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December 1963

TECHNICAL PUBLICATION

PHOTOGRAPHIC EVALUATION REPORT

MISSION 9057
19-22 JULY 1963

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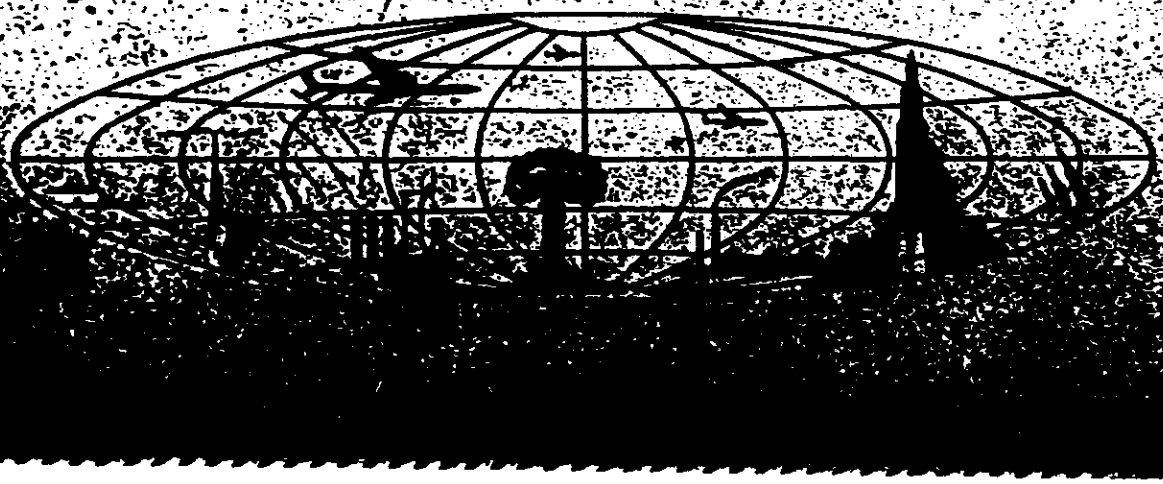

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PART I. MASTER PANORAMIC CAMERA

Mission No: 9057 (M-23)
Camera No: 120
Slit Width: 0.200"
Film Type: 7J23-7600 (4404)

Filter, Panoramic: Wratten 21
Aperture, Panoramic: f/3.5
Filters, Horizon: Wratten 25
Evaluated By: [redacted]

1. Shutter Operation (Horizon Cameras): The port and starboard horizon camera shutters functioned throughout the mission.

2. Horizon Camera Exposure:
   a. Supply (Port): The exposure was adequate for all descending passes but insufficient to compensate for the prevailing low sun angle in the ascending passes (f/6.8, 1/100 second).
   b. Take-Up (Starboard): The exposure was adequate for the majority of passes (f/6.8, 1/100 second).

3. Camera Number: The number is flared but readable.

4. Data Block: The binary lamps are noticeably bloomed. All of the lamps are imaged simultaneously at various times. Example: pass D55.

5. Film Metering: The metering is normal throughout the mission.

6. Film Tracking: Erratic film tracking, associated with impending film exhaustion, occurs after pass D56, frame 61.

7. Frequency Markers: The marks are flared with reflected images recorded inside the edges of the panoramic formats.

8. Fiducials:
   a. Panoramic Camera: The fiducials are well defined.
   b. Horizon Cameras: The fiducials are well defined with little or no flare present.

9. Light Leaks: Light leaks affect the film each time it is at rest within the camera. This condition results in degradation of the first and last three frames of each pass, as well as three frames on either side of the camera-off/camera-on positions within passes. The degree of degradation varies with sun angle and time lapse during an inactive camera period. The fog patches appear in various forms, some resembling equipment images. Pass D41, frames 122-124, are the most severely affected.

10. Static Electricity: Dendritic edge static appears intermittently. Examples: passes A01, D23, D24, D54.

11. Pinholes: Intermittent and few throughout the film.

12. Abrasions and Scratches: Multiple scratches parallel to the major axis of the film are present from head to tail. The most persistent scratches are 0.20" from, and parallel to, each edge (rail scratches). The extended portion of the format (the bonus area) at the supply end near the titled edge of each frame is severely scratched on the emulsion side of the film. The scratches are approximately 0.50" long and parallel to the major axis of the film. Small emulsion digs and short scratches are numerous throughout the mission with the exception of pass A46 which is relatively free of scratches. The end of pass D55 and all of pass D56 are severly scratched and abraded. Emulsion rubs appear 1.1" from, and parallel to, the non-titled edge on pass D39, frames 49, 50; pass D41, in frame-center and

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parallel to the edges of frames 10-14; pass D52, 1.55" and 1.85" from, and parallel to, the titled edge throughout the pass.

13. Tearing: None. A manufacturer's splice is present on pass D25, frame 130.

14. Water Marks: A water spot is present on pass D23, frame 60.

15. Pressure Streaks: Pre-processing pressure streaks are present at the end of pass D55 and throughout pass D56 where the film was out of the guide rails.

16. Processing Streaks: Streaking follows emulsion defects and those areas affected by foreign matter adhering to the emulsion during processing.

17. Blistering and Crimping: Blisters are present on the following frames: pass D09, frame 96; pass D38, frame 5; pass A50, frame 1. Crimps are found on pass D38, frame 20; pass D54, frame 87; throughout pass D56, and adjacent to several heat splices.

18. Contrast: 20% low, 78% medium, 02% high.

19. Apparent Resolution: Good except for pass D56 (out-of-focus) and areas of soft imagery as follows: 1" x 1" square, 1.0" from the supply end of each frame and 1" from the titled edge of the film; a semicircle, measuring 3.5" on its base, extends 1" into the format from the titled edge beginning 3.0" from the supply end of the format of each frame.

20. Apparent Graininess: Fine.

21. Photo Quality:
a. Panoramic Camera: Good except for the areas of poor focus and the areas degraded by the light leak.
b. Horizon Cameras: The starboard camera imagery is consistently soft. The port camera imagery is good. However, there is often a definite increase in density in that half of the format containing the horizon image.

22. Camera Operation:
a. Panoramic Camera: Good except for the out-of-focus areas as described in Item 19 and the light leaks as described in Item 9.
b. Horizon Cameras: The port camera operation was good. The starboard camera operation was poor due to an out-of-focus condition resulting from poor focus or vibration.

23. Suitability for PI: Good where not degraded by the soft spots previously mentioned or on pass D56 where the extreme out-of-focus condition exists.

Remarks

1. A diagonal minus-density streak, 6.0" long, is located at the supply end of pass A01, frame 26. Frame 27 of the same pass contains a minus-density streak 12.0" long, parallel to and 0.80" from the untitled edge.

2. A plus-density streak associated with a diagonal crease is present on pass D09, frame 76. Pass A18 contains transverse plus-density bands on all frames.

3. Foreign matter adhering to the emulsion is found intermittently throughout the mission.

4. The following percentages of overlap were determined in the fifth and last frames of each pass, where possible. An asterisk indicates cases where cloud cover necessitated a deviation of 10 or more frames from this procedure. Weather or low sun angle preclude determination of overlap on some passes, and such omissions are indicated by "NM" for Not Measurable.

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Overlap (Percent)					
Pass	Beginning	End	Pass	Beginning	End
A01	0	0*	D36	NM	7
A02	0	0*	D37	7*	8
D02	0*	0	D38	7*	7
D06	NM	0*	D39	6	NM
D07	4	8	A40	NM	NM
D08	2	8	D41	10	8
A09	NM	NM	A44	5	8
D09	4	8	A46	8*	NM
A18	8*	8*	A50	NM	8
D18	4	NM	D51	8*	NM
D21	1	5	D52	8	NM
D23	4	4*	D54	9	9
A24	NM	NM	D55	7	NM
D24	6*	7	A56	NM	NM
D25	3*	6	D56	6	9
M35	7*	7*	D57	NM	NM
D35	8*	9*			

5. Density readings were taken on each pass using the Macbeth QuantaLog Densitometer, Model EP 1000, with an ET 20 attachment and an 0.5 mm aperture. Terrain and limiting values for D-Max, D-Min, and Gross Fog are correlated below.

Reading	Pass	Frame	Terrain		Limiting		Gross Fog		
			D-Min	D-Max	D-Min	D-Max	Leading	Center	Trailing
1	A01	34	0.57	1.97	0.57	2.06	0.19	0.20	0.21
2	A02	20	0.48	0.64	0.48	1.95	0.20	0.20	0.21
3	D02	23	0.59	1.69	0.49	2.05	0.21	0.20	0.22
4	D06	3	NR	NR	1.13	2.04	0.23	0.23	0.23
5	D06	67	1.30	1.64	1.00	2.07	0.21	0.21	0.22
6	D06	54	0.56	1.06	0.56	2.09	0.20	0.19	0.20
7	D07	20	0.50	1.30	0.50	2.06	0.20	0.19	0.20
8	D07	79	0.44	2.00	0.44	2.00	0.21	0.21	0.21
9	D08	25	0.81	1.65	0.81	2.08	0.21	0.20	0.21
10	D08	85	0.75	1.73	0.75	2.07	0.20	0.19	0.20
11	A09	--	NR	NR	NR	NR	0.22	0.21	0.21
12	D09	10	0.47	1.71	0.47	1.93	0.20	0.19	0.20
13	D09	93	0.67	1.71	0.40	2.20	0.22	0.21	0.21
14	D09	151	0.42	1.69	0.27	1.69	0.20	0.19	0.20
15	A18	14	0.37	1.39	0.34	1.76	0.21	0.21	0.21
16	D18	14	0.75	1.82	0.67	2.02	0.20	0.18	0.20
17	D21	12	0.46	1.90	0.46	2.10	0.21	0.21	0.21
18	D23	13	0.71	1.86	0.64	2.02	0.20	0.19	0.20
19	D23	89	0.77	1.78	0.77	2.05	0.19	0.18	0.19
20	D23	151	0.68	1.56	0.68	2.02	0.19	0.18	0.19
21	A24	--	NR	NR	NR	NR	0.19	0.19	0.19
22	D24	29	0.44	1.10	0.40	2.04	0.19	0.19	0.19
23	D24	136	0.80	1.72	0.50	2.02	0.19	0.17	0.19
24	D24	153	1.02	1.97	0.59	2.12	0.19	0.18	0.19
25	D25	31	0.68	1.43	0.66	2.10	0.19	0.18	0.19
26	D25	98	0.80	1.17	0.80	2.14	0.19	0.18	0.19
27	D25	156	0.46	1.78	0.46	1.78	0.11	0.10	0.11
28	M35	11	NR	NR	0.28	1.34	0.11	0.11	0.11
29	D35	56	0.46	1.96	0.46	2.08	0.20	0.19	0.20
30	D35	76	0.56	1.96	0.47	2.08	0.20	0.19	0.20

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Reading	Pass	Frame	Terrain		Limiting		Gross Fog		
			D-Min	D-Max	D-Min	D-Max	Leading	Center	Trailing
31	D36	34	0.70	1.57	0.70	2.01	0.20	0.19	0.20
32	D36	112	NR	NR	0.32	2.00	0.20	0.19	0.20
33	D37	33	0.41	1.42	0.41	2.06	0.20	0.19	0.20
34	D37	85	0.42	1.58	0.42	2.07	0.20	0.19	0.20
35	D38	26	0.35	0.97	0.35	1.98	0.21	0.19	0.21
36	D38	84	[redacted]						
37	D40	[redacted]							
38	D40								
39	D41								
40									
41	D41	12	0.38	1.37	0.38	2.04	0.20	0.18	0.19
42	D41	83	0.59	1.19	0.55	2.07	0.19	0.18	0.19
43	A44	43	0.46	0.92	0.38	1.84	0.19	0.18	0.19
44	A46	4	NR	NR	0.61	1.95	0.19	0.18	0.19
45	A50	16	NR	NR	0.34	2.00	0.19	0.18	0.18
46	D51	13	[redacted]						
47	D52	7							
48	D53	69							
49	D53	70							
50	D54	27							
51	D54	55	0.43	2.02	0.37	2.06	0.19	0.17	0.18
52	D54	184	0.49	1.24	0.49	2.00	0.19	0.17	0.17
53	D55	21	0.42	1.32	0.42	2.08	0.19	0.17	0.18
54	D55	79	0.74	1.64	0.74	2.07	0.18	0.17	0.18
55	A56	--	NR	NR	NR	NR	0.17	0.18	0.17
56	D60	5	[redacted]						
57	D60	86							

NOTE: NR denotes no reading made.

Terrain		Limiting	
D-Max Range	0.84-2.02	D-Max Range	1.69-2.14
D-Min Range	0.35-1.3	D-Min Range	0.27-1.13
Average D-Max	1.53	Average D-Max	2.03
Average D-Min	0.57	Average D-Min	0.55

Gross Fog Range 0.1-0.23
Average Gross Fog 0.19

PART II. SLAVE PANORAMIC CAMERA

Mission No: 9057 (M-23)
Camera No: 121
Slit Width: 0.900"
Film Type: 7J92-7800 (4404)

Filter, Panoramic: Wratten 21
Aperture, Panoramic: f/3.5
Filters, Horizon: Wratten 25
Evaluated By: [redacted]

1. Shutter Operation (Horizon Cameras): The port and starboard camera shutters failed to open intermittently throughout the mission. When the malfunction occurred, both shutters failed to open simultaneously and the fiducials do not appear. Refer to Item 1, Remarks, for tabulation of malfunction.

2. Horizon Camera Exposure:
a. Take-Up (Port): The exposure was adequate on all descending passes where the shutter functioned. Very little imagery is present on the ascending passes due to low sun angle (f/6.8, 1/100 second).
b. Supply (Starboard): The exposure was

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adequate when the shutter functioned (f/6.8, 1/100 second).

3. Camera Number: The number is flared but legible when operative. The camera number and index lamps fail to appear on numerous occasions.

4. Data Block: The data block lamps are bloomed and intrude into the panoramic format. They malfunctioned 98% of the time. The various malfunctions are as follows: All lamps imaged simultaneously; smeared binary record; incorrect lamps exposed; no lamps exposed. The data block record on this camera is unusable.

5. Film Metering: The film metering is normal throughout the mission.

6. Film Tracking: Normal through pass A56. Film tracking on pass D56 becomes erratic because of imminent film exhaustion.

7. Frequency Markers: The marks are imaged outside the format with reflected images extending into the panoramic format.

8. Fiducials:
   a. Panoramic Camera: The fiducials are well defined.
   b. Horizon Cameras: The fiducials fail to appear each time the horizon camera shutter malfunctioned. The fiducials are present and well defined on all frames where the horizon camera shutter functioned.

9. Light Leaks: The film at rest within the camera between camera operations is severely affected by fogging, as in the master camera. The density of the fog is contingent on the intensity of the light and the duration of exposure to light during a camera-off position. Equipment images and various fog patterns are apparent on the first and last three frames of each pass. Passes D09 and D51 are the most severely affected.

10. Static Electricity: Dendritic edge static is present intermittently throughout the mission. Static discharges occur with increased frequency near the termination of each pass; therefore, the frequency is contingent upon the length of the pass. The discharges in some instances extend into the panoramic format.

11. Pinholes: Present intermittently throughout the mission.

12. Abrasions and Scratches: Scratches and abrasions parallel to the film edges are present on numerous frames. A short emulsion scratch occurs at each edge of the format associated with the camera number position. Rail scratches appear from head to tail. The most severe of these scratches are noted on pass D09; frames 7, 76, 148, 160; pass D18, frames 16, 17, 25, 42. Severe film damage of various types associated with film exhaustion is present on passes D56 and D57.

13. Tearing: None noted.

14. Water Marks: None noted.

15. Pressure Streaks: Small, minor base rubs are present intermittently throughout the mission.

16. Processing Streaks: None noted.

17. Blistering and Crimping: Blisters are present intermittently throughout the mission. Examples: Pass D35, frames 10, 17, 20, 29, 89. Crimps are present throughout pass D25 and D52.

18. Contrast: 20% low, 80% medium, 0% high.

19. Apparent Resolution: Good where not affected by light leaks or an out-of-focus condition on pass D57 which is associated with imminent film exhaustion.

20. Apparent Graininess: Fine.

21. Photo Quality:
   a. Panoramic Camera: The photographic quality is good where not degraded by light

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leaks as described in Item 9 or the static discharges as described in Item 10.

b. Horizon Cameras: The starboard horizon imagery is consistently soft. Port horizon camera imagery is good where exposures were obtained. A density increase is present on numerous frames having terrain imagery. The density increases in that half of the format containing the horizon image.

22. Camera Operation:

a. Panoramic Camera: Good except for the areas affected by fog as described in Item 9.

b. Horizon Cameras: Poor due to the frequent shutter malfunction and the soft appearance of the starboard camera imagery.

23. Suitability for PI: Good except for the fogged areas and pass D57 which has an out-of-focus condition.

Remarks

1. The horizon cameras malfunctioned as follows:

Pass	Horizon Camera Exposures (Pairs)	Horizon Camera Malfunctions (Pairs)	Percentage of Malfunctions
A01	15	10	40
A02	7	8	53
D02	5	12	70
D06	13	38	74
D07	19	24	49
[redacted]			
D21	5	17	77
D23	34	57	63
A24	2	3	60
D24	35	56	62
D25	16	74	82
[redacted]			
D39	0	43	88
A40	0	6	100
D41	5	57	92
A44	3	29	91
A46	3	13	81
[redacted]			
A56	2	3	60
D66	52	9	15
D67	2	3	60

2. Plus-density and minus-density streaks associated with pre-processing creases appear on pass D06, frames 16, 17; pass D09, frames 6, 92, 93; pass D23, frames 78, 79, 157, 171, 172. The creases have a diagonal pattern.

3. A minus-density streak, 0.3" from and parallel to the unfilled edge, is intermittent throughout the mission. A plus-density streak

occasionally occurs in the same position in the absence of the minus-density streak. A minus-density streak, 1.2" from and parallel to the titled edge, appears intermittently in passes D06, D09, A18, D18, D24 and D25. A plus-density streak, 0.45" from and parallel to the untitled edge, first appears on pass D36, frame 94, and is continuous throughout pass D38.

4. Foreign matter adhering to the emulsion is intermittent throughout the mission. It is noted in several instances that foreign particles adhering to the emulsion, during processing, were the cause of processing streaks, which dissipated within from 2 to 3 inches.

5. The titling is smeared and transferred intermittently throughout the mission.

6. The following percentages of overlap were determined from the fifth and last frame of each pass, where possible. An asterisk indicates where cloud cover necessitated a deviation of 10 or more frames from this procedure. Weather or low sun angle preclude determination of overlap on some passes, and such omissions are indicated by "NM" for "Not Measurable."

Overlap (Percent)

Pass	Beginning	End	Pass	Beginning	End
A01	0	NM	D36	NM	NM
A02	0	0	D37	8*	8
D02	NM	NM	D38	5	10
D06	NM	5	D39	5	9
D07	5	8	A40	NM	NM
[redacted]					
D21	5	9	D52	5	5
D23	6	7*	D54	9	5
A24	NM	NM	D55	7	8
D24	5*	6	A56	NM	NM
D25	6*	9	D58	7	7*
[redacted]					

7. Density readings were taken on each pass using the Macbeth QuantaLog Densitometer, Model EP 1000, with an ET 20 attachment and an 0.5 mm aperture. Terrain and limiting density readings for D-Max, D-Min, and Gross Fog values are correlated below.

Reading	Pass	Frame	Terrain		Limiting		Gross Fog		
			D-Min	D-Max	D-Min	D-Max	Leading	Center	Trailing
[redacted]									
6	D07	04	0.59	1.41	0.59	2.15	0.20	0.20	0.21
7	D07	83	0.60	1.63	0.60	1.63	0.20	0.20	0.21
8	D08	28	0.67	1.59	0.67	2.19	0.19	0.19	0.22
9	D08	88	0.86	1.95	0.86	1.99	0.19	0.19	0.22
10	A09	--	NR	NR	NR	NR	0.20	0.20	0.21
[redacted]									

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[redacted]

Reading	Pass	Frame	Terrain		Limiting		Gross Fog		
			D-Min	D-Max	D-Min	D-Max	Leading	Center	Trailing
13	D09	154	0.54	1.79	0.42	1.79	0.18	0.18	0.18
14	A18	20	0.19	1.25	0.19	1.49	0.11	0.11	0.11
15	A18	24	0.29	0.90	0.21	1.84	0.09	0.09	0.09
16	D18	56	NR	NR	0.47	1.90	0.10	0.10	0.10
17	D21	21	0.44	1.00	0.44	2.06	0.14	0.14	0.14
18	D22	11	0.86	2.09	0.86	2.09	0.18	0.17	0.18
19	D22	93	0.60	1.41	0.60	2.06	0.17	0.17	0.17
20	D22	156	0.78	1.57	0.78	2.06	0.17	0.17	0.17
21	A24	-	NR	NR	NR	NR	0.17	0.17	0.17
22	D24	35	0.87	1.90	0.87	2.05	0.17	0.17	0.17
23	D24	142	0.87	1.77	0.87	2.05	0.17	0.17	0.17
24	D24	166	1.30	1.47	0.45	2.06	0.17	0.17	0.17
25	D25	37	0.82	1.59	0.82	2.05	0.17	0.17	0.17
26	D25	97	0.58	1.50	0.58	2.10	0.17	0.17	0.17
27	D25	163	0.47	1.70	0.47	1.70	0.11	0.11	0.11
28	M35	22	NR	NR	0.47	1.98	0.10	0.10	0.10
29	D35	61	0.49	1.90	0.49	2.06	0.19	0.18	0.19
30	D35	82	0.58	1.88	0.58	2.06	0.19	0.18	0.19
31	D36	40	NR	NR	1.20	1.20	0.19	0.18	0.19
32	D36	110	NR	NR	0.82	1.96	0.18	0.17	0.18
33	D37	37	0.39	1.28	0.39	2.06	0.18	0.17	0.18
34	D37	86	0.37	1.66	0.37	1.99	0.18	0.17	0.18
35	D38	32	0.36	1.15	0.36	2.02	0.18	0.17	0.18
36	D38	69	0.54	1.61	0.54	2.03	0.18	0.17	0.18
37	D38	178	0.42	1.33	0.42	2.06	0.19	0.18	0.19
38	D39	37	0.67	1.44	0.59	1.96	0.19	0.18	0.19
39	D39	90	0.56	1.68	0.56	2.07	0.19	0.18	0.19
40	A40	-	NR	NR	NR	NR	0.14	0.13	0.13
41	D41	44	0.44	1.84	0.44	1.90	0.19	0.18	0.19
42	D41	89	0.59	1.98	0.59	2.06	0.19	0.18	0.19
43	A44	48	0.46	0.69	0.32	1.68	0.19	0.18	0.19
44	A46	5	0.37	0.92	0.37	1.93	0.19	0.18	0.19
45	A46	13	NR	NR	0.69	2.02	0.19	0.18	0.19
46	A50	18	NR	NR	0.48	2.04	0.19	0.18	0.19
47	A50	21	NR	NR	0.47	2.05	0.19	0.18	0.19
48	A50	27	NR	NR	0.48	1.98	0.18	0.17	0.18
49	D51	19	NR	NR	0.49	1.96	0.14	0.13	0.14
50	D52	20	0.48	1.97	0.48	2.09	0.18	0.17	0.18
51	D52	69	NR	NR	1.20	2.06	0.19	0.18	0.19
52	D52	88	0.62	1.96	0.49	1.96	0.17	0.16	0.17
53	D54	11	0.52	1.54	0.52	2.08	0.17	0.16	0.17
54	D54	82	0.65	1.67	0.65	2.06	0.17	0.16	0.17
55	D54	170	0.68	1.16	0.68	2.05	0.17	0.16	0.17
56	D55	25	0.44	1.47	0.44	1.98	0.17	0.16	0.17
57	D55	75	0.71	1.75	0.61	2.07	0.17	0.16	0.17
58	D56	77	0.67	1.67	0.67	2.08	0.17	0.16	0.17
59	A58	-	NR	NR	NR	NR	0.11	0.11	0.11
60	D58	7	0.56	1.96	0.49	2.04	0.17	0.16	0.17
61	D58	96	0.41	1.24	0.41	2.06	0.17	0.16	0.17
62	D67	7	0.39	1.48	0.39	1.99	0.18	NR	0.18

NOTE: NR denotes no reading made.

Terrain

D-Max Range 0.89-2.07
D-Min Range 0.19-1.30
Average D-Max 1.48
Average D-Min 0.56

Limiting

D-Max Range 1.49-2.19
D-Min Range 0.19-1.30
Average D-Max 1.99
Average D-Min 0.55

Gross Fog Range 0.09-0.23
Average Gross Fog 0.17

[redacted] Control System Only

[redacted]

PART III. STELLAR CAMERA

Mission No: 9057 (M-23)
Camera No: D12
Camera Setting: f/1.9, 2 second

Filter: None
Film Types: 4400, 4401
Evaluated By: [redacted]

1. Shutter Operation: There are 11 double exposures.

2. Exposure: Adequate to produce some stellar imagery. Flare degrades approximately 35% of each frame.

3. Frame Correlation Fiducial Mark: Operational and readable, but flared.

4. Camera Number: The number is well defined and adequately registered.

5. Reseau Calibration Points: The lamps are operational, but in most cases are rather weak.

6. Reseau: The grid is visible only in the flared areas.

7. Film Metering: Normal.

8. Film Tracking: Normal.

9. Light Leaks: None.

10. Static Electricity: None.

11. Abrasions and Scratches: Minor and few.

12. Pinholes: Few.

13. Water Marks: None.

14. Processing Streaks: None.

15. Pressure Streaks: None.

16. Tearing: None.

17. Blistering and Crimping: Very little blistering or crimping occurs throughout the mission.

18. Foreign Matter: None.

19. Contrast: Sufficient to produce the best stellar imagery yet obtained with this system.

20. Apparent Graininess: Medium.

21. Photo Quality: Good.

22. Camera Operation: Good except for 11 double exposures.

Remarks

1. Malfunctions of the stellar unit resulted in the loss of imagery in 14 frames out of a total of 400 exposures.

2. Streaked, out-of-focus nonstellar images appear in the first 35 frames (passes A01 through D07). These are tentatively identified as crystallized particles of jettisoned fuel.

3. Density readings were taken at the beginning and end of each pass using the Macbeth QuantaLog Densitometer, Model EP 1000, with an ET 20 attachment and an 0.5 mm aperture. The D-Max, D-Min, and Gross Fog values are correlated below.

Reading	Pass	Frame	Beginning of Pass		End of Pass		
			D-Min	D-Max	D-Min	D-Max	Gross Fog
[redacted]							
6	D05	16					
7	D06	17	0.67	1.90	0.54	1.49	0.96
8	D06	30					0.96
9	D07	31	0.72	2.19	0.59	1.62	0.96
10	D07	46					0.96
[redacted]					1.25	2.87	0.96

[redacted]
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[redacted]

Reading	Pass	Frame	Beginning of Pass		End of Pass		
			D-Min	D-Max	D-Min	D-Max	Gross Fog
15	D09	87			0.67	1.81	0.35
16	A18	88	0.54	1.37			0.39
17	A18	92			0.61	1.62	0.42
18	D18	93	0.81	2.07			0.45
19	D18	101			0.75	2.04	0.36
[redacted]							
25	A24E	135			0.27	0.27	0.27
26	D24	136	0.73	1.94			0.29
27 (Mid Pass)	D24	137			0.64	1.93	0.29
28	D24	162			0.60	1.89	0.27
29	D25	163	0.76	2.73			0.27
[redacted]							
35	D36	20[illegible]	0.27	1.06			0.14
36	D36	22[illegible]			0.16	0.87	0.14
37	D37	226	0.20	1.06			0.14
38	D37	236			0.25	1.32	0.14
39	D38	239	0.14	0.94			0.14
[redacted]							
45	D41	281	0.19	0.95			0.14
46	D41	297			0.17	0.67	0.14
47	A44	298	0.15	0.28			0.14
48	A44	306			0.17	0.72	0.16
49	A46	307	0.19	0.85			0.15
[redacted]							
55	D52	323	0.24	1.15			0.15
56	D52	337			0.37	1.74	0.13
57	D54	338	0.22	1.17			0.12
58	D54	363			0.18	0.80	0.13
59	D55	364	0.18	0.74			0.13
[redacted]							

NOTE: NR denotes no reading made.

SO 102 FILM (4401)

D-Max Range 0.27-2.87
D-Min Range 0.27-1.25
Average D-Max 1.72
Average D-Min 0.61

Gross Fog Range SO 102: 0.26-0.45
SO 130: 0.13-0.16
Average Gross Fog SO 102: 0.30
SO 130: 0.14

SO 130 FILM (4400)

D-Max Range 0.14-1.87
D-Min Range 0.14-0.39
Average D-Max 0.89
Average D-Min 0.20

[redacted]
Control System Only

[redacted]

PART IV. INDEX CAMERA

Mission No: 9057 (M-23)
Camera No: D/12
Camera Setting: f/4.5, 1/500 second
Filter: Wratten 21
Film Type: 4400 (SO 130)
Evaluated By: [redacted]

Note: The photographic take of the index camera for this mission is not usable due to an apparent camera malfunction. Lack of imagery also limits thorough evaluation of this camera.

1. Shutter Operation: The majority of the index camera frames contain only a projectile-shaped flare located in the center and extending across the entire format. The outline of the format is imaged in a few of the frames.

2. Exposure: Evaluation of exposure is precluded by total lack of imagery.

3. Camera Number: Clearly registered on frames where the format outline is imaged.

4. Film Metering: Normal.

5. Film Tracking: Mistracking caused physical damage to the non-titled edge of the film on frames 399-418. A crease associated with the mistracking is present on frames 392-398.

6. Reseau: The reseau is double exposed in all instances where the grid appears. The double images are possibly caused by shutter bounce or the film not being held securely in the focal plane.

7. Light Leaks: A light leak, possibly caused by an open shutter leaf, is consistently present. The light leak appears as a fogged area approximately 1.0" wide in the center of the format. The fog is intensified when the film is at rest in the camera-off positions.

8. Static Electricity: Dendritic static discharges are present intermittently on both edges of the film and become more intense in the last 25% of the take. Example: frame 220.

9. Abrasions and Scratches: Intermittent and few.

10. Pinholes: Few.

11. Water Marks: None.

12. Processing Streaks: None.

13. Pressure Streaks: None.

14. Tearing: None.

15. Blistering and Crimping: Post-processing crimps are present intermittently throughout the film. Blisters are few and intermittent.

16. Foreign Matter: None.

17. Contrast: Determination of contrast is precluded by lack of imagery.

18. Camera Operation: Poor.

19. Suitability for PI: Poor because of lack of imagery.

Remarks

1. A mottled, non-terrestrial image resembling a sponge is occasionally present in the formats. The image is approximately 0.1" wide and is parallel to the minor axis of the film.

2. Density readings were not taken as they would serve no useful purpose. Lack of imagery in all frames renders any density readings meaningless.

[redacted]
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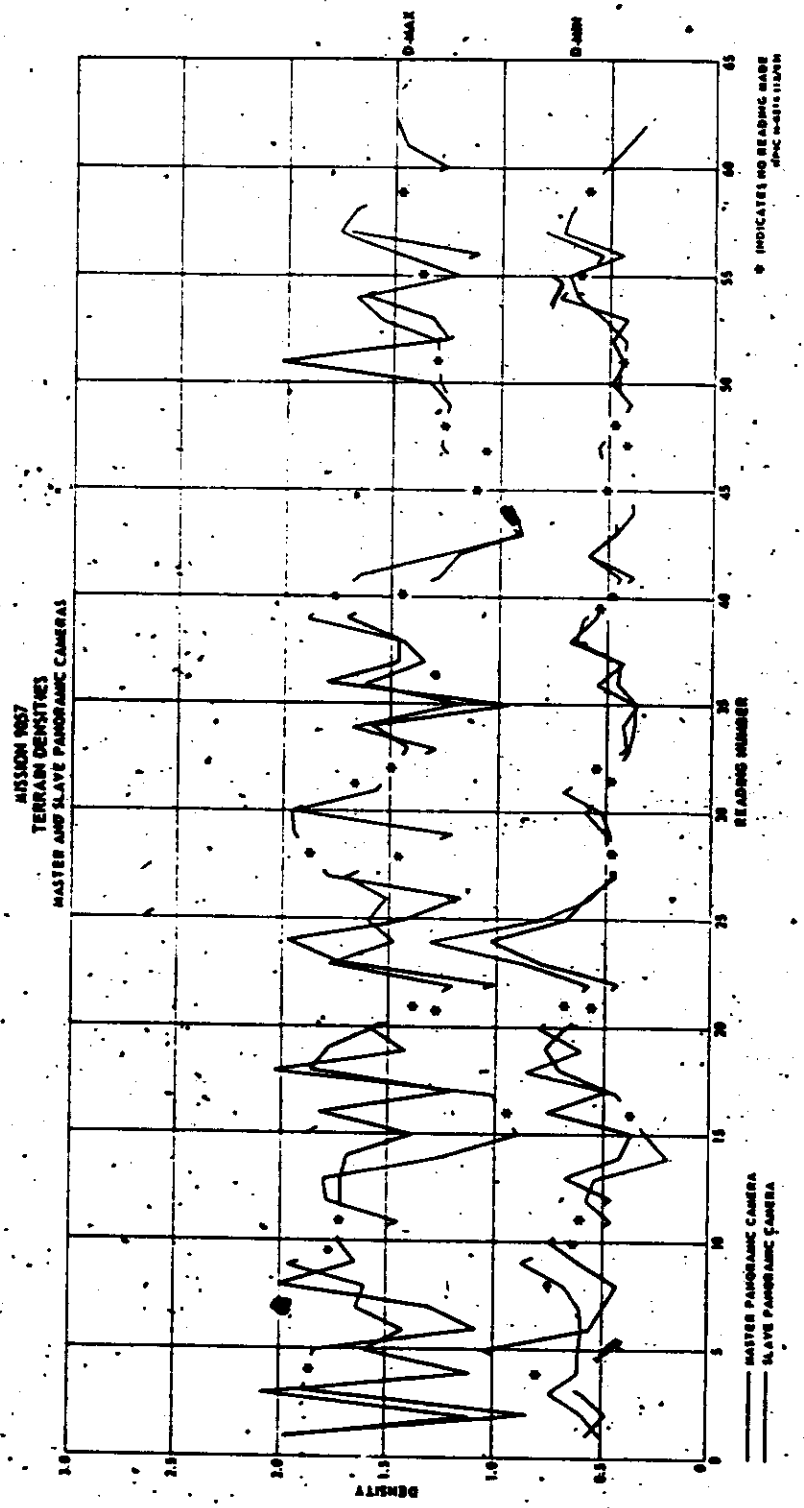
[redacted]

PART V. VEHICLE ATTITUDE DATA

Pass	Pitch Range		Pitch Variation	Roll Range		Roll Variation	No of Frames	Remarks
[redacted]01	13°32'	12°48'	0°44'	0°09'	-0°05'	0°14'	51	
[redacted]02	13 43	13 11	0 32	0 19	-0 04	0 23	30	
D02	13 44	13 13	0 31	0 28	0 14	0 14	35	
D06	13 38	13 34	0 04	0 25	-0 07	0 32	27	
D06	13 52	13 33	0 19	-0 01	-0 17	0 16	76	
[redacted]								
A18	13 14	13 06	0 08	0 34	0 02	0 32	39	
D18	14 04	13 30	0 34	0 20	0 07	0 13	60	
D21	13 26	13 10	0 16	0 43	0 09	0 34	44	
D23	14 09	13 31	0 38	0 15	-0 39	0 54	183	
D24	14 58	14 09	0 49	0 59	-0 03	1 02	194	
[redacted]								
D36	14 22	13 56	0 26	0 45	0 10	0 35	34	
D36	14 23	13 56	0 27	1 24	0 06	1 18	116	
D37	15 37	14 29	1 08	0 18	-0 24	0 37	51	
D37	15 57	15 28	0 29	1 12	0 52	0 20	90	
D38	16 08	15 11	0 57	0 10	-0 59	1 09	76	
[redacted]								
A44	17 22	17 48	0 46	0 35	-0 09	0 44	35	Readings approximate
A44	16 22	16 34	0 12	1 06	0 59	0 07	63	
A46	14 02	13 31	0 31	0 37	-0 35	1 12	35	
A50	15 05	12 47	2 18	1 01	0 08	0 53	39	1-7 No data
D51	14 00	13 41	0 19	0 24	-0 36	1 00	38	
[redacted]								

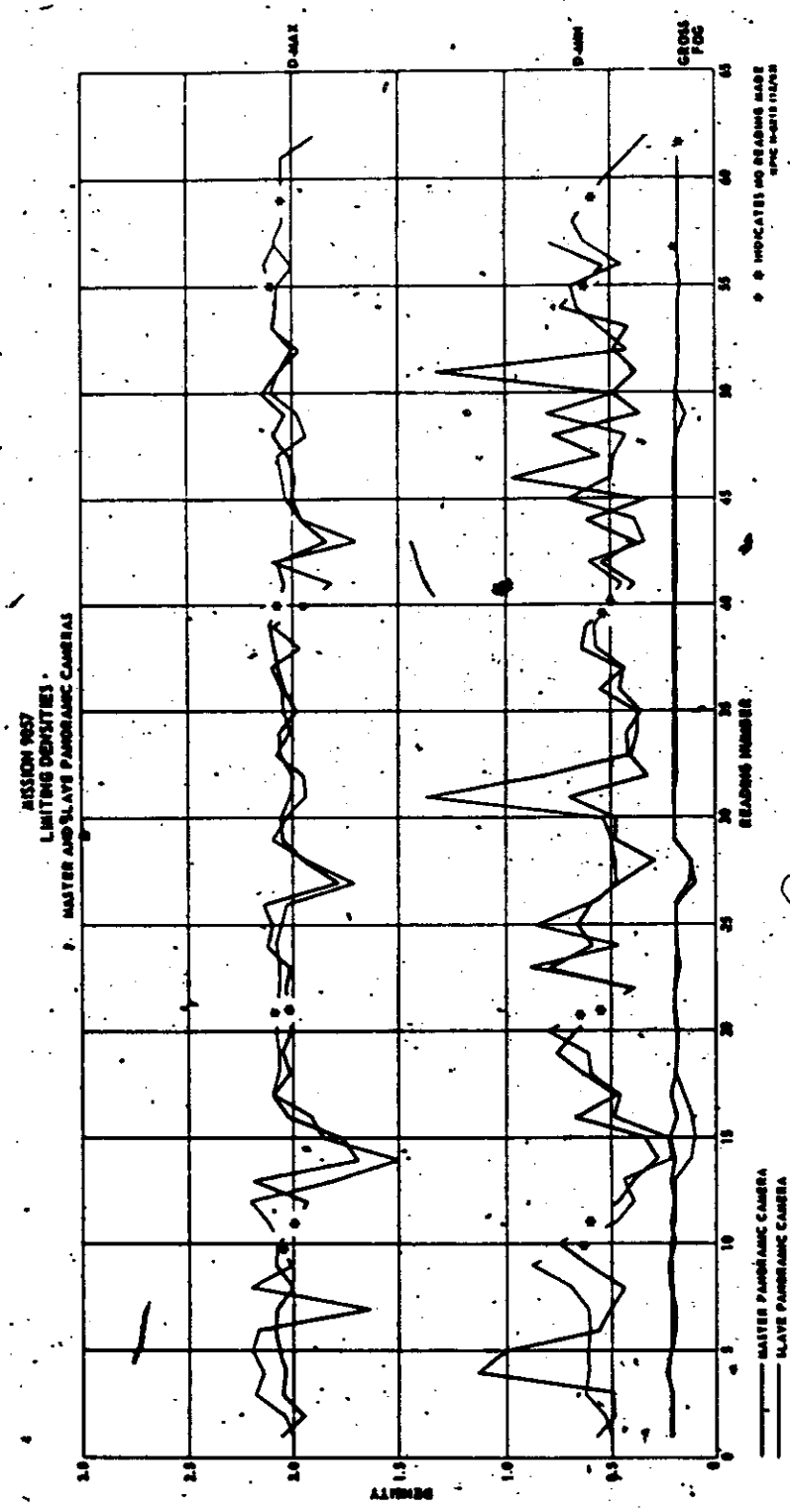
[redacted]

PART VI. DENSITY CHARTS

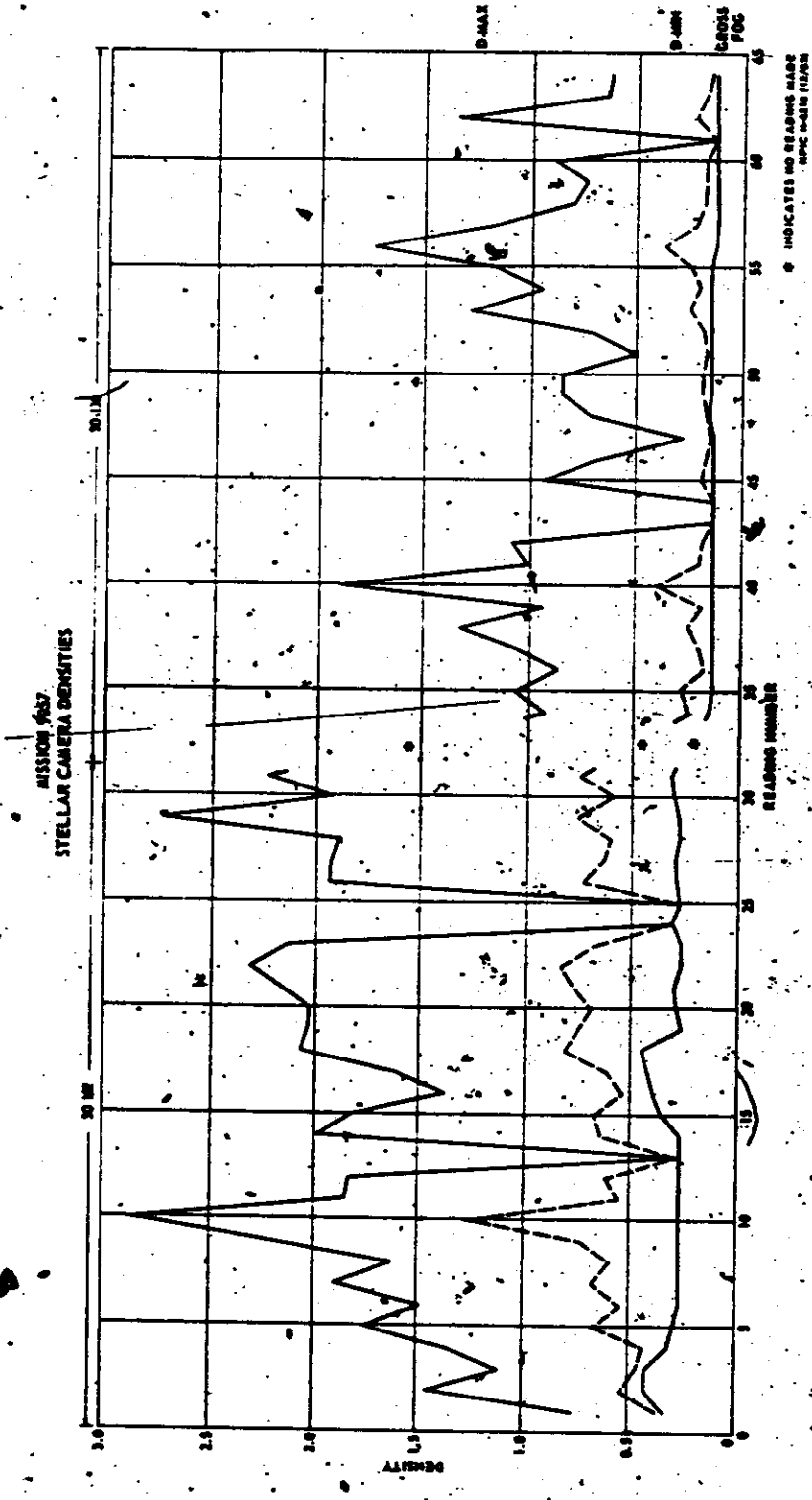


[redacted]
Control System Only

[redacted]



[redacted]
Control System Only


STELLAR CAMERA DENSITIES
READING NUMBER
DENSITY
D-MAX
D-MIN
CROSS FOG
* INDICATES NO READING MADE