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25 July 1962
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PHOTOGRAPHIC EVALUATION REPORT

Mission 9035
30, 31 May
1, 2 June 1962 Z

FE NO. 31-62

HANDLE VIA [redacted]
CONTROL SYSTEM ONLY

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25 July 1962
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PART I - FORWARD CAMERA

Mission No: 9035
Camera No: 76
Film Type: J-23-7600

Filter, main: W21
Filter, horizon: none
Evaluated by: [redacted]

1. Shutter Operation: (Horizon Cameras)
Both the starboard and port horizon camera shutters remained open intermittently for 114 frames of photography fogging from 0.1" to approximately 63" of film. Both horizon camera shutters did not remain open at the same time. Examples: pass A02, frame 39; pass D05, frames 12, 15, 18, 20, 31, 49, 50, 66, 76.

2. Slit Width: (Main Camera) 0.2" - operational.

3. Exposure:
a. Port Horizon - 1/50 second at f/6.8, overexposed.
b. Starboard Horizon - 1/50 second at f/8.0, overexposed and out-of-focus.

4. Camera Number: Operational - overexposed.

5. Binary Operation: Operational. A double binary image is recorded at the end of most passes and at the camera-off position during split passes. A triple binary image is recorded on the last frame of some passes.

6. Film Metering:
a. Port Horizon Camera - average 0.20".
b. Starboard Horizon Cameras - average 0.19".

7. Film Tracking: Normal throughout mission.

8. Timing Pulses: Difficult to read. Pulses occur in the image area or close to the image area for approximately one half of the frame. A separation is evident toward the supply edge for the remainder of the frame. Timing pulses in all passes, except passes D03, A04, D08, A34, do not extend the full length of the last frame. That portion not covered by timing pulses measures a maximum of 8.8 inches. Elongated timing pips are present on every 7th frame, and they are assumed to be associated with framing camera operation.

9. Fiducials:
a. Main Camera - the center fiducial and the trailing edge of terrain frame for approximately 2 inches on either side of the center fiducial is ragged; others are clean.
b. Horizon Cameras - well defined with no flare.

10. Light Leaks: A light leak is present on frame 3 of each pass which fogs one third of this frame and a portion of frame 4. In 22 passes frame 5 is also fogged. Additional fogging is evident on the last frame and the next-to-last frame of each pass.

11. Static Electricity: Edge static is evident in pass A01, frames 1-9. Examples of other types of static are present in pass A04, frames 22-24; pass D06, frames 34-40 (associated with crimping); pass A47, frames 6, 33-35; pass A48, frames 1, 2, 32, 34.

12. Pinholes: Intermittent throughout mission.

13. Abrasions and Scratches: Examples: pass A02, frames 1, 3, 8, 13, 19, 33; pass D02, frames 9, 19, 25, 30, 32; pass A19, frames 1-49 (heavy); pass A34, frames 1-75 (heavy); pass D37, frames 13, 33, 39, 76, 109, 117. Camera induced scratches are present within the terrain format directly under the binary position.

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14. Tearing: Examples: pass A32, frame 4; pass D39, frame 81.

15. Water Marks: Few are present. Examples: pass D34, frame 13; pass A34, frames 76-87; pass D37, frame 6.

16. Pressure Streaks: Present throughout the film.

17. Processing Streaks: None evident.

18. Blistering and Crimping: Crimping before processing is evident in pass D05, frames 44, 46, 47, 49, 50, 51, 54, 55; pass D06, frames 34-40; pass A31, frame 58. Crimps after processing are present intermittently throughout the film. Examples: pass D07, frames 3, 42, 78, 80, 91, 92; pass A16, frames 21, 48, 49, 51, 52. Blistering occurs intermittently throughout. Examples: pass A01, frames 6, 34; pass D03, frames 20, 47, 52; pass D07, frames 3, 78; pass A14, frames 36, 38; pass D38, frames 91, 96, 123.

19. Contrast: Low 10%, medium 80%, high 10%.

20. Apparent Resolution: Acuity achieved by this mission is not as good as that obtained in mission 9032. A rating of fair is given to this mission due to the out-of-focus appearance of the image. Imagery is not as good as that obtained by the aft camera in this mission.

21. Apparent Granularity: Fine.

22. Photo Quality:
    a. Main Camera - good. Degradation is due to light leaks, fogging of terrain format and presence of blisters and scratches.
    b. Horizon Cameras - poor. Since the filters were removed, all of the images are overexposed except those portions of passes having a low sun angle.

23. Camera Operation: a. Main Camera b. Horizon Cameras
    a. Good. A camera induced scratch is present in the format area adjacent to the binary word, and exists throughout the photography. A plus density spot is evident intermittently throughout the film in the metered space between the starboard horizon camera image and the preceding terrain frame.
    b. The forward horizon cameras are overexposed, the port horizon being more overexposed than the starboard. Both horizon camera shutters remained open intermittently, fogging parent and/or succeeding frames; the degree and examples being enumerated in item 1, "Shutter Operation (Horizon Cameras)".

24. Suitability for P.I.: Due to the horizon camera shutter remaining open and the imagery being slightly out-of-focus, a rating of fair is assigned to this mission.

Remarks:

1. The end-of-pass marker functioned throughout the mission, however, there is usually a double recording at the end of each pass or at the camera-off frame of a split pass.

2. In some instances three binary recordings are present on the last frame of a pass.

3. Numerous small, post-processing crimps are present, the majority of which may be attributed to film handling after the film was shipped from the processing site.

4. Lifted emulsion occurs intermittently throughout the film. Examples: pass D02, frames 10, 30; pass D20, frames 13, 14, 19, 20; pass D21, frames 16, 17, 29, 43, 60, 62.

5. Foreign matter, attributed mostly to the adhesive transfer of transparent tape, is present at the beginning and end of most passes or where film splicing was necessary. No solution is immediately available as the use of transparent tape is necessary in order that the horizon fiducials be readable.

6. Few desensitized spots are present. Examples: pass D08, frame 93; pass A16, frame 22; pass D20, frame 36.

7. Emulsion defects, resulting in unexposed areas within the format area, occur intermittently throughout the photography. Examples: pass D04, frame 25; pass D05, frame 34; pass A16, frames 22, 23, 28, 53, 56; pass D21, frame 66.

8. Cinch marks are present in pass D32, frames 1-42. Other handling marks are present in pass D07, frame 144; pass D08, frame 47; pass D38, frame 37.

9. Streaking of heavy density images into adjacent low density areas occurs occasionally in this mission. Examples: passes A19, D19, D34.

10. The term "slippage" used in previous reports is a misnomer. In this report and all subsequent reports the term "film-transport" will be used. The same pattern of light fogging is present as in some previous missions and its displacement from the take-up edge of the terrain frame is given in Item 11 wherever possible.

11. Enumerated below is the amount of overlap (in percent) and the amount of film-transport (in inches) for camera 76, determined wherever possible, from the first and last frame of each pass. Cloud cover, low sun angle and no imagery may have precluded determinations in some passes.

	Overlap		Film-Transport	
Pass	Beginning	End	First Frame	Last Frame
A01	0%	7%	Not measurable	Not measurable
D01	0%	0%	Not measurable	12.0"
A02	0%	12%	Not measurable	5.7"
D02	0%	15%	Not measurable	11.0"
A03	0%	10%	Not measurable	6.5"
D03	0%	8%	Not measurable	13.3"
D04	10%	15%	Not measurable	9.5"
D05	10%	9%	Not measurable	14.7"
D06	0%	10%	Not measurable	12.2"
D07	11%	10%	Not measurable	12.8"
D08	12%	11%	Not measurable	13.0"
D09	0%	9%	Not measurable	12.5"
A14	0%	10%	10.5"	5.5"
A15	0%	3%	3.5"	5.0"
D15	0%	9%	3.0"	14.2"
A16	0%	12%	Not measurable	6.5"
A19	0%	8%	4.5"	5.9"
D19	10%	Clouds	3.8"	11.6"
A20	8%	Clouds	9.6"	8.9"
D20	0%	Clouds & Water	Not measurable	12.8"
D21	Clouds	10%	11.9"	14.2"
D22	11%	8%	12.3"	13.8"
D23	8%	Clouds	Not measurable	13.9"
D25	10%	10%	12.0"	13.6"
A29	0%	5%	11.6"	5.6"

	Overlap		Film-Transport	
Pass	Beginning	End	First Frame	Last Frame
A30	0%	5%	3.6"	5.2"
A31	0%	Clouds	3.2"	5.3"
D31	0%	9%	3.3"	14.5"
A32	Clouds	8%	Not measurable	5.7"
A33	0%	12%	3.5"	6.5"
D33	Clouds	Clouds	Not measurable	12.0"
A34	1%	9%	9.1"	9.3"
D34	0%	Water	Not measurable	11.8"
D36	0%	Clouds & Water	9.8"	14.1"
D37	Clouds & Water	Clouds & Water	Not measurable	14.6"
D38	0%	8%	12.1"	14.2"
D39	0%	10%	Not measurable	14.0"
D40	0%	10%	Not measurable	13.6"
A46	Clouds	8%	11.7"	5.7"
A47	0%	5%	3.2"	Not measurable
A48	0%	5%	Not measurable	6.4"
A49	0%	6%	3.7"	6.4"
D49	0%	end of mission	3.9"	end of mission

12. Density readings were made on every pass using the Eastman Kodak Reflection-Transmission Color Densitometer, Model RT. Absolute values read for D Max and D Min as well as Gross Fog are correlated below with sun angles.

Pass	Frame	D Max	D Min	Gross Fog	Sun Angle
A01	05	1.33	0.61	0.19	16° 33'
	39	2.03	0.84	0.19	24° 24'
D01	02	2.06	0.45	0.19	41° 29'
A02	07	2.08	0.90	0.19	16° 06'
D02	31	2.16	Clouds	0.20	41° 48'
A03	08	2.10	0.62	0.19	24° 12'
D03	05	2.19	0.59	0.19	41° 53'
	12	2.50	Clouds	0.18	41° 50'
A04	15	2.13	0.91	0.18	34° 18'
	19	2.14	1.12	0.18	34° 43'
D05	75	2.03	0.43	0.19	38° 07'
	87	2.00	0.44	0.18	37° 23'
D06	29	2.20	0.76	0.19	41° 52'
D07	63	2.19	0.75	0.18	42° 19'
	101	2.11	0.67	0.19	41° 54'
D08	67	2.17	0.58	0.19	42° 20'
	98	2.20	0.71	0.18	41° 47'
D09	04	2.04	0.48	0.19	42° 31'
A14	33	2.05	0.46	0.19	16° 18'
A15	08	1.99	0.61	0.18	10° 12'
	26	2.10	0.76	0.18	16° 25'
D15	03	2.15	0.74	0.19	39° 35'
A16	17	2.01	0.49	0.19	13° 31'
A19	21	2.06	0.54	0.19	21° 13'
D19	01	2.12	0.64	0.19	43° 28'
A20	07	2.14	0.95	0.19	34° 35'
D20	09	2.21	0.66	0.19	43° 33'
D21	13	2.05	1.10	0.19	43° 43'
	57	2.15	0.71	0.18	41° 34'
D22	14	2.03	0.69	0.19	43° 54'
	56	2.12	0.78	0.19	42° 34'
D23	75	2.04	0.78	0.19	44° 01'

Pass	Frame	D Max	D Min	Gross Fog	Sun Angle
	96	2.01	0.66	0.19	43° 31'
D25	25	2.16	0.73	0.18	43° 58'
A29	06	2.14	0.55	0.19	18° 28'
A30	22	1.92	0.36	0.19	16° 36'
A31	13	1.89	0.27	0.18	05° 02'
D31	06	2.23	0.84	0.19	42° 21'
A32	22	1.97	0.42	0.18	19° 50'
A33	46	2.07	0.66	0.19	17° 18'
D33	42	2.10	Clouds	0.20	44° 00'
A34	15	1.90	0.46	0.19	11° 20'
	101	2.02	0.56	0.19	26° 25'
D34	04	2.17	0.54	0.17	44° 40'
D36	07	2.22	0.58	0.19	45° 33'
	65	1.92	0.56	0.18	44° 36'
D37	29	2.17	1.16	0.19	39° 19'
	43	2.24	0.86	0.16	45° 35'
	77	2.16	0.95	0.17	45° 36'
D38	68	2.10	0.76	0.15	45° 45'
	79	2.15	Clouds	0.16	45° 48'
	100	2.16	0.78	0.14	45° 41'
D39	62	2.07	0.75	0.17	45° 55'
	90	2.29	0.88	0.15	45° 41'
D40	01	2.26	Clouds	0.18	44° 39'
	36	2.12	0.61	0.19	45° 44'
	110	2.04	0.57	0.18	45° 32'
A46	09	2.00	0.62	0.19	11° 54'
A47	24	1.88	0.29	0.18	08° 30'
	61	2.01	Clouds	0.18	19° 15'
	74	2.17	0.38	0.18	21° 33'
A48	46	1.94	0.33	0.17	17° 03'
A49	20	2.00	0.23	0.18	15° 34'
D49	19	2.13	0.89	0.17	44° 49'

Average D Max 2.09
Average D min 0.66
Average Gross Fog 0.18
Range D Max 2.50 - 1.33
Range D Min 1.16 - 0.23
Overall Range 2.50 - 0.23
Range Gross Fog 0.14 - 0.20

[redacted]
25 July 1962

PART II - AFT CAMERA

Mission No: 9035
Camera No: 77
Film Type: J-23-7600

Filter, main: W21
Filter, horizon: W25
Evaluated by: [redacted]

1. Shutter Operation:
   a. Port Horizon - operational throughout mission.
   b. Starboard Horizon - operational throughout mission.

2. Slit Width: (Main Camera) 0.2" - operational

3. Exposure:
   a. Port Horizon - 1/50 second at f/6.8, overexposed.
   b. Starboard Horizon - 1/50 second at f/6.8, out-of-focus and overexposed.

4. Camera Number: Operational, overexposed.

5. Binary Operation: Operational. A double binary image is recorded at the end of most passes and at camera off position during split passes. A triple binary image is recorded on the last frame of some passes.

6. Film Metering:
   a. Port Horizon - average C.21".
   b. Starboard Horizon - average 0.19".

7. Film Tracking: Normal throughout mission.

8. Timing Pulses: Pulses occur close to the edge of the terrain format and are readable, however, that portion of the format immediately adjacent is fogged for approximately 0.05 of an inch. Pulses do not extend to the supply end of of the last terrain frame of every pass except in pass A03, pass D05 and pass A14. That portion of the frame not covered by timing pulses measure a maximum of 6.5 inches.

9. Fiducials:
   a. Main Camera - clear and well defined.
   b. Horizon Cameras - well defined - no flare.

10. Light Leaks: A very dense light leak appears usually at the take-up edge of frame 2 of all passes and gradually fades out in the first quarter of frame 3. Another light leak usually appears in the latter one third of frame 3, fogging the remainder of that frame, and when intense, fogs portions of frame 4 and frame 5. A bar-shaped light leak appears in the third or second from the last frame of most passes in addition to other fogging in these frames.

11. Static Electricity: Small static marks were found where the clamps adjacent to the horizon cameras held the film in place. Larger possible static marks are found intermittently in the metered space of both the port and starboard horizon camera images and the next terrain frame. Other static marks may be found in pass D49, frames 5-16, and are also present intermittently in other passes.

12. Pinholes: Examples are present in pass D02, frames 1-33; pass D03, frames 13-59; pass A04, on all frames, 3.9" apart - .6" from leading edge; pass D20, frames 1, 4, 14, 22-24; pass D23, all frames; pass D25, all frames; pass D40, frames 24, 25, 27.

13. Abrasions and Scratches: Pass A02, frames 28, 46, 60, 63, 66; pass D03, frames 1, 2, 10, 16, 18, 20, 25; pass D07, frames 8, 77, 86, 89, 98, 134; pass D08, frames 1, 2, 8, 9, 50, 51, 58, 67; pass D09, frames 39, 41, 50, 62, 65, 66; pass D23, frames 112-114; pass D37, frames 4, 13, 25, 31, 34, 35, 44, 48, 49, 80, 96, 115; passes D38, D40, A47, A49, and D49 contain numerous scratches and abrasions.

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14. Tearing: Film is torn in pass A49, frame 33; in addition, there is a small hole in this frame.

15. Water Marks: Few are present. Examples: pass A19, frame 9; pass A20, frame 20; pass A34, frames 32-44; pass D36, frames 33,34.

16. Pressure Streaks: Present throughout mission.

17. Processing Streaks: None evident.

18. Blistering and Crimping: Blisters are present intermittently throughout the mission. Examples: pass A03, frames 7, 23, 33, 40, 41; pass A16, frame 58; pass A19, frames 1, 8, 12; pass A20, frames 31-34; pass D20, frames 8-11; pass D21, frames 8-13, 27, 70; pass A31, frame 58. Crimps or crimping are present in pass D09, frames 17, 55, 67, 69, 71; pass A20, frames 7, 18, 19; pass D37, frames 35, 78, 81, 112; pass D38, frames 116, 118-120; pass D49, frames 23-35 (end of mission).

19. Contrast: Low 10%, medium 80%, high 10%.

20. Apparent Resolution: Acuity of this mission is fair due to the general out-of-focus appearance of the photography. Two bands of out-of-focus imagery, having poor resolution, are present extending into the terrain frame approximately 0.5" from the leading edge and 0.3" from the trailing edge. The remainder of the format, however, has better acuity than that of the forward camera.

21. Apparent Granularity: Fine

22. Photo Quality:
    a. Main Camera - good. Degradation is due to light leaks, fogging of terrain format and presence of blisters and scratches.
    b. Horizon Cameras - fair. Images are overexposed for the majority of mission.

23. Camera Operation:
    a. Main Camera - fair to good. A camera induced plus density and negative density streak is evident throughout most of the film. A very dense light leak negates a portion of frame 2 and frame 3 of almost every pass. Additional light leaks are present but do not materially reduce the readability of the terrain formats.
    b. Horizon Cameras - operational but overexposed for most of the mission.

24. Suitability for P.I.: Due to the general out-of-focus condition and the dense light leak present, a rating of fair is assigned to this photography.

Remarks:

1. The end-of-pass marker functioned throughout the mission, however there is usually a double recording at the end of each pass or at the camera-off frame of a split pass.

2. Multiple binary recordings - three in some instances - were found in this mission.

3. Numerous small, post-processing crimps are present, the majority of which may be attributed to film handling after the film was shipped from the processing site.

4. Lifted emulsion is present intermittently throughout the film. Examples: pass A02, frames 1, 45, 62; pass D03, frames 6, 57; pass A15, frames 18, 39.

5. Foreign matter on film consists mainly of adhesive from the transparent tape adhering to the emulsion of one or possibly two other frames. Examples: pass D01, frames, 17-19; pass A03, frame 37. Other foreign matter is present in pass D03,

frames 11-14; pass D07, frames 18, 79, 153; pass A34, frames 28, 31, 36, 55, 59, 78, 100; pass D40, frames 44, 46, 53, 114; pass A47, frames 24, 42, 44, 69, 79, 80.

6. A few desensitized spots were observed. Examples: pass A16, frame 27; pass D19, frame 6; pass D21, frame 84; pass D22, frame 18 (streak).

7. A limited number of emulsion defects are present. Examples: pass D21, frame 61; pass D22, frame 69; pass D25, frames 9, 12; pass A34, frame 76; pass D49, frames 3, 27.

8. Handling marks are present in pass D09, frame 2, 3, 9; pass A20, frames 18, 19; pass D20, frame 16.

9. Streaking of heavy density images into low density areas, such as heavy cloud patterns over or adjacent to water areas, is present in passes A16, D19, D34, D36.

10. The term "slippage" used in previous reports is a misnomer. In this report and all subsequent reports the term "film-transport" will be used. The same pattern of light fogging is present, as in some previous missions, and its displacement from the take-up edge of the terrain frame is given in Item 11 below wherever possible.

11. Enumerated below is the amount of overlap (in percent) and the amount of film-transport (in inches) for camera 77 as determined from the first and last frames of each pass (wherever possible). Cloud cover, low sun angle and no imagery may have precluded determination in some passes.

	Overlap		Film Transport	
Pass	Beginning	End	First Frame	Last Frame
A01	0%	8%	Not measurable	Not measurable
D01	0%	0%	4.5"	Not measurable
A02	0%	12%	9.8"	Not measurable
D02	Clouds	16%	Not measurable	Not measurable
A03	6%	11%	Not measurable	Not measurable
D03	11%	Clouds	5.4"	12.4"
A04	10%	12%	5.4"	12.4"
D05	10%	8%	5.4"	14.3"
D06	12%	11%	5.4"	Not measurable
D07	10%	11%	10.1"	12.9"
D08	8%	13%	10.7"	Not measurable
D09	0%	10%	Not measurable	12.5"
A14	2%	12%	10.5"	9.8"
A15	0%	10%	5.6"	6.1"
D15	0%	10%	6.0"	Not measurable
A16	4%	15%	11.6"	7.6"
A19	0%	10%	5.6"	Not measurable
D19	5%	Clouds	5.1"	Not measurable
A20	11%	Clouds	9.8"	Not measurable
D20	0%	Clouds & Water	Not measurable	12.6"
D21	Clouds	10%	10.6"	13.6"
D22	0%	10%	11.7"	14.0"
D23	0%	10%	11.5"	13.2"
D25	8%	8%	11.2"	13.2"
A29	0%	10%	11.1"	6.6"
A30	0%	9%	4.7"	6.8"
A31	0%	Clouds	4.2"	6.3"
D31	0%	10%	4.3"	Not measurable
A32	Clouds	10%	12.0"	6.8"
A33	2%	10%	3.5"	6.5"
D33	Clouds	Clouds	5.2"	13.9"

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Pass	Beginning	End	First Frame	Last Frame
A34	0%	14%	9.3"	8.3"
D34	0%	Water	Not measurable	12.0"
D36	0%	Clouds & Water	10.0"	Not measurable
D37	Clouds	Clouds	11.4"	13.8"
D38	0%	11%	11.8"	13.4"
D39	8%	10%	11.5"	Not measurable
D40	Clouds	11%	2.8"	13.6"
A46	0%	10%	11.6"	7.4"
A47	0%	10%	4.8"	Not measurable
A48	0%	10%	12.2"	7.3"
A49	0%	8%	5.3"	Not measurable
D49	0%	end of mission	5.4"	end of mission

12. Density readings were made for every pass using the Eastman Kodak Reflection-Transmission Color Densitometer, Model RT. Absolute values read for D Max and D Min, as well as Gross Fog are correlated below with sun angles.

Pass	Frame	D Max	D Min	Gross Fog	Sun Angle
A01	10	1.31	0.75	0.18	17° 31'
D01	04	2.03	0.45	0.19	41° 27'
A02	10	2.08	0.85	0.18	16° 40'
D02	14	2.00	1.18	0.19	41° 38'
A03	15	2.03	0.70	0.19	25° 19'
	45	2.15	0.81	0.19	29° 35'
D03	09	2.00	0.78	0.17	41° 52'
	10	2.04	0.54	0.17	41° 51'
	19	2.10	Clouds	0.17	41° 45'
A04	18	2.09	0.72	0.18	34° 38'
D05	75	1.96	0.40	0.19	38° 02'
	92	1.97	0.51	0.19	36° 59'
D06	21	2.02	0.67	0.18	42° 01'
D07	74	2.10	1.15	0.18	42° 17'
	110	1.93	0.57	0.18	41° 40'
D08	30	2.14	0.68	0.17	42° 17'
	103	2.12	0.64	0.18	41° 38'
D09	04	2.06	0.44	0.18	42° 31'
	56	2.09	0.71	0.18	41° 40'
A14	39	2.03	0.60	0.18	17° 18'
A15	32	2.04	0.90	0.19	17° 31'
	44	1.99	1.00	0.19	19° 41'
D15	01	2.15	0.91	0.18	39° 43'
A16	09	2.01	0.52	0.19	12° 01'
A19	34	2.04	0.64	0.19	23° 22'
D19	02	2.12	0.50	0.18	43° 29'
A20	13	2.15	1.18	0.19	35° 15'
D20	04	2.05	0.88	0.18	43° 36'
D21	42	2.09	1.16	0.18	43° 13'
	64	2.03	0.40	0.18	40° 09'
D22	18	2.09	0.55	0.18	43° 54'
	22	2.09	0.63	0.18	43° 54'
D23	02	2.11	0.84	0.18	42° 39'
	55	2.15	0.95	0.19	43° 58'
	117	2.11	0.81	0.19	42° 52'
D25	05	2.14	1.15	0.19	44° 13'
	45	2.15	0.51	0.19	43° 30'
A29	05	2.10	0.55	0.19	18° 18'
A30	05	2.16	0.45	0.19	13° 20'
	21	2.00	0.60	0.19	16° 24'
A31	11	1.94	0.29	0.19	04° 34'
	51	2.07	0.36	0.19	15° 31'
D31	11	2.14	0.95	0.20	42° 05'
	12	2.02	0.59	0.19	42° 02'

Pass	Frame	D Max	D Min	Gross Fog	Sun Angle
A32	12	2.03	0.59	0.19	18° 03'
A33	65	1.90	0.74	0.19	20° 34'
D33	33	2.25	Clouds	0.20	43° 38'
A34	22	2.11	0.43	0.18	12° 42'
	80	2.01	0.52	0.18	23° 05'
	108	2.09	0.54	0.19	27° 25'
D34	10	2.19	0.45	0.19	44° 50'
D36	62	2.07	0.61	0.19	45° 18'
D37	35	2.24	1.05	0.18	39° 52'
	49	2.27	0.70	0.19	45° 38'
	85	1.91	1.48	0.18	44° 45'
D38	45	2.09	0.51	0.18	45° 26'
	94	2.15	Clouds	0.18	45° 44'
	106	2.10	0.66	0.19	45° 35'
D39	67	2.03	0.74	0.18	45° 55'
	85	2.23	0.88	0.17	45° 45'
D40	25	2.25	Clouds	0.18	45° 30'
	42	2.15	0.75	0.19	45° 51'
	115	2.18	0.84	0.18	45° 24'
A46	06	1.98	0.41	0.17	11° 17'
A47	05	1.95	0.29	0.18	04° 22'
	33	1.94	0.38	0.18	13° 47'
	63	2.02	Clouds	0.18	19° 25'
	79	2.07	0.62	0.19	22° 12'
A48	57	2.00	0.44	0.18	19° 02'
A49	11	2.16	0.59	0.17	13° 47'
D49	23	2.15	0.70	0.18	45° 02'

Average D Max 2.07
Average D Min 0.69
Average Gross Fog 0.18
Range D Max 2.27 - 1.31
Range D Min 1.48 - 0.29
Overall Range 2.27 - 0.29
Range Gross Fog 0.20 - 0.17

[redacted]
25 July 1962

PART III - VEHICLE ATTITUDE DATA

Pass	Pitch Variation		Pitch Range	Roll Variation		Roll Range	No. of Frames
A01	13° 47'	13° 28'	19'	-0° 46'	-1° 42'	56'	51
D01	14° 06'	13° 53'	13'	-0° 45'	-1° 13'	28'	22
A02	13° 47'	13° 24'	23'	-0° 44'	-1° 11'	27'	66
D02	13° 59'	13° 35'	24'	-0° 37'	-1° 26'	49'	33
A03	13° 43'	13° 19'	21'	-1° 19'	-2° 05'	46'	48
D03	14° 04'	13° 24'	40'	+0° 11'	-1° 42'	1° 53'	59
A04	13° 37'	13° 20'	17'	+0° 12'	-1° 14'	1° 26'	48
D05(1)	14° 05'	13° 45'	20'	+1° 19'	-1° 43'	3° 02'	50
(2)	14° 03'	13° 58'	05'	+1° 10'	-2° 29'	3° 39'	47
D06	14° 04'	13° 47'	17'	-0° 25'	-1° 06'	41'	43
D07	14° 32'	13° 15'	1° 17'	-0° 03'	-1° 39'	1° 36'	154
D08	14° 34'	13° 19'	1° 15'	+0° 29'	-0° 31'	1° 07'	108
D09	14° 38'	13° 33'	1° 05'	+0° 14'	-1° 31'	1° 45'	71
A14	14° 06'	12° 44'	1° 22'	-0° 07'	-2° 28'	2° 21'	54
A15(1)	14° 11'	13° 41'	30'	-0° 37'	-0° 59'	22'	18
(2)	14° 17'	13° 12'	1° 05'	-0° 28'	-1° 13'	45'	34
D15	14° 06'	13° 40'	26'	+0° 56'	-2° 05'	3° 01'	17
A16(1)	14° 03'	13° 17'	46'	-0° 59'	-1° 07'	08'	20
(2)	14° 30'	13° 11'	1° 19'	-0° 18'	-1° 15'	57'	43
A19	14° 20'	13° 24'	56'	-0° 48'	-2° 06'	1° 18'	49
D19	14° 00'	13° 19'	41'	-0° 47'	-1° 23'	36'	30
A20	14° 32'	14° 07'	25'	-0° 29'	-1° 11'	42'	35
D20	14° 33'	14° 00'	33'	-0° 34'	-1° 00'	26'	45
D21(1)	14° 31'	12° 50'	1° 41'	-0° 12'	-1° 00'	48'	45
D21(2)	14° 21'	14° 09'	12'	+0° 18'	-1° 33'	1° 51'	41
D22(1)	14° 27'	13° 17'	1° 10'	-0° 15'	-0° 56'	41'	43
(2)	14° 09'	13° 34'	35'	+0° 26'	-2° 19'	2° 45'	44
D23(1)	14° 26'	13° 05'	1° 21'	+0° 06'	-1° 27'	1° 33'	81
(2)	13° 48'	13° 23'	25'	-0° 17'	-2° 50'	2° 33'	45
D25	14° 07'	13° 21'	46'	-0° 28'	-1° 14'	46'	51
A29	13° 40'	12° 50'	50'	-0° 23'	-1° 14'	51'	25
A30	14° 12'	13° 44'	28'	-0° 31'	-1° 19'	48'	31
A31(1)	15° 29'	13° 02'	2° 27'	Not Determined		ND	34
(2)	14° 06'	13° 47'	19'	-0° 57'	-2° 26'	1° 29'	27
D31	14° 01'	13° 29'	32'	-0° 42'	-0° 59'	17	18
A32	14° 43'	13° 33'	1° 10'	-0° 30'	-1° 34'	1° 04'	29
A33	14° 15'	13° 33'	42'	-0° 01'	-0° 55'	54'	71
D33	14° 16'	13° 12'	1° 04'	-1° 15'	-1° 48'	33'	42
A34	14° 14'	13° 05'	1°09'	-0° 11'	-1° 25'	1° 14'	120
D34	14° 14'	13° 47'	27'	-0° 32'	-0° 46'	14'	19
D36	13° 52'	13° 30'	22'	+0° 56'	-1° 26'	2° 22'	78
D37(1)	14° 15'	13° 01'	1° 14'	-0° 25'	-0° 56'	31'	40
(2)	14° 11'	13° 45'	25'	-0° 47'	-1° 48'	1° 01'	39
(3)	14° 11'	14° 04'	7'	+2° 10'	-1° 56'	4° 06'	41
D38(1)	14° 17'	13° 12'	1° 05'	-0° 05'	-1° 02'	57'	37
(2)	14° 12'	13° 09'	1° 03'	+1° 41'	-1° 51'	3° 32'	111
D39	14° 32'	13° 21'	1° 11'	-0° 16'	-0° 54'	38'	123
D40	14° 31'	13° 10'	1° 21'	+0° 25'	-1° 48'	2° 13'	122
A46	14° 25'	13° 01'	1° 24'	+0° 17'	-1° 20'	1° 37'	49
A47(1)	15° 43'	13° 33'	2° 10'	-0° 15'	-0° 55'	40'	29
(2)	14° 11'	13° 12'	59'	+0° 11'	-2° 06'	2° 17'	50
A48	14° 24'	12° 56'	1° 28'	+0° 07'	-1° 36'	1° 43'	73
A49	14° 16'	13° 41'	35'	-0° 09'	-0° 53'	44'	63
D49	14° 16'	13° 43'	33'	-0° 56'	-1° 18'	22'	33

Note: Compiled from FWD Camera Data

HANDLE VIA [redacted]
CONTROL SYSTEM ONLY

MISSION 9035 - DENSITY CHART
PART IV