There are five additional known dwarf systems later than O- or W–R-type in spectroscopic binaries with known orbital elements (Batten 1967) and with systemic velocities in the range 60–100 km/sec. These were outside the declination range of Strömgren's study or not listed in Miss Roman's catalogue. These are HD 24202 (G2 V–VI, $18^d.7$), σ Pup (A7 V, $257^d.8$), 1 Hya (F5 V, $1^d.56$), AS Dra (G4+G9, $5^d.41$), and BL Tel (A2+A7, $778^d.0$). A metallic index is available (Strömgren and Perry 1969) for only one (1 Hya) of these, and its value relative to the mean for the Hyades (Crawford and Perry 1966) places the star in group II. There are seven additional stars of high space velocity but low radial velocity listed by Roman as being spectroscopic binaries; available data on two (HR 5317, period $= 2^d.696$, and HR 5911, period unknown) of these indicate that they fall in group I. Thus there are no stars outside this study known to the authors to conflict with the conclusion that short-period binaries are very rare among the more extreme high-velocity stars.

As a final point, if one were to select a group of faint stars as candidates for a list of radial-velocity standards, one might well consider starting with a sample of high-velocity dwarfs for the following reasons: (1) very few will turn out to be velocity variables, (2) their spectra are less subject to line blends, but still include many metallic lines that are easier to measure than Stark-broadened hydrogen and helium lines, (3) their rotational velocities will probably be low, and (4) they are well distributed over the sky.

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MK Classifications for F- and G-Type Stars. I*

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New MK spectral classifications are given for 314 stars between magnitudes 5.0 and 7.5, mainly of types F and G. The assignments were made on slit spectrograms of dispersion 75 Å/mm at Hγ.

THERE is a need for spectral classifications on the MK system for stars of types F and G that are bright enough to be accessible to high-dispersion analysis, yet for which no modern types exist. The present paper contains new classifications for 314 stars selected from the *Henry Draper Catalogue* as having m(ptm) between 5.0 and 7.5, HD types between F2 and G5, and $+10° < \delta < 30°$.

The spectrograms were all taken with the Lick 36-inch refractor at a (prismatic) dispersion of 75 Å/mm at Hγ preflashed Kodak IIa-O emulsions. The spectrum width on the plate was 0.6 mm. The classifications were made on a Hartmann spectrocomparator by direct comparison with MK standards selected from the lists of Johnson and Morgan (1953). The results are given in Table I; notes on individual stars accompany the table. The column headed "m_v" in Table I is usually the HD "ptm" magnitude. All other columns are self-explanatory.

In order to have an adequate basis for comparison with the results of others, no notice was taken when the program was drawn up whether or not MK types already existed or not for stars on this first list. After all classifications had been completed, it was found that MK types for some 70 of the stars in Table I were listed by Jaschek, Conde, and de Sierra (1964). Except in one case (HD 77730) which was found to be due to a misprint in the original publication, the agreement is satisfactory between the present assignments and those made by experienced observers on slit spectrograms.

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* *Lick Obs. Bull.*, No. 605.

TABLE I. MK Classifications of F-G stars.

HD	α (1900)	δ	m_v	Type HD	Type MK	Note
874	0h08m0	+16°22′	6.6	G5	K1 III	
895	08.2	+26 25	6.3	F5	G0 III	1
976	09.0	+25 42	7.0	F8	F7 IV	
1352	12.6	+15 47	7.4	F5	F6 V	
1449	13.5	+22 19	7.1	G0	G8 IV	
2234	21.1	+24 11	7.5	G5	K0 IV	
2910	27.3	+19 45	5.5	G5	K0 III	2
2942	27.6	+27 44	6.4	G5	G8 II	3
3268	30.7	+12 40	6.4	F5	F7 V	
3468	32.5	+20 33	7.0	G5	K1 III	
4482	0 41.8	+11 25	5.7	G5	G8 II	
4568	42.6	+20 23	6.6	F8	F8 V	
5119	48.0	+19 14	7.3	F5	F3 IV–V	
5418	50.9	+13 24	6.8	G5	G8 II	
5612	52.7	+13 09	6.4	G5	G8 III	
6009	56.3	+24 46	6.8	G5	G8 IV	
6093	57.1	+27 13	6.7	F5	F7 V	4
6133	57.4	+25 47	6.9	F2	F3 V	
6301	58.9	+29 09	6.1	F5	F7 IV–V	
6397	59.8	+14 24	5.6	F2	F4 II–III	5
6557	1 01.3	+12 25	6.2	G5	G8 III	
6614	01.8	+11 01	7.1	F0	F2 III	6
6903	04.5	+19 07	5.6	G5	G0 III	
7659	11.4	+20 33	7.2	F5	F6 V	
8634	20.1	+23 00	6.1	F5	F5 III	
8941	23.0	+16 34	6.8	F5	F8 IV–V	
10308	35.7	+25 14	6.3	F5	F2 III	7
10697	39.4	+19 35	6.2	G5	G5 IV	
11326	46.3	+17 48	6.7	G5	K2 III	
11520	48.1	+12 11	7.1	F5	F6 III	
11909	1 51.9	+17 20	5.2	G5	K pec	8
12413	56.6	+21 38	7.3	F5	F8 V	
12558	58.0	+25 28	5.7	F5	F8 IV	9
12846	2 00.8	+23 52	7.0	G0	G2 V	
13201	03.9	+16 46	6.4	F5	F5 V	
13480	06.6	+29 50	5.2	G0	G0 III	10
13555	07.2	+20 44	5.4	F5	F6 V	
13649	08.0	+25 08	7.1	F5	F7 V	
13747	08.9	+28 14	6.6	G5	K1 III	
13871	10.0	+25 17	5.8	F2	F6 IV–V	
13872	2 10.0	+24 35	5.6	F5	F6 V	
14067	11.5	+23 19	6.5	G5	K0 III	
14082	11.6	+28 18	7.0	F5	F5 V	11
14082	11.6	+28 18	7.8	F5	G2 V	12
14595	16.4	+22 25	6.6	G5p	G2 IV	
15524	24.8	+24 48	5.9	F5	F6 IV	13
15596	25.4	+17 16	6.4	G5	G8 IV	
15814	27.5	+14 36	6.1	F5	F8 V	
16246	31.3	+24 13	6.6	F5	F6 III	14
17918	47.6	+16 05	6.4	F2	F2 III	
18256	2 50.8	+17 37	5.6	F5	F6 V	
19789	3 05.9	+12 40	6.4	G5	K0 IIIp	
20618	14.0	+26 43	5.9	G5	G8 1V	
21051	18.7	+12 17	6.2	G5	K0 III–IV	
21242	20.5	+28 23	6.5	G5	G5 IV	15
21467	22.6	+22 28	6.1	G5	K0 IV	16
22695	33.8	+16 13	6.3	G5	K0 III	17
23183	38.0	+19 21	6.3	G5	K0 III	
25680	59.4	+21 44	6.0	G5	G5 V	
26162	4 03.3	+19 21	5.7	G5	K2 III	
26345	4 04.9	+18 10	6.6	F8	F6 V	
26546	06.8	+17 02	6.3	G5	K0 III	
26749	08.7	+12 06	6.9	G0	G2 V	
26784	09.1	+10 27	7.1	F5	F8 V	
26911	10.1	+15 09	6.4	F5	F6 III	
27483	15.2	+13 38	6.1	F2	F7 V	
27691	17.1	+14 51	7.1	G0	F8 IV	18
28292	4h22m7	+16°08′	5.3	G5	K2 III	
29169	30.5	+23 09	6.0	F2	F5 IV	
30912	46.5	+27 44	5.9	F2	F2 IIIn	19
33121	5 03.0	+19 45	6.6	G5	G5 III	
33336	04.5	+13 25	6.7	F2	F4 III	
34335	11.6	+20 01	6.8	F5	F7 V	20
36994	30.3	+25 53	6.3	F5	F5 III	
37466	33.7	+24 10	7.0	F2	F3 V	
39099	45.2	+14 01	6.8	G5	K0 IV	
39455	47.6	+18 08	7.4	F5	F6 II	
42807	6 07.7	+10 40	6.5	G5	G8 V	
43042	09.0	+19 12	5.1	F5	F6 V	21
43261	10.2	+24 00	6.1	G5	G8 III	
43386	6 10.8	+12 18	5.1	F5	F5 IV–V	
45194	21.0	+13 10	6.6	F8	F7 V	
47415	33.4	+24 41	6.5	F5	F8 IV	
50371	47.8	+11 07	6.3	G5	K0 III	
50607	48.9	+15 58	6.6	G5	G8 III	
50692	49.2	+25 30	5.8	G0	G0 V	
51419	52.2	+22 37	6.9	G5	G5 V	
51911	54.1	+16 05	7.0	G0	G0 III	22
52711	57.2	+29 31	6.0	F8	G2 V	
54371	7 03.5	+25 54	7.0	G0	G8 V	23
54563	7h04.2	+21 25	6.5	G5	G8 V	
55052	06.3	+24 17	5.8	F5	F5 III	
57727	17.4	+25 15	5.1	G5	G8 III	
58551	21.0	+21 45	6.4	F5	F6 V	
65583	54.3	+29 31	6.9	G0	G8 V	
66348	58.0	+12 28	6.7	F8	F8 V	24
66948	8 00.7	+22 45	7.2	G0	G5 IV	
67177	01.7	+10 17	6.8	G5	G5 III	
67228	01.9	+21 52	5.4	G0	G2 IV–V	
67542	03.4	+29 23	6.6	G0	G0 II	
67767	8 04.4	+25 50	5.8	G5	G8 IV	
68461	07.4	+16 49	6.1	G5	G8 III	
69897	14.0	+27 32	5.2	F5	F7 V	
69994	14.5	+21 04	5.9	G5	K1 III	
71030	20.1	+17 23	6.2	F2	F6 V	
72779	29.6	+19 56	6.6	G0	F8 III	
74811	41.1	+28 32	6.6	G0	G2 IV	
75528	45.4	+15 43	6.3	G0	G2 IV	
76095	49.0	+26 36	6.7	G0	G5 V	25
76333	50.4	+24 51	6.7	F2	F3 V	
77730	8 59.2	+23 16	7.2	G0	G2 V	
78175	9 01.7	+23 23	6.8	F5	F5 V	26
78175	01.7	+23 23	7.2	F5	F5 V	
78209	01.9	+52 00	4.5	A3p	Am	
79096	06.9	+15 24	6.4	G5	G8 V	
79929	11.8	+27 51	6.5	F5	F6 V	
80956	17.7	+25 36	6.5	G5	G5 III–IV	
81163	18.9	+18 35	7.1	G0	G0 III	27
83362	32.8	+13 10	6.8	G5	G8 III	
83509	33.8	+13 46	6.9	F5	F7 V	
84183	9 38.2	+10 59	6.8	F5	F8 V	
85843	49.5	+25 07	7.2	F8	F8 V	
88639	10 08.2	+27 39	6.1	G5	G5 III–IV	
89010	11.0	+24 00	5.9	G0	G2 IV	
89125	11.8	+23 37	5.8	F5	F6 V	28
89307	13.1	+13 08	7.1	G0	G0 V	
90512	21.9	+11 49	6.6	G5	G5 III	
90683	23.1	+16 17	7.2	F8	F5 III	
92196	33.6	+16 39	6.6	F2	F5 V	
93765	44.4	+28 31	6.1	F5	F5 V	
95216	10 54.5	+12 14	6.4	F5	F5 V	
96418	11 01.7	+26 04	6.7	F5	F8 IV	
96719	03.4	+17 45	6.9	G5	G8 III	
98217	12.8	+22 44	7.0	G5	G8 II	

TABLE I (*continued*)

HD	α (1900)	δ	m_v	Type HD	Type MK	Note
98388	11h14m0	+13°56′	7.1	F8	F8 V	
99832	24.0	+30 58	7.1	F2	F5 IV–V	29
100339	27.7	+18 34	7.3	F5	F7 V	
101302	34.4	+19 33	7.0	F5	F0 IIIn	30
101676	36.9	+12 51	7.1	F5	F6 V	
101841	38.2	+28 36	7.4	F2	F3 II	
102357	11 41.8	+24 16	6.8	F5	F7 V	
102988	46.3	+12 22	7.0	F2	F6 V	
103110	47.3	+20 58	7.3	F5	F7 V	
103877	52.6	+18 02	6.9	F2	Am	31
106972	12 13.0	+18 59	7.5	F5	F6 III	
107705	17.5	+05 52	6.5	F8	F8 V	32
108722	24.4	+24 39	5.5	F5	F5 III	
108956	26.1	+24 21	7.1	G0	F8 V	
110524	37.7	+28 55	7.5	F2	F4 V	
111398	43.9	+12 38	7.1	G5	G5 V	
111718	12 46.2	+19 43	7.4	F5	F6 III	
111812	46.8	+28 05	5.1	G0	G0 III	
112887	54.8	+28 37	7.1	F5	F4 V	
114520	13 06.0	+21 46	6.7	F2	F2 II	
114989	09.1	+26 15	7.4	F5	F7 V	
115319	11.4	+19 36	6.5	G5	K0 IV	
118889	34.7	+11 15	5.5	F2	F2 III	33
119550	38.8	+14 52	6.9	G0	G2 V	
122364	56.4	+22 28	7.1	G5	K0 IV	
123033	14 00.2	+26 18	6.8	F5	F6 V	
126141	14 18.6	+25 48	6.2	F2	F5 V	
128494	32.1	+27 56	7.0	F2	F4 III	
129814	39.6	+18 54	7.5	G5	G5 V	
130087	41.1	+10 28	7.5	F5	G2 IV	
130145	41.4	+10 04	7.2	F8	G2 V	34
130396	42.9	+19 29	7.4	F5	F8 V	
132524	54.5	+25 27	7.4	G5	K1 III	
134047	15 02.7	+05 52	6.2	G5	K0 III	
134246	03.7	+28 53	7.4	G5	G8 II	
134495	05.1	+25 03	7.2	F5	F6 V	
134852	15 07.0	+20 27	7.1	F2	F2 II	
135576	10.8	+10 29	7.1	F2	F2 IV	
136160	14.0	+10 48	6.7	F8	F8 V	35
136440	15.6	+16 33	7.5	G0	F6 IV–V	
138039	24.4	+13 23	7.1	G5	K0 III	
138573	27.9	+11 19	7.2	G0	G5 IV–V	
140438	38.5	+13 59	6.4	G5	G5 III	36
140812	40.6	+21 45	7.4	F2	F5 V	
141352	43.6	+28 46	7.4	F2	F6 V	
142093	47.5	+15 32	7.3	G0	G2 V	
142267	15 48.5	+13 31	6.2	G0	G0 IV	
142357	49.1	+16 23	6.1	F2	F5 II–III	37
143597	56.3	+13 34	7.0	F5	F8 V	38
143666	56.7	+18 06	5.3	G5	G8 III	
144287	16 00.0	+25 30	7.1	G0	G8 V	
144544	01.3	+22 11	7.2	F5	G0 III	
144839	02.8	+13 36	7.2	F2	F3 III	
145000	03.6	+17 20	6.5	G5	K1 III	39
145001	03.6	+17 19	5.3	G5	G5 III	40
145228	04.7	+12 01	6.9	F2	F0 V	
145436	16 05.9	+10 18	7.4	F5	F6 V	
145976	08.7	+26 56	6.4	F2	F3 V	41
147025	14.3	+26 08	6.6	G5	G8 III	
147266	15.8	+21 23	6.1	G5	G8 II	
148317	22.1	+16 12	6.8	G0	G0 III	
148619	24.2	+19 14	7.2	G5	G5 IV	
148897	26.2	+20 42	5.3	G5	G8 III	
150012	33.2	+13 54	6.2	F2	F5 III–IV	
150682	37.5	+27 07	5.9	F2	F2 III	
150933	39.1	+20 55	7.1	F8	G2 V	
151070	16 40.0	+23 42	6.8	F2	F5 III	42
151237	41.1	+28 32	7.1	F5	F8 II	43
151627	16h43m5	+13°46′	6.3	G5	G5 III	
151939	45.4	+15 34	7.0	F5	F6 V	
152306	47.5	+28 17	6.9	G5	G2 V	
152342	47.7	+25 34	6.9	F2	F4 III	
152380	47.9	+28 50	6.5	F5	F6 V	44
152446	48.3	+18 14	6.9	F5	F8 IV	
152654	49.6	+15 48	7.2	F5	F2 III	
152830	50.7	+13 47	6.2	F2	F2 II	
153226	16 53.0	+14 03	6.5	G5	K0 V	
153376	54.1	+15 38	7.0	G0	F8 V	
153601	55.4	+17 57	7.3	F0	F2 IV	
153897	57.1	+27 21	6.4	F5	F5 V	
154974	17 03.7	+16 13	6.7	F8	F8 IV	
155193	05.0	+10 10	7.0	F5	F8 IV	
155228	05.2	+22 13	6.9	F5	F6 V	
156111	10.6	+19 50	7.4	G5	G8 V	
157068	16.0	+15 16	7.2	F5	G0 III	
157358	17 17.7	+28 51	6.3	F8	G0 III	
157466	18.3	+24 59	6.8	F5	F8 V	
157935	21.2	+16 29	6.7	F2	F5 III	
158806	26.2	+17 36	6.9	F5	F6 IV	
159063	27.5	+16 55	6.8	F8	G0 V	
159332	29.1	+19 20	5.6	F5	F6 V	
159466	29.8	+13 14	6.7	G5	G8 III	45
163506	51.4	+26 04	5.5	F5p	F2 Ia	
164615	56.9	+11 17	7.0	F2	F2 IV–V	
165241	59.9	+26 39	7.0	F2	F4 V	46
165435	18 00.9	+22 54	7.3	F2	F3 II	
165590	01.6	+21 26	6.9	G0	G2 V	
168364	14.2	+16 58	7.5	G0	F8 V	
169840	21.5	+15 42	7.4	F2	F3 V	
170542	24.9	+13 47	6.9	F2	F6 V	
171067	27.6	+13 40	7.2	G5	G8 V	
171488	30.0	+18 37	7.3	G0	G0 V	
173494	40.5	+23 29	6.2	F2	F6 V	
175292	49.6	+14 53	7.4	F2	F4 V	
175405	50.1	+20 14	7.0	G5	G8 III	
175592	18 51.0	+14 15	6.5	F2	F0 IV–V	
177392	59.4	+21 07	6.5	F2	F2 III	
178428	19 03.5	+16 43	6.0	G5	G5 V	
178476	03.7	+21 32	6.2	F2	F3 V	
178619	04.2	+16 42	6.5	F5	F5 IV–V	
178715	04.6	+11 28	7.1	G5	G5 III	
178772	04.8	+10 57	7.1	F2	F7 V	
179422	07.4	+26 34	6.3	F5	F5 V	
180242	10.7	+20 02	6.1	G5	G8 III	
180583	12.0	+27 45	6.1	F8p	F8 II	
180615	19 12.1	+26 41	7.1	F8	F8 V	
180684	12.4	+18 49	7.0	G0	F8 V	
181098	14.0	+24 14	7.1	G5	K2 III	
181144	14.2	+16 19	6.9	F5	F8 IV–V	
181382	15.2	+11 52	7.4	F5	F5 IV–V	
182807	21.3	+24 44	6.2	F8	F7 V	
182900	21.8	+12 49	5.8	F5	F7 IV	
182901	21.8	+11 39	6.8	F5	F5 III	
184151	28.0	+25 23	6.9	F2	F5 V	
185018	32.1	+11 03	6.2	G5	G0 II	47
185269	19 33.2	+28 17	6.7	G0	G2 V	
186379	38.9	+24 22	6.8	F8	F8 V	
186486	39.6	+25 32	5.4	G5	G8 III	
187182	43.5	+13 12	6.9	F5	F5 III	
187203	43.7	+10 26	6.4	G0p	F8 II	
187237	43.9	+27 36	6.8	G5	G2 III	
187462	45.0	+27 29	7.1	G0	G0 IV	
187614	45.8	+26 50	6.5	G5	G8 III	
187691	46.2	+10 10	5.2	G0	F8 V	48
187923	47.4	+11 23	6.2	G0	G0 V	

TABLE I (*continued*)

HD	α (1900)	δ	m_v	Type HD	Type MK	Note
188328	19h49m5	+15°02′	7.0	F8	F8 III	49
190323	59.3	+14 42	6.9	F8p	G0 Ia	50
190406	59.7	+16 48	5.9	G0	G5 V	
191570	20 05.5	+20 37	6.3	F2	F5 IV	
192713	11.2	+23 12	5.4	G5	G2 Ib	
193555	15.7	+15 13	6.9	F8	F8 V	
193556	15.7	+14 16	6.3	G5	G8 III	
194012	18.2	+14 13	6.2	F5	F8 V	
195019	23.7	+18 28	6.8	G5	G2 V	51
195432	26.2	+27 30	6.9	F8	G0 II	
197076	20 36.2	+19 33	6.4	G5	G5 V	
199719	53.9	+22 39	6.6	G5	G8 III	
199941	55.2	+16 26	6.5	F2	F4 III	
202618	21 11.9	+25 56	7.3	F2	F2 Ib	
202908	13.8	+11 09	7.0	G0	G0 V	52
202926	13.9	+17 34	7.2	F5	F6 V	
204277	22.4	+15 41	6.8	F8	F8 V	
204509	24.0	+10 41	6.7	F2	F4 II	53
205160	28.4	+20 16	7.7	F5	F6 IV	54
205160	28.4	+20 16	8.1	F5	F6 V	55
205420	21 30.1	+22 19	6.4	F8	F7 V	
206860	39.8	+14 19	6.1	G0	G0 V	
207652	21h45m4	+16°49′	5.3	F2	F2 III–IV	
207859	47.0	+18 51	6.8	F2	F6 V	56
207978	48.0	+28 20	5.6	F5	F5 V	
208906	54.3	+29 21	6.8	F5	F7 V	
209166	56.2	+12 38	5.7	F2	F4 III	
210925	22 08.6	+25 26	6.8	G5	K0 IV	
210944	08.7	+26 49	7.2	F5	F5 V	
211799	14.6	+28 21	7.1	F8	F8 V	
212500	22 19.6	+15 48	7.1	F2	F4 III	
213619	27.7	+12 32	6.6	F2	F2 III	
214825	35.7	+19 32	7.2	F2	F3 V	
218172	23 00.7	+19 43	7.2	F5	F8 IV	
218235	01.3	+17 59	6.1	F2	F6 V	
219487	11.0	+24 15	6.5	F2	F5 V	
220242	17.1	+26 05	6.6	F2	F5 V	
220254	17.2	+28 09	6.6	F2	F5 III	
221479	27.4	+16 52	7.1	F2	F3 IV–V	57
222177	33.2	+20 02	7.3	F2	F2 III	
223323	23 43.5	+25 06	7.0	F2	F2 IV–V	
224742	55.2	+12 46	7.5	F2	F2 V	
224930	56.8	+26 34	5.8	G0	G2 V	58
225241	59.6	+14 24	7.2	F5	F5 IV	

Notes to Table I

1. ADS 161AB.
2. ADS 452A.
3. ADS 455A; component B not seen.
4. ADS 857A.
5. ADS 889A.
6. ADS 920A; broad lines.
7. ADS 1326A.
8. Hδ strong, Fe I λ4045 weak for type.
9. ADS 1631AB.
10. ADS 1697A. The type given is if only one spectrum is present; if the spectrum is composite, the later-type star is G5 III. There is also a possibility of contamination by component B.
11. ADS 1752A.
12. ADS 1752B.
13. ADS 1904A.
14. ADS 1982A.
15. *H* and *K* are in emission.
16. ADS 2552AB.
17. ADS 2661A.
18. ADS 3169; only one star seen.
19. Broad lines.
20. ADS 3866A.
21. ADS 4842A.
22. ADS 5660AB; the spectrum is composite.
23. ADS 5827A.
24. ADS 6546; only one star seen.
25. ADS 7082AB.
26. ADS 7187A; the next entry is ADS 7187B.
27. ADS 7341AB.
28. ADS 7712A.
29. ADS 8177AB.
30. ADS 8257A.
31. An advanced metallic-line star, similar to τ UMa.
32. ADS 8531A.
33. ADS 8987AB.
34. ADS 9380AB.
35. ADS 9580A.
36. ADS 9758AB.
37. ADS 9828A.
38. ADS 9880AB.
39. ADS 9933B.
40. ADS 9933A.
41. ADS 9966AB.
42. ADS 10184AB.
43. ADS 10194A.
44. ADS 10235AB.
45. ADS 10633A.
46. ADS 11031A.
47. ADS 12670A.
48. ADS 13012A.
49. ADS 13082AB.
50. ADS 13310A.
51. ADS 13886AB.
52. ADS 14839AB; the lines are double.
53. ADS 15007AB.
54. ADS 15076A.
55. ADS 15076B.
56. ADS 15386A.
57. ADS 16821AB.
58. ADS 17175AB.