

SP

Telescope: 61"

Frame prefix #: PR89E

Day of Week: ~~Sunday~~ Monday RA offset:

Focus:

Humdty: 79 Sheet #: 1

Observers: Grundy, Distanti
Tegler, Womack
Schultz

Date MST/UT: Sept 10/11 Dec offset:

Tailpiece:

Balance:

Temp O/I: 50/56

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
001	TRITON	5 min	0.5			18:46:30.7	-22:03:54		1.82
002		10 min	0.5		08:08:18	11	11	1:16W	1.86 error in FITS header for slit width
003		10 min	0.5		08:19:14	1		1:27W	1.90
004		10	0.5		08:30:08	18:46:31	-22:03:59	1:38W	1.96
005		10	0.5		08:40:49			1:49W	2.02
006	BS7291	4			09:07:18	19:14:56.5	-24:11:26		2.13
006	BS8792	20	"		10:16				
7		"			10:17				
8		"			10:20	23:6:2	19:51:30	-151	1.05
9		"		14000	10:22				
10					11:35:26	00:51:58.8	16:20:29	2:22E	1.23
10		10 min							

Incident 365, 423

South 66, 10.

Telescope: 61"

Frame prefix #: ~~SP89E~~

Day of Week: Tuesday/Wed

RA offset:

Focus:

Humdty:

Sheet #: 2

Observers: Grundy

Date MST/UT: July 11/12

Dec offset:

Tailpiece:

Balance:

Temp O/I:

Tegler, Womack, Schultz

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
010	BS5911	1	Dich	7000					
11	"	"	"	"					
12	"	"	"	8000					
13	"	"	"			15:52:40	13:13:52		1.08
14	"	"	"	7000					
15	BS 6629	0.1	1.0		5:03:02	17:47:21	+2:42:49.4		1.17
16	"	0.2			05:05:17				
17	"	"			5:06:10				
18	"	"			5:08:07				
19	"	"			5:08:07				
20	BS 6898	0.5	0.5		5:39:21				
21		1.0	"		5:41:19	18:38:15	+5:503:09		1.76
22		"	"		5:42:15				1.75
23		"	"						1.75
24		"	"						1.75

comp

standard

comp

Telescope:

Frame prefix #:

Day of Week:

RA offset:

Focus:

Humdty:

Sheet #: 3

Observers:

Date MST/UT: July 11/12

Dec offset:

Tailpiece:

Balance:

Temp O/I:

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
025	BS 6998	1.0	0.5			18:38:15.3	-21:03:10.7		1.75
026	"	1.0	"						1.74
027	"	"	"						1.74
028	"	"	"						1.74
029	"	"	"						1.74
030	TRITON	5min	"		5:58:33	18:46:24	-22:03:45		1.78
031	"	2min	"		6:08:39	18:46:24	-22:03:42		1.76
032	"	1.5min	"		6:13:38				1.75
033	"	1min	"		6:16:11				1.75
034	"	"	"		6:18:09				1.74
035	"	"	"		6:20:17				1.74
036	"	"	"		6:22:08				1.74
037	"	"	"		6:24:15				1.73
038	"	2m	"		6:24:44	18:46:23.7	-22:03:53		1.73
039	"	"	"		6:29:36				1.72

SPECTRA Telescope:

Frame prefix #: 89E Day of Week:

RA offset:

Focus:

Humdty:

Sheet #: 4

Observers:

Date MST/UT:

Dec offset:

Tailpiece:

Balance:

Temp O/I:

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
040	Triton	2min	0.5		6:32:34	18:46:23.7	-22:03:54		1.73
041	"	"	"		6:35:19				1.73
042	"	"	"		6:38:25				1.72
043	"	"	"		6:41:12				1.72
044	"	"	"		6:43:58	18:46:23.6	-22:03:56		1.72
045					6:46:50				1.72
046					6:49:44				1.72
047					6:52:33				1.72
048					6:55:26				1.72
049					6:58:19				1.
50					7:06	18:46:23	-22:04:05		1.73 Topped Deneb
51					7:10				1.
52					7:13				
53					7:16				1.74
54					7:19				

Telescope:

Frame prefix #:

Day of Week:

RA offset:

Focus:

Humd ty :

Sheet #:

Observers:

Date MST/UT:

Dec offset:

Tailpiece:

Balance:

Temp 0/I:

5.

G type
comp
star

[illegible]

Telescope: 61"

Frame prefix #: SP89E

Day of Week: Wed.

RA offset:

Focus: 2880

Humdty: 53% Sheet #: 6

Observers: Fink, Gull, Nish. Date MST/UT: Jul 12/13

Dec offset:

Tailpiece: 34.3

Balance: 40 Temp O/I: 61/64

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST UT	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
✓ 066	Gum	3m	0.50	500/2m	4:36	14:39:40	-14:30:44	1:56	1.72 1.72 gum? No.
✓ 067	"	"	"	260/2m	5:26	14:42:3	31:10	2:47	2.11 gum check star we combined to 2
✓ 068	"	6m	"	490/4m	5:33	42.5	"	2:54	2.18 4m at 20s 15 dist from 14Q close to comet
✓ 069	"	"	"	"	5:45			3:04	2.32
✓ 070	B55996	1.0	"	8m					1.77
✓ 071	"	"	"	780		16:06:28	-14:02:24	2:08	1.77
✓ 072	"	"	"	780	6:15	"	"	2:09	1.78
✓ 073	"	"	"	7500	6:54			2:51	2.12
✓ 074	"	"	"	6080	6:58			2:52	2.13
✓ 075	"	"	"	5400	7:04			2:57	2.14
✓ 076				6070	7:04			2:58	2.21
✓ 077	B58631	1.0	"	700		22:40:27.5	14:30:34	-3:14	1.48
✓ 78	"	"	"	1200	7:27			-3:13	1.47
✓ 79	"	0.7	"	9076					
✓ 80	"	"	"	8200	7:36			-3:03	1.42

Telescope:

Frame prefix #: SP86E

Day of Week: Wm

RA offset:

Focus: 345

Humdty:

Sheet #: 7

Observers:

Date MST/UT: Jul 12/13

Dec offset:

Tailpiece:

Balance:

Temp O/I:

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
✓ 081	BS8631	0.7	0.5	7300				-3:01	1.41
✓ 082	"	"	0.25	7200					1.22
✓ 83	"	"	"	6050				-2:16	1.39
✓ 84	"	"	"	7400				-2:52	1.37
✓ 85	"	"	"	8500				"	"
✓ 86	BS8632	0.5	1.0	8800	8:01	22:58:12.4	+39° 42'	-2:38	1.18
✓ 87	"	"	"	8800	8:03				
✓ 88	"	"	"	8400	8:04				
✓ 89	"	"	"	7700	8:07			-2:30	1.17
✓ 90	BS8631	0.7	0.5	4500	8:17			-2:21	1.25
✓ 91	"	"	"	10900	8:19			-2:19	1.24
✓ 92	"	"	"	9000					
✓ 93	"	"	"	9200	8:22				
✓ 94	"	"	0.25	9500	8:23			-2:15	1.23
✓ 95	"	"	"	6900	8:24			-2:14	1.23

Std BS8631; 0.25mm

Telescope: 61"

Frame prefix #: SP80E

Day of Week: Wed

RA offset:

Focus:

Humdty:

Sheet #: 8

Observers:

Date MST/UT: Jul 12/13

Dec offset:

Tailpiece:

Balance:

Temp O/I:

Exp #	Object	Exp time	Filter (slit)	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
✓ 096	BS 8631	0.7sec	25	9000		22:40:23.6	14:30:20		
✓ 097	"	"	"	8100	8:27				1.22
✓ 098	"	"	0.5	9400	8:29			-2:10	1.22
✓ 099	"	"	111	9700					1.44
✓ 100	"	"	"	8200	8:37			-2:02	1.19
✓ 101	"	"	"	9800	8:39			-2:01	1.19
✓ 102	Benson-Net	300	0.50		8:52	1200 17.9	175313	-4:06	1.88 $\frac{4 \text{ vmsc}}{206}$ distant B
✓ 103	"	1200	"	~11m/1m	9:00	11 19.1	25.5	-3:59	1.76
✓ 104	"	1200	"	1950/110	9:06	20.3	36.1	-3:52	1.70
✓ 105	"	"	"	$\frac{0.5 \times 2300}{1200}$	9:28	21.4	54.15	-3:50	1.54 $\frac{-3:21}{\text{high jump!}}$
✓ 106	"	"	"	$\frac{0.5 \times 2500}{1200}$	9:51	25.4	54.52	-3:07	1.40 $\frac{\text{fr } -3:15^m}{\sim 40 \text{ wets}}$
✓ 107	"	"	"	$\frac{0.5 \times 2600}{1600}$	10:13	29.8	55:57	-2:46	1.31 bat
✓ 108	dumb while in 11 for 300	900	"	2200	10:35	33.9	56:17	-2:29	1.23 $\frac{\text{dumb while in 11 for 300}}{\text{to min rate}}$ 3125 gpm
✓ 109	"	1200		3020	10:57	37.8	58:58	-2:02	1.17 @ 380 mic!

Crash after #105

Telescope: 614

RS1367 FK4 ~~del~~

Frame prefix #: SP

Day of Week: Thurs

RA offset:

Focus: 395 Humdty: 48 Sheet #: 9

Observers: Bink, Rick, ~~del~~

Date MST/UT: Jul 13/14

Dec offset:

Tailpiece:

Balance: Temp O/I: 68/69

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)	
✓ 110	fun	300	Richman	2300	4:07	14 40 07.8	-14 37 31	+1:3	1.62	flam up; see haze &
✓ 111	"	600		3640/20	4:16			1:40	1.65	cloud; long night
✓ 112	"	1200	"	6800	4:29	09.2	39.6	1:53	1.71	2nd set of images similar to first
✓ 113	"	600	"	4400	4:52	09.2	37:42.1	+2:16	1.85	check getting there
✓ 114	BS 5940	100	"	6400	5:19	16:06:28	-14:02:38	1:11	1.54	
✓ 115	"	"	"	5800	5:15	"	"	1:12	"	
✓ 116	"	1.5	"	8200	5:16				"	
✓ 117	"	"	"	7900				1:43	1.65	
✓ 118	"	"	"	6400	5:47	"	"	1:45	"	
✓ 119	"	1'	"	7300	6:15	"	"	2:13	1.80	
✓ 120	"	"	"	6000	6:16	"	"	2:14	1.81	
✓ 121	"	"	"	6800	6:16			2:15	1.82	
✓ 122	"	"	"	6600	6:20			2:19	1.84	
✓ 123	LT 30	600	"		6:35	16:26:18	+40:55:15	+2:13	1.13	
✓ 124	SAD 46069	20	"	8400	7:00			2:38	1.19	

fun 360, 422

Frame prefix #: *JP89E*

RA offset:

Focus:

Humidity:

Sheet #:

10

Observers:

Date MST/UT:

Dec offset:

Tailpiece:

Balance:

Temp 0/I:

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
125	SAO 46089	20	0.5 slit	7800	7:01			2:39	1.19
126	"	"	"	8100	7:02			2:40	1.19
127	ARP 125	600	"	1900	7:12	16:37:08	+41:57:46	2:39	1.19
128	"	1800			7:23			2:50	1.22 of the pair centered on arc
129	SAO 46089	20	0.5	4600	8:04	16:26:28	+40:56:20	3:43	1.41
130	"	30	"		8:06			3:44	1.41
131	"	30	"	5900	8:08			3:46	1.42
132	BS 863)	0.7	"		8:33			-2:02	1.20
133	"	"	"	4100					1.19
134	"	"	"	6400	8:37			-1:58	1.19
135	Burn-M	600	0.5	1500/1200	9:34	124:57.7	+18 43 45	-3:24	1.52
136	"	"	"	1500/1200	9:43	05:40.3	44:09	-3:16	1.44
137	"	<u>120-355</u>	<u>1/2</u>	<u>1/2</u>	9:54			-3:06	1.39 ⁶²⁵ ₂₇₅ -3:03 / 1-17 bad zip

IMAGES

Telescope: 61"

Frame prefix #: FR89E Day of Week: MON,

RA offset:

Focus: 3870 Humdty: 83.5 Sheet #: 2

Observers: T, W, S, G

Date MST/UT: 10/11

Dec offset:

Tailpiece:

Balance: 305 Temp O/I: 50/53

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
3	GUNN	30	OPEN	51	5:4	14:38:50.9	-14:18:0.6		Partly cloudy, moon 2.3 DUCH
4	BS-7906	.03	NH2 6624	40000	6:39				
5	"	.031	"	40000	6:42				
6	BS-7906	.03	CONT 6450	56000	6:46				1.17
7	"	"	"	57000					"
8	"	"	NH2 806238	19000	6:51	20:39:12.73	15:53:7.7		1.17
9	"	"	"	18000	6:52				
10	"	"	CO+	34000	6:53				1.16
11	"	"	"	36000	6:54				
12	"	"	"	35000	6:56				
13	"	"	"	35000	6:57				1.15
14	"	"	NH2 806	18000	7:02				Maybe goofed
15	"	"	"	19000	7:03				
16	"	"	"	18000					1.13
17									

STANDARD
*

?

Telescope: 61"

Frame prefix #: FR89E

Day of Week: MDN

RA offset:

Focus:

Humdty:

Sheet #: 3

Observers:

Date MST/UT: 10/11

Dec offset:

Tailpiece:

Balance:

Temp O/I:

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
17	BS 786	.03	CONT 6450	56000	7:06				1.13
18	"	"	"	59000	7:07				
19	"	"	NH2 6624	42000	7:09				1.13
20	"	"	"	41000	7:10				"
21	"	"	CONT 6250	19000	7:19				1.12
22	"	"	"	19000	7:20				
23	"	"	"	19000	7:21				
24	"	"	"	19000	7:22				cloud moving in
25	Neptune	20	Blue Dichr		8:05	18:48:37.8	-22:3:56	11:6	1.86
26	Borsen	30	"		10:25?				
27	"	120	"	16000		0:51:58.8	16:20:29		1.23
28	"	60	"	8600	10:38				
29	"	60	NH2 6624						
30	"	600	"		10:48	0:52:1.37	16:21:4.7		1.20
31		600	CONT 6450		10:59				

duplicate?

61"

RA offset:

Focus:

Humd ty :

Sheet #:

4

Dec offset:

Tailpiece:

Balance:

Temp O/I:

[illegible]

Not
SAVED

Telescope: 6" *6"*

Day of Week: **TUESDAY**

Focus:

Humidity:

Sheet #:

Observers:

Date MST/UT: 11/12

Dec offset:

Tailpiece:

Balance:

Temp O/I:

[illegible]

Telescope: 61"
 Frame prefix #: FR89E Day of Week: TUES
 Observers: T, W, G, S Date MST/UT: 11/12

RA offset:
 Dec offset:

Focus:
 Tailpiece:
 Balance:

7:30
 Humdty: 63 Sheet #: 6
 Temp O/I: 60/62

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
47	FLAT F.	30s	CO+	10000			-33°		Variac = 85
48	"	"	"	"			"		"
49	"	"	"	"	2:57		"		"
50	DARK	1s	N/A	1000					
51	"	"	"	"					
52	"	"	"	"	3:03				
53	FLAT F.	6s	CONT 6250	11000			"		"
54	"		"	"			"		"
55	"		"	"			"		"
56	BS 6629	.05	NH2 6624		4:00				
57	"	"	"						
58	"	"	"						Clouds 10
59	"	"	"	70000	4:03	174723	2:4211.2		1.28 East
60	BS 5911	.24	NH2 6624	10000					1.06
61	"	"	"						1.06

Standard Star

Cont

Telescope:

Frame prefix #:

Day of Week:

TUES

RA offset:

Focus:

Humdty:

Sheet #:

7

Observers:

Date MST/UT:

Dec offset:

Tailpiece:

Balance:

Temp O/I:

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
62	BS5911	.2	CONT 6450	11000					
63	"	"	"	↖ = (Probably)					
64	"	.3	NH2 6338	12000	4:22				1.07
65	"	"	"	"	4:23				"
66	"	.6	NH2 6338						
67	"	"	"		4:27				1.07
68	"	1.2	CONT 6250		4:33				
69	"	"	"		4:34				
70	BS6629	.05	NH2 6624	Wrong in header		17h 7:21	2:42:47	-0:30	1.17
71	"	"	"						
72	"	.04	CONT 6450		5:21				
73	"	11	"						1.16
74	"	.1	NH2 6338	10000	100				
75	"	"	"	16000	5:24				
76	"	.15	CONT 6250						1.16

77 " "

Telescope: 61"

Frame prefix #: FR89E Day of Week: TUES

RA offset:

Focus:

Humdty: 64 Sheet #: 8

Observers: G, S, T, W

Date MST/UT: 11/12

Dec offset:

Tailpiece:

Balance:

Temp O/I: 54/55

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
78	Neptune	5sec	Blue Rich		6:00?				
79	"	"	"		6:33				
80	BRORSEN	10min	NH2 6624		8:03	01:55:39.2	17:03:50.1		2.58 comet is right on star.
81	"	"	"		8:16	" 41.9	04:07.6		2.33 near blemish
82	"	"	"		8:29				2.13/1.98 ← beginning/end
83	"	"	CONT 6450		8:41	" 53.5	04:32.3		1.97/1.85 Air masses
84	"	"	NH2 6624		8:52.3				1.84/1.74
85	"	"	LONT 6450	12500	8:05	59.4	105.9		1.72/1.63
86	"	"	NH2 6624	18	9:19	00:56:02.2	17:05:33.0		1.60/1.53
87	"	"	LONT 6450	13000	9:32				1.52/1.46 rail hit chain (oops)
88	"	5min	NH2 6624	9500	9:47	00:56:02	17:05:30.0		1.43/1.40
89	"	"	6450	6900	9:54	00:56:07.9	17:06:30.9		1.39/1.37
90	"	"	NH2	8100	10:05				1.33
91	"	10min	"	17000	10:11	00:56:10.7	17:07:00.1		1.31
92	"	"	6450	15000	10:27	00:56:13.1	17:07:26.0		1.26

A bias -0.009

IMAGES

Telescope: 61"

Frame prefix #: FR89E

Day of Week: TUESDAY

RA offset:

Focus:

Humidity:

Sheet #:

Observers: T, W, G, S

Date MST/UT: 11/12

Dec offset:

Tailpiece:

Balance:

Temp 0/I:

: 56 / 58 I

fire back
bias
to .036

[illegible]

wrong
header?

Telescope:

Frame prefix #: **FR89E**Day of Week: **Wed/Thur**

RA offset:

Focus:

Humdty: **53** Sheet #: **10**Observers: **Fink DiSanti
Schultz**Date MST/UT: **July 12/13**

Dec offset:

Tailpiece:

Balance:

Temp O/I: **62/64**

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
103	SWINN(?)	20	OPEN	11/1	5:14			2:35W	
104	" (?)	60	B	6000/2800	4:56	14:39:41.0	-14:30:56	2:17W	1.96 $\delta = -0.0015$ $\lambda = -0.008$
105	"	20	"		5:23			2:36W	2.12
106	"	"	"		5:35			2:48	2.23
107	"	"	"		5:43			2:56	2.30
108	"	"	"		5:54	14:39:43.8	-14:31:00	3:07	2.45
109	Brown-net	30	Dich/B		8:53	1:00:18.5	17:53:18	-4:05	1.82
110	"	"	"		9:06			-3:49	1.69
111	"	"	"		9:19	1:00:23.6	17:54:07	-3:30	1.60
112	"	"	"		10:11			-2:46	1.31
113	"	"	"		10:33	:33.5	55:37	-2:24	1.23
114	"	"	"		10:55	:33.5	4:59	-2:02	1.18
115	"	60	R	2800/170	11:19			-1:40	1.12
116	"	300	"	10800/550	11:23	1:00:42.5	17:57:45	-1:37	1.12
117	LAN 68416	200	"		11:33	0:17:46.5	15:45:55	-0:42	1.06

118
11911
114.0
4.011
11

12000

11:35
11:36-0:41
-0:401.06
11

over

IN

Temp 0/I:

$$J = -32 \quad \text{Var. 859}$$

Frame prefix #: FR89E Day of Week: Thurs/FRI RA offset: _____ Focus: _____ Humdty: _____ Sheet #: 12
Observers: FINK, Schuttz Date MST/UT: 13/14 July Dec offset: _____ Tailpiece: _____ Balance: _____ Temp O/I: _____
Di Santis

[illegible]

Thursday July 27, 1989

Arc-source exposures for
λ-calibration July (SP89E)

LINE 000 1	Helium	.01 sec	.5mm slit	Avg(?) (SP89F) 1989 run(s)
2	"	.02 sec	"	
3	XENON	.02 sec	"	
4	"	.05 sec	"	
5	"	.10	.05mm slit (?) ↑ 5 divisions	
6	"	.4	"	
7	Helium	.1	"	
8	"	.4	"	

~~CS~~
~~deleted~~
234 ✓
236 ✓
240 ✓
242 ✓
532 ✓
537 ✓
538 ✓

SS

228 ✓

229 ✓

521 - ✓

522 - ✓

523 - ✓

524 - ✓

224-231

222-229

IMA: 5.01

275

285-287