

Direct Plates

41-inch Reflector

Book 2

1980 Nov. 6 -

Plate Nos. 1111 -



NATIONAL

53-108

Made in U.S.A.



Observers

- KC = Kyle Cudworth  
DLT = DAVID L. TALENT  
AJ = Andrew Jankevics  
RK = Richard Kron  
HH - Harald Henny  
SC - Sean Casey  
EC = Evangelos Chaliasos  
DP = Dan Peterson  
ARC = Arnab Rai Chouduri  
DW = Dan Welty  
JH = HAMILTON  
AC = Adela Canlet  
AF = Albert Fu  
RM = Roy Myers (UW Madison)  
DB = DINSHAW BALSARA.  
GB = Geoffrey Burks  
SM = STEVE MAJEWSKI  
BR = Bernard Rauscher  
BB = Bruce Benty  
RR = Rick Rees  
GJC = GEORGE J. CORSO (GC)  
JWB = John W. Briggs  
RF = RICHARD FOX



Plate	Object	$\alpha$	$\delta$	Date	UT/HA	Exp.	Guide*	Emulsion	Filter	PH	Tel	Seeing	Tran	Temp	Focus	Obs.	Remarks
These plates were taken while log book was missing																	
Entered here 2016																	
1973																	
259N-1	Dark Cloud G 48.4-5.8	19:39		Aug 5	2:01 W	30 m		IIa-D				f	p			Nachman	
259N-2	Dark Cloud G 109.8+2.6	22:52		Aug 18	2:52 W	30 m		IIa-D	V			f	g			Nachman	
259N-3	Dark Cloud G 57.2+3.6	19:23		Aug 27	2:30 W	30 m		IIa-D	B			g	f/g			Nachman	
259N-4	Dark Cloud G 24.9+5.4	18:16		Aug 27	2:32 W	30 m		IIa-D	B			g	f			Nachman	
259N-5	Dark Cloud G 24.9+5.4	18:16		Aug 30	1:52 W	30 m		IIa-D	V			g	g			Nachman	
259N-6	Dark Cloud G 109.8+2.6	22:52		Oct 18	3:55 W	45 m		I-N	R			g	f			Nachman	
259N-7	Dark Cloud G 108.1+13.2	21:39		Oct 19	1:02 W	30 m		IIa-D	V			f/g	g			Nachman	
259N-8	NGC 188			Oct 20	0:47 W	15 m		I-N	R			g	f/g			Nachman	
259N-9	NGC 188			Oct 20	0:22 W	15 m		IIa-D	V			g	f/g			Nachman	
259N-10	Dark Cloud G 90.4+2.4	21:01		Oct 20	2:20 W	45 m		I-N	R			g	f/g			Nachman	
259N-11	Dark Cloud G 113.6+7.2	21:59		Oct 20	0:17 W	30 m		IIa-D	V			g	p/g			Nachman	
259N-12	Dark Cloud G 113.6+7.2	21:59		Oct 21	1:11 W	45 m		I-N	R			g	p/g			Nachman	
259N-13	Dark Cloud G 114.1+14.6	22:11		Oct 21	3:39 W	45 m		I-N	R			g	f/g			Nachman	
259N-14	Dark Cloud G 108.1+13.2	21:39		Oct 22	0:54 W	45 m		I-N	R			f/g	f			Nachman	
259N-15	Dark Cloud G 159.7-19.6	3:34		Oct 22	0:42 W	30 m		IIa-D	V			g	f/g			Nachman	
259N-16	Dark Cloud G 159.7-19.6	3:34		Oct 22	0:04 E	45 m		I-N	R			g	f/g			Nachman	
259N-17	Dark Cloud G 114.1+14.6	22:11		Oct 22	1:28 W	30		IIa-D	V			f/g	f/g			Nachman	
259N-18	Dark Cloud G 172.4-8	4:53		Nov 17	0:05 W	35		I-N	R			g	g			Nachman	
259N-19	Dark Cloud G 171.4-10.6	4:41		Nov 17	0:48 E	45		I-N	R			g	g			Nachman	
259N-20	Dark Cloud G 174.1-13.8	4:38		Nov 19	1:38 E	45		I-N	R			g	p/f			Nachman	
259N-21	Dark Cloud G 174.3-13.4	4:40		Nov 19	0:25 W	45		I-N	R			g	g			Nachman	



Plate	Object	$\alpha$	$\delta$	Date	UT / HA	Exp	Guide x	Emulsion	Filter	PH	Tel	Seeing	Tran	Temp	Focus	Obs	Remarks
259N-22	Dark Cloud G 174.1-13.8	4:38	+25°30'	1973 Dec 22	0:09 W	30		IIa-D	V			f	g			Nachman	
259N-23	Dark Cloud G 174.3-13.4	4:40	+25°30'	Dec 22	2:14 W	30		IIa-D	V			f/f	f			Nachman	
259N-24	Dark Cloud G 172.4-8.0	4:53	+30°34'	Dec 23	1:45 W			IIa-D	V			g	f/g			Nachman	
259N-25	Dark Cloud G 171.4-10.6	4:41	+29°38'	Dec 23	1:05 W			IIa-D	V			g	f/g			Nachman	



Plate No.	Object	$\alpha, \delta$ (1950)	Date (UT)	UT / HA (end)	Exp.	Guide * PL. Held	Emulsion	Filter	P.A.	Tel.	Seeing	Trans	Temp.	Focus	Flash	Obs.	Remarks
1111	NGC 7662	23 <sup>h</sup> 23. <sup>m</sup> 5 +42°16'	1980 Nov. 6	0320 / +1:03	2 <sup>m</sup> , 5 <sup>m</sup>	2	103a-G	OG 1	S	W	1-2"	f	+7°C	0.80	2X	KC	
1112	M 15	21 <sup>h</sup> 27. <sup>m</sup> 6 +11°57'	Nov. 22	0023 / +1:05	1 <sup>m</sup>	1	IIa-0	B	S	W	1"	g	+4	0.80	-	KC	
1113	"	"	"	0025 / +1:07	1 <sup>m</sup>	2	"	B	S	W	1"	g	"	"	-	KC	
1114	"	"	"	0031 / +1:13	30 <sup>s</sup>	3	"	B	S	W	1"	"	"	"	-	KC	
1115	"	"	"	0033 / +1:15	30 <sup>s</sup>	4	"	B	S	W	1"	"	"	"	-	KC	
1116	NGC 7662	23 <sup>h</sup> 23. <sup>m</sup> 5 +42°16'	"	0111 / -0:03	1 <sup>m</sup> , 2 <sup>m</sup>	1	103a-G	GG 495 (v)	S	W	1"	"	"	0.80	2X	KC	
1117	"	"	"	0137 / +0:23	1 <sup>m</sup> , 2 <sup>m</sup>	2	"	GG 475	S	W	1-2"	"	"	"	2X	KC	
1118	M 15	21 <sup>h</sup> 27. <sup>m</sup> 6 +11°57'	Dec. 1	0010 / +1:28	3 <sup>m</sup>	1	IIa-0	B	S	W	3"	f	+8°	0.80	-	KC	
1119	"	"	"	0014 / +1:32	3 <sup>m</sup>	2	"	B	S	W	3"	"	"	"	-	KC	
1120	M 15	"	Dec 13	2340 / +1:48	5 <sup>m</sup>	1	"	B	S	W	5"	g	-4°C	0.80	-	KC	
1121	"	"	"	2346 / +1:54	5 <sup>m</sup>	2	"	B	S	W	5"	g	"	"	-	KC	
1122	NGC 6946	20 <sup>h</sup> 34. <sup>m</sup> 4 +59°56'	Dec. 14	0137 / +3:41	10 <sup>m</sup>	3	"	B	S	W	5"	g	"	"	3X	KC	SN
1123	NGC 3359	10 <sup>h</sup> 44. <sup>m</sup> 9 +63°21'	1981 MARCH 08	0415 / +0:10	90 <sup>m</sup>		IIa-D	H $\alpha$	S	W	2-3"	g	-2°C	0.41	-	DLT	Image Tube Cam.
1124	NGC 4548	12 <sup>h</sup> 34. <sup>m</sup> 2 +14°38'	MARCH 08	0825 / +2:31	90 <sup>m</sup>		IIa-D	H $\alpha$	S	W	2"	g	-2°C	0.41	-	DLT	" " "
1125	NGC 2523	08 <sup>h</sup> 12. <sup>m</sup> 2 +73°39'	MARCH 09	0300 / +1:31	90 <sup>m</sup>		IIa-D	H $\alpha$	S	W	2-3"	f	+3°C	0.40	-	DLT	" " "
1126	23 Tau	3 <sup>h</sup> 43. <sup>m</sup> 3 +23°48'	Mar. 17	0139 / +3:39	5 <sup>m</sup>	1	IIa-0	B	S	W	3"	f	+3	0.80	-	KC	br. moon
1127	Pl. Neb. 158°+17°1	6 <sup>h</sup> 15. <sup>m</sup> 4 +55°38'	"	0200 / +1:27	5 <sup>m</sup>	-9/36 2	"	"	"	"	2"	f	"	0.80	-	KC	
1128	"	"	"	0211 / +1:38	10 <sup>m</sup>	3	"	"	"	"	"	f	"	"	-	KC	
1129	NGC 2392	7 <sup>h</sup> 26. <sup>m</sup> 2 +21°01'	"	0228 / +0:45	3 <sup>m</sup>	4	"	-	"	"	"	p	"	0.80	-	KC	circus
1130	Praesepe	8 <sup>h</sup> 39. <sup>m</sup> 19 40	March 25	0235 / +0:10	6 x 1 <sup>m</sup>		Vac 103a-0	-	"	"	2-3"	g	+8°C	.75-.78	-	AJ	focus plate with f/13 + vac
1131	"	"	"	0350 / +1:25	30 <sup>m</sup>	"	"	-	"	"	3-4"	g	+10°C	.73	-	AJ	used 40" 8x10" kn. fodge very poor images at edge of field
1132	N4839 (one)	13 <sup>h</sup> 56. <sup>m</sup> 5 +27 36	"	0620 / -0:15	10 <sup>m</sup>	1	IIa-0	-	"	"	3-4"	g	+3°C	.15	-	AJ	Meinel Reducer + f2.8 camera guiding is not possible.
1133	"	"	"	0700 / +0:25	10 <sup>m</sup>	2	"	600 l/mm Transa Grating	"	"	3-4"	f	+3°C	.15	-	AJ	Same as above plus transition grating. Same focus as above



Plate No.	Object	$\alpha, \delta$ (1950)	Date (UT)	UT/HA (end)	Exp.	Guide * plate holder	Emulsion	Filter	P.A.	Tel.	Seeing	Trans.	Temp.	Focus	Flash	Obs.	Remarks
1134	Praesepes	8 <sup>h</sup> 40 <sup>m</sup> 19°50'	1981 March 26	02:15 / -00:15	10 <sup>m</sup>	1	IIa-0	none	S	W	3-4"	p	9°C	.75	-	AJ	unguided f/13, reducer, f/3 camera
1135	"	"	March 27	04:05 / +01:50	20 <sup>m</sup>	1	"	grating	"	"	3-4"	f	8°C	.16	-	AJ	unguided f/13, reducer, f/3, grating
1136	Abell 1656	12 <sup>h</sup> 59 <sup>m</sup> 28°05'	"	04:55 / -01:40	20 <sup>m</sup>	2	"	"	"	"	3-4"	f	4°C	.16	-	AJ	" f/13 direct 3011
1137	"	"	"	05:25 / -01:10	20 <sup>m</sup>	3	"	none	"	"	3-4"	f	5°C	.16	-	AJ	" f/3 direct 3011
1138	Praesepes	8 <sup>h</sup> 40 <sup>m</sup> 19°50'	March 28	02:00 / -00:15	10 <sup>m</sup>	Vac	103a-D	"	"	"	2-3"	f	6°C	.75	-	AJ	f/13 after alignment 1011
1139	"	"	April 1	05:10 / +03:20	20 <sup>m</sup>	1	IIa-0	prism	"	"	2-3"	g	8°C	.16	-	AJ	f/13, reducer, prism, f/3 guided
1140	Abell 1656	12 <sup>h</sup> 58.5 <sup>m</sup> +27°57'	"	06:40 / +00:30	10 <sup>m</sup>	2	"	none	"	"	2-3"	g	7°C	.15	-	AJ	f/13, reducer, f/13 guided
1141	"	"	"	07:10 / +01:00	10 <sup>m</sup>	3	103a-G	grating	"	"	2-3"	g	7°C	.15	-	AJ	f/13, reducer, grating, f/13 guided
1142	M 87	12 <sup>h</sup> 29 <sup>m</sup> +12°26'	"	08:05 / +02:25	20 <sup>m</sup>	4	IIa-0	none	"	"	2-3"	f	7°C	.15	-	AJ	f/13, reducer, f/3
1143	Praesepes	8 <sup>h</sup> 40 <sup>m</sup> 19°50'	April 6	02:35 / +01:00	7x1 <sup>m</sup>	1	"	"	"	"	3-4"	g	9°C	.16	-	AJ	f/13, reducer, f/2 focus plate 2x.14, .15, .16, .17, .18, .19 nominal
1144	"	"	"	03:05 / +01:30	8x1 <sup>m</sup>	1	"	"	"	"	3-4"	g	9°C	.14	-	AJ	f/13, reducer, f/3 focus plate 2x.03, .01, .01, .03, .05, .07, .09 nominal
1145	"	"	"	04:00 / +01:25	8x1 <sup>m</sup>	1	"	"	"	"	3-4"	g	9°C	.14	-	AJ	f/13, reducer, f/1 focus plate 2x.2, .02, .10, .08, .06, .04, .02 nominal
1146	Abell 1656	12 <sup>h</sup> 58.5 <sup>m</sup> +27°57'	"	04:50 / -01:00	10 <sup>m</sup>	1	"	grating	"	"	3-4"	g	9°C	.12	-	AJ	f/13, reducer, grating, f/1
1147	"	"	"	05:45 / -00:05	20 <sup>m</sup>	1	"	"	"	"	4-5"	g	9°C	.12	-	AJ	f/13, reducer, grating, f/2
1148	Bof 227	13 02.0 +35°42'	15 Apr	10w15	30 <sup>m</sup>	1	IIa-D	Hx 5701	"	"	2 1/2"	g	5°C	.80	-	RK	
1149	"	"	"	10w45	"	2	103a-E	"	"	"	"	g	"	"	-	RK	
1150	NGC 6720	19 <sup>h</sup> 54 <sup>m</sup> +32°59'	MAY 02	08:48 / 01:18	1 <sup>m</sup>	1	IIa-D	Hx	S	W	2"	g	8°C	.41	-	DLT	
1151	TON 599	11 <sup>h</sup> 56 <sup>m</sup> +29°31'	July 02	04:42 / 05:40	10 <sup>m</sup>	1	IIa-0	B	S	W	2"	p	20°C	.2	-	HH	
1152	TON 599	11 <sup>h</sup> 56 <sup>m</sup> +29°31'	Jul 10	4:10 / -	30 <sup>m</sup>	1	IIa-0	B	S	W	3"	g	25°C	.22	-	HH	
1153	TON 599	"	Jul 24	3:00	30 <sup>m</sup>	1	IIa-D	B	S	W	5"	p	20°C	.28	-	HH	
1154	TON 599	"	Jul 31	6:00 / 5:02	30 <sup>m</sup>	3	IIa-0	B	S	W	4-5"	g	20°C	.29	-	HH	
1155	M 31	0 <sup>h</sup> 40 <sup>m</sup> $\delta = 41^{\circ}00'$	"	6:00 / 1:20:50	3 <sup>m</sup>	1	IIa-0	None	S	W	4"	g	"	"	-	S.C.	
1156	M 31	"	"	7:00 / 2:19:50	10 <sup>m</sup>	1	IIa-0	"	S	W	"	"	"	"	-	S.C.	



Plate No.	Object	$\alpha, \delta$ (1950)	Date (UT)	UT/HA (end)	Exp.	Guide * plate holder	Emulsion	Filter	P.A.	Tel.	Seeing	Trans.	Temp.	Focus	Flash	Obs.	Remarks
1157	NGC 6712	18 <sup>h</sup> 50 <sup>m</sup> 3 -8° 47'	1981 Aug. 1	0359 / -0:07	10 <sup>m</sup>	1	IIa-0	—	S	W	2"	g	+21	0.79	—	KC	
1158	Pal. 11	19 <sup>h</sup> 42 <sup>m</sup> 6 -8° 09'	"	0440 / -0:18	30 <sup>m</sup>	-1/34 2	"	—	S	W	2"	g	+20	0.79	—	KC	
1159	M 15	21 <sup>h</sup> 27 <sup>m</sup> 6 +11° 57'	"	0510 / -1:35	4 <sup>m</sup>	3	"	B	S	W	var 1-3	g	"	0.80	—	KC	
1160	"	"	"	0523 / -1:22	5 <sup>m</sup>	4	"	U	S	W	var 1-3	g	"	"	—	KC	
1161	M 15	"	"	CDT <sup>3</sup> 5:00 am	20 min	1	103a-E	—	S	W	Fair	g	20°	"	—	DP	
1162	M 31	0 <sup>h</sup> 41.4' 41° 8'	"	8:30 am	35 min	2	"	—	S	W	good	g	"	"	—	DP	
1163	NGC 6712	18 <sup>h</sup> 50 <sup>m</sup> 3 -8° 47'	Aug. 8	11:30 pm	30 min	1	IIa-0	—	S	W	Fair- poor	f	22°	"	—	D.P ARC	Clouds intruded half way into exposure - a dirt seem to pick up cluster
1164	M 15	21 <sup>h</sup> 27.6' 11° 57'	Aug 8	2:10 am	30 min	2	IIa-0	U	S	W	good	g	20°	"	—	D.P	
1165	M 15	<del>11° 57'</del> "	"	2:35 am	40 min	3	IIa-0	U	S	W	"	g	"	"	—	D.P	
1166	M 15	"	"	<del>3:20</del> 3:20 am	30 min	4	IIa-0	—	S	W	"	g	"	"	—	D.P	
1167	NGC 6712	18 <sup>h</sup> 50.3 <sup>m</sup> -8° 47'	Aug 8	11:30 pm	"	1	IIa-0	—	S	W	poor- Fair	f-p	21°	"	—	D.P	Again unable to pick up cluster must be off by a few minutes (declination)
1168	"	"	Aug 9	12:00 am	"	2	IIa-0	U	S	W	"	f-p	21°	"	—	D.P	
1169	TON 599	11 <sup>h</sup> 56 <sup>m</sup> 29.31	8-10	15:25	40 min	1	IIa-0	B	S	E	2-3	p	-20	.78	—	HH	no guiding possible due to telescope position
1170	NGC 6946	20 <sup>h</sup> 34 <sup>m</sup> +60°	Aug. 17	0400 / +5:10	75 min	4	103a-G	V	S	W	2"	f	18	.8	—	EC	
1171	NGC 6712	18 <sup>h</sup> 51.7' -8° 45'	Aug 18	CDT <sup>3</sup> 11:30 pm	40	1	IIa-0	—	S	W	poor	f	18	.8	—	DP ARC	
1172	NGC 6712	18 <sup>h</sup> 51.7' -8° 45'	Aug 18	12:15 pm	30	2	IIa-0	U	S	W	"	f	18	.8	—	DP ARC	
1173	Pal 11	19 <sup>h</sup> 42 <sup>m</sup> 6 -8° 09'	Sept. 29	0214 / +1:07	46 <sup>m</sup>	-1/34 1	IIa-0	—	S	W	1-2"	f±		0.79	—	KC	clouds passed during exp (lost 26 <sup>m</sup> )
1174	M 15	21 <sup>h</sup> 27.6 +11° 57'	"	0235 / -0:16	5 <sup>m</sup>	2	"	B	S	W	2-3"	f		0.80	—	KC	
1175	M 39	21 <sup>h</sup> 30.4 +48° 13'	Oct. 28	0035 / -0:25	4 <sup>m</sup>	1	IIe-0	—	S	W	1-2"	f		0.80	—	KC	
1176	M 15	21 <sup>h</sup> 27.6 +11° 57'	"	0052 / -0:05	3 <sup>m</sup>	2	"	B	S	W	1-2"	f		0.80	—	KC	
1177	M 15	"	"	0057 / 0:00	4 <sup>m</sup>	3	"	B	S	W	1-2"	f		"	—	KC	
1178	M 71	19 <sup>h</sup> 51.5 +18° 39'	"	0117 / +1:55	5 <sup>m</sup>	4	"	B	S	W	1-2"	f		0.80	—	KC	
1179	"	"	"	0140 / +2:20	3 <sup>m</sup>	1	"	B	S	W	1-2"	f		"	—	KC	



Plate No.	Object	$\alpha/\delta$ (1950)	Date (UT)	UT/HA (ord)	Exp. time	Guide #	Plate Holder	Emulsion	Filter	P.A.	Tel.	Seeing	Trans.	Temp.	Focus	Flash	Obs.	Remarks
1180	M15	21 <sup>h</sup> 27 <sup>m</sup> .6 +11 <sup>o</sup> 57'	1981/82 Oct. 28	0154/+0:57	3 <sup>m</sup>	-4/30	2	IIa-0	B	S	W	1-2"	f		0.80	-	KC	
1181	"	"	"	0158/+1:01	3 <sup>m</sup>	"	3	"	B	S	W	"	f		"	-	KC	
1182	M15	"	Nov. 17	0204/+2:25	3 <sup>m</sup>	"	1	IIa-0	B	S	W	2"	f		0.80	-	KC/DW	Dirty Filter
1183	M15	"	"	0211/+2:33	3 <sup>m</sup>	"	2	"	"	"	"	2"	f		"	-	KC/DW	"
1184	M39	21 <sup>h</sup> 30 <sup>m</sup> .4 +48 <sup>o</sup> 13'	"	0235/+2:54	5 <sup>m</sup>		3	"	-	"	"	2"	f		"	-	KC	
1185	1614	4 <sup>h</sup> 33 <sup>m</sup> , -8 <sup>o</sup> 33'	1982 26 Feb 82	/0 <sup>h</sup> 50 <sup>m</sup> W	20 <sup>m</sup>	-1/32	1	103aE	RG1	"	"	2-5"	g		"	2x	DH	
1186	2832	9 <sup>h</sup> 18 <sup>m</sup> , 33 <sup>o</sup>	22 Feb 82	/1 <sup>h</sup> 05 <sup>m</sup> E	30 <sup>m</sup>		4	IIa-0	U	"	"	1-2"	g	cold	"	2x	DH	
1187	2832	"	"	/0 <sup>h</sup> 50 <sup>m</sup> E	12 <sup>m</sup>		3	"	B	"	"	"	"	"	"	2x	DH	clads
1188	M3	13 <sup>h</sup> 39 <sup>m</sup> .9 +28 <sup>o</sup> 38'	23 Mar 82	0901/+1 <sup>h</sup> 29 <sup>m</sup>	8 <sup>m</sup>	+2/30	1	IIa-0	B	"	"	3-4"	f-g		"	-	DW	seeing 2-3" for these (1188-1191)?
1189	M3	"	"	0914/+1 <sup>h</sup> 42 <sup>m</sup>	8 <sup>m</sup>	"	2	"	"	"	"	"	"	"	"	-	DW	scratch near center
1190	M5	15 <sup>h</sup> 16 <sup>m</sup> .0 +2 <sup>o</sup> 16'	"	1010/+1 <sup>h</sup> 02 <sup>m</sup>	5 <sup>m</sup>	+2/35	3	"	"	"	"	"	"	"	"	-	DW	
1191	M5	"	"	1021/+1 <sup>h</sup> 13 <sup>m</sup>	5 <sup>m</sup>	"	4	"	"	"	"	"	"	"	"	-	DW	guide problems?
1192	M3	13 <sup>h</sup> 39 <sup>m</sup> .9 +28 <sup>o</sup> 38'	29 Mar 82	0736/+0 <sup>h</sup> 27 <sup>m</sup>	10 <sup>m</sup>		1	"	"	"	"	2-3"	g		"	-	DW	
1193	M3	"	"	0751/+0 <sup>h</sup> 42 <sup>m</sup>	10 <sup>m</sup>		2	"	"	"	"	"	"	"	"	-	DW	
1194	M5	15 <sup>h</sup> 16 <sup>m</sup> .0 +2 <sup>o</sup> 16'	"	0853/+0 <sup>h</sup> 07 <sup>m</sup>	9 <sup>m</sup>		3	"	"	"	"	"	"	"	"	-	DW	
1195	M5	"	"	0907/+0 <sup>h</sup> 21 <sup>m</sup>	7 <sup>m</sup>		4	"	"	"	"	"	"	"	"	-	DW	
1196	M13	16 <sup>h</sup> 39 <sup>m</sup> .9 +36 <sup>o</sup> 33'	"	1000/-0 <sup>h</sup> 09 <sup>m</sup>	7 <sup>m</sup>		1	"	"	"	"	"	"	"	"	-	DW	
1197	M13	"	"	1014/+0 <sup>h</sup> 05 <sup>m</sup>	7 <sup>m</sup>		2	"	"	"	"	"	"	"	"	-	DW	
1198	M92	17 <sup>h</sup> 15 <sup>m</sup> .6 +43 <sup>o</sup> 12'	"	1040/-0 <sup>h</sup> 05 <sup>m</sup>	7 <sup>m</sup>		3	"	"	"	"	"	"	"	"	-	DW	
1199	M3	13 <sup>h</sup> 39 <sup>m</sup> .9 +28 <sup>o</sup> 38'	14 Apr 82	0647/+0 <sup>h</sup> 40 <sup>m</sup>	9 <sup>m</sup>	+2/30	1	"	"	"	"	3-4"	f		"	-	DW	
1200	M3	"	"	0704/+0 <sup>h</sup> 57 <sup>m</sup>	9 <sup>m</sup>	"	2	"	"	"	"	"	"	"	"	-	DW	
1201	M5	15 <sup>h</sup> 16 <sup>m</sup> .0 +2 <sup>o</sup> 16'	"	0733/-0 <sup>h</sup> 09 <sup>m</sup>	6 <sup>m</sup>	+2/35	3	"	"	"	"	"	"	"	"	-	DW	
1202	M5	"	"	0746/+0 <sup>h</sup> 03 <sup>m</sup>	6 <sup>m</sup>	"	4	"	"	"	"	"	"	"	"	-	DW	



Plate No.	Object	$\alpha/\delta$ (1950)	Date (UT) 1982	UT / HA (end)	exp. time	guide * plate holder	emulsion	filter	P.A.	tel.	seeing	trans	temp	focus	flash	obs.	remarks
1203	M13	16 <sup>h</sup> 39 <sup>m</sup> 9 <sup>s</sup> +36° 33'	14 Apr 82	0842 / -0 <sup>h</sup> -24 <sup>m</sup>	6m	<sup>15</sup> / <sub>32</sub> 1	IIa-0	B	S	W	3-4"	f		80	-	DW	7/4 moon
1204	M13	"	"	0855 / -0 <sup>h</sup> -11 <sup>m</sup>	6m	" 2	"	"	"	"	"	"		"	-	DW	"
1205	M92	17 <sup>h</sup> 15 <sup>m</sup> 6 <sup>s</sup> +43° 12'	"	0931 / -0 <sup>h</sup> -11 <sup>m</sup>	6m	<sup>-14</sup> / <sub>32</sub> 3	"	"	"	"	"	"		"	-	DW	"
1206	M92	"	"	0943 / +0 <sup>h</sup> +01 <sup>m</sup>	6m	" 4	"	"	"	"	"	"		"	-	DW	"
1207	M3	13 <sup>h</sup> 39 <sup>m</sup> 9 <sup>s</sup> +28° 38'	25 Jun 82	0325 / +0 <sup>h</sup> +33 <sup>m</sup>	6m	<sup>2</sup> / <sub>30</sub> 1	IIa-0	B	S	W	1-2"	f-g		"	-	DW	moon ~ 30° S 1st Q
1208	M3	"	"	0355 / +1 <sup>h</sup> 03 <sup>m</sup>	6m	" 2	"	"	"	"	"	"		"	-	DW	"
1209	M5	15 <sup>h</sup> 16 <sup>m</sup> 0 <sup>s</sup> +2° 16'	"	0458 / +0 <sup>h</sup> +30 <sup>m</sup>	5m	<sup>-25</sup> / <sub>36</sub> 3	"	"	"	"	2"	"		"	-	DW	1st Q moon ~ 30° W
1210	M5	"	"	0509 / +0 <sup>h</sup> +41 <sup>m</sup>	5m	" 4	"	"	"	"	"	"		"	-	DW	"
1211	M13	16 <sup>h</sup> 39 <sup>m</sup> 9 <sup>s</sup> +36° 33'	"	0531 / -0 <sup>h</sup> -21 <sup>m</sup>	5m	<sup>15</sup> / <sub>32</sub> 1	"	"	"	"	1-2"	"		"	-	DW	shutter closed during exposure - actual exposure ~ 40 Sec
1212	M13	"	"	0541 / -0 <sup>h</sup> -11 <sup>m</sup>	5m	" 2	"	"	"	"	"	"		"	-	DW	"
1213	M13	"	"	0653 / +1 <sup>h</sup> 02 <sup>m</sup>	40m	" 1	"	U	"	"	"	"		"	-	DW	"
1214	M92	17 <sup>h</sup> 15 <sup>m</sup> 6 <sup>s</sup> +43° 12'	"	0726 / +0 <sup>h</sup> 59 <sup>m</sup>	5m	<sup>-11</sup> / <sub>32</sub> 2	"	B	"	"	2"	"		"	-	DW	"
1215	M92	"	"	0736 / +1 <sup>h</sup> 09 <sup>m</sup>	5m	" 3	"	"	"	"	"	"		"	-	DW	"
1216	M3	13 <sup>h</sup> 39 <sup>m</sup> 9 <sup>s</sup> +28° 38'	8 Jun 82	0331 / +1 <sup>h</sup> 02 <sup>m</sup>	7m	<sup>2</sup> / <sub>30</sub> 1	"	"	"	"	2-3"	f-g		"	-	DW	full moon at ~ 18 <sup>h</sup> -22°
1217	M3	"	"	0343 / +1 <sup>h</sup> 14 <sup>m</sup>	7m	" 2	"	"	"	"	"	"		"	-	DW	"
1218	M5	15 <sup>h</sup> 16 <sup>m</sup> 0 <sup>s</sup> +2° 16'	"	0436 / +0 <sup>h</sup> +31 <sup>m</sup>	7m	<sup>-28</sup> / <sub>36</sub> 3	"	"	"	"	3"	"		"	-	DW	"
1219	M5	"	"	0449 / +0 <sup>h</sup> +44 <sup>m</sup>	7m	" 4	"	"	"	"	"	"		"	-	DW	"
1220	M13	16 <sup>h</sup> 39 <sup>m</sup> 9 <sup>s</sup> +36° 33'	"	0525 / -0 <sup>h</sup> -03 <sup>m</sup>	6m	<sup>15</sup> / <sub>32</sub> 1	"	"	"	"	2"	"		"	-	DW	"
1221	M13	"	"	0559 / +0 <sup>h</sup> +31 <sup>m</sup>	6m	" 2	"	"	"	"	"	"		"	-	DW	"
1222	M92	17 <sup>h</sup> 15 <sup>m</sup> 6 <sup>s</sup> +43° 12'	"	0629 / +0 <sup>h</sup> +25 <sup>m</sup>	6m	<sup>-11</sup> / <sub>32</sub> 3	"	"	"	"	2-3"	"		"	-	DW	"
1223	M92	"	"	0641 / +0 <sup>h</sup> +37 <sup>m</sup>	6m	" 4	"	"	"	"	"	"		"	-	DW	"
1224	M5	15 <sup>h</sup> 16 <sup>m</sup> 0 <sup>s</sup> +2° 16'	12 July 82	0447 / +2 <sup>h</sup> 56 <sup>m</sup>	6m	" 1	"	"	"	"	2"	f-g		"	-	DW	"
1225	M5	"	"	0459 / +3 <sup>h</sup> 08 <sup>m</sup>	6m	" 2	"	"	"	"	"	"		"	-	DW	"



plate no.	object	$\alpha/\delta$ (1950)	Date (UT) 1982	UT / HA (end)	exp. time	guide * plate holder	emulsion	filter	p.a.	tel.	seeing	trans.	temp.	focus	flash	obs.	remarks	
1226	M71	19 <sup>h</sup> 51 <sup>m</sup> .5 +18° 39'	12 July 82	0600 / -0 <sup>h</sup> 26 <sup>m</sup>	5m	-2/31	Ia-0	B	S	W	2"	f-g		0.80	-	DW		
1227	M71	"	"	0612 / -0 <sup>h</sup> 14 <sup>m</sup>	5m	"	"	"	"	"	"	"		"	-	DW		
1228	M2	21 <sup>h</sup> 30 <sup>m</sup> .9 -10° 03'	"	0750 / -0 <sup>h</sup> 15 <sup>m</sup>	6m	4/32	"	"	"	"	"	"		"	-	DW	3/4 moon	
1229	M2	"	"	0803 / -0 <sup>h</sup> 02 <sup>m</sup>	6m	"	"	"	"	"	"	"		"	-	DW		
1230	cluster	16 <sup>h</sup> 54.4 -3° 37'	23 July 82	0713 / 3 <sup>h</sup> 37.5	12.5m		103aE	V	"	"	3"	S		0.80	-	AC		
1231			11 Aug 82														AC	
1232	M71	19 <sup>h</sup> 51 <sup>m</sup> .5 +18° 39'	"	05:47 / +1 <sup>h</sup> 19 <sup>m</sup>	7m		Ia-0	B	"	"	2"	g		"	-	DW		
1233	M71	"	"	06:00 / +1 <sup>h</sup> 32 <sup>m</sup>	7m		"	"	"	"	"	"		"	-	DW		
1234	M2	21 <sup>h</sup> 30 <sup>m</sup> .9 -10° 03'	17 Aug 82	07:00 / +1 <sup>h</sup> 15 <sup>m</sup>	15m		"	"	"	"	2"	f		"	-	DW		
1235	M2	"	"	07:19 / +1 <sup>h</sup> 34 <sup>m</sup>	15m		"	"	"	"	"	"		"	-	DW		
1236	NGC 7062	23 <sup>h</sup> 23 <sup>m</sup> .5 +42° 16'	18 Aug 82	08:17 / +0 <sup>h</sup> 39 <sup>m</sup>	2.5m, 3m		"	-	"	"	2"	f-g		"	-	DW	2nd offset 15' N, trailed	
1237	M92	17 <sup>h</sup> 15 <sup>m</sup> .6 +43° 12'	24 Aug 82	02:41 / +1 <sup>h</sup> 40 <sup>m</sup>	6m		Ia-0	B	"	"	1-3"	g		"	-	DW		
1238	M92	"	"	02:56 / +1 <sup>h</sup> 55 <sup>m</sup>	6m		"	"	"	"	"	"		"	-	DW		
1239	M71	19 <sup>h</sup> 51 <sup>m</sup> .5 +18° 39'	"	03:25 / -0 <sup>h</sup> 13 <sup>m</sup>	6m		"	"	"	"	1-2"	"		"	-	DW		
1240	M92	17 <sup>h</sup> 15 <sup>m</sup> .6 +43° 12'	8 Sep 82	00:25 / 0 <sup>h</sup> 6 <sup>m</sup>	10m		"	"	"	"	3"	"		"	-	AF	UT impossible	
1241	M15	21 <sup>h</sup> 27.6 +11° 57'	Sep. 11	0229 / -1:30	5"	-5/30	Ia-0	B	S	W	1-2"	f		0.80	-	KC	wind shaking telescope	
1242	"	"	"	0315 / -0:48	"	"	"	"	"	"	"	"		0.80	-	KC	"	
1243	"	"	"	0336 / -0:27	6"	"	"	"	"	"	"	"		"	-	KC	"	
1244	"	"	"	0407 / +0:04	~9"	"	"	"	"	"	2"	p		"	-	KC	thin clouds	
1245	"	"	"	0440 / +0:37	6"	"	"	"	"	"	1-2"	f		"	-	KC	wind getting worse	
1246	NGC 6822	19 <sup>h</sup> 42 <sup>m</sup> .1 -14° 55'	Sept. 12	0232 / +0:16	10"		Ia-0	B	S	W	2"	f		0.79	-	KC		
1247	M15	21 <sup>h</sup> 27.6 +11° 57'	"	0307 / -0:52	5"	-5/30	"	"	"	"	1-2"	f		0.80	-	KC		
1248	"	"	"	0330 / -0:30	"	"	"	"	"	"	1-2"	f		"	-	KC		



plate no.	object	$\alpha/\delta$ (1950)	Date (UT)	UT/HA (end)	exp. time	guide #	plate holder	emulsion	filter	p.a.	tel.	seeing	trans.	temp.	focus	flash	obs.	remarks
1249	M15	21 <sup>h</sup> 27. <sup>m</sup> 6 +11 <sup>o</sup> 57'	1982 Sept. 12	0357/-0:02	5 <sup>m</sup>	-5/30	4	IIa-O	B	S	W	1-2"	f	-	0.80	-	KC	
1250	"	"	"	0435/+0:36	5 <sup>m</sup>	"	1	"	"	"	"	"	"	"	"	-	KC	
1251	"	"	"	0500/+1:01	6 <sup>m</sup>	"	2	"	"	"	"	2"	"	"	"	-	KC	
1252	M15	21 <sup>h</sup> 27. <sup>m</sup> 6 +11 <sup>o</sup> 57'	Sept. 13	0233/-1:23	7 <sup>m</sup>	"	3	IIa-O	B	S	W	2-3"	f		0.80	-	KC	wind shaking telescope
1253	"	"	"	0317/-0:40	"	"	4	"	"	"	"	"	"	"	"	-	KC	wind / seeing getting worse
1254	M15	21 <sup>h</sup> 27. <sup>m</sup> 6 +11 <sup>o</sup> 57'	Sept. 19	0220/-1:12	5 <sup>m</sup>	"	1	IIa-O	B	S	W	1-2"	g		0.80	-	KC	
1255	"	"	"	0256/-0:36	5 <sup>m</sup>	"	2	"	"	"	"	"	"	"	"	-	KC	
1256	"	"	"	0314/-0:18	5 <sup>m</sup>	"	3	"	"	"	"	"	"	"	"	-	KC	
1257	"	"	"	0357/+0:25	5 <sup>m</sup>	"	4	"	"	"	"	"	"	"	"	-	KC	
1258	"	"	"	0430/+0:58	6 <sup>m</sup>	"	1	"	"	"	"	"	"	"	"	-	KC	
1259	"	"	"	0453/+1:21	5 <sup>m</sup>	"	2	"	"	"	"	"	"	"	"	-	KC	
1260	"	"	"	0523/+1:52	5 <sup>m</sup>	"	3	"	"	"	"	"	"	"	"	-	KC	
1261	"	"	"	0545/+2:14	6 <sup>m</sup>	"	4	"	"	"	"	"	"	"	"	-	KC	
1262	M15	"	Sept. 22	03:17 / -0:03	5 <sup>m</sup>	"	1	"	"	"	"	1-2"	g		"	-	DW	Very spectacular aurora from N horizon to past zenith
1263	"	"	"	03:52 / +0:32	5 <sup>m</sup>	"	2	"	"	"	"	"	"	"	"	-	DW	
1264	"	"	"	04:29 / +1:09	~5 <sup>m</sup>	"	3	"	"	"	"	"	"	"	"	-	DW	
1265	"	"	"	05:09 / +1:49	5 <sup>m</sup>	"	4	"	"	"	"	"	"	"	"	-	DW	
1266	M2	21 <sup>h</sup> 30. <sup>m</sup> 9 -1 <sup>o</sup> 03'	Oct. 23	0228/+1:07	5 <sup>m</sup>	-5/33	1	IIa-O	B	S	W	1-2"	f		0.80	-	KC	
1267	"	"	"	0234 / +1:13	5 <sup>m</sup>	"	2	"	"	S	W	"	f		0.80	-	KC	
1268	M71	19 <sup>h</sup> 51. <sup>m</sup> 5 +18 <sup>o</sup> 39'	Oct. 24	0138/+2:00	5 <sup>m</sup>	"	1	"	"	S	W	1-2"	f		0.80	-	KC	
1269	"	"	"	0146 / +2:08	"	"	2	"	"	S	W	"	f		"	-	KC	
1270	M2	21 <sup>h</sup> 30. <sup>m</sup> 9 -1 <sup>o</sup> 03'	"	0203 / +0:44	"	"	3	"	"	S	W	1-2"	f		0.80	-	KC	
1271	M2	"	"	0208 / +0:50	"	"	4	"	"	S	W	"	f		"	-	KC	



Plate no.	Object	$\alpha/\delta$ (1950)	Date (UT)	UT / HA (end)	exp. time	guide *	plate holder	Emulsion	Filter	p.a.	tel.	seeing	trans	temp	focus	flash	Obs.	Remarks
1272	H2457	3 <sup>h</sup> 44 <sup>m</sup> .1 +23°51'	1982 Oct. 24	0436/-2:55	4 <sup>m</sup>		2	IIa-O	B	S	W	2"	f		0.80	-	KC	
1273	"	"	"	0504/-2:27	8 <sup>m</sup>		3	"	"	"	"	"	"	"	"	-	KC	
1274	M13	16 <sup>h</sup> 39 <sup>m</sup> .9 +36°33'	1983 May 9	0530/-1:59	1 <sup>h</sup>	6/31	3	103a-G	V	S	W	2-3"	g	~0°C	0.80	-	KC	
1275	"	"	"	0618/-1:10	30 <sup>m</sup>	"	1	IIa-O	B	S	W	2-4"	g		"	-	KC	
1276	Comet 1983d	~17 <sup>h</sup> 13 <sup>m</sup> +68°55'	"	0637/-1:24	15 <sup>s</sup>	"	2	"	-	S	W	3"	g		0.80	-	KC	
1277	M3	13 <sup>h</sup> 39 <sup>m</sup> .9 +28°38'	May 11	0359/-0:22	10 <sup>m</sup>		2	IIa-O	B	S	W	1-2"	f		0.80	-	KC+RM	
1278	"	"	"	0412/-0:09	"		3	"	"	"	"	"	"	"	"	-	RM+KC	
1279	M13	16 <sup>h</sup> 39 <sup>m</sup> .9 +36°33'	"	0510/-2:11	40 <sup>m</sup>		2	"	B	S	W	1-2"	f		0.80	-	KC+RM	
1280	"	"	"	0620/-1:01	60 <sup>m</sup>		3	103a-G	V	S	W	1-2"	f		"	-	KC	circus around
1281	Comet Johnson	18 <sup>h</sup> 52 <sup>m</sup> .24 <sup>s</sup> -12°02'	May 21	0831/-0:09	18 <sup>m</sup>		3	103a-G	-	S	W	3-4"	f	10C	0.80	-	Rm	
1282	"	"	"	0907/+0:26	22 <sup>m</sup>		1	"	-	S	W	3"	f		0.80	-	Rm	circus at end of exposure
1283	M5	15 <sup>h</sup> 16 <sup>m</sup> .0 +2°16'	June 7	0309/-1:03	6 <sup>m</sup>		1	IIa-O	B	S	W	2"	f		0.80	-	KC	
1284	"	"	"	0316/-0:56	"		2	"	B	S	W	2"	f		"	-	KC	
1285	M13	16 <sup>h</sup> 39 <sup>m</sup> .9 +36°33'	"	0509/-0:25	90 <sup>m</sup>		3	103a-G	V	S	W	2"	f		0.80	-	KC	
1286	M92	17 <sup>h</sup> 15 <sup>m</sup> .6 +43°12'	"	0543/-0:27	6 <sup>m</sup>		1	IIa-O	B	S	W	2"	f		"	-	KC	
1287	"	"	"	0550/-0:20	6 <sup>m</sup>		3	"	B	S	W	2"	f		"	-	KC	
1288	M71	19 <sup>h</sup> 51 <sup>m</sup> .5 +18°39'	"	0617/-2:28	6 <sup>m</sup>		1	"	B	S	W	2-3"	f		0.80	-	KC	wind increasing + gusty
1289	"	"	"	0624/-2:21	6 <sup>m</sup>		3	"	B	S	W	2-3"	f		"	-	KC	"
1290	"	"	"	0634/-2:11	5 <sup>m</sup>		4	103a-G	V	S	W	2-4"	f		"	-	KC	old plate
1291	VI Cyg Assoc	~20 <sup>h</sup> 31 <sup>m</sup> .5 +41°09'	"	0707/-2:18	5 <sup>m</sup>		1	"	"	S	W	3"	f		0.80	-	KC	"
1292	M3	13 <sup>h</sup> 39 <sup>m</sup> .9 +28°38'	June 10	0335/+1:12	6 <sup>m</sup>		1	IIa-O	B	S	W	1-2"	f		0.80	-	KC	
1293	"	"	"	0342/+1:19	6 <sup>m</sup>		2	"	B	S	W	1-2"	f		"	-	KC	
1294	M13	16 <sup>h</sup> 39 <sup>m</sup> .9 +36°33'	"	0516/-0:06	75 <sup>m</sup>		3	103a-G	V	S	W	1-2"	f		0.80	-	KC	



Plate no.	Object	$\alpha/\delta$ (1950)	Date (UT)	UT/HA (md)	Exp. Time	Guide * plate holder	Emulsion	Filter	p.a.	Tel.	Seeing	Trans.	Temp.	Focus	Flash	Obs.	Remarks
1295	M13	16 <sup>h</sup> 39. <sup>m</sup> 9 +36° 33'	1983/4 June 10	0642/+1:20	70 <sup>m</sup>	4	103a-G	V	S	W	1-2"	f		0.80	-	KC	lightning on horizon
1296	M92	17 <sup>h</sup> 15. <sup>m</sup> 6 +43° 12'	"	0708/+1:11	5 <sup>m</sup>	1	IIa-0	B	S	W	1-2"	f		"	-	KC	"
1297	"	"	"	0714/+1:17	5 <sup>m</sup>	2	"	B	S	W	1-2"	f		"	-	KC	"
1298	"	"	July 1	0343/-0:52	7 <sup>m</sup>	-1/32	1	IIa-0	B	S	W	2"	f	0.80	-	DB+KC	
1299	"	"	"	0358/-0:37	7 <sup>m</sup>	"	2	"	"	"	"	f+p		"	-	"	clouds coming in
1300	M71	19 <sup>h</sup> 51. <sup>m</sup> 5 +18° 3'	July 6		7 <sup>m</sup>		1	IIa-0	B	S	W	>2"		0.80	-	DB	
1301	M71	"	"		7 <sup>m</sup>		2	"	B	"	"			"	-	DB	
1302	NGC 7094	21 <sup>h</sup> 36. <sup>m</sup> 9 +12° 43'	Aug 13	0703/-1:00	31 <sup>m</sup>		3	IIa-0	B	S	W	2"	f	0.81	-	GB	nebula off center to the West
1303	NGC 7662	23 <sup>h</sup> 23. <sup>m</sup> 5 +42° 16'	Aug 13	0810/+0:20	30 <sup>m</sup>		4	IIa-0	B	S	W	1-2"	f	0.81	-	GB	
1304	a M71 b M92		(Aug 15?)				1										2 unlabeled plates found with DB things 26 Feb, 1987 entries made then by KC just East of Galaxy cluster ZC 2136.4 H20 just south of NGC 7094
1305		21 <sup>h</sup> 36. <sup>m</sup> +12° 20'	Aug 15	0610/-0:75	30 <sup>m</sup>		2	IIa-0	B	S	W	2 <sup>h</sup> 3"	f	0.81	-	GB	
1306	NGC 7662	23 <sup>h</sup> 23. <sup>m</sup> 5 +42° 16'	Aug 15	0719/+0:17	30 <sup>m</sup>		3	IIa-0	B	S	W	2"	f	0.81	-	GB	
1307	NGC 7662	23 <sup>h</sup> 23. <sup>m</sup> 5 +42° 16'	Aug 15	0800/-0:10	30 <sup>m</sup>		4	IIa-0	B	S	W	2"	f	0.81	-	GB	
1308	NGC 7662	23 <sup>h</sup> 23. <sup>m</sup> 5 +42° 16'	Oct. 26	0115/-1:49	40 <sup>m</sup>		1	IIa-0	B	S	W	3"	f	0.80	-	KC	old plate
1309	"	"	"	0156/-1:07	30 <sup>m</sup>		3	IIa-0	B	S	W	3"	f (cirrus?)	0.80	4X	KC	old plate (flash 4 x 10 <sup>5</sup> ) gibbous moonrise in NE during exp. new plates
1310	NGC 7662	"	Oct. 27	0042/ <del>0:14</del> -2:16	20 <sup>m</sup>		1	IIa-0	B	S	W	1-2"	f-g	0.80	2X	KC	"
1311	"	"	"	0103/+1:55	20 <sup>m</sup>		3	IIa-0	B	S	W	1-2"	f-g	0.80	2X	KC	"
1312	Jn 1	23 <sup>h</sup> 33. <sup>m</sup> 4 +30° 11'	"	0152/-1:17	20 <sup>m</sup>		1	IIa-0	B	S	W	1-2"	f-g	"	2X	KC	"
1313	"	"	"	0213/-0:56	20 <sup>m</sup>		3	IIa-0	B	S	W	1-2"	f-g	"	2X	KC	"
1314	LP101-15/16	16 <sup>h</sup> 33. <sup>m</sup> 5 +57° 15'	1984 May 24	0350/-2:29	15 <sup>m</sup>	+5/31	1	IIa-0	B	S	W	2"	f-p	0.80	2X	KC	cirrus around
1315	M13	16 <sup>h</sup> 39. <sup>m</sup> 9 +36° 33'	"	0445/-1:42	35 <sup>m</sup>	+6/30	3	IIa-0	B	S	W	2"	f	"	2X	KC	"
1316	IC 4593	16 <sup>h</sup> 09. <sup>m</sup> 3 +12° 11'	"	0539/-0:18	30 <sup>m</sup>		2	IIa-0	B	S	W	2"	f	0.80	2X	KC	"
1317	M13	16 <sup>h</sup> 39. <sup>m</sup> 9 +36° 33'	June 26	0346/-0:31	45 <sup>m</sup>		1	IIa-0	B	S	W	2-3"	g	0.80	2X	KC	seeing getting worse



Plate no.	Object	$\alpha / \delta$ (1950)	Date (UT)	UT/HA (end)	Exp. Time	Guide * plate holder	Emulsion	Filter	PA	Tel.	Seeing	Trans	Temp.	Focus	Flash	Obs.	Remarks	
1318	Nova Her 1963	18 <sup>h</sup> 12. <sup>m</sup> 8 +41° 50'	1984 June 26	0432 / -1:16	15 <sup>m</sup>	2	IIa-0	B	S	W	2"	g		0.80	2X	KC		
1319	Nova Her 1960	18 <sup>h</sup> 55. <sup>m</sup> 1 +13° 13'	" "	0509 / -1:23	15 <sup>m</sup>	3	IIa-0	B	S	W	2-3"	g		0.80	2X	KC		
1320	M 13	16 <sup>h</sup> 39. <sup>m</sup> 9 +36° 33'	June 28	0352 / -0:17	44 <sup>m</sup>	+5/30	2	IIa-0	B	S	W	1-2"	g		0.80	2X	KC	
1321	"	"	"	0502 / +0:53	56 <sup>m</sup>	"	1	IIa-0	B	S	W	1-2"	g		"	1X	KC	
1322	NGC 6791	19 <sup>h</sup> 19. <sup>m</sup> 0 +37° 45'	"	0553 / -0:55	25 <sup>m</sup>	0/31	3	IIa-0	B	S	W	1-2"	f		"	2X	KC	clouds at end
1323	M 13	16 <sup>h</sup> 39. <sup>m</sup> 9 +36° 33'	July 1	0410 / +0:13	57 <sup>m</sup>	"	1	IIa-0	B	S	W	1-2"	f		0.80	1X	KC	clouds at end
1324	"	"	July 2	0432 / +0:39	75 <sup>m</sup>	"	1	IIa-0	B	S	W	1-2"	f		0.81	1X	KC	
1325	IC 4593	16 <sup>h</sup> 09. <sup>m</sup> 3 +12° 11'	July 31	0440 / +3:30	40 <sup>m</sup>	-2/35	1	IIa-0	B	S	W	2-3"	f		0.80	-	SM/JM	
1326	"	"	Aug 1	0345 / +2:21	60 <sup>m</sup>	4.9/30	2	IIa-0	B	S	W	3"	f		0.81	-	SM/JM	
1327	NOVA Vul VUL.	19 <sup>h</sup> 23. <sup>m</sup> 9 +27° 16'	Aug 1	0500 / +0:20	14 <sup>m</sup>	2.5/30	3	IIa-0	B	S	W	3"	f		0.80	-	JM/SM	aurora to north
1328	IC 4593	16 <sup>h</sup> 09. <sup>m</sup> 3 +12° 11'	Aug 11	0320 / +3:00	50 <sup>m</sup>	-16/40	1	IIa-0	B	S	W	2"	f		0.81	-	SM/JM	light leak, blank plate
1329	IC 4593	16 <sup>h</sup> 09. <sup>m</sup> 3 +12° 11'	Aug 12	0345 / +3:02	72 <sup>m</sup>	+26.0/40	2	IIa-0	B	S	W	2"	f		0.80	-	SM/JM	full moon
1330	M 13	16 <sup>h</sup> 39. <sup>m</sup> 9 +36° 33'	Aug. 15	0330 / +2:30	60 <sup>m</sup>	15/30	1	103a-G	V	S	W	1-2"	f		0.80	-	KC	br. moon last 30-40 <sup>m</sup>
1331	Nova Vul 1984	19 <sup>h</sup> 24. <sup>m</sup> 0 +27° 16'	"	0428 / +0:43	5 <sup>m</sup>	20/31	2	IIa-0	B	S	W	2"	f		0.80	-	KC	br. moon
1332	Nova Her 1960	18 <sup>h</sup> 55. <sup>m</sup> 1 +13° 10'	Sept. 18	0155 / +0:54	30 <sup>m</sup>	"	1	IIa-0	B	S	W	1-2"	g		0.80	1X	KC	
1333	Nova Vul 1984	19 <sup>h</sup> 24. <sup>m</sup> 0 +27° 16'	"	0215 / +0:45	5 <sup>m</sup>	"	2	"	"	"	"	"	"	0.80	-	KC	trail (on $\Theta$ Lyr)	
1334	NGC 6791	19 <sup>h</sup> 19. <sup>m</sup> 0 +37° 45'	"	0245 / +1:25	5 <sup>m</sup>	"	3	"	-	"	"	"	"	"	-	KC	"	
1335	"	"	"	0300 / +1:40	5 <sup>m</sup>	"	4	"	-	"	"	"	"	"	-	KC	"	
1336	NGC 6712	18 <sup>h</sup> 50. <sup>m</sup> 3 -8° 45'	Sept. 19	0134 / +0:40	5 <sup>m</sup>	-15/34	1	IIa-0	-	S	W	2-3"	g		0.80	-	KC	trail on plate
1337	"	"	"	0144 / +0:50	"	"	2	"	-	"	"	3"	"		"	-	KC	"
1338	Pal II	19 <sup>h</sup> 42. <sup>m</sup> 6 -8° 05'	"	0203 / +0:17	"	-2/31	3	"	-	"	"	3"	"		"	-	KC	"
1339	"	"	"	0214 / +0:28	"	"	4	"	-	"	"	2-3"	"		"	-	KC	"
1340	NGC 2158	6 <sup>h</sup> 04. <sup>m</sup> 4 +2.4° 06'	1985 Apr. 16	0208 / +3:44	5 <sup>m</sup>	13/33	1	IIa-0	-	S	W	1-2"	g		0.79	-	KC	"



Plate no.	Object	$\alpha/\delta$ (1950)	Date (UT)	UT/HA (end)	Exp. Time	Guide plate * holder	Emulsion	Filter	PA	Tel.	Seeing	Trans	Temp.	Focus	Flash	Obs.	Remarks
1341	NGC 2158	6 <sup>h</sup> 04.4 <sup>m</sup> +24° 06'	1985 Apr. 16	0225/0402	7 <sup>m</sup>	13/33 2	IIa-0	-	S	W	1-2"	g		0.79	-	KC	trail on plate
1342	LTT 18431	16 <sup>h</sup> 05 <sup>m</sup> .5 -10° 23'	June 19	0630/0224	25 <sup>m</sup>	11/29 1	"	B	"	W	2-3"	f-g	20°	0.80	-	SM	breezy
1343	"	"	"	0700/0252	20 <sup>m</sup>	" 2	"	B	"	"	"	"	"	"	-	SM	"
1344	"	"	"	0716/0307	10 <sup>m</sup>	" 3	"	B	"	"	"	"	"	"	-	SM	"
1345	Comet Giacobini-Zinner	21 <sup>h</sup> 31 <sup>m</sup> .5 +42° 43'	"	0755/-0139	2 <sup>m</sup>	- 4	"	-	"	"	"	"	"	0.80	-	SM	"
1346	LTT 18431	16 <sup>h</sup> 05 <sup>m</sup> .5 -10° 23'	June 20	0452/+0046	30 <sup>m</sup>	14/29 1	"	B	"	"	"	"	23°	0.80	-	SM	"
1347	"	"	"	0535/+0130	35 <sup>m</sup>	" 2	"	B	"	"	"	"	22°	"	-	SM	"
1348	"	"	"	0632/0226	45 <sup>m</sup>	" 3	"	B	"	"	"	"	21°	"	-	SM	"
1349	Comet Field Giacobini-Zinner	21 <sup>h</sup> 34 <sup>m</sup> .3 +43° 15'	"	0758/-0134	20 <sup>m</sup> /4 <sup>m</sup> break, 2 <sup>m</sup>	0/32 4	"	-	"	"	"	"	20°	0.80	-	SM	(1985) 21 <sup>h</sup> 35 <sup>m</sup> 37 <sup>s</sup> , +43° 26'
1350	LTT 18431	16 <sup>h</sup> 05 <sup>m</sup> .5 -10° 23'	June 26	0439/+0056	33 <sup>m</sup>	14/29 1	LI	B	"	"	"	f	28°	0.795	-	SM	"
1351	Comet Giacobini-Zinner Field	21 <sup>h</sup> 52 <sup>m</sup> .4 +46° 37'	"	0638/+0256	2 <sup>m</sup> , 10 <sup>m</sup> break, 16 <sup>m</sup>	13/30 2	"	-	"	"	"	"	26°	0.80	-	BR/SM	(1985) 21 <sup>h</sup> 55 <sup>m</sup> 17 <sup>s</sup> , +47° 00'
1352	LTT 18431	16 <sup>h</sup> 05 <sup>m</sup> .5 -10° 23'	July 16	0405/+0139	52 <sup>m</sup>	14/31 1	"	B	"	"	2-3"	f-g	28°	0.795	-	SM	clouds at end, light leak
1353	3C 351	17 <sup>h</sup> 04 <sup>m</sup> .1 +60° 48'	"	0826/+0505	57 <sup>m</sup>	24/37 2	"	B	"	"	"	g	25°	0.80	-	SM	interrupted by clouds (33 <sup>m</sup> , 7 <sup>m</sup> used, 24 <sup>m</sup> )
1354	Comet Giacobini-Zinner	"	"	0930/-0003	2 <sup>m</sup> , (8 <sup>m</sup> break) 8 <sup>m</sup>	" 3	"	-	"	"	"	"	"	0.80	-	SM	(1985) 23 <sup>h</sup> 18 <sup>m</sup> 00 <sup>s</sup> , +56° 25', twilight dark
1355	LTT 18431	16 <sup>h</sup> 05 <sup>m</sup> .5 -10° 23'	July 17	0415/+0259	63 <sup>m</sup>	14/31 1	"	B	"	"	2"	g	27	0.795	-	BR	plate holder not in all the way
1356	3C 351	17 <sup>h</sup> 04 <sup>m</sup> .1 +60° 48'	"	0900/+0546	57 <sup>m</sup>	24/37 2	"	B	"	"	2-3"	"	24°	0.80	-	SM	"
1357	LTT 18431	16 <sup>h</sup> 05 <sup>m</sup> .5 -10° 23'	July 18	0453/+0239	67 <sup>m</sup>	14/31 1	"	B	"	"	"	f	27°	0.795	-	SM	"
1358	LP 101-15	16 <sup>h</sup> 33 <sup>m</sup> .5 +57° 15'	"	0725/0444	45 <sup>m</sup>	4/40 2	"	B	"	"	"	"	25°	0.80	-	SM	"
1359	"	"	"	0818/0538	40 <sup>m</sup>	" 3	"	B	"	"	"	"	"	"	-	SM	"
1360	Comet Giacobini-Zinner	"	"	0918/-0023	4 <sup>m</sup> , (5 <sup>m</sup> break) 1 <sup>m</sup>	5/40 4	"	-	"	"	"	"	"	"	-	SM	(1985) 23 <sup>h</sup> 30 <sup>m</sup> .4 +57° 16'
1361	LP 101-15	16 <sup>h</sup> 33 <sup>m</sup> .5 +57° 15'	Aug 16	0458/0408	55 <sup>m</sup>	4/40 1	"	B	"	"	2"	"	26°	0.80	2x	SM	"
1362	"	"	"	0605/0515	60 <sup>m</sup>	" 2	"	B	"	"	"	"	25°	0.80	-	SM	"
1363	NGC 1062	23 <sup>h</sup> 23 <sup>m</sup> .5 +42° 10'	"	0728/0004	50 <sup>m</sup>	4/40 3	"	B	"	"	1-2"	"	25°	0.80	2x	SM	"



Plate No.	Object	$\alpha/\delta$ (1950)	Date (UT)	UT/HA (end)	Exp. Time	Guide *	Plate Holder	Emulsion	Filter	PA	Tel.	Seeing	Trans.	Temp.	Focus	Flash	Obs.	Remarks
1364	Comet Giacobini-Zinner		1985 Aug 16	0841 / -02:51	6 <sup>m</sup>	21/37	4	IIa-O	-	S	W	1-2"	fg	24°	0.80	3X	BB/SM	(1985) 3 <sup>h</sup> 27 <sup>m</sup> 40 <sup>s</sup> +54° 23'
1365	Comet Halley	6:01.2 +19° 07'	"	0930 / -04:46	15 <sup>m</sup>		1	IIa-O	-	"	"	2"	"	23°	0.78	-	KC/SM	(1985) 6 <sup>h</sup> 03 <sup>m</sup> 2 <sup>s</sup> +19° 07'
1366	Comet Halley	6:04.2 +19° 12'	Aug. 22	0924 / -4:33	15 <sup>m</sup>		2	IIa-O	-	S	W	4"	fg		0.78	2X	KC	(1985: 6:06.3 +19° 12')
1367	"	"	"	0944 / -4:13	15 <sup>m</sup>		1	IIa-O	-	S	W	3"	f-g		"	1X	KC	" into dawn
1368	Comet Giacobini-Zinner	4 <sup>h</sup> 41 <sup>m</sup> 2 <sup>s</sup> +43° 35'	Aug 27	0827 / -03:42	3 <sup>m</sup>	09/30	1	"	-	S	W	5"	f	+23°	0.79	4X	SM	(1985) 4 <sup>h</sup> 43 <sup>m</sup> 7 <sup>s</sup> +43° 40'
1369	Comet Halley	6:06.6 +19° 17'	"	0919 / -4:24	12 <sup>m</sup>		2	"	-	S	W	3.5"	f	"	0.78	2X	SM	1985: 6:08.7 +19:17
1370	"	"	"	0948 / -03:52	25 <sup>m</sup>		3	"	-	S	W	3-5"	f	"	0.78	1X	KC	"
1371	p/Halley	6 <sup>h</sup> 12.0 +19° 32'	Sept. 12	0924 / -03:18	10 <sup>m</sup>		3	IIa-O	-	S	W	3-5"	g	+17°	0.77	2X	KC	2d plate
1372	"	"	"	0952 / -02:49	25 <sup>m</sup>		2	"	-	"	"	2.5"	"	"	"	2X	KC	fresh plate
1373	NGC 2158	6 <sup>h</sup> 04 <sup>m</sup> 4 <sup>s</sup> +24° 06'	"	10 07 / -2:27	5 <sup>m</sup>		1	"	-	"	"	3"	g	"	"	2X	KC	"
1374	p/Halley	6 <sup>h</sup> 05.3 +20° 31'	Oct. 13	0912 / -1:19	10 <sup>m</sup>		1	IIa-O	-	"	"	2"	f	+17°	0.80	2X	KC	clouds at end
1375	p/Halley	22 <sup>h</sup> 15 <sup>m</sup> 0 <sup>s</sup> -2° 33'	Jan 1	0055 / 3:20	5 <sup>m</sup>		1	IIa-O	-	"	"	"	f	-5°	0.78	-	SM	lots of obscuration by dome not centered in guide
1376	"	"	"	0110 / 3:35	10 <sup>m</sup>		2	"	-	"	"	"	"	"	"	-	SM	"
1377	"	"	"	0120 / 3:45	5 <sup>m</sup>		3	"	-	"	"	"	"	"	"	-	SM	even more obscuration by dome centered in guide, but not field
1378	p/Halley	"	Jan 7	0003 / 3:56	3 <sup>s</sup>		1	"	-	"	"	"	f	"	"	-	"	"
1379	M67	8 <sup>h</sup> 50 <sup>m</sup> 6 <sup>s</sup> +11° 51'	Mar 29	02:17 / -0:02	23 <sup>m</sup>		3	103a-G	✓	"	"	2-3"	f-p	60°	0.79	-	DW	gusty wind shaking telescope
1380	M67	"	"	02:55 / +0:36	24 <sup>m</sup>		4	"	"	"	"	"	"	"	"	-	DW	"
1381	M67	"	"	03:49 / +1:30	22 <sup>m</sup>		3	IIa-O	B	"	"	"	"	"	0.80	-	DW	"
1382	M67	"	"	04:18 / +1:59	24 <sup>m</sup>		4	"	"	"	"	"	"	"	"	-	DW	"
1383	M67	"	Apr 1	01:55 / +0:16	25 <sup>m</sup>		3	103a-G	✓	"	"	2"	fg	73°	0.79	-	GB	Rather windy
1384	M67	"	"	2:35 / +0:55	25 <sup>m</sup>		4	103a-G	"	"	"	2"	f-g	"	0.79	-	GB	"
1385	M67	"	"	4:02 / +2:20	25 <sup>m</sup>		4	IIa-O	B	"	"	2"	fg	"	"	-	GB	"
1386	M67	"	Apr 2	1:45 / +0:35	50 <sup>m</sup>	"	4	103a-G	✓	"	"	~2"	f-g	-50°	0.805	-	GB	OK



Plate No.	Object	$\alpha/\delta$ (1950)	Date (UT)	UT/HA (end)	Exp. Time	Guide * Plate Holder	Emulsion	Filter	PA.	Tel.	Seeing	Trans.	Temp.	Focus	Flash.	Obs	Remarks
1387	M67	1 <sup>h</sup> 50 <sup>m</sup> 6 <sup>s</sup> +11° 51'	1986/87/88 Apr 2	3:25 / 2:10	45m	18/3	IIa-0	B	S	W	~2"	f-g	50	.79	-	GB	
1388	P/Halley	10 <sup>h</sup> 23 <sup>m</sup> 9 <sup>s</sup> -6° 50'	May 30	0306 / +3:17	14m	1	IIa-0	-	S	W	1-2"	f		0.79	-	KC	
1389	P/Halley	"	"	0313 / +3:24	6m	2	"	-	S	W	"	f		0.79	-	KC	
1390	M4	16 <sup>h</sup> 20 <sup>m</sup> 6 <sup>s</sup> -26° 24'	"	0510 / -0:36	7m	+13/38 1	IIa-0	B	S	W	2"	f		0.79	-	KC	
1391	M4	"	"	0520 / -0:26	7m	" 2	IIa-0	B	S	W	2"	f		0.79	-	KC	
1392	M4	"	"	0543 / -0:03	15m	" 3	IIa-0	B	S	W	2"	f		"	-	KC	
1393	M4	"	"	0559 / +0:13	15m	" 4	IIa-0	B	S	W	2"	f		"	-	KC	
1394	M71	19 <sup>h</sup> 51 <sup>m</sup> 5 <sup>s</sup> +18° 39'	July 17	0349 / -2:19	2m	1	IIa-0	-	S	W	1-2"	f	30C	0.80 (f/8)	-	KC	Fresh aluminum on all mirrors June/July 1986 f/8 test plates f/8 knife edge looks good f/13 knife edge looks poor f/13 guide images terrible unguided
1395	"	"	"	0358 / -2:10	5m	2	IIa-0	-	S	W	1-2"	f	"	"	-	KC	
1396	"	"	"	0447 / -1:20	1m	3	IIa-0	-	S	W	?	f	"	0.89 (f/13)	-	KC	
1397	Comet Wilson 1986L	22 <sup>h</sup> 10 <sup>m</sup> 0 <sup>s</sup> +24° 25'	Aug. 12	0349 / -2:54	3m	1	IIa-0	-	S	W	1-2"	g	-	0.80 (f/8)	-	KC	
1398	"	"	"	0400 / -2:44	7m	2	"	-	S	W	1-2"	g	-	"	-	KC	
1399	NGC 2158/68	6 <sup>h</sup> 04 <sup>m</sup> 5 <sup>s</sup> +24° 13'	1987 Feb. 2	0323 / +0:10	10m	1	103a-G	V	S	W	5"	f	+2°C	0.80	-	KC	
1400	"	"	"	0338 / 0:25	10m	2	"	"	S	W	5"	f	"	"	-	KC	Wind shaking scope in RA drive lost briefly
1401	"	"	Mar. 3	0255 / +1:35	8m	1	"	"	S	W	2"	g	+3°C	0.81	-	KC	wind shaking scope
1402	"	"	"	0318 / +1:58	"	2	"	"	S	W	"	"	"	"	-	KC	lost wind
1403	"	"	"	0327 / +2:07	"	3	"	"	S	W	"	"	"	"	-	KC	
1404	$\theta$ Ori	5 <sup>h</sup> 32 <sup>m</sup> 8 <sup>s</sup> -5° 24'	1988 Feb. 18	0154 / +0:15	3m	1	103a-G	V	S	W	3-5"	g	-1°C	0.80	-	KC	
1405	NGC 752	1 <sup>h</sup> 54 <sup>m</sup> 8 <sup>s</sup> +37° 26'	"	0226 / +4:25	7m	-19/32 2	"	V	S	W	3"	g	-1°C	"	-	KC	
1406	"	"	"	0233 / +4:32	5m	3	IIa-0	B	S	W	3"	g	-1°C	"	-	KC	
1407	NGC 2419	7 <sup>h</sup> 34 <sup>m</sup> 8 <sup>s</sup> +39° 00'	"	0254 / -0:46	5m	+10/33 4	"	-	S	W	3"	g	-1°C	0.80	-	KC	+trail (2m)
1408	$\theta$ Ori	5 <sup>h</sup> 32 <sup>m</sup> 8 <sup>s</sup> -5° 24'	Feb. 19	0155 / +0:20	5m	2	103a-G	V	S	W	1"	f	+1°C	0.80	-	KC	
1409	"	"	"	0159 / +0:24	2m	3	103a-G	V	S	W	1"	f	+1°C	"	-	KC	



Plate no.	Object	$\alpha/\delta$ (1950)	Date (UT)	UT/HA (end)	Exp. Time	Guide *	Plate Holder	Emulsion	Filter	P.A.	Tel.	Seeing	Trans.	Temp.	Focus	Flash	Obs.	Remarks
1410	$\theta$ Ori	$5^h 32.8^m$ $-5^{\circ} 24'$	1988 Feb. 19	0224/+0:50	10 <sup>m</sup>		4	103a-G	V	S	W	1"	f	+1°C	0.80	-	KC	
1411	NGC 2419	$7^h 34.8^m$ $+39^{\circ} 00'$	"	0246/-0:51	5 <sup>m</sup>		1	old "	-	S	W	1"	f	+1°C	0.80	-	KC	+2 <sup>m</sup> trail
1412	G 125-39	$19^h 50.1^m$ $+29^{\circ} 11'$	Sept. 15	0142/-0:28	2x10 <sup>m</sup>	+23/35	1	IIa-O	B	S	W	3"±	f	-	0.80	-	KC	offsets in S
1413	"	"	"	0218/+0:10	2x17 <sup>m</sup>	"	2	"	"	"	"	3"±	f	-	"	-	KC	seeing improving? a bit fast
1414	G 93-1	$21^h 16.0^m$ $+2^{\circ} 24'$	"	0301/-0:33	2x10 <sup>m</sup>	+12/33	3	"	"	"	"	2-3"	f-g	-	0.80	-	KC	
1415	"	"	"	0354/+0:20	2x15 <sup>m</sup>	"	4	"	"	S	"	2-3"	f-g	-	"	-	KC	
1416	G 100-8	$5^h 24.7^m$ $+16^{\circ} 54'$	1989 Feb. 25	0215/+1:15	15 <sup>m</sup> , 12 <sup>m</sup>	+18/30	1	IIa-O	B	S	W	3"	g	-	0.80	-	KC	power died at end
1417	"	"	"	0253/+1:53	2x15 <sup>m</sup>	"	2	"	"	"	"	"	"	-	"	-	KC	
1418	G 112-1	$7^h 09.5^m$ $+6^{\circ} 12'$	"	0412/+1:27	2x20 <sup>m</sup>	"	3	"	"	"	"	3"	g	-	0.80	-	KC	
1419	"	"	"	0435/+1:50	20 <sup>m</sup>	"	"	"	"	"	"	"	"	-	"	-	KC	
1420	G 88-42	$7^h 33.0^m$ $+19^{\circ} 19'$	Mar. 6	0350/+1:17	30 <sup>m</sup>	"	1	IIa-O	B	S	W	5"	f	-	0.80	-	KC	
1421	"	"	"	0418/+1:45	25 <sup>m</sup>	"	2	"	"	"	"	4"	"	-	"	-	KC	
1422	"	"	"	0454/+2:21	30 <sup>m</sup>	"	3	"	"	"	"	"	"	-	"	-	KC	
1423	G 238-30	$13^h 15.7^m$ $+64^{\circ} 31'$	Apr. 15	0729/+1:52	2x5 <sup>m</sup>	"	1	IIa-O	B	S	W	2"	f	-	0.80	-	KC	
1424	"	"	"	0748/+2:11	2x8 <sup>m</sup>	"	2	"	"	"	"	"	"	-	"	-	KC	
1425	G 166-37	$14^h 32.6^m$ $+25^{\circ} 23'$	"	0821/+1:27	2x8 <sup>m</sup>	"	3	IIa-O	"	"	"	"	"	-	0.80	-	KC	
1426	"	"	"	0833/+1:39	2x5 <sup>m</sup>	"	4	"	"	"	"	"	"	-	"	-	KC	
1427	NGC 6171 (M107)	$16:29.7$ $-12^{\circ} 57'$	"	0933/+0:42	30 <sup>m</sup>	-15/33	1	IIa-O	"	"	"	1-2"	"	-	0.79	-	KC	
1428	"	"	"	0955/+1:04	20 <sup>m</sup>	"	2	"	"	"	"	"	"	-	"	-	KC	
1429	"	"	"	1009/+1:18	10 <sup>m</sup>	"	3	"	"	"	"	"	"	-	"	-	KC	bot. dawn
1430	G 112-1	$7^h 09.5^m$ $+6^{\circ} 12'$	Apr. 16	0202/+2:34	11 <sup>m</sup> /7 <sup>m</sup>	"	1	IIa-O	B	S	W	1-2"	f	-	0.80	-	KC	bot. moonlight
1431	G 197-30	$11^h 44.5^m$ $+60^{\circ} 16'$	"	0304/-0:58	2x7 <sup>m</sup>	+3/31	2	"	"	E	W	2"	"	-	0.80	-	KC	"
1432	"	"	"	0327/-0:35	2x10 <sup>m</sup>	"	3	"	"	"	W	"	"	-	"	-	KC	"



Plate no.	Object	$\alpha/\delta$ (1950)	Date (UT)	UT/HA (ord)	Exp. Time	Guide * Plate Holder	Emulsion	Filter	P.A.	Tel.	Seeing	Trans.	Temp.	Focus	Flash	Obs.	Remarks
1433	—	11 <sup>h</sup> 29. <sup>m</sup> 0 0°0'	1989 Apr. 16	0350/+0:05	10 <sup>m</sup>	— 4	IIa-0	B	S	W	2"	f	—	0.80	—	KC	brt. moon unguided tracking test meridian/equator
1434	NGC 6171	16 <sup>h</sup> 29. <sup>m</sup> 7 -12°57'	May 8	0620/-1:00	1 <sup>h</sup>	-15/33 1	IIa-0	B	S	W	1-2"	g	—	0.79	—	KC	difficult guiding
1435	"	"	"	0715 /-0:06	50 <sup>m</sup>	" 2	"	"	"	"	1-2"	g	—	"	—	KC	
1436	"	"	"	0810 /+0:49	50 <sup>m</sup>	" 3	"	"	"	"	1-2"	f	—	"	—	KC	cirrus near end
1437	M28	18 <sup>h</sup> 21. <sup>m</sup> 5 -24°54'	"	0932 /+0:20	1 <sup>h</sup>	-22/33 4	"	"	"	"	2-3"	f-p	—	0.79	—	KC	cirrus/haze most of exp.
1438	NGC 6171	16 <sup>h</sup> 29. <sup>m</sup> 7 -12°57'	May 29	0529/-0:30	(1 <sup>h</sup> )	-15/33 1	IIa-0	B	S	W	1-2"	f-p	—	0.79	—	KC	cirrus coming in effective exp. ~45-50 <sup>m</sup>
1439	"	"	June 1	0555/+0:13	1 <sup>h</sup> 20 <sup>m</sup>	" 1	"	"	S	W	1-2"	f	—	0.79	—	KC	
1440	"	"	"	0800/+2:18	1 <sup>h</sup> 30 <sup>m</sup>	" 2	"	"	S	W	2"	f	—	"	—	KC	
1441	G 233-27	22 <sup>h</sup> 42. <sup>m</sup> 1 +56°28'	"	0906/-2:48	2x15 <sup>m</sup>	" 3	IIa-0	B/U	S	W	1-2"	f	—	0.80	—	KC	15 <sup>m</sup> each B, U, offset in S in dawn
1442	"	"	June 7	0838/-2:55	5 <sup>m</sup> /15 <sup>m</sup>	" 1	"	B/U	S	W	3"	f	—	0.80	—	KC	
1443	NGC 6171	16 <sup>h</sup> 29. <sup>m</sup> 7 -12°57'	June 24	0549/+1:34	2 <sup>h</sup>	-15/33 1	IIa-0	B	S	W	2"	f	—	0.79	—	KC	cirrus last 20 <sup>m</sup> moonrise toward end
1444	M22	18 <sup>h</sup> 33. <sup>m</sup> 3 -23°58'	"	0701/+0:42	30 <sup>m</sup>	-3/32 2	"	"	S	W	2"	f	—	0.79	—	KC	cirrus, moon
1445	"	"	"	0804/+1:45	30 <sup>m</sup>	" 3	"	"	"	"	"	f	—	"	—	KC	(20 <sup>m</sup> interruption by clouds mid-exposure)
1446	G233-27	22 <sup>h</sup> 42. <sup>m</sup> 1 +56°28'	"	0900/~-1 <sup>h</sup> 25 <sup>m</sup>	20 <sup>m</sup>	" 4	"	"	"	"	2"	f	—	0.80	—	KC	moon + dawn
1447	NGC 6171	16 <sup>h</sup> 29. <sup>m</sup> 7 -12°57'	July 2	0500/+1:16	1 <sup>h</sup> 45 <sup>m</sup>	-15/33 1	IIa-0	B	S	W	1-2"	f-p	—	0.79	—	KC	hazy, bright sky, thick clouds at end
1448	NGC 6171	"	July 8	0545/+2:25	2 <sup>h</sup> 45 <sup>m</sup>	" 1	IIa-0	B	S	W	1-3"	f	—	0.79	—	KC	passing clouds - lost 60%
1449	G233-27	22 <sup>h</sup> 42. <sup>m</sup> 1 +56°28'	"	0639 /-2:53	25 <sup>m</sup>	" 2	"	"	"	"	2"	f	—	0.80	—	KC	focus opt shift
1450	M22	18 <sup>h</sup> 33. <sup>m</sup> 3 -23°58'	Aug. 19	0241 /+0:02	25 <sup>m</sup>	" 1	IIa-0	B	S	W	2-3"	g	—	0.84	—	KC	bright moon
1451	"	"	"	0305/+0:26	20 <sup>m</sup>	" 2	"	"	"	"	"	"	—	"	—	KC	
1452	Uranus	18 <sup>h</sup> 06:43 -23°42'	"	0320/+1:09	3 <sup>m</sup>	" 3	"	"	"	"	3"	g	—	"	—	KC	} 1989 Coord.
1453	Neptune	18 <sup>h</sup> 42:46 -22°10'	"	0335/+0:50	5 <sup>m</sup>	" 4	"	"	"	"	2-3"	g	—	"	—	KC	
1454	M92	17 <sup>h</sup> 15:3 +43°12'	"	0503/+3:43	5 <sup>m</sup>	" 1	103a-G	V	S	W	2"	g	—	0.86	—	RR	
1455	M22	18 <sup>h</sup> 33. <sup>m</sup> 3 -23°57'	Aug. 21	0242 /+0:11	45 <sup>m</sup>	" 1	IIa-0	B	S	W	2-3"	g	—	0.85	—	KC	



Plate No.	Object	$\alpha/\delta$ (1950)	Date (UT)	UT/HA (end)	Exp. Time	Guide Plate * Holder	Emulsion	Filter	P.A.	Tel.	Seeing	Trans.	Temp.	Focus	Flash	Obs.	Remarks
1456	M22	18 <sup>h</sup> 33.3 -23° 58'	1989 Aug. 21	0331/+1:00	45 <sup>m</sup>	-3/32 2	IIa-O	B	S	W	2-3"	g	-	0.85	-	KC	
57	Uranus	18 <sup>h</sup> 06.6 -23° 42'	"	0354/+1:52	5 <sup>m</sup>	3	103a-G	B	S	W	3"	g	-	0.85	-	RR	1989 coords
58	Neptune	18 <sup>h</sup> 42.6 -22° 10'	"	0412/+1:34	5 <sup>m</sup>	4	"	"	"	"	3"	g	-	"	-	RR	
59	anon	20 <sup>h</sup> 52 <sup>m</sup> 0°	"	0454/+0:05	1 <sup>m</sup> , 3 <sup>m</sup>	- 1	"	B	S	W	1-2"	f	-	0.86	-	KC+RR	
1460	Uranus	18 <sup>h</sup> 06.2 -23° 45'	Aug. 25	0154/+0:07	5 <sup>m</sup>	1	103a-G	B	S	W	3"	f	-	0.85	-	RR	1989 coords
61	M22	18 <sup>h</sup> 33.3 -23° 58'	"	0247/+0:30	45 <sup>m</sup>	2	IIa-O	B	S	W	2-3"	g	-	"	-	KC	
62	"	"	"	0333/+1:18	45 <sup>m</sup>	3	"	"	"	"	2-4"	f	-	"	-	KC	circus near end?
63	Neptune	18 <sup>h</sup> 42.6 -22° 09'	"	0358/+1:36	5 <sup>m</sup>	4	103a-G	B	"	"	3"	f	-	"	-	RR	1989 coords
64	NGC 6712	18 <sup>h</sup> 50 <sup>m</sup> -8° 40'	"	0437/+2:05	15 <sup>m</sup>	1	"	V	"	"	2"	f	-	0.86	-	KC	approx. coords, passing clouds
65	IW2=	22:11.9	1990 Nov. 29/30	0005/+0:40	20 <sup>m</sup>	1	IIa-O	B	S	W	3"	g	-	0.89	-	KC	bright moon
66	PN107+701	+65° 39'	Nov 30	0037/+1:07	30 <sup>m</sup>	2	"	"	"	"	"	"	-	"	-	KC	"
67	"	"	"	0109/+1:39	"	3	"	"	"	"	"	"	-	"	-	KC	"
68	M3	13:39.9 +28° 38'	1991 May 2	0402/-0:55	7 <sup>m</sup>	3	IIa-O	B	S	W	2"	g	-	0.88	-	KC	
69	M87	12:28.3 +12° 40'	"	0443/+0:58	10 <sup>m</sup>	4	"	B	"	"	"	"	-	"	-	KC	
1470	M5	15:16 +2° 16'	"	0510/-1:22	1 <sup>m</sup>	25/5 1	"	B	"	"	1-2"	"	-	0.87	-	KC	
71	"	"	"	0514/-1:18	~2 <sup>m</sup> timer failed	" 2	"	B	"	"	"	"	-	"	-	KC	
72	M67	8:50 (1992) +11:50	1992 Mar. 28	0430/+2:10	10 <sup>m</sup>	+14/35 1	" sd	-	S	W	2-3"	f	-	0.87	-	KC	
73	M67	"	"	0442/+2:22	10 <sup>m</sup>	" 2	" sd	-	S	W	"	f	-	"	-	KC	
74	G17-b15	9:21 +35° 30'	"	0533/+2:39	20 <sup>m</sup>	-3/31 3	" fresh	-	S	W	3"	f	-	0.87	-	KC	
75	"	"	"	0615/+3:21	40 <sup>m</sup>	" 4	" "	-	S	W	2-3"	f	-	"	-	KC	
76	"	"	Mar. 31	0355/+1:13	40 <sup>m</sup>	" 1	" "	-	S	W	1-2"	g	-	0.87	-	KC	
77	"	"	"	0438/+1:56	40 <sup>m</sup>	" 2	" "	-	S	W	1-2"	g	-	"	-	KC	
78	"	"	"	0503/+2:20	15 <sup>m</sup>	" 3	" "	-	S	W	"	"	-	"	-	KC	trail after exposure



Plate No.	Object	$\alpha/\delta$ (1950)	Date (UT)	UT/HA (end)	Exp. Time	Sd. * Pl. Hold.	Emulsion	Filter	P.A.	Tel.	Seeing	Trans	Temp.	Focus	Flash	Obs.	Remarks
1479	M 97 (owl neb)	11:12 +55°17'	1992 Mar. 31	0603/+1:30	15 <sup>m</sup>	4	IIa-0	-	S	W	1-2"	g	-	0.87	-	KC	
80			FEB 5 1993		10 <sup>m</sup>	1	IIa0	-			5"	f				GJC	
81	ORION NEB M3	13:42 +28°24'	1995 Apr 5	0800/1:17W	20 <sup>m</sup>	1	IIa0	-		W	3"	vg	15°F	-	-	JWB	Cold!
82	05287		1995 MAY 6	2 <sup>h</sup> 50 <sup>m</sup> UT	15 <sup>m</sup>		IIa0	B			3-4"	H2				GJC	
83	M 81		1995 MAY 6	3 <sup>h</sup> 30 <sup>m</sup> UT	45 <sup>MIN</sup>		IIa0	B			3-4"	H2				GJC	
84	M 82		MAY 20		30 <sup>m</sup>		103aE	NF								GJC	
85	M 82		MAY 20		45 <sup>m</sup>		IIa0	NF								GJC	
86	3C273		MAY 20		20 <sup>m</sup>		IIa0	NF								RF	
87	3C273		JUNE 4		15 <sup>MIN</sup>		IIa0	B								RF	
88	MKN 205		JUNE 4		45 <sup>MIN</sup>		IIa0	B								GC	
89	3C273		JUNE 17		15 <sup>MIN</sup>		IIa0	B			2-3"	H2		0.97		RF	
1490	3C351		JUNE 17		30 <sup>MIN</sup>		IIa0	B			1"	H2		0.97		GC	
91	3C351		JUNE 23		30 <sup>MIN</sup>		IIa0	B			2-3"	H2		0.97		RF	
92	3C351		JULY 2		35 <sup>MIN</sup>		IIa0	B			2"	H2		0.95		GC	
93	OT+546		JULY 2		30 <sup>MIN</sup>		IIa0	B			2"	H2		0.95		RF	
94	3C351		JULY 9		45 <sup>MIN</sup>		IIa0	B			3-4"	H2 CLDS		0.97		RF	
95	3C351		AUG <del>21</del>		45 <sup>MIN</sup>		IIa0	B			1"	H2		.95		GC	
96	OT+546		AUG <del>21</del>		45 <sup>MIN</sup>		IIa0	B			2"	H2 CLDS		.97		RF	
97	3C351		AUG <del>27</del>		45 <sup>MIN</sup>		IIa0	B			3-4"	H2 CLDS		.95		RF	
98	OT+546		SEP 3		60 <sup>MIN</sup>		IIa0	B			3"	H2		.94		GC	
99	PKS 2141+7		SEP 3		30 <sup>MIN</sup>		IIa0	B			3-4"	H2 CLDS		.93		RF	
1500	3C351		SEP 16		45 <sup>MIN</sup>		IIa0	B			3-4"	H2 CLDS		.93		GC	
1501	PKS 2141+7		SEP 16		45 <sup>MIN</sup>		IIa0	B			4"	H2 CLDS		.93		GC	



Plate No.	Object	L/S (1950)	Date (UT)	UT/MA end	Exp. Time	Gid. *	Plate Holder	Emulsion	Filter	PA	Rel.	Seeing	Trans.	Temp.	Focus	Flash	Obs.	Remarks
1 1502	OT+546		OCT 17		1hr.			AaO	B			2-3"	g		.91		GC	
3	PKS 2141+17		OCT 17		1hr			AaO	B			2-3"	g		.91		RF	
4	OT+546		OCT 23		1hr			AaO	B			2-3"	g		.91		RF	
5	PKS 2141+17		OCT 23		1hr			AaO	B			2-3"	g		.91		GC	
6	OT+546		NOV 5		1hr			AaO	B			3"	g		.91		GC	
7	PKS 2141+17		DEC 4		45 MIN			AaO	B			4"	FAIR		.91		RF	
8	BLLAC		DEC 4		45 MIN			AaO	B			3"	FAIR		.91		GC	
9	3C147		FEB 25 (1996)		60 MIN			AaO	B			3"	FAIR		.91		GC	
<del>1510</del>	<del>PKS 0735+178</del>		<del>FEB 25 1996</del>		<del>45 MIN</del>			<del>AaO</del>	<del>B</del>			<del>3"</del>	<del>"</del>		<del>.91</del>		<del>GC</del>	<del>FOX</del>
11	3C147		MAR 4		45 MIN			AaO	B			3"	"		.91		GC	
12	PKS 0735+178		MAR 4		45 MIN			AaO	B			3"	"		.91		RF	
13	OI+090.4		MAR 30		30 MIN			AaO	B			4"			.91		GC	
14	3C351		AUG 25		60 MIN			AaO	B			1"			.91		GC	
15	PKS 2141+17		AUG 25		45 MIN			AaO	B			1"			.91		RF	
16	3C351		SEP 23		60 MIN			AaO	B			1"			.91		GC	
17	OT+546		SEP 23		45 MIN			AaO	B			1"			.91		RF	
18	OT+546		OCT 6		60 MIN			AaO	B			3"			.91		GC	
19	PKS 2141+17		OCT 6		45 MIN			AaO	B			3"			.91		RF	
<del>1520</del>	<del>PKS 2141+17</del>		<del>OCT 14</del>		<del>70 MIN</del>			<del>AaO</del>	<del>B</del>			<del>2"</del>			<del>.91</del>		<del>GC</del>	
21	OT+546		OCT 20		60 MIN			AaO	B			3"			.92		GC	
22	PKS 2141+17		OCT 20		45 MIN			AaO	B			3"			.92		RF	
23	PKS 2141+17		NOV 4		60 MIN			AaO	B			4"			.92		GC	
24	3C66A		NOV 4		45 MIN			AaO	B			3"			.92		RF	



PLATE NO	OBJECT	2/8	DATE	FIL	EXP	EMUL	FOCUS	SEEING	OBS	TEMP	TRANS
1525	MRK 691		JUNE 1997	B	60MIN	Ilao	.92	2-3"	GC		HAZY
1526	3C351		JUNE 1997	B	45MIN	Ilao	.92	2-3"	RF		HAZY
1527	MRK 691		JUNE 1997	B	50MIN	Ilao	.92	3-4"	GC		HAZY
1528	3C351		JULY 14	B	<del>50</del> 45 min	Ilao	.92	3-4"	<del>GC</del> RF		HAZY



