	7.4 9.5	75.3	9.88	2012.667	125
WAL 194 AD	23332+5724	7.4 10.4	38.9	95.29	2012.667	125
ES 2729	23380+5249	7.9 9.5	143.1	19.75	2012.667	126
BU 1532 Aa-D	23460+4625	5.0 9.3	151.6	186.64	2012.667	127
ARN 27 Aa-E	23460+4625	5.0 10.4	317.6	240.95	2012.667	127
STT 248 AB	23461+5040	7.3 9.7	144.3	50.86	2012.669	128
S 835 AB	23479-0246	5.5 9.8	282.8	177.75	2012.669	129
ES 2734	23481+4106	8.3 10.0	221.1	28.64	2012.669	130
ARG 108	23530+4121	7.0 9.4	147.0	52.34	2012.669	131
SHJ 358	23543+3154	8.1 10.3	335.6	36.04	2012.669	132
ARY 33	23592+5032	7.2 8.0	139.2	99.74	2012.669	133

* Not listed in the WDS CATALOG.

Companion star is the brighter component.

Notes

1. In Aquila. Relatively fixed. Spect. K5, F.
2. In Aquila. Sep. & p.a. decreasing. Spect. G5, G5.
3. In Vulpecula. AB=sep. dec.; cpm. AC=sep. & p.a. inc. Spect. B2V, B3, K5.
4. 17 Lyrae. Sep. increasing; p.a. decreasing. Spect. F0V, A2.
5. In Lyra. Relatively fixed. Common proper motion. Spect. F5, F8.
6. In Sagitta. Sep. & p.a. decreasing. Spect. B9IV, G5.
7. In Lyra. Relatively fixed. Common proper motion. Spect. B8V.
8. Theta or 21 Lyrae. Separation increasing. Spect. K0II, K2.
9. In Aquila. Relatively fixed. Common proper motion. Spect. G5, G5.
10. In Cygnus. Position angle increasing. Spect. K5.
11. In Sagitta. Separation increasing. Spect. A2III, A0.
12. In Vulpecula. Position angle increasing. Spect. K0, B9.
13. In Vulpecula. AC=sep. & p.a. inc. AD=sep. inc.; p.a. dec. Spect. K5III, F8, A5.
14. Nu or 32 Aquilae. Relatively fixed. Spect. F2I, A2.
15. Alpha or 6 Vulpeculae. Separation increasing. Spect. M0III, K0.
16. In Vulpecula. Relatively fixed. Spect. A2, A0.
17. In Cygnus. Position angle increasing. Spect. K0, G0.
18. In Cygnus. Separation decreasing.
19. In Vulpecula. AB = sep. inc.; p.a. dec. AC = sep. dec. Spect. F2, F8, K0.
20. Mu or 38Aquilae. Sep. & p.a. decreasing. Spect. K3III, K0.
21. In Vulpecula. Position angle decreasing. Spect. K5, K7.
22. In Aquila. Possible common proper motion.
23. In Vulpecula. Relatively fixed. Common proper motion. Spect. K0, A2.
24. Epsilon or 4 Sagittae. Separation decreasing. Spect. G9III, B8.
25. In Sagittarius. Relatively fixed. Common proper motion. Spect. A8III, F2III.
26. In Cygnus. Sep. & p.a. decreasing. Spect. G8III.
27. In Cygnus. AB = cpm; p.a. dec. AD, AF, AH = relatively fixed. Spect. B8V, A0.
28. In Vulpecula. Common proper motion; p.a. decreasing. Spect. A0.
29. In Cygnus. Separation increasing. Spect. A0, F5.
30. In Aquila. AB=relfix,cpm. AD=sep. inc.; p.a. dec. Spect. F8V, G0V, K2.
31. In Cygnus. Separation decreasing. Spect. A0, F2.
32. In Cygnus. Common proper motion. Spect. G5.
33. In Cygnus. Common proper motion. Near ARN 119.
34. In Cygnus. Common proper motion. Near ARN 118. Spect. M1.
35. In Cygnus. Relatively fixed. Common proper motion. Spect. B8III, B8.

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36. In Sagittae. AB=p.a. dec. AC=relfix, cpm. Spect. AC = B7V, A0.
37. In Cygnus. Slight decrease in p.a. Spect. B1V, B8.
38. In Cygnus. Position angle decreasing. Spect. B5V, B8.
39. In Vulpecula. Common proper motion. Spect. K7, K5.
40. In Sagitta. AB & AC = sep. & p.a. dec. AD = sep. inc. Spect. K0, K5, A2.
41. 13 Sagittae = C component. AB = relfix. AC=sep. & p.a. dec. Spect. AC=K0, M2.
42. In Sagitta. Position angle increasing. Spect. K3II.
43. In Cygnus. Relatively fixed. Spect. B1III, B2.
44. 15 Sagittae. AB=sep. dec.; p.a. inc. AC=sep. & p.a. inc. Spect. G1V, K0, A2, K2.
45. In Cygnus. Relatively fixed. Spect. O7III, B2.
46. In Cygnus. Relatively fixed. Common proper motion. Spect. B5, B5.
47. In Cygnus. Position angle increasing. Spect. F5V, K5.
48. In Aquila. AC = sep. increasing. AD = sep. decreasing. Spect. A5, K2, K5.
49. In Cygnus. Relatively fixed. Common proper motion. Spect. B.5IV, B.5IV.
50. In Cygnus. Relatively fixed. Spect. O1, A7.
51. In Cygnus. Separation decreasing. Spect. K2V.
52. In Cygnus. AB & AC = sep. decreasing. Spect. C5II, B2, M2.
53. In Aquila. Relatively fixed. Common proper motion. Spect. G4IV, G.
54. 29 Cygni. AB=sep. & p.a. inc. AC=sep. & p.a. dec. BD=relfix. Spect. A2V, K5.
55. 32 Cygni. Relatively fixed. Spect. K3I, A.
56. In Cygnus. Sep. decreasing; p.a. increasing. Spect. K5III.
57. In Cygnus. Relatively fixed. Spect. B5, A0.
58. Alpha Capricorni. AD=sep dec; pa inc. AE=sep inc; pa dec. Spect AE=G9III, G0.
59. In Vulpecula. Relatively fixed. Spect. B2V, A0.
60. Sigma or 7 Capricorni. Sep. & p.a. increasing. Spect. K3III.
61. In Cygnus. Separation slightly increasing. Spect. F0.
62. Beta or 9 Capricorni. Aa-Ba=relfix, cpm. Aa-C=sep slightly dec. Spect. F8V, B9.
63. In Cygnus. Sep. & p.a. decreasing. Spect. A0V, A3.
64. In Delphinus. Sep. increasing; p.a. decreasing. Spect. G0.
65. In Delphinus. Sep. increasing; p.a. decreasing. Spect. A2V, F.
66. In Aquila. Common proper motion. Sep. & p.a. decreasing. Spect. F7V, F8.
67. In Cygnus. Common proper motion; p.a. decreasing. Spect. K0.
68. In Cygnus. Relatively fixed. Common proper motion. Spect. B6V, B8.
69. In Cygnus. Sep. & p.a. increasing. Spect. A2, A5.
70. In Cygnus. Sep. slightly decreasing. Spect. B9.
71. In Capricornus. Common proper motion; p.a. increasing. Spect. F2IV, F2IV.
72. In Cygnus. Sep. slightly decreasing. Spect. A2.
73. In Cygnus. AB=sep. inc; p.a. dec. AC=sep. & p.a. dec. Spect. G0, F, K5.
74. In Vulpecula. AD = p.a. slightly dec. AE = sep. slightly dec. Spect. A7II, A0, K2.
75. In Capricornus. Common proper motion; p.a. decreasing. Spect. K0III, K0III.
76. In Cygnus. Relatively fixed. Common proper motion. Spect. A0, A5.
77. In Cygnus. AB & AC = Relfixed; Common proper motion. Spect. B7V, B9III.
78. In Capricornus. Relatively fixed. Common proper motion. Spect. G8III, G5.
79. In Cygnus. AB = p.a. inc. AD = sep. inc. Spect. M3II.
80. In Aquarius. Sep. inc.; p.a. decreasing. Spect. F5IV, K0.
81. In Cygnus. Position angle increasing. Spect. K5III.
82. 7 Aquarii. Separation slightly increasing. Spect. K5, M.
83. In Cepheus. AC = p.a. decreasing. AD = relatively fixed. Spect. A0, A0, A0.
84. In Delphinus. AB = p.a. decreasing. AC = sep. decreasing. Spect. F5V, A0, F5.
85. In Cygnus. Position angle increasing. Spect. B8, K2.
86. In Cygnus. Relatively fixed. Spect. G8III, A5.
87. In Cygnus. Relatively fixed. Spect. B8.
88. In Cygnus. AB=sep. inc, p.a. dec. AD=sep. inc. BC=sep. dec. Spect. K0.
89. In Delphinus. Sep. & p.a. decreasing. Spect. K5, F0.

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90. In Cygnus. Sep. increasing; p.a. decreasing. Spect. A0, A0.
91. In Cygnus. Sep. & p.a. decreasing. Spect. K2, A0.
92. In Equuleus. Relatively fixed. Common proper motion. Spect. A7V, A2.
93. In Equuleus. Position angle increasing. Spect. K4III.
94. In Aquarius. Relatively fixed. Spect. A2, A0.
95. In Cepheus. Relatively fixed. Common proper motion. Spect. G5, K0.
96. In Pegasus. Sep. & p.a. decreasing. Spect. F4V, F5.
97. In Cygnus. AB = sep. inc.; p.a. dec. AC = relatively fixed. Spect. B9.5IV, F8.
98. In Cygnus. Relatively fixed. Common proper motion. Spect. F0, G0.
99. In Cepheus. Relatively fixed. Common proper motion. Spect. F8, F8.
100. In Cepheus. Relatively fixed. Spect. A0, K5.
101. Epsilon or 39 Capricorni. Separation decreasing. Spect. B2.5V.
102. In Cepheus. Relatively fixed. Common proper motion. Spect. F8, G5.
103. In Cygnus. Common proper motion; p.a. decreasing. Spect. K0III, K0.
104. In Cygnus. Sep. decreasing; p.a. increasing. Spect. A2V, A0.
105. In Pegasus. Separation decreasing. Spect. A0, K0.
106. In Pegasus. Sep. & p.a. decreasing. Spect. A2, K0.
107. Epsilon or 23 Cephei. Position angle increasing. Spect. F0IV.
108. In Pegasus. Sep. decreasing; p.a. increasing. Spect. A9III, F.
109. In Aquarius. Sep. & p.a. decreasing. Spect. K5, F0.
110. In Aquarius. Sep. decreasing; p.a. increasing. Spect. F8, K2.
111. In Aquarius. Sep. increasing; p.a. decreasing. Spect. K0, G5.
112. In Lacerta. Sep. decreasing; p.a. increasing. Spect. K2.
113. 10 Lacertae. Sep. increasing; p.a. decreasing. Spect. 09V, 05.
114. 12 Lacertae. Sep. & p.a. decreasing. Spect. B2III.
115. In Aquarius. Position angle increasing. Spect. M0.
116. In Pegasus. Separation increasing. Spect. A9V, K2.
117. In Lacerta. Relatively fixed. Common proper motion. Spect. B3V.
118. In Pegasus. Sep. & p.a. decreasing. Spect. G2V, G0.
119. Beta or 53 Pegasi. Sep. decreasing; p.a. increasing. Spect. M0.
120. In Andromeda. Common proper motion; sep. & p.a. increasing. Spect. G2IV, G5.
121. In Pegasus. Sep. decreasing; p.a. increasing. Spect. G8III, K0.
122. In Andromeda. Relatively fixed. Common proper motion. Spect. A7III, F0.
123. In Cassiopeia. Relatively fixed. Spect. A2.
124. In Pegasus. AB & AC = relatively fixed; common proper motion. Spect. F8, F8.
125. In Cassiopeia. A-BC = p.a. dec.; cpm. AD = sep. & p.a. inc. Spect. G5, G5.
126. In Cassiopeia. Relatively fixed. Spect. K5, B8.
127. Psi or 20 Andromedae. Aa-D = sep. inc. Aa-E = relatively fixed. Spect. K0, K0.
128. In Cassiopeia. Sep. decreasing; p.a. increasing. Spect. K0.
129. 20 Piscium. Sep. increasing; p.a. decreasing. Spect. G8III, G2.
130. In Andromeda. Position angle increasing. Spect. G5.
131. In Andromeda. Position angle increasing. Spect. M2III, A2.
132. In Pegasus. Position angle increasing. Spect. K0.
133. In Cassiopeia. Separation decreasing. Spect. G5, K2.