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25 June 1962
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PHOTOGRAPHIC EVALUATION REPORT
FORWARD CAMERA

Mission No: 9032	Photo Date: 18 Apr 62	Evaluation No:	FE 29-62
Film Type: J-23-7600	Filter, Main: W 21	Filter, Horizon:	W 25
Camera No: 72 (Fwd)	Evaluated By: [redacted]		

1. Shutter Operation:
   a. Port Horizon - malfunction, (shutter remained open) on 59 frames of passes A04, D04, D05, D06, D07 and D08 degrading portions of the subsequent terrestrial photograph.
   b. Starboard Horizon - Good

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

3. Exposure:
   a. Port Horizon - 1/50 sec. (overexposed entire mission)
   b. Starboard Horizon - 1/50 sec (overexposed entire mission)

4. Camera Number: Operational, overexposed throughout entire mission.

5. Binary Operation: Good throughout. See item 3 under Remarks.

6. Film Metering:
   a. Port Horizon Camera - 0.11"
   b. Starboard Horizon Camera - 0.20"

7. Film Tracking: Normal throughout mission.

8. Timing Pulses: Pulses occur in the image area and are readable only on engineering passes having no imagery.

9. Fiducials:
   a. Main Camera: Fiducials vary from ragged to clear, possibly due to intermittent emulsion build-up and clearing.
   b. Horizon Cameras: Sharp with no flare.

10. Flare: None noted.

11. Light Leaks: A total of 69 frames are degraded by light leaks. These are associated with the beginning and end of passes in addition to their presence in split pass camera on-off. Examples are: pass D00E, frames 7-8; pass D08, frames 36, 108, 109. Toward the end of the mission, specifically from pass D24 to end, a very heavy light leak is present in frame 3 which resulted in intermittent fogging of frames 4 and 5.

12. Static Electricity: This condition is evident in passes such as D24 and on engineering passes. It is assumed that it is also present in all passes although it could not be positively identified due to the presence of negating imagery. Examples include plus density and negative density examples such as: pass D00E, frames 1, 2, 3, 4, 5; pass D03, frames 41, 43, 44, 45.

13. Pinholes: Intermittent throughout mission.

14. Abrasions and Scratches: A heavy camera-induced scratch occurs intermittently beneath either the sixteenth digit of the binary, the camera number or the port fiducial. Pass D20 contained scratches throughout, which were not present when the film arrived from the processor.

15. Tearing: No film tearing.

16. Water Marks: Only present on pass D31, frames 10, 11.

17. Pressure Streaks: Present throughout the mission on base side of the film.

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18. Processing Streaks: None evident.

19. Blistering and Frilling: No frilling evident. Blisters are present intermittently throughout the mission. Examples: pass D06, frames 6, 58; pass D24, frames 12, 122; pass A33, frames 46, 48.

20. Contrast: Low 20%, medium 75%, high 5%.

21. Apparent Resolution: Acuity of imagery for most of the frame is the best obtained by any mission to date. A slightly out-of-focus area is discernible for approximately three inches into the terrain format from the starboard border of the terrain format (eastern portion on ascending and western portion on descending passes with film oriented with line-of-flight pointing away from the observer). Imagery slightly sharper (except for the out-of-focus area) than that obtained from the aft camera.

22. Apparent Granularity: Fine

23. Photo Quality:
    a. Main Cameras: Good. Degradation due to presence of slippage and fogging of terrain format by the horizon camera image.
    b. Horizon Cameras: Imagery fair - overexposed. Reflections within system also present in images.

24. Camera Operation:
    a. Main Camera: Good. Forward camera produced pressure marks (fogged patches) spaced approximately 6 inches apart. These are particularly evident in areas of low density. None evident on aft camera.
    b. Horizon Camera: Port shutter remained open intermittently during six passes. Examples: pass A04, frame 10; pass D04, frames 10, 12, 14, 16, 22, 24, 28, 30.

25. Suitability for P.I.: Except where the horizon camera shutter remained open resulting in fogged frames and the out-of-focus area present in the forward camera, the imagery is the best obtained to date, thus this item was classified as good.

Remarks:

1. End-of-pass marker functioned correctly indicating the end of a pass, but blossomed on the last frame of each pass.

2. Light leaks appear on the last frame of all passes and intermittently on the first and third frames from the head and last three frames of passes. Examples: pass A13, frames 1, 31, 32; pass A29, frames 1, 3, 23, 24. The light leak found in frame 3 of passes A31, A32, A33, D33 fogged portions of frame 4 and may have extended into frame 5. This pattern was the same as reported on Mission 9029, Item 9c.

3. Multiple binary recordings are found usually associated with the camera off at the end of a pass and during split passes. Occasionally, a blurred binary is found on a frame not associated with the end of a pass.

4. Numerous small crimps are present, the majority of which should be attributed to film handling after arrival of the film from the processor.

5. Lifted emulsion occurred intermittently throughout the mission. Examples: pass D00E, frames 1-7; pass D03, frames 1, 2, 4, 7, 11, 16, 18, 20-22.

6. Foreign matter was found intermittently throughout the pass. Examples: pass D03, frames 1, 3, 9; pass D05, frames 11, 20, 36, 43, 66, 69.

7. Few desensitized spots were found. Examples: pass D00E, frames 1-8; pass A02 frames 8, 10.

8. The following is a description of overlap and slippage for camera 72 as determined from the first and last frames of each pass whenever possible. Cloud cover, low sun angle and no imagery may have precluded determination in these areas in some passes.

		Overlap		Slippage (From Take-up Side)	
	Pass	Beginning	End	First Frame	Last Frame
FWD	D00E	---	---	---	6.50"
	D01	---	---	---	----
	A02	10%	21%	---	11.50"
	A03	8%	25%	---	12"
	D03	10%	---	---	----
	A04	---	---	---	----
	D04	4%	---	---	----
	D05	0%	10%	---	----
	D06	0%	4%	---	----
	D07	---	3%	---	15"
	D08	0%	7%	---	----
	A09E	---	---	---	5"
	D09	0%	4%	---	16"
	A13	2%	---	13.50"	18"
	A17	0%	2%	---	7.50"
	A18	0%	4%	---	9"
	A19	---	---	---	10"
	A20	---	---	---	9.56"
	D20	0%	0%	---	3.25"
	D21	0%	0%	---	----
	D24	0%	---	---	----
	A25E	---	---	---	3.62"
	A29	---	---	---	8"
	A30	---	---	---	7.50"
	A31	0%	10%	---	9"
	D31	0%	0%	---	----
	A32	0%	0%	---	8.50"
	A33	5%	---	---	----
	D33	0%	0%	---	----

9. 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 and Sun Angle are as follows:

Pass	Frame	D Max	D Min	Gross Fog	Sun Angle
A02	09	1.97	0.86	0.20	18° 30'
	84	2.22	----	0.19	24° 24'
A03	22	2.12	1.13	0.19	19° 53'
	81	2.21	----	0.20	24° 17'
D03	17	2.14	1.05	0.20	26° 29'
A04	18	2.10	0.43	0.10	25° 06'
D04	16	1.96	0.24	0.08	24° 56'
D05	12	2.02	0.62	0.09	27° 01'
	30	1.95	----	0.09	26° 26'
	49	1.92	0.30	0.08	25° 43'
	86	1.56	0.68	0.18	22° 45'
D06	03	2.16	----	0.19	27° 08'
	34	2.18	0.84	0.19	26° 03'
D07	12	1.94	0.66	0.20	27° 05'
	61	2.19	----	0.20	24° 29'
D08	18	2.16	----	0.19	28° 09'
	90	2.02	0.63	0.20	25° 43'
D09	15	2.19	----	0.18	27° 13'
	68	2.14	0.78	0.18	25° 03'

Pass	Frame	D Max	D Min	Gross Fog	Sun Angle
A13	03	2.10	----	0.21	17° 24'
A17	16	2.19	1.08	0.20	18° 51'
A18	13	2.05	1.04	0.20	18° 07'
	60	2.20	----	0.20	23° 21'
A19	34	2.20	1.04	0.18	20° 37'
	82	2.20	1.18	0.20	25° 05'
A20	12	2.25	1.09	0.19	24° 30'
D20	20	1.97	1.00	0.19	27° 18'
D21	13	2.23	----	0.19	28° 44'
	42	2.10	0.88	0.19	27° 51'
	82	2.01	0.57	0.19	24° 48'
	150	2.05	0.77	0.23	20° 20'
D24	49	2.08	----	0.20	28° 29'
	56	2.05	1.02	0.21	28° 15'
	97	2.14	0.55	0.20	26° 28'
	132	2.13	0.97	0.20	24° 30'
A29	11	2.18	----	0.20	18° 21'
A30	06	1.98	0.73	0.20	15° 37'
A31	23	2.25	1.04	0.20	18° 23'
D31	09	2.22	0.60	0.19	26° 55'
A32	19	2.05	0.99	0.20	17° 19'
A33	12	2.07	0.88	0.20	17° 40'
	59	2.15	----	0.21	22° 54'
D33	21	2.16	0.95	0.20	30° 18'

Average D Max 2.10
Average D Min 0.81
Average Gross Fog 0.18

Range D Max 2.25 - 1.56
Range D Min 1.18 - 0.24
Over-all Range 2.25 - 0.24
Range Gross Fog 0.23 - 0.08

10. Vehicle Attitude Data

Pass	Pitch Variation		Pitch Range	Roll Variation		Roll Range	No. of Frames	
D00E	14° 44'	14° 15'	29'	-0° 47'	-0° 30'	17'	8	
A02	13° 31'	13° 02'	29'	-0° 44'	+0° 23'	39'	97	
A03	13° 39'	13° 05'	34'	-0° 30'	+0° 24'	54'	95	
D03	13° 42'	13° 22'	20'	-0° 09'	+0° 07'	16'	53	
A04	14° 01'	13° 06'	55'	+0° 40'	-0° 38'	1° 02'	38	
D04	14° 06'	13° 31'	35'	-0° 58'	+0° 07'	1° 05'	30	
D05	14° 12'	13° 19'	53'	-0° 53'	-0° 14'	39'	114	
D06	14° 26'	13° 25'	1° 01'	-0° 59'	+0° 32'	1° 31'	98	split
D07	14° 09'	13° 13'	56'	-1° 16'	+0° 21'	1° 37'	83	
D08	14° 07'	13° 12'	55'	-1° 10'	+0° 03'	1° 13'	109	split
D09	14° 19'	13° 14'	1° 05'	-1° 17'	-0° 06'	1° 13'	93	
A13	13° 40'	13° 07'	33'	-1° 17'	-0° 08'	1° 09'	32	
A17	13° 46'	12° 32'	1° 14'	-1° 28'	-0° 24'	1° 04'	32	
A18	13° 59'	12° 57'	1° 02'	-1° 03'	0° 00'	1° 03'	80	
A19	14° 02'	13° 19'	43'	-1° 59'	+0° 18'	2° 17'	95	
A20	14° 05'	13° 05'	1° 00'	+0° 50'	+0° 14'	36'	27	
D20	14° 00'	13° 18'	42'	+0° 54'	-0° 22'	1° 16'	57	
D21	13° 57'	13° 31'	26'	+1° 28'	-1° 10'	2° 38'	159	split
D24	13° 59'	13° 28'	31'	-0° 41'	+0° 08'	49'	134	
A29	13° 56'	13° 21'	35'	-1° 30'	-0° 10'	1° 20'	24	
A31	13° 40'	13° 10'	30'	-1° 53'	-0° 31'	1° 22'	43	
D31	14° 21'	14° 13'	08'	+0° 40'	+0° 02'	38'	12	
A32	----	----	---	-2° 01'	+0° 03'	2° 04'	44	
A33	13° 56'	12° 59'	57'	-1° 23'	+1° 00'	2° 23'	74	
D33	13° 38'	13° 21'	17'	-0° 53'	-0° 23'	33'	27	

Note: Compiled from FWD camera computations.

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1 9 2

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1

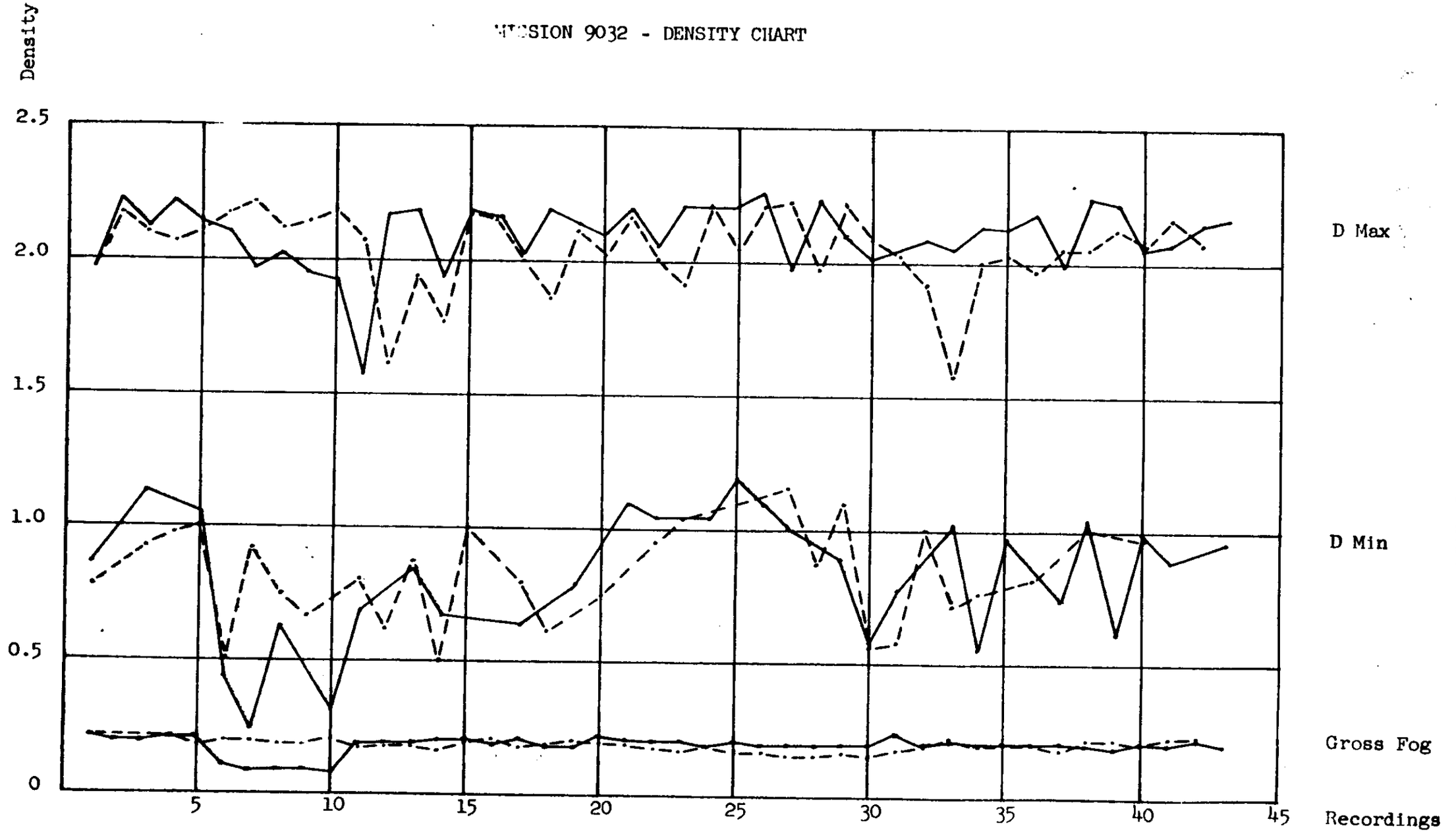
7

1 15 5

$< \frac{1}{2}°$ $\frac{1}{2}$-1° 1-2° >2°

2 2 12 4

MISSION 9032 - DENSITY CHART



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