

SP

Telescope: 61"

(1M9)  
SPI

Frame prefix #: FR89A

Day of Week: Th

RA offset:

Focus:

Humdy: 88% Sheet #: 4

Observers: Fih/Anta

Date MST/UT:

Dec offset:

Tailpiece:

Balance:

Temp O/I: 10°/16°

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.)
✓ 43	FF	0.06	IJ	23200	~ midnight				
✓ 44	"	"	"	2284					dark substrate
✓ 45	"	"	"	23200					1500 → 17000 205
✓ 046 047	SP89A				Thursday	Jan 12/13			new Vidler card
✓ 001	FF	5.0	0.25	9600	12:45 MST → 7:45 UT		-32°	0h	= Vanin 85; big plate
✓ 002	FF	5.0	0.25	9000	12:46 MST → 7:46 UT				- camera #2 with new Vidler camera card.
✓ 003	DIAK	1.0	-	1,550	12:48 MST				- We had them quickly
✓ 004	FF	3.0	0.50	11,500	12:50 MST				much in; tilted 85°
✓ 005	FF	3.0	0.50	11,700	12:52 MST				- When we took down off the next day window "is heated over"
✓ 006	FF	1.4	1.0	11,100	12:55 MST				"
✓ 007	FF	1.4	1.0	11092	12:56 MST → 5:34 MST				"
✓ 008	Yan 89a	60	1.0	16700/1405	12:34 UT	14:10:00	+13:02:58	-1.26/1.13	cast errors a's than!
FR89A46	Yan 89a	60	V+R	?	12:04 UT → 5:04 MST				
047	Yan 89a	120	"	?	12:58 UT → 5:58 MST				

SP89A Telescope: 61"

Clutch (clutch for button up) SS  
SP2

Frame prefix #: FR89A Day of Week: Friday RA offset: Focus: 363φ Humdty: 64% Sheet #: 5  
 Observers: Fink/Peter Righ. Date MST/UT: Jul 13/19 Dec offset: Tailpiece: 999 Balance: Temp O/I: 19/25

SP89A

SP88A →

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.)
✓ 009	MARS	0.05	0.530/						MARS Focus 363φ
✓ 10	"	0.05	0.15	8900	2:26	11:39:29	+11:09:36	1:08	1.12 shot 0.15 pupil. 0.075
✓ 11	"	"	15	11500	2:46			1:12	1.12 rotate tail piece
✓ 12	"	"	15	11400				1:13	1.12 for 54 to by 55 944 Moon's up
001 ✓ 13	"	"	"	11200	2:42			1:14	1.12 gentle clean
002 ✓ 14	"	"	"	10900	2:45:23	"	"	1:15W	1.12 gentle clean
005 ✓ 15	"	"	"	11300	2:46			1:18W	1.12 recenter
006 ✓ 16	"	"	"	10900	2:46:51			1:18	1.12
015 ✓ 17	BS1662	2.0	"	6900	4:38			-0:17	1.09
004 ✓ 18	"	"	"	6700	4:42			-0:12	"
004 ✓ 19	"	"	"	7300	4:45			-0:10	"
002 ✓ 20	"	"	"	5300					"
003 ✓ 21	"	"	"	5200	4:50			-0:05	"
014 ✓ 22	"	"	"	6800					"
004 ✓ 23	"	"	"	6300	4:51			-0:03	"

Telescope:

Frame prefix #: SP

Day of Week: Friday

RA offset:

Focus:

Humdty:

Sheet #: 6

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.)
016 ✓ 24	BS1662	2.0	15	5000	4:52			-0:02	1.07
011 ✓ 25	"	"	"	5700	4:53			"	"
017 ✓ 26	"	20.0	"	4800	4:57			+0:02	focus = 3640 (old) = 3769 (new)
010 ✓ 27	"	40.0	"	8010	4:58			0:03	1.09
012 ✓ 28	"	"	"	8200	5:00			0:04	Collect P39
013 ✓ 29	"	"	"	8500	5:01			0:06	"
	FK41211								
✓ 30	FK 1211	.5sec	1mm	8900	7:33			-0:14	with pellicle 1.01
✓ 31	"	"	"	8400					"
✓ 32	"	"	"	9800					open position
✓ 33	"	"	"	10400	7:38			-0:10	
✓ 34	"	"	"	9400					pellicle in
✓ 35	RS 4080	2.0	0.25	11400	9:01			-1:00	1.04
✓ 36	"	"	"	7600	9:03			"	"
✓ 37	BS 4529	2.0	"	8400	9:50			-1:34	1.54

By 016 ✓

011 ✓

017 ✓

010 ✓

012 ✓

013 ✓

Collect P39

SP89A

Telescope: 61"

Frame prefix #: FR89A

Day of Week: Fri

RA offset:

Focus:

Humdty:

Sheet #: 7

Observers: Fink, Peter

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.)
✓ 38	BS 4529	2.0	0.25	4600	9:50			-1:44	1.53
✓ 39	"	"	"	7400					"
✓ 40	"	"	"	4500					"
✓ 41	"	"	"	8100	9:57			-1:37	1.54
✓ 42	BS 5188	"	"	6500	10:19			-3:14	1.63
✓ 43	"	"	"	8100					1.66
✓ 44	"	"	"	5900	10:24			-3:10	1.59
<del>45</del>	<del>Comet #1</del>	<del>600</del>	<del>"</del>	<del>"</del>	<del>12:02</del>	<del>"</del>	<del>"</del>	<del>-1:56</del>	<del>1.19 ?</del>
<del>46</del>	<del>Comet #1</del>	<del>600</del>	<del>"</del>	<del>aborted</del>	<del>12:16</del>	<del>"</del>	<del>"</del>	<del>"</del>	<del>1.15 ?</del>
<del>47</del>	<del>"</del>	<del>1</del>	<del>"</del>	<del>"</del>	<del>"</del>	<del>"</del>	<del>"</del>	<del>"</del>	<del>1.15 ?</del>
✓ 48	"	600	"	1700	12:20			-1:38	" BS 5323 (near comet position)
✓ 49	Comet #1	"	"		13:02	13:		-0:55	1.09 #14
✓ 50	"	"	"		13:16	14:11:55	+13:31:14	-0:42	1.07
det ✓ 51	"	"	0.50mm	20/STN	13:27			-0:31	1.07

SYSTEM  
WAS  
CRASHED  
WITH NO  
SAVE

Telescope: 61"

Frame prefix #: SP89A

Day of Week: Saturday

RA offset:

Focus: 3697 Humdty: 40 Sheet #: 11

Observers: Fink / Pat

Date MST/UT: 5/14/15

Dec offset:

Tailpiece: 34.3

Balance:

Temp O/I: 26 / 52

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.)
✓ 52	Photos MARS	12φ	φ.5	9,931	2:48	1:41:33	+11:22:34	+1:23/ 1.14	(SMALL PEAK) COLLECT #11
✓ 53	MARS	12φ	φ.5	7,456	2:57	1:41:34	+11:22:40	+1:30/ 1.15	SLIGHT OFFSET S/DIA. (MARS)
✓ 54	MARS	12φ	φ.5	7,581	3:0φ	-	-	+1:34/ 1.16	TAILPIECE 999 ROTATED 35° C.W. (LOOKING UP AT TELESCOPE)
✓ 55	MARS	12φ	φ.5	6,276	3:06	1:41:35	+11:22:43	+1:40/ 1.17	
✓ 56	MARS	12φ	φ.5	8,647	3:15	1:41:35	+11:22:46	+1:49/ 1.19	FOCUS: 3711
✓ 57	BS2φ67	1.φ	1.φ	10,752	4:04	5:55:28	+13:54:32	-1:33/ 1.14	OPEN POSITION
✓ 58	BS2φ67	1.φ	1.φ	6,52φ	4:07	5:55:28	+13:54:29	-1:31/ 1.14	PELICULE MYLAR
✓ 59	"	"	"	6,847	4:09	"	"	-1:30/ 1.13	PELICULE MYLAR
✓ 60	"	"	"	10,319	4:11	"	"	-1:28/ 1.13	OPEN POSITION
φ.5 { ✓ 61	BS2φ67	1.φ	φ.5	6,663	4:14	5:55:28	+13:54:28	-1:25/ 1.12	PELICULE MYLAR
✓ 62	"	"	φ.5	7,498	4:15	"	"	-1:24/ 1.12	PELICULE MYLAR
φ.25 { ✓ 63	"	"	φ.25	5,866	4:17	5:55:28	+13:54:27	-1:22/ 1.12	PELICULE MYLAR
✓ 64	"	"	φ.25	4,964	4:18	"	"	-1:21/ 1.11	PELICULE MYLAR (COLLECT POSITION #12)
✓ 65	BS2φ67	1.φ	1.φ	8,765	4:35	5:55:28	+13:54:26	-1:09/ 1.09	DICHROIC BEAMSPLITTER
✓ 66	BS2φ67	1.φ	1.φ	8,52φ	4:38	5:55:28	+13:54:30	-1:01/ 1.09	OPEN POSITION



Telescope: 61"

191

Frame prefix #: FR89A

Day of Week: Wed.

RA offset:

Focus: 2026

Humidity: 68% Sheet #: 1

Observers: Fink Porter

Date MST/UT: Jan 11/12

Dec offset:

Tailpiece: 39.3

Balance: 480 Temp O/I: 22/27

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	field 1S	600	Y+R	12200 11500 7000	6:17	9:15:32	14:05:49	-2:59/1:38	18" 2" 87% Jan 3590
✓ 002	field 2S	"	"	12200 6900	6:35	9:15:31	13:59:44	-2:35/1:30	- tank, better "
✓ 003	" 3S	"	"	12100 6800	6:48	9:15:31	13:53:40	-2:22/1:26	" "
✓ 004	field 1S	"	IK	15200 9900	7:05	9:15:31.6	14:05:47	-2:05/1:21	dark moon night Jan 2550
✓ 005	"	"	IJ	17800 6500		9:15:31.5	14:05:43	-1:50/1:12	" "
✓ 006	F2S	"	"	17000 6300		15:21.9	13:59:42	-1:36/1:14	" "
✓ 007	"	"	IK	15700 4200	7:49	15:21.7	13:59:39	-1:21/1:11	" "
✓ 008	Can 280	10	"	17600		8:20:26	14:45:38	0:02/1:05	had for me 2'S
✓ 009	"	10	"		8:22				Very camera (log) with video card #1 to shot camera!
✓ 10	"	10	IJ	18000	8:26				
✓ 11	"	10	"		8:22				
✓ 12	"	10	R	15600	8:31			9:15/11	had I for
✓ 13	"	"	"		8:33				
✓ 14	"	"	Y+R	17000					
✓ 15	"		"	"	8:36			0:20/1:05	Pos 5

Frame prefix #: FR286A

Telescope: 61"

Day of Week: Wed

RA offset:

Focus:

Humdty:

Sheet #: 2

Observers: DiSanti, Porter  
FinK

Date MST/UT: Jul 11/12

Dec offset:

Tailpiece: 34.3

Balance: Temp O/I:

1712

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 mg ✓ 16	F3	060	IK	1520 4am	8:42	9:15:31.8	13:13:39	-0:28	1.06 from 3545
✓ 18	F3	"	IJ	1220 7am	8:55	9:15:31	13:53:36	-0:14	1.06 (#17 SKIPPED)
✓ 19	F4	"	"	1960 8:20	9:17	15:31.3	13:47:32.5	+0:07	1.06 hdr still says (S)
✓ 20	"	"	IK	1620 8:40	9:30:00	15:31.4	47:30.2	+0:19	1.06 hdr NOW (F4)
✓ 21	F5	"	"	1720 5:10	:44:00	15:30.9	41:28.2	+0:33	1.04
✓ 22	"	"	IJ	2200 10:00	9:56:50	:30.7	41:25.8	+0:46	1.08 fog rolled
focus 3350 ✓ 23	F1	"	V+T	1800 6:20	10:31:05	9:15:31.5	14:05.45	+1:20	1.11 ind - (15m delay)
✓ 24	F2	"	"	1850 7:20	10:51:00	15:31.9	13:59:42.7	+1:40	1.15 Fiddlyndo rains N
✓ 25	F3	"	"	1860 7:30	11:04:30	15:31.8	53:39.2	+1:54	1.18
focus 3350 ✓ 26	F6	"	IJ	24100 13:00	11:21:20	9:15:31.5	14:11:45.6	+2:11	1.22 - Hazy
✓ 27	"	"	IK	19140 7:20	11:36:15	15:31.4	11:44.0	+2:25	1.27
					436				



Telescope: 61"

113

Frame prefix #: FR299A

Day of Week: Thursday

RA offset:

Focus:

Humdty:

Sheet #: 3

Observers: Fink, Parks

Date MST/UT: Jun 12/13

Dec offset:

Tailpiece:

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.)
✓ 28	Park	0.05	VTR	11489/11431					done completely/dark
✓ 29	"	0.05		11475/11411					FF lamp on
✓ 30	FF	0.10	VTR	22000					-ret telere -65° for star
✓ 31	"	"	"	"			-32°	0	
✓ 32	"	"	"	"					
✓ 33	"	"	"	"					37 s for
✓ 34	FF	0.20	R	24000					a white
✓ 35	"	"	"	24300					fringe
✓ 36	"	"	"	24400					
✓ 37	"	"	"	"					
✓ 38	FF	0.08	IK	23400					
✓ 39	"	"	"	23300					
✓ 40	"	"	"	23200					
✓ 41	"	"	"	23100					
✓ 42	"	0.06	IJ	23175					

Telescope: 61"

149

Frame prefix #: FR89A

Day of Week: Th

RA offset:

Focus:

Humdty: 88% Sheet #: 4

Observers: Rich Anta

Date MST/UT:

Dec offset:

Tailpiece:

Balance:

Temp O/I: 10°/16°

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.)
✓ 43	FF	0.06	I5	23200	~ midnight				
✓ 44				2280					dark redshift
✓ 45				23240					1500 → 1700 205
✓ 046 047	SP89A								new Vidler card
✓ 001	FF	5.0	0.25	9000	12:45 MST		-32°	0h	= Vanin 85; big plate
✓ 002	FF	5.0	0.25	7000	12:46 MST				- Camera #2 with new Vidler camera card.
✓ 003	DARK	1.0	-	1,550	12:48 MST				- We had Moon apophis
✓ 004	FF	3.0	0.50	11,500	12:50 MST				moon in; tilted 35°
✓ 005	FF	3.0	0.50	11,700	12:52 MST				- When we took down
✓ 006	FF	1.4	1.0	11,100	12:55 MST				off the next day window has broken one
✓ 007	FF	1.4	1.0	11092	12:56 MST				"
✓ 008	Ym 89a	6.0	1.0	16700/1405	12:34	14:10:00	+13:02:58	-126/1.13	cont emission is there!
FR89A 46	Ym 89a	60	V+R	?					
✓ 047	Ym 89a	120	"	?					

3870 FC

115

Telescope: 61"

Frame prefix #: F209A

Day of Week: Fri

RA offset:

Focus:

Humdty:

Sheet #: 8

Observers: Fitz, Pate, Ryan  
Pachar

Date MST/UT: Jan 13/14

Dec offset:

Tailpiece:

Temp O/I:

Balance:

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.)
2nd ✓ 048	Cent	100	V4R	11910/11410		pellucid			Row 359 202 430
									359 430
									361 431
									360 431
									362 428
<del>Saturday Jan 14/14</del>					<del>UT</del>	<del>MST</del>			
✓ 49	LAN 280	3.0	V4R	28,600	8:39 - 1:39				
✓ 50	LAN 280	2.0	V4R	22,368					
- ✓ 51	LAN 280	3.0	R	15,900				φ: 28 / 1.06	
✓ 52	LAN 280	3.0	IK					φ: 30 / 1.06	
✓ 53	LAN 280	3.0	IK		8:26			φ: 32 / 1.06	
<del>54</del>	<del>LAN 280</del>	<del>3.0</del>	<del>IJ</del>						
✓ 55	LAN 280	2.0	V4R						
✓ 56	LAN 280	2.0	V4R					φ: 42 / 1.07	
✓ 57	11	2.0	R						

Telescope: 61"

Frame prefix #: FR89A

Day of Week: Sat

RA offset:

Focus: 367φ

Humdty: 57% Sheet #: 9

Observers: FINK/PORTER

Date MST/UT: Sat 1/11

Dec offset:

Tailpiece: 34.3

Balance:

Temp O/I: 24/28

Set LAN

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.)
✓ 58	LAN28φ	2.φ	R					<del>φ:44</del> 1.φ7	
✓ 59	"	2.φ	IK		UT				ξ - 0.0065
✓ 60	"	2.φ	IK		8:5φ			<del>φ:46</del> 1.φ7	ξ - 0.003
✓ 61	LAN28φ	2.φ	IJ						
✓ 62	"	"	IJ	12,619	8:52			<del>φ:48</del> 1.φ7	
✓ 63	"	2.φ	VTR	23,436					FOCUS 367φ
✓ 64	LAN28φ	2.φ	R	16,844	8:57			<del>φ:53</del> 1.φ7	
✓ 65	LAN28φ	2.φ	R	13,383	9:φφ			<del>φ:56</del> 1.φ8	PEL. IN.
✓ 66	LAN28φ	2.φ	VTR	17,182	9:φ2			<del>φ:58</del> 1.φ8	PEL. IN.
SET FC ✓ 67	CENTRAL FIELD	1φφ	IK			9:15:32.1	+14:08:49		FOCUS=363φ
✓ 68	F1N	6φφ	IK	15700	9:18:45	9:15:32.φ	+14:14:48.9	<del>φ:19</del> 1.φ6	near G11N
✓ 69	"	"	I5	18000	9:52	11:31.8	46.5	<del>0:32</del> 1.06	
✓ 70	F2N	"	"	18000	9:45	31.6	20:45	0:46	1.07
✓ 71	"	"	IK	16000	9:59	51.4	242	1:01	1.08
✓ 72	F3N	"	"	16000	10:12	31.2	26:40.5	1:14	1.10

Telescope:

Frame prefix #: *FR 89A* Day of Week:

RA offset:

Focus:

Humdty:

Sheet #: *10*

Observers:

Date MST/UT:

Dec offset:

Tailpiece:

Balance:

Temp O/I:

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.)
✓ 73	FN3	60	I5	2000	10:24	9:15:51.1	14 26 11.4	1227	1-12
✓ 74	7P quickly		exp. of		cut	Yanah	1989	1989	DS = 359, 926
79	FF	.06	IJ	23,000	13:45	6:45			FOCUS: 3670
80	"	"	"	23,000					FOCUS: 3670
81	"	"	"	23,800					FOCUS: 3630
82	"	"	"	22,800					FOCUS: 3630
83	"	"	"	23,000					FOCUS: 3630
84	"	"	"	23,000					FOCUS: 3630
85	FF	.08	IK	23,000					"
86	"	"	"	"					"
87	"	"	"	"					"
88	"	"	"	"					"
89	DARK	.08	-	11,200	13:57	6:57			"