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CORONA J

PERFORMANCE EVALUATION REPORT

MISSION 1023-1 and 1023-2

FTV 1618; J-23

22 December 1965

Approved: [redacted] Mgr.

Approved: [redacted] Mgr.

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FOREWORD

This report details the performance of the payload system during the operational phase of the Program [redacted] Flight Test Vehicle 1618.

Lockheed Missiles and Space Company has the responsibility for evaluating payload performance under the Systems Integration and "J" System contracts.

This document is the final payload test and performance evaluation report for Missions 1023-1 and 1023-2 which was launched on 17 August 1965.

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INTRODUCTION

This report presents the final performance evaluation of Missions 1023-1 and 1023-2 of the Corona Program. The purpose of this report is to define the performance characteristics of the J-23 payload system, to identify the source of in-flight anomalies and recommend the appropriate corrective action.

The performance evaluation was jointly conducted by representatives of Lockheed Missiles and Space Company (LMSC) and ITEK at the facilities of NPIC and AFSPPL. The off-line evaluation using Corona engineering photography acquired over the United States was performed at the individual contractors plants.

The quantitative data used for this report is obtained from government organizations. The diffuse density data, visual RES values and MTF/AIM resolution are produced by AFSPPL. The vehicle attitude error values, frame correlation times are made at NPIC who also supply the Processing Summary and MTF/AIM resolution reports published by [redacted]

Computer programs developed by A/P are utilized to calculate and plot the frequency distribution of the various contributors to image smear to permit analysis and correlation of the conditions of photography to the information content and quality of the acquired pictures. Computer analysis of the exposure, processing and illumination data provides the necessary data to analyze the exposure criteria selected for the mission.

SECTION 1

SYSTEM PERFORMANCE

A. MISSION OBJECTIVES

The payload section of Mission 1023, placed into orbit by Flight Test Vehicle # 1618 and SLV-2A booster #449, consisted of two panoramic cameras, two Stellar-Index cameras, two Mark 5A recovery capsules and a space structure to enclose the cameras and provide mounting surfaces for all equipments. Figure 1-1 presents an inboard profile of the J-23 payload system. This Corona "J" system is designed to acquire search and reconnaissance photography of selected areas of the earth from orbital altitudes. The planned mission was a nine day photographic period with no inactive period.

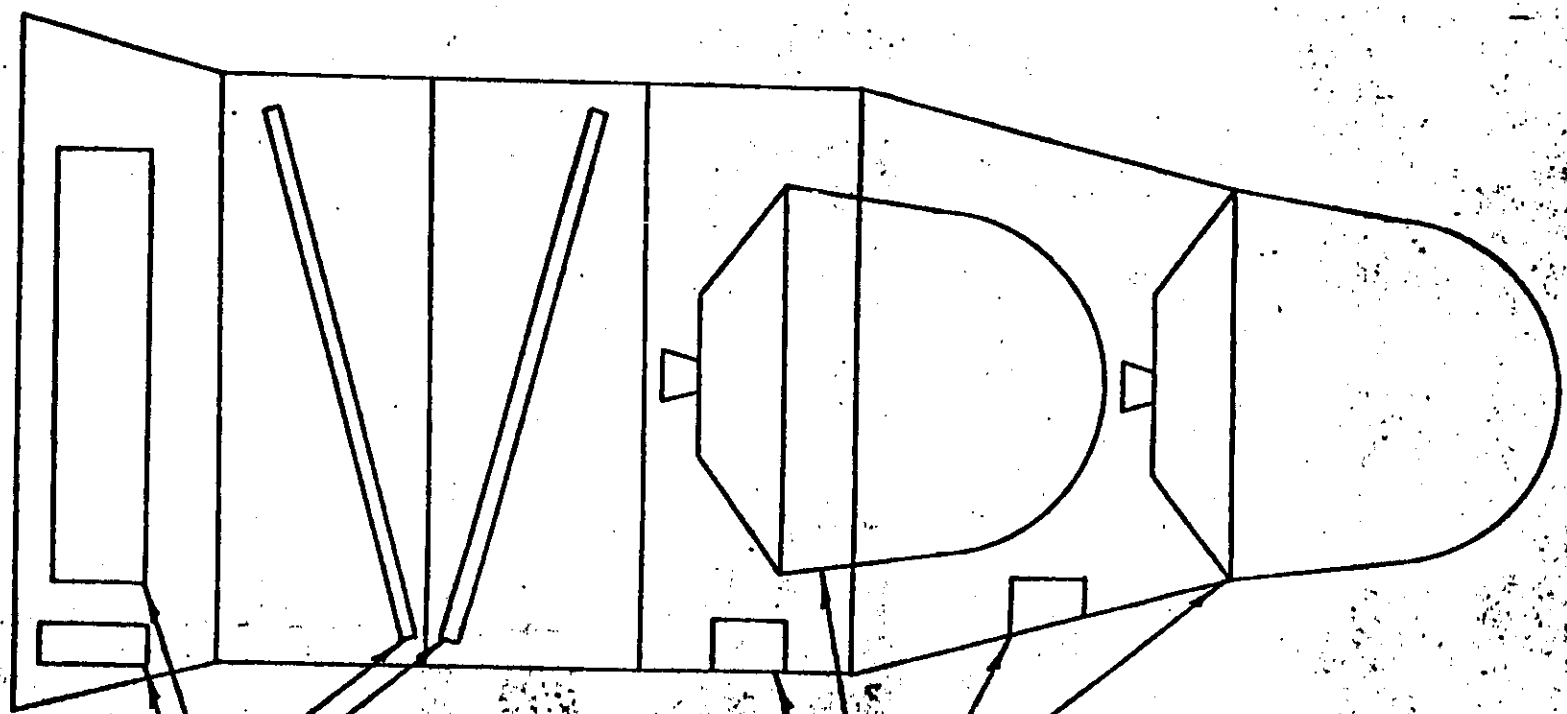
B. MISSION DESCRIPTION

The payload was launched from Vandenberg Air Force Base (VAFB) at 2059:57 Z (1:59:57 PDT) on 17 August 1965. Ascent and injection were normal and the achieved orbit was within nominal tolerances. Tracking and command support was effected by the Air Force Satellite Control Facility consisting of tracking and command stations at [redacted] under central control of the Satellite Test Center at Sunnyvale, California. Mission 1023-1 consisted of five days operation and was completed by air recovery on 22 August 1965. Mission 1023-2 was completed with an air recovery on 26 August 1965 following four days of photographic operations.

The comparison of the planned and actual orbit parameters is tabulated as follows:

SCHEMATIC INBOARD PROFILE - CORONA J SYSTEM

MISSION 1023



Master Camera No: 170

Slave Camera No: 171

Supply Cassette No: SC-31

Clock No: 522

Yaw Programmer No: N/A

"A" Recovery Subsystem No: 621

"A" Stellar-Index Camera No: D17/19/82

"B" Recovery Subsystem No: 649

"B" Stellar-Index Camera No: D66/75/72

Pressure Make-up Unit No: 1006

FIGURE 1.1

ORBITAL PARAMETERS

Parameter	Predicted	Orbit 1 Actuals
Period (Min.)	90.50	90.47
Perigee (N.M.)	100.00	97.98
Apogee (N.M.)	226.66	226.45
Inclination (Deg.)	70.00	70.04
Perigee Latitude (Deg. N.)	22.39	24.09
Eccentricity	0.01759	0.01782

Orbit Adjust System experiments were conducted after the second recovery and were apparently successful.

C. PANORAMIC CAMERAS

The Master panoramic camera operated satisfactorily until pass 102. Failure occurred on pass 102 during a programmed 147 cycle operation. Intermittent operations on passes 133, 134, and 135 occurred after the initial failure.

The Slave panoramic camera operated normally throughout the flight.

D. STELLAR-INDEX CAMERAS

The Mission 1023-1 Stellar/Index camera operated normally throughout the mission. The Mission 1023-2 Stellar/Index camera operated normally until rev 102. Further operation was precluded by the Master Camera failure.

E. OTHER SUB-SYSTEMS

The clock, instrumentation, command and thermal control sub-systems performed satisfactorily through both missions.

F. CONCLUSIONS

Mission 1023-1 and 1023-2 achieved the objective of acquiring high quality search and reconnaissance photography from orbital altitudes.

SECTION 2

PRE-FLIGHT SYSTEMS TESTS

A. ENVIRONMENTAL TESTING

1. Test Objective

As a standard procedure, the J payload systems are subjected to thermal/altitude environmental testing which simulates orbital environment. One of the purposes of this test is to demonstrate the system susceptability to corona discharge. Such discharge fogs the film thus degrading the operational photography.

2. Test Summary

The J-23 payload system was subjected to an environmental test in TASC chamber at Sunnyvale from 1 April 1965 to 4 April 1965. The test consisted of 3 days of operation in each of the "A" and "B" modes. The payload system was only operated during the daytime.

Both panoramic cameras operated satisfactorily throughout the test with the exception of film movement on the Master camera. This movement was observed when the seven second relays dropped out. This condition was present several times only in the "B" mode.

Both the "A" and "B" recovery sequences were satisfactory with proper transfer to the "B" phase during the cut and wrap operation. A deactivate sequence was conducted between the "A" and "B" phase with all functions operating satisfactorily.

Both the "A" and "B" phase Stellar/Index cameras operated satisfactorily. The clock and pressure make-up unit operation appeared normal throughout the test.

3. Panoramic Camera Performance

Both panoramic cameras operated satisfactorily throughout the test. The only dynamic camera anomoly occurred at camera shut-down.

When the seven second relay dropped out after the camera off command, the horizon idler on the master unit indicated payload movement. This condition was present on several occasions during the "B" phase only.

For both instruments the cycle periods were approximately 0.5 to 1.5% slower than predicted during the "A" phase and 0.5 to 2.0% faster than the predicted during the "B" phase. All cycle periods in both the "A" phase and "B" phase were less than 3% from the predicted for both instruments as shown in Table 2-1.

The cut and wrap operation was normal, with both instruments operating 4 cycles and both lens stopped in the stowed position. A deactivate command was given between the "A" and "B" phase with both instruments operating 6 cycles and the lens stopping in the stowed position.

Minor start-up corona marking was produced by both panoramic cameras. The frequency and intensity of this marking was within the acceptable level hence the cameras were recommended for flight.

4. Stellar-Index Camera Performance

The Stellar/Index camera operated satisfactorily throughout the "A" phase with normal camera slewing during the cut and wrap sequence.

The "B" phase Stellar/Index camera operated satisfactorily with normal camera slewing during the simulated "B" recovery sequence.

The "A" bucket stellar fiducials are poor but acceptable and the index camera is acceptable. The "B" bucket index is acceptable.

The "B" bucket stellar contained corona marking on 4.6% of the total frames to a density higher than the 0.40 maximum density allowable. The quantity is acceptable but the density does not meet the acceptance criteria.

It was recommended that this requirement be waived and the entire system accepted for flight for the following reasons:

1. This corona marking occurred only when PMU was off.

J-23 170/171 ENVIRONMENTAL TEST CYCLE RATES 04-01-65

REV/MODE		RAMP		T.U.R.	INST 170 ACT.	INST 170 NOM.	INST 170 DEV.	INST 171 ACT.	INST 171 NOM.	INST 171 DEV.	170/171 DIFF.
1	A	7	7	382	3.550	3.534	-0.45	3.585	3.530	-1.54	0.99
1	A	7	7	2201	2.560	2.537	-0.90	2.577	2.529	-1.89	0.66
2	A	4	1	1420	2.220	2.203	-0.78				
2	A	4	1	1605				2.220	2.184	-1.67	
2	A	4	1	2125	2.185	2.175	-0.46	2.205	2.176	-1.32	0.92
4	A	7	7	2275	2.573	2.568	-0.20	2.590	2.560	-1.17	0.66
4	A	8	2	340	5.250	5.192	-1.12	5.300	5.208	-1.76	0.95
5	A	8	2	1710	2.230	2.216	-0.65				
5	A	8	2	2250				2.240	2.251	0.51	
5	A	11	1	1460	2.713	2.690	-0.86	2.730	2.682	-1.77	0.63
6	A	11	1	2040	2.283	2.289	0.26	2.305	2.281	-1.05	0.96
6	A	5	8	1090	2.740	2.714	-0.97	2.760	2.706	-1.99	0.73
6	A	5	8	1445	2.540	2.514	-1.05	2.543	2.506	-1.49	0.12
7	A	7	7	1180	2.930	2.901	-1.00	2.940	2.894	-1.58	0.34
7	A	7	7	1590	2.593	2.583	-0.40	2.600	2.575	-0.98	0.27
8	A	7	7	2530	2.733	2.732	-0.04	2.737	2.724	-0.46	0.15
8	A	4	1	1015	2.797	2.763	-1.22	2.807	2.756	-1.86	0.36
8	A	4	1	1750	2.188	2.176	-0.57				
9	A	4	1	2620				2.318	2.306	-0.53	
9	A	4	1	3210	3.400	3.415	0.44	3.405	3.411	0.17	0.15
9	A	11	1	885	4.665	4.599	-1.44	4.690	4.606	-1.83	0.54
10	A	11	1	1880	2.295	2.283	-0.54	2.305	2.275	-1.34	0.44

TABLE 2-1

REV/MODE	RAMP	T.U.R.	INST 170 ACT.	INST 170 NOM.	INST 170 DEV.	INST 171 ACT.	INST 171 NOM.	INST 171 DEV.	170/171 DIFF.
10 A	11 1	2970	4.365	4.418	1.19	4.395	4.423	0.62	0.69
10 A	7 7	235	3.605	3.599	-0.16	3.630	3.596	-0.94	0.69
11 A	7 7	2005	2.500	2.493	-0.27	2.510	2.485	-0.99	0.40
11 A	7 7	2435	2.623	2.661	1.42	2.627	2.653	0.98	0.15
12 A	8 2	1150	3.093	3.049	-1.45	3.107	3.042	-2.12	0.45
12 A	8 2	1851				2.240	2.203	-1.68	
12 A	8 2	840	3.830	3.783	-1.23	3.860	3.782	-2.07	0.78
13 A	4 1	2630	2.355	2.330	-1.09	2.350	2.322	-1.22	-0.21
13 A	11 1	1970	2.283	2.276	-0.30	2.305	2.268	-1.62	0.96
14 A	11 1	3075	4.890	4.916	0.54	4.955	4.928	-0.54	-1.33
1 B	7 7	385	3.500	3.532	0.92	3.530	3.529	-0.03	0.86
01 B	7 7	2210	2.537	2.540	0.13	2.550	2.533	-0.69	0.51
02 B	4 1	1425	2.200	2.202	0.09				
02 B	4 1	1605				2.205	2.184	-0.98	
02 B	4 1	2125	2.178	2.175	-0.14	2.190	2.176	-0.63	0.55
04 B	7 7	2275	2.533	2.568	1.36	2.543	2.560	0.67	0.39
04 B	8 2	335	5.060	5.204	2.76	5.120	5.220	1.92	1.19
05 B	8 2	1725	2.205	2.214	0.43				
05 B	8 2	2245				2.248	2.248	-0.02	
05 B	11 1	1460	2.667	2.690	0.85	2.677	2.682	0.20	0.37
06 B	11 1	2040	2.255	2.289	1.49	2.268	2.281	0.57	0.58
06 B	5 8	1090	2.670	2.714	1.61	2.700	2.706	0.23	1.12

TABLE 2-1

REV/MODE	RAMP	T.U.R.	INST 170 ACT.	NOM.	DEV.	INST 171 ACT.	NOM.	DEV.	170/171 DIFF.
06 B	5 8	1445	2.495	2.514	0.74	2.500	2.506	0.23	0.20
07 B	7 7	1180	2.870	2.901	1.07	2.877	2.894	0.59	0.24
07 B	7 7	1580	2.540	2.588	1.85	2.540	2.580	1.55	-0.
07 B	7 7	2530	2.687	2.732	1.64	2.687	2.724	1.38	-0.
08 B	4 1	1015	2.730	2.763	1.20	2.730	2.756	0.94	-0.
08 B	4 1	1750	2.163	2.176	0.58				
09 B	4 1	2620				2.283	2.306	0.98	
09 B	4 1	3210	3.343	3.415	2.11	3.340	3.411	2.07	-0.09
09 B	11 1	885	4.560	4.599	0.84	4.580	4.606	0.56	0.44
10 B	11 1	1875	2.263	2.284	0.91	2.265	2.276	0.47	0.09
J B	11 1	2965	4.265	4.396	2.97	4.295	4.400	2.39	0.70
10 B	7 7	140	3.570	3.624	1.50	3.580	3.621	1.14	0.28
11 B	7 7	1910	2.450	2.492	1.68	2.460	2.484	0.96	0.41
11 B	7 7	2280	2.530	2.570	1.57	2.530	2.563	1.27	-0.
11 B	8 2	1154	3.060	3.039	-0.70	3.080	3.032	-1.58	0.65
12 B	8 2	846	3.800	3.767	-0.87	3.820	3.766	-1.45	0.53
13 B	4 1	2631	2.350	2.331	-0.81	2.350	2.323	-1.15	-0.
13 B	11 1	1976	2.280	2.277	-0.15	2.290	2.269	-0.94	0.44
15 B	5 8	1931	2.380	2.393	0.56	2.400	2.385	-0.61	0.84
15 B	5 8	3121	2.880	2.887	0.24	2.900	2.880	-0.70	0.69
15 B	8 2	1771	2.200	2.211	0.52	2.240	2.206	-1.56	1.82
15 B	8 2	2621	2.750	2.766	0.56	2.780	2.758	-0.79	1.09

TABLE 2-1

REV/MODE	RAMP	T.U.R.	INST 170 ACT.	INST 170 NOM.	INST 170 DEV.	INST 171 ACT.	INST 171 NOM.	INST 171 DEV.	170/171 DIFF.
16 B	8 2	0	5.580	5.586	0.11	5.600	5.609	0.16	0.36
16 B	8 2	0	5.580	5.586	0.11	5.620	5.609	-0.19	0.72

DEV. AND DIFF. ARE IN PERCENT
THE (-) SIGN INDICATES THAT THE INST IS SLOWER THAN PREDICTED OR THAT INST 1 IS SLOWER THAN INST 2

TABLE 2-1

2. Even if the PMU were to fail in flight, an exposure analysis shows that 6th magnitude stars would still be discernable above the corona level encountered.

5. Instrumentation Performance

Film correlation between the film footage pots and the cycle counter on both instruments was satisfactory throughout the test. The only instrumentation discrepancies observed during the test were:

1. Master instrument temp sensor No. 13 was approximately 15° F lower than average instrument No. 1 temperature throughout the test.

2. Commutated channel 13 exhibited stray voltage on several commutator points during orbit 2 of the "B" phase. Some instrument monitor points were driven out of band low and the plus calibrate was driven out of band high. However, the tape recorder output of channel 13 did not contain this anomoly, and this condition was attributed to a Sanborn recorder problem.

6. Pressure Environment

The pressure make-up system operated satisfactorily throughout the test. The maximum pressure attained with the PMU on was approximately 72 microns during an instrumentation operation. The minimum pressure attained during the test was approximately 1.6 microns. The table below shows the test pressure environment during non-operate periods.

PRESSURE MICRONS

	Chamber	Alphatron #1	Alphatron #2
Day 1	.017	10.0	9.0
Day 2	.012	6.0	6.0
Day 3	.014	6.0	4.0
Day 4	.010	3.6	2.9
Day 5	.012	5.3	4.6
Day 6	.012	2.6	1.7

The average gas consumption was approximately 6.7 lbs/minute of operate time.

7. Temperature Environment

A tabulation of the temperature environment encountered during the test is included in the table below.

AVERAGE TEMPERATURE ENVIRONMENT

A PHASE	Orbit 1	Orbit 14
Master Instrument	69	69
Slave Instrument	61	62

B PHASE	Orbit 1	Orbit 8	Orbit 16
Master Instrument	70	92 (Max)	72
Slave Instrument	63	93 (Max)	71

8. Clock Performance

The clock unit operated properly throughout the test with the following errors observed:

CLOCK PERFORMANCE

IRIG "C" Rev	Day	Hr.	Min	Sec.	CLOCK (Seconds)	ERRORS (Seconds)
1	91	08	30	39.930	307538.848	--
6	92	08	37	55.730	394369.626	-0.012
11	93	07	57	25.570	478344.477	-0.011
14	93	13	07	02.890	496911.790	-0.018
1	94	08	00	22.560	308699.242	--
6	95	08	57	56.500	398553.195	+ .013
16	96	15	57	48.820	510145.496	- .006

B. RESOLUTION TEST

Resolution and theodolite tests of the J-23 system were completed on 22 April, 1965. Results of the thru-focus resolution tests of pan instruments 170 and 171 show the following characteristics:

MASTER PAN INSTRUMENT NO. 170

Maximum high contrast resolution 206 lines/mm at .000 focal position.

Maximum low contrast resolution 116 lines/mm at .000 focal position

SLAVE INSTRUMENT NO. 171

Maximum high contrast resolution 179 lines/mm at .001 focal position

Maximum low contrast resolution 108 lines/mm at .001 focal position.

The resolution test data for both instruments as shown in Figures 2-1 and 2-2, has been reviewed and appears normal in all respects. The demonstrated resolution performance meets the system requirements specification.

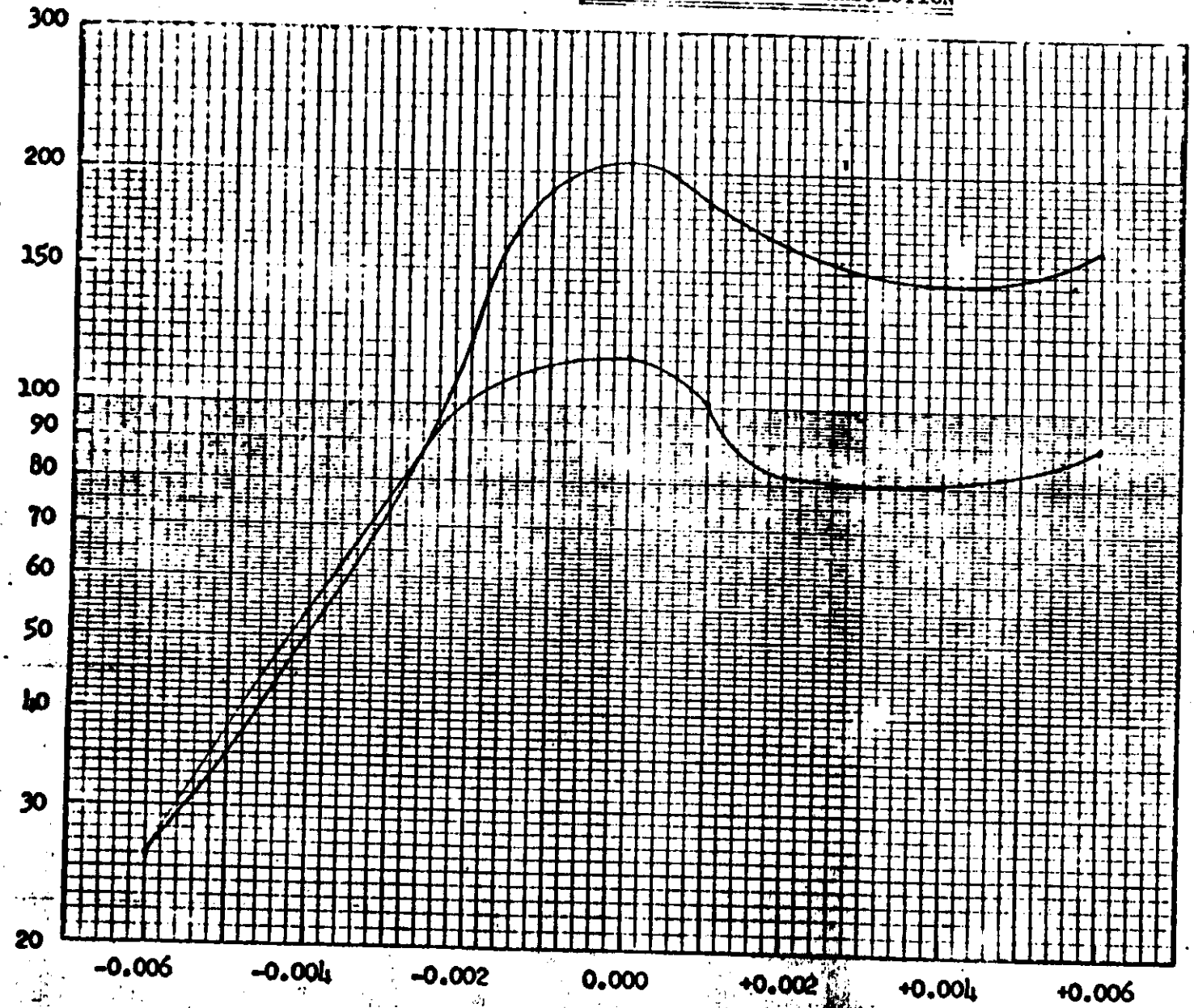
C. LIGHT LEAK TEST

This system was subjected to the following test conditions:

The light leak test was conducted on 7 May 1965 using a 15 minute soak at a distance of 24 inches producing approximately 2000 foot candles. With the system sitting on blocks, nose up, the light bank was raised by crane for exposing both top and bottom of the "A" SRV-Fairing Interface. With the light bank on the floor, soaks were then performed on both sides of the system horizon optics, and directly into the main door openings.

After these 5 soaks, 15 cycles of instrument operation transferred all film between the supply and T/U cassettes into the T/U cassette. All test film, approximately 40 cycles, was retrieved and processed. 4401 film was used.

PRE-FLIGHT DYNAMIC RESOLUTION



Camera No: 170

Payload No: J-23

Resolution (l/mm)

High Contrast: 206

Low Contrast: 116

Film Type: 3404

Test Date: 4/22/65

FIGURE 2-1

PRE-FLIGHT DYNAMIC RESOLUTION

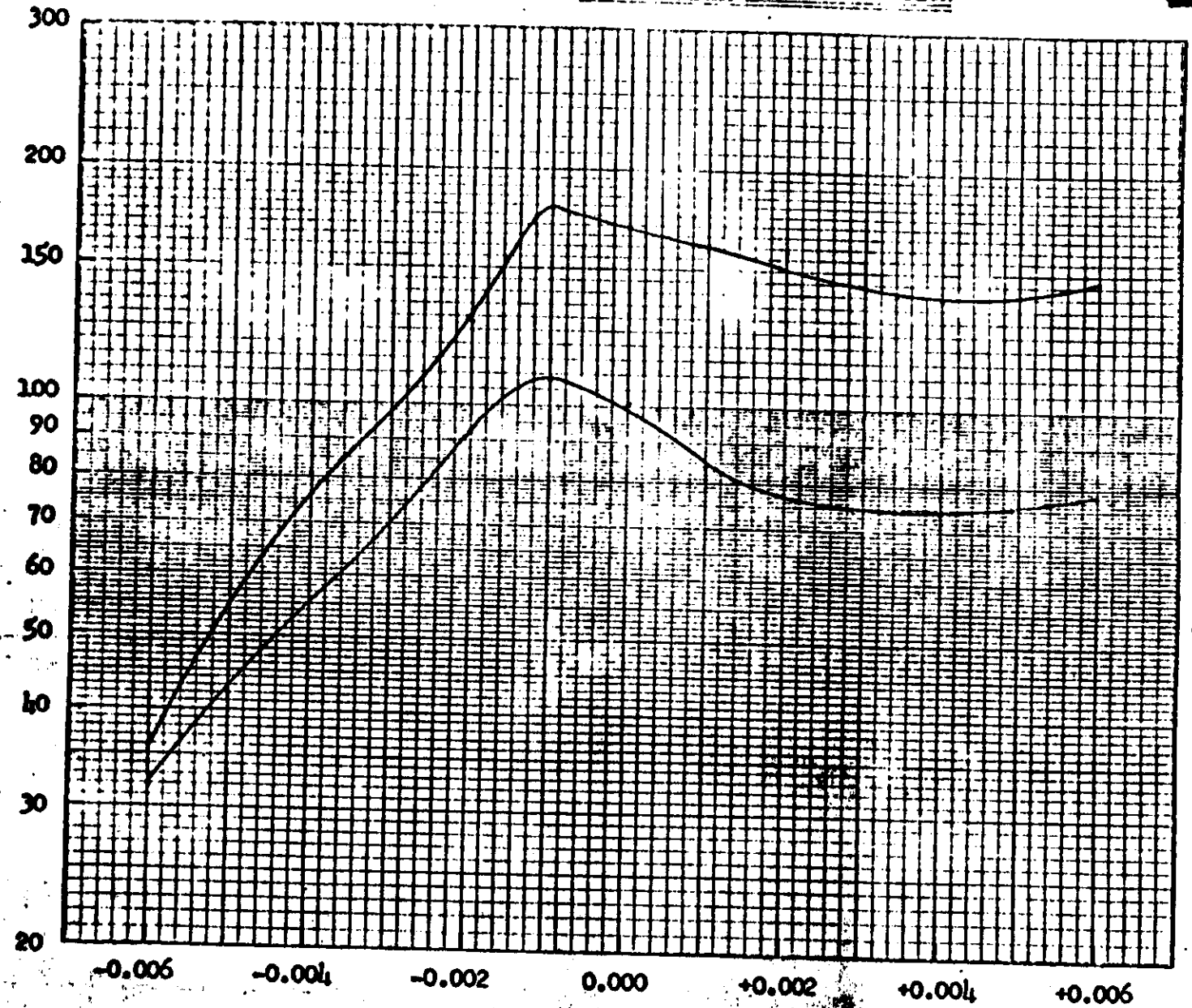


FIGURE 2-2

Camera No: 171

Payload No: J-23

Resolution (l/mm)

High Contrast: 179

Low Contrast: 108

Film Type: 3404

Test Date: 4/22/65

Examination of the processed film revealed the usual handling marks plus one small fogged area. Since this area was traced to the inside of the "B" bucket during the soak, it was concluded to have resulted from some source other than the soak.

J-23 system is recommended for flight without further light leak testing.

D. FLIGHT LOADING AND CERTIFICATION

Film from J-23 pad run and flight readiness was examined at VAFB on 12 August 1965. No difference in system performance could be detected between this film and film from previous operations at A/P. All data was present and acceptable. All scratch marks found were outside the format areas. No appreciable banding was found.

Some slight minus density longitudinal streaks were found, as before, where the fogging density was fairly uniform across the film. It is doubtful that these streaks could be detected in the random densities of a ground scene.

Most of the film samples were badly stained in processing. It is recommended that steps be taken to checkout the people and equipment responsible for this procedure to insure adherence to the applicable TP.

J-23 has been and is an exceptionally trouble free system and meets all established criteria for flight readiness.

SECTION 3

FLIGHT OPERATIONS

A. INSTRUMENTATION AND COMMAND PERFORMANCE

All Instrumentation System functions operated properly throughout both missions. All monitors also operated properly.

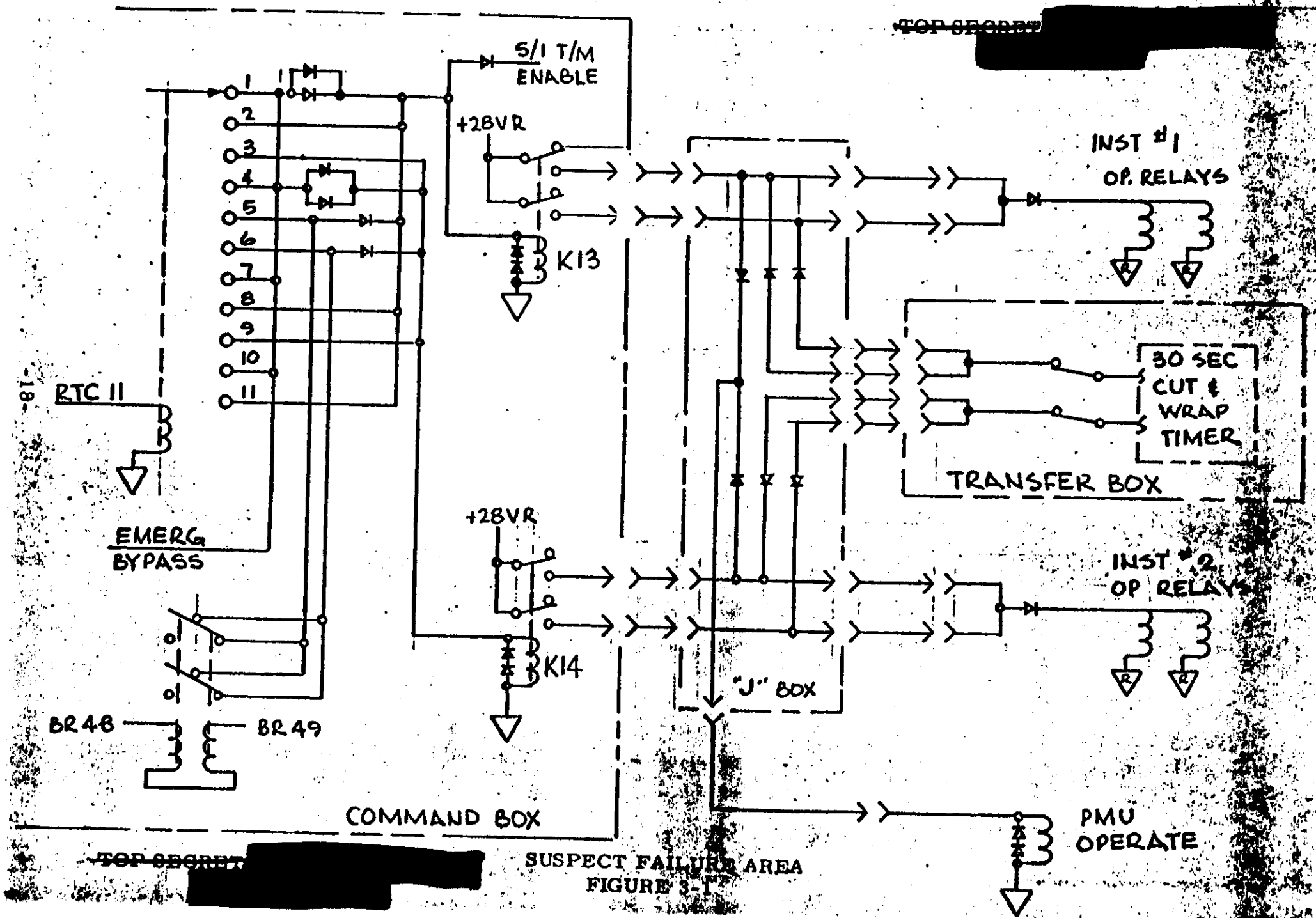
It was determined from Rev 2 tracking data that the orbit perigee altitude was approximately two miles lower than predicted pre-flight. As a result of this, a change in V/h ramp amplitude was made on Rev 7 at [redacted] This V/h ramp setting, as made on Rev 7, provided acceptable V/h ramp-to-orbit match for the balance of both missions.

V/h ramp-to-orbit match was well below the five percent allowable mismatch figure during both missions except on very high latitude operations (above 69 degrees north descending).

On pass 102, the system was in a programmed intermix OFF emergency operate mode with a 147 cycle programmed operation. Cycle counter data indicated completion of 34 of the programmed 147 cycles. An engineering pass was taken on pass 104 confirming failure of the Master camera. Neither the transport or scan functions operated. Telemetry data indicated no operate signal was received by the camera operate relays. A series of command combinations were tried, without success, in an attempt to isolate and program around the faulty component or components. A schematic of the primary suspect area is contained in Figure 3-1. Table 3-1 is a tabulation of the command settings from rev 101 through the end of the mission.

In all of the combinations of stereo and mono No. 1 operations tried on engineering passes, a signal was verified to the S/I, T/M enable (ref. Figure 3-1). At these same times no operate signal was observed at the instrument No. 1 operate relays or the PMU operate relays.

Sufficient operate time was logged in a mono 1 mode to significantly decrease the PMU gas supply had an operate signal been received by the PMU system. Figure 3-2 is a plot of the PMU consumption. The solid line indicates the consumption during stereo operation and the dash lines show the consumption with the mono No. 1 operate time added.



SUSPECT FAILURE AREA
FIGURE 3-1

[redacted]

TABLE 3-1
1618 J-23 RTC SETTINGS

Master Operation	6	8	9	10	11	12	15	Remarks
101 Normal	7	3	9	6	7	7	4	Stereo - On
102 34 for 147	7	3	1	6	7	8	4	Stereo - On (Emerg)
103 Failed	7	3	1	6	7	9	4	Stereo - On (Emerg)
104 Failed	7	3	3	6	7	11	4	Stereo - On
105 Failed	7	3	2	6	1	2	4	Stereo - On
106 Failed	7	3	2	6	2	5	4	Mono -1 - On
107 Failed	7	3	5	6	4	8	4	Stereo - Off
108 Failed	7	3	5	6	4	9	4	Stereo - On
109 Failed	7	3	8	6	4	4	4	Stereo - Off
110 Failed	7	3	9	6	4/8	6	4	Stereo/Mono -1 - On
111 Failed	7	3	9	6	8	7	4	Mono -1 - On
112 Failed	7	3	9	6	8	9	4	Mono -1 - On
113 Failed	7	3	9	6	10	5	1	Stereo - Off
114 Failed	7	3	9	6	10	6	1	Stereo - Off
115 Failed	7	3	9	6	10	7	1	Stereo - Off
116 Failed	7	3	9	6	10	8	1	Stereo - On
117 Failed	7	3	7	6	10	10	1	Stereo - On
118 Failed	7	3	8	6	10	11	4	Stereo - On
119 Failed	7	3	1	6	10	11	4	Stereo - On (Emerg)
120 Failed	7	3	1/2	6	10	11	4	Stereo - On
121 Failed	7	3	8	6	11	11	4	Mono -1 - On
122 Failed	7	3	5	6	11	11	4	Mono -1 - On
123 Failed	7	3	9	6	11	11	4	Mono -1 - On
124 Failed	7	3	9	6	1	3	4	Stereo - Off
125 Failed	7	3	9	6	1	4	4	Stereo - Off
126 Failed	7	3	9	6	1	5	4	Stereo - On
127 Failed	7	3	9	6	2	6	4	Mono -1 - On
128 Failed	7	3	4	6	2	7	4	Mono -1 - On
129 Failed	7	3	9	6	4	10	4	Stereo - Off
130 Failed	7	3	9	6	4	11	4	Stereo - On
131 Failed	7	3	9	6	4	11	4	Stereo - On
132 Failed	7	3	9	6	4	11	4	Stereo - On

TABLE 3-1

133	2 for 152	7	3	8	6	4	11	4	Stereo - On
134	180 for 184 (OK)	7	3	1	6	4	11	4	Stereo - On (Emerg)
135	111 for 113 (OK)	7	3	2	6	8/10	11	4	Mono-1/Stereo - On
136	Failed	7	3	8	6	11	11	4	Mono -1 - On
137	Failed	7	3	7	6	11	11	4	Mono -1 - On
138	Failed	7	3	2	6	11	11	4	Mono -1 - On
139	Failed	7	3	9	6	11	11	4	Mono -1 - On
140	Failed	7	3	6	6	11	11	4	Mono -1 - On
141	Failed	7	3	6	6	1	11	4	Stereo - On
142	Failed	7	3	2	6	1	11	4	Stereo - On
143	Failed	7	3	2	6	2	11	4	Mono -1 - On
144	Failed	7	3	2	6	2	11	1	Mono -1 - Off

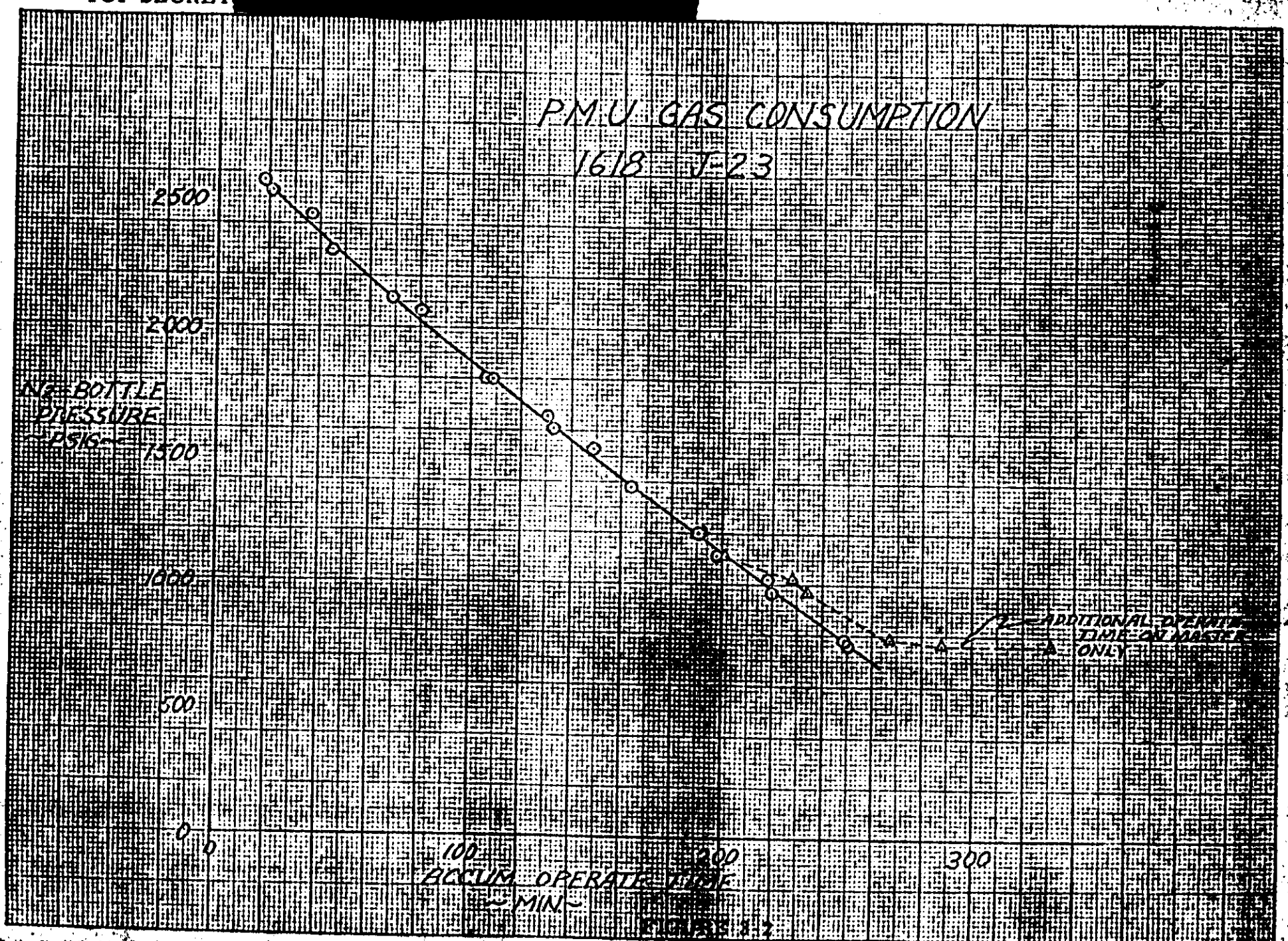


FIGURE 12

On rev 133, the master camera completed 2 cycles of a 162 cycle programmed operation and on revs 134 and 135 operation was apparently normal with a total of 291 cycles completed for a programmed 297.

After the completion of Mission 1023-2 a vehicle deactivate was commanded and both the master and slave instruments operated normally. This operate signal came through the 30 sec. timer shown in Figure 3-1.

From the above it appears the most probable area of failure was in K13 in the command box or the cabling between the command box and J box and that the failure was intermittent in nature.

B. PANORAMIC CAMERA PERFORMANCE

The Master panoramic camera operated normally throughout Mission 1023-1, and until rev 102 in Mission 1023-2. Cut and wrap and switchover to Mission 1023-2 was normal. Cycle periods were as tabulated in Table 3-2. The 99/101% clutch ratios were normal and all start-up and shut-down and transport functions were normal on the engineering passes monitored.

The Slave panoramic camera operation was normal throughout both missions. The cycle periods were as tabulated in Table 3-2. The99/101% clutch operation, start-up, shut-down and transport functions were normal. Cut and wrap and switch-over to Mission 1023-2 was normal.

C. STELLAR-INDEX PERFORMANCE

The Mission 1023-1 Stellar/Index camera operated normally on all engineering passes monitored. All metering and shutter open monitors were normal. The film supply was depleted prior to cut and wrap, however, the slew command was received and was normal.

The Mission 1023-2 Stellar/Index camera operated normally on all engineering operations until rev 102. Failure of the Master panoramic camera precluded operation after rev 102 except on revs 134 and 135.

D. CLOCK PERFORMANCE

Clock system performance was normal throughout both missions. Good clock correlation was obtained between system time and clock time. Table 3-3 is a tabulation of the correlation data for the flight.

TABLE 3-2

J-23/1618 MISSION 1023 CYCLE RATE DATA-ENGINEERING OPERATIONS

REV/MODE		RAMP		T.U.R.	INST 170 ACT.	INST 170 NOM.	INST 170 DEV.	INST 171 ACT.	INST 171 NOM.	INST 171 DEV.	170/171 DIFF.
9	A	7	3	235	4.730	4.692	-0.81	4.750	4.701	-1.05	0.42
16	A	7	3	1685	2.260	2.216	-2.00	2.277	2.209	-3.09	0.75
25	A	7	3	262	4.696	4.658	-0.81	4.724	4.666	-1.23	0.60
31	A	7	3	1806	2.252	2.208	-1.97	2.249	2.204	-2.06	-0.13
41	A	7	3	285	4.675	4.627	-1.04	4.700	4.635	-1.41	0.53
47	A	7	3	1752	2.260	2.211	-2.21	2.262	2.205	-2.56	0.09
63	A	7	3	1795	2.255	2.209	-2.09	2.255	2.204	-2.32	-0.
88	B	7	3	357	4.603	4.514	-1.98	4.635	4.520	-2.54	0.70
94	B	7	3	1891	2.254	2.206	-2.17	2.261	2.202	-2.69	0.31
104	B	7	3	380				4.580	4.479	-2.25	
110	B	7	3	1840				2.264	2.203	-2.79	
120	B	7	3	409				4.520	4.426	-2.14	
126	B	7	3	1872				2.237	2.202	-1.59	

DEV. AND DIFF. ARE IN PERCENT
THE (-) SIGN INDICATES THAT THE INST IS SLOWER THAN PREDICTED OR THAT INST 1 IS SLOWER THAN INST 2

[redacted]

CLOCK SUMMARY

ORDER FIT 1

SYS TIME I/P	CL TIME I/P	COMP SYS TM	DELTA ST	REV	STA
76032.767	360218.48990	76032.77870	-0.01072	0	1
36809.092	407394.83190	36809.10290	-0.00998	9	1
76245.938	446831.69190	76245.94810	-0.00915	16	1
37207.597	494193.36090	37207.59930	-0.00134	25	1
71305.082	528290.85590	71305.08150	0.00148	31	1
37483.229	43998.10890	37483.22670	0.00325	41	1
71575.172	78090.05990	71575.16490	0.00807	47	1
37937.257	130852.16790	37937.25300	0.00491	57	1
72012.622	164927.54290	72012.61520	0.00772	63	1
32845.257	212160.19690	32845.25150	0.00648	72	1
72161.855	251476.80790	72161.84770	0.00826	79	1
72161.855	251476.80790	72161.84770	0.00826	79	1
33156.062	298871.03490	33156.05690	0.00608	88	1
67122.004	332836.98690	67121.99610	0.00886	94	1
33447.445	385562.45990	33447.44930	-0.00332	104	1
67402.155	419517.17990	67402.15650	-0.00055	110	1
33714.282	472229.33190	33714.28870	-0.00573	120	1
67755.252	506270.31490	67755.25890	-0.00593	126	1
28343.017	16387.18090	28343.01920	-0.00126	135	1
67891.042	55935.23490	67891.05830	-0.01539	142	1

A0=-0.28418557580 06 A1= 0.999999623985D 00
SIGMA=0.00715 NO. POINTS= 20
RATIO OF CLOCK TIME TO SYS TIME= 0.1000000376010 01

ORDER FIT 2

SYS TIME I/P	CL TIME I/P	COMP SYS TM	DELTA ST	REV	STA
76032.767	360218.48990	76032.76550	0.00247	0	1
36809.092	407394.83190	36809.09440	-0.00146	9	1
76245.938	446831.69190	76245.94300	-0.00406	16	1
37207.597	494193.36090	37207.59780	0.00018	25	1
71305.082	528290.85590	71305.08210	0.00082	31	1
37483.229	43998.10890	37483.23010	-0.00016	41	1
71575.172	78090.05990	71575.16970	0.00328	47	1
37937.257	130852.16790	37937.25930	-0.00139	57	1
72012.622	164927.54290	72012.62210	0.00066	63	1
32845.257	212160.19690	32845.25860	-0.00064	72	1
72161.855	251476.80790	72161.85460	0.00139	79	1
72161.855	251476.80790	72161.85460	0.00139	79	1
33156.062	298871.03490	33156.06290	0.00007	88	1
67122.004	332836.98690	67122.00110	0.00384	94	1
33447.445	385562.45990	33447.45210	-0.00617	104	1
67402.155	419517.17990	67402.15760	-0.00160	110	1
33714.282	472229.33190	33714.28630	-0.00336	120	1
67755.252	506270.31490	67755.25390	-0.00095	126	1
28343.017	16387.18090	28343.01010	0.00784	135	1
67891.042	55935.23490	67891.04530	-0.00235	142	1

A0=-0.28418564470 06 A1= 0.999999827912D 00
A2=-0.13674287135010-12
SIGMA=0.00291 NO. POINTS= 20

TABLE 3-3

[redacted]

E. PRESSURE MAKE-UP SYSTEM PERFORMANCE

The pressure make-up system performed normally throughout both missions. Figure 3-2 is a plot of the PMU pressure versus operate time in minutes. The solid line indicates the stereo operate time. The dash lines include the mono No. 1 operate time.

F. TEMPERATURE ENVIRONMENT

Temperature data for the [redacted] acquisitions are included in Tables 3-4 and 3-5. Actual versus predicted data for major components are plotted on Figures 3-3, 3-4, and 3-5.

TABLE 3-4

J-23 TEMPERATURE SUMMARY

SENSOR	ORBITS ACQUIRED																		
Master Camera	0	9	16	25	31	41	47	57	63	72	79	88	94	104	110	120	126	135	142
3	68	74	67	70	66	68	66	68	62	68	64	66	61	66	63	67	65	71	68
4	68	77	68	72	68	72	67	69	64	70	64	68	63	68	63	68	65	73	68
5	68	82	76	78	73	77	72	75	70	74	69	71	66	70	66	70	66	74	70
6	62	81	74	76	72	74	71	72	69	71	67	68	64	65	63	64	63	67	65
7	62	79	73	73	70	73	70	80	68	70	67	67	64	65	63	65	64	69	66
8	66	79	72	75	70	74	69	72	67	71	66	69	64	68	64	68	64	72	67
9	65	81	74	77	72	75	70	73	68	67	67	69	65	68	64	68	65	70	67
10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	71	76	71	71	66	70	65	67	65	67	63	63	59	63	60	63	61	65	62
12	70	76	69	73	67	72	66	71	65	71	65	70	64	69	64	71	66	76	70
* 13	48	63	58	58	54	55	53	54	51	52	50	50	47	48	47	48	48	50	49
AVG	68	78	70	74	69	73	68	72	67	70	66	68	63	67	63	67	64	71	68
Slave Camera																			
3	63	72	68	68	64	66	62	63	59	62	57	57	54	55	52	54	52	55	54
4	64	72	66	69	63	67	62	66	59	59	58	60	56	58	54	57	54	59	56
5	62	76	69	72	68	71	67	70	65	69	64	65	61	64	61	64	61	67	64
6	61	74	69	71	67	69	66	69	65	70	65	65	62	64	62	65	64	69	62
7	61	74	70	71	68	69	67	68	65	67	64	64	61	62	60	62	61	66	63
8	63	73	68	70	66	69	64	68	62	68	59	64	59	63	59	63	60	66	62
9	63	73	67	71	65	70	65	69	64	68	65	66	62	65	62	67	64	70	66
10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	70	69	66	67	64	65	63	65	61	65	61	61	57	60	58	61	59	64	61
12	63	71	65	68	62	66	62	64	59	63	58	60	54	57	53	56	53	59	55
13	59	68	65	66	63	64	62	63	60	61	60	58	56	57	56	57	56	60	58
AVG	63	72	67	69	65	68	64	67	62	65	61	62	58	60	58	61	57	64	60
Supply Spool																			
1	64	64	61	63	60	62	61	62	59	61	59	58	55	56	55	57	55	60	59
2	68	70	65	67	63	66	63	65	61	64	60	60	57	59	56	59	56	61	59

Note: Master camera sensor #13 functioned improperly and is not included in average.

[redacted]

TABLE 3-5

J-23 TEMPERATURE SUMMARY

SENSOR	ORBITS ACQUIRED																		
Fair ("A") Barrel #1 ("B")	0	9	16	25	31	41	47	57	63	72	79	88	94	104	110	120	126	135	142
1	235	36	62	34	67	34	59	34	62	34	45	26	43	29	43	29	51	35	51
2	230	23	20	17	20	23	20	20	23	23	20	59	77	62	88	68	106	74	109
3	227	13	24	11	27	13	24	13	22	13	22	61	113	61	110	63	119	63	107
4	230	49	52	44	49	44	49	44	46	41	47	26	44	23	38	23	38	26	29
5	230	25	53	48	48	48	50	42	42	42	45	22	28	22	31	19	28	22	28
6	225	55	73	49	70	49	60	44	55	44	44	26	43	28	43	28	43	-	-
Barrel #2																			
1	150	45	52	39	47	39	47	34	37	34	37	23	31	23	29	21	29	20	26
2	145	40	77	34	72	34	64	32	56	32	43	23	37	23	32	20	32	20	26
3	227	59	121	59	126	62	115	59	120	62	101	59	103	59	103	62	112	64	101
4	226	58	63	58	68	58	68	63	73	65	73	60	75	63	83	68	95	75	100
5	210	54	64	54	62	54	62	54	61	54	62	43	53	46	56	48	62	54	62
Conic Adapter																			
1	149	38	41	36	36	33	36	30	28	28	28	17	16	17	17	14	14	14	17
Clock																			
1	91	65	64	65	64	65	62	62	62	62	60	57	55	55	55	57	55	59	57
2	90	64	62	62	61	64	62	62	59	61	59	56	52	56	54	56	54	56	57
Thrust Cone "A" to "B" SRV																			
1	115	40	34	34	31	34	33	34	31	33	31	55	53	55	53	55	55	60	57
2	74	34	48	48	43	45	42	44	40	43	40	59	56	57	56	57	56	62	58
Stellar/Index "A" to "B"																			
1	79	54	51	51	44	44	48	44	44	44	44	38	38	34	38	34	34	41	37
2	66	53	47	50	40	44	44	48	41	44	41	43	35	39	35	39	39	47	39
Recovery Battery "B" SRV																			
1	73	69	64	62	61	60	61	60	57	57	57	81	79	85	84	91	91	85	80
Master Cassette "A" SRV																			
2	92	71	66	66	65	66	65	66	64	64	65	-	-	-	-	-	-	-	-

~~TOP SECRET~~ [redacted]

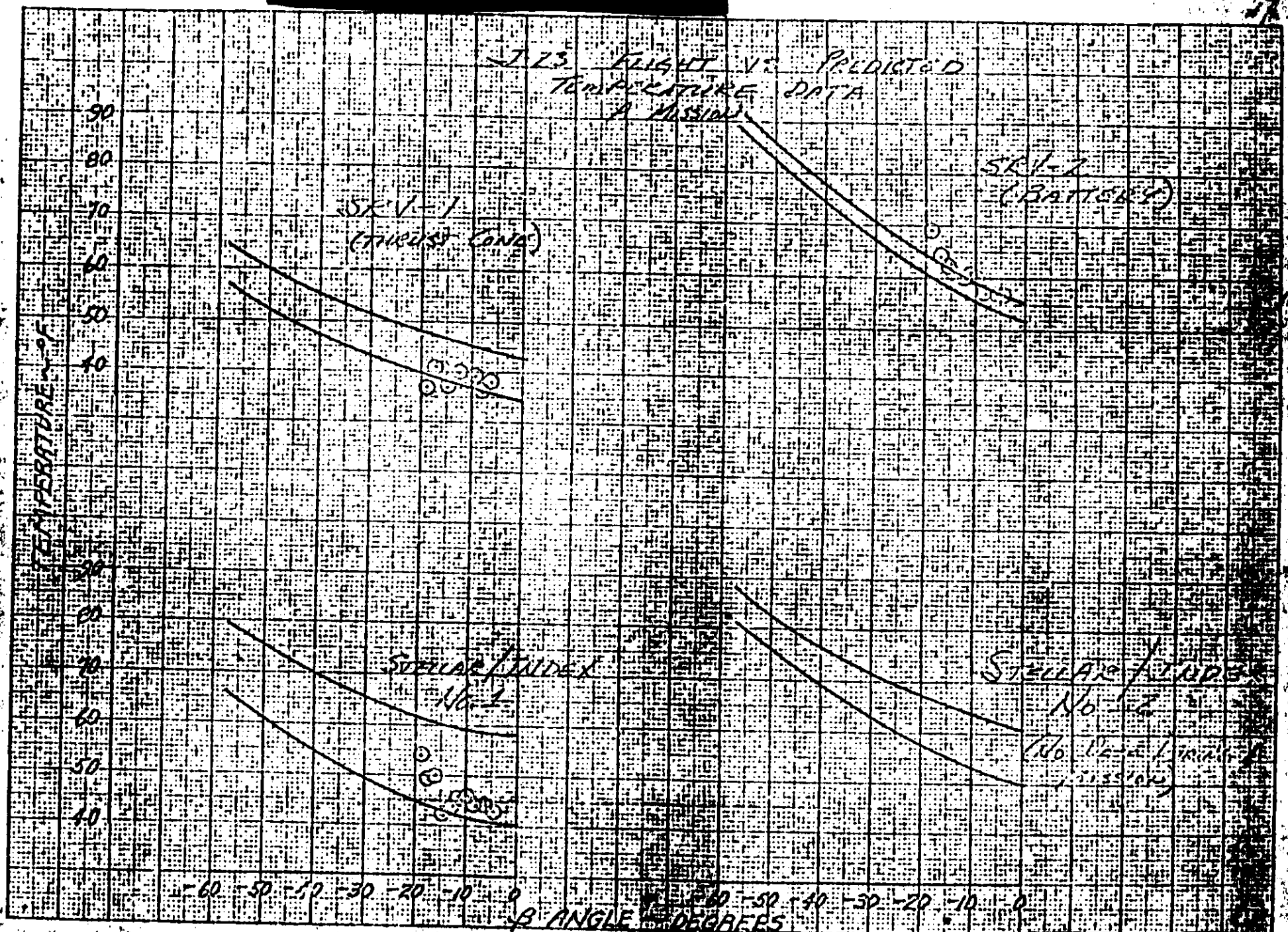

U-2 FLIGHT VS PREDICTED TEMPERATURE DATA
A MISSION
SKIN TEMPERATURE °F
β ANGLE DEGREES
90
80
70
60
50
40
30
20
10
-60 -50 -40 -30 -20 -10 0
SKIN 1 (FWD SIDE)
SKIN 2 (AFT SIDE)
SURFACE PROBE NO. 1
SURFACE PROBE NO. 2

FIGURE 5

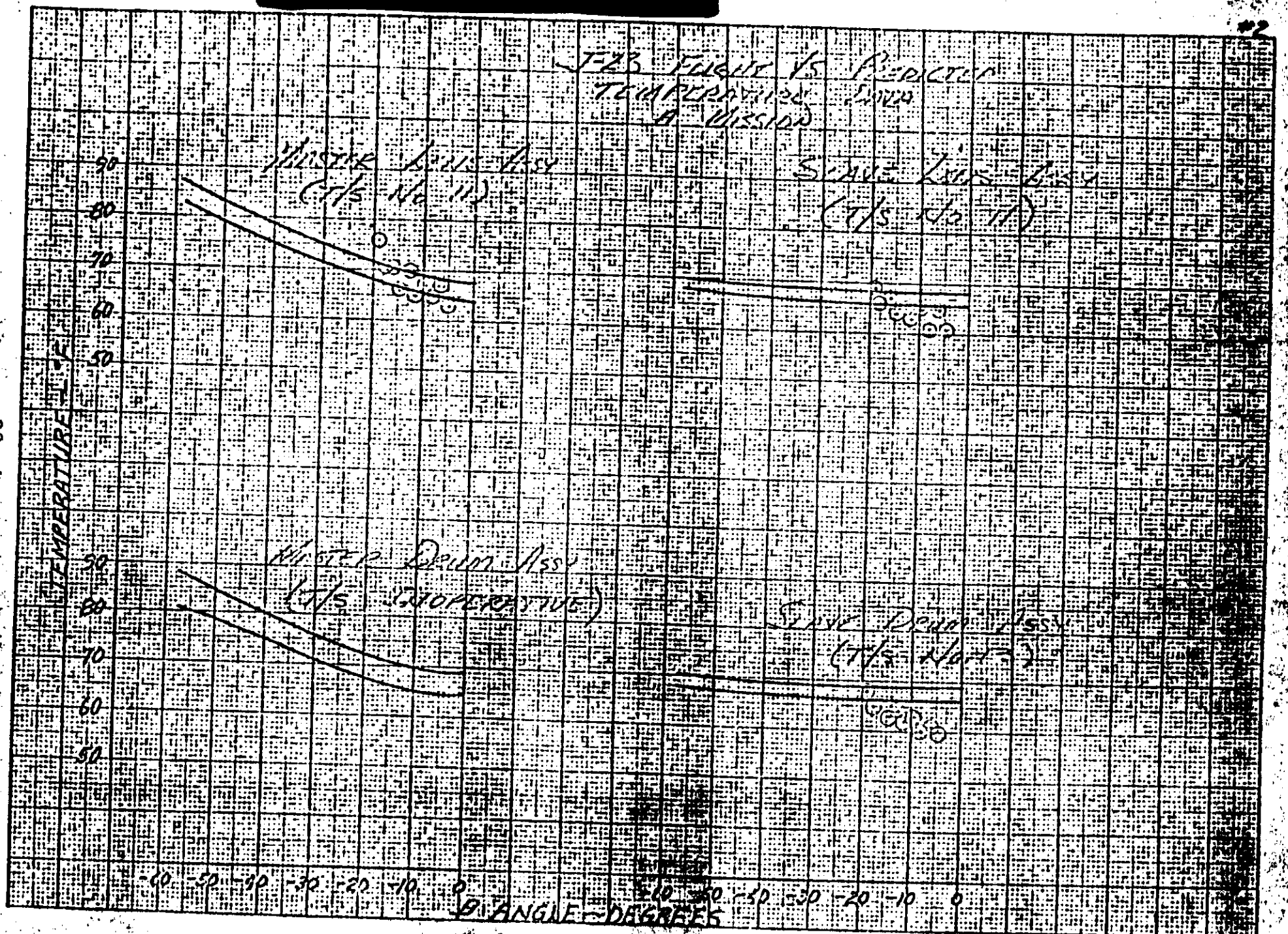

T-2B FUSELAGE VS SURFACE TEMPERATURE
B VERSION
HEATING RATE HISTORY
(T/S NO. 11)
SURFACE TEMPERATURE
SURFACE HEATING RATE
(T/S NO. 11)
WING LEADING EDGE
(T/S NO. 1)
WING LEADING EDGE
(T/S NO. 1)
TEMPERATURE °F
90
80
70
60
50
40
30
20
-60 -50 -40 -30 -20 -10 0
β ANGLE - DEGREES

FIGURE 3.4

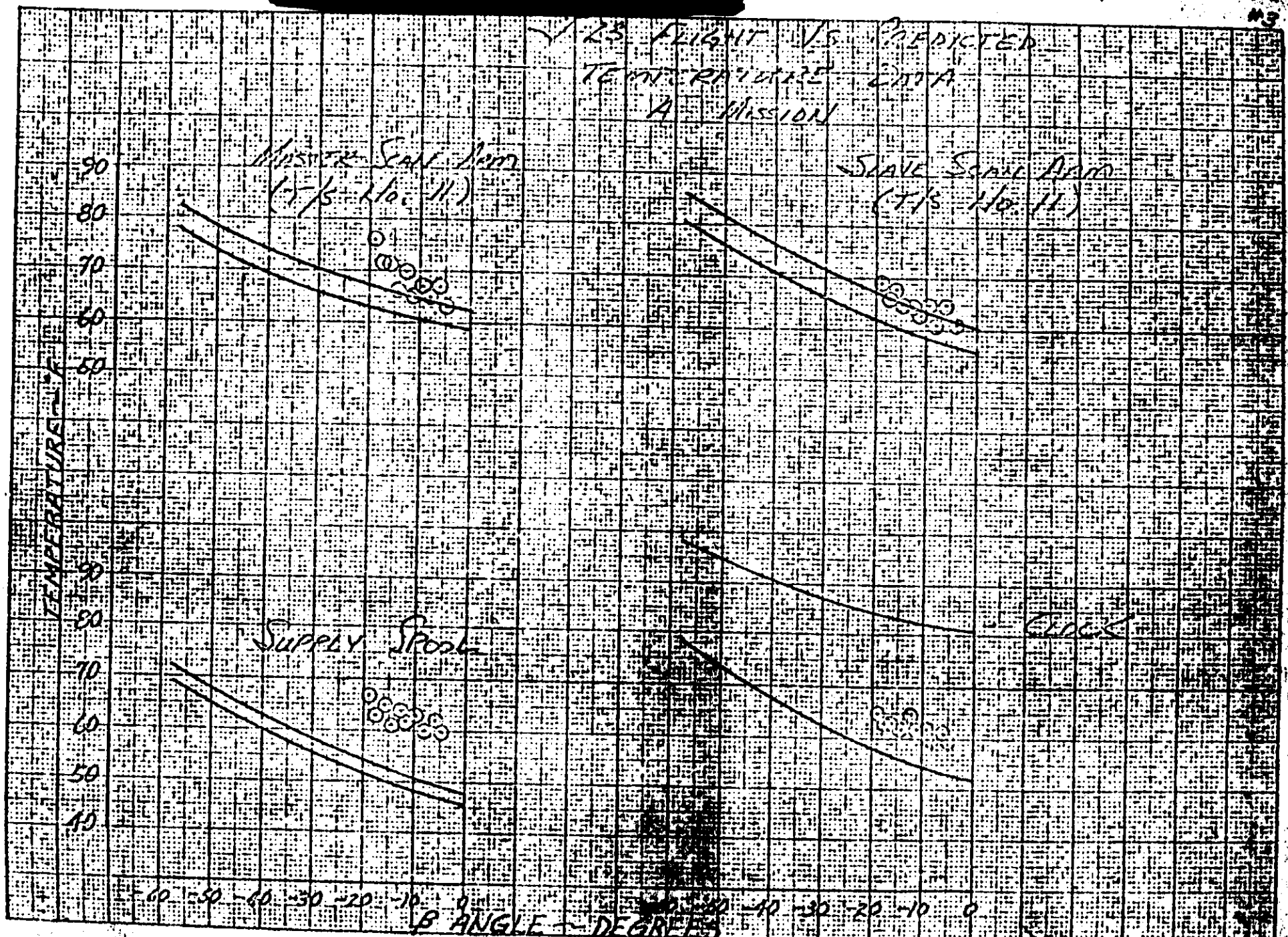


FIGURE [redacted]

SECTION 4

MISSION 1023-1 RECOVERY SYSTEM

SRV # 621 was received at A/P on 21 March 1963. The receiving weight was 149.2 pounds. After modifications and incorporation of outstanding E.O.'s, the SRV was delivered to systems test for incorporation into the J-23 system.

The capsule was delivered for shipment to VAFB on 5 May 1965.

The Mission 1023-1 recovery system was successfully recovered by air catch on rev 81. All re-entry sequence events monitored were normal and occurred within tolerance. The re-entry sequence of events is contained in Table 4-1. Impact was at 22.55 Deg. N., 166.16 W. The predicted impact point was 23.00 N, 167.64 W. The condition of the recovered capsule was satisfactory with no damage other than normal paint blistering due to the re-entry environment.

MISSION 1023-1

RECOVERY SEQUENCE OF EVENTS

Event	System Time	Delta Time Actual	Delta Time Nominal
Transfer	82803.72	-	-
Electrical Disconnect	82804.72	1.00	$.900^{+.43}_{-.40}$
*Separation	T/M Noise	-	2.0 ± .25
** Spin	82808.13	3.41	3.4 ± .30
Retro	82815.63	7.50	7.55 ± .45
Despin	82826.24	10.61	10.75 ± .54
T/C Separation	82827.80	1.56	1.5 ± .15
Voltage Mon. Closed	82904.25	175.38	180.0 ± 42.0
"G" Switch Open	No Data	-	-
Parachute Cover Off	No Data	-	34.0 ± 1.5
Drogue Chute Deployed	No Data	-	.75 ± .08
Drogue Chute Release	No Data	-	10.05 ± 1.0
Main Chute Deployed	No Data	-	.80 ± .20
Main Chute Disreefed	No Data	-	4.0 ± 1.7

* From Transfer
** From Elect. Disc.

Spin Rate - 66.7 RPM

Despin Rate - N/A

Retro Velocity - 956.8 Ft/Sec.

TABLE 4-1

SECTION 5

MISSION 1023-2 RECOVERY SYSTEM

SRV # 649 was received at A/P on 3 November 1963 at a receiving weight of 150 pounds. After modification and incorporation of outstanding E.O.'s the capsule was delivered to systems test for incorporation into the J-23 system.

The capsule was delivered for shipment to VAFB on 5 May 1965.

The Mission 1023-2 recovery system was successfully recovered by air catch on rev 144. All re-entry events monitored were normal and occurred within tolerance as listed in Table 5-1.

The predicted impact point was 25°41.9' N, 165°26.3 W and the actual impact point was 25°49' N, 164°36' W.

The condition of the recovered capsule was satisfactory with damage limited to normal paint blistering due to the re-entry environment.

MISSION 1023-2

RECOVERY SEQUENCE OF EVENTS

Event	System Time	Delta Time Actual	Delta Time Nominal
Transfer	78423.80	-	-
Electrical Disconnect	78424.86	1.06	$.900^{+.43}_{-.40}$
*Separation	78425.78	0.96	-
**Spin	78428.28	3.42	$3.4 \pm .30$
Retro	78436.06	7.78	$7.55 \pm .45$
Despin	78446.80	10.74	$10.75 \pm .54$
T/C Separation	78448.35	1.55	$1.50 \pm .15$
Voltage Mon. Closed	78526.15	177.30	180.0 ± 42.0
"G" Switch Open	No Data	-	-
Parachute Cover Off	No Data	-	34.0 ± 1.5
Drogue Chute Deployed	No Data	-	$.75 \pm .08$
Drogue Chute Release	No Data	-	10.05 ± 1.0
Main Chute Deployed	No Data	-	$.80 \pm .20$
Main Chute Disreefed	No Data	-	4.0 ± 1.7

* From Transfer
** From Elect. Disc.

Spin Rate - N/A
Despin Rate - 11.2 RPM
Retro Velocity - 1112.0 Ft./Sec.

TABLE 5-1

SECTION 6

MASTER PANORAMIC CAMERA

A. COMPONENT ASSIGNMENT

Component	Serial Number
Main Camera	170
Main Camera Lens	1592435
Supply Horizon Camera	178G10
Supply Horizon Camera Lens	814022
Take-up Horizon Camera	180G9
Take-up Horizon Camera Lens	813554
Supply Cassette	SC-31

B. CAMERA DATA AND FLIGHT SETTINGS

Main Camera:

Lens	24" f/3.5
Slit Width	0.225"
Filter Type	Wratten 25
Film Type	Eastman Type 3404

Supply (Port) Horizon Camera:

Lens	55 mm f/6.8
Aperture Setting	f/6.8
Exposure Time	1/100 second
Filter Type	Wratten 25

Take-up (Starboard) Horizon Camera:

Lens	55 mm f/6.8
Aperture Setting	f/8.0
Exposure Time	1/100 second
Filter Type	Wratten 25

C. POST FLIGHT PERFORMANCE EVALUATION

The camera produced 2971 frames of photography during Mission 1023-1 and 1498 frames during Mission 1023-2. The overall photographic quality was considered somewhat lower than Mission 1022. Cloud cover was estimated to be 35% for both Mission 1023-1 and 1023-2. The evaluation team analyzed the photography for cloud and haze content. They concluded that the cloud coverage was approaching 50% and that significant atmospheric haze was present during the majority of both missions.

The photographic quality of the Master camera film was generally better than the Slave camera film however many areas were found where the photography was comparable. The photography was considered to be somewhat lower in quality and information content than recent missions. The duplicate positives appeared to contain more grain than normally observed and were denser than usual.

The slit-filter combination selected for the Master camera was to produce a slightly lower exposure condition than used in previous missions. Evaluation of the duplicate positive film showed no apparent loss in information content due to this selection. There were no observed areas which were underexposed however many areas were considered overexposed.

Fogged areas were present on the film near the beginning and end of most camera operations. The fogged areas were in the vicinity of the intermediate roller assembly, the supply cassette and the first recovery system. This latter fog pattern was not present during Mission 1023-2 however all other patterns were present throughout both missions.

The light leak normally encountered at the Master camera drum seal is the probable cause of the fog pattern near the intermediate roller assembly. Extensive analysis has shown that it is not possible to eliminate this light leak without significant camera redesign or extensive film chutes. The magnitude of this fogged area does not appear to warrant the modification of the system. The fog pattern near the supply cassette is attributed to the same drum light leak on the Slave camera.

The fog pattern near the forward recovery system is caused by light piped through the fiberglass strands in the ablative material. A film chute has been designed for the area between the water seal and the thrust cone. It will be incorporated on systems in the near future.

The binary data block, time track and horizon cameras operated properly throughout both missions. One horizon camera fiducial was somewhat bloomed. There were no observed areas containing banding or flared imagery.

The Master camera operations became intermittent during pass D-102 as noted in Section 3. The camera was programmed for 147 cycles during pass D-102 however only 34 frames were taken. Analysis of the binary time word showed that the 34 frames were at the end of the operate cycle and corresponded to the last 34 frames of the Slave camera. The same conditions prevailed during pass D-133 as the Master camera frames, two in all, corresponded with the last two Slave camera frames.

A small area of soft imagery appeared at the supply end of all formats during pass D-53. The soft area was present throughout the remainder of both missions becoming gradually smaller. The degree of softness was slight and could only be detected where fine detail imagery was present. The previously established correlation between soft focus and frame edge location determined by NPIC did not hold true for this mission.

A tapered streak of minus density, on the original negative, was present along the time track edge extending approximately five inches into the format from the take up end. This streak is apparently caused by the camera slit being somewhat short and vignetting the format at the extreme of the IMC motion. The resulting degradation was very minor.

SECTION 7

SLAVE PANORAMIC CAMERA

A. COMPONENT ASSIGNMENT

Component	Serial Number
Main Camera	171
Main Camera Lens	1512435
Supply Horizon Camera	182G10
Supply Horizon Camera Lens	812300
Take-up Horizon Camera	181G9
Take-up Horizon Camera Lens	N/A
Supply Cassette	SC-31

B. CAMERA DATA AND FLIGHT SETTINGS

Main Camera:	
Lens	24" f/3.5
Slit Width	0.150"
Filter Type	Wratten 21
Film Type	Eastman Type 3404
Supply (Starboard) Horizon Camera:	
Lens	55 mm f/6.8
Aperture Setting	f/8.0
Exposure Time	1/100 second
Filter Type	Wratten 25

Take-up (Port) Horizon Camera:

Lens	55 mm f/6.8
Aperture Setting	f/6.8
Exposure Time	1/100 second
Filter Type	Wratten 25

C. POST FLIGHT PERFORMANCE EVALUATION

The camera produced 2966 frames during Mission 1023-1 and 2956 during Mission 1023-2. The general photographic quality was considered to be somewhat inferior to the Master camera, however as noted in Section 6, many areas were found where the Slave camera photography was comparable and superior to the Master camera results.

The fog patterns on film correlate with the suspected areas of light leaks at the forward ablative shell and at the camera drums. The fog patterns were minor and caused no significant loss of information content.

The same exposure, density and grain anomalies were present on the Slave camera duplicate positives as were observed on the Master camera.

The time track, horizon cameras and fiducials, binary data block and end-of-pass mark all operated properly throughout both missions. The data block index lamp adjacent to the camera serial number was bloomed but caused no degradation to the time word lamps.

SECTION 8

PANORAMIC CAMERA EXPOSURE

The Master camera contained a 0.225 inch wide slit and a Wratten 25 filter while the Slave camera had a 0.150 inch wide slit and a Wratten 21 filter. These conditions placed nominal exposure on the full processing curve as published by [redacted] for 4404 emulsion. It was ascertained post flight that Type 3404 emulsion was used in both panoramic cameras however Eastman Kodak has stated that the change is in nomenclature only.

The illumination conditions during the mission were relatively constant as the flight was conducted during the summer. The frequency distributions of the solar elevations and solar azimuths encountered during the photographic operations are shown in Figures 8-1 to 8-4.

The nominal exposure times of the Master and Slave cameras are shown as a function of latitude for passes D-24, D-56, D-88 and D-120 in Figures 8-5 to 8-12. The predicted level of processing for the original negative is based on the in-flight performance estimate and is tabulated below with the processing levels reported by [redacted]

Mission	Camera		Primary	Intermediate	Full
1023-1	FWD	Predicted	0	5	95
		Reported	19	54	27
1023-1	AFT	Predicted	0	11	89
		Reported	0	39	61
1023-2	FWD	Predicted	0	7	93
		Reported	0	19	81
1023-2	AFT	Predicted	0	3	97
		Reported	0	34	66

The large percentage of primary and intermediate processing on the FWD camera film of Mission 1023-1 was noted by the evaluation team however,

as stated in Section 6, no areas of underexposure were observed. [redacted] subsequently advised the contractors that a machine malfunction had produced the large quantity of primary and intermediate processing.

It is significant to note that in all cases more intermediate processing was reported than predicted. This is a departure from the previously experienced processing data as it has been normal that the reported levels have more full processing than predicted.

SOLAR ELEVATION FREQUENCY DISTRIBUTION

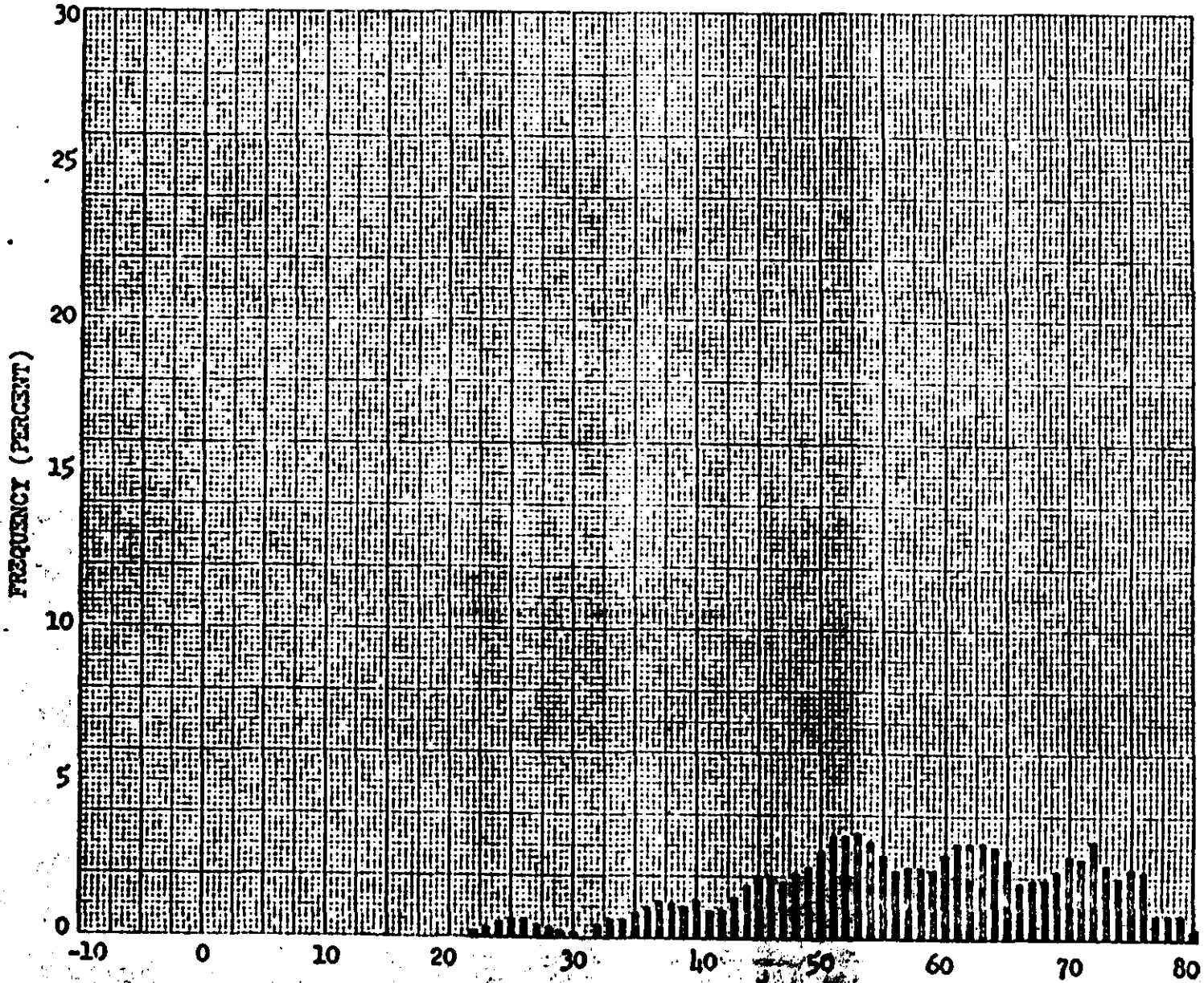


FIGURE 8-1

Mission No: 1023-1

Payload No: J-23

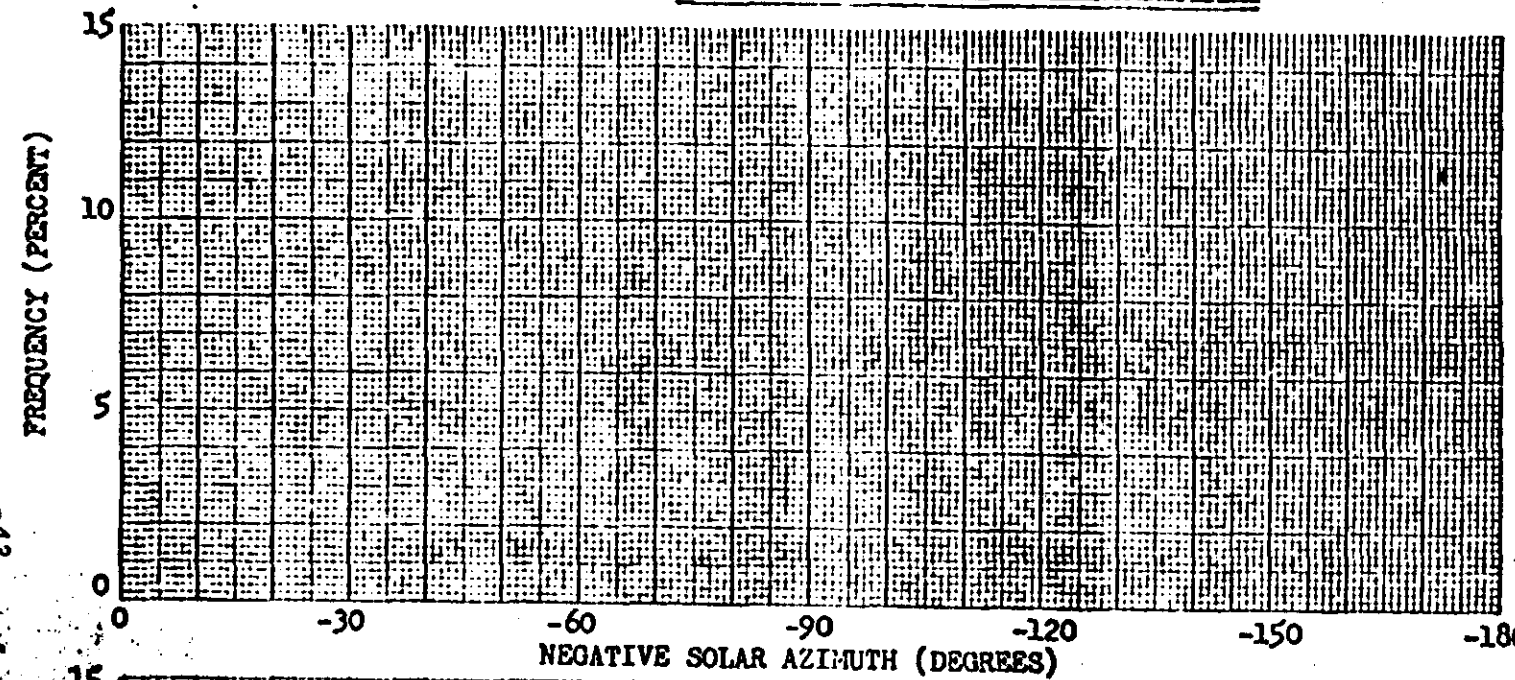
Camera No: 170

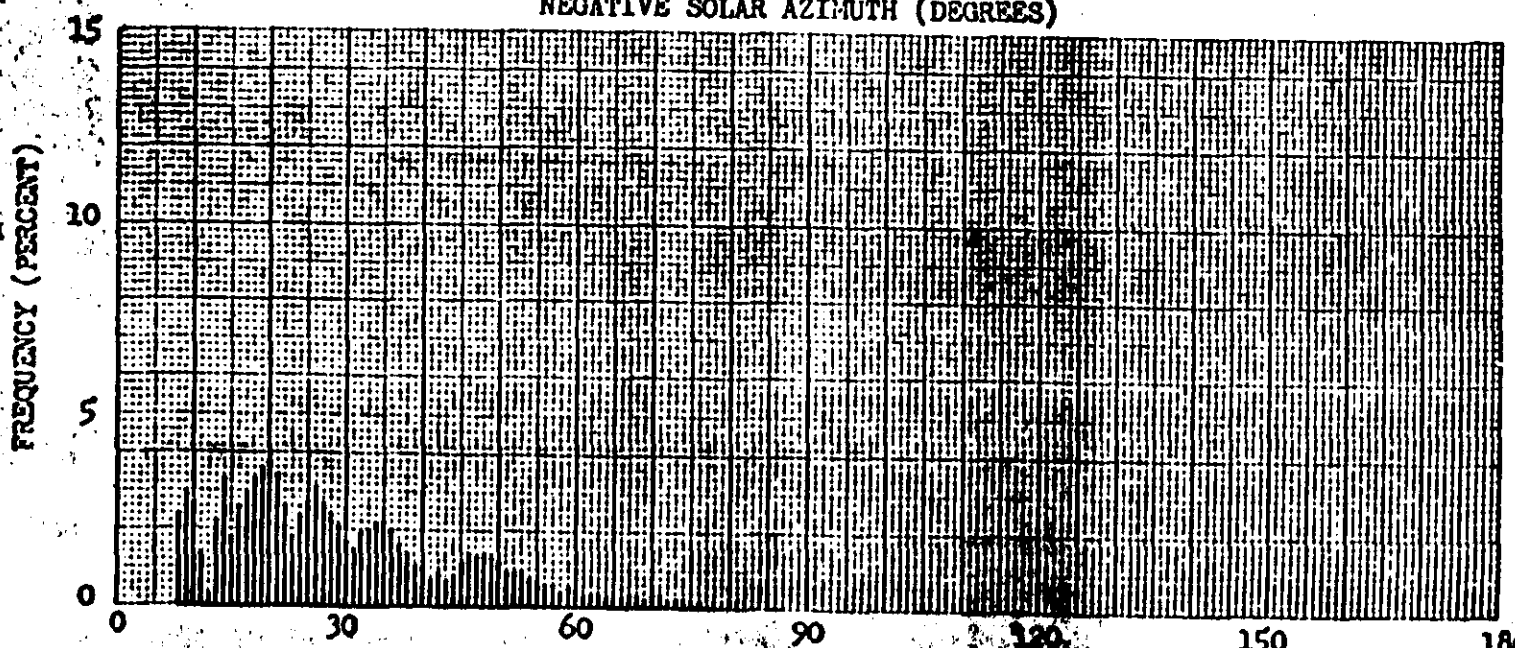
Launch Date: 8/17/65

Launch Time: 2100 Z

Inclination: 70°

SOLAR AZIMUTH FREQUENCY DISTRIBUTION





Mission No: 1023-1

Payload No: J-23

Camera No: 170

Launch Date: 8/17/65

Launch Time: 2100 Z

Inclination: 70°

SIGN NOTATION

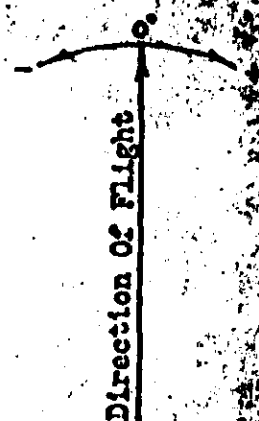
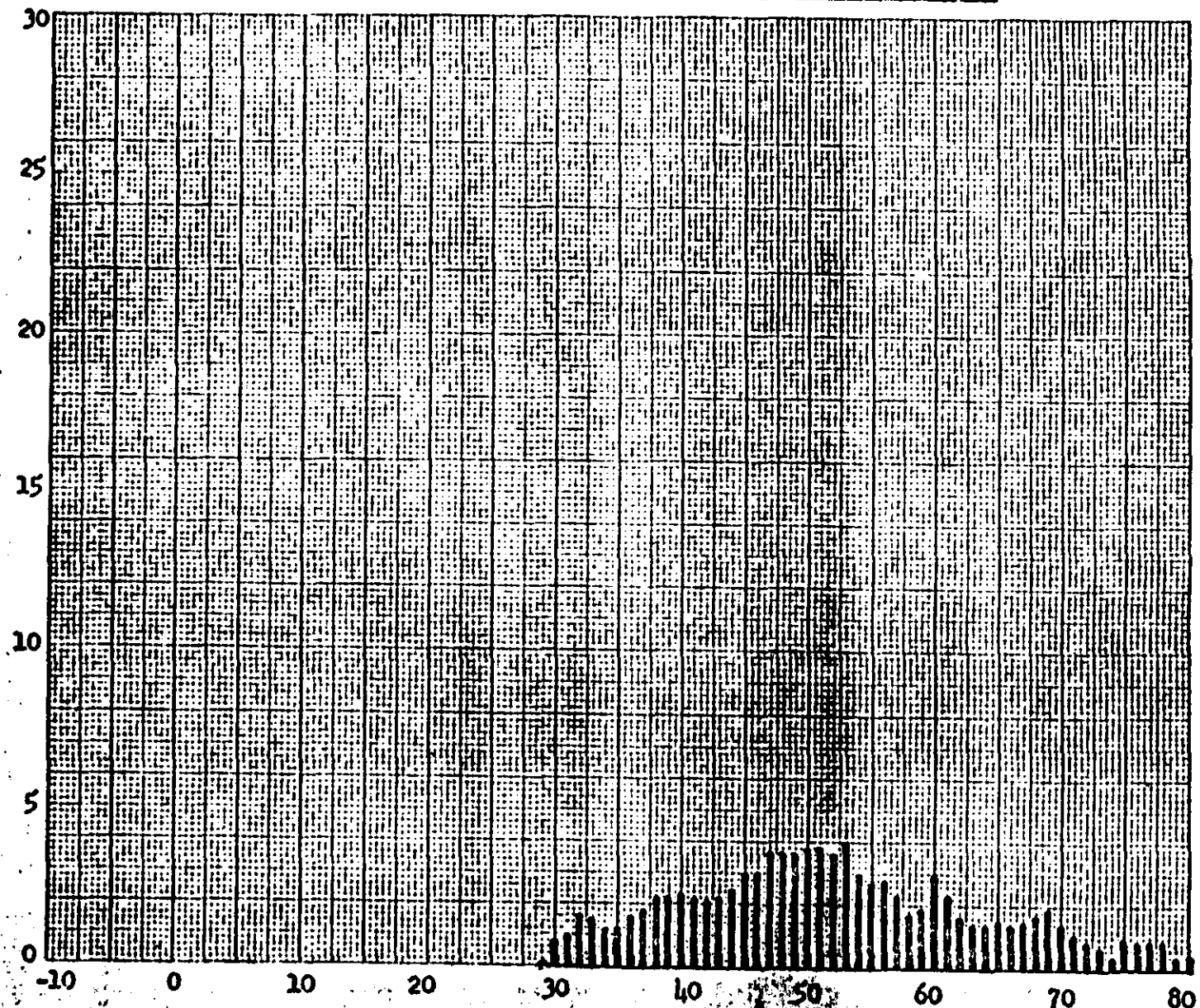


FIGURE [illegible]

SOLAR ELEVATION FREQUENCY DISTRIBUTION



Mission No: 1023-2

Payload No: J-23

Camera No: 170

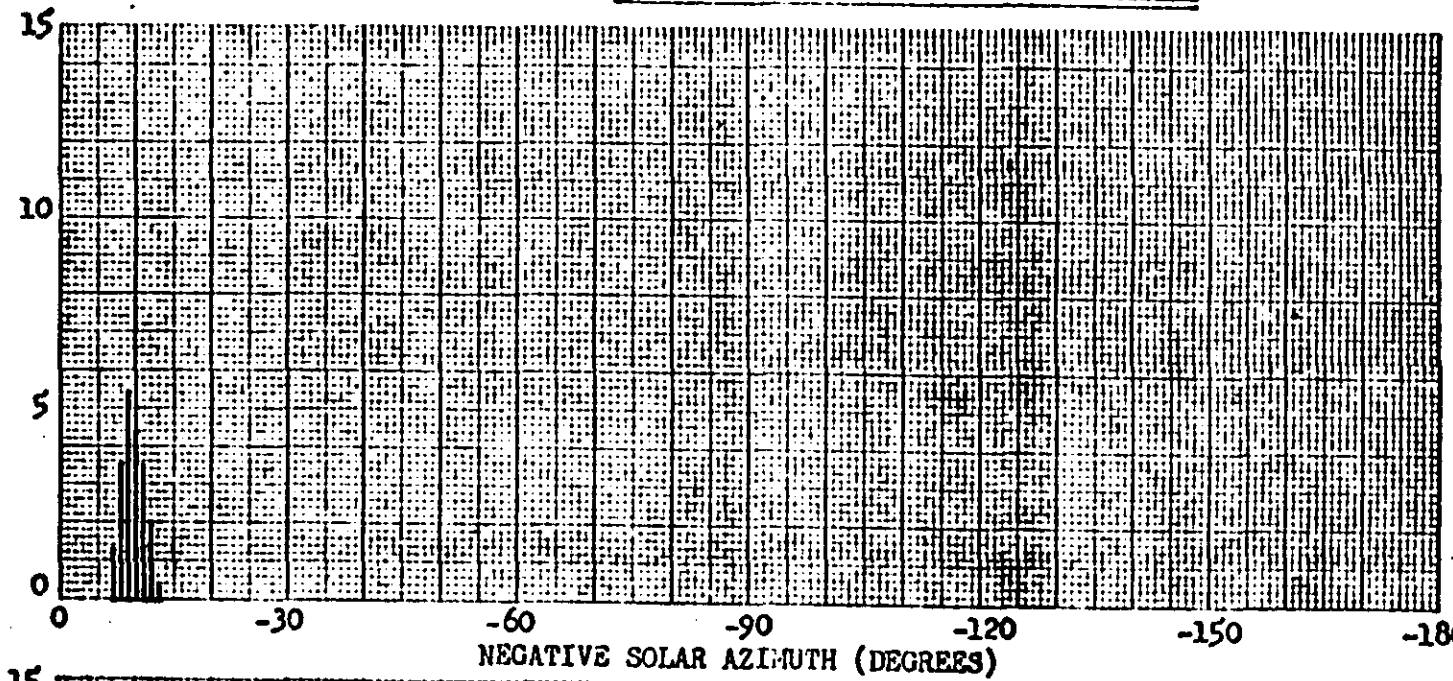
Launch Date: 8/17/65

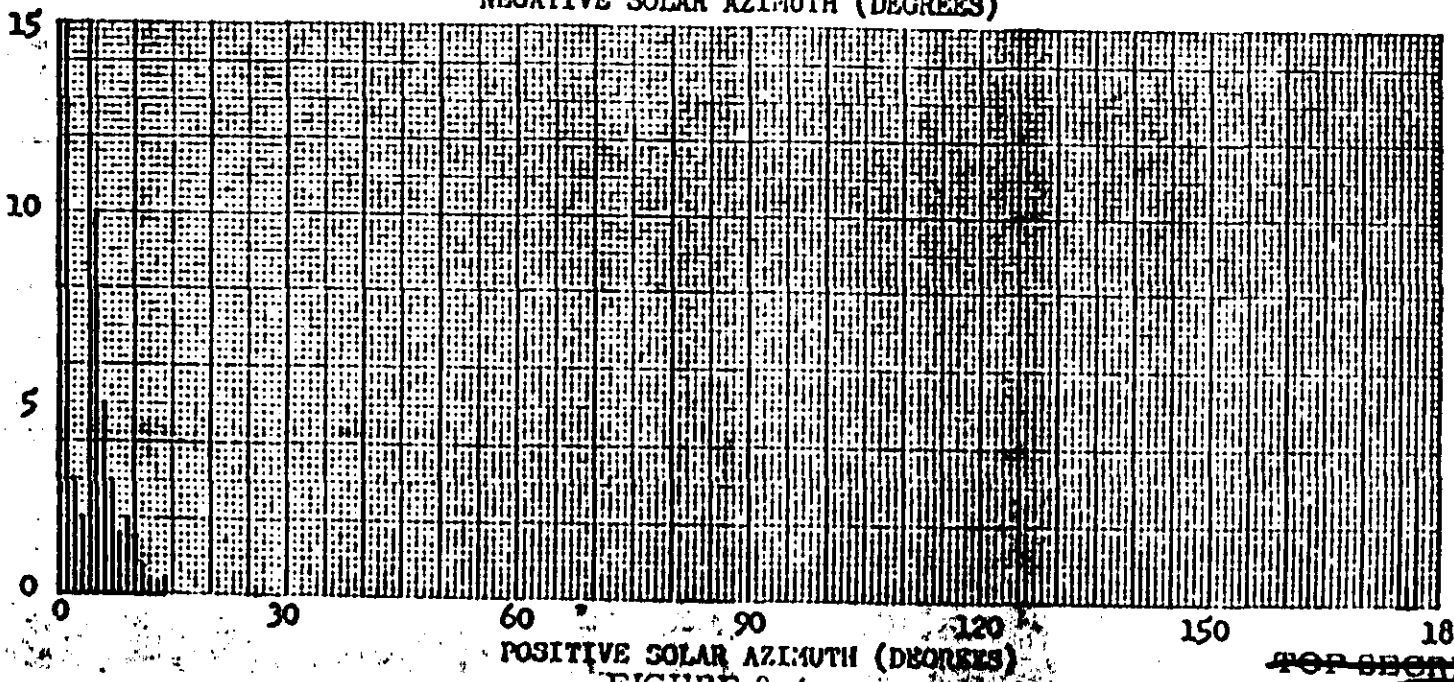
Launch Time: 2100 Z

Inclination: 70°

FIGURE 8-3

SOLAR AZIMUTH FREQUENCY DISTRIBUTION





Mission No: 1023-2

Payload No: J-23

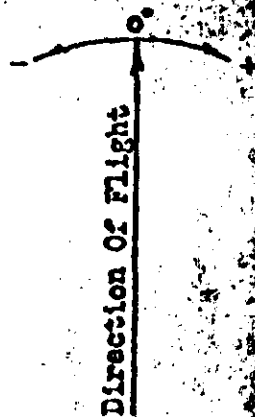
Camera No: 170

Launch Date: 8/17/65

Launch Time: 2100 Z

Inclination: 70°

SIGN NOTATION



EXPOSURE POINTS

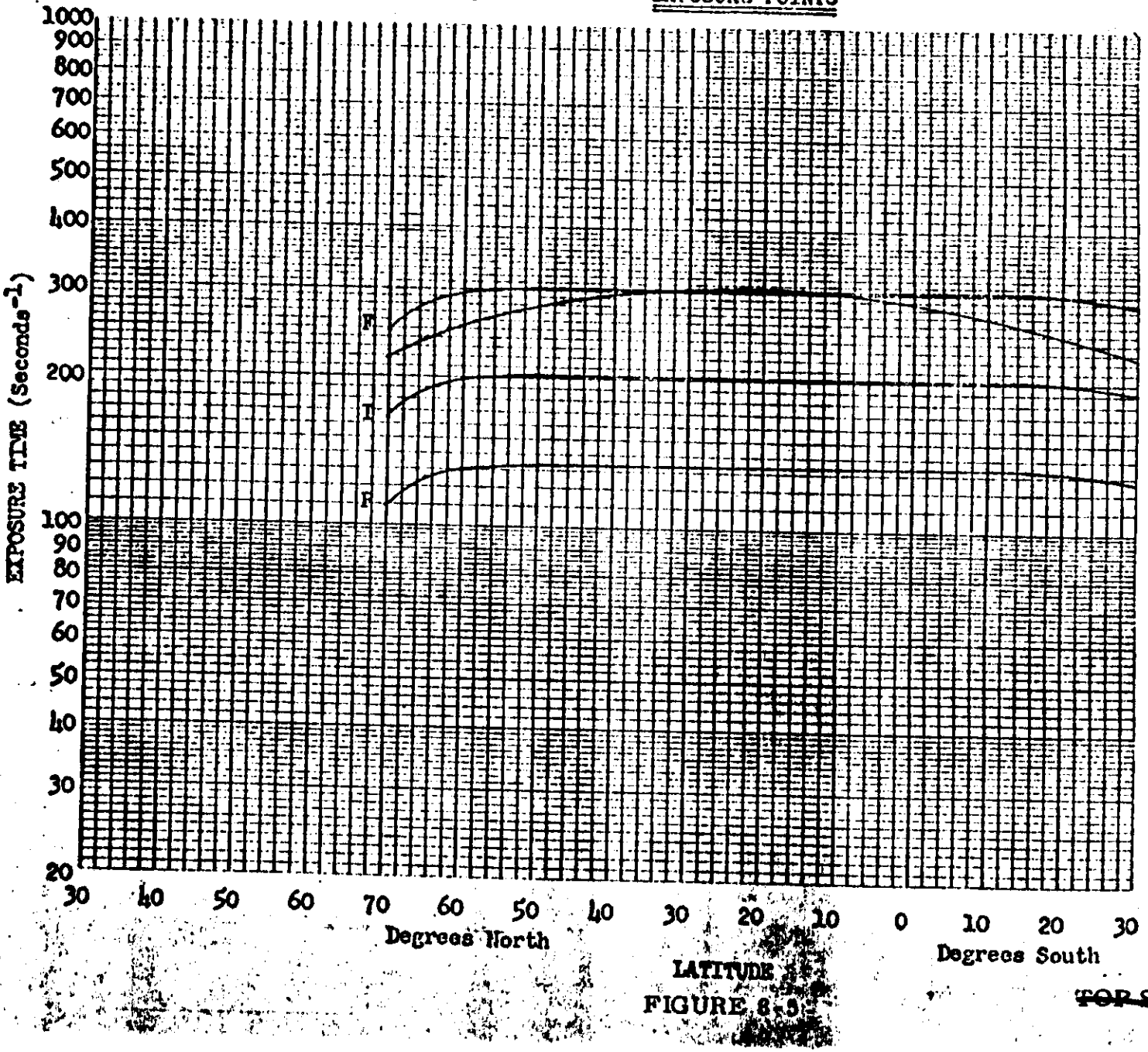


FIGURE 8-5

Mission No: 1023

Payload No: J-23

Camera No: 170

Pass No: 24

Launch Date: 8/17/65

Launch Time: 2100 Z

Slit Width: .225

Filter Type: Wratten 25

Film Type: 3404

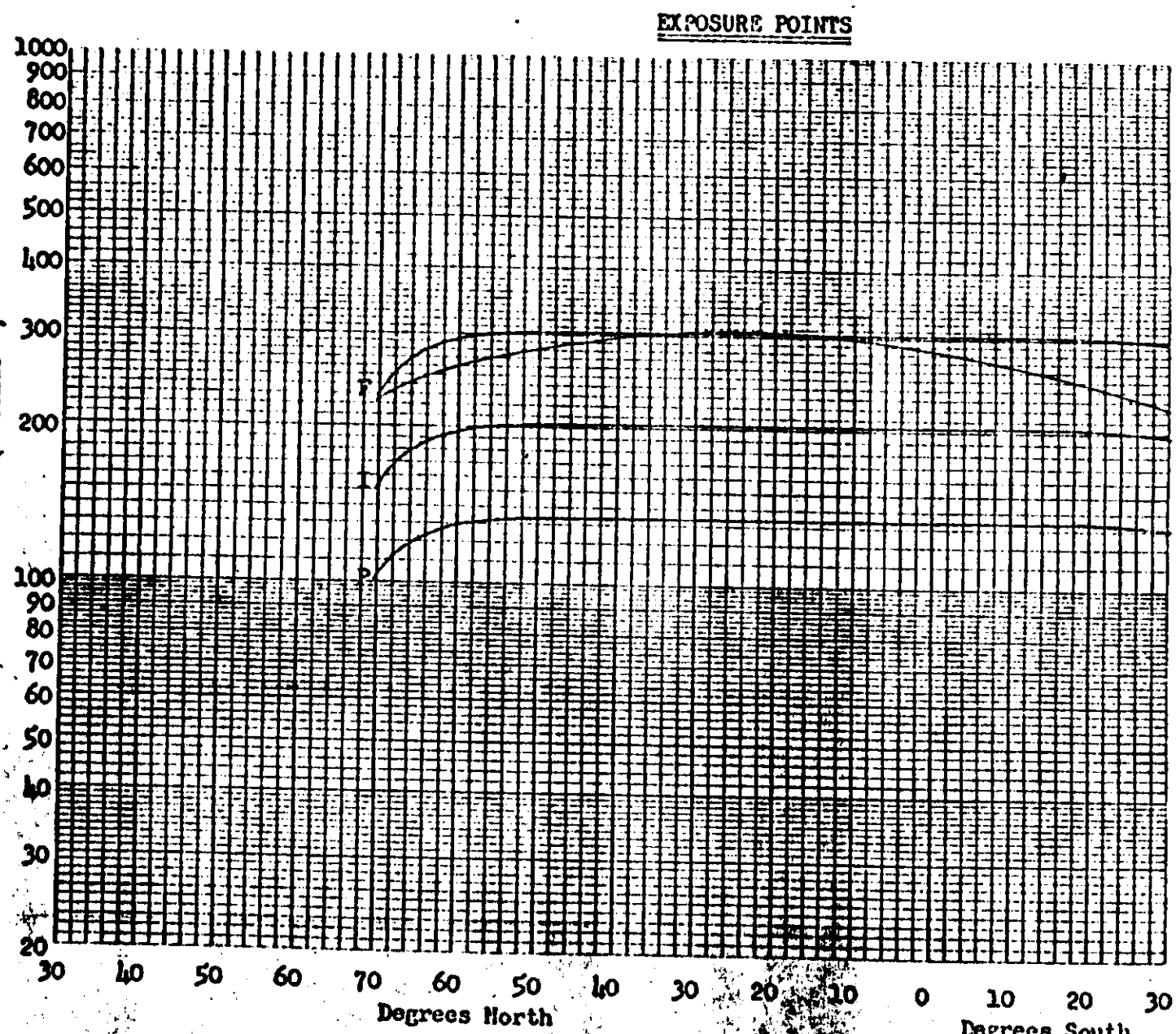


FIGURE 6-6

Mission No: 1023

Payload No: J-23

Camera No: 170

Pass No: 56

Launch Date: 8/17/65

Launch Time: 2100 Z

Slit Width: .225

Filter Type: Wratten 25

Film Type: 3404

EXPOSURE POINTS

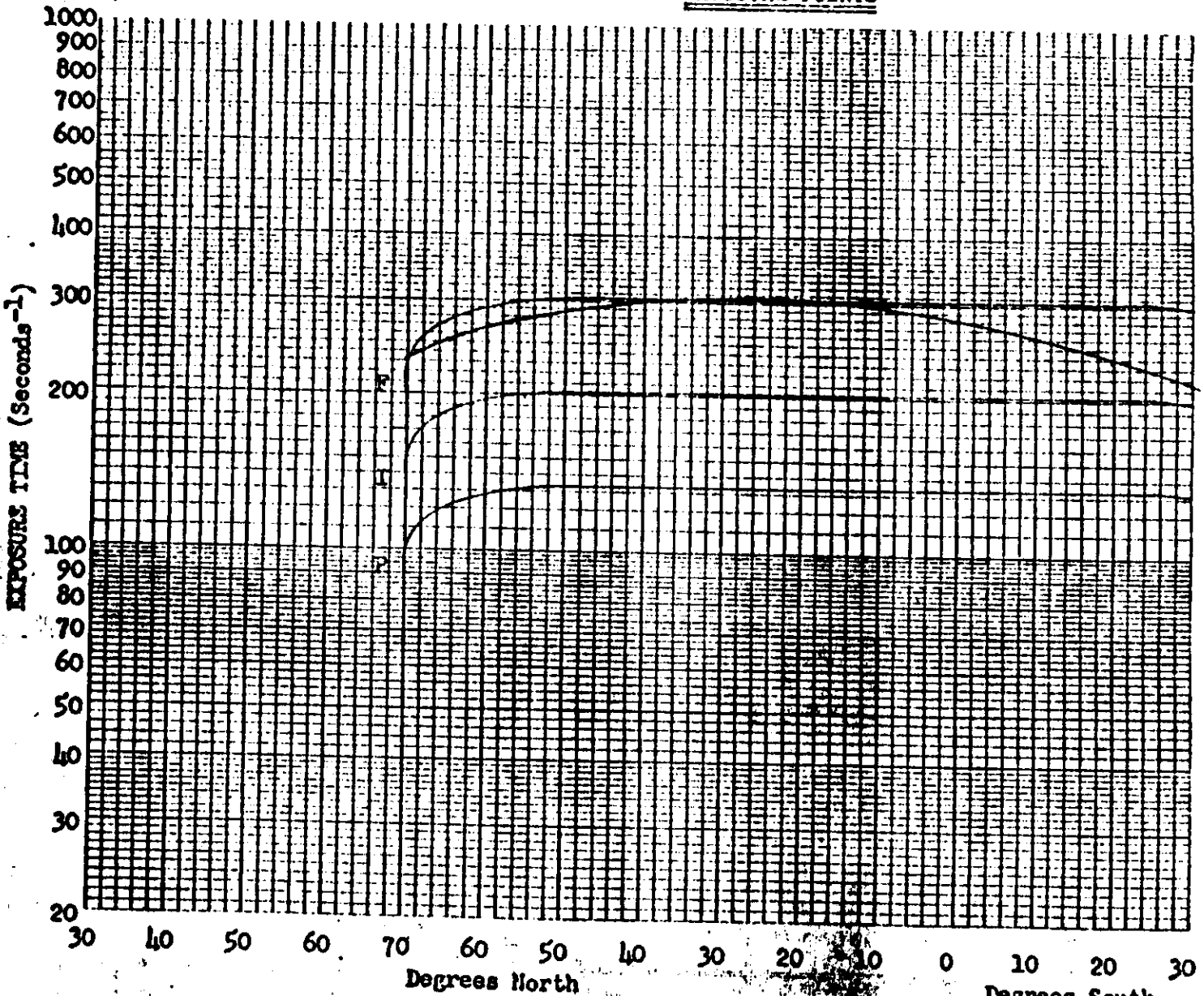


FIGURE 8-7

Mission No: 1023

Payload No: J-23

Camera No: 170

Pass No: 88

Launch Date: 8/17/65

Launch Time: 2100 Z

Slit Width: .225

Filter Type: Wratten 25

Film Type: 3404

TOP SECRET [redacted]

EXPOSURE POINTS

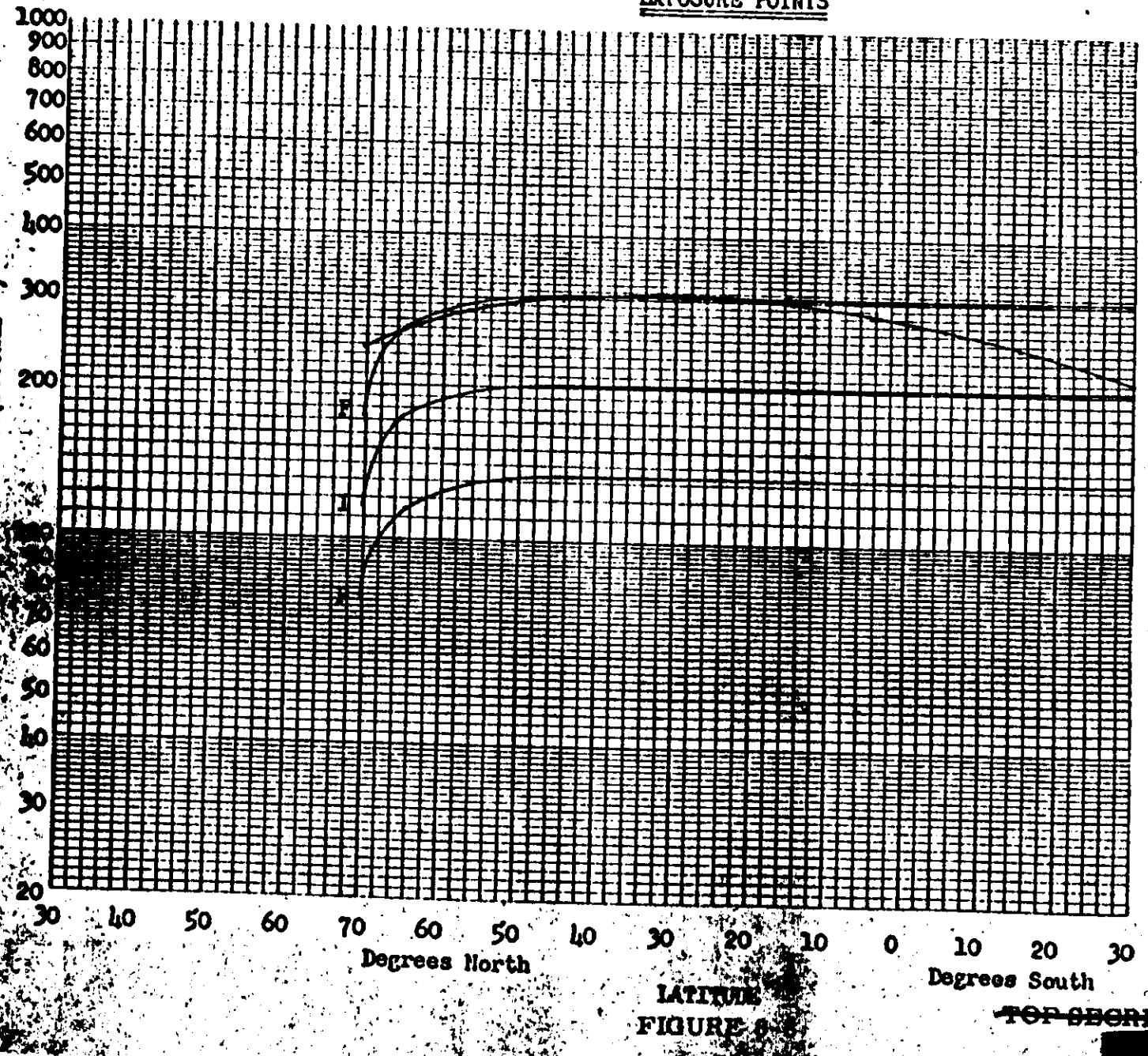


FIGURE 6

Mission No: 1023

Payload No: J-23

Camera No: 170

Pass No: 120

Launch Date: 8/17/65

Launch Time: 2100 Z

Slit Width: .225

Filter Type: Wratten 25

Film Type: 3404

TOP SECRET [redacted]

EXPOSURE POINTS

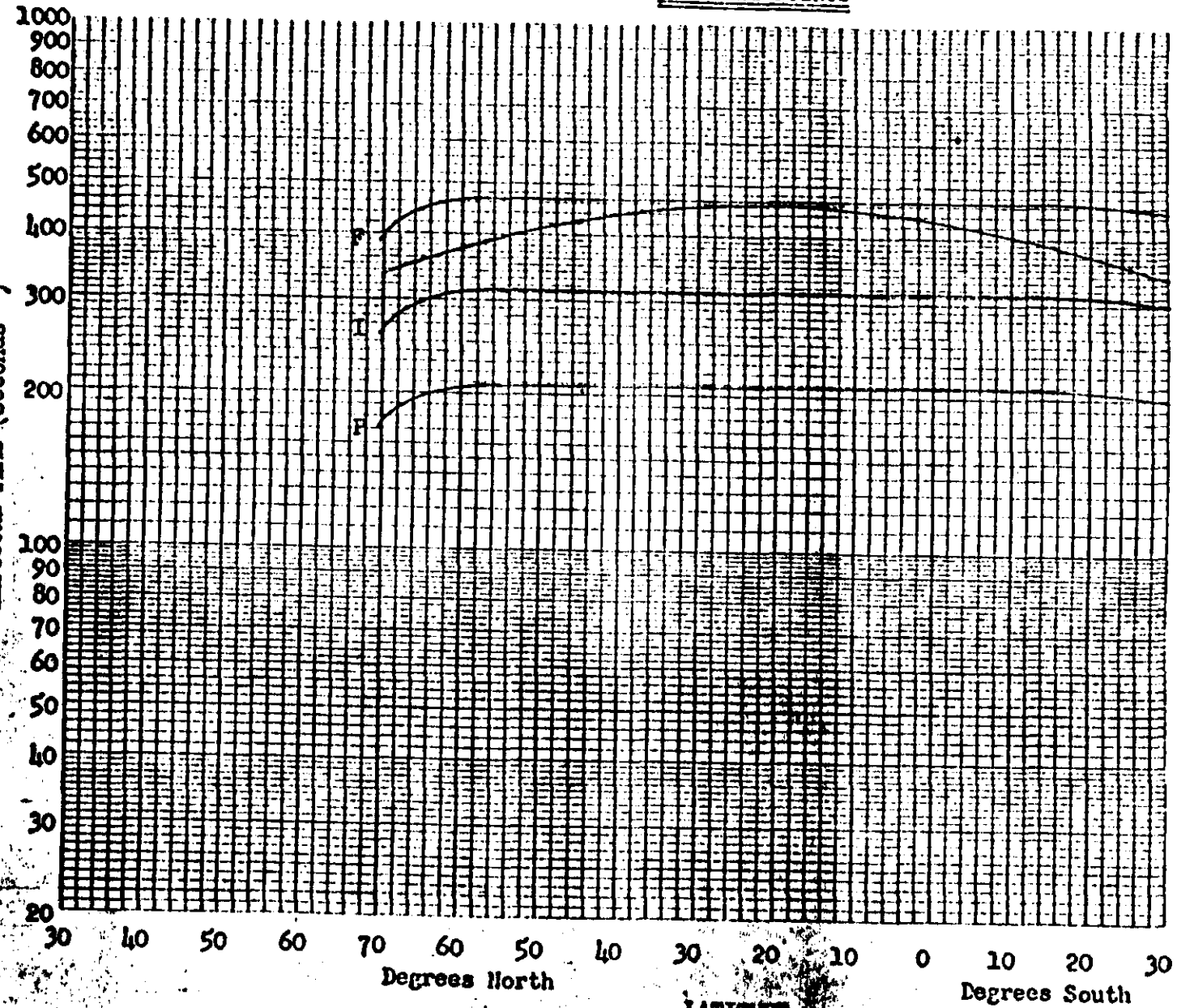


FIGURE 8-9

Mission No: 1023

Payload No: J-23

Camera No: 171

Pass No: 24

Launch Date: 8/17/65

Launch Time: 2100 Z

Slit Width: .150

Filter Type: Wratten 21

Film Type: 3404

EXPOSURE POINTS

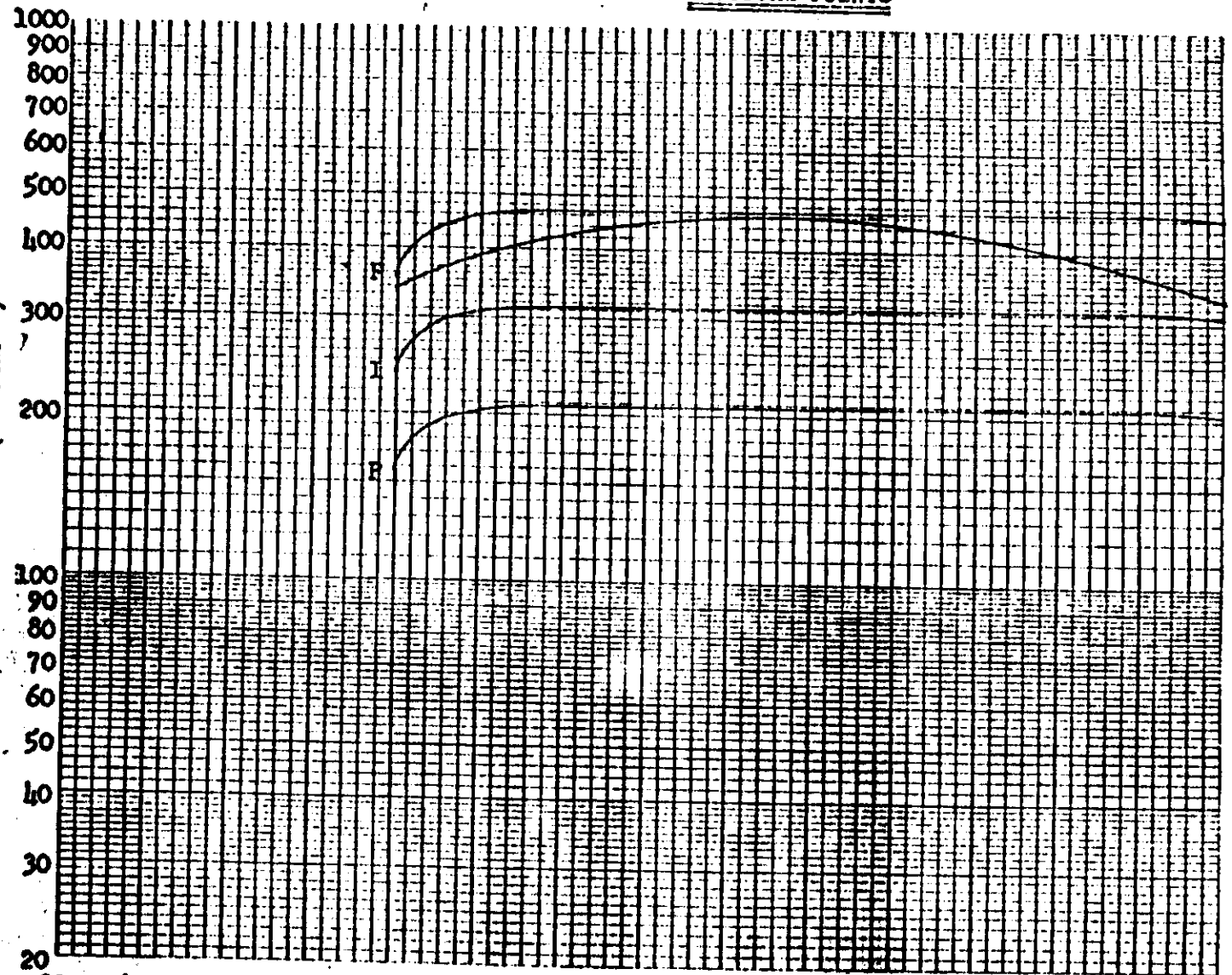


FIGURE 8-10

Mission No: 1023

Payload No: J-23

Camera No: 171

Pass No: 56

Launch Date: 8/17/65

Launch Time: 2100 Z

Slit Width: .150

Filter Type: Wratten 2

Film Type: 3404

EXPOSURE POINTS

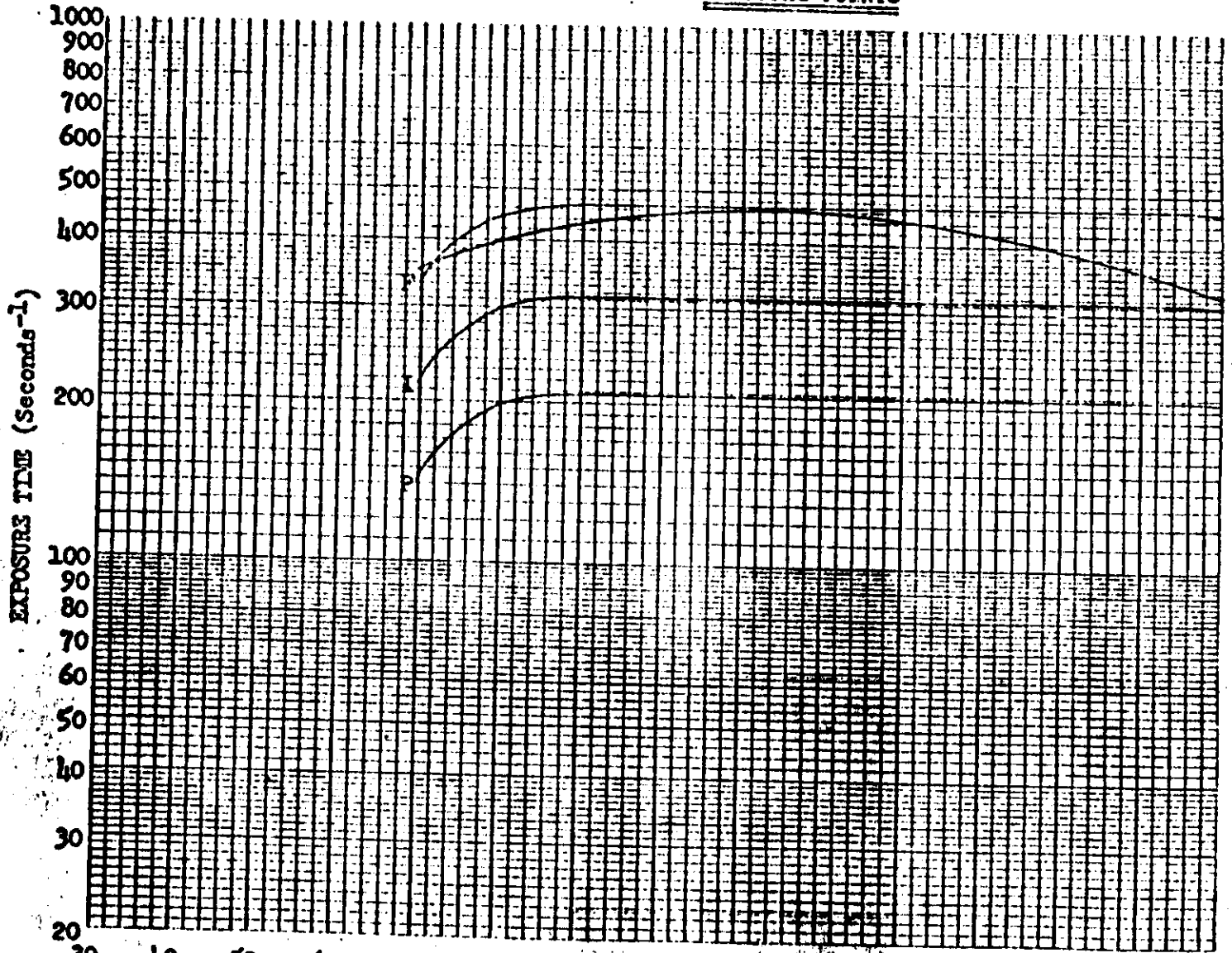


FIGURE 8-11

Mission No: 1023

Payload No: J-23

Camera No: 171

Pass No: 88

Launch Date: 8/17/65

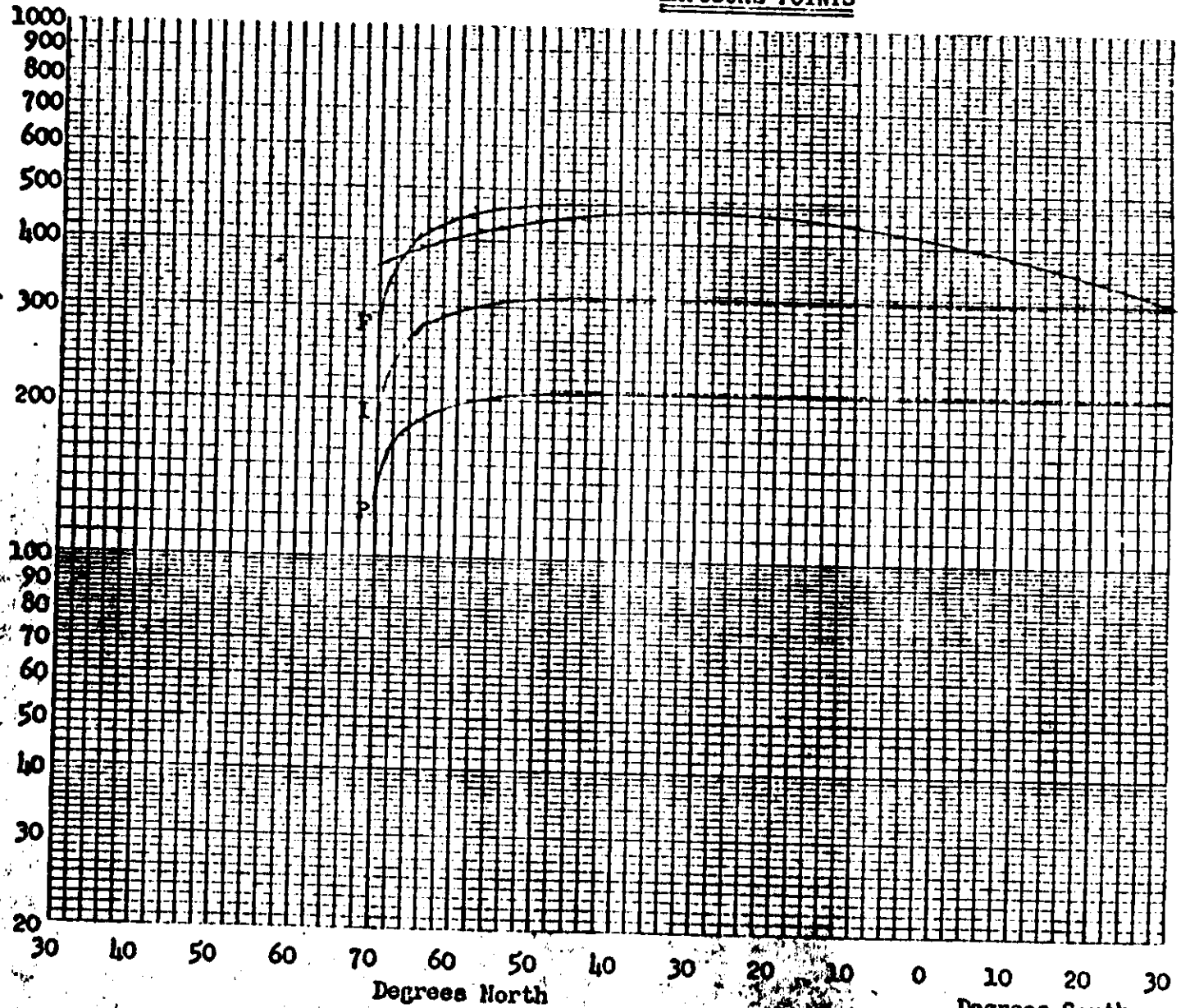
Launch Time: 2100 Z

Slit Width: .150

Filter Type: Wratten 21

Film Type: 3404

EXPOSURE POINTS



LATITUDE
FIGURE 8-12

Mission No: 1023

Payload No: J-23

Camera No: 171

Pass No: 120

Launch Date: 8/17/65

Launch Time: 2100 Z

Slit Width: .150

Filter Type: Wratten 23

Film Type: 3404

SECTION 9

DIFFUSE DENSITY MEASUREMENTS

AFSPPL measures the diffuse density of the original negative. Measurements are made of the minimum and maximum terrain density as well as the maximum density of clouds. This data is supplied to A/P in punched card form for further analysis. Also included on the cards are other general data such as illumination conditions, exposure time, location and distance to target. This data is now published in its entirety in the AFSPPL report hence will no longer be included in this report.

The diffuse density measurements made by AFSPPL were computer sorted at A/P to permit analysis of the density ranges encountered at the three processing levels. A study of sorting techniques showed that no absolute method was available to separate the density values as the accuracy of the Processing History published by [redacted] appears rather low and processing transition phases are not accounted for. The sorting technique selected uses the base plus fog density values where measurements up to 0.09 density are considered as having received Primary processing, 0.10 to 0.17 as Intermediate and above 0.17 density as Full. The percentage of original negative that was processed at each level, based on the computer sort, is tabulated below with the predicted and reported processing percentages.

Mission	Camera		Primary	Intermediate	Full
1023-1	FWD	Predicted	0	5	95
		Reported	19	54	27
		Computed	0	72	28
1023-1	AFT	Predicted	0	11	89
		Reported	0	39	61
		Computed	0	42	58
1023-2	FWD	Predicted	0	7	93
		Reported	0	19	81
		Computed	0	18	82
1023-2	AFT	Predicted	0	3	97
		Reported	0	34	66
		Computed	0	28	72

The correlation between the reported and computed percentages at the three processing levels is very good except for the FWD camera of Mission 1023-1. As previously noted, [redacted] reported an equipment malfunction which increased the intermediate percentage significantly.

The tabulations of density frequency distributions for Missions 1023-1 and 1023-2 are shown in Tables 9-1 through 9-4. The graphical presentation of the density distribution are computer plotted in Figures 9-1 through 9-36. Analysis of these plots and the associated mean and median density values show that no significant variation in density was present in Mission 1023-2.

Table 9-7 shows the distribution of the minimum terrain density measurements that are within and outside of the desired control range of 0.40 to 0.90 density. Excluding the FWD camera data from Mission 1023-1, approximately 95% of all minimum density values are above 0.30 density.

MISSION * 1023-1 * INSTRUMENT * FRWD * 12 06 65 * DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
0.01	0	0	0	0	0	0	0	0	0	0	0	0
0.02	0	0	0	0	0	0	0	0	0	0	0	0
0.03	0	0	0	0	0	0	0	0	0	0	0	0
0.04	0	0	0	0	0	0	0	0	0	0	0	0
0.05	0	0	0	0	0	0	0	0	0	0	0	0
0.06	0	0	0	0	0	0	0	0	0	0	0	0
0.07	0	0	0	0	0	0	0	0	0	0	0	0
0.08	0	0	0	0	0	0	0	0	0	0	0	0
0.09	0	0	0	0	0	0	0	0	0	0	0	0
0.10	0	0	0	0	0	0	0	0	0	0	0	0
0.11	0	0	0	0	0	0	0	0	0	0	0	0
0.12	0	0	0	0	0	0	0	0	0	0	0	0
0.13	0	0	0	0	0	0	0	0	0	0	0	0
0.14	0	0	0	0	0	0	0	0	0	0	0	0
0.15	0	0	0	0	0	0	0	0	0	1	0	0
0.16	0	0	0	0	0	0	0	0	0	0	0	0
0.17	0	0	0	0	0	0	0	0	0	0	0	0
0.18	0	0	0	0	0	0	0	0	0	3	0	0
0.19	0	0	0	0	0	0	0	0	0	0	0	0
0.20	0	0	0	0	0	0	1	0	0	6	0	0
0.21	0	0	0	0	0	0	0	0	0	6	0	0
0.22	0	0	0	0	0	0	0	0	0	7	0	0
0.23	0	0	0	0	0	0	0	0	0	8	0	0
0.24	0	0	0	0	0	0	0	0	0	1	0	0
0.25	0	0	0	1	0	0	0	0	0	11	0	0
0.26	0	0	0	0	0	0	2	0	0	9	0	0
0.27	0	0	0	5	0	0	1	0	0	7	0	0
0.28	0	0	0	3	0	0	1	0	0	4	0	0
0.29	0	0	0	9	0	0	1	0	0	10	0	0
0.30	0	0	0	11	0	0	3	0	0	14	0	0
0.31	0	0	0	2	0	0	5	0	0	7	0	0
0.32	0	0	0	6	0	0	8	0	0	14	0	0
0.33	0	0	0	10	0	0	4	0	0	14	0	0
0.34	0	0	0	2	0	0	7	0	0	9	0	0
0.35	0	0	0	13	0	0	0	0	0	13	0	0
0.36	0	0	0	5	0	0	5	0	0	10	0	0
0.37	0	0	0	4	0	0	4	0	0	9	0	0
0.38	0	0	0	4	0	0	0	0	0	4	0	0
0.39	0	0	0	4	0	0	8	0	0	12	0	0
0.40	0	0	0	2	0	0	3	0	0	5	0	0
0.41	0	0	0	5	0	0	3	0	0	6	0	0
0.42	0	0	0	5	0	0	2	0	0	7	0	0
0.43	0	0	0	2	0	0	1	0	0	2	0	0
0.44	0	0	0	2	0	0	1	0	0	3	0	0
0.45	0	0	0	2	0	0	1	0	0	3	0	0
0.46	0	0	0	2	0	0	1	0	0	3	0	0
0.47	0	0	0	2	0	0	1	0	0	3	0	0
0.48	0	0	0	3	0	0	0	0	0	3	0	0
0.49	0	0	0	4	0	0	0	0	0	4	0	0
0.50	0	0	0	4	0	0	0	0	0	4	0	0
SUBTOTAL	0	0	0	159	3	0	67	2	0	226	5	0

TABLE 9-1

MISSION • 1023-1 • INSTRUMENT • FRND • 13-06-65 • DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
0.51	0	0	0	4	1	0	1	0	0	5	1	0
0.52	0	0	0	2	0	0	0	0	0	2	0	0
0.53	0	0	0	4	0	0	0	0	0	4	0	0
0.54	0	0	0	0	2	0	0	0	0	2	2	0
0.55	0	0	0	2	1	0	0	1	0	2	3	0
0.56	0	0	0	2	1	0	0	1	0	2	3	0
0.57	0	0	0	2	1	0	0	1	0	2	3	0
0.58	0	0	0	1	0	0	0	0	0	1	0	0
0.59	0	0	0	0	3	0	0	0	0	0	3	0
0.60	0	0	0	0	3	0	0	0	0	0	3	0
0.61	0	0	0	0	2	0	1	0	0	1	2	0
0.62	0	0	0	2	1	0	0	1	0	2	2	0
0.63	0	0	0	3	0	0	0	1	0	3	1	0
0.64	0	0	0	1	1	0	0	0	0	1	1	0
0.65	0	0	0	1	0	0	0	0	0	1	0	0
0.66	0	0	0	0	1	0	0	0	0	0	1	0
0.67	0	0	0	1	0	0	0	0	0	1	0	0
0.68	0	0	0	0	0	0	0	0	0	0	0	0
0.69	0	0	0	0	0	0	0	0	0	0	0	0
0.70	0	0	0	0	0	0	0	0	0	0	0	0
0.71	0	0	0	1	0	0	0	0	0	1	0	0
0.72	0	0	0	0	1	0	0	0	0	0	1	0
0.73	0	0	0	0	0	0	0	0	0	0	0	0
0.74	0	0	0	0	0	0	0	0	0	0	0	0
0.75	0	0	0	0	1	0	0	0	0	0	1	0
0.76	0	0	0	0	0	0	0	0	0	0	0	0
0.77	0	0	0	0	0	0	0	0	0	0	0	0
0.78	0	0	0	0	1	0	0	0	0	0	1	0
0.79	0	0	0	0	0	0	0	0	0	0	0	0
0.80	0	0	0	0	2	0	0	0	0	0	2	0
0.81	0	0	0	1	0	0	0	1	0	1	0	0
0.82	0	0	0	0	1	0	0	0	0	0	1	0
0.83	0	0	0	0	0	0	0	0	0	0	0	0
0.84	0	0	0	0	1	0	0	0	0	0	1	0
0.85	0	0	0	1	0	0	0	0	0	1	0	0
0.86	0	0	0	0	2	0	0	0	0	0	2	0
0.87	0	0	0	0	2	0	0	1	0	0	2	0
0.88	0	0	0	0	1	0	0	0	0	0	1	0
0.89	0	0	0	0	2	0	0	0	0	0	2	0
0.90	0	0	0	0	2	0	0	1	0	0	2	0
0.91	0	0	0	0	1	0	0	1	0	0	2	0
0.92	0	0	0	1	0	0	0	0	0	1	0	0
0.93	0	0	0	0	1	0	0	0	0	0	1	0
0.94	0	0	0	0	0	0	0	2	0	0	2	0
0.95	0	0	0	0	1	0	0	1	0	0	2	0
0.96	0	0	0	0	0	0	0	1	0	0	1	0
0.97	0	0	0	1	0	0	0	0	0	1	0	0
0.98	0	0	0	0	1	0	0	0	0	0	1	0
0.99	0	0	0	0	0	0	0	0	0	0	0	0
1.00	0	0	0	0	7	0	0	0	0	0	7	0
SUBTOTAL	0	0	0	30	56	0	11	18	1	49	74	1

TABLE 9-1

MISSION • 1023-1 [illegible] INSTRUMENT • FRND [illegible] DENSITY FREQ DIST

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
1.01	0	0	0	0	2	0	0	1	0	0	3	0
1.02	0	0	0	1	1	0	0	1	0	1	1	0
1.03	0	0	0	0	2	0	0	0	1	0	2	0
1.04	0	0	0	0	1	0	0	1	2	0	1	0
1.05	0	0	0	0	1	0	0	2	0	0	3	0
1.06	0	0	0	0	1	0	0	0	3	0	1	0
1.07	0	0	0	0	1	1	0	3	1	0	4	0
1.08	0	0	0	0	1	2	0	1	3	0	3	0
1.09	0	0	0	0	0	3	0	1	4	0	4	0
1.10	0	0	0	0	2	3	0	1	3	0	5	0
1.11	0	0	0	0	0	3	0	0	0	0	3	0
1.12	0	0	0	0	0	3	0	0	0	0	3	0
1.13	0	0	0	0	0	3	0	0	0	0	4	0
1.14	0	0	0	0	0	3	0	0	0	0	4	0
1.15	0	0	0	0	0	3	0	0	0	0	4	0
1.16	0	0	0	0	0	3	0	0	0	0	4	0
1.17	0	0	0	0	0	3	0	0	0	0	4	0
1.18	0	0	0	0	0	3	0	0	0	0	4	0
1.19	0	0	0	0	0	3	0	0	0	0	4	0
1.20	0	0	0	0	0	3	0	0	0	0	4	0
1.21	0	0	0	0	0	3	0	0	0	0	4	0
1.22	0	0	0	0	0	3	0	0	0	0	4	0
1.23	0	0	0	0	0	3	0	0	0	0	4	0
1.24	0	0	0	0	0	3	0	0	0	0	4	0
1.25	0	0	0	0	0	3	0	0	0	0	4	0
1.26	0	0	0	0	0	3	0	0	0	0	4	0
1.27	0	0	0	0	0	3	0	0	0	0	4	0
1.28	0	0	0	0	0	3	0	0	0	0	4	0
1.29	0	0	0	0	0	3	0	0	0	0	4	0
1.30	0	0	0	0	0	3	0	0	0	0	4	0
1.31	0	0	0	0	0	3	0	0	0	0	4	0
1.32	0	0	0	0	0	3	0	0	0	0	4	0
1.33	0	0	0	0	0	3	0	0	0	0	4	0
1.34	0	0	0	0	0	3	0	0	0	0	4	0
1.35	0	0	0	0	0	3	0	0	0	0	4	0
1.36	0	0	0	0	0	3	0	0	0	0	4	0
1.37	0	0	0	0	0	3	0	0	0	0	4	0
1.38	0	0	0	0	0	3	0	0	0	0	4	0
1.39	0	0	0	0	0	3	0	0	0	0	4	0
1.40	0	0	0	0	0	3	0	0	0	0	4	0
1.41	0	0	0	0	0	3	0	0	0	0	4	0
1.42	0	0	0	0	0	3	0	0	0	0	4	0
1.43	0	0	0	0	0	3	0	0	0	0	4	0
1.44	0	0	0	0	0	3	0	0	0	0	4	0
1.45	0	0	0	0	0	3	0	0	0	0	4	0
1.46	0	0	0	0	0	3	0	0	0	0	4	0
1.47	0	0	0	0	0	3	0	0	0	0	4	0
1.48	0	0	0	0	0	3	0	0	0	0	4	0
1.49	0	0	0	0	0	3	0	0	0	0	4	0
1.50	0	0	0	0	0	3	0	0	0	0	4	0
SUBTOTAL	0	0	0	3	104	5	0	40	1	3	144	6

TABLE 9-1

MISSION • 1023-1 • INSTRUMENT • FRWD 12-DC-65 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM.	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
1.51	0	0	0	0	3	0	0	0	0	0	3	0
1.52	0	0	0	0	0	0	0	0	0	0	0	0
1.53	0	0	0	0	4	0	0	0	0	0	4	0
1.54	0	0	0	0	1	0	0	1	0	0	1	0
1.55	0	0	0	0	1	0	0	0	0	0	1	0
1.56	0	0	0	0	1	0	0	1	0	0	1	0
1.57	0	0	0	0	0	0	0	0	0	0	0	0
1.58	0	0	0	0	2	0	0	2	0	0	2	0
1.59	0	0	0	0	0	0	0	0	0	0	0	0
1.60	0	0	0	0	2	0	0	2	0	0	2	0
1.61	0	0	0	0	0	0	0	0	0	0	0	0
1.62	0	0	0	0	1	0	0	0	0	0	1	0
1.63	0	0	0	0	0	0	0	0	0	0	0	0
1.64	0	0	0	0	1	0	0	1	0	0	1	0
1.65	0	0	0	0	0	0	0	0	0	0	0	0
1.66	0	0	0	0	1	0	0	2	0	0	2	0
1.67	0	0	0	0	0	0	0	0	0	0	0	0
1.68	0	0	0	0	1	0	0	0	0	0	1	0
1.69	0	0	0	0	0	0	0	0	0	0	0	0
1.70	0	0	0	0	2	0	0	3	0	0	4	0
1.71	0	0	0	0	1	0	0	1	0	0	1	0
1.72	0	0	0	0	0	0	0	0	0	0	0	0
1.73	0	0	0	0	3	0	0	0	0	0	3	0
1.74	0	0	0	0	0	0	0	0	0	0	0	0
1.75	0	0	0	0	3	0	0	0	0	0	3	0
1.76	0	0	0	0	0	0	0	0	0	0	0	0
1.77	0	0	0	0	0	0	0	0	0	0	0	0
1.78	0	0	0	0	1	0	0	0	0	0	1	0
1.79	0	0	0	0	0	0	0	0	0	0	0	0
1.80	0	0	0	0	1	0	0	0	0	0	1	0
1.81	0	0	0	0	0	0	0	0	0	0	0	0
1.82	0	0	0	0	1	0	0	0	0	0	1	0
1.83	0	0	0	0	0	0	0	0	0	0	0	0
1.84	0	0	0	0	2	0	0	0	0	0	2	0
1.85	0	0	0	0	0	0	0	0	0	0	0	0
1.86	0	0	0	0	2	0	0	0	0	0	2	0
1.87	0	0	0	0	0	0	0	0	0	0	0	0
1.88	0	0	0	0	1	0	0	0	0	0	1	0
1.89	0	0	0	0	0	0	0	0	0	0	0	0
1.90	0	0	0	0	1	0	0	0	0	0	1	0
1.91	0	0	0	0	0	0	0	0	0	0	0	0
1.92	0	0	0	0	1	0	0	0	0	0	1	0
1.93	0	0	0	0	0	0	0	0	0	0	0	0
1.94	0	0	0	0	1	0	0	0	0	0	1	0
1.95	0	0	0	0	0	0	0	0	0	0	0	0
1.96	0	0	0	0	1	0	0	0	0	0	1	0
1.97	0	0	0	0	0	0	0	0	0	0	0	0
1.98	0	0	0	0	0	0	0	0	0	0	0	0
1.99	0	0	0	0	0	0	0	0	0	0	0	0
2.00	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	30	59	0	17	15	0	47	74

TABLE 9-1

[redacted]

MISSION • 1023-1 • INSTRUMENT • FRWD 12-06-65 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
2.01	0	0	0	0	1	3	0	0	1	0	1	4
2.02	0	0	0	0	1	2	0	0	2	0	1	4
2.03	0	0	0	0	0	1	0	0	1	0	0	2
2.04	0	0	0	0	0	3	0	0	0	0	0	3
2.05	0	0	0	0	0	3	0	0	1	0	0	4
2.06	0	0	0	0	0	3	0	0	1	0	0	4
2.07	0	0	0	0	0	1	0	0	1	0	0	2
2.08	0	0	0	0	0	4	0	0	1	0	0	5
2.09	0	0	0	0	0	4	0	0	0	0	0	4
2.10	0	0	0	0	0	9	0	0	3	0	0	12
2.11	0	0	0	0	0	6	0	0	2	0	0	8
2.12	0	0	0	0	0	5	0	0	1	0	0	6
2.13	0	0	0	0	0	5	0	0	1	0	0	6
2.14	0	0	0	0	0	5	0	0	1	0	0	6
2.15	0	0	0	0	0	5	0	0	1	0	0	6
2.16	0	0	0	0	0	5	0	0	4	0	0	9
2.17	0	0	0	0	0	3	0	0	1	0	0	4
2.18	0	0	0	0	0	4	0	0	5	0	0	9
2.19	0	0	0	0	0	2	0	0	0	0	0	2
2.20	0	0	0	0	0	3	0	0	3	0	0	7
2.21	0	0	0	0	0	3	0	0	4	0	0	7
2.22	0	0	0	0	0	5	0	0	2	0	0	7
2.23	0	0	0	0	0	4	0	0	0	0	0	4
2.24	0	0	0	0	0	5	0	0	1	0	0	6
2.25	0	0	0	0	0	1	0	0	3	0	0	4
2.26	0	0	0	0	0	4	0	0	2	0	0	6
2.27	0	0	0	0	0	3	0	0	1	0	0	4
2.28	0	0	0	0	0	2	0	0	4	0	0	6
2.29	0	0	0	0	0	2	0	0	2	0	0	4
2.30	0	0	0	0	0	1	0	0	4	0	0	5
2.31	0	0	0	0	0	1	0	0	1	0	0	2
2.32	0	0	0	0	0	0	0	0	0	0	0	0
2.33	0	0	0	0	0	0	0	0	1	0	0	1
2.34	0	0	0	0	0	1	0	0	1	0	0	2
2.35	0	0	0	0	0	1	0	0	0	0	0	1
2.36	0	0	0	0	0	1	0	0	1	0	0	2
2.37	0	0	0	0	0	0	0	0	0	0	0	0
2.38	0	0	0	0	0	1	0	0	0	0	0	1
2.39	0	0	0	0	0	1	0	0	0	0	0	1
2.40	0	0	0	0	0	1	0	0	0	0	0	1
2.41	0	0	0	0	0	1	0	0	0	0	0	1
2.42	0	0	0	0	0	0	0	0	0	0	0	0
2.43	0	0	0	0	0	0	0	0	0	0	0	0
2.44	0	0	0	0	0	0	0	0	0	0	0	0
2.45	0	0	0	0	0	0	0	0	0	0	0	0
2.46	0	0	0	0	0	0	0	0	0	0	0	0
2.47	0	0	0	0	0	0	0	0	0	0	0	0
2.48	0	0	0	0	0	0	0	0	0	0	0	0
2.49	0	0	0	0	0	0	0	0	0	0	0	0
2.50	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	7	113	0	1	60	0	8	173

[redacted]

TABLE 9-1

[redacted]

MISSION • 1023-1 • INSTRUMENT • FRWD • 12-06-65 • DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
2.51	0	0	0	0	0	0	0	0	0	0	0	0
2.52	0	0	0	0	0	0	0	0	0	0	0	0
2.53	0	0	0	0	0	0	0	0	0	0	0	0
2.54	0	0	0	0	0	0	0	0	0	0	0	0
2.55	0	0	0	0	0	0	0	0	0	0	0	0
2.56	0	0	0	0	0	0	0	0	0	0	0	0
2.57	0	0	0	0	0	0	0	0	0	0	0	0
2.58	0	0	0	0	0	0	0	0	0	0	0	0
2.59	0	0	0	0	0	0	0	0	0	0	0	0
2.60	0	0	0	0	0	0	0	0	0	0	0	0
2.61	0	0	0	0	0	0	0	0	0	0	0	0
2.62	0	0	0	0	0	0	0	0	0	0	0	0
2.63	0	0	0	0	0	0	0	0	0	0	0	0
2.64	0	0	0	0	0	0	0	0	0	0	0	0
2.65	0	0	0	0	0	0	0	0	0	0	0	0
2.66	0	0	0	0	0	0	0	0	0	0	0	0
2.67	0	0	0	0	0	0	0	0	0	0	0	0
2.68	0	0	0	0	0	0	0	0	0	0	0	0
2.69	0	0	0	0	0	0	0	0	0	0	0	0
2.70	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	200	200	177	78	78	77	278	278	254

MISSION 1023-1 INSTR - FRWD 12-06-65 PROCESSING AND EXPOSURE ANALYSIS

PROCESS LEVEL	SAMPLE SIZE	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0	0 PC	0 PC	0 PC	0 PC	0 PC
INTERMEDIATE	200	4 PC	60 PC	32 PC	2 PC	0 PC
FULL	78	60 PC	0 PC	38 PC	1 PC	0 PC
ALL LEVELS	278	20 PC	44 PC	34 PC	2 PC	0 PC

PROCESS LEVEL	BASE + FOG	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0.01-0.09	0.01-0.13	0.14-0.39	0.40-0.90	---------	0.91 AND UP
INTERMED	0.10-0.17	0.01-0.20	0.21-0.39	0.40-0.90	0.91-1.34	1.35 AND UP
FULL	0.18 AND UP	0.01-0.39	---------	0.40-0.90	0.91-1.69	1.70 AND UP

[redacted]

TABLE 9-1

MISSION • 1023-1 • INSTR • FRWD • 12-06-65 PLOT OF D MIN • TERRAIN • PROCESSING • INTERMEDIATE

ARITH MEAN • 0.39 • MEDIAN • 0.35 • STD DEV • 0.18 • RANGE • 0.15 TO 1.26 WITH 200 SAMPLES

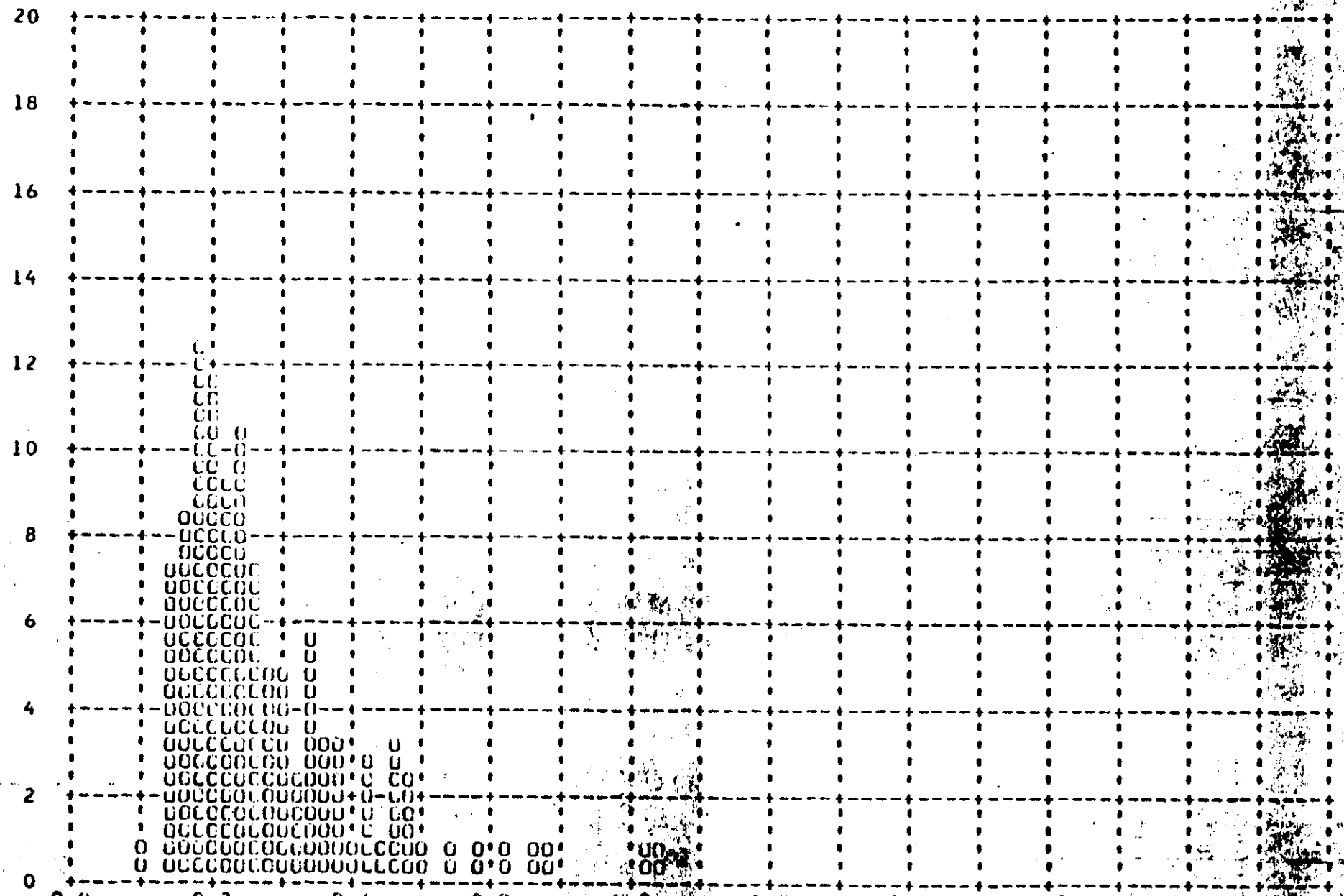


FIGURE 9-1

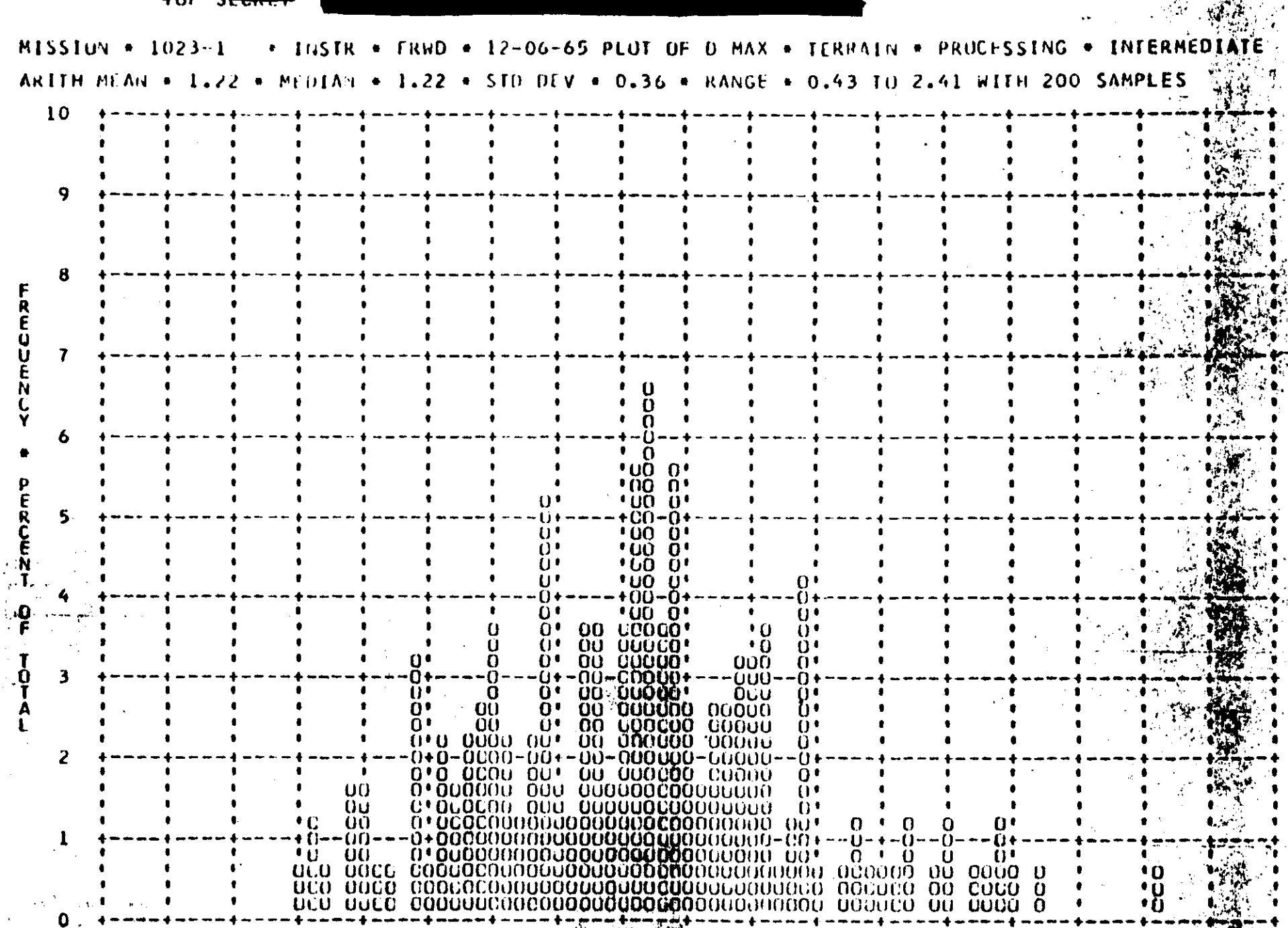

MISSION • 1023-1 • INSTR • FRWD • 12-06-65 PLOT OF D MAX • TERRAIN • PROCESSING • INTERMEDIATE
ARITH MEAN • 1.22 • MEDIAN • 1.22 • STD DEV • 0.36 • RANGE • 0.43 TO 2.41 WITH 200 SAMPLES
FREQUENCY • PERCENT OF TOTAL
10
9
8
7
6
5
4
3
2
1
0
0.0
0.3
0.6
0.9
1.2
1.5
1.8
2.1
2.4
• DENSITY •

FIGURE 9-2

MISSION • 1023-1 • INSTR • FRWD • 12-06-65 PLOT OF D MAX • CLOUD • PROCESSING • INTERMEDIATE

ARITH MEAN • 2.03 • MEDIAN • 2.10 • STD DEV • 0.22 • RANGE • 1.20 TO 2.41 WITH 177 SAMPLES

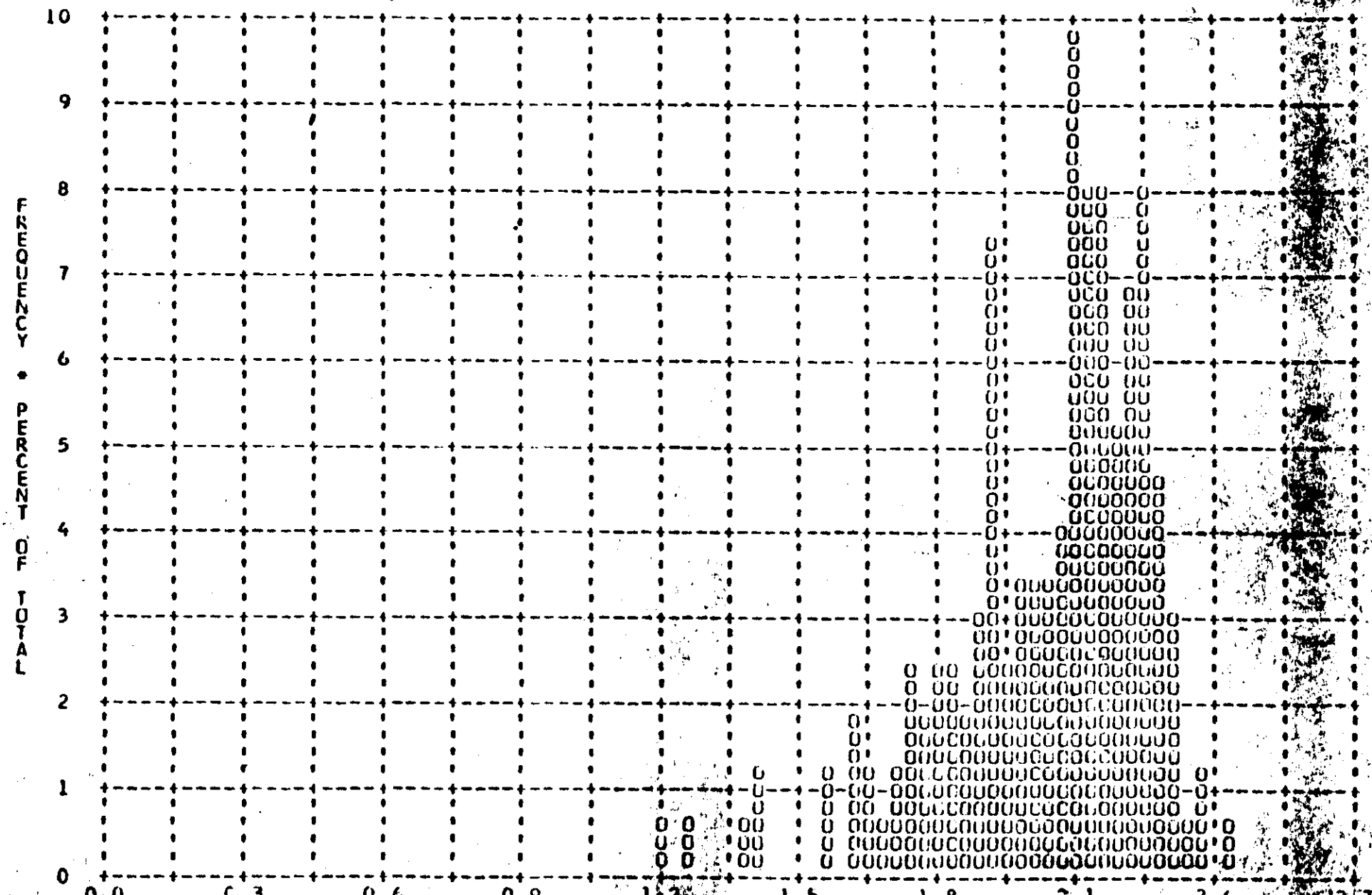


FIGURE 9-3

NISSION • 1023-1 • INSTR • FRWD • 12-06-65 PLOT OF L MIN • TERRAIN • PROCESSING • FULL

ARITH MEAN • 0.40 • MEDIAN • 0.37 • STD DEV • 0.12 • RANGE • 0.20 TO 0.91 WITH 78 SAMPLES

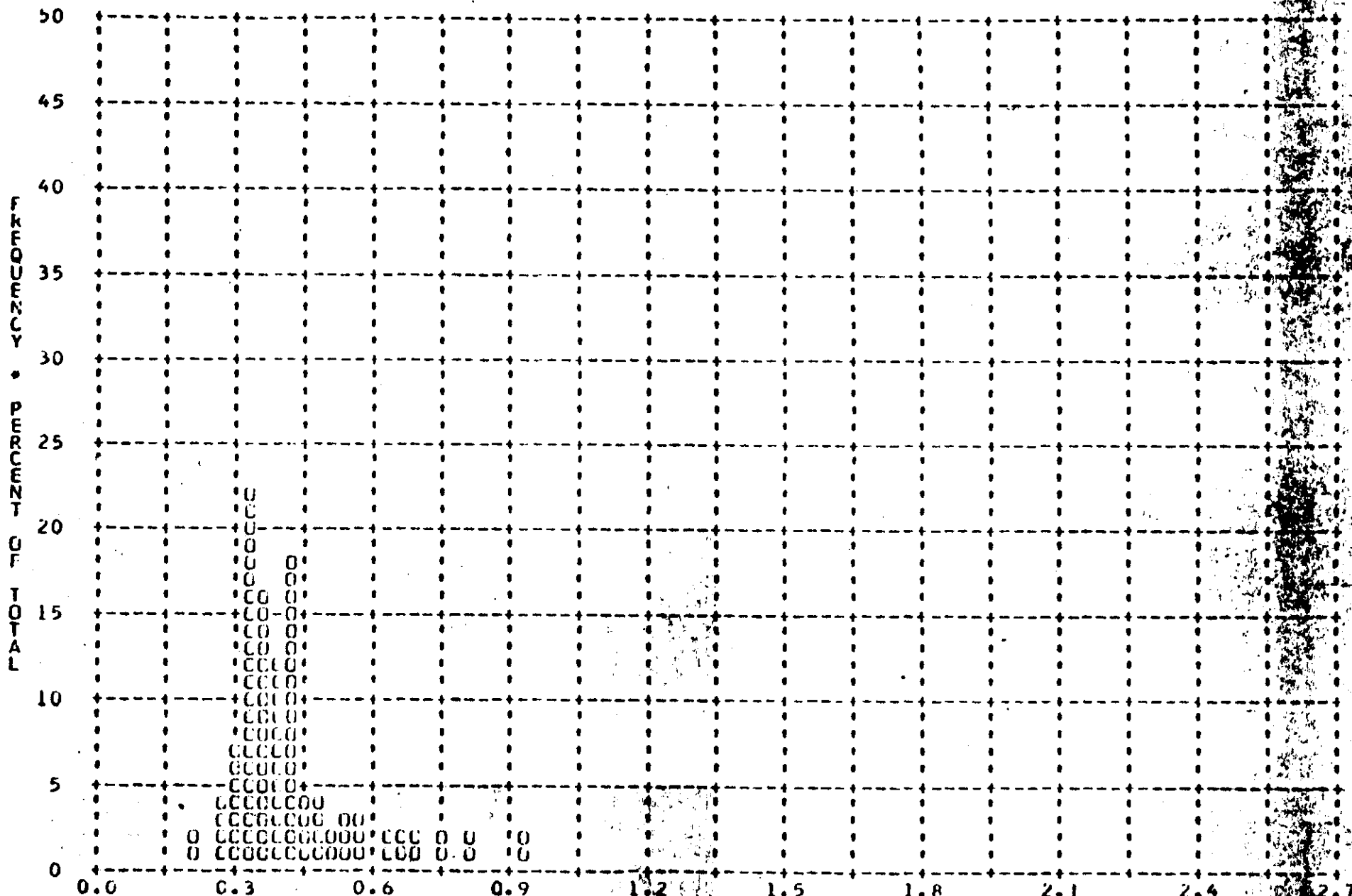


FIGURE 9-4

MISSION • 1023-1 • INSTR • FRWD • 12-06-65 PLOT OF D MAX • TERRAIN • PROCESSING • FULL

ARITH MEAN • 1.22 • MEDIAN • 1.18 • STD DEV • 0.36 • RANGE • 0.43 TO 2.12 WITH 78 SAMPLES

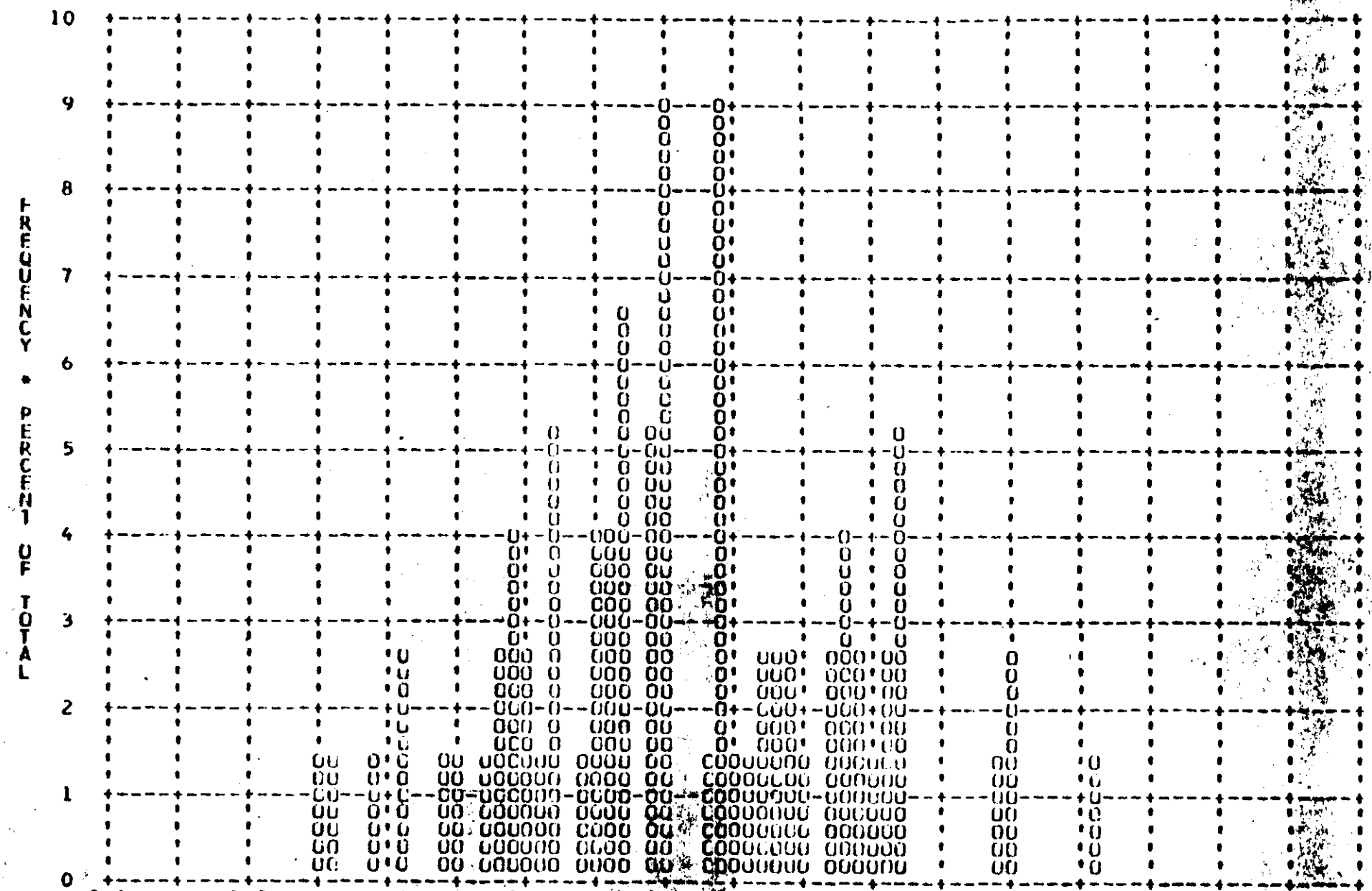


FIGURE 9-5

[redacted]

MISSION • 1023-1 • INSTR • FRWD • 12-06-65 PLOT OF D MAX • CLOUD • PROCESSING • FULL

ARITH MEAN • 2.12 • MEDIAN • 2.18 • STD DEV • 0.22 • RANGE • 0.87 TO 2.39 WITH 77 SAMPLES

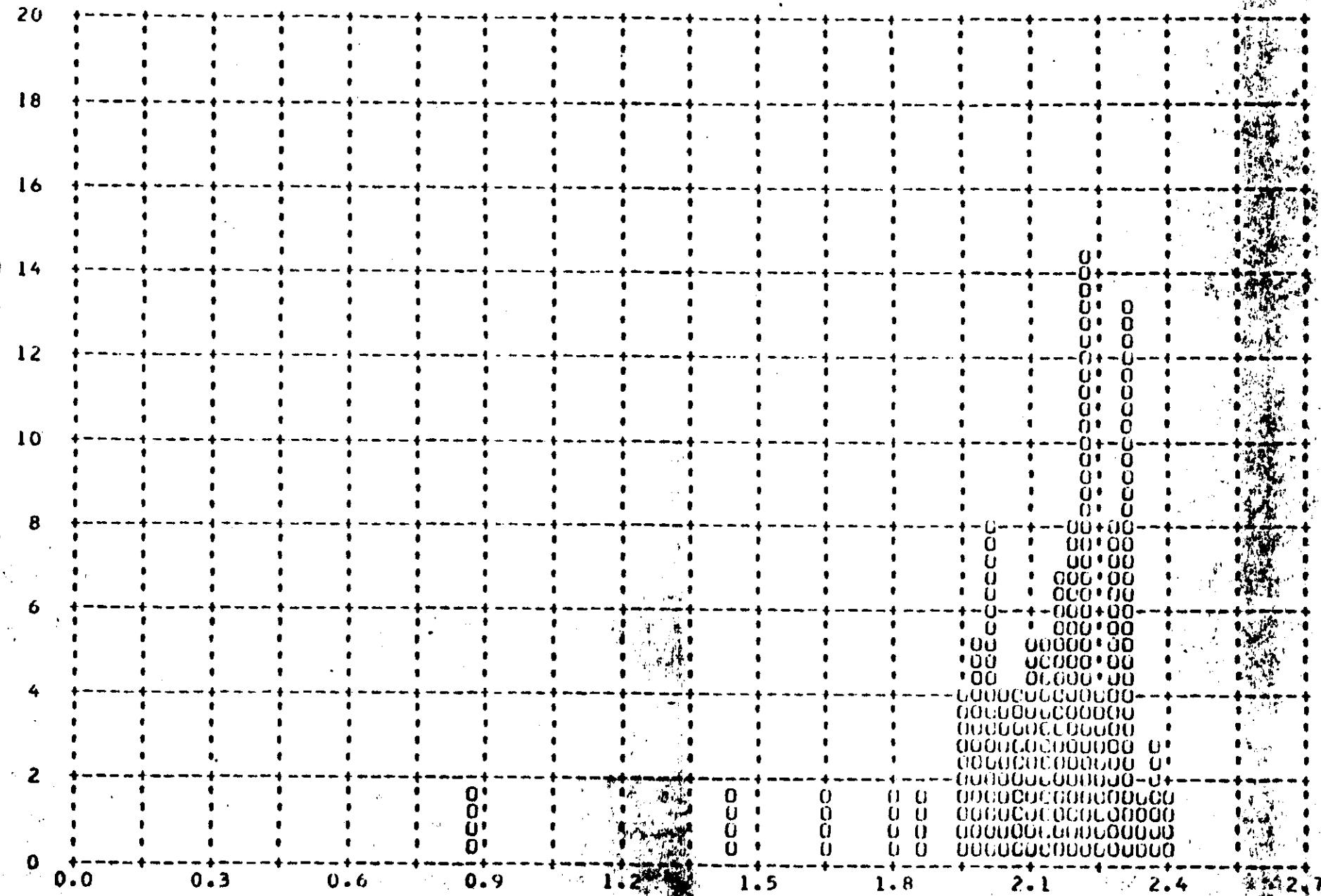


FIGURE 9-6

[redacted]

MISSION • 1023-1 • INSTR • FRWD • 12-06-65 PLOT OF D MIN • TERRAIN • PROCESSING • ALL LEVELS

ARITH MEAN • 0.39 • MEDIAN • 0.35 • STD DEV • 0.17 • RANGE • 0.15 TO 1.26 WITH 278 SAMPLES

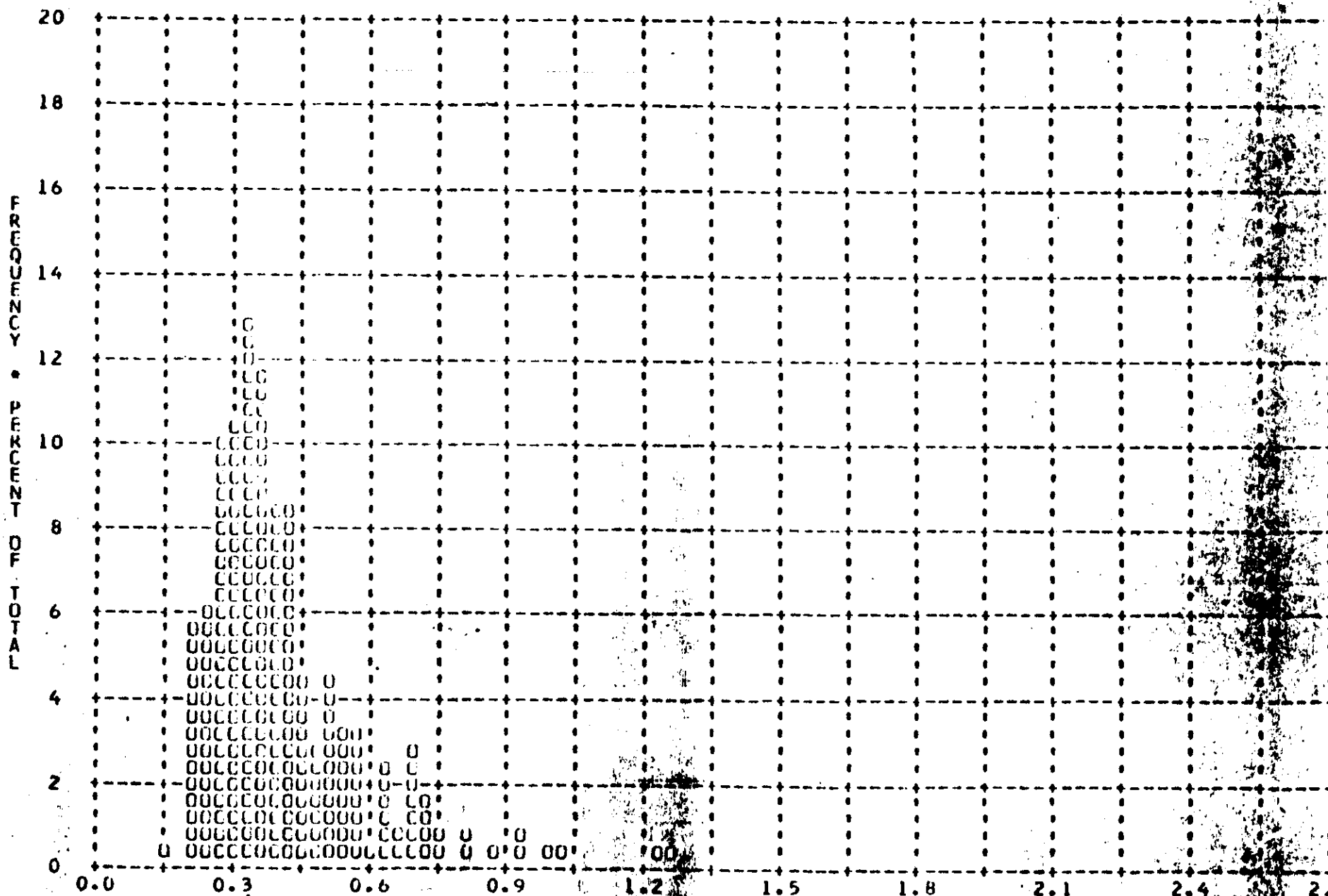


FIGURE 9-7

MISSION • 1023-1 • INSTR • FWD • 12-06-65 PLOT OF D MAX • TERRAIN • PROCESSING • ALL LEVELS

ARITH MEAN • 1.22 • MEDIAN • 1.22 • STD DEV • 0.36 • RANGE • 0.43 TO 2.41 WITH 278 SAMPLES

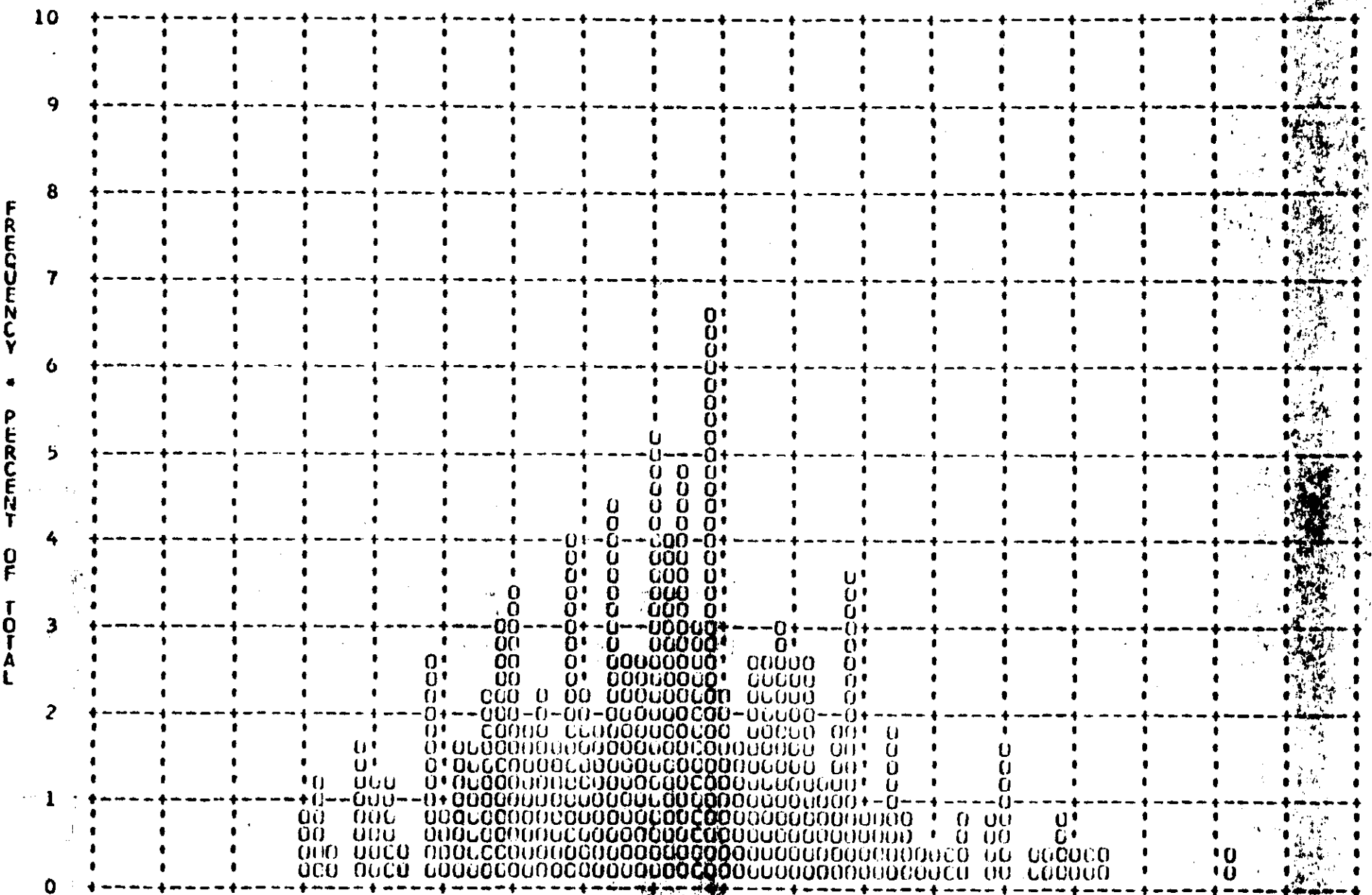


FIGURE 9-8

MISSION • 1023-1 • INSTR • FRWD • 12-06-65 PLOT OF D MAX • CLOUD • PROCESSING • ALL LEVELS

ARITH MEAN • 2.06 • MEDIAN • 2.11 • STD DEV • 0.22 • RANGE • 0.87 TO 2.41 WITH 254 SAMPLES

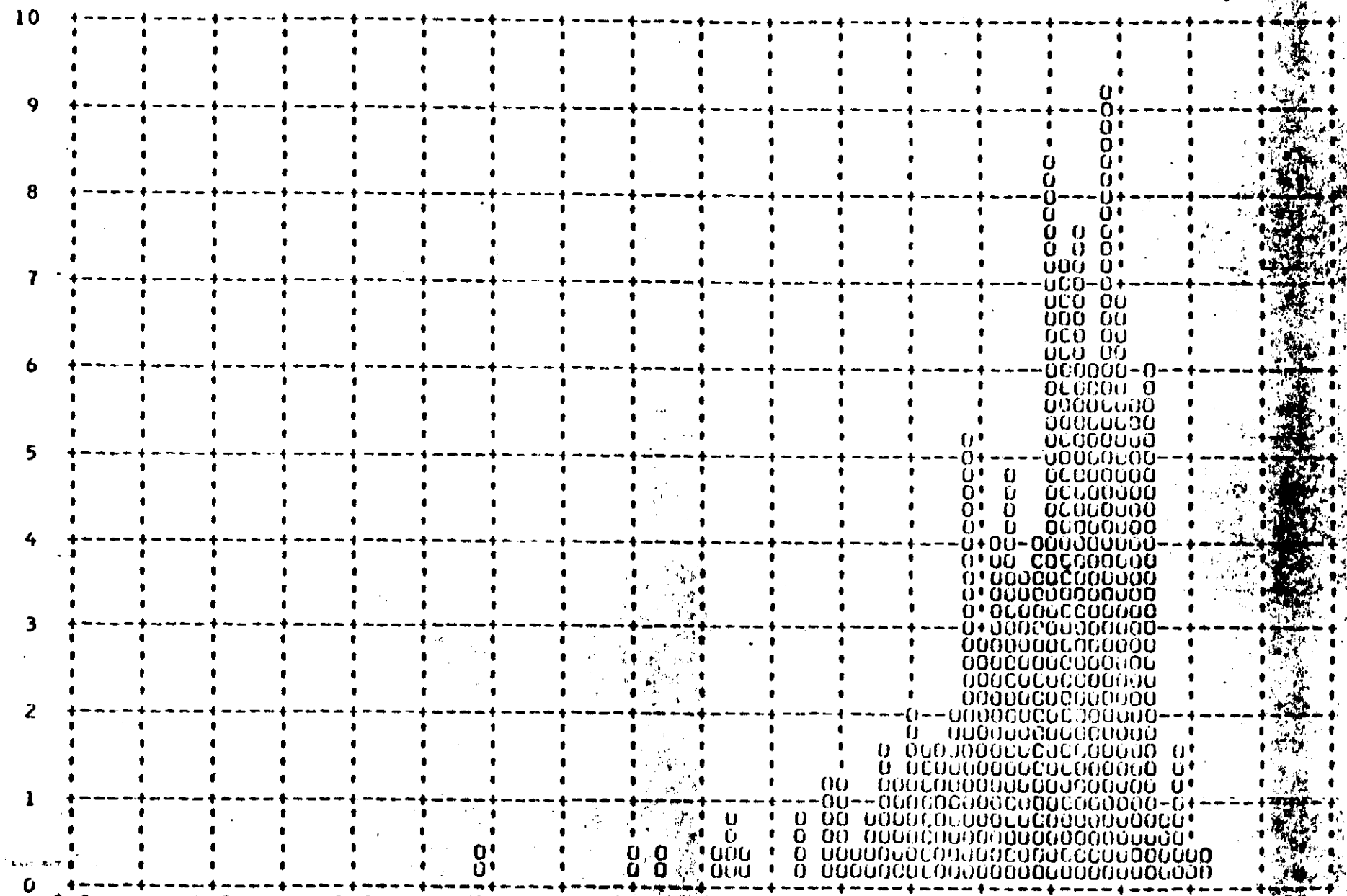


FIGURE 9-9

MISSION • 1023-1 • INSTRUMENT • AFT 12-06-65 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
0.01	0	0	0	0	0	0	0	0	0	0	0	0
0.02	0	0	0	0	0	0	0	0	0	0	0	0
0.03	0	0	0	0	0	0	0	0	0	0	0	0
0.04	0	0	0	0	0	0	0	0	0	0	0	0
0.05	0	0	0	0	0	0	0	0	0	0	0	0
0.06	0	0	0	0	0	0	0	0	0	0	0	0
0.07	0	0	0	0	0	0	0	0	0	0	0	0
0.08	0	0	0	0	0	0	0	0	0	0	0	0
0.09	0	0	0	0	0	0	0	0	0	0	0	0
0.10	0	0	0	0	0	0	0	0	0	0	0	0
0.11	0	0	0	0	0	0	0	0	0	0	0	0
0.12	0	0	0	0	0	0	0	0	0	0	0	0
0.13	0	0	0	0	0	0	0	0	0	0	0	0
0.14	0	0	0	0	0	0	0	0	0	0	0	0
0.15	0	0	0	0	0	0	0	0	0	0	0	0
0.16	0	0	0	0	0	0	0	0	0	0	0	0
0.17	0	0	0	0	0	0	0	0	0	0	0	0
0.18	0	0	0	0	0	0	0	0	0	0	0	0
0.19	0	0	0	0	0	0	0	0	0	0	0	0
0.20	0	0	0	0	0	0	0	0	0	0	0	0
0.21	0	0	0	0	0	0	0	0	0	0	0	0
0.22	0	0	0	0	0	0	0	0	0	0	0	0
0.23	0	0	0	0	0	0	0	0	0	0	0	0
0.24	0	0	0	0	0	0	0	0	0	0	0	0
0.25	0	0	0	0	0	0	0	0	0	0	0	0
0.26	0	0	0	0	0	0	0	0	0	0	0	0
0.27	0	0	0	0	0	0	0	0	0	0	0	0
0.28	0	0	0	0	0	0	0	0	0	0	0	0
0.29	0	0	0	0	0	0	0	0	0	0	0	0
0.30	0	0	0	0	0	0	0	0	0	0	0	0
0.31	0	0	0	0	0	0	0	0	0	0	0	0
0.32	0	0	0	0	0	0	0	0	0	0	0	0
0.33	0	0	0	0	0	0	0	0	0	0	0	0
0.34	0	0	0	0	0	0	0	0	0	0	0	0
0.35	0	0	0	0	0	0	0	0	0	0	0	0
0.36	0	0	0	0	0	0	0	0	0	0	0	0
0.37	0	0	0	0	0	0	0	0	0	0	0	0
0.38	0	0	0	0	0	0	0	0	0	0	0	0
0.39	0	0	0	0	0	0	0	0	0	0	0	0
0.40	0	0	0	0	0	0	0	0	0	0	0	0
0.41	0	0	0	0	0	0	0	0	0	0	0	0
0.42	0	0	0	0	0	0	0	0	0	0	0	0
0.43	0	0	0	0	0	0	0	0	0	0	0	0
0.44	0	0	0	0	0	0	0	0	0	0	0	0
0.45	0	0	0	0	0	0	0	0	0	0	0	0
0.46	0	0	0	0	0	0	0	0	0	0	0	0
0.47	0	0	0	0	0	0	0	0	0	0	0	0
0.48	0	0	0	0	0	0	0	0	0	0	0	0
0.49	0	0	0	0	0	0	0	0	0	0	0	0
0.50	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	60	3	0	94	2	1	154	5	1

TOP SECRET [redacted]

TABLE 9-2

[redacted]

MISSION • 1023-1 • INSTRUMENT • AFT 12-06-65 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
0.51	0	0	0	3	0	0	5	1	0	8	1	0
0.52	0	0	0	3	2	0	2	0	0	5	2	0
0.53	0	0	0	2	0	0	3	0	0	5	0	0
0.54	0	0	0	3	0	0	4	1	0	7	1	0
0.55	0	0	0	3	0	0	5	0	0	8	0	0
0.56	0	0	0	1	2	0	5	2	0	6	2	0
0.57	0	0	0	2	0	0	1	0	0	3	0	0
0.58	0	0	0	0	0	0	1	0	0	1	0	0
0.59	0	0	0	4	0	0	1	0	0	5	0	0
0.60	0	0	0	2	1	0	2	0	0	5	1	0
0.61	0	0	0	1	0	0	1	0	0	2	0	0
0.62	0	0	0	1	0	0	1	0	0	2	0	0
0.63	0	0	0	2	0	0	1	0	0	3	0	0
0.64	0	0	0	0	0	0	2	0	0	2	0	0
0.65	0	0	0	1	0	0	0	0	0	1	0	0
0.66	0	0	0	0	0	0	1	0	0	1	0	0
0.67	0	0	0	0	0	0	1	0	0	1	0	0
0.68	0	0	0	0	0	0	1	0	0	1	0	0
0.69	0	0	0	0	0	0	1	0	0	1	0	0
0.70	0	0	0	0	0	0	2	0	0	2	0	0
0.71	0	0	0	0	0	0	2	0	0	2	0	0
0.72	0	0	0	0	0	0	1	0	0	1	0	0
0.73	0	0	0	0	0	0	1	0	0	1	0	0
0.74	0	0	0	0	0	0	1	0	0	1	0	0
0.75	0	0	0	0	0	0	1	0	0	1	0	0
0.76	0	0	0	0	0	0	1	0	0	1	0	0
0.77	0	0	0	0	0	0	1	0	0	1	0	0
0.78	0	0	0	0	0	0	1	0	0	1	0	0
0.79	0	0	0	0	0	0	1	0	0	1	0	0
0.80	0	0	0	0	0	0	1	0	0	1	0	0
0.81	0	0	0	0	0	0	1	0	0	1	0	0
0.82	0	0	0	0	0	0	1	0	0	1	0	0
0.83	0	0	0	0	0	0	1	0	0	1	0	0
0.84	0	0	0	0	0	0	1	0	0	1	0	0
0.85	0	0	0	0	0	0	1	0	0	1	0	0
0.86	0	0	0	0	0	0	1	0	0	1	0	0
0.87	0	0	0	0	0	0	1	0	0	1	0	0
0.88	0	0	0	0	0	0	1	0	0	1	0	0
0.89	0	0	0	0	0	0	1	0	0	1	0	0
0.90	0	0	0	0	0	0	1	0	0	1	0	0
0.91	0	0	0	0	0	0	1	0	0	1	0	0
0.92	0	0	0	0	0	0	1	0	0	1	0	0
0.93	0	0	0	0	0	0	1	0	0	1	0	0
0.94	0	0	0	0	0	0	1	0	0	1	0	0
0.95	0	0	0	0	0	0	1	0	0	1	0	0
0.96	0	0	0	0	0	0	1	0	0	1	0	0
0.97	0	0	0	0	0	0	1	0	0	1	0	0
0.98	0	0	0	0	0	0	1	0	0	1	0	0
0.99	0	0	0	0	0	0	1	0	0	1	0	0
1.00	0	0	0	0	0	0	0	2	0	0	2	0
SUBTOTAL	0	0	0	47	12	0	56	29	1	103	41	1

[redacted]

TABLE 9-2

~~TOP SECRET~~ [redacted]

MISSION • 1023-1 • INSTRUMENT • AFT IZ-0665 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
1.01	0	0	0	0	0	0	1	0	0	1	0	0
1.02	0	0	0	0	0	0	2	0	0	2	0	0
1.03	0	0	0	0	0	0	3	0	0	3	0	0
1.04	0	0	0	0	0	0	2	1	0	2	0	0
1.05	0	0	0	0	0	0	1	0	0	1	0	0
1.06	0	0	0	0	0	0	0	0	0	0	0	0
1.07	0	0	0	0	0	0	0	1	0	0	1	0
1.08	0	0	0	0	0	0	0	2	0	0	2	0
1.09	0	0	0	0	0	0	0	3	0	0	3	0
1.10	0	0	0	0	0	0	1	3	0	1	3	0
1.11	0	0	0	0	0	0	3	2	0	3	2	0
1.12	0	0	0	0	0	0	1	2	0	1	2	0
1.13	0	0	0	0	0	0	2	2	0	2	2	0
1.14	0	0	0	0	0	0	2	1	0	2	1	0
1.15	0	0	0	0	0	0	1	2	0	1	2	0
1.16	0	0	0	0	0	0	0	0	0	0	0	0
1.17	0	0	0	0	0	0	0	1	0	0	1	0
1.18	0	0	0	0	0	0	0	2	0	0	2	0
1.19	0	0	0	0	0	0	1	3	0	1	3	0
1.20	0	0	0	0	0	0	0	0	0	0	0	0
1.21	0	0	0	0	0	0	0	1	0	0	1	0
1.22	0	0	0	0	0	0	0	2	0	0	2	0
1.23	0	0	0	0	0	0	0	3	0	0	3	0
1.24	0	0	0	0	0	0	1	2	0	1	2	0
1.25	0	0	0	0	0	0	1	1	0	1	1	0
1.26	0	0	0	0	0	0	0	0	0	0	0	0
1.27	0	0	0	0	0	0	1	2	0	1	2	0
1.28	0	0	0	0	0	0	2	3	0	2	3	0
1.29	0	0	0	0	0	0	0	0	0	0	0	0
1.30	0	0	0	1	3	0	0	0	1	0	3	1
1.31	0	0	0	0	0	0	1	2	0	1	3	0
1.32	0	0	0	0	3	0	2	4	0	2	5	0
1.33	0	0	0	0	0	0	0	0	0	0	0	0
1.34	0	0	0	0	4	0	1	1	0	1	5	0
1.35	0	0	0	0	0	0	0	0	0	0	0	0
1.36	0	0	0	0	3	0	1	2	0	1	4	0
1.37	0	0	0	0	0	0	0	0	0	0	0	0
1.38	0	0	0	0	2	0	0	1	0	0	3	0
1.39	0	0	0	0	0	0	0	0	0	0	0	0
1.40	0	0	0	0	4	0	0	0	0	0	4	0
1.41	0	0	0	0	0	0	0	0	0	0	0	0
1.42	0	0	0	0	3	0	0	1	0	0	5	0
1.43	0	0	0	0	0	0	0	0	0	0	0	0
1.44	0	0	0	0	0	0	0	0	0	0	0	0
1.45	0	0	0	0	0	0	0	0	0	0	0	0
1.46	0	0	0	0	0	0	0	0	0	0	0	0
1.47	0	0	0	0	0	0	0	0	0	0	0	0
1.48	0	0	0	0	0	0	0	0	0	0	0	0
1.49	0	0	0	0	0	0	0	0	0	0	0	0
1.50	0	0	0	0	7	0	0	3	0	0	10	0
SUBTOTAL	0	0	0	0	71	1	5	85	4	11	156	5

~~TOP SECRET~~ [redacted]

TABLE 9-2

MISSION = 1023-1 INSTRUMENT = AFT [redacted] DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
1.51	0	0	0	0	0	0	0	3	0	0	3	0
1.52	0	0	0	0	0	0	0	2	0	0	4	0
1.53	0	0	0	0	0	0	0	5	0	0	5	0
1.54	0	0	0	0	0	0	0	1	0	0	2	0
1.55	0	0	0	0	0	0	0	1	0	0	1	0
1.56	0	0	0	0	0	0	0	1	0	0	2	0
1.57	0	0	0	0	0	0	0	1	0	0	1	0
1.58	0	0	0	0	0	0	0	1	0	0	2	0
1.59	0	0	0	0	0	0	0	2	0	0	2	0
1.60	0	0	0	0	0	0	0	1	0	0	1	0
1.61	0	0	0	0	0	0	0	1	0	0	1	0
1.62	0	0	0	0	0	0	0	1	0	0	2	0
1.63	0	0	0	0	0	0	0	1	0	0	2	0
1.64	0	0	0	0	0	0	0	3	0	0	2	0
1.65	0	0	0	0	0	0	0	1	0	0	1	0
1.66	0	0	0	0	0	0	0	1	0	0	1	0
1.67	0	0	0	0	0	0	0	1	0	0	1	0
1.68	0	0	0	0	0	0	0	1	0	0	1	0
1.69	0	0	0	0	0	0	0	1	0	0	1	0
1.70	0	0	0	0	0	0	0	1	0	0	1	0
1.71	0	0	0	0	0	0	0	1	0	0	1	0
1.72	0	0	0	0	0	0	0	1	0	0	1	0
1.73	0	0	0	0	0	0	0	1	0	0	1	0
1.74	0	0	0	0	0	0	0	1	0	0	1	0
1.75	0	0	0	0	0	0	0	1	0	0	1	0
1.76	0	0	0	0	0	0	0	1	0	0	1	0
1.77	0	0	0	0	0	0	0	1	0	0	1	0
1.78	0	0	0	0	0	0	0	1	0	0	1	0
1.79	0	0	0	0	0	0	0	1	0	0	1	0
1.80	0	0	0	0	0	0	0	1	0	0	1	0
1.81	0	0	0	0	0	0	0	1	0	0	1	0
1.82	0	0	0	0	0	0	0	1	0	0	1	0
1.83	0	0	0	0	0	0	0	1	0	0	1	0
1.84	0	0	0	0	0	0	0	1	0	0	1	0
1.85	0	0	0	0	0	0	0	1	0	0	1	0
1.86	0	0	0	0	0	0	0	1	0	0	1	0
1.87	0	0	0	0	0	0	0	1	0	0	1	0
1.88	0	0	0	0	0	0	0	1	0	0	1	0
1.89	0	0	0	0	0	0	0	1	0	0	1	0
1.90	0	0	0	0	0	0	0	1	0	0	1	0
1.91	0	0	0	0	0	0	0	1	0	0	1	0
1.92	0	0	0	0	0	0	0	1	0	0	1	0
1.93	0	0	0	0	0	0	0	1	0	0	1	0
1.94	0	0	0	0	0	0	0	1	0	0	1	0
1.95	0	0	0	0	0	0	0	1	0	0	1	0
1.96	0	0	0	0	0	0	0	1	0	0	1	0
1.97	0	0	0	0	0	0	0	1	0	0	1	0
1.98	0	0	0	0	0	0	0	1	0	0	1	0
1.99	0	0	0	0	0	0	0	1	0	0	1	0
2.00	0	0	0	0	0	0	0	2	0	0	2	0
SUBTOTAL	0	0	0	0	27	17	0	35	19	0	62	36

TOP SECRET [redacted]

TABLE 9-2

MISSION • 1023-1 • INSTRUMENT • AFT • 12-06-65 • DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
2.01	0	0	0	0	0	12	0	0	0	0	0	15
2.02	0	0	0	0	0	0	0	0	3	0	0	5
2.03	0	0	0	0	0	0	0	0	0	0	0	4
2.04	0	0	0	0	0	0	0	0	4	0	0	5
2.05	0	0	0	0	0	0	0	0	1	0	0	4
2.06	0	0	0	0	0	0	0	0	3	0	0	3
2.07	0	0	0	0	0	0	0	0	0	0	0	0
2.08	0	0	0	0	0	0	0	0	3	0	0	7
2.09	0	0	0	0	0	0	0	0	1	0	0	5
2.10	0	0	0	0	0	0	0	0	3	0	0	10
2.11	0	0	0	0	0	0	0	0	2	0	0	4
2.12	0	0	0	0	0	0	0	0	2	0	0	7
2.13	0	0	0	0	0	0	0	0	1	0	0	1
2.14	0	0	0	0	0	0	0	0	2	0	0	4
2.15	0	0	0	0	0	0	0	0	1	0	0	1
2.16	0	0	0	0	0	0	0	0	0	0	0	1
2.17	0	0	0	0	0	0	0	0	1	0	0	1
2.18	0	0	0	0	0	0	0	0	3	0	0	10
2.19	0	0	0	0	0	0	0	0	2	0	0	5
2.20	0	0	0	0	0	0	0	0	8	0	0	13
2.21	0	0	0	0	0	0	0	0	1	0	0	3
2.22	0	0	0	0	0	0	0	0	6	0	0	10
2.23	0	0	0	0	0	0	0	0	5	0	0	7
2.24	0	0	0	0	0	0	0	0	1	0	0	2
2.25	0	0	0	0	0	0	0	0	5	0	0	7
2.26	0	0	0	0	0	0	0	0	5	0	0	10
2.27	0	0	0	0	0	0	0	0	0	0	0	1
2.28	0	0	0	0	0	0	0	0	2	0	0	6
2.29	0	0	0	0	0	0	0	0	3	0	0	8
2.30	0	0	0	0	0	0	0	0	1	0	0	4
2.31	0	0	0	0	0	0	0	0	3	0	0	4
2.32	0	0	0	0	0	0	0	0	6	0	0	10
2.33	0	0	0	0	0	0	0	0	7	0	0	7
2.34	0	0	0	0	0	0	0	0	1	0	0	2
2.35	0	0	0	0	0	0	0	0	3	0	0	3
2.36	0	0	0	0	0	0	0	0	5	0	0	6
2.37	0	0	0	0	0	0	0	0	2	0	0	4
2.38	0	0	0	0	0	0	0	0	1	0	0	1
2.39	0	0	0	0	0	0	0	0	4	0	0	4
2.40	0	0	0	0	0	0	0	0	8	0	0	8
2.41	0	0	0	0	0	0	0	0	0	0	0	0
2.42	0	0	0	0	0	0	0	0	3	0	0	3
2.43	0	0	0	0	0	0	0	0	2	0	0	2
2.44	0	0	0	0	0	0	0	0	0	0	0	0
2.45	0	0	0	0	0	0	0	0	4	0	0	4
2.46	0	0	0	0	0	0	0	0	0	0	0	0
2.47	0	0	0	0	0	0	0	0	0	0	0	0
2.48	0	0	0	0	0	0	0	0	0	0	0	0
2.49	0	0	0	0	0	0	0	0	0	0	0	0
2.50	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	0	85	0	4	128	0	4	213

TABLE 9-2

MISSION • 1023-1 • INSTRUMENT • AFT 12-06-65 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
2.51	0	0	0	0	0	0	0	0	0	0	0	0
2.52	0	0	0	0	0	0	0	0	0	0	0	0
2.53	0	0	0	0	0	0	0	0	0	0	0	0
2.54	0	0	0	0	0	0	0	0	0	0	0	0
2.55	0	0	0	0	0	0	0	0	0	0	0	0
2.56	0	0	0	0	0	0	0	0	0	0	0	0
2.57	0	0	0	0	0	0	0	0	0	0	0	0
2.58	0	0	0	0	0	0	0	0	0	0	0	0
2.59	0	0	0	0	0	0	0	0	0	0	0	0
2.60	0	0	0	0	0	0	0	0	0	0	0	0
2.61	0	0	0	0	0	0	0	0	0	0	0	0
2.62	0	0	0	0	0	0	0	0	0	0	0	0
2.63	0	0	0	0	0	0	0	0	0	0	0	0
2.64	0	0	0	0	0	0	0	0	0	0	0	0
2.65	0	0	0	0	0	0	0	0	0	0	0	0
2.66	0	0	0	0	0	0	0	0	0	0	0	0
2.67	0	0	0	0	0	0	0	0	0	0	0	0
2.68	0	0	0	0	0	0	0	0	0	0	0	0
2.69	0	0	0	0	0	0	0	0	0	0	0	0
2.70	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	113	113	103	155	155	153	268	268	256

MISSION 1023-1 INSTR - AFT 12-06-65 PROCESSING AND EXPOSURE ANALYSI

PROCESS LEVEL	SAMPLE SIZE	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0	0 PC	0 PC	0 PC	0 PC	0 PC
INTERMEDIATE	113	1 PC	34 PC	54 PC	11 PC	1 PC
FULL	155	24 PC	0 PC	73 PC	5 PC	0 PC
ALL LEVELS	268	13 PC	14 PC	65 PC	7 PC	0 PC

PROCESS LEVEL	BASE + FOG	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0.01-0.09	0.01-0.13	0.14-0.39	0.40-0.90	---------	0.91 AND UP
INTERMED	0.10-0.17	0.01-0.20	0.21-0.39	0.40-0.90	0.91-1.34	1.35 AND UP
FULL	0.18 AND UP	0.01-0.39	---------	0.40-0.90	0.91-1.69	1.70 AND UP

TABLE 9-2

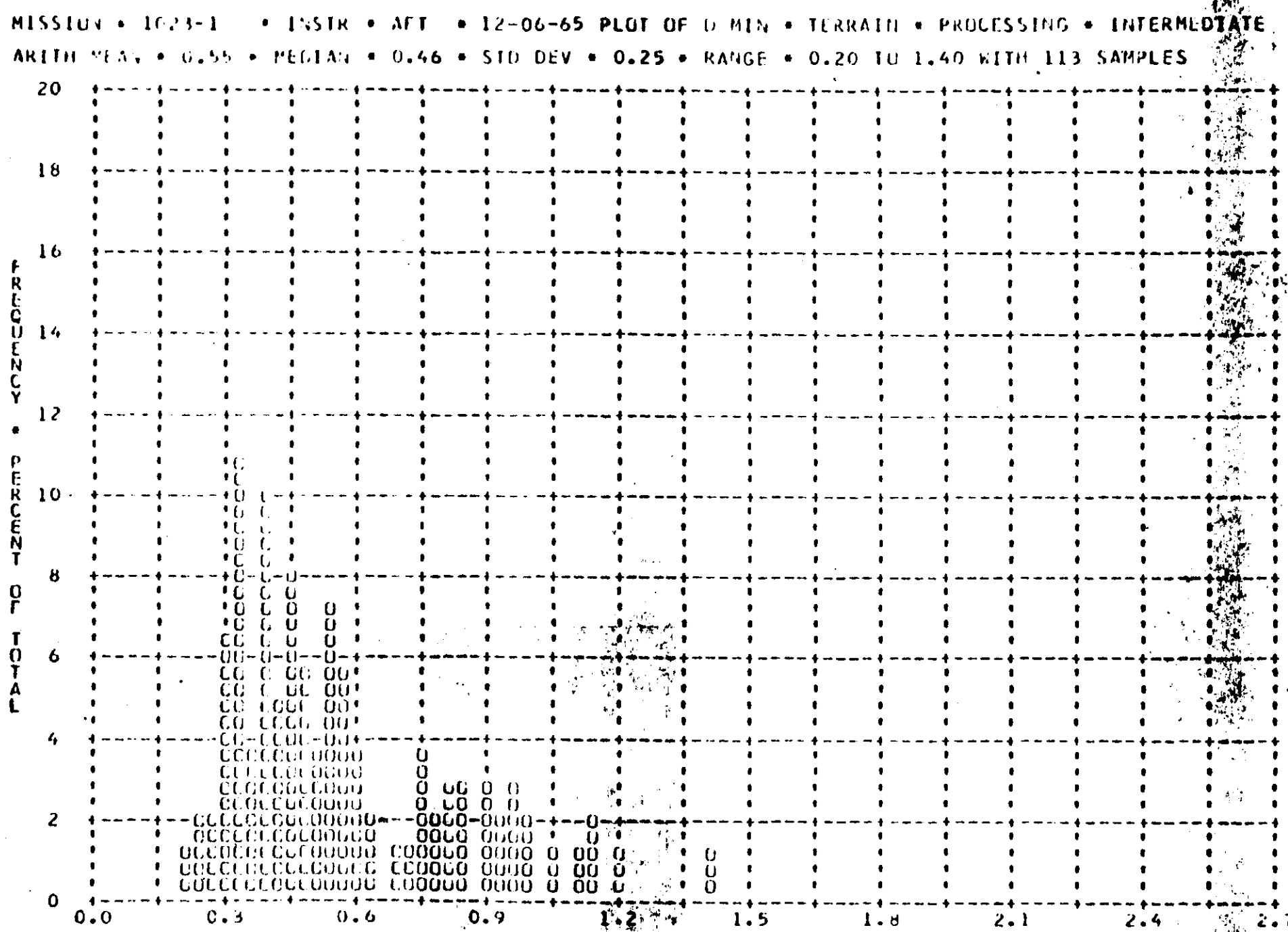

MISSION • 1023-1 • INSTR • AFT • 12-06-65 PLOT OF D MIN • TERRAIN • PROCESSING • INTERMEDIATE
ARITH MEAN • 0.55 • MEDIAN • 0.46 • STD DEV • 0.25 • RANGE • 0.20 TO 1.40 WITH 113 SAMPLES
FREQUENCY • PERCENT OF TOTAL
20
18
16
14
12
10
8
6
4
2
0
0.0
0.3
0.6
0.9
1.2
1.5
1.8
2.1
2.4
• DENSITY •

FIGURE 9-10

MISSION • 1023-1 • INSTR • AFT • 12-06-65 PLOT OF D MAX • TERRAIN • PROCESSING • INTERMEDIATE

ARITH MEAN • 1.34 • MEDIAN • 1.40 • STD DEV • 0.32 • RANGE • 0.41 TO 1.94 WITH 113 SAMPLES

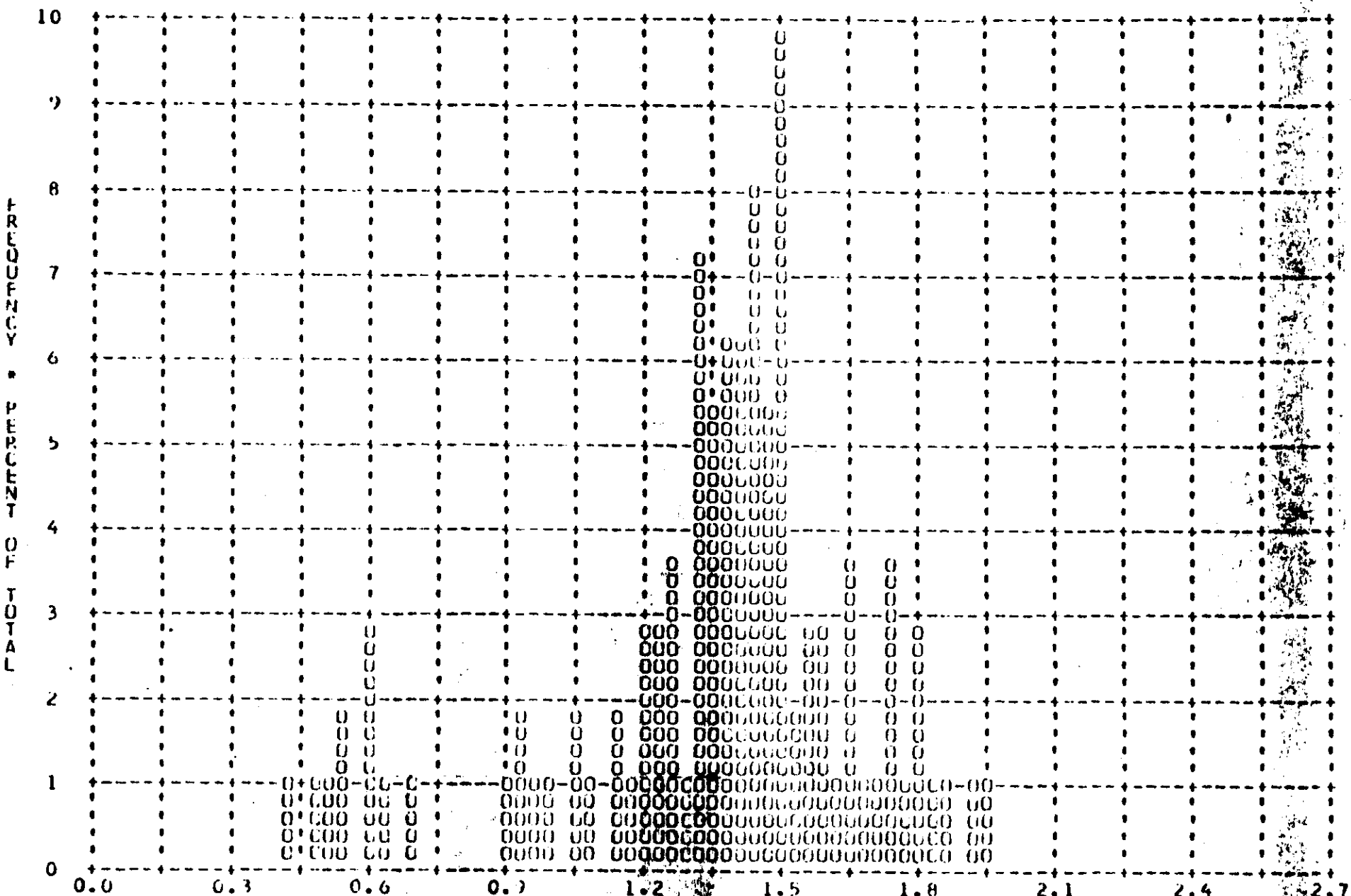


FIGURE 9-11

MISSION • 1023-1 • INSTR • AFT • 12-06-65 PLOT OF D MAX • CLOUD • PROCESSING • INTERMEDIATE

ARITH MEAN • 2.13 • MEDIAN • 2.18 • STD DEV • 0.17 • RANGE • 1.30 TO 2.37 WITH 103 SAMPLES

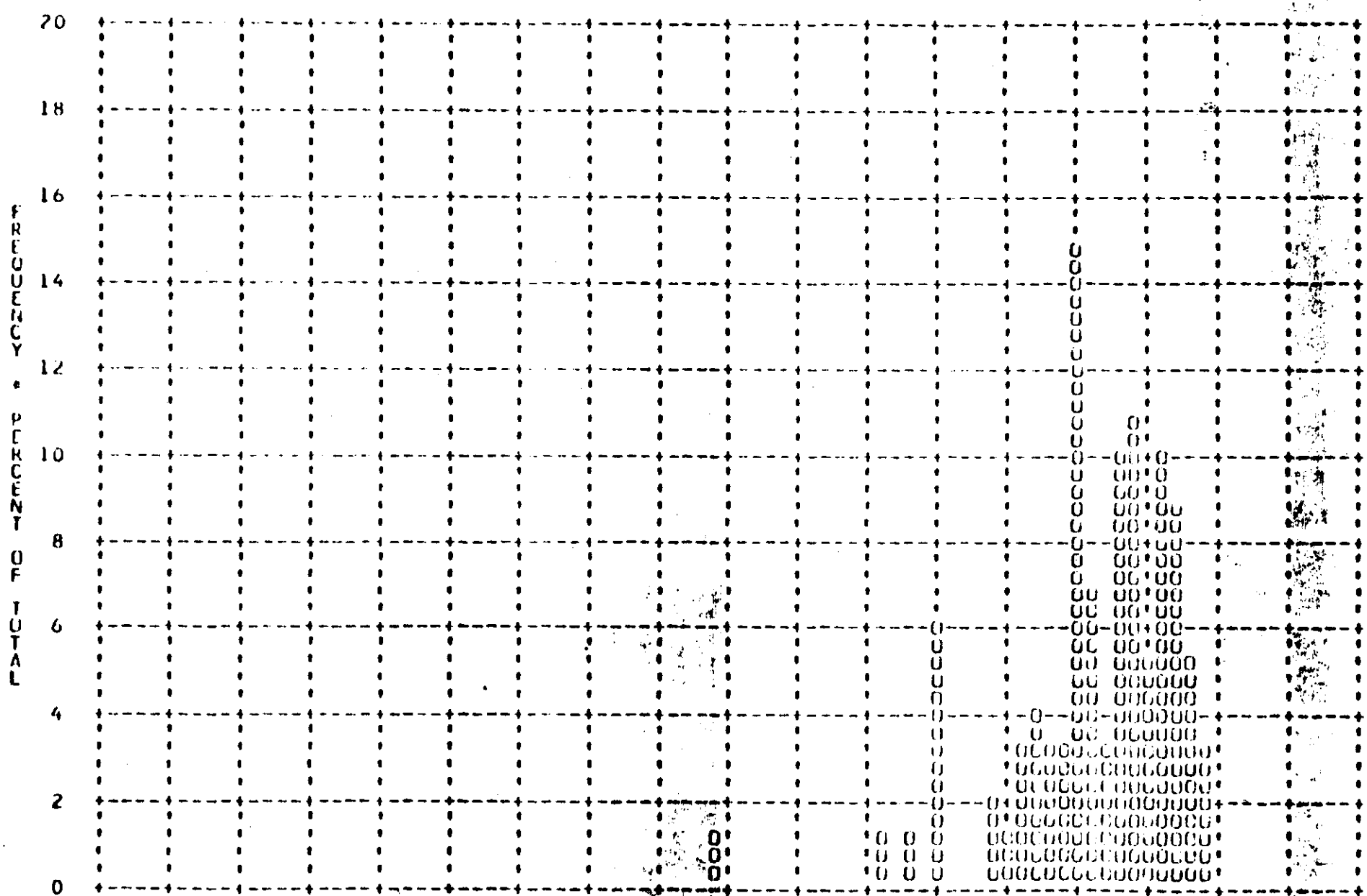


FIGURE 9-12

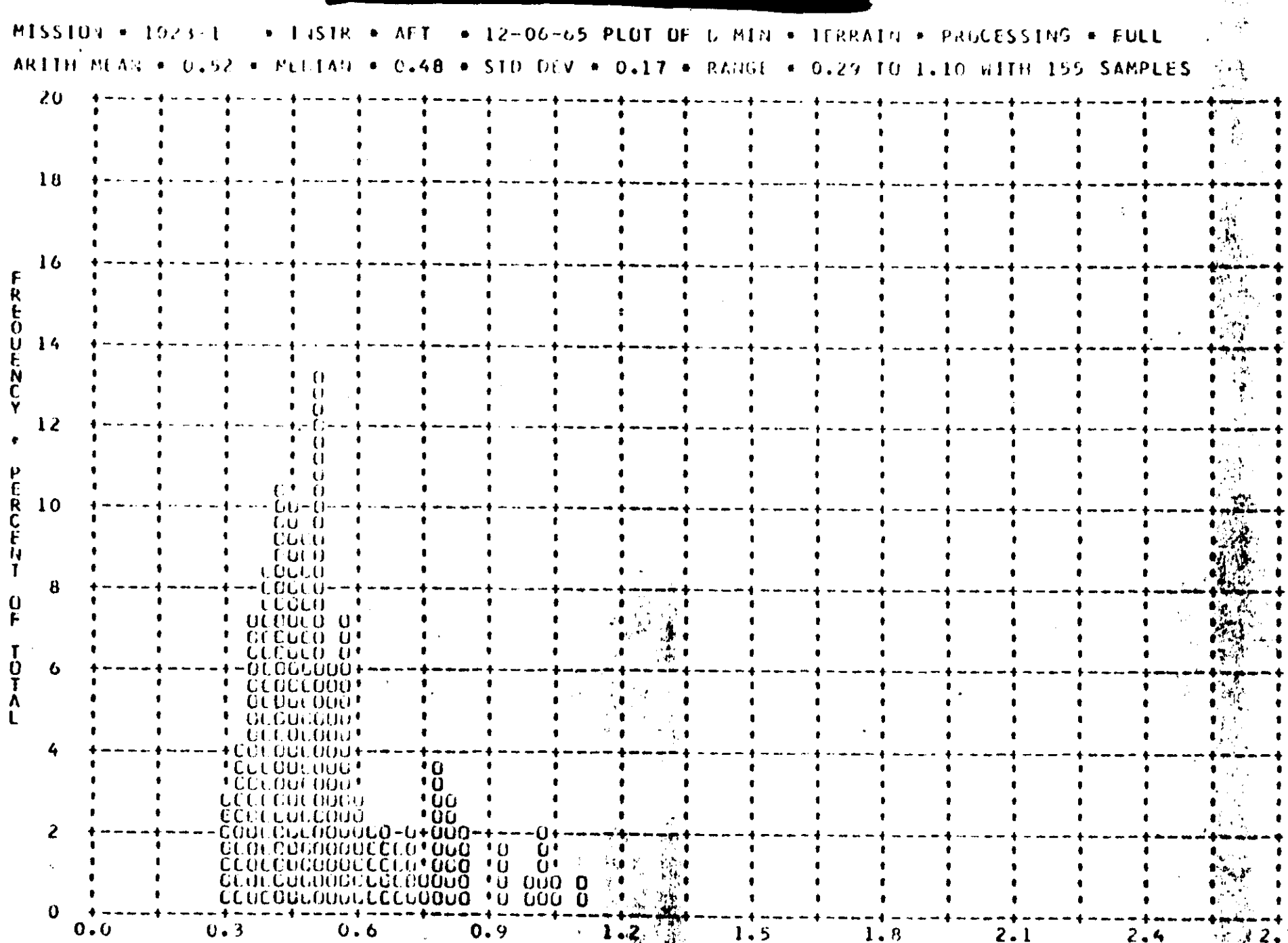

MISSION • 1023-1 • INSTR • AFT • 12-06-65 PLOT OF L MIN • TERRAIN • PROCESSING • FULL
ARITH MEAN • 0.52 • MEDIAN • 0.48 • STD DEV • 0.17 • RANGE • 0.29 TO 1.10 WITH 155 SAMPLES
FREQUENCY • PERCENT OF TOTAL
20
18
16
14
12
10
8
6
4
2
0
0.0
0.3
0.6
0.9
1.2
1.5
1.8
2.1
2.4
• DENSITY •

FIGURE 9-13

[redacted]

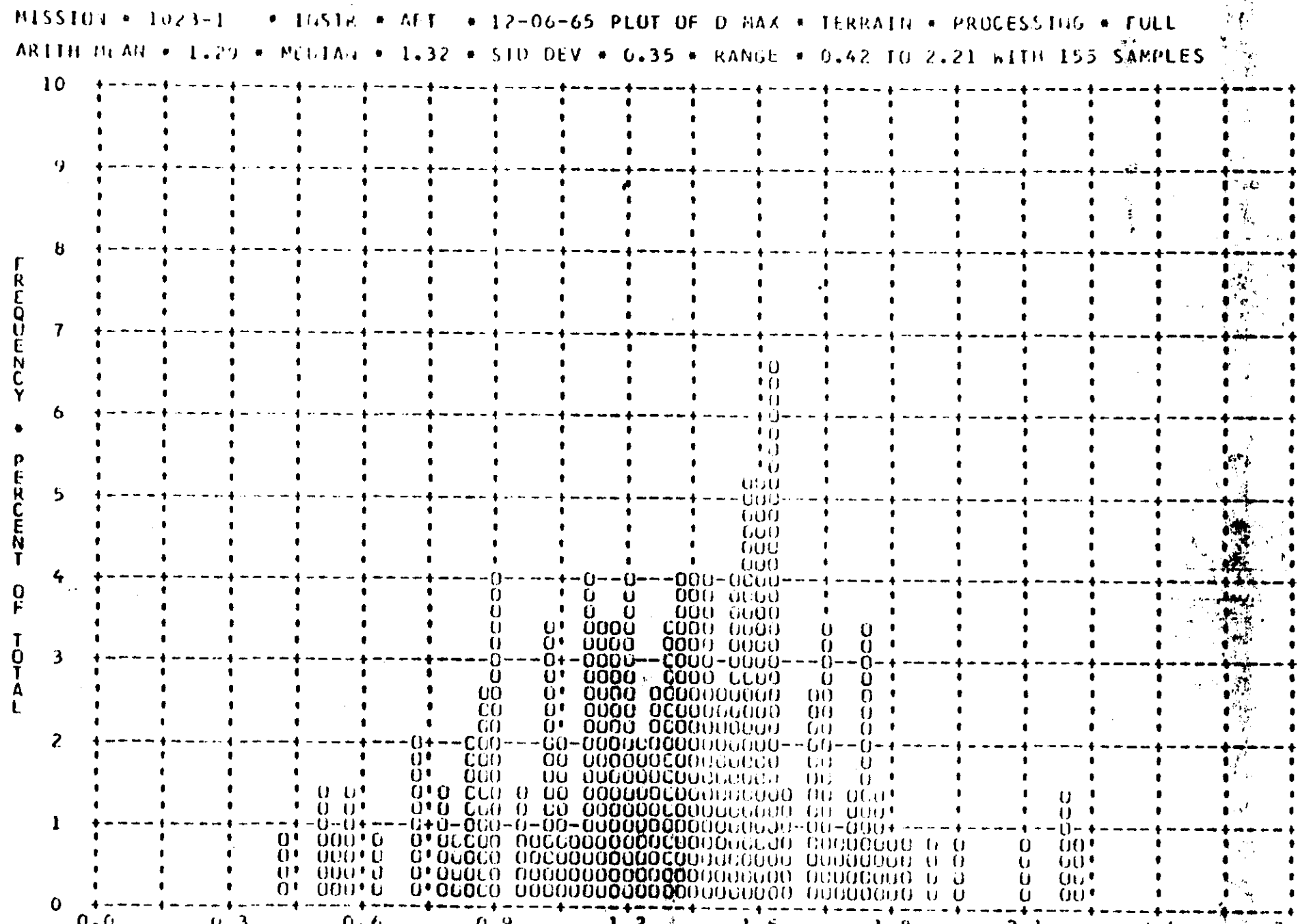


FIGURE 9-14

[redacted]

[redacted]

MISSION • 1023-1 • INSTR • AFT • 12-06-65 PLOT OF D MAX • CLOUD • PROCESSING • FULL

ARITH MEAN • 2.16 • MEDIAN • 2.23 • STD DEV • 0.29 • RANGE • 0.18 TO 2.45 WITH 153 SAMPLES

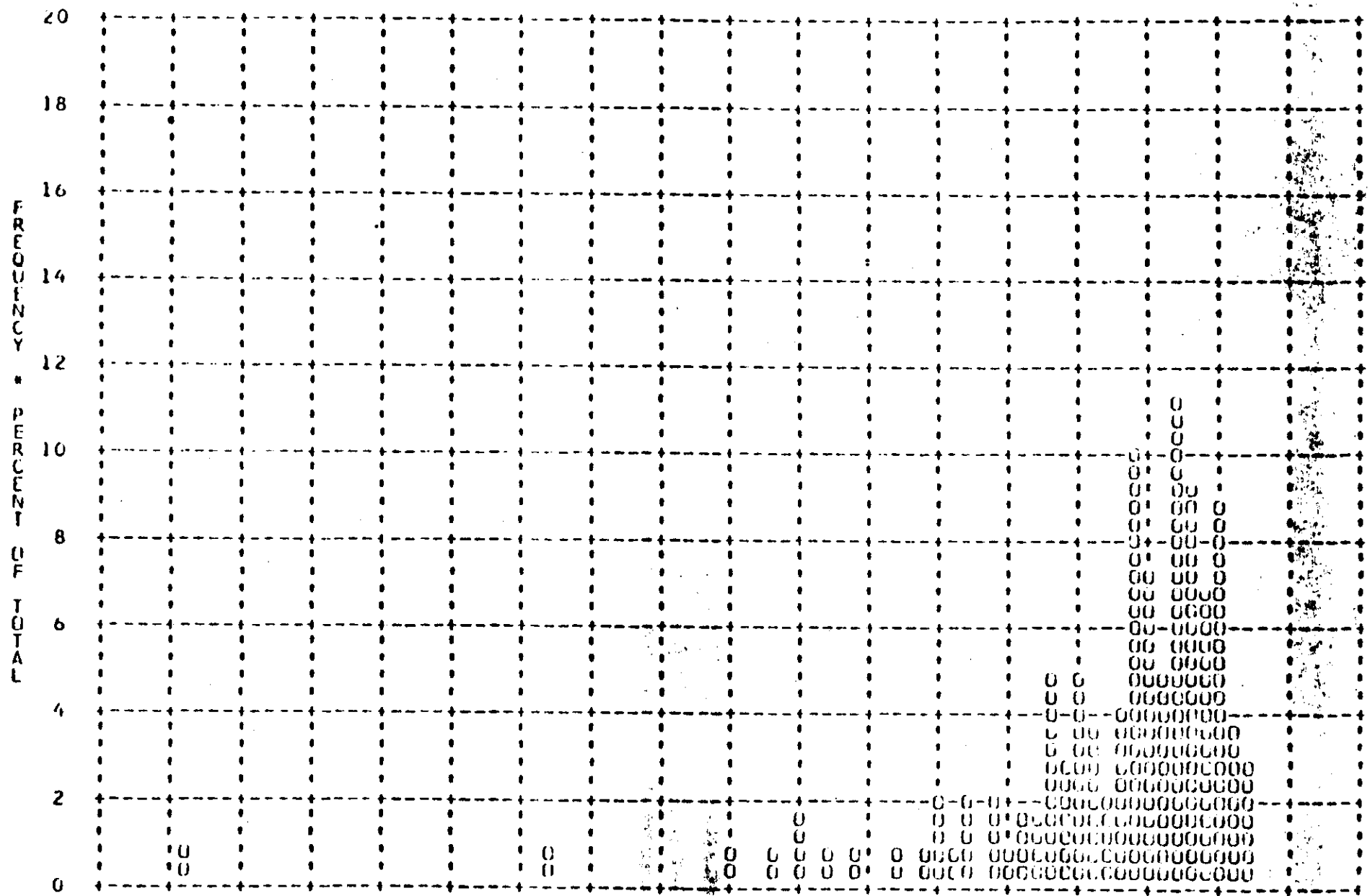


FIGURE 9-15

[redacted]

[redacted]

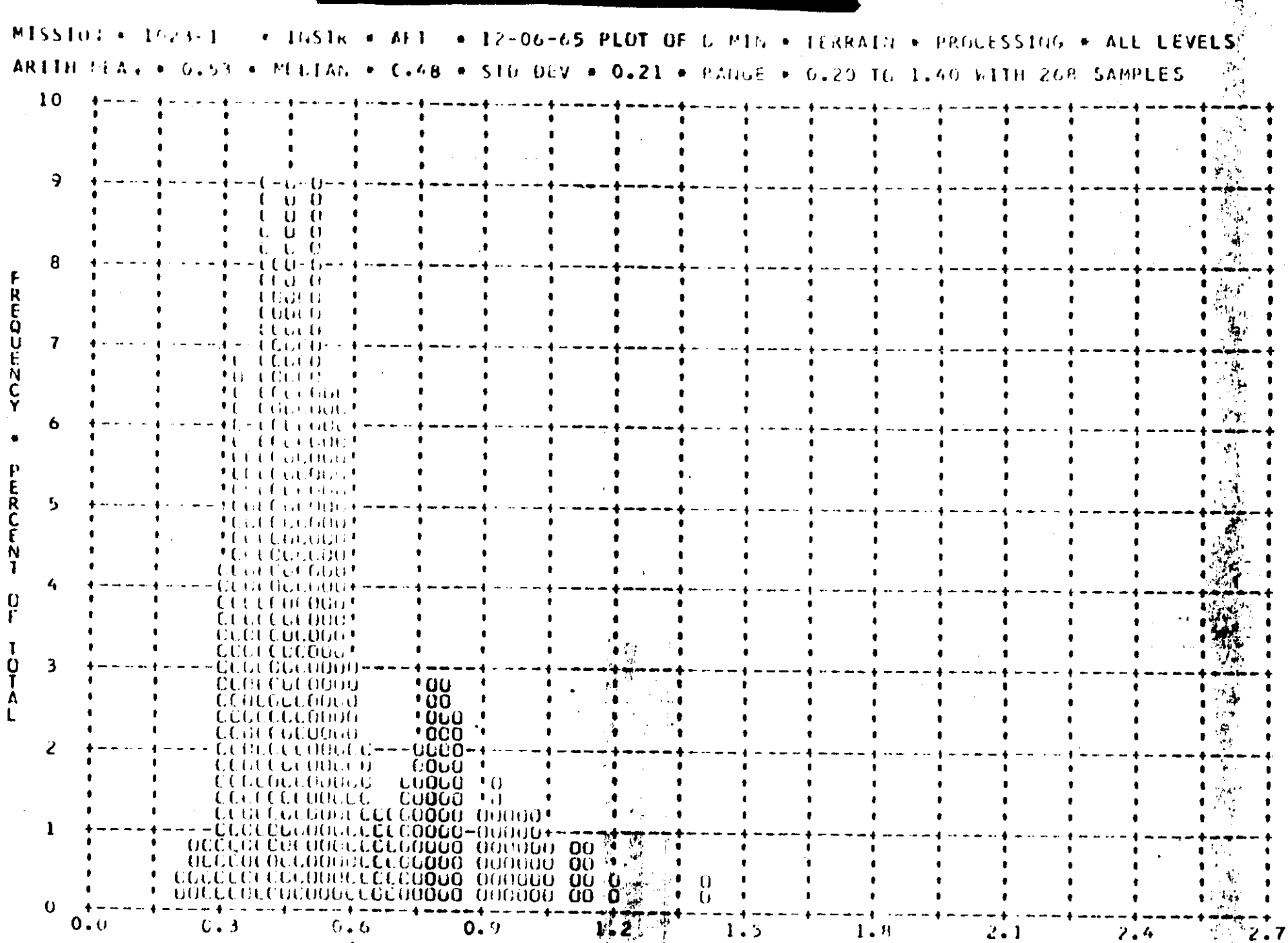


FIGURE 9-16

[redacted]

[redacted]

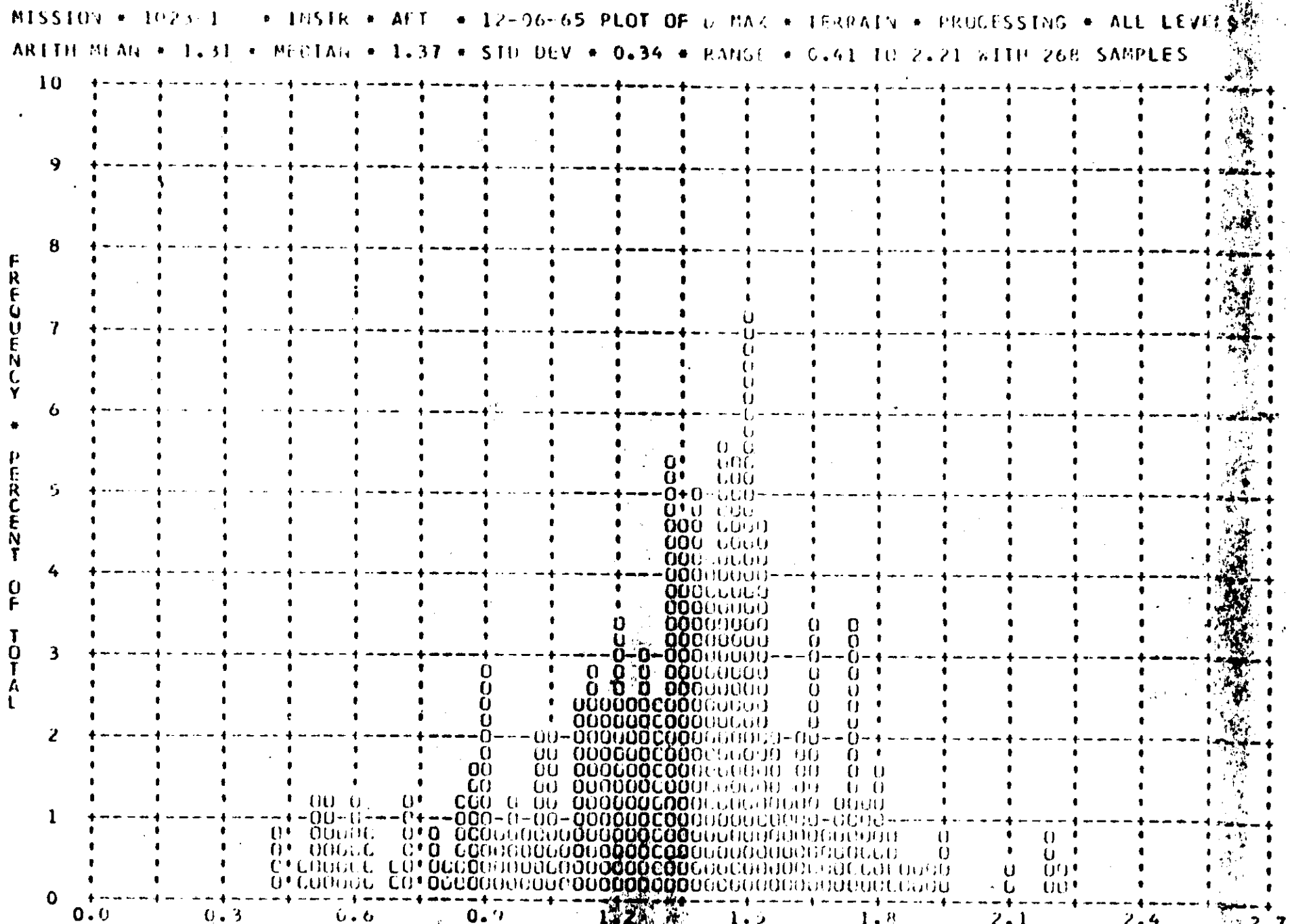


FIGURE 9-17

[redacted]

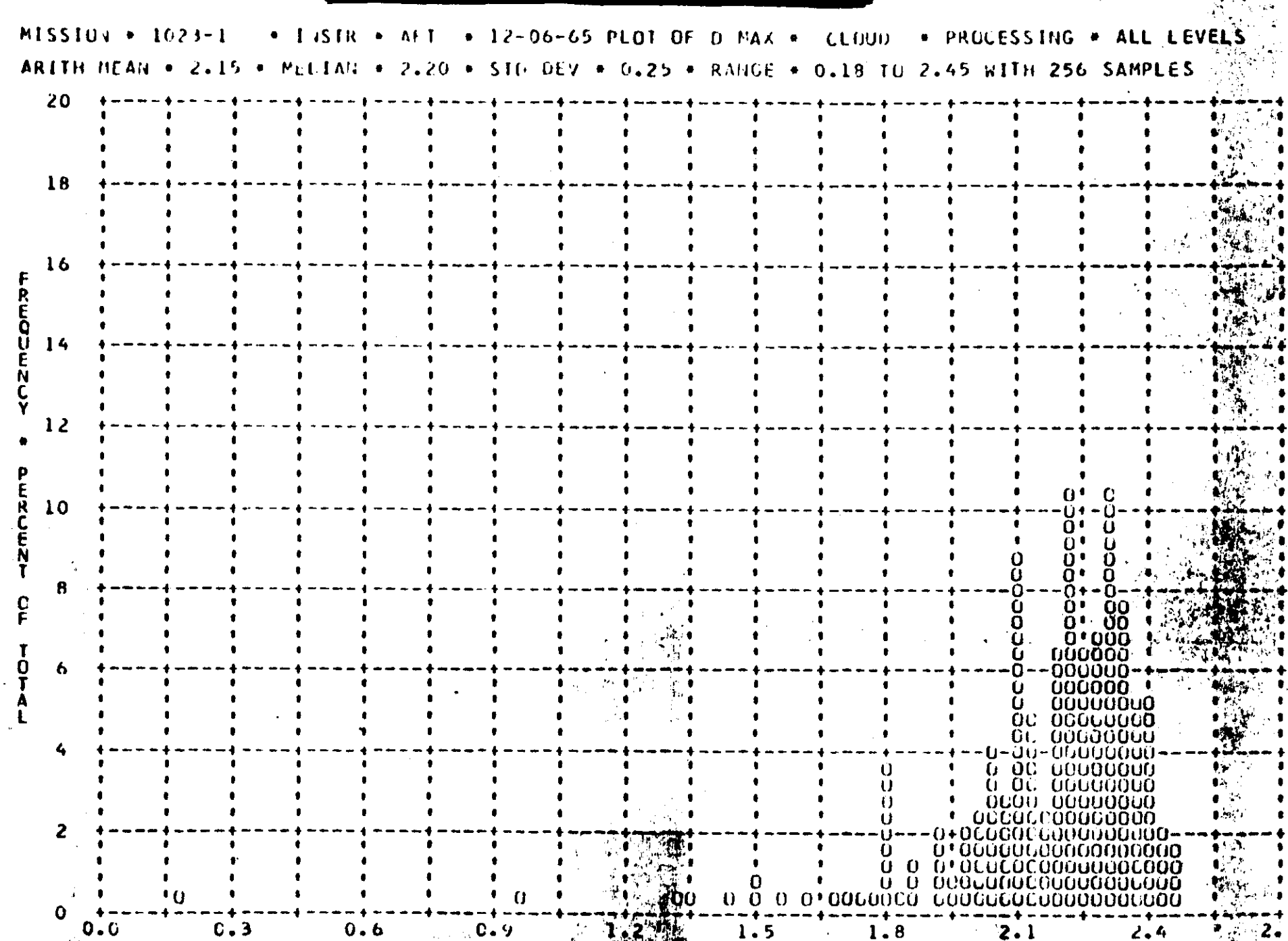

MISSION • 1023-1 • INSTR • AFT • 12-06-65 PLOT OF D MAX • CLOUD • PROCESSING • ALL LEVELS
ARITH MEAN • 2.15 • MEDIAN • 2.20 • STD DEV • 0.25 • RANGE • 0.18 TO 2.45 WITH 256 SAMPLES
FREQUENCY • PERCENT OF TOTAL
20
18
16
14
12
10
8
6
4
2
0
0.0
0.3
0.6
0.9
1.2
1.5
1.8
2.1
2.4
2.
• DENSITY •

FIGURE 9-18

~~TOP SECRET~~ [redacted]

MISSION • 1023-2 • INSTRUMENT • FRWD [redacted] DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
0.01	0	0	0	0	0	0	0	0	0	0	0	0
0.02	0	0	0	0	0	0	0	0	0	0	0	0
0.03	0	0	0	0	0	0	0	0	0	0	0	0
0.04	0	0	0	0	0	0	0	0	0	0	0	0
0.05	0	0	0	0	0	0	0	0	0	0	0	0
0.06	0	0	0	0	0	0	0	0	0	0	0	0
0.07	0	0	0	0	0	0	0	0	0	0	0	0
0.08	0	0	0	0	0	0	0	0	0	0	0	0
0.09	0	0	0	0	0	0	0	0	0	0	0	0
0.10	0	0	0	0	0	0	0	0	0	0	0	0
0.11	0	0	0	0	0	0	0	0	0	0	0	0
0.12	0	0	0	0	0	0	0	0	0	0	0	0
0.13	0	0	0	0	0	0	0	0	0	0	0	0
0.14	0	0	0	0	0	0	0	0	0	0	0	0
0.15	0	0	0	0	0	0	0	0	0	0	0	0
0.16	0	0	0	0	0	0	0	0	0	0	0	0
0.17	0	0	0	0	0	0	0	0	0	0	0	0
0.18	0	0	0	0	0	0	0	0	0	0	0	0
0.19	0	0	0	0	0	0	0	0	0	0	0	0
0.20	0	0	0	0	0	0	0	0	0	0	0	0
0.21	0	0	0	0	0	0	1	0	0	1	0	0
0.22	0	0	0	0	0	0	1	0	0	1	0	0
0.23	0	0	0	0	0	0	1	0	0	1	0	0
0.24	0	0	0	0	0	0	2	0	0	2	0	0
0.25	0	0	0	0	0	0	3	0	0	3	0	0
0.26	0	0	0	0	0	0	4	0	0	4	0	0
0.27	0	0	0	0	0	0	2	0	0	2	0	0
0.28	0	0	0	0	0	0	0	0	0	0	0	0
0.29	0	0	0	0	0	0	0	0	0	0	0	0
0.30	0	0	0	0	0	0	6	0	0	6	0	0
0.31	0	0	0	0	0	0	3	0	0	3	0	0
0.32	0	0	0	0	0	0	4	0	0	5	0	0
0.33	0	0	0	0	0	0	2	0	0	2	0	0
0.34	0	0	0	0	0	0	0	0	0	0	0	0
0.35	0	0	0	0	0	0	2	0	0	2	0	0
0.36	0	0	0	0	0	0	3	0	0	4	0	0
0.37	0	0	0	0	0	0	5	0	0	5	0	0
0.38	0	0	0	0	0	0	6	0	0	7	0	0
0.39	0	0	0	0	0	0	3	0	0	3	0	0
0.40	0	0	0	0	0	0	9	0	0	9	0	0
0.41	0	0	0	0	0	0	2	0	0	2	0	0
0.42	0	0	0	0	0	0	7	0	0	8	0	0
0.43	0	0	0	0	0	0	5	0	0	5	0	0
0.44	0	0	0	0	0	0	4	0	0	4	0	0
0.45	0	0	0	0	0	0	3	0	0	3	0	0
0.46	0	0	0	0	0	0	2	0	0	5	0	0
0.47	0	0	0	0	0	0	1	0	0	1	0	0
0.48	0	0	0	0	0	0	2	0	0	2	0	0
0.49	0	0	0	0	0	0	3	0	0	3	0	0
0.50	0	0	0	0	0	0	4	0	0	5	0	0
SUBTOTAL	0	0	0	[illegible]	1	0	99	5	0	97	6	0

~~TOP SECRET~~ [redacted]

TABLE 9-3

MISSION • 1023-2 • INSTRUMENT • FRWD 12-06-65 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM.	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
0.51	0	0	0	0	0	0	2	1	0	2	1	0
0.52	0	0	0	0	0	0	2	0	0	2	0	0
0.53	0	0	0	0	0	0	0	1	0	0	1	0
0.54	0	0	0	0	0	0	1	2	0	1	2	0
0.55	0	0	0	0	0	0	2	0	0	2	0	0
0.56	0	0	0	0	0	0	1	2	0	1	2	0
0.57	0	0	0	0	0	0	6	0	0	7	0	0
0.58	0	0	0	0	0	0	0	1	0	0	1	0
0.59	0	0	0	0	0	0	1	0	0	1	0	0
0.60	0	0	0	0	0	0	0	1	0	0	1	0
0.61	0	0	0	0	0	0	1	0	0	1	0	0
0.62	0	0	0	0	0	0	1	1	0	1	1	0
0.63	0	0	0	0	0	0	0	1	0	0	1	0
0.64	0	0	0	0	0	0	1	0	0	1	0	0
0.65	0	0	0	0	0	0	0	1	0	0	1	0
0.66	0	0	0	0	0	0	3	2	0	3	2	0
0.67	0	0	0	0	0	0	1	1	0	1	1	0
0.68	0	0	0	0	0	0	0	0	0	0	0	0
0.69	0	0	0	0	0	0	0	0	0	0	0	0
0.70	0	0	0	0	0	0	0	0	0	0	0	0
0.71	0	0	0	0	0	0	0	0	0	0	0	0
0.72	0	0	0	0	0	0	1	0	0	1	0	0
0.73	0	0	0	0	0	0	0	2	0	0	2	0
0.74	0	0	0	0	0	0	1	0	0	1	0	0
0.75	0	0	0	0	0	0	0	3	0	0	3	0
0.76	0	0	0	0	0	0	1	0	0	1	0	0
0.77	0	0	0	0	0	0	0	2	0	0	2	0
0.78	0	0	0	0	0	0	1	1	0	1	1	0
0.79	0	0	0	0	0	0	0	1	0	0	1	0
0.80	0	0	0	0	0	0	0	0	0	0	0	0
0.81	0	0	0	0	0	0	0	3	0	0	3	0
0.82	0	0	0	0	0	0	0	0	0	0	0	0
0.83	0	0	0	0	0	0	1	0	0	1	0	0
0.84	0	0	0	0	0	0	0	3	0	0	3	0
0.85	0	0	0	0	0	0	1	0	0	1	0	0
0.86	0	0	0	0	0	0	0	1	0	0	1	0
0.87	0	0	0	0	0	0	0	0	0	0	0	0
0.88	0	0	0	0	0	0	0	0	0	0	0	0
0.89	0	0	0	0	0	0	0	0	0	0	0	0
0.90	0	0	0	0	0	0	1	2	0	1	2	0
0.91	0	0	0	0	0	0	0	0	0	0	0	0
0.92	0	0	0	0	0	0	0	2	0	0	2	0
0.93	0	0	0	0	0	0	0	0	0	0	0	0
0.94	0	0	0	0	0	0	0	0	0	0	0	0
0.95	0	0	0	0	0	0	0	0	0	0	0	0
0.96	0	0	0	0	0	0	0	0	0	0	0	0
0.97	0	0	0	0	0	0	0	0	0	0	0	0
0.98	0	0	0	0	0	0	0	0	0	0	0	0
0.99	0	0	0	0	0	0	0	0	0	0	0	0
1.00	0	0	0	0	0	0	1	0	0	1	0	0
SUBTOTAL	0	0	0	14	1	0	21	43	2	35	44	2

TABLE 9-3

MISSION • 1023-2 • INSTRUMENT • FRWD 12-06-68 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
1.01	0	0	0	0	0	0	0	0	0	0	0	0
1.02	0	0	0	0	0	0	0	0	0	0	0	0
1.03	0	0	0	0	0	0	0	0	0	0	0	0
1.04	0	0	0	0	0	0	0	0	0	0	0	0
1.05	0	0	0	0	0	0	0	0	0	0	0	0
1.06	0	0	0	0	0	0	0	1	0	0	1	0
1.07	0	0	0	0	0	0	0	1	0	0	1	0
1.08	0	0	0	0	0	0	0	2	0	0	2	0
1.09	0	0	0	0	0	0	0	2	0	0	2	0
1.10	0	0	0	0	0	0	0	4	0	0	4	0
1.11	0	0	0	0	0	0	0	1	1	0	1	1
1.12	0	0	0	0	0	0	0	1	1	0	1	1
1.13	0	0	0	0	0	0	0	0	0	0	0	0
1.14	0	0	0	0	0	0	0	0	0	0	0	0
1.15	0	0	0	0	0	0	0	0	1	0	0	1
1.16	0	0	0	0	0	0	0	1	2	0	1	2
1.17	0	0	0	0	0	0	0	2	0	0	2	0
1.18	0	0	0	0	0	0	0	0	1	0	0	1
1.19	0	0	0	0	0	0	0	1	1	0	1	1
1.20	0	0	0	0	0	0	0	1	0	0	1	0
1.21	0	0	0	0	0	0	0	1	1	0	1	1
1.22	0	0	0	0	0	0	0	1	3	0	1	3
1.23	0	0	0	0	0	0	0	3	0	0	3	0
1.24	0	0	0	0	0	0	0	0	1	0	0	1
1.25	0	0	0	0	0	0	0	0	1	0	0	1
1.26	0	0	0	0	0	0	0	1	1	0	1	1
1.27	0	0	0	0	0	0	0	1	0	0	1	0
1.28	0	0	0	1	0	0	0	2	0	1	2	0
1.29	0	0	0	0	0	0	0	4	0	0	4	0
1.30	0	0	0	0	0	0	0	4	0	0	4	0
1.31	0	0	0	0	0	0	0	3	0	0	3	0
1.32	0	0	0	0	0	0	0	3	0	0	3	0
1.33	0	0	0	0	0	0	0	3	1	0	4	1
1.34	0	0	0	0	0	0	0	1	0	0	1	0
1.35	0	0	0	0	0	0	0	1	0	0	1	0
1.36	0	0	0	0	0	0	0	0	2	0	0	2
1.37	0	0	0	0	0	0	0	2	0	0	2	0
1.38	0	0	0	0	0	0	0	1	0	0	3	0
1.39	0	0	0	0	0	0	0	2	0	0	4	0
1.40	0	0	0	0	0	0	0	2	0	0	4	0
1.41	0	0	0	0	0	0	0	0	2	0	0	2
1.42	0	0	0	0	0	0	0	1	0	0	3	0
1.43	0	0	0	0	0	0	0	0	1	0	0	1
1.44	0	0	0	0	0	0	0	0	1	0	0	1
1.45	0	0	0	0	0	0	0	0	0	0	0	0
1.46	0	0	0	0	0	0	0	0	0	0	0	0
1.47	0	0	0	0	0	0	0	0	0	0	0	0
1.48	0	0	0	0	0	0	0	0	0	0	0	0
1.49	0	0	0	0	0	0	0	0	0	0	0	0
1.50	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	2	13	0	1	42	2	3	55	2

TABLE 9-3

~~TOP SECRET~~ [redacted]

MISSION • 1023-2 • INSTRUMENT • FRWD 12-06-65 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
1.51	0	0	0	0	1	0	0	0	2	0	1	2
1.52	0	0	0	0	1	0	0	2	0	0	2	1
1.53	0	0	0	0	0	0	0	2	0	0	2	0
1.54	0	0	0	0	0	0	0	2	0	0	2	0
1.55	0	0	0	0	0	0	0	0	1	0	0	1
1.56	0	0	0	0	0	0	0	0	1	0	0	1
1.57	0	0	0	0	0	0	0	0	1	0	0	1
1.58	0	0	0	0	0	0	0	0	1	0	0	1
1.59	0	0	0	0	0	0	0	1	2	0	1	2
1.60	0	0	0	0	0	0	0	0	2	0	0	2
1.61	0	0	0	0	0	0	0	0	1	0	0	1
1.62	0	0	0	0	0	0	0	0	1	0	0	1
1.63	0	0	0	0	0	0	0	0	2	0	0	2
1.64	0	0	0	0	0	0	0	1	1	0	1	1
1.65	0	0	0	0	0	0	0	0	1	0	0	1
1.66	0	0	0	0	0	0	0	0	2	0	0	2
1.67	0	0	0	0	0	0	0	0	1	0	0	1
1.68	0	0	0	0	0	0	0	1	2	0	1	2
1.69	0	0	0	0	0	0	0	0	1	0	0	1
1.70	0	0	0	0	0	0	0	0	1	0	0	1
1.71	0	0	0	0	0	0	0	0	1	0	0	1
1.72	0	0	0	0	0	0	0	0	1	0	0	1
1.73	0	0	0	0	0	0	0	0	1	0	0	1
1.74	0	0	0	0	0	0	0	0	2	0	0	2
1.75	0	0	0	0	0	0	0	0	2	0	0	2
1.76	0	0	0	0	0	0	0	0	2	0	0	2
1.77	0	0	0	0	0	0	0	1	0	0	1	0
1.78	0	0	0	0	0	0	0	0	1	0	0	1
1.79	0	0	0	0	0	0	0	1	0	0	1	0
1.80	0	0	0	0	0	0	0	0	1	0	0	1
1.81	0	0	0	0	0	0	0	1	0	0	1	0
1.82	0	0	0	0	0	0	0	0	2	0	0	2
1.83	0	0	0	0	0	0	0	0	1	0	0	1
1.84	0	0	0	0	0	0	0	0	1	0	0	1
1.85	0	0	0	0	0	0	0	0	1	0	0	1
1.86	0	0	0	0	0	0	0	0	1	0	0	1
1.87	0	0	0	0	0	0	0	0	1	0	0	1
1.88	0	0	0	0	0	0	0	0	1	0	0	1
1.89	0	0	0	0	0	0	0	0	2	0	0	2
1.90	0	0	0	0	0	0	0	0	2	0	0	2
1.91	0	0	0	0	0	0	0	0	2	0	0	2
1.92	0	0	0	0	0	0	0	1	1	0	1	1
1.93	0	0	0	0	0	0	0	0	1	0	0	1
1.94	0	0	0	0	0	0	0	0	2	0	0	2
1.95	0	0	0	0	0	0	0	0	2	0	0	2
1.96	0	0	0	0	0	0	0	0	3	0	0	3
1.97	0	0	0	0	0	0	0	0	1	0	0	1
1.98	0	0	0	0	0	0	0	0	2	0	0	2
1.99	0	0	0	0	0	0	0	0	1	0	0	1
2.00	0	0	0	0	0	0	0	0	2	0	0	3
SUBTOTAL	0	0	0	0	9	6	0	20	28	0	29	34

~~TOP SECRET~~ [redacted]

TABLE 9-3

MISSION • 1023-2 • INSTRUMENT • FRWD 12-06-65 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
2.01	0	0	0	0	0	0	0	0	0	0	0	0
2.02	0	0	0	0	0	0	0	0	1	0	0	1
2.03	0	0	0	0	0	0	0	1	0	0	1	0
2.04	0	0	0	0	0	0	0	0	0	0	0	0
2.05	0	0	0	0	0	0	0	0	4	0	0	5
2.06	0	0	0	0	0	0	0	0	1	0	0	2
2.07	0	0	0	0	0	0	0	0	2	0	0	2
2.08	0	0	0	0	0	0	0	0	6	0	0	6
2.09	0	0	0	0	0	0	0	0	1	0	0	2
2.10	0	0	0	0	0	0	0	0	3	0	0	5
2.11	0	0	0	0	0	0	0	0	2	0	0	3
2.12	0	0	0	0	0	0	0	0	2	0	0	3
2.13	0	0	0	0	0	0	0	0	5	0	0	7
2.14	0	0	0	0	0	0	0	0	1	0	0	5
2.15	0	0	0	0	0	0	0	0	5	0	0	5
2.16	0	0	0	0	0	0	0	0	2	0	0	2
2.17	0	0	0	0	0	0	0	0	6	0	0	7
2.18	0	0	0	0	0	0	0	0	1	0	0	1
2.19	0	0	0	0	0	0	0	0	3	0	0	3
2.20	0	0	0	0	0	0	0	0	2	0	0	3
2.21	0	0	0	0	0	0	0	0	4	0	0	4
2.22	0	0	0	0	0	0	0	0	4	0	0	5
2.23	0	0	0	0	0	0	0	0	1	0	0	1
2.24	0	0	0	0	0	0	0	0	3	0	0	3
2.25	0	0	0	0	0	0	0	0	1	0	0	1
2.26	0	0	0	0	0	0	0	0	1	0	0	1
2.27	0	0	0	0	0	0	0	0	1	0	0	1
2.28	0	0	0	0	0	0	0	0	0	0	0	0
2.29	0	0	0	0	0	0	0	0	0	0	0	0
2.30	0	0	0	0	0	0	0	0	0	0	0	0
2.31	0	0	0	0	0	0	0	0	0	0	0	0
2.32	0	0	0	0	0	0	0	0	3	0	0	3
2.33	0	0	0	0	0	0	0	0	0	0	0	0
2.34	0	0	0	0	0	0	0	0	0	0	0	0
2.35	0	0	0	0	0	0	0	0	0	0	0	0
2.36	0	0	0	0	0	0	0	0	0	0	0	0
2.37	0	0	0	0	0	0	0	0	0	0	0	0
2.38	0	0	0	0	0	0	0	0	1	0	0	1
2.39	0	0	0	0	0	0	0	0	0	0	0	0
2.40	0	0	0	0	0	0	0	0	0	0	0	0
2.41	0	0	0	0	0	0	0	0	1	0	0	1
2.42	0	0	0	0	0	0	0	0	0	0	0	0
2.43	0	0	0	0	0	0	0	0	0	0	0	0
2.44	0	0	0	0	0	0	0	0	0	0	0	0
2.45	0	0	0	0	0	0	0	0	0	0	0	0
2.46	0	0	0	0	0	0	0	0	0	0	0	0
2.47	0	0	0	0	0	0	0	0	0	0	0	0
2.48	0	0	0	0	0	0	0	0	0	0	0	0
2.49	0	0	0	0	0	0	0	0	0	0	0	0
2.50	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	0	13	0	1	67	0	1	80

TABLE 9-3

~~TOP SECRET~~ [redacted]

MISSION • 1023-2 • INSTROMENT • FRWD 12-06-65 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
2.51	0	0	0	0	0	0	0	0	0	0	0	0
2.52	0	0	0	0	0	0	0	0	0	0	0	0
2.53	0	0	0	0	0	0	0	0	0	0	0	0
2.54	0	0	0	0	0	0	0	0	0	0	0	0
2.55	0	0	0	0	0	0	0	0	0	0	0	0
2.56	0	0	0	0	0	0	0	0	0	0	0	0
2.57	0	0	0	0	0	0	0	0	0	0	0	0
2.58	0	0	0	0	0	0	0	0	0	0	0	0
2.59	0	0	0	0	0	0	0	0	0	0	0	0
2.60	0	0	0	0	0	0	0	0	0	0	0	0
2.61	0	0	0	0	0	0	0	0	0	0	0	0
2.62	0	0	0	0	0	0	0	0	0	0	0	0
2.63	0	0	0	0	0	0	0	0	0	0	0	0
2.64	0	0	0	0	0	0	0	0	0	0	0	0
2.65	0	0	0	0	0	0	0	0	0	0	0	0
2.66	0	0	0	0	0	0	0	0	0	0	0	0
2.67	0	0	0	0	0	0	0	0	0	0	0	0
2.68	0	0	0	0	0	0	0	0	0	0	0	0
2.69	0	0	0	0	0	0	0	0	0	0	0	0
2.70	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	24	24	19	111	111	99	135	135	118

MISSION 1023-2 INSTR - FRWD 12-06-65 PROCESSING AND EXPOSURE ANALYS

PROCESS LEVEL	SAMPLE SIZE	UNDER EXPOSED	UNDER PROCESSED	CURRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0	0 PC	0 PC	0 PC	0 PC	0 PC
INTERMEDIATE	24	0 PC	13 PC	75 PC	8 PC	4 PC
FULL	111	42 PC	0 PC	57 PC	1 PC	0 PC
ALL LEVELS	135	35 PC	2 PC	60 PC	2 PC	1 PC

PROCESS LEVEL	BASE + FOG	UNDER EXPOSED	UNDER PROCESSED	CURRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0.01-0.09	0.01-0.13	0.14-0.39	0.40-0.90	----------	0.91 AND U
INTERMED	0.10-0.17	0.01-0.20	0.21-0.39	0.40-0.90	0.91-1.34	1.35 AND U
FULL	0.18 AND UP	0.01-0.39	----------	0.40-0.90	0.91-1.69	1.70 AND U

~~TOP SECRET~~ [redacted]

TABLE 9-3

MISSION • 1023-2 • INSTR • FRWD • 12-06-65 PLOT OF D MIN • TERRAIN • PROCESSING • INTERMEDIATE

ARITH MEAN • 0.68 • MEDIAN • 0.61 • STD DEV • 0.27 • RANGE • 0.32 TO 1.38 WITH 24 SAMPLES

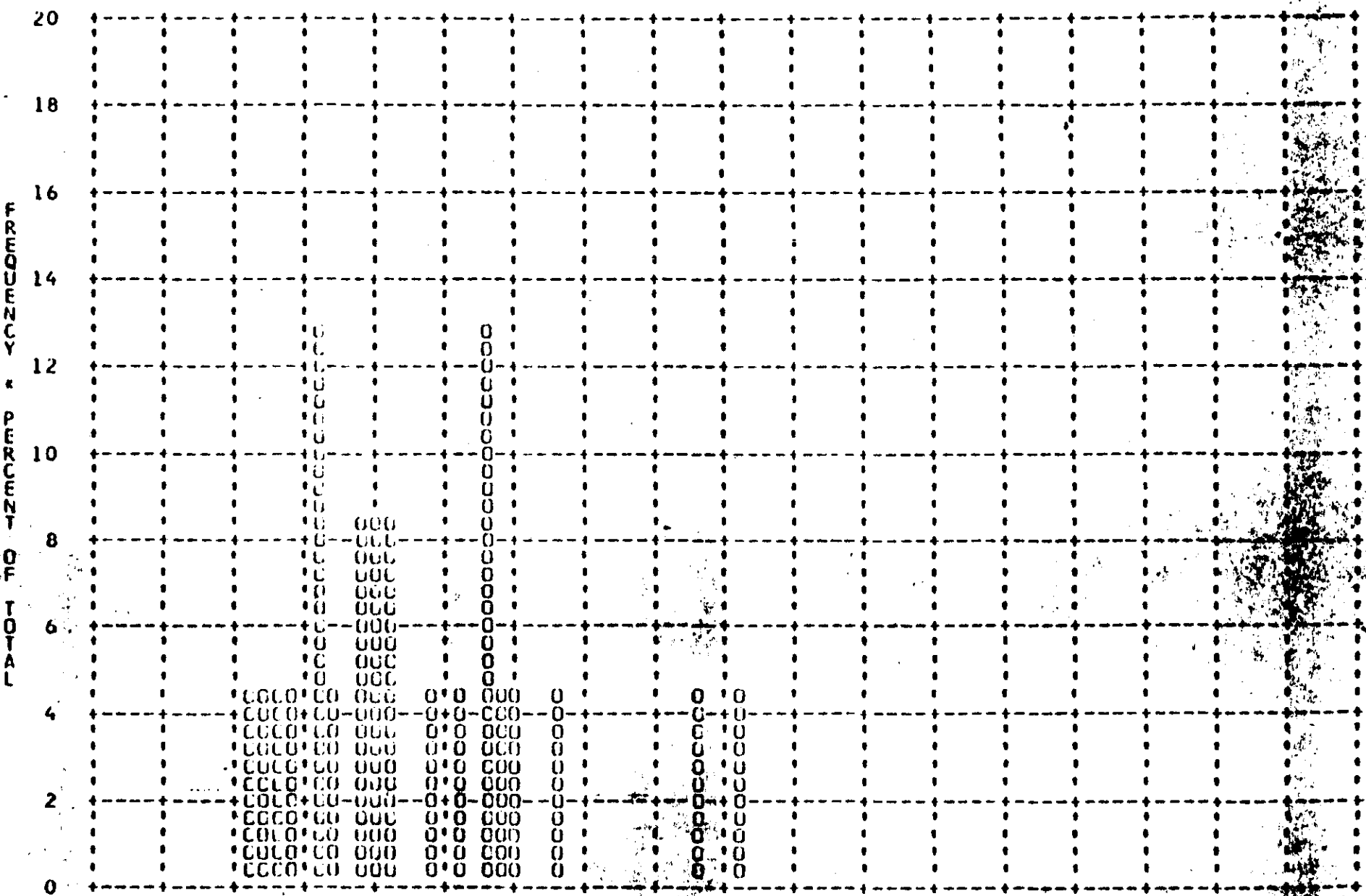


FIGURE 9-19

[redacted]

NISSION • 1023-2 • INSTR • FRWD • 12-06-65 PLOT OF D MAX • TERRAIN • PROCESSING • INTERMEDIATE

ARITH MEAN • 1.44 • MEDIAN • 1.46 • STD DEV • 0.32 • RANGE • 0.48 TO 1.90 WITH 24 SAMPLES

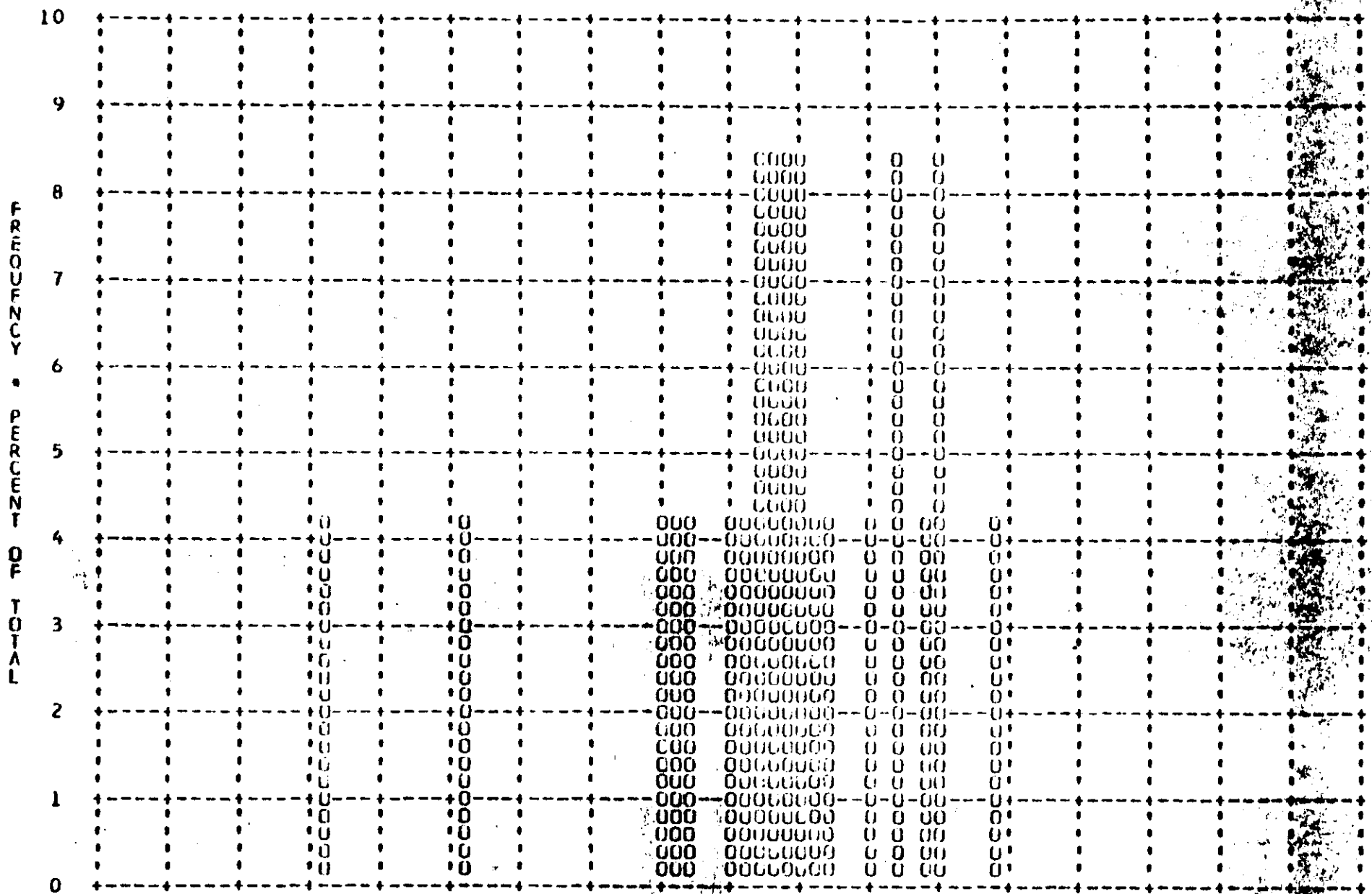


FIGURE 9-20

MISSION • 1023-2 • INSTR • FRWD • 12-06-65 PLOT OF D MAX • CLOUD • PROCESSING • INTERMEDIATE

ARITH MEAN • 2.04 • MEDIAN • 2.11 • STD DEV • 0.20 • RANGE • 1.52 TO 2.31 WITH 19 SAMPLES

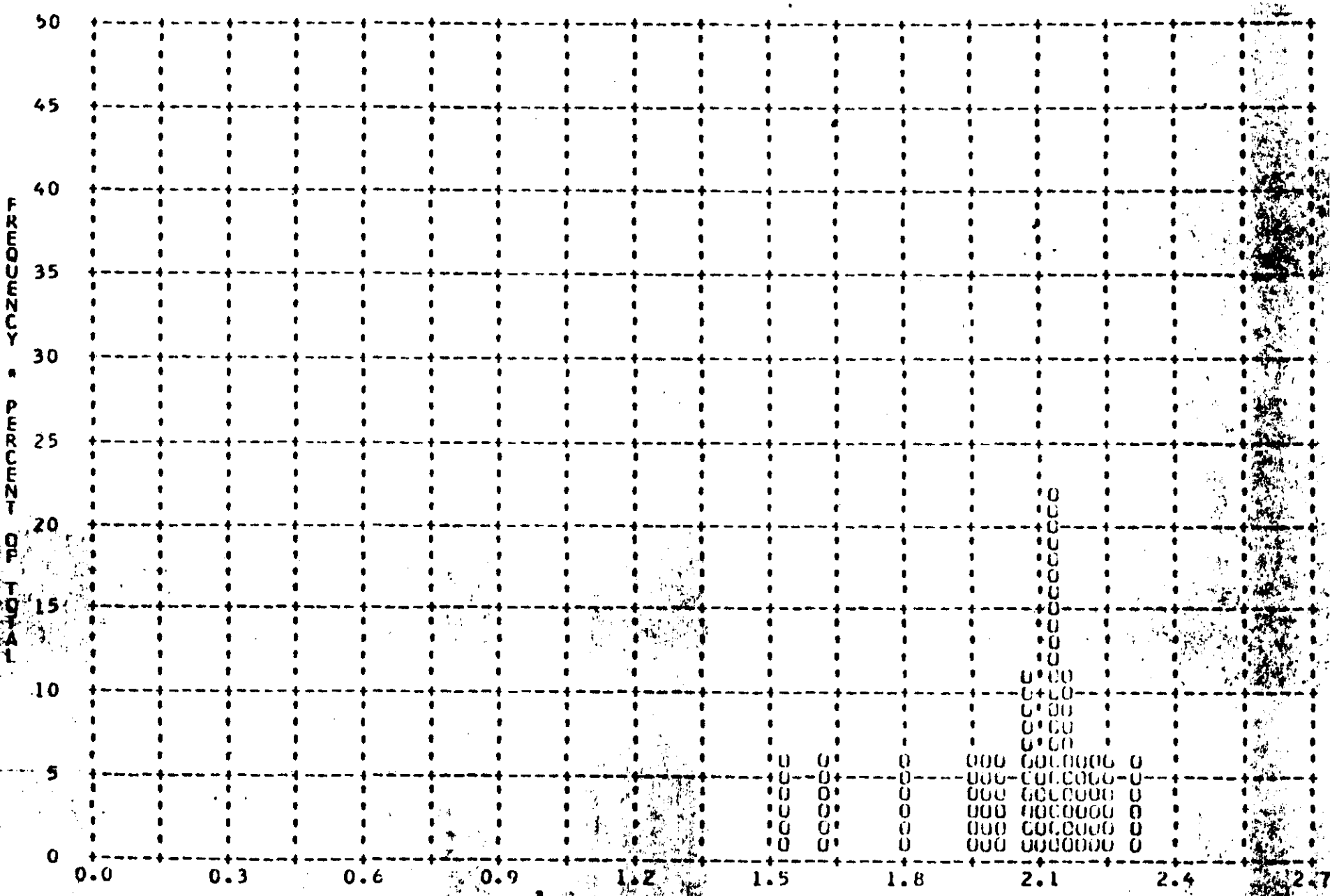


FIGURE 9-21

MISSION • 1023-2 • LASTR • FRWD • 12-06-65 PLOT OF L MIN • TERRAIN • PROCESSING • FULL

ARITH MEAN • 0.43 • MEDIAN • 0.40 • STD DEV • 0.15 • RANGE • 0.22 TO 1.20 WITH 111 SAMPLES

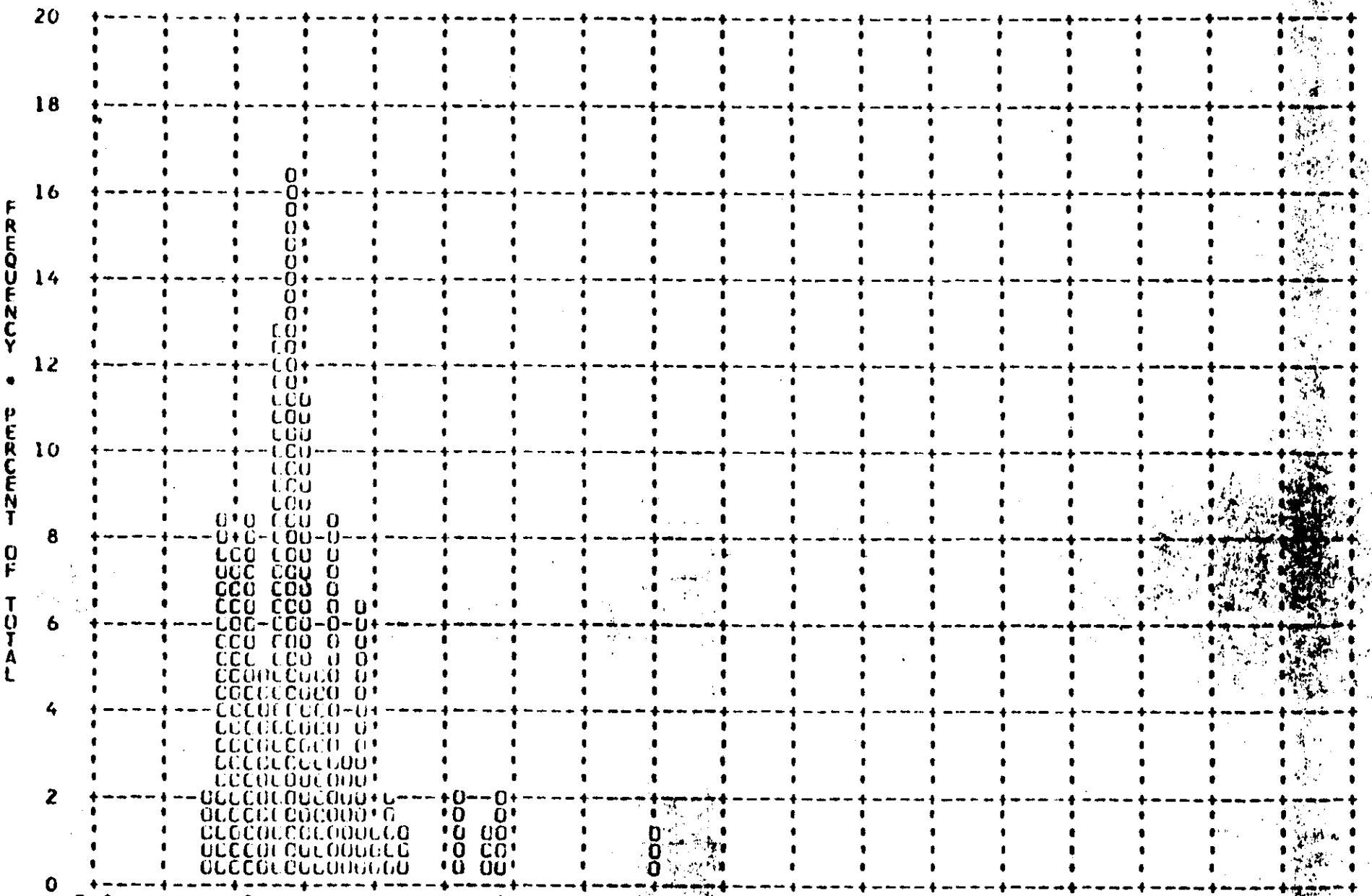


FIGURE 9-22

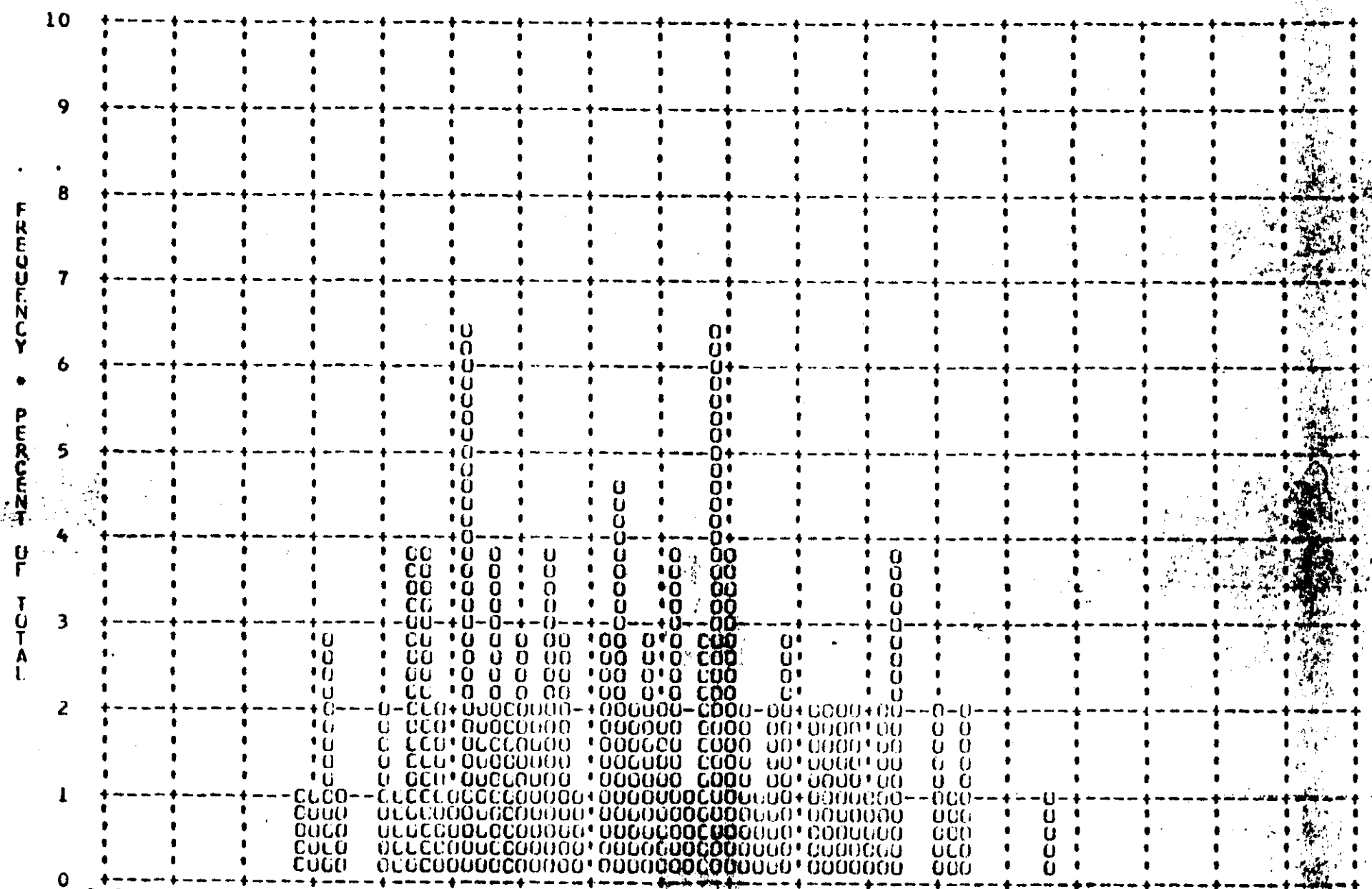

MISSION • 1023-2 • INSTR • FRWD • 12-06-65 PLOT OF D MAX • TERRAIN • PROCESSING • FULL
ARITH MEAN • 1.12 • MEDIAN • 1.11 • STD DEV • 0.38 • RANGE • 0.41 TO 2.03 WITH 111 SAMPLES
FREQUENCY • PERCENT OF TOTAL
10
9
8
7
6
5
4
3
2
1
0
0.0
0.3
0.6
0.9
1.2
1.5
1.8
2.1
2.4
2.7
• DENSITY •

FIGURE 9-23

MISSION • 1023-2 • INSTR • FRWD • 12-06-65 PLOT OF D MAX • CLOUD • PROCESSING • FULL

ARITH MEAN • 2.03 • MEDIAN • 2.11 • STD DEV • 0.27 • RANGE • 0.90 TO 2.41 WITH 99 SAMPLES

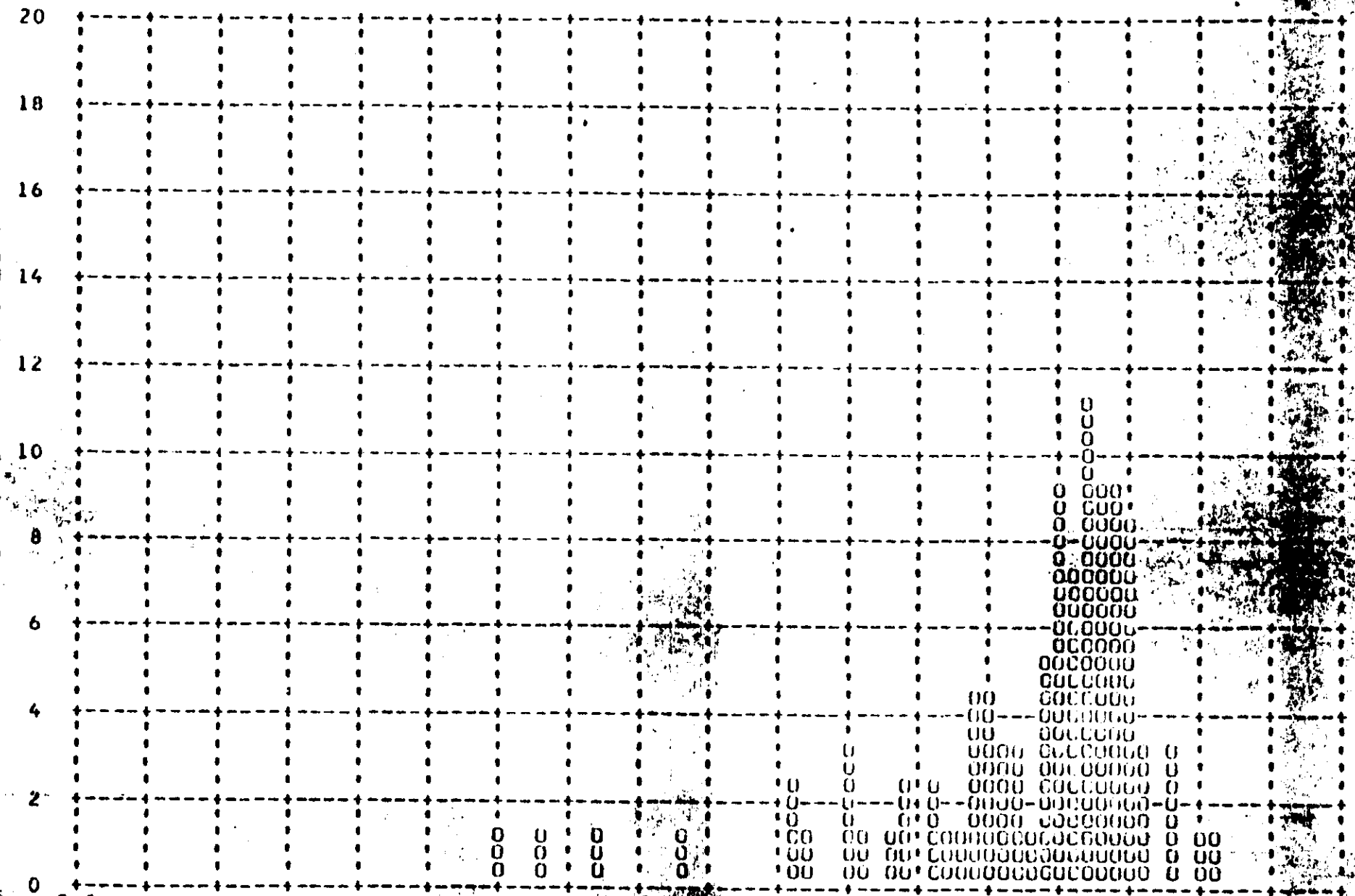


FIGURE 9-24

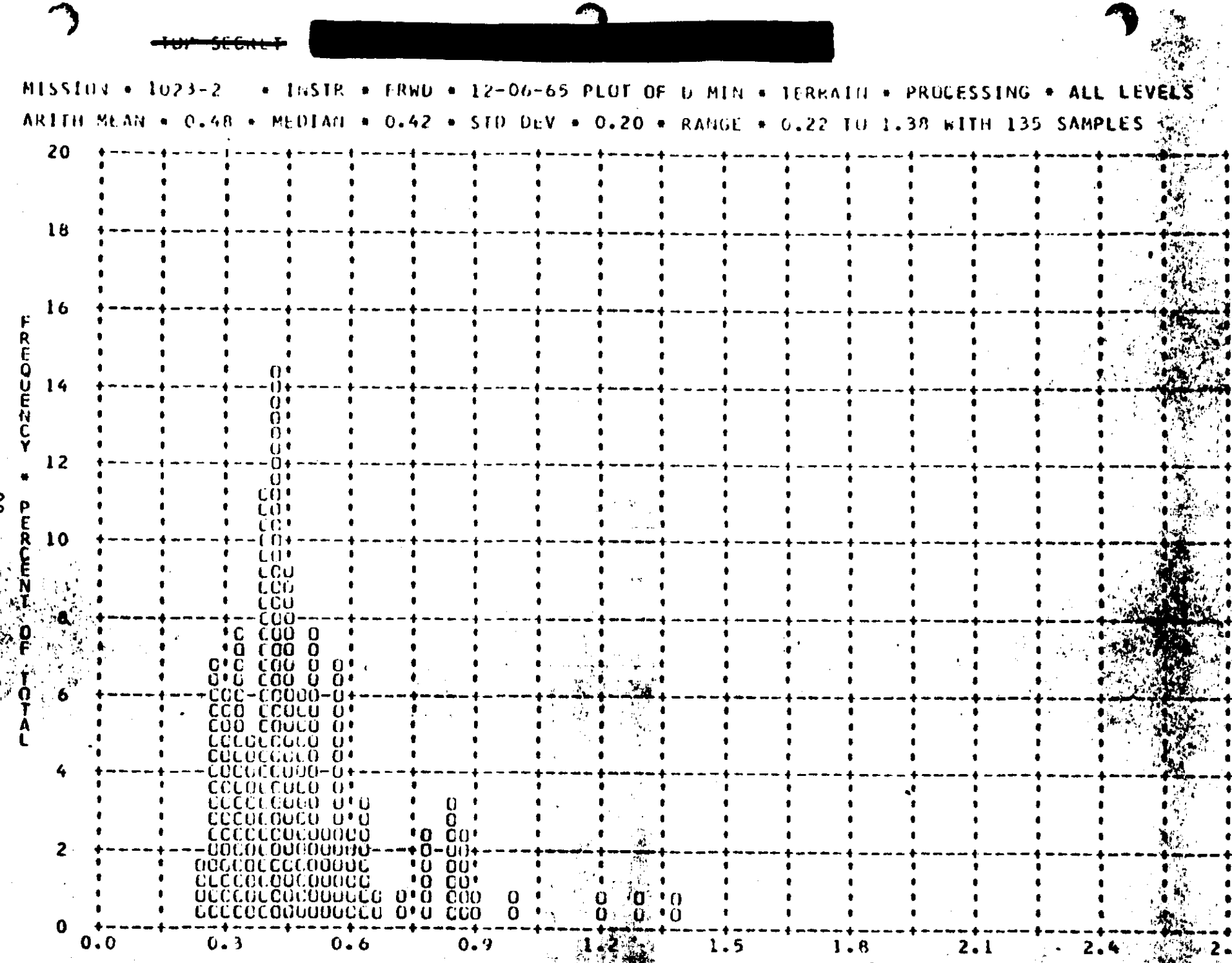

MISSION • 1023-2 • INSTR • FRWD • 12-06-65 PLOT OF D MIN • TERRAIN • PROCESSING • ALL LEVELS
ARITH MEAN • 0.48 • MEDIAN • 0.42 • STD DEV • 0.20 • RANGE • 0.22 TO 1.38 WITH 135 SAMPLES
FREQUENCY • PERCENT OF TOTAL
20
18
16
14
12
10
8
6
4
2
0
0.0
0.3
0.6
0.9
1.2
1.5
1.8
2.1
2.4
• DENSITY •

FIGURE 9-25

MISSION • 1023-2 • INSTR • FRWD • 12-06-65 PLOT OF D MAX • TERRAIN • PROCESSING • ALL LEVELS

ARITH MEAN • 1.18 • MEDIAN • 1.22 • STD DEV • 0.39 • RANGE • 0.41 TO 2.03 WITH 135 SAMPLES

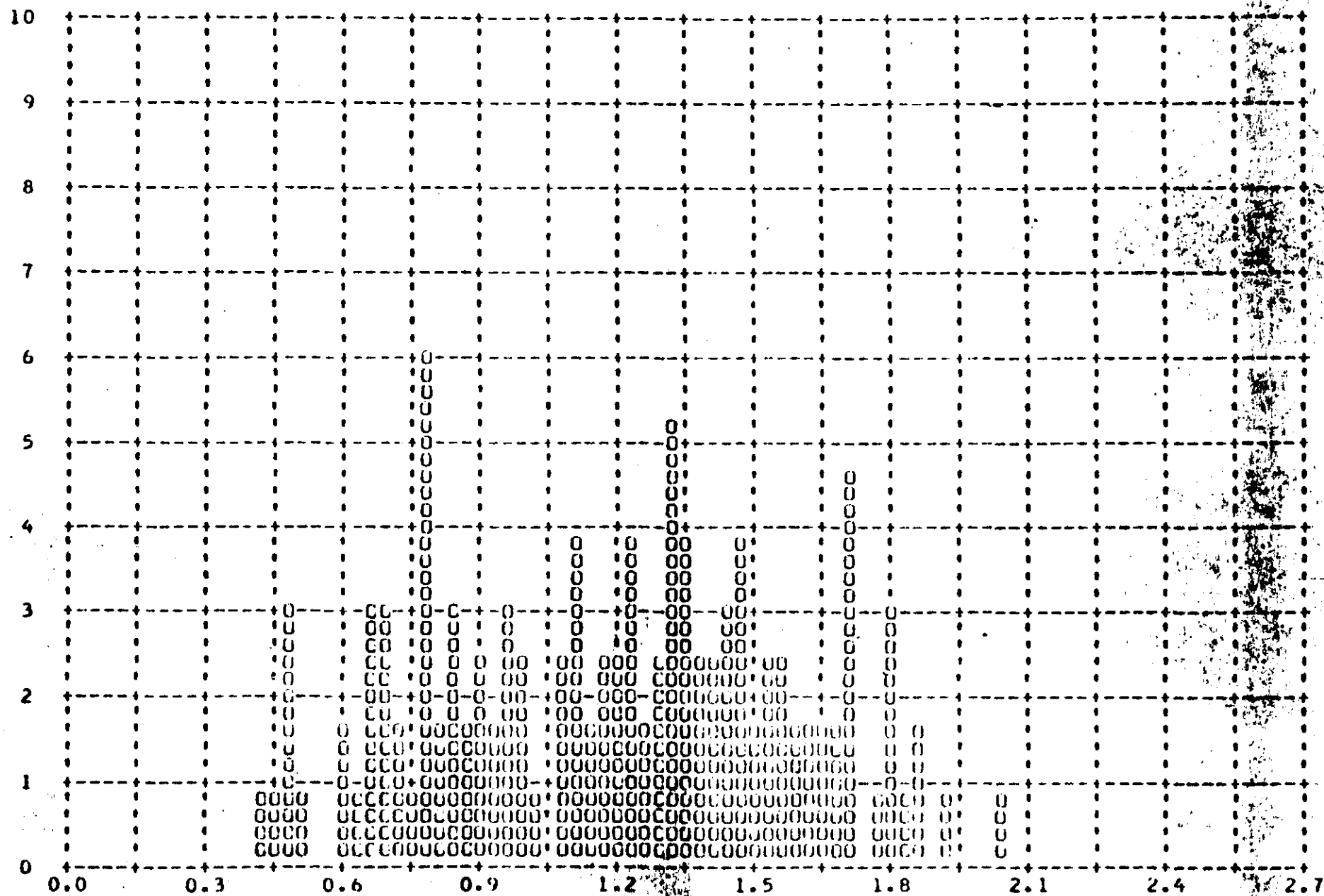


FIGURE 9-26

MISSION • 1023-2 • INSTR • FRWD • 12-06-65 PLOT OF D MAX • CLOUD • PROCESSING • ALL LEVELS

ARITH MEAN • 2.03 • MEDIAN • 2.11 • STD DEV • 0.26 • RANGE • 0.90 TO 2.41 WITH 118 SAMPLES

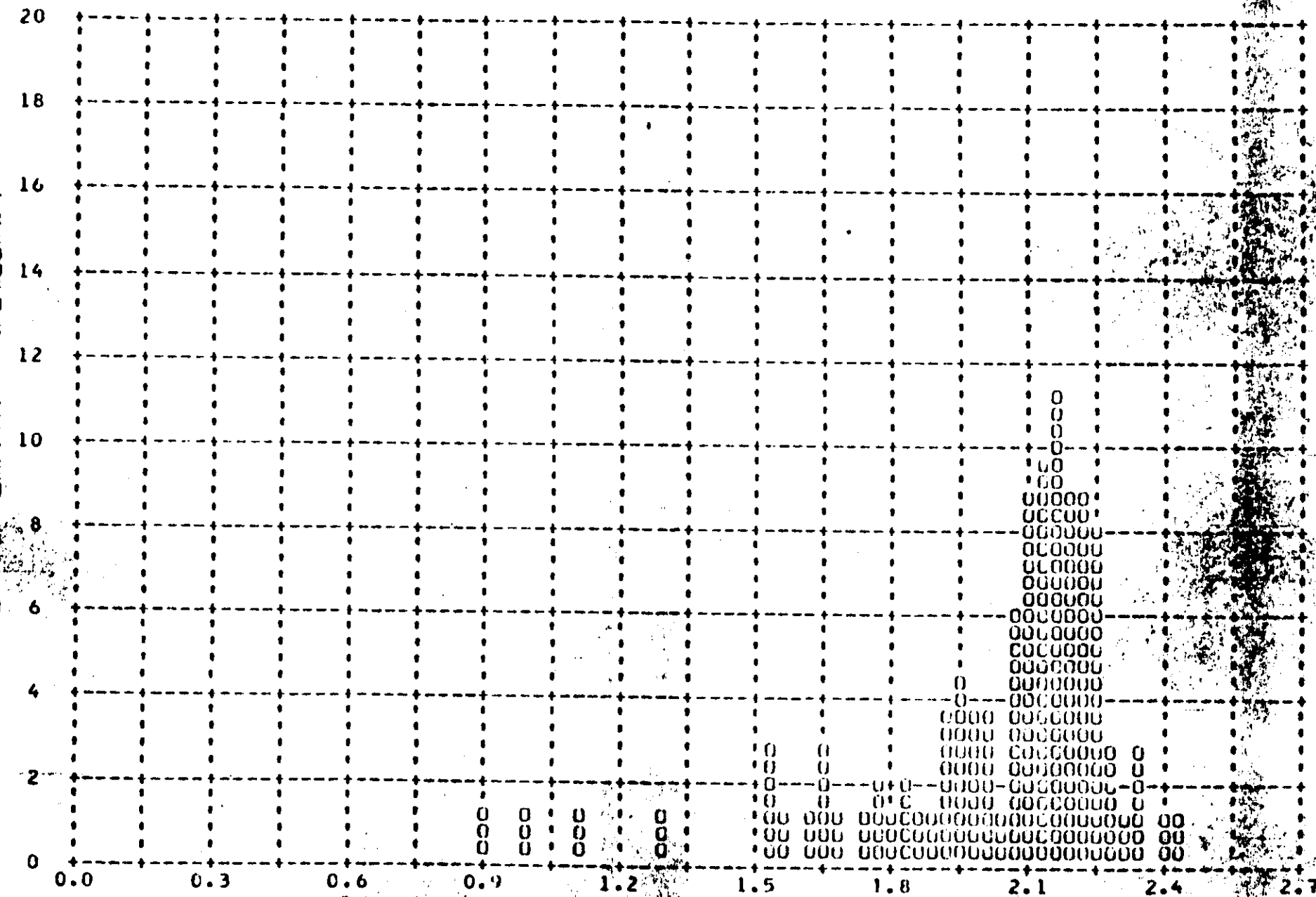


FIGURE 9-27

MISSION • 1023-2 • INSTRUMENT • AFT • [redacted] DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
0.01	0	0	0	0	0	0	0	0	0	0	0	0
0.02	0	0	0	0	0	0	0	0	0	0	0	0
0.03	0	0	0	0	0	0	0	0	0	0	0	0
0.04	0	0	0	0	0	0	0	0	0	0	0	0
0.05	0	0	0	0	0	0	0	0	0	0	0	0
0.06	0	0	0	0	0	0	0	0	0	0	0	0
0.07	0	0	0	0	0	0	0	0	0	0	0	0
0.08	0	0	0	0	0	0	0	0	0	0	0	0
0.09	0	0	0	0	0	0	0	0	0	0	0	0
0.10	0	0	0	0	0	0	0	0	0	0	0	0
0.11	0	0	0	0	0	0	0	0	0	0	0	0
0.12	0	0	0	0	0	0	0	0	0	0	0	0
0.13	0	0	0	0	0	0	0	0	0	0	0	0
0.14	0	0	0	0	0	0	0	0	0	0	0	0
0.15	0	0	0	0	0	0	0	0	0	0	0	0
0.16	0	0	0	0	0	0	0	0	0	0	0	0
0.17	0	0	0	0	0	0	0	0	0	0	0	0
0.18	0	0	0	0	0	0	0	0	0	0	0	0
0.19	0	0	0	0	0	0	0	0	0	0	0	0
0.20	0	0	0	0	0	0	0	0	0	0	0	0
0.21	0	0	0	0	0	0	0	0	0	0	0	0
0.22	0	0	0	0	0	0	0	0	0	0	0	0
0.23	0	0	0	0	0	0	0	0	0	0	0	0
0.24	0	0	0	0	0	0	0	0	0	0	0	0
0.25	0	0	0	0	0	0	0	0	0	0	0	0
0.26	0	0	0	0	0	0	0	0	0	0	0	0
0.27	0	0	0	0	0	0	0	0	0	0	0	0
0.28	0	0	0	0	0	0	0	0	0	0	0	0
0.29	0	0	0	0	0	0	0	0	0	0	0	0
0.30	0	0	0	0	0	0	0	0	0	0	0	0
0.31	0	0	0	0	0	0	0	0	0	0	0	0
0.32	0	0	0	0	0	0	0	0	0	0	0	0
0.33	0	0	0	0	0	0	0	0	0	0	0	0
0.34	0	0	0	0	0	0	0	0	0	0	0	0
0.35	0	0	0	0	0	0	0	0	0	0	0	0
0.36	0	0	0	0	0	0	0	0	0	0	0	0
0.37	0	0	0	0	0	0	0	0	0	0	0	0
0.38	0	0	0	0	0	0	0	0	0	0	0	0
0.39	0	0	0	0	0	0	0	0	0	0	0	0
0.40	0	0	0	0	0	0	0	0	0	0	0	0
0.41	0	0	0	0	0	0	0	0	0	0	0	0
0.42	0	0	0	0	0	0	0	0	0	0	0	0
0.43	0	0	0	0	0	0	0	0	0	0	0	0
0.44	0	0	0	0	0	0	0	0	0	0	0	0
0.45	0	0	0	0	0	0	0	0	0	0	0	0
0.46	0	0	0	0	0	0	0	0	0	0	0	0
0.47	0	0	0	0	0	0	0	0	0	0	0	0
0.48	0	0	0	0	0	0	0	0	0	0	0	0
0.49	0	0	0	0	0	0	0	0	0	0	0	0
0.50	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	45	1	0	110	1	0	155	2	0

TABLE 9-4

MISSION • 1023-2 • INSTRUMENT • AFT 12-06-65 • DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
0.51	0	0	0	1	0	0	3	1	0	4	1	0
0.52	0	0	0	3	0	0	13	4	0	16	4	0
0.53	0	0	0	0	0	0	3	0	0	3	0	0
0.54	0	0	0	0	0	0	4	1	0	4	1	0
0.55	0	0	0	0	0	0	4	0	0	4	1	0
0.56	0	0	0	0	0	0	3	1	0	4	1	0
0.57	0	0	0	0	0	0	6	0	0	6	1	0
0.58	0	0	0	0	0	0	5	0	0	5	0	0
0.59	0	0	0	0	0	0	7	0	0	8	0	0
0.60	0	0	0	0	0	0	0	1	0	0	1	0
0.61	0	0	0	0	0	0	3	2	0	3	2	0
0.62	0	0	0	0	0	0	2	2	0	3	2	0
0.63	0	0	0	0	0	0	1	3	0	1	3	0
0.64	0	0	0	0	0	0	2	2	0	2	2	0
0.65	0	0	0	0	0	0	4	1	0	4	3	0
0.66	0	0	0	0	0	0	1	0	0	1	0	0
0.67	0	0	0	0	0	0	0	1	0	0	2	0
0.68	0	0	0	0	0	0	1	4	0	1	4	0
0.69	0	0	0	0	0	0	2	0	0	3	2	0
0.70	0	0	0	0	0	0	0	2	0	0	2	0
0.71	0	0	0	0	0	0	1	1	0	1	2	0
0.72	0	0	0	0	0	0	0	0	0	0	0	0
0.73	0	0	0	0	0	0	0	0	0	0	0	0
0.74	0	0	0	0	0	0	0	0	0	0	0	0
0.75	0	0	0	0	0	0	0	0	0	0	0	0
0.76	0	0	0	0	0	0	0	0	0	0	0	0
0.77	0	0	0	0	0	0	0	0	0	0	0	0
0.78	0	0	0	0	0	0	0	0	0	0	0	0
0.79	0	0	0	0	0	0	0	0	0	0	0	0
0.80	0	0	0	0	0	0	0	0	0	0	0	0
0.81	0	0	0	0	0	0	0	0	0	0	0	0
0.82	0	0	0	0	0	0	0	0	0	0	0	0
0.83	0	0	0	0	0	0	0	0	0	0	0	0
0.84	0	0	0	0	0	0	0	0	0	0	0	0
0.85	0	0	0	0	0	0	0	0	0	0	0	0
0.86	0	0	0	0	0	0	0	0	0	0	0	0
0.87	0	0	0	0	0	0	0	0	0	0	0	0
0.88	0	0	0	0	0	0	0	0	0	0	0	0
0.89	0	0	0	0	0	0	0	0	0	0	0	0
0.90	0	0	0	0	0	0	0	0	0	0	0	0
0.91	0	0	0	0	0	0	0	0	0	0	0	0
0.92	0	0	0	0	0	0	0	0	0	0	0	0
0.93	0	0	0	0	0	0	0	0	0	0	0	0
0.94	0	0	0	0	0	0	0	0	0	0	0	0
0.95	0	0	0	0	0	0	0	0	0	0	0	0
0.96	0	0	0	0	0	0	0	0	0	0	0	0
0.97	0	0	0	0	0	0	0	0	0	0	0	0
0.98	0	0	0	0	0	0	0	0	0	0	0	0
0.99	0	0	0	0	0	0	0	0	0	0	0	0
1.00	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	25	11	0	77	64	0	102	75	0

TOP SECRET [redacted]

TABLE 9-4

MISSION = 1023-2 * INSTRUMENT = AFT * 12-06-65 = DENSITY FREQ DISTRIBUTION

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
1.01	0	0	0	0	1	0	0	3	0	0	4	0
1.02	0	0	0	0	1	0	0	1	0	0	2	0
1.03	0	0	0	0	1	0	0	1	0	0	1	0
1.04	0	0	0	0	0	0	0	1	0	0	1	0
1.05	0	0	0	0	1	0	0	0	0	0	1	0
1.06	0	0	0	0	1	0	0	1	0	0	2	0
1.07	0	0	0	0	1	0	0	2	0	0	3	0
1.08	0	0	0	0	1	0	0	4	0	0	5	0
1.09	0	0	0	0	1	0	0	0	0	0	1	0
1.10	0	0	0	0	1	0	0	7	0	0	8	0
1.11	0	0	0	0	1	0	0	2	0	0	2	0
1.12	0	0	0	0	1	0	0	0	0	0	1	0
1.13	0	0	0	0	0	0	0	1	0	0	1	0
1.14	0	0	0	0	1	0	0	2	0	0	3	0
1.15	0	0	0	0	1	0	0	4	0	0	5	0
1.16	0	0	0	0	1	0	0	1	0	0	1	0
1.17	0	0	0	0	1	0	0	3	0	0	4	0
1.18	0	0	0	0	1	0	0	1	0	0	1	0
1.19	0	0	0	0	1	0	0	3	0	0	4	0
1.20	0	0	0	0	1	0	0	0	0	0	1	0
1.21	0	0	0	0	1	0	0	3	0	0	4	0
1.22	0	0	0	0	1	0	0	3	0	0	4	0
1.23	0	0	0	0	1	0	0	1	0	0	2	0
1.24	0	0	0	0	1	0	0	1	0	0	2	0
1.25	0	0	0	0	1	0	0	2	0	0	3	0
1.26	0	0	0	0	1	0	0	0	0	0	1	0
1.27	0	0	0	0	1	0	0	2	0	0	3	0
1.28	0	0	0	0	1	0	0	1	0	0	2	0
1.29	0	0	0	0	1	0	0	4	0	0	5	0
1.30	0	0	0	0	1	0	0	1	0	0	2	0
1.31	0	0	0	0	1	0	0	4	0	0	5	0
1.32	0	0	0	0	1	0	0	0	0	0	1	0
1.33	0	0	0	0	1	0	0	1	0	0	2	0
1.34	0	0	0	0	1	0	0	0	0	0	1	0
1.35	0	0	0	0	1	0	0	1	0	0	2	0
1.36	0	0	0	0	1	0	0	1	0	0	2	0
1.37	0	0	0	0	1	0	0	3	0	0	4	0
1.38	0	0	0	0	1	0	0	1	0	0	1	0
1.39	0	0	0	0	1	0	0	1	0	0	2	0
1.40	0	0	0	0	1	0	0	4	0	0	5	0
1.41	0	0	0	0	1	0	0	0	0	0	1	0
1.42	0	0	0	0	1	0	0	7	0	0	8	0
1.43	0	0	0	0	1	0	0	0	0	0	1	0
1.44	0	0	0	0	1	0	0	3	0	0	4	0
1.45	0	0	0	0	1	0	0	1	0	0	2	0
1.46	0	0	0	0	1	0	0	0	0	0	1	0
1.47	0	0	0	0	1	0	0	0	0	0	1	0
1.48	0	0	0	0	1	0	0	0	0	0	1	0
1.49	0	0	0	0	1	0	0	0	0	0	1	0
1.50	0	0	0	0	1	0	0	0	0	0	1	0
SUBTOTAL	0	0	0	0	37	0	0	82	0	0	119	0

[redacted] TOP SECRET

TABLE 9-4

MISSION • 1023-2 • INSTRUMENT • AFT • 12-06-65 • DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
1.51	0	0	0	0	0	0	0	2	0	0	2	0
1.52	0	0	0	0	0	0	0	1	0	0	1	0
1.53	0	0	0	0	0	0	0	1	0	0	1	0
1.54	0	0	0	0	0	0	0	0	0	0	0	0
1.55	0	0	0	0	0	0	0	2	0	0	2	0
1.56	0	0	0	0	0	0	0	3	0	0	3	0
1.57	0	0	0	0	0	0	0	0	0	0	0	0
1.58	0	0	0	0	0	0	0	1	0	0	1	0
1.59	0	0	0	0	0	0	0	1	0	0	1	0
1.60	0	0	0	0	0	0	0	3	0	0	3	0
1.61	0	0	0	0	0	0	0	1	0	0	1	0
1.62	0	0	0	0	0	0	0	1	0	0	1	0
1.63	0	0	0	0	0	0	0	1	0	0	1	0
1.64	0	0	0	0	0	0	0	0	0	0	0	0
1.65	0	0	0	0	0	0	0	3	0	0	3	0
1.66	0	0	0	0	0	0	0	1	0	0	1	0
1.67	0	0	0	0	0	0	0	0	0	0	0	0
1.68	0	0	0	0	0	0	0	1	0	0	1	0
1.69	0	0	0	0	0	0	0	4	0	0	4	0
1.70	0	0	0	0	0	0	0	1	0	0	1	0
1.71	0	0	0	0	0	0	0	2	0	0	2	0
1.72	0	0	0	0	0	0	0	2	0	0	2	0
1.73	0	0	0	0	0	0	0	0	0	0	0	0
1.74	0	0	0	0	0	0	0	1	0	0	1	0
1.75	0	0	0	0	0	0	0	1	0	0	1	0
1.76	0	0	0	0	0	0	0	0	0	0	0	0
1.77	0	0	0	0	0	0	0	1	0	0	1	0
1.78	0	0	0	0	0	0	0	2	0	0	2	0
1.79	0	0	0	0	0	0	0	0	0	0	0	0
1.80	0	0	0	0	0	0	0	1	0	0	1	0
1.81	0	0	0	0	0	0	0	0	0	0	0	0
1.82	0	0	0	0	0	0	0	1	0	0	1	0
1.83	0	0	0	0	0	0	0	0	0	0	0	0
1.84	0	0	0	0	0	0	0	1	0	0	1	0
1.85	0	0	0	0	0	0	0	0	0	0	0	0
1.86	0	0	0	0	0	0	0	0	0	0	0	0
1.87	0	0	0	0	0	0	0	0	0	0	0	0
1.88	0	0	0	0	0	0	0	0	0	0	0	0
1.89	0	0	0	0	0	0	0	0	0	0	0	0
1.90	0	0	0	0	0	0	0	1	0	0	1	0
1.91	0	0	0	0	0	0	0	0	0	0	0	0
1.92	0	0	0	0	0	0	0	0	0	0	0	0
1.93	0	0	0	0	0	0	0	0	0	0	0	0
1.94	0	0	0	0	0	0	0	0	0	0	0	0
1.95	0	0	0	0	0	0	0	0	0	0	0	0
1.96	0	0	0	0	0	0	0	0	0	0	0	0
1.97	0	0	0	0	0	0	0	0	0	0	0	0
1.98	0	0	0	0	0	0	0	0	0	0	0	0
1.99	0	0	0	0	0	0	0	0	0	0	0	0
2.00	0	0	0	1	22	19	1	38	23	2	60	42
SUBTOTAL												

TABLE 9-4

MISSION • 1C23-2 • INSTRUMENT • AFT 12-06-65 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FUEL MIN	FUEL MAX	FUEL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
2.01	0	0	0	0	0	0	0	0	0	0	0	0
2.02	0	0	0	0	0	3	0	0	2	0	0	5
2.03	0	0	0	0	0	0	0	0	1	0	0	1
2.04	0	0	0	0	0	0	0	0	1	0	0	1
2.05	0	0	0	0	0	0	0	0	1	0	0	1
2.06	0	0	0	0	0	0	0	0	1	0	0	1
2.07	0	0	0	0	0	0	0	0	1	0	0	1
2.08	0	0	0	0	0	0	0	0	1	0	0	1
2.09	0	0	0	0	0	0	0	0	1	0	0	1
2.10	0	0	0	0	0	3	0	0	1	0	0	1
2.11	0	0	0	0	0	0	0	0	4	0	0	5
2.12	0	0	0	0	0	0	0	0	3	0	0	5
2.13	0	0	0	0	0	0	0	0	2	0	0	3
2.14	0	0	0	0	0	1	0	0	3	0	0	5
2.15	0	0	0	0	0	0	0	0	3	0	0	5
2.16	0	0	0	0	0	0	0	0	4	0	0	4
2.17	0	0	0	0	0	0	0	0	1	0	0	4
2.18	0	0	0	0	0	0	0	0	3	0	0	7
2.19	0	0	0	0	0	1	0	0	1	0	0	4
2.20	0	0	0	0	0	2	0	0	1	0	0	1
2.21	0	0	0	0	0	0	0	0	3	0	0	3
2.22	0	0	0	0	0	0	0	0	2	0	0	5
2.23	0	0	0	0	0	3	0	0	2	0	0	5
2.24	0	0	0	0	0	2	0	0	5	0	0	1
2.25	0	0	0	0	0	1	0	0	4	0	0	6
2.26	0	0	0	0	0	0	0	0	2	0	0	4
2.27	0	0	0	0	0	2	0	0	2	0	0	4
2.28	0	0	0	0	0	0	0	0	3	0	0	4
2.29	0	0	0	0	0	1	0	0	3	0	0	8
2.30	0	0	0	0	0	0	0	0	5	0	0	5
2.31	0	0	0	0	0	0	0	1	4	0	1	5
2.32	0	0	0	0	0	0	0	0	5	0	0	5
2.33	0	0	0	0	0	0	0	0	2	0	0	2
2.34	0	0	0	0	0	2	0	0	1	0	0	3
2.35	0	0	0	0	0	0	0	0	1	0	0	1
2.36	0	0	0	0	0	0	0	0	0	0	0	0
2.37	0	0	0	0	0	0	0	0	4	0	0	5
2.38	0	0	0	0	0	0	0	0	3	0	0	3
2.39	0	0	0	0	0	0	0	0	1	0	0	1
2.40	0	0	0	0	0	0	0	0	1	0	0	1
2.41	0	0	0	0	0	0	0	0	2	0	0	2
2.42	0	0	0	0	0	0	0	0	0	0	0	0
2.43	0	0	0	0	0	0	0	0	0	0	0	0
2.44	0	0	0	0	0	0	0	0	0	0	0	0
2.45	0	0	0	0	0	0	0	0	1	0	0	1
2.46	0	0	0	0	0	0	0	0	0	0	0	0
2.47	0	0	0	0	0	0	0	0	0	0	0	0
2.48	0	0	0	0	0	0	0	0	0	0	0	0
2.49	0	0	0	0	0	0	0	0	0	0	0	0
2.50	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	3	48	0	5	125	0	8	173

TOP SECRET [redacted]

TABLE 9-4

MISSION • 1023-2 • INSTRUMENT • AFT • 12-06-65 • DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
2.51	0	0	0	0	0	0	0	0	0	0	0	0
2.52	0	0	0	0	0	0	0	0	0	0	0	0
2.53	0	0	0	0	0	0	0	0	0	0	0	0
2.54	0	0	0	0	0	0	0	0	0	0	0	0
2.55	0	0	0	0	0	0	0	0	0	0	0	0
2.56	0	0	0	0	0	0	0	0	0	0	0	0
2.57	0	0	0	0	0	0	0	0	0	0	0	0
2.58	0	0	0	0	0	0	0	0	0	0	0	0
2.59	0	0	0	0	0	0	0	0	0	0	0	0
2.60	0	0	0	0	0	0	0	0	0	0	0	0
2.61	0	0	0	0	0	0	0	0	0	0	0	0
2.62	0	0	0	0	0	0	0	0	0	0	0	0
2.63	0	0	0	0	0	0	0	0	0	0	0	0
2.64	0	0	0	0	0	0	0	0	0	0	0	0
2.65	0	0	0	0	0	0	0	0	0	0	0	0
2.66	0	0	0	0	0	0	0	0	0	0	0	0
2.67	0	0	0	0	0	0	0	0	0	0	0	0
2.68	0	0	0	0	0	0	0	0	0	0	0	0
2.69	0	0	0	0	0	0	0	0	0	0	0	0
2.70	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	74	74	70	190	190	155	264	264	225

MISSION 1023-2 INSTR - AFT 12-06-65 PROCESSING AND EXPOSURE ANALYS

PROCESS LEVEL	SAMPLE SIZE	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0	0 PC	0 PC	0 PC	0 PC	0 PC
INTERMEDIATE	74	0 PC	35 PC	57 PC	7 PC	1 PC
FULL	190	18 PC	0 PC	79 PC	3 PC	0 PC
ALL LEVELS	264	13 PC	10 PC	73 PC	4 PC	0 PC

PROCESS LEVEL	BASE + FOG	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0.01-0.09	0.01-0.13	0.14-0.39	0.40-0.90	---------	0.91 AND U
INTERMED	0.10-0.17	0.01-0.20	0.21-0.39	0.40-0.90	0.91-1.34	1.35 AND U
FULL	0.18 AND UP	0.01-0.39	---------	0.40-0.90	0.91-1.69	1.70 AND U

TABLE 9-4

MISSION • 1023-2 • INSTR • AFT • 12-06-65 PLOT OF D MIN • TERRAIN • PROCESSING • INTERMEDIATE

ARITH MEAN • 0.54 • MEDIAN • 0.47 • STD DEV • 0.26 • RANGE • 0.22 TO 1.56 WITH 74 SAMPLES

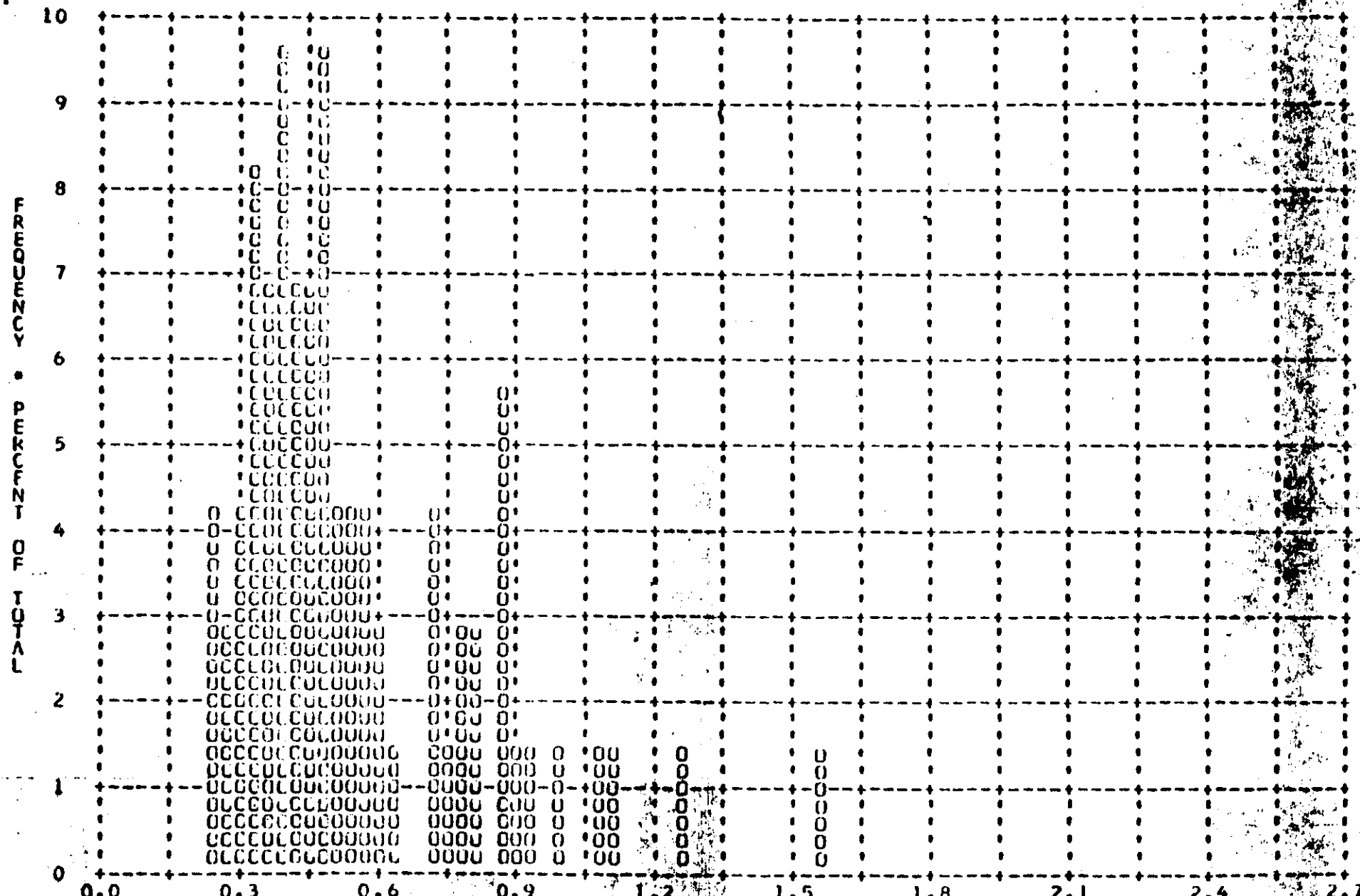


FIGURE 9-28

MISSION • 1023-2 • INSTR • AFT • 12-06-65 PLOT OF D MAX • TERRAIN • PROCESSING • INTERMEDIATE

ARITH MEAN • 1.35 • MEDIAN • 1.36 • STD DEV • 0.37 • RANGE • 0.44 TO 2.20 WITH 74 SAMPLES

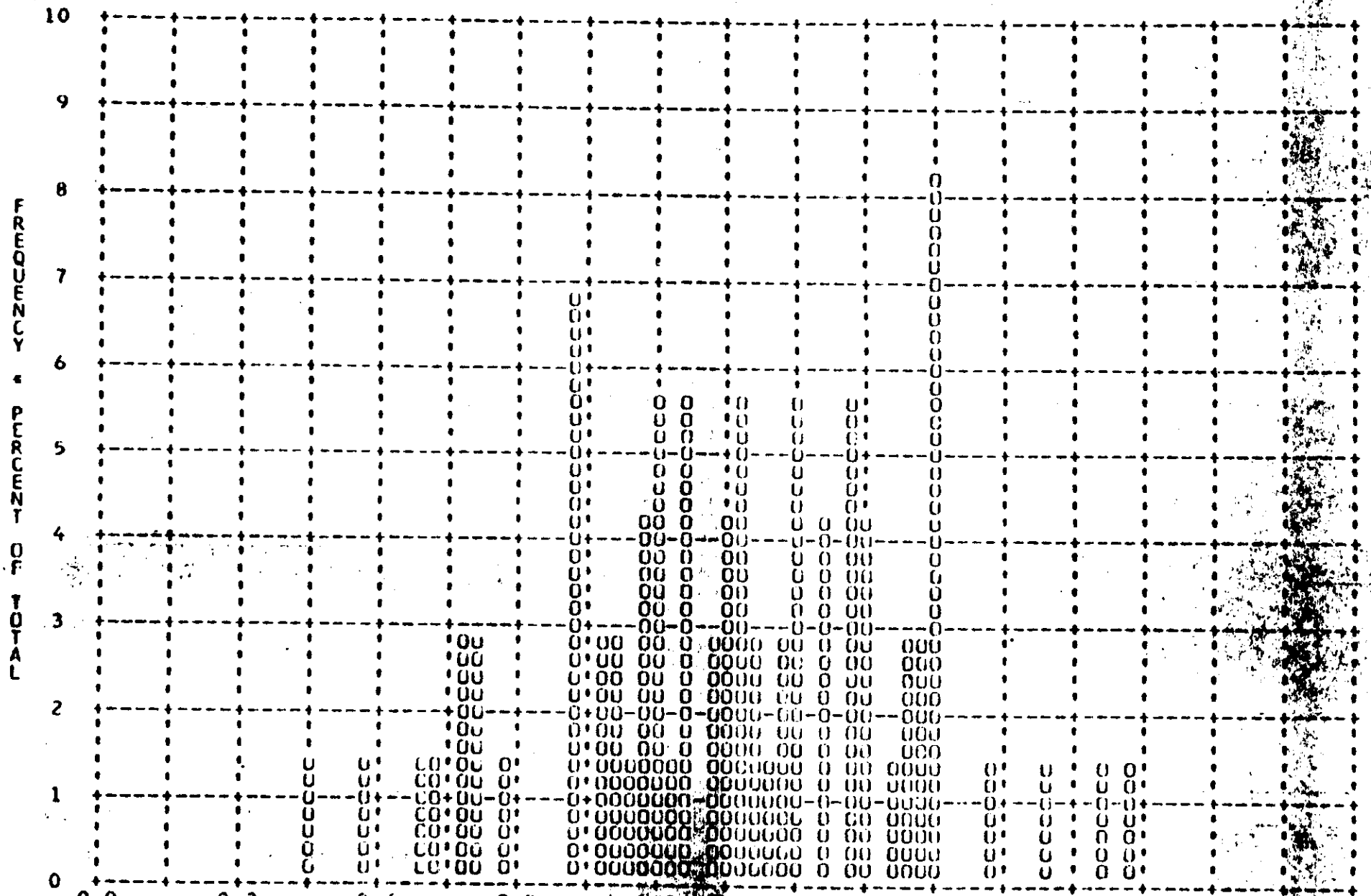


FIGURE 9-29

MISSION • 1023-2 • INSTR • AFT • 12-06-65 PLOT OF D MAX • CLOUD • PROCESSING • INTERMEDIATE

ARITH MEAN • 2.05 • MEDIAN • 2.14 • STD DEV • 0.24 • RANGE • 1.26 TO 2.39 WITH 70 SAMPLES

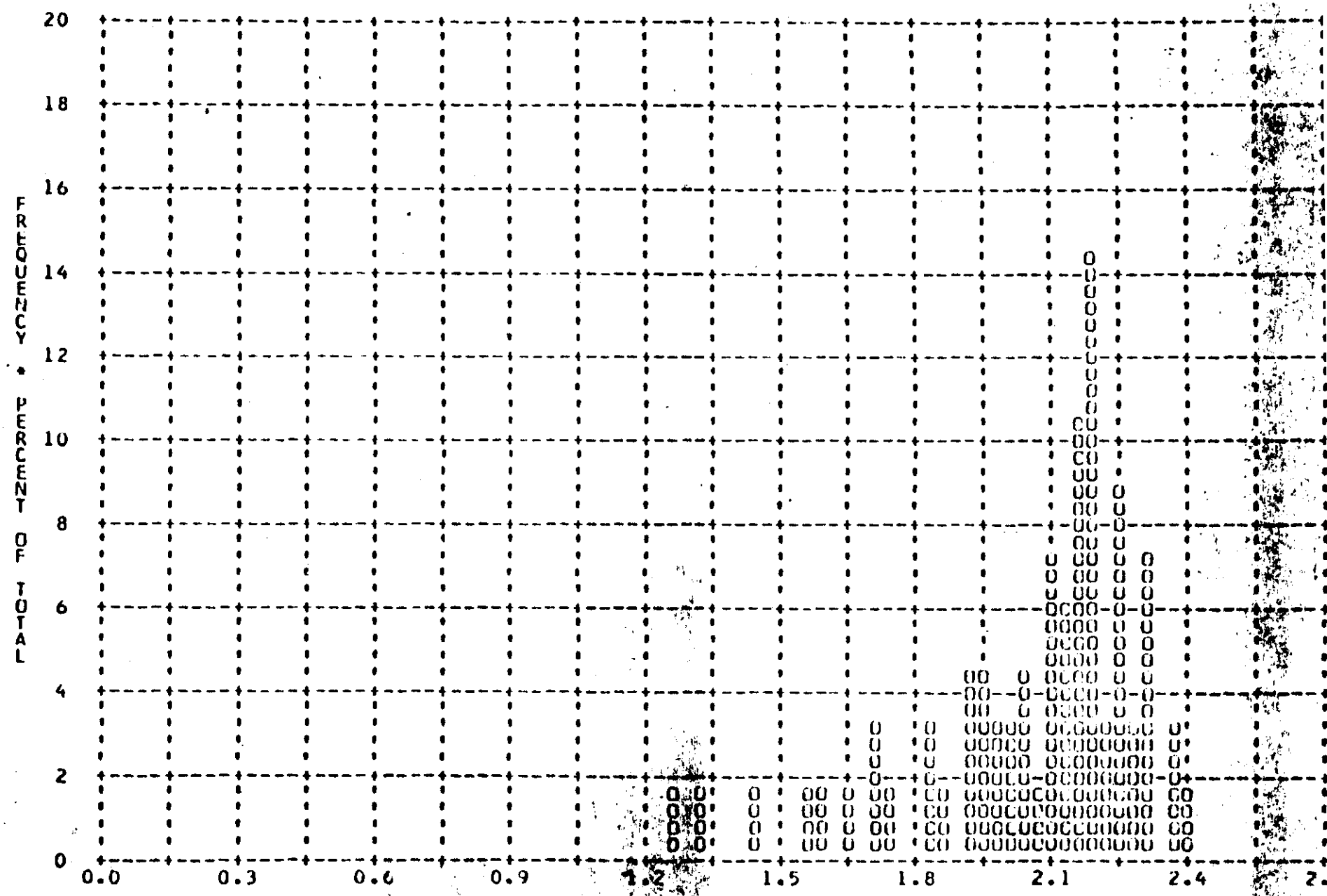


FIGURE 9-30

MISSION • 1023-2 • INSTR • AFT • 12-06-65 PLOT OF 0 MIN • TERRAIN • PROCESSING • FULL

ARITH MEAN • 0.52 • MEDIAN • 0.48 • STD DEV • 0.16 • RANGE • 0.30 TO 1.60 WITH 190 SAMPLES

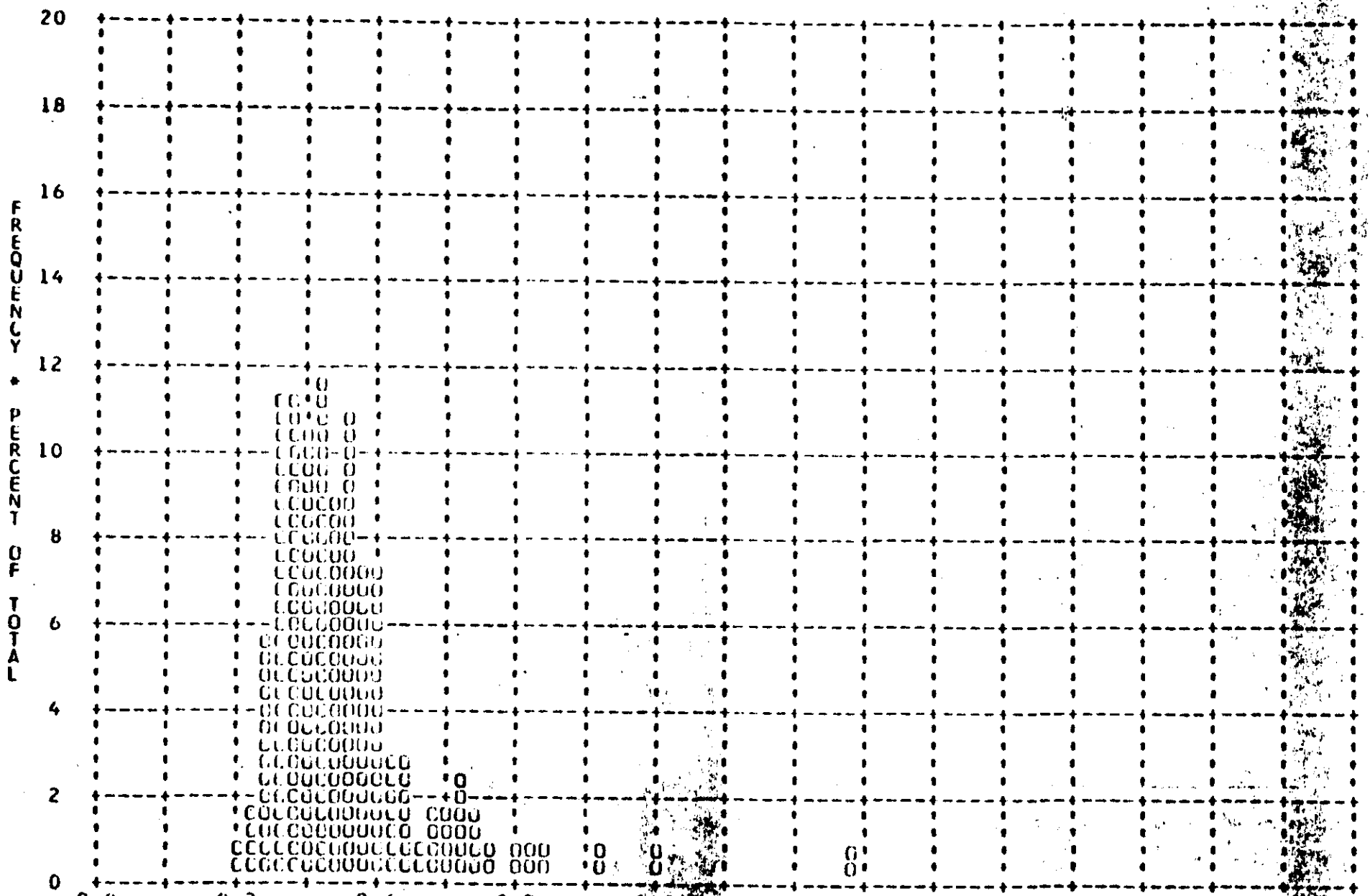


FIGURE 9-31

MISSION • 1023-2 • INSTR • AFT • 12-06-65 PLOT OF D MAX • TERRAIN • PROCESSING • FULL

ARITH MEAN • 1.20 • MEDIAN • 1.20 • STD DEV • 0.38 • RANGE • 0.47 TO 2.31 WITH 190 SAMPLES

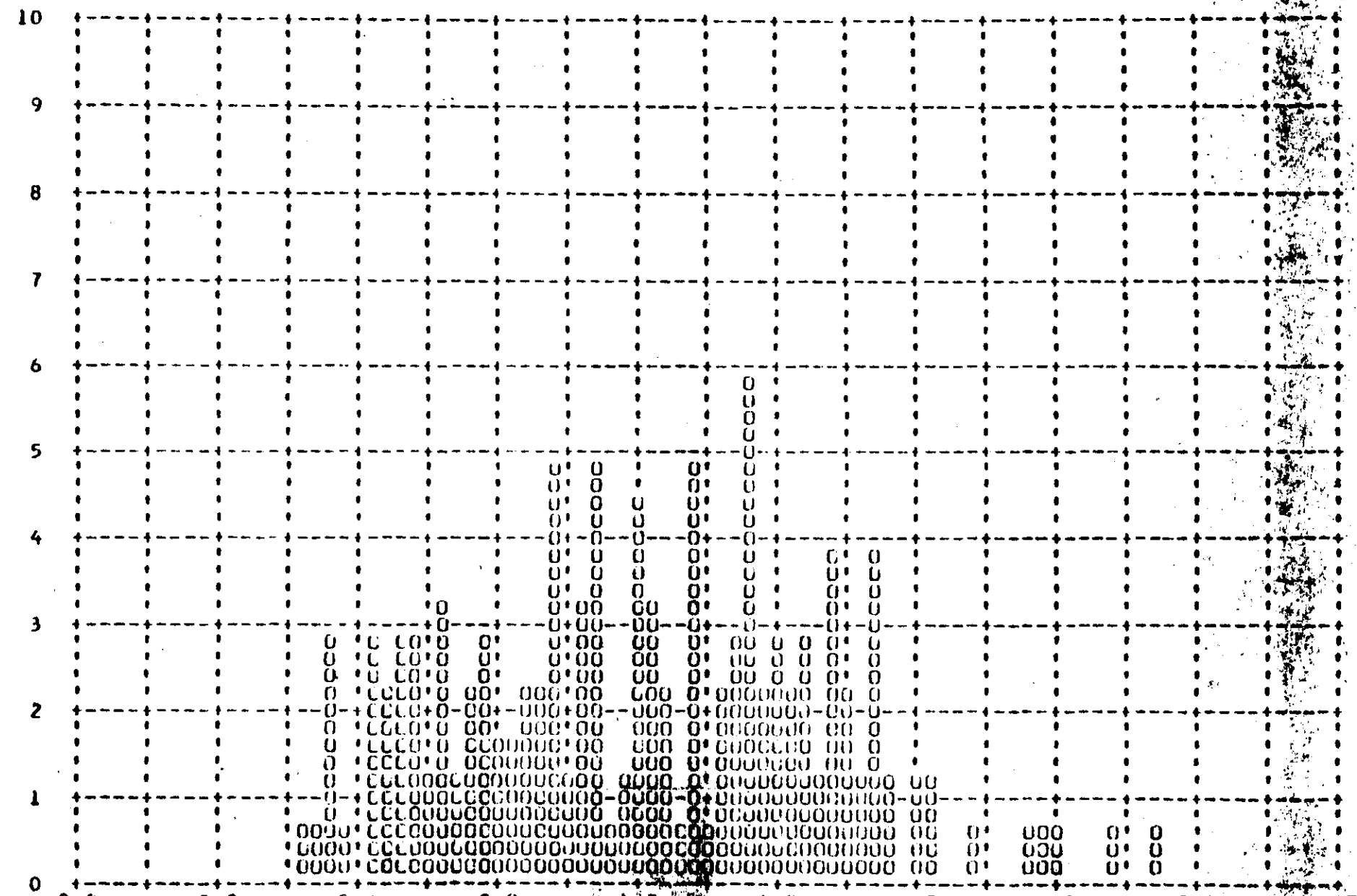


FIGURE 9-32

MISSION • 1023-2 • INSIR • AFT • 12-06-65 PLOT OF D MAX • CLOUD • PROCESSING • FULL

ARITH MEAN • 2.12 • MEDIAN • 2.20 • STD DEV • 0.25 • RANGE • 1.08 TO 2.46 WITH 155 SAMPLES

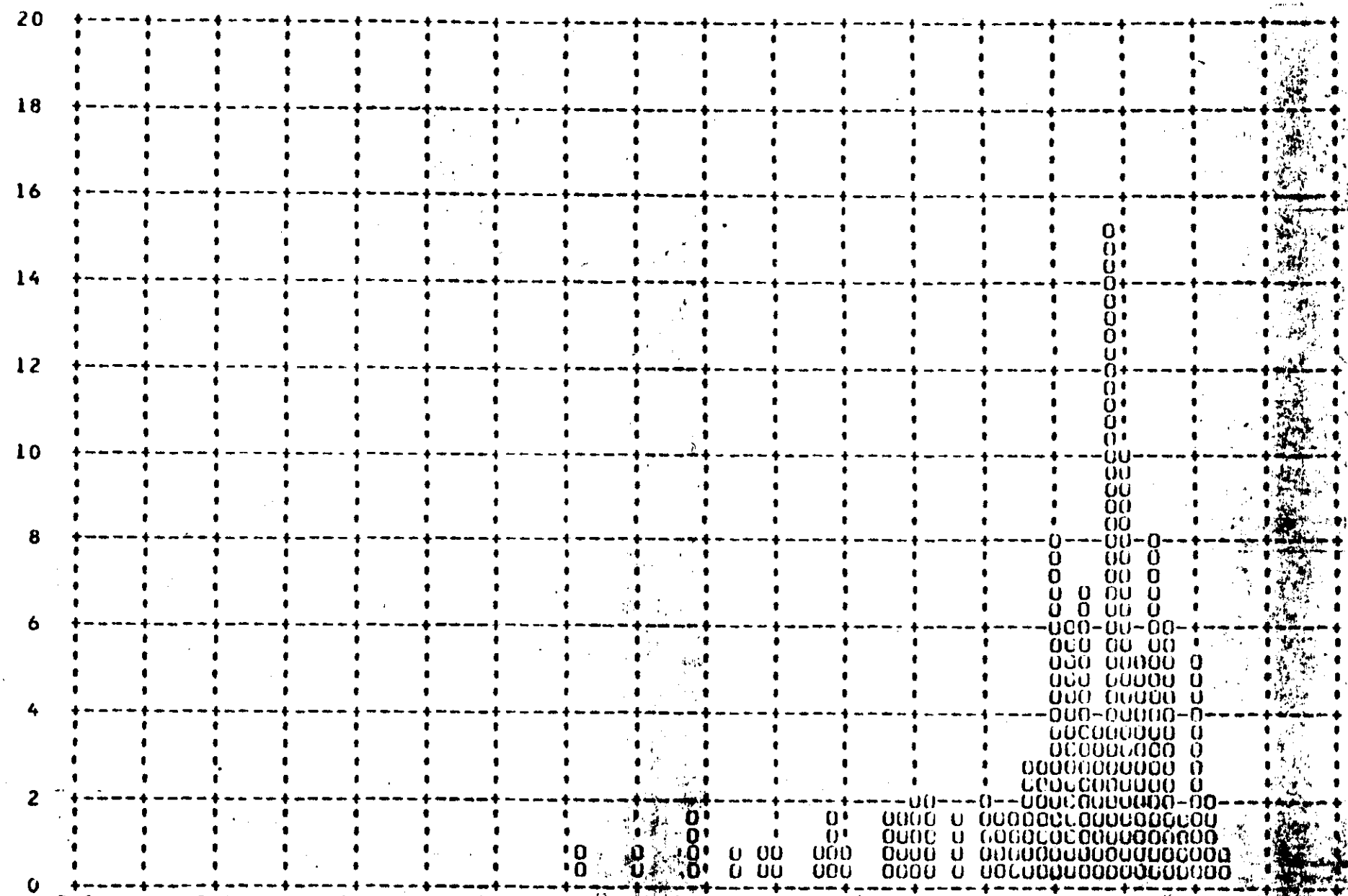


FIGURE 9-33

MISSION • 1023-2 • INSTR • AFT • 12-06-65 PLOT OF 0 MIN • TERRAIN • PROCESSING • ALL LEVELS

ARITH MEAN • 0.52 • MEDIAN • 0.48 • STD DEV • 0.19 • RANGE • 0.22 TO 1.60 WITH 264 SAMPLES

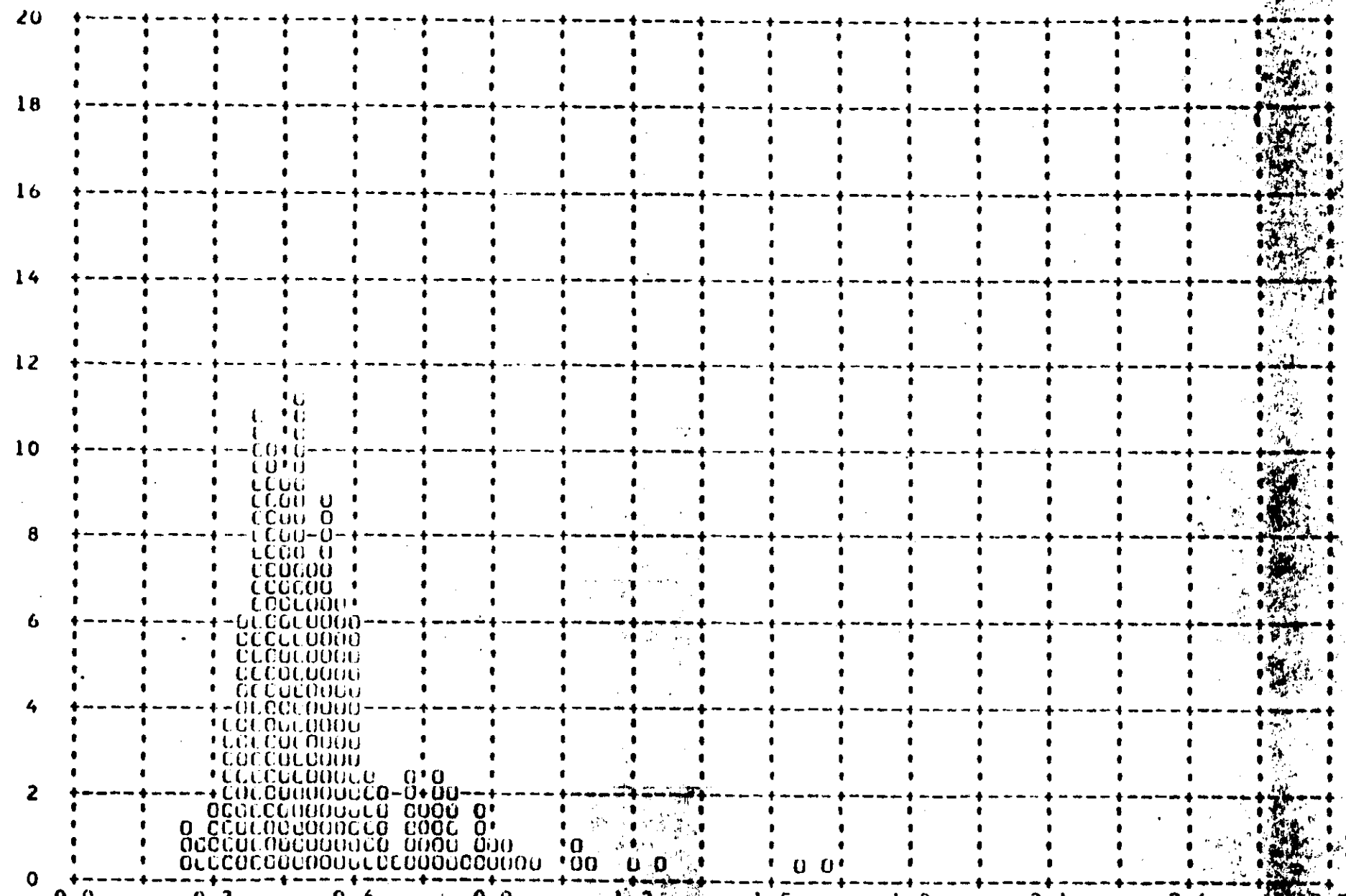


FIGURE 9-34

MISSION • 1023-2 • INSTR • AFT • 12-06-65 PLOT OF D MAX • TERRAIN • PROCESSING • ALL LEVELS

ARITH MEAN • 1.24 • MEDIAN • 1.24 • STD DEV • 0.39 • RANGE • 0.44 TO 2.31 WITH 264 SAMPLES

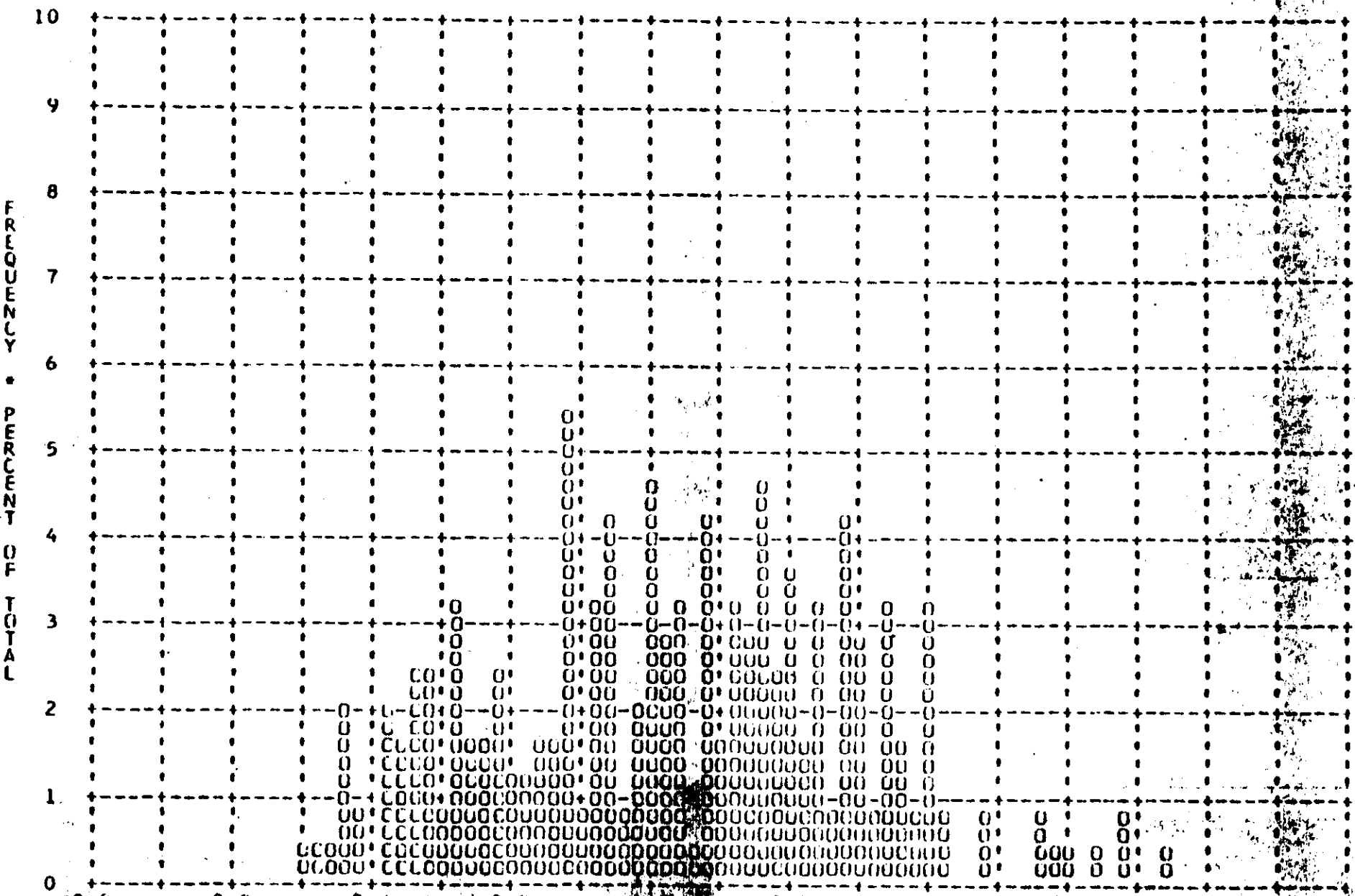


FIGURE 9-35

MISSION • 1023-2 • INSTR • AFT • 12-06-65 PLOT OF D MAX • CLOUD • PROCESSING • ALL LEVELS

ARITH MEAN • 2.10 • MEDIAN • 2.17 • STD DEV • 0.25 • RANGE • 1.08 TO 2.46 WITH 225 SAMPLES

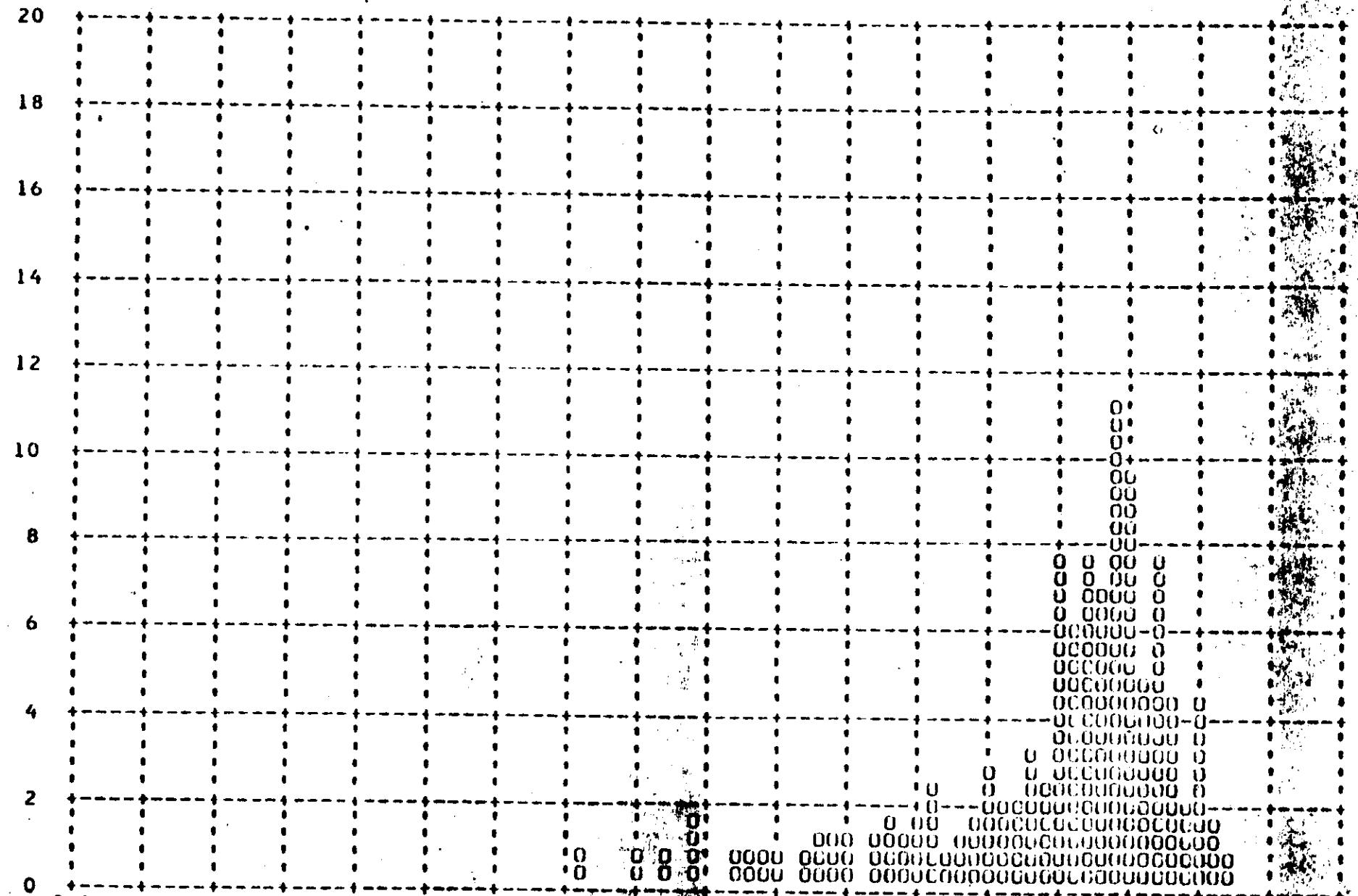


FIGURE 9-36

~~TOP SECRET~~ [redacted]

MISSION 1023-1 INSTR - FRWD 12-06-65 PROCESSING AND EXPOSURE ANALYSI

PROCESS LEVEL	SAMPLE SIZE	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0	0 PC	0 PC	0 PC	0 PC	0 PC
INTERMEDIATE	200	4 PC	60 PC	32 PC	2 PC	0 PC
FULL	78	60 PC	0 PC	38 PC	1 PC	0 PC
ALL LEVELS	278	20 PC	44 PC	34 PC	2 PC	0 PC

MISSION 1023-1 INSTR - AFT 12-06-65 PROCESSING AND EXPOSURE ANALYSI

PROCESS LEVEL	SAMPLE SIZE	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0	0 PC	0 PC	0 PC	0 PC	0 PC
INTERMEDIATE	113	1 PC	34 PC	54 PC	11 PC	1 PC
FULL	155	22 PC	0 PC	73 PC	5 PC	0 PC
ALL LEVELS	268	13 PC	14 PC	65 PC	7 PC	0 PC

MISSION 1023-2 INSTR - FRWD 12-06-65 PROCESSING AND EXPOSURE ANALYSI

PROCESS LEVEL	SAMPLE SIZE	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0	0 PC	0 PC	0 PC	0 PC	0 PC
INTERMEDIATE	24	0 PC	13 PC	75 PC	8 PC	4 PC
FULL	111	42 PC	0 PC	57 PC	1 PC	0 PC
ALL LEVELS	135	35 PC	2 PC	60 PC	2 PC	1 PC

MISSION 1023-2 INSTR - AFT 12-06-65 PROCESSING AND EXPOSURE ANALYSI

PROCESS LEVEL	SAMPLE SIZE	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0	0 PC	0 PC	0 PC	0 PC	0 PC
INTERMEDIATE	74	0 PC	35 PC	57 PC	7 PC	1 PC
FULL	190	18 PC	0 PC	79 PC	3 PC	0 PC
ALL LEVELS	264	13 PC	10 PC	73 PC	4 PC	0 PC

PROCESS LEVEL	BASE + FOG	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0.01-0.09	0.01-0.13	0.14-0.39	0.40-0.90	----------	0.91 AND UP
INTERMED	0.10-0.17	0.01-0.20	0.21-0.39	0.40-0.90	0.91-1.34	1.35 AND UP
FULL	0.18 AND UP	0.01-0.39	----------	0.40-0.90	0.91-1.69	1.70 AND UP

~~TOP SECRET~~ [redacted]

TABLE 9-5

SECTION 10

PERFORMANCE MEASUREMENTS

The photography acquired by both panoramic cameras during Missions 1023-1 and 1023-2 received a MIP rating of 85. A summary is tabulated below of the average visual RES values and MTF/AIM resolution values measured by AFSPPL and the MTF/AIM resolution values made by [redacted] The length of the microdensitometer slit used by AFSPPL and [redacted] was 80 microns; both slits were one micron wide.

Mission	Camera	AFSPPL	[redacted] All	[redacted] High
1023-1	FWD	94	97.1	109.6
1023-1	AFT	87	82.6	101.0
1023-2	FWD	71	76.0	87.4
1023-2	AFT	89	68.1	76.4

The [redacted] data normally contains at least three readings of the same edge the tabulation shows both the average of all the readings and the average of the highest readings of each edge. The value of the average of all readings is questionable as no valid reason can be ascertained for a measurement being greater than the resolution recorded however many factors can reduce the reading.

The details of the measurement and computing techniques, targets measured and target locations are fully reported in the evaluation report published by AFSPPL and are therefore not included in this report. AFSPPL is no longer recording the Visual RES data hence these values will no longer be recorded in this Section and on the summary sheets in Section 18.

SECTION 11

OBSERVED DATA

Photographs of CORN targets on Mission 1023 included fixed targets at Indian Springs and Pahrump on Pass D47. Mobile targets were photographed at Pahrump on D47 and Columbus, Ohio on D77. Operation also occurred at WPAFB and Independence, California but these targets were obscured by weather.

The fixed target at Pahrump exhibited the least atmospheric degradation. Both forward and aft cameras resolved 9-1/2 feet along track and 13-1/2 feet cross track. However, many objects smaller than this were examined and identified. Engine nacells on P-3A aircraft at Moffett, NAS, cars and trucks on roads and parking lots could be isolated. 36 inch suspension cables on Golden Gate and Bay bridges were easily seen with only 10X magnification. The fine, lacy detail of the Bay bridge cantilever span was clearly seen as was the 42" Hetch Hetchy aqueduct on the Nimitz Freeway overcrossing.

An interesting and unusual anomaly was found in Pass D63 forward. Autos on Highway 17, 5 miles north of Los Gatos exhibited nearly 50 feet of in-track smear. A careful examination revealed that the smear extended all the way across the minor axis of the format but in a band only about one inch wide. No other area of this particular frame, 14, was affected. The same area of the format of frame 13 was also smeared, no more could be found.

This smear corresponds to a large IMC error at a high rate. The magnitudes are such that the vehicle could not have been responsible. The only logical conclusion is that a small piece of foreign material got into the IMC cam and follower and was ground up or discharged after two cycles. No other frames could be found to be affected.

SECTION 12

MISSION 1023-1 STELLAR-INDEX CAMERA

A. COMPONENT ASSIGNMENT

Component	Serial Number
Camera	D 17
Index Reseau	19
Stellar Reseau	82

B. CAMERA DATA AND FLIGHT SETTINGS

Stellar Camera:	
Lens	85 mm f/1.8
Exposure Time	2 seconds
Filter Type	None
Film Type	Eastman Type 4401
Index Camera:	
Lens	38 mm f/4.5
Exposure Time	1/500 second
Filter Type	Wratten 21
Film Type	Eastman Type 4400

C. POST FLIGHT EVALUATION

The Stellar and Index cameras operated properly throughout the mission. The Stellar camera produced 419 frames while the Index camera produced 420 frames. This variation was caused by the premature depletion of the film supply in the Stellar camera.

The degree of flare, within the Stellar formats was greater than usual as approximately 60% of the format contained fog. A 0.44 inch diameter circle of heavy fog was located within the flared portion of the format. This circle is attributed to the imaging of the rear lens element on the film as the excessive flare light reflected from the film and illuminated the rear portion of the lens cell.

The stellar field was recorded as points rather than double or streaked images, indicating that the panoramic cameras were running in synchronism. Some edge static was present throughout the mission but did not extend into the format area.

The Index camera film also showed some edge fogging which may have been the result of static discharge or emulsion cracking. The general quality of the Index camera photography was considered lower than usual as at least 80% of all frames were noticably degraded by atmospheric haze.

The evaluation team has concluded that the magnitude of atmospheric haze can be more readily ascertained from the Index camera photography rather than the panoramic camera photography. As a result the Index camera film is evaluated first in order to determine the potential degradation that may be expected in the panoramic film. Further, it is postulated that the processed Index camera film can provide a useful tool in determining the proper level of processing to be applied to the panoramic camera film.

SECTION 13

MISSION 1023-2 STELLAR-INDEX CAMERA

A. COMPONENT ASSIGNMENT

Component	Serial Number
Camera	D 66
Index Reseau	75
Stellar Reseau	72

B. CAMERA DATA AND FLIGHT SETTINGS

Stellar Camera:

Lens	85 mm f/1.8
Exposure Time	2 seconds
Filter Type	None
Film Type	Eastman Type 4401

Index Camera:

Lens	38 mm f/4.5
Exposure Time	1/500 second
Filter Type	Wratten 21
Film Type	Eastman Type 4400

C. POST FLIGHT EVALUATION

The Stellar and Index cameras operated properly during the mission when they received the step function commands from the programmer. These step functions are sequenced by the closure of the center-of-format switch in the Master camera hence the failure of this camera during this mission precluded any further Stellar-Index camera exposures. Both the Stellar and Index cameras produced 213 photographic frames.

The operation of the Stellar-Index camera from the Master camera only can result in the loss of data during monoscopic operation of the Slave camera, during Stereo supress operation as well as the experienced failure mode. It is recommended that consideration be given to a back-up signal from the Slave camera to properly sequence the programmer.

The stellar imagery displayed some streaking similar to that observed during prior missions. This anomaly may have been the result of the monoscopic operation of the Slave camera and the greater degree of unbalance imparted to the system.

The flare in the stellar formats was greater in area as compared with Mission 1023-1 but significantly less in magnitude. It would be expected that the magnitude of the fogged area would be equal to or greater than the Mission 1023-1 results. This area is under study however this anomaly may be due to small variations in the camera exposure characteristics or extended baffle installation tolerances.

The Index camera photography was degraded by emulsion scratches throughout the mission. It is extremely difficult to determine the source of this problem however additional caution is being exercised in the pre-flight cleanliness of the camera.

SECTION 14

VEHICLE ATTITUDE

The vehicle attitude errors for both Mission 1023-1 and 1023-2 were derived from the reduction of the Stellar camera photography. This attitude data is supplied to A/P by NPIC.

The attitude errors for each frame and the attitude control rates are calculated at the A/P computer facility. The computer also plots the frequency distribution of the rates and errors. Figures 14-1 through 14-6 show these distributions for Mission 1023-1 and Figures 14-7 through 14-14 for Mission 1023-2.

The summary table below lists the maximum attitude errors and rates that were experienced during 90% of the FWD camera photographic operations, excluding the first six frames of each operation, and the total range of the errors and rates.

Value	Mission 1023-1 90%	Mission 1023-1 Range	Mission 1023-2 90%	Mission 1023-2 Range
Pitch Error (^{o})	0.49	-0.40 to +1.05	0.42	-0.42 to +0.68
Roll Error (^{o})	0.33	-0.34 to +0.64	0.36	-0.52 to +0.40
Yaw Error (^{o})	0.50	-0.95 to +1.05	0.53	-0.90 to +0.95
Pitch Rate (^{o}/hr)	33.0	-54 to +68	29.7	-60 to +90
Roll Rate (^{o}/hr)	28.7	-95 to +80	21.0	-60 to +70
Yaw Rate (^{o}/hr)	23.5	-54 to +50	28.6	-58 to +54

The performance of the attitude control system is comparable to the control systems used on recent missions. The panoramic photography was not degraded by the attitude control system.

J-23 A BUCKET - FWD INSTR FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 0.4

Y - PITCH ANGLE ERROR - DEGREES (X) VERSUS FREQUENCY - PERCENT (Y)

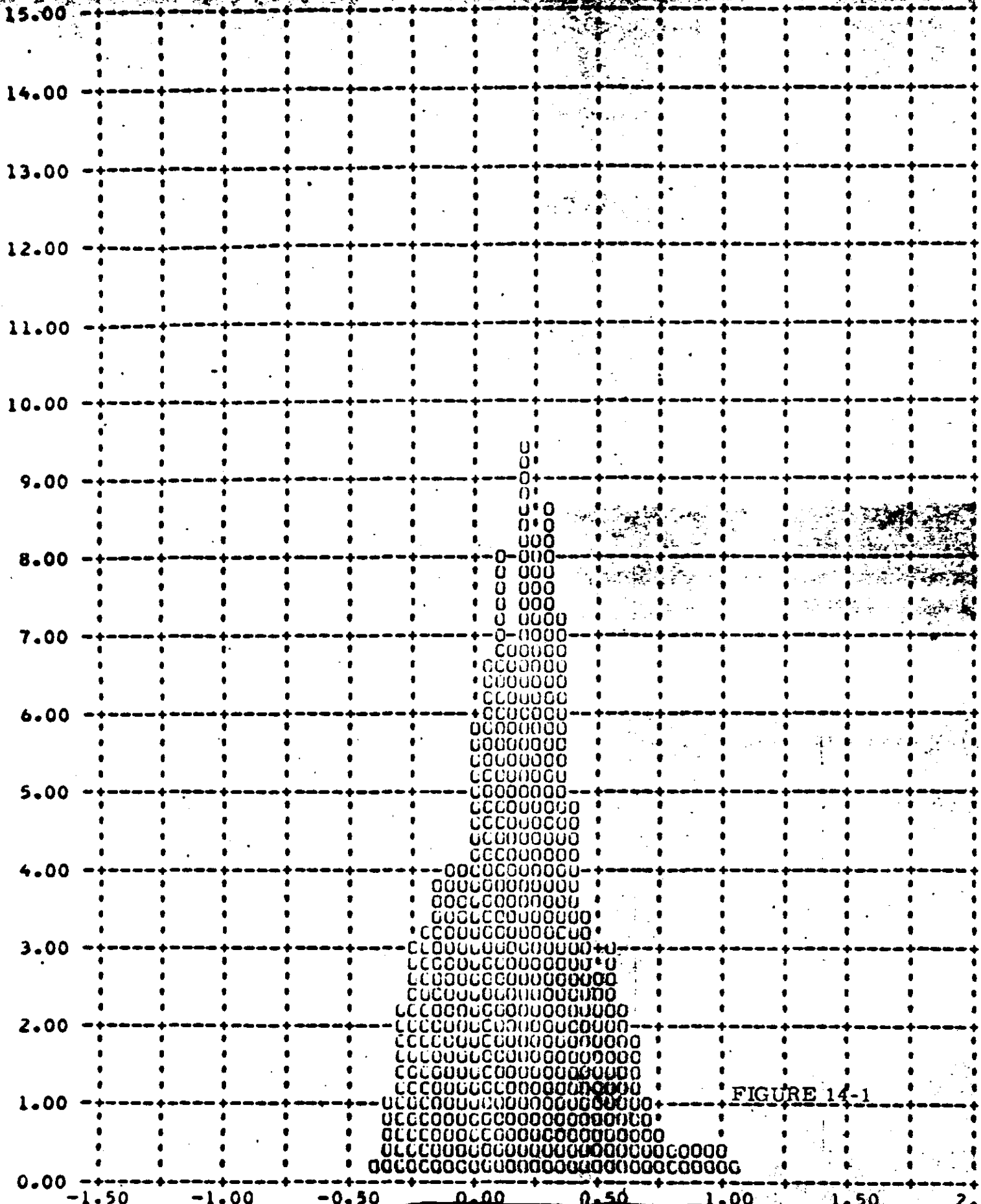


FIGURE 14-1

J-23 A BUCKET - FWD INSTR FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 0.3

Y = ROLL ANGLE ERROR - DEGREES (X) VERSUS FREQUENCY - PERCENT (Y)

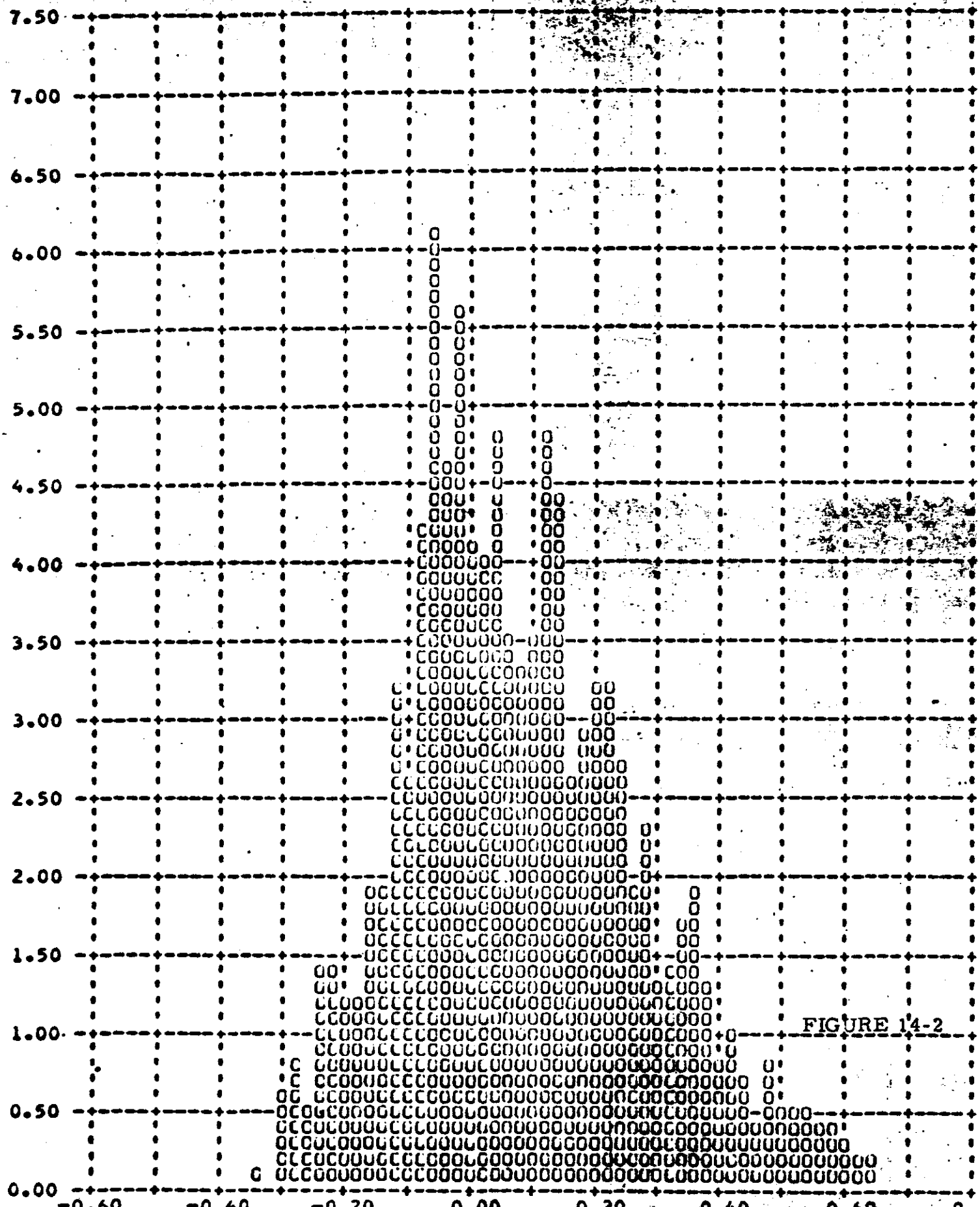


FIGURE 14-2

J-23 A BUCKET - FWD INSTR FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 0.5

Y - YAW ANGLE ERROR - DEGREES (X) VERSUS FREQUENCY - PERCENT (Y)

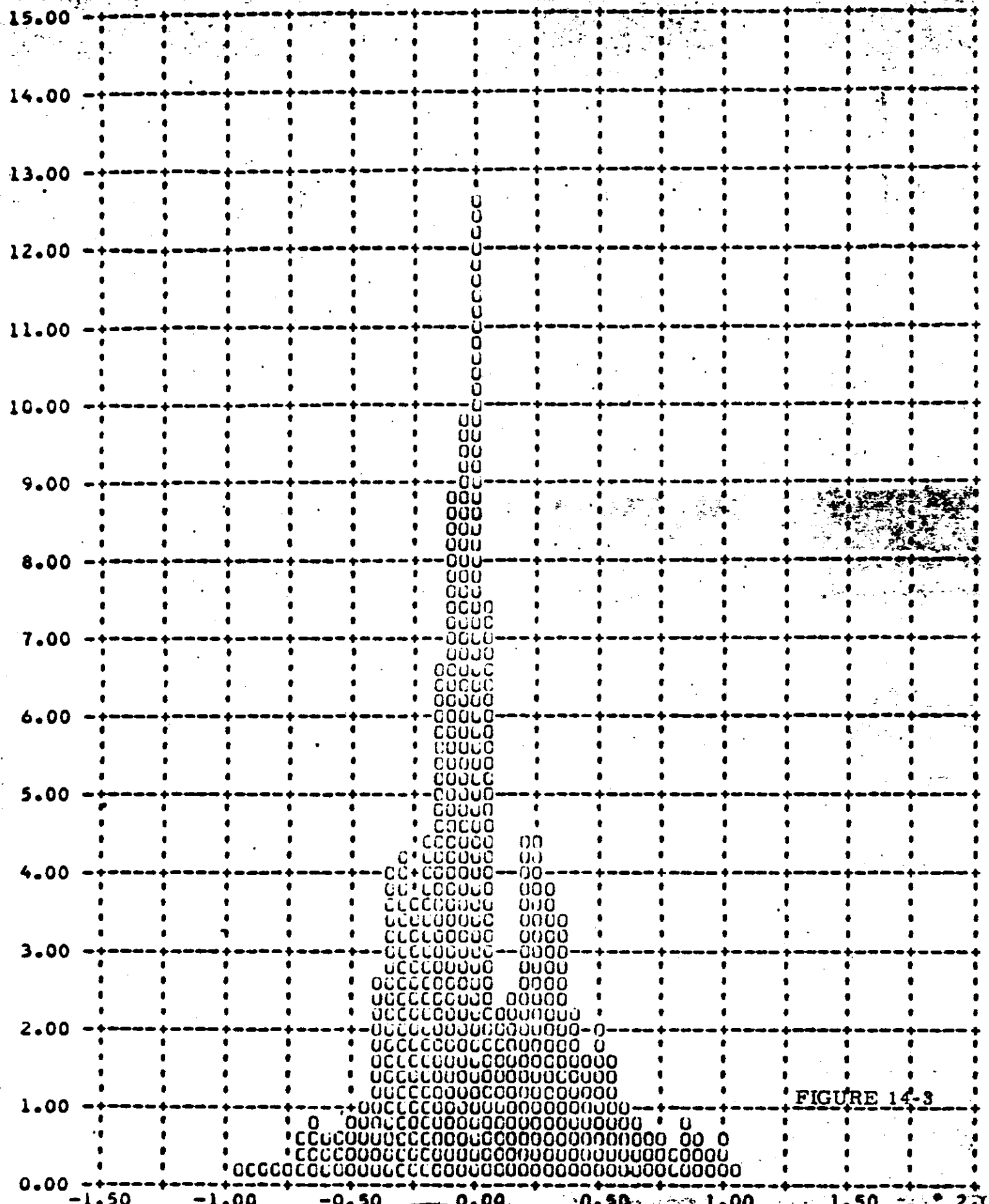


FIGURE 14-3

J-23 A BUCKET - FWD INSTR . . FRAMES 1-6 OF EACH OP UMITTED 90 PERCENT = 32.

Y = PITCH RATE ERROR - DEG/HOUR (X) VERSUS FREQUENCY - PERCENT (Y)

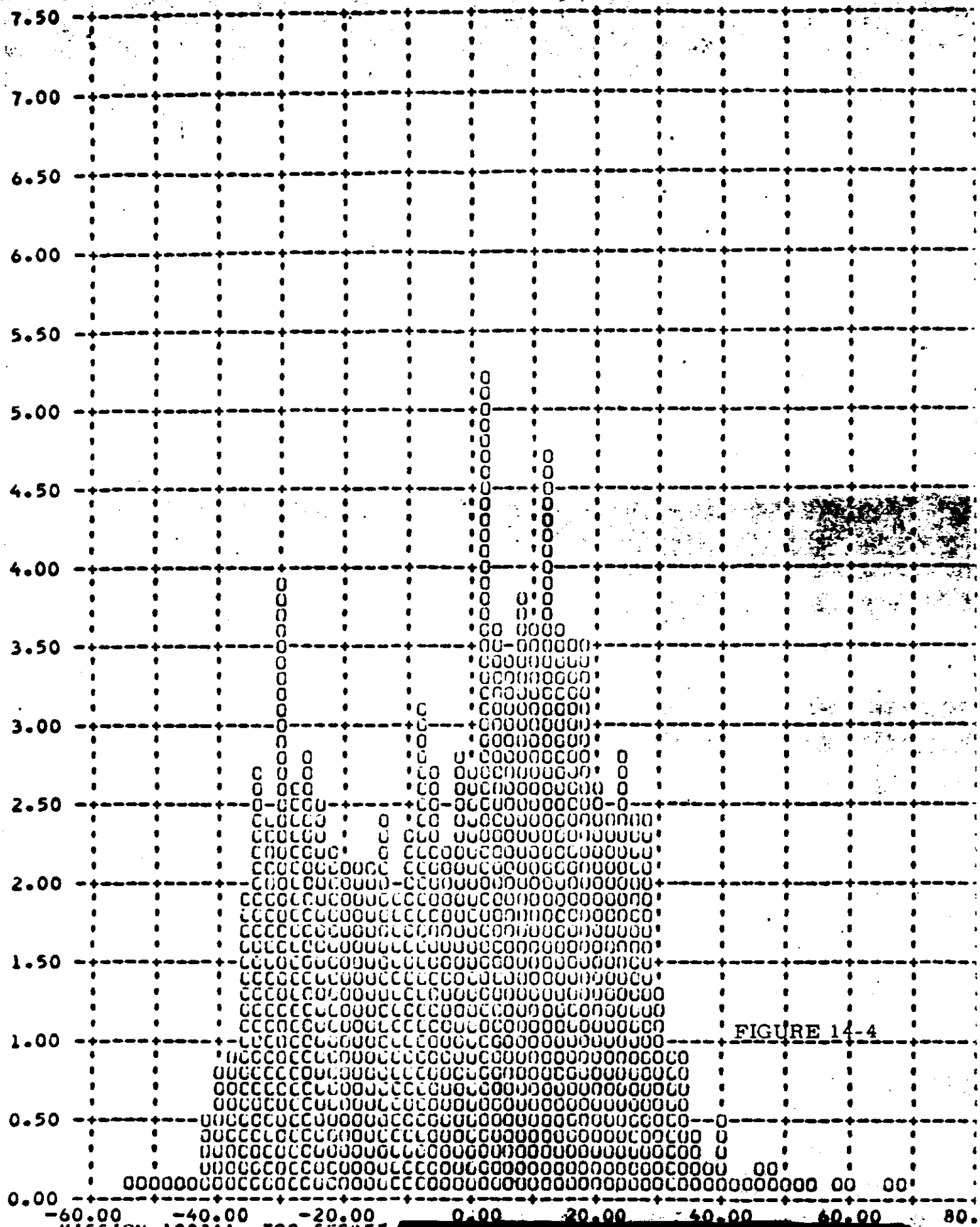


FIGURE 14-4

Y ROLL RATE ERROR - DEG/HOUR (X) VERSUS FREQUENCY - PERCENT (Y)

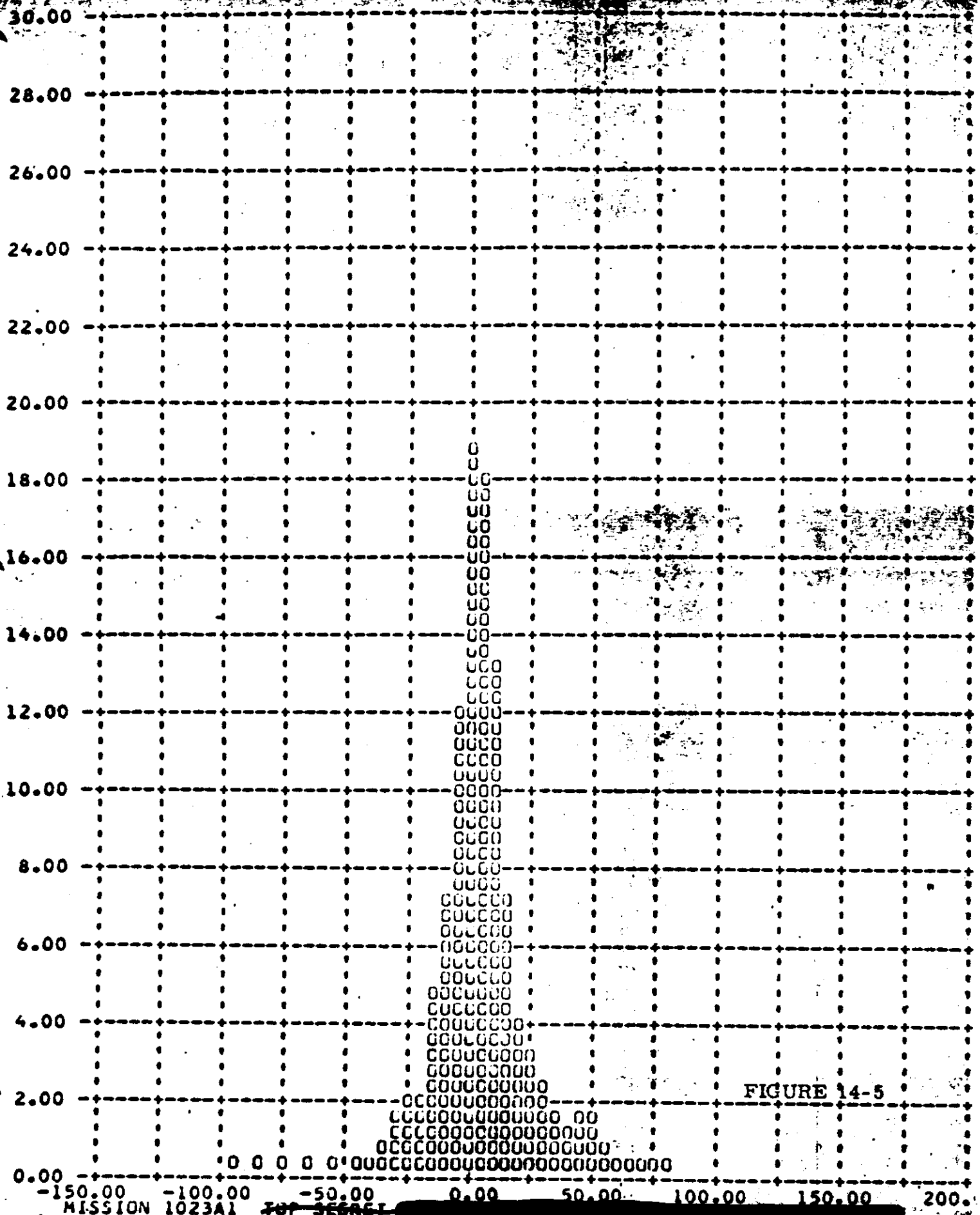


FIGURE 14-5

J-23 A BUCKET - FWD INSTR FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 23.9

Y = YAW RATE ERRCR - DEG/HOUR (X) VERSUS FREQUENCY = PERCENT (Y)

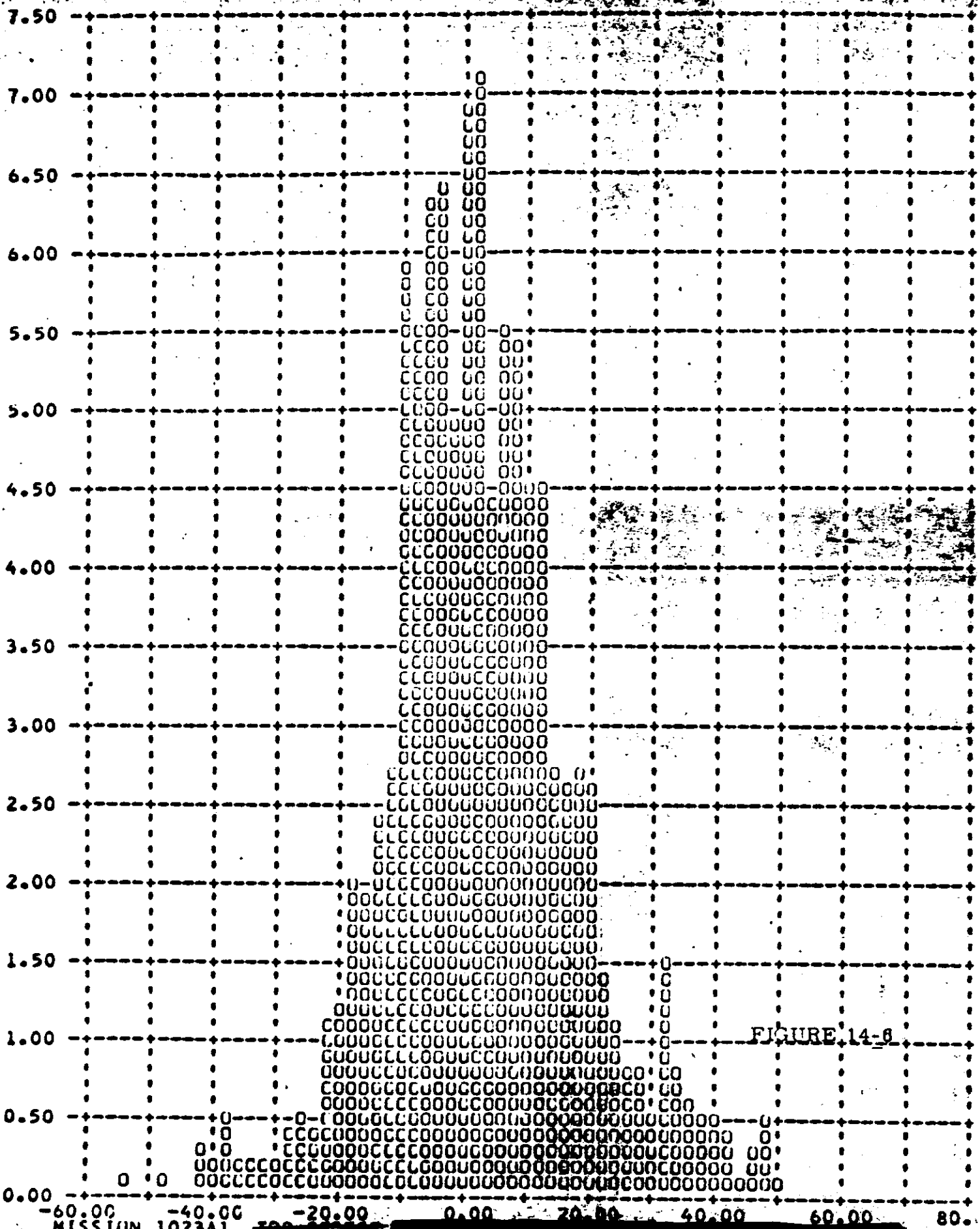
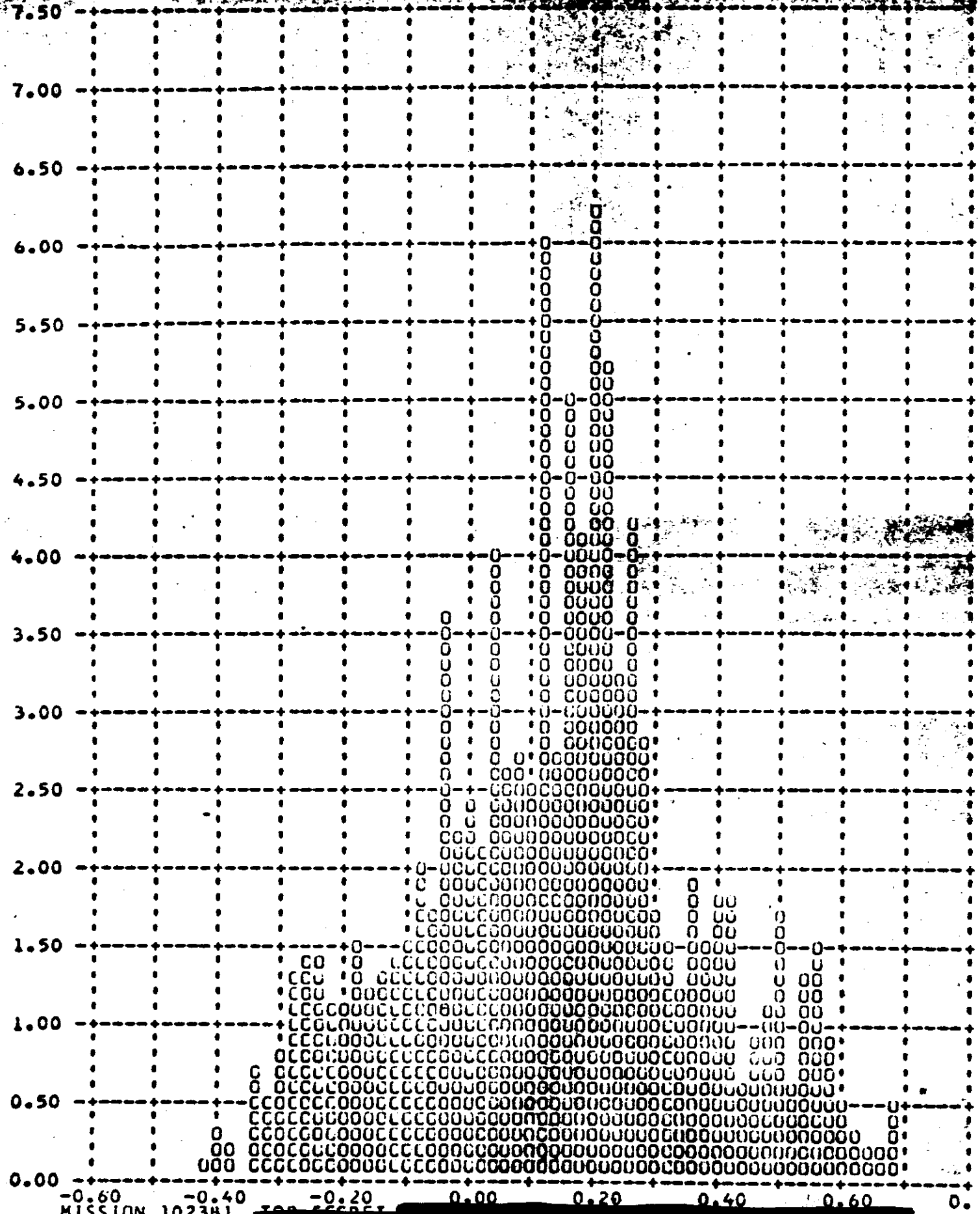


FIGURE 14-8

J-23 B BUCKET - FWD INSTR FRAMES 1-6 OF EACH UP OMITTED 90 PERCENT = 0.4

Y - PITCH ANGLE ERROR - DEGREES (X) VERSUS FREQUENCY - PERCENT (Y)



J-23 B BUCKET - FWD INSTR . FRAMES 1-6 OF EACH 60 OMITTED 90 PERCENT = 0.3

Y ROLL ANGLE ERROR - DEGREES (X) VERSUS FREQUENCY - PERCENT (Y)

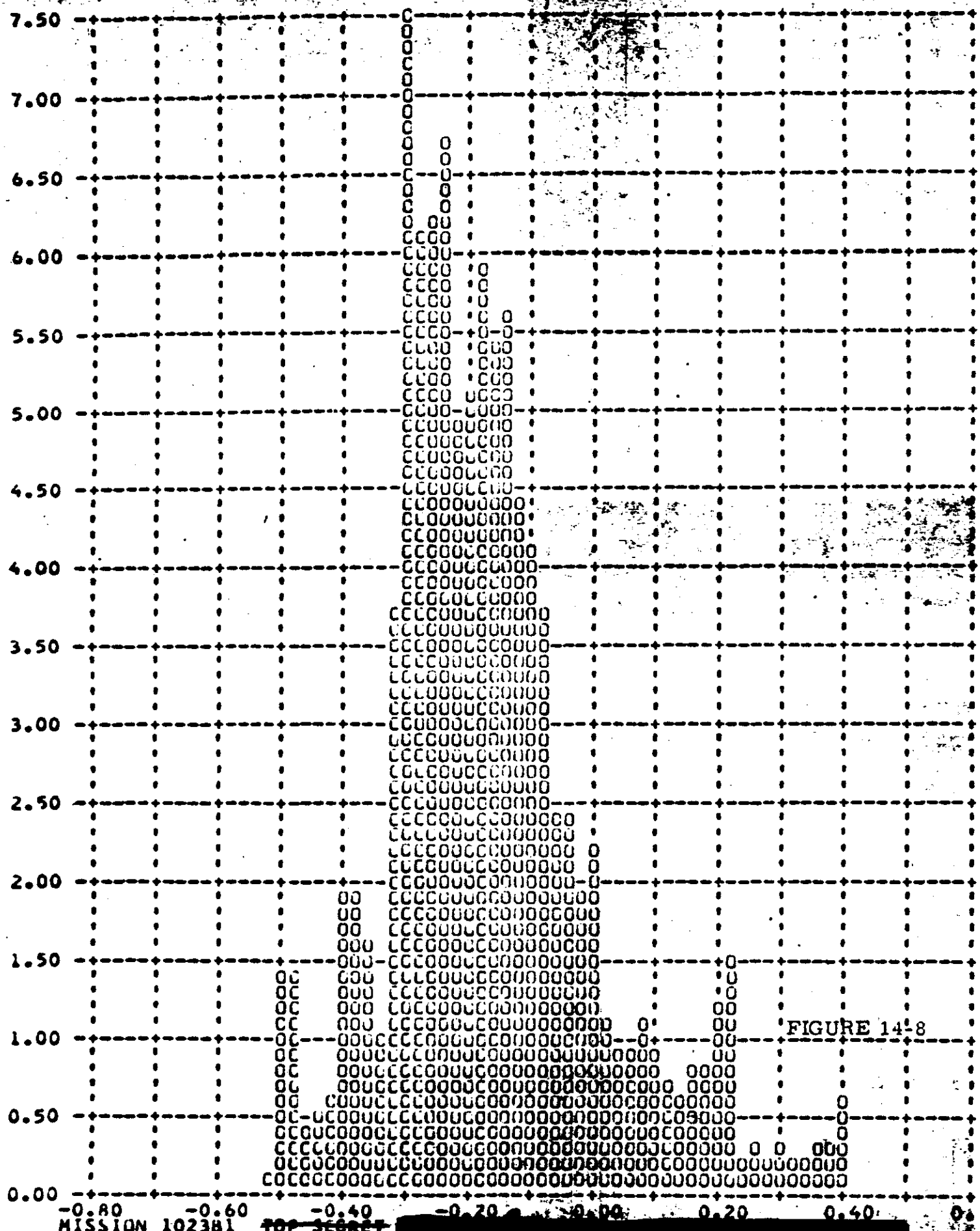


FIGURE 14-8

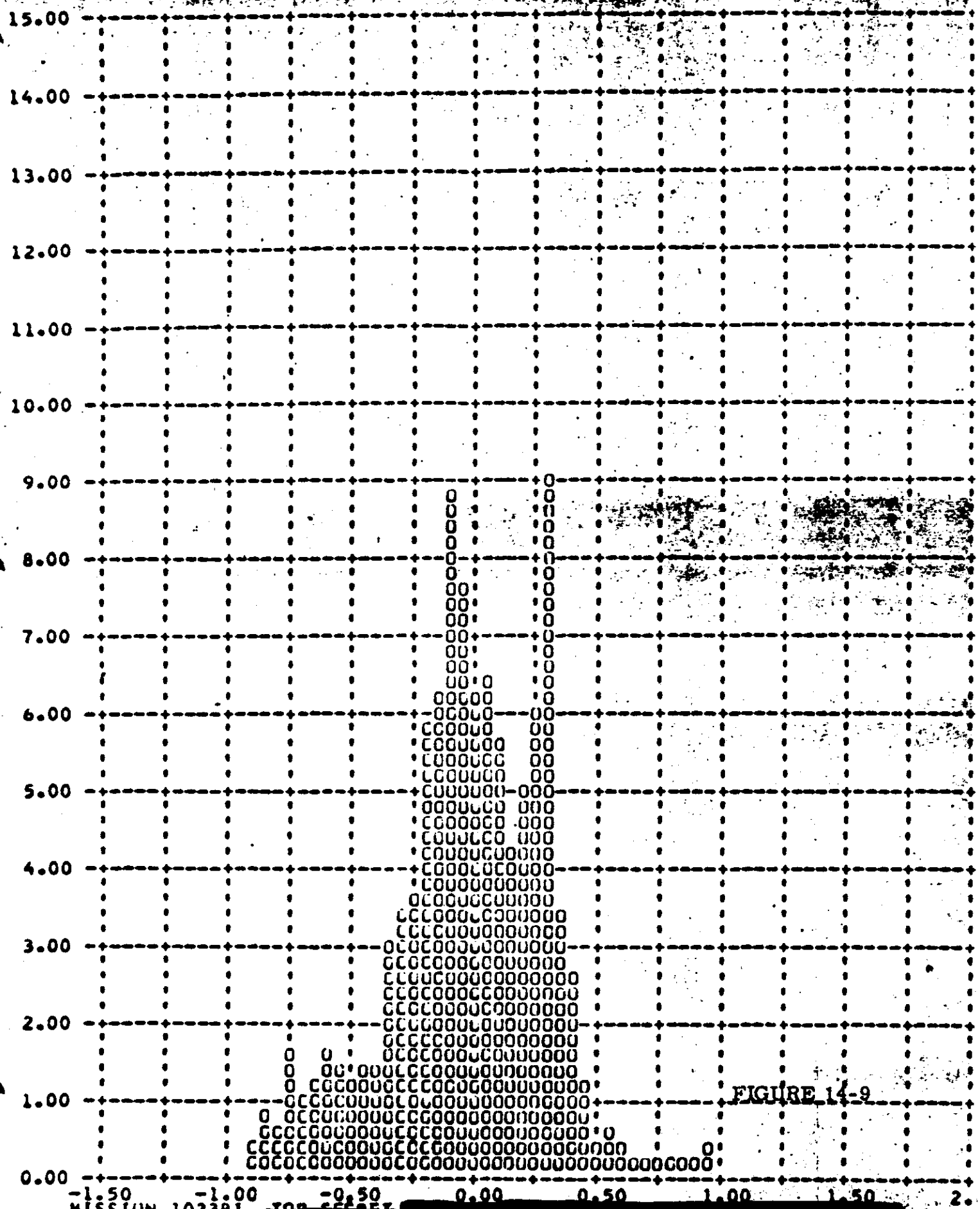

Y YAW ANGLE ERROR - DEGREES (X) VERSUS FREQUENCY - PERCENT (Y)
15.00
14.00
13.00
12.00
11.00
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
-1.50
-1.00
-0.50
0.00
0.50
1.00
1.50
2.

FIGURE 14-9

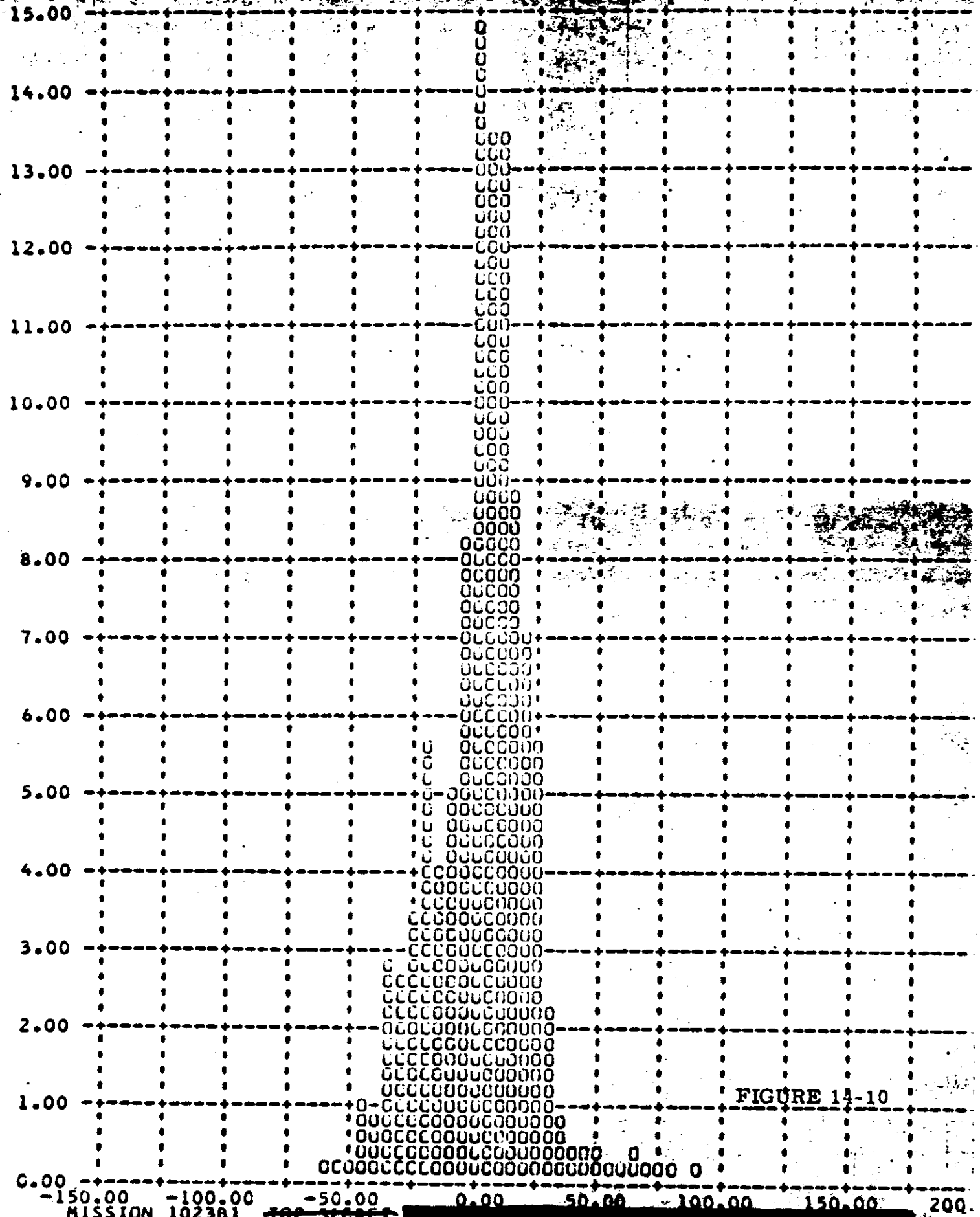

Y - PITCH RATE ERROR - DEG/HOUR
FREQUENCY - PERCENT
15.00
14.00
13.00
12.00
11.00
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
-150.00
-100.00
-50.00
0.00
50.00
100.00
150.00
200.

FIGURE 14-10

J-23 B BUCKET - FWD INSTR FRAMES 1-6 OF EACH UP OMITTED 90 PERCENT = 21.0

Y - ROLL RATE ERROR - DEG/HOUR (X) [illegible] FREQUENCY - PERCENT (Y)

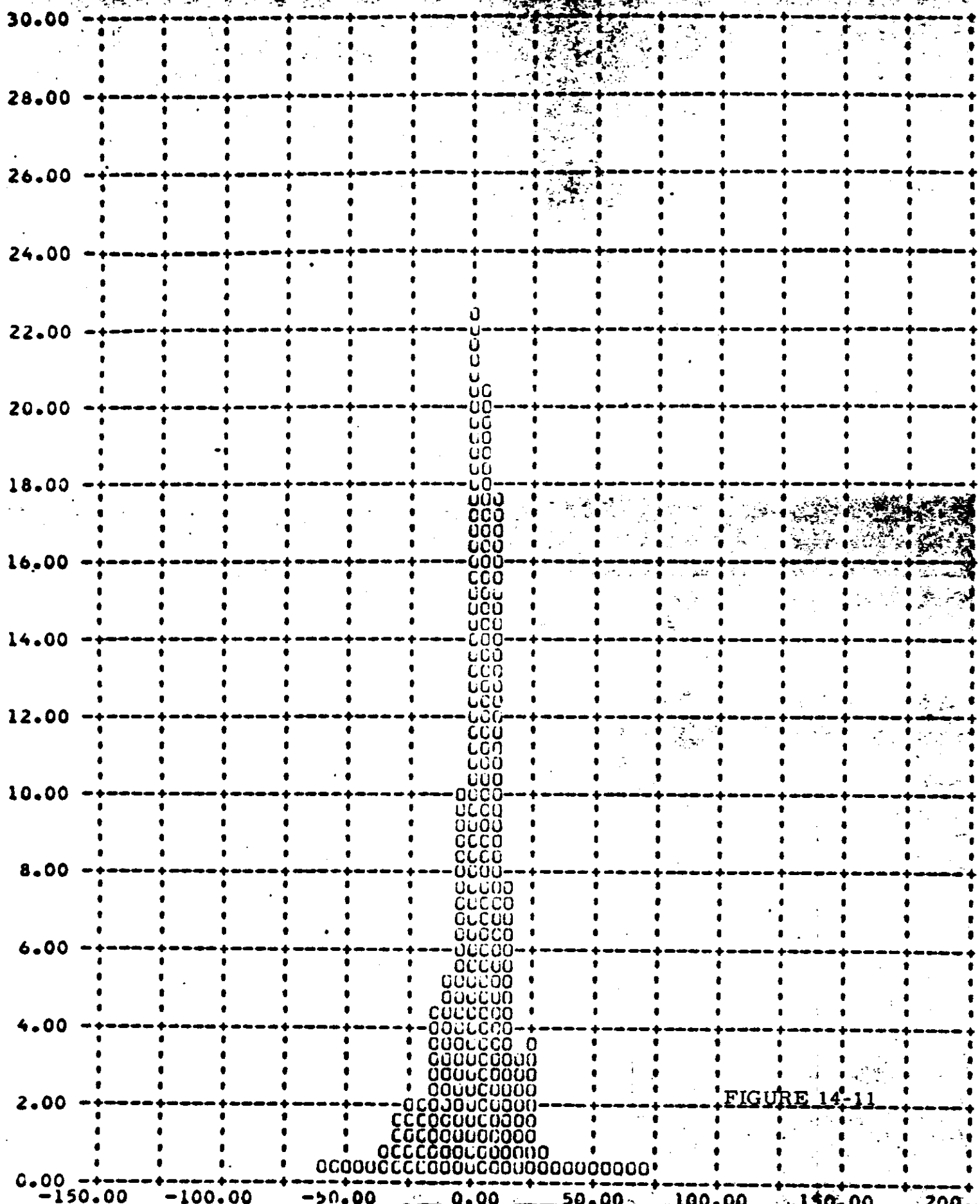


FIGURE 14-11

J-23 B BUCKET - FWD INSTR FRAMES 1-6 OF EACH OF OMITTED 90 PERCENT = 28.5

Y - YAW RATE ERRCH - DEG/HOUR (X) VERSUS FREQUENCY - PERCENT (Y)

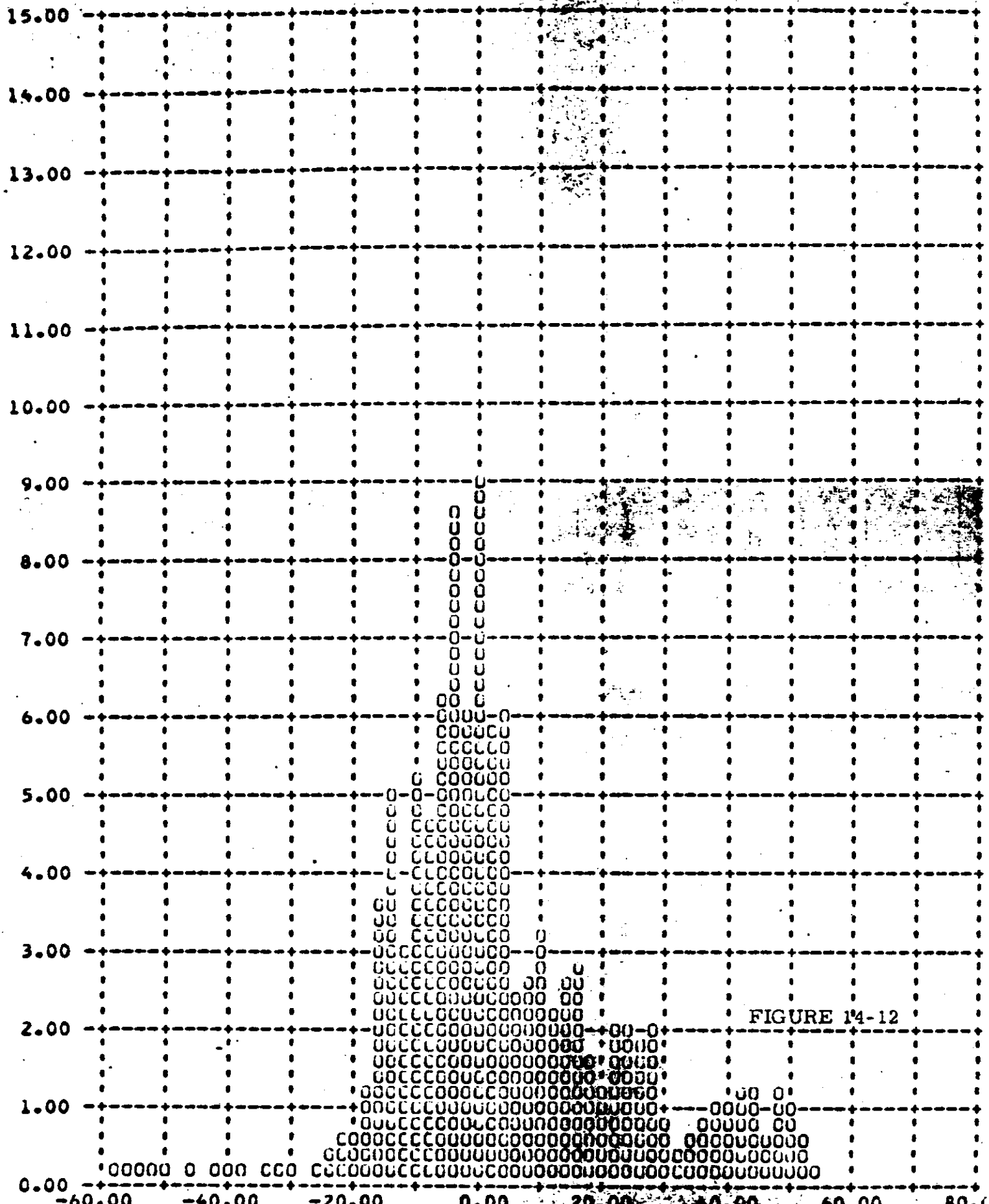


FIGURE 14-12

SECTION 15

IMAGE SMEAR ANALYSIS

The frame correlation tape supplied to A/P by NPIC contains the binary time word of each frame of photography. A computer program has been assembled at A/P which calculates the exposure time of each frame and compares the camera cycle rate with the ephemeris to calculate the V/h mismatch. This data is combined with the vehicle attitude error and rate values of each frame and the crab error caused by earth rotation at the latitude of each frame. The program outputs the total along track and cross track IMC error and the limit of ground resolution that can be acquired by a camera regardless of focal length and system capabilities.

The computer rejects the first six frames of all operations as the large V/h error induced by camera start-up is not representative of the overall system operations. The frequency distribution of the V/h errors and resolution limits for each panoramic camera have been calculated and plotted in Figures 15-1 through 15-2. The variation in the data for the panoramic cameras is the result of the different slit widths used during the mission and the resulting slower exposure time in the FWD camera.

The summary shown in Table 15-1 presents the maximum V/h ratio errors and resolution limits that existed during 90% of the photographic operations and the total range of values during all operations that were computed.

J-23 A BUCKET - FWD INSTR FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 3.3

V = V/M RATIO ERROR - PERCENT (X) VERSUS FREQUENCY - PERCENT (Y)

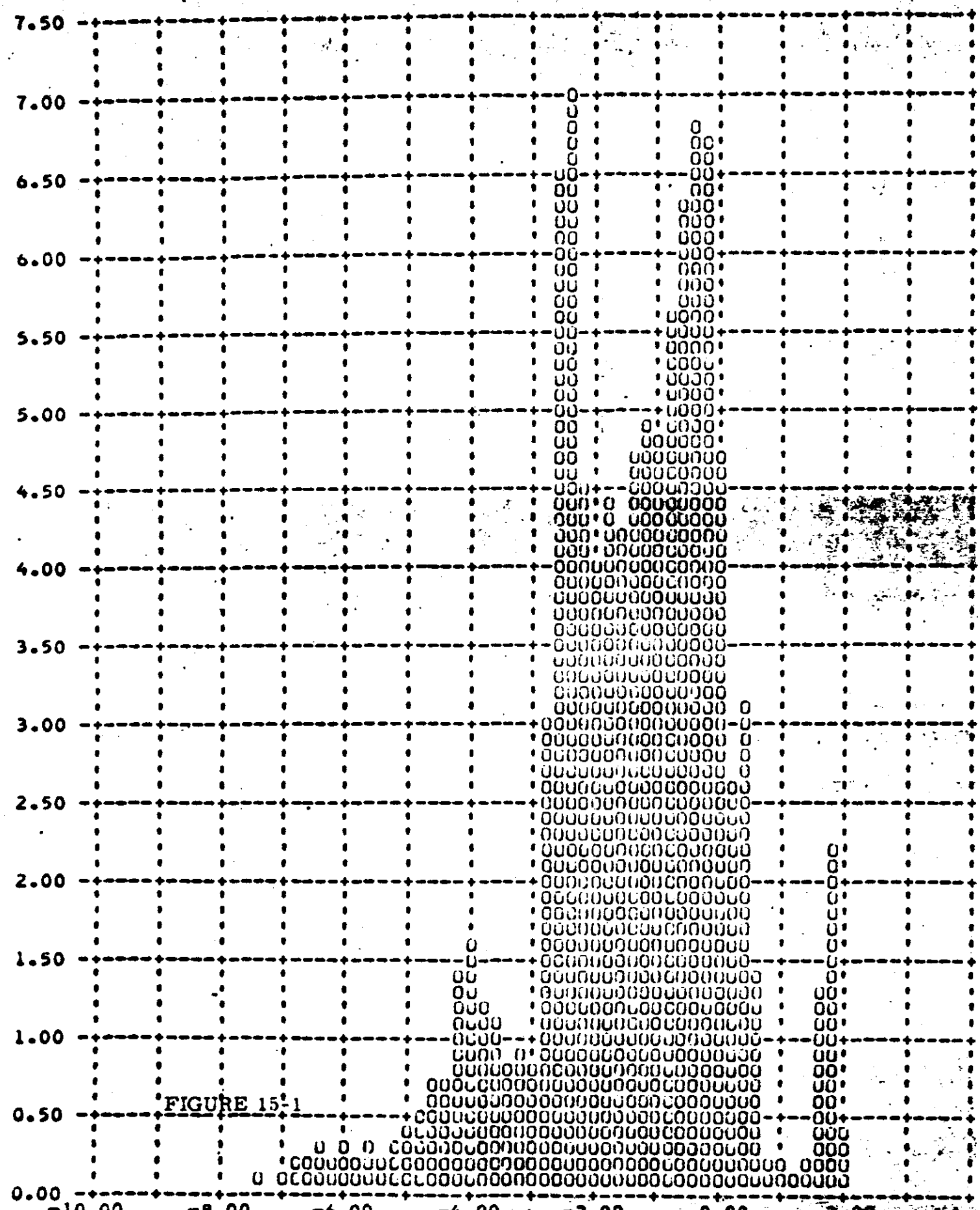


FIGURE 15-1

J-23 A BUCKET - AFT INSTR FRAMES 1-6 OF EACH OMITTED 90 PERCENT = 3.5

Y = V/H RATIO ERROR - PERCENT (X) VERSUS FREQUENCY - PERCENT (Y)

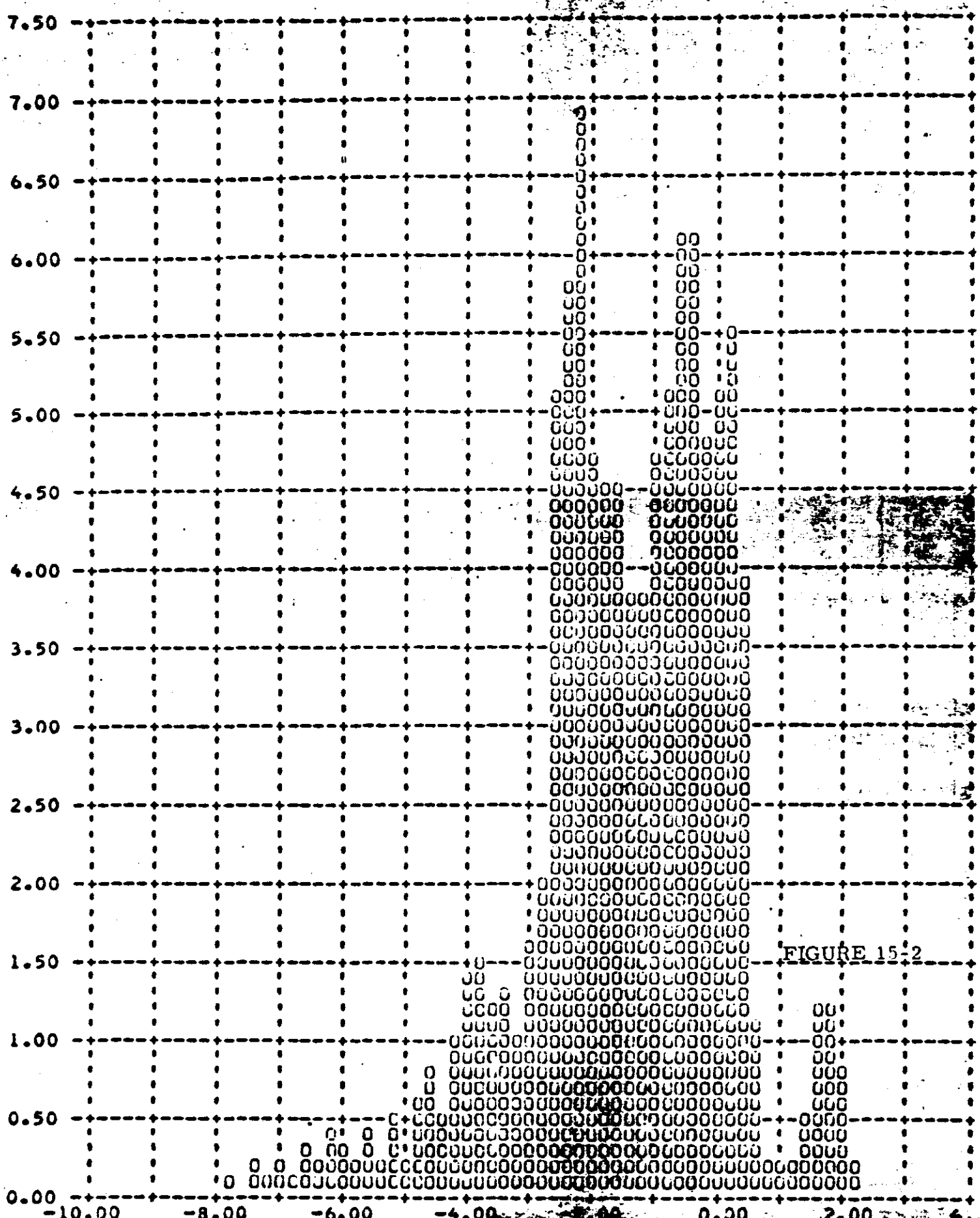


FIGURE 15-2

J-23 A BUCKET - FWD INSTR FRAMES 1-6 OF EACH 00 OMITTED 90 PERCENT = 9.

Y ALONG TRACK RESOLUTION LIMIT - FEET/CY VERSUS FREQUENCY - PERCENT I

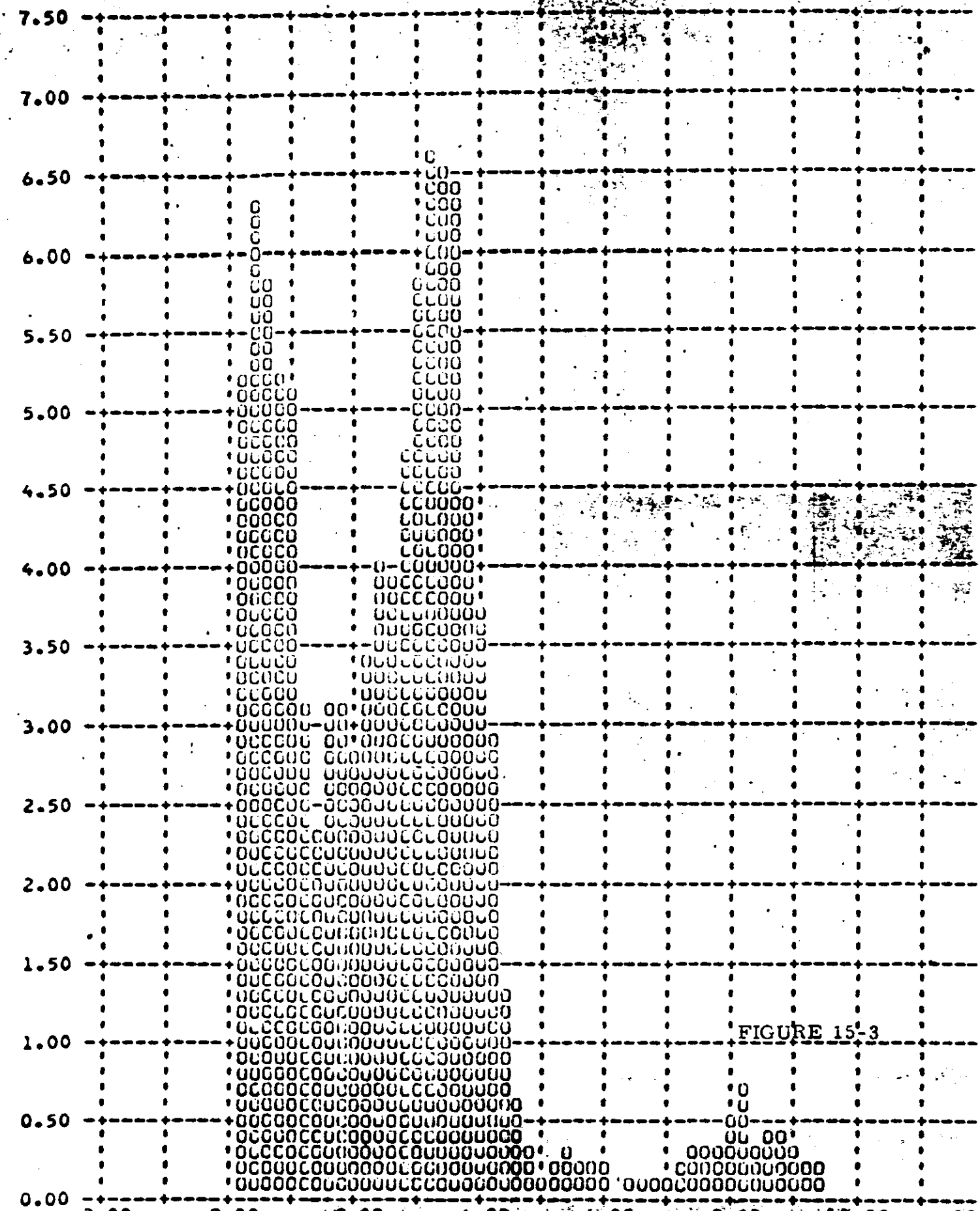


FIGURE 15-3

J-23 A BUCKET - FWD INSTR - FRAMES 1-6 OF [redacted] LIMITED 90 PERCENT

Y CROSS TRACK RESOLUTION LIMIT - FEET (X) VERSUS FREQUENCY - PERCENT (Y)

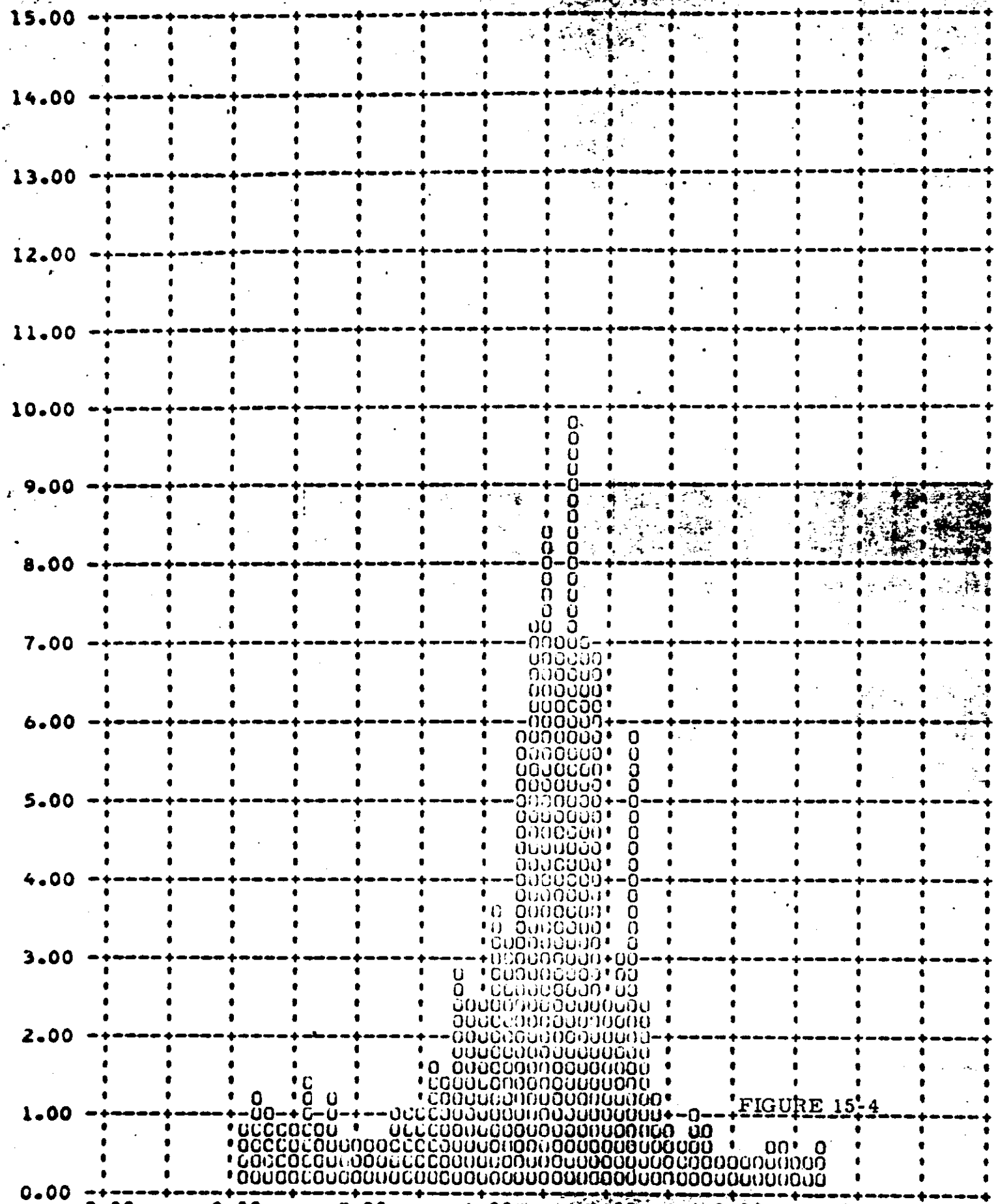


FIGURE 15-4

J-23 A BUCKET - AFT INSTR FRAMES 1-6 OF EACH OF SHIFTED 90 PERCENT = 2.7

V - ALONG TRACK RESOLUTION LIMIT - FEET VERSUS FREQUENCY - PERCENT

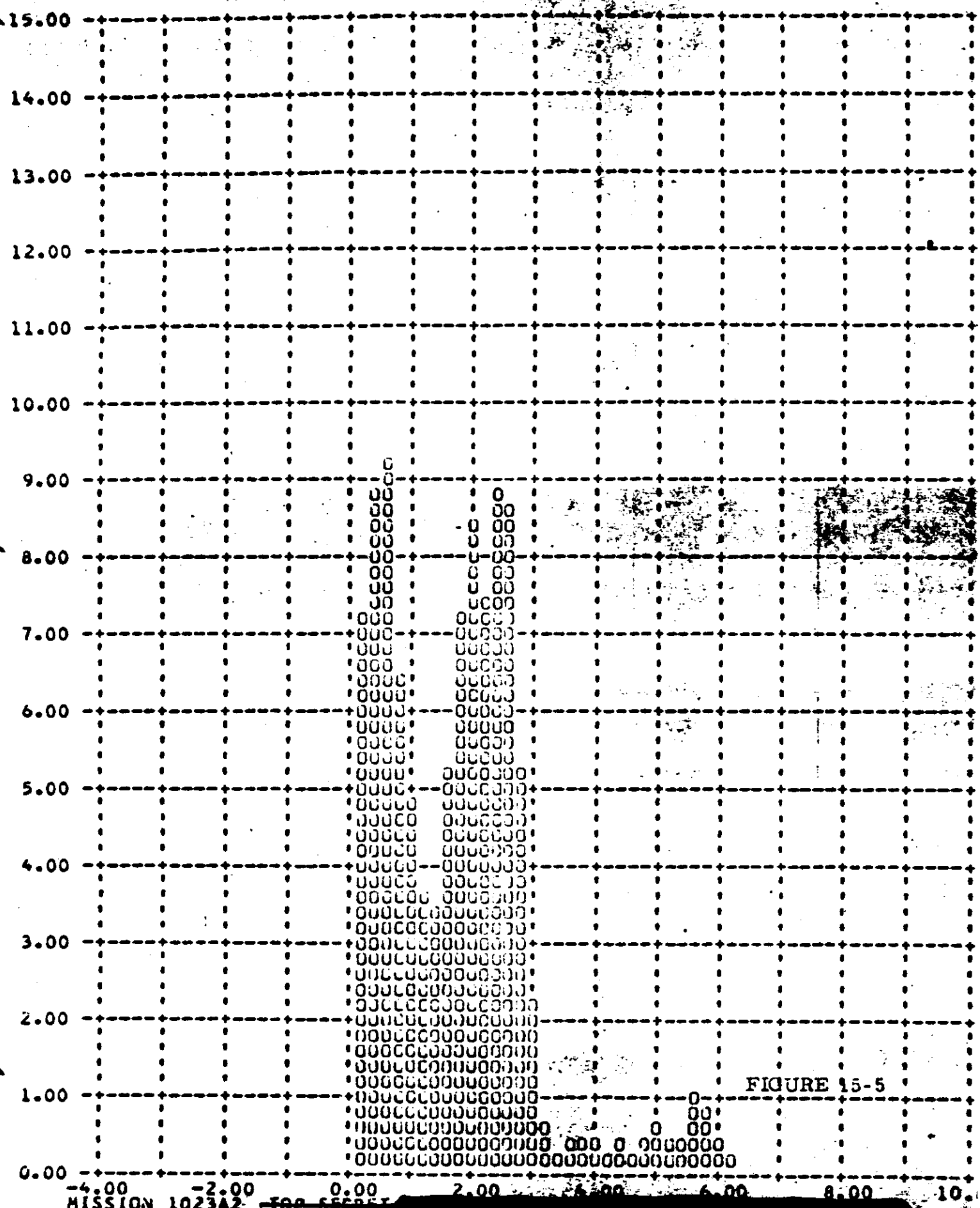


FIGURE 15-5

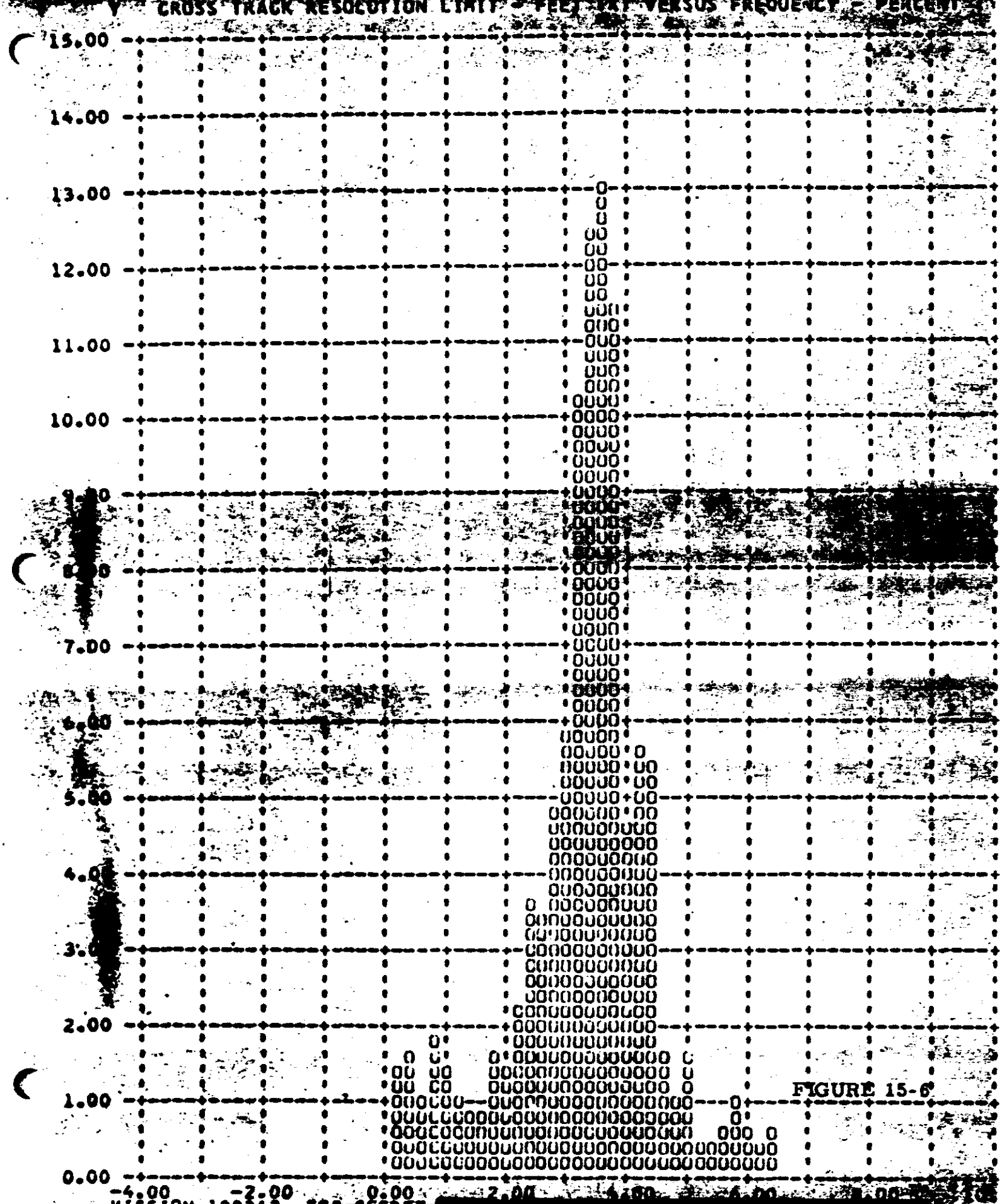

CROSS TRACK RESOLUTION LIMIT - FEET (X) VERSUS FREQUENCY - PERCENT (Y)
15.00
14.00
13.00
12.00
11.00
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
-4.00
-2.00
0.00
2.00
4.00
6.00

FIGURE 15-6

J-23 B BUCKET - FWD INSTR . . FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 2.4

Y = V/H RATIO ERROR - PERCENT (X) VERSUS FREQUENCY - PERCENT (Y)

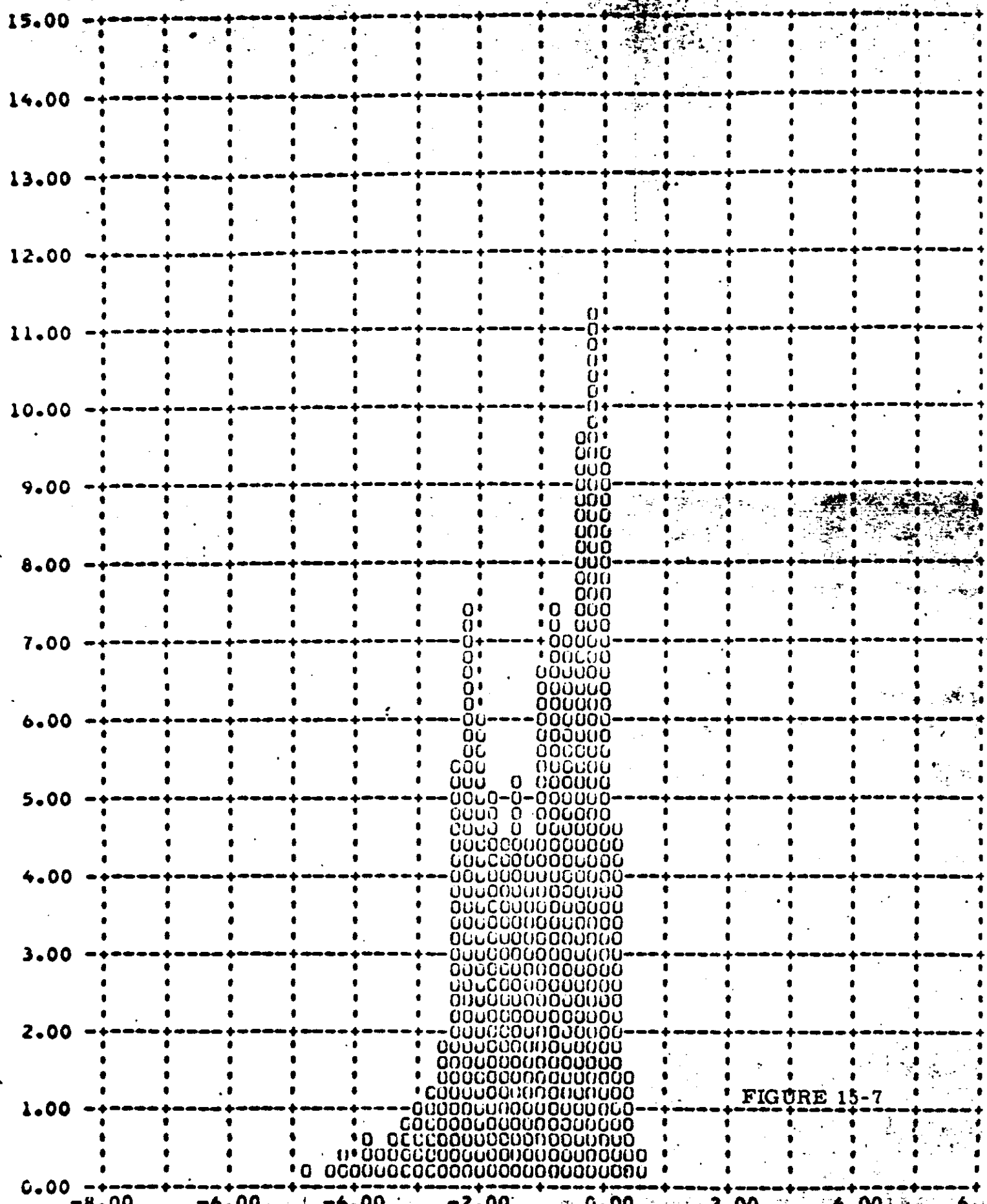


FIGURE 15-7

J-23 B BUCKET - AFT INSTR FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 2.4

Y V/H RATIO ERROR - PERCENT (X) VERSUS FREQUENCY - PERCENT (Y)

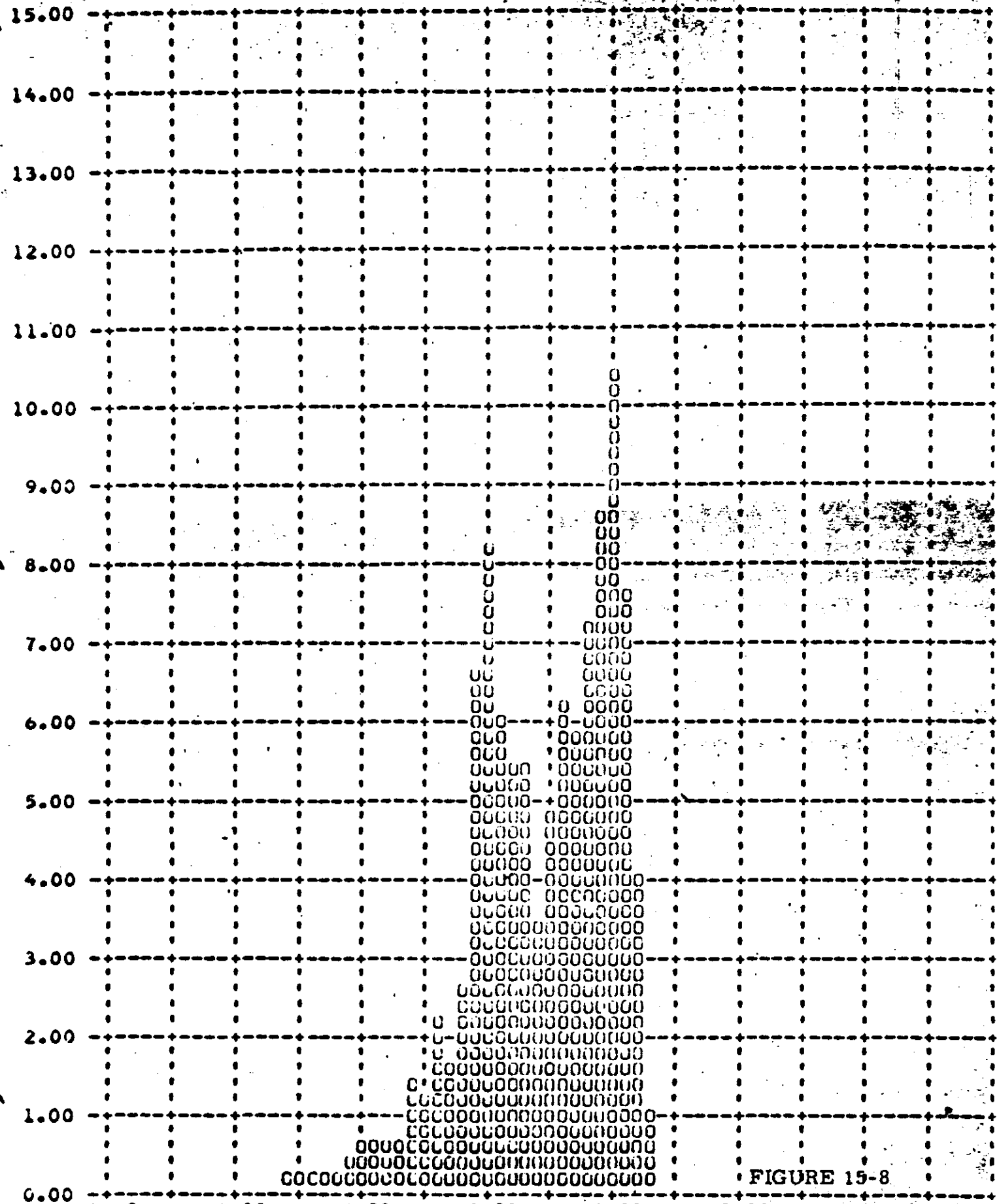


FIGURE 15-8

J-23 B BUCKET - FWD INSTR - FRAMES 1-6 OF EACH OF UNITED , 90 PERCENT = 3.9(

Y ALONG TRACK RESOLUTION LIMIT - FEET (X) VERSUS FREQUENCY - PERCENT (Y)

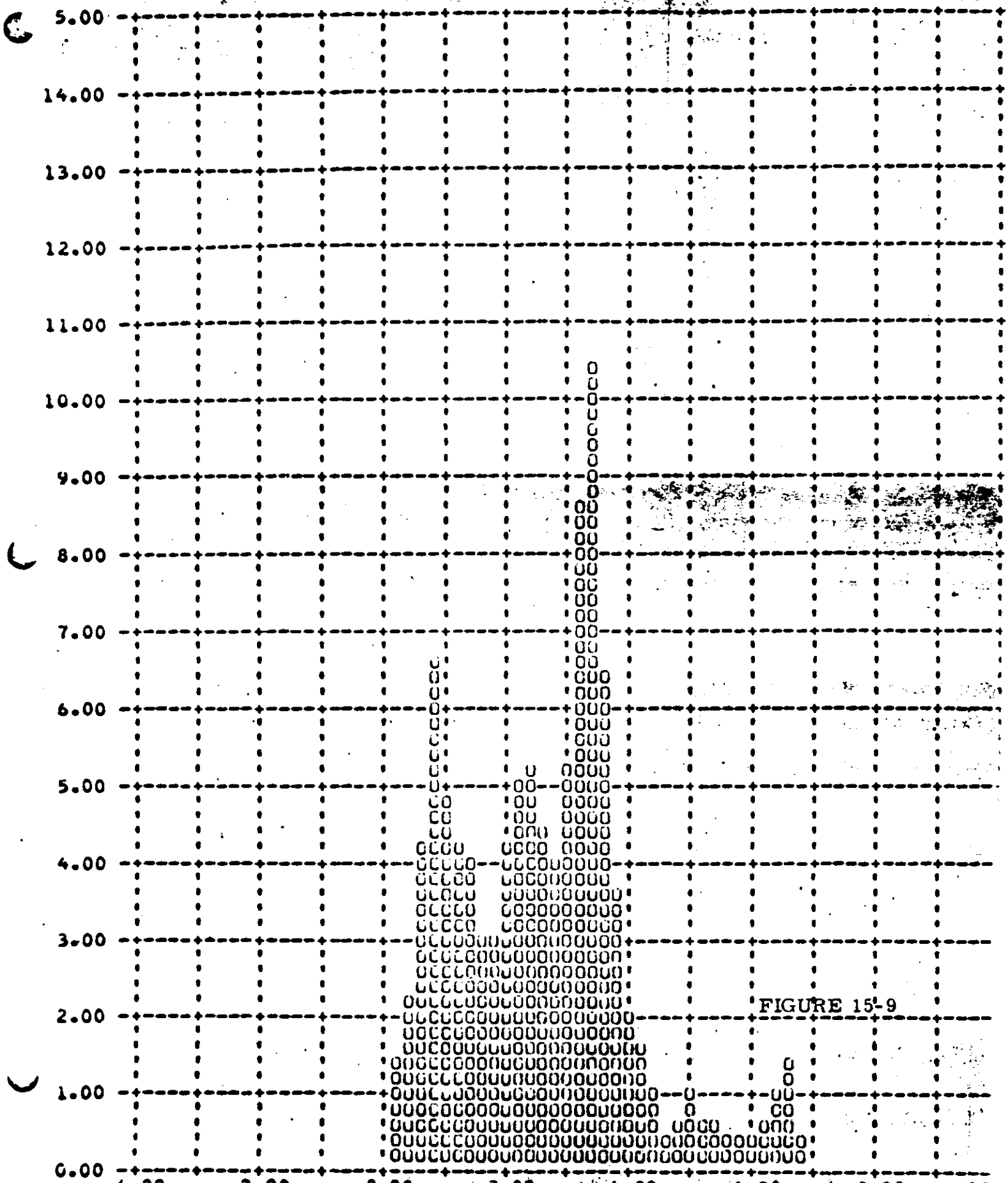


FIGURE 15-9

J-23 B BUCKET - FWD INSTR FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 6.

[illegible] CROSS TRACK RESOLUTION LIMIT - FEET VERSUS FREQUENCY - PERCENT C

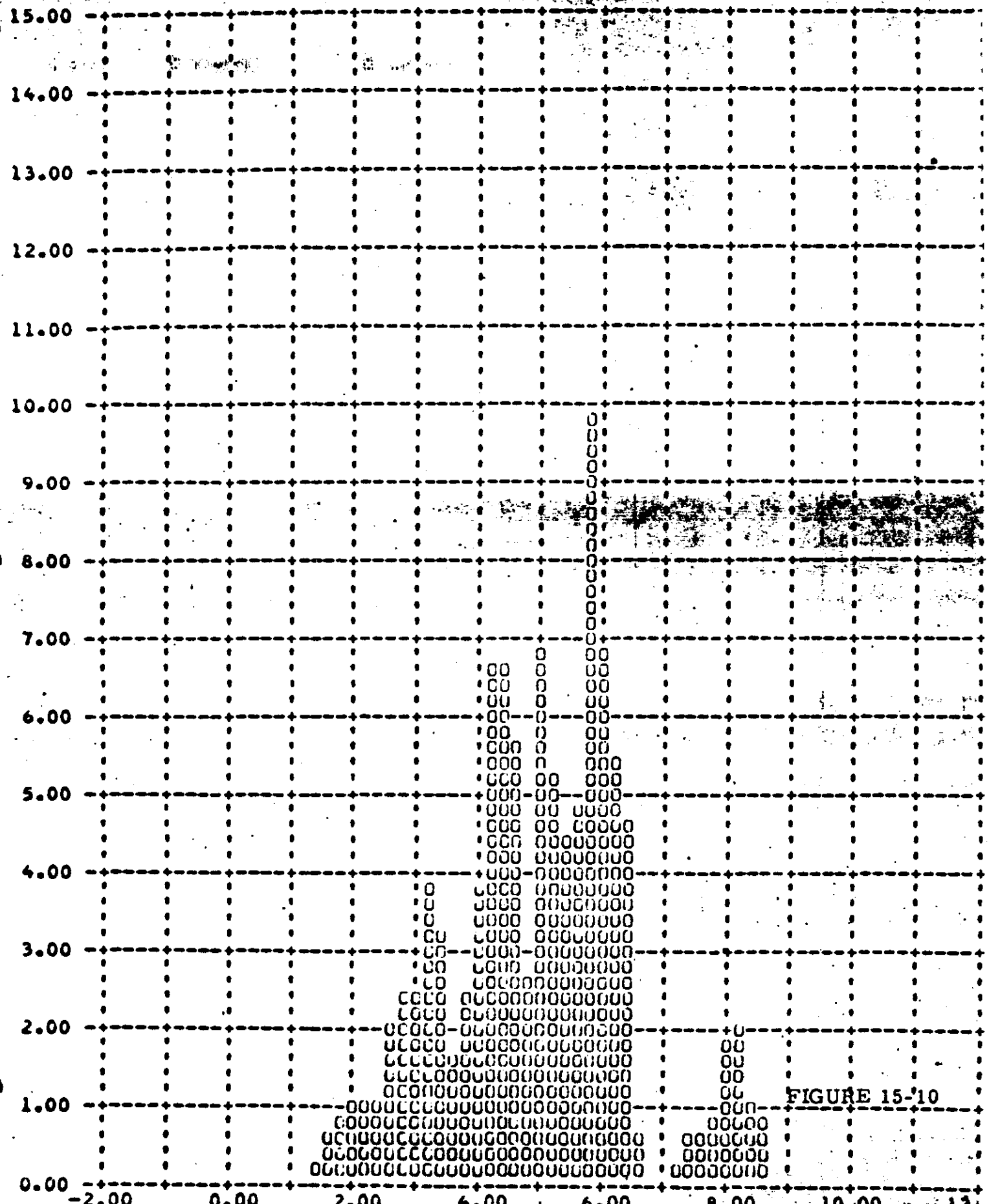


FIGURE 15-10

J-23 B BUCKET - AFT INSTR FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 2.

Y = ALONG TRACK RESOLUTION LIMIT - FEET; X = VERSUS FREQUENCY - PERCENT

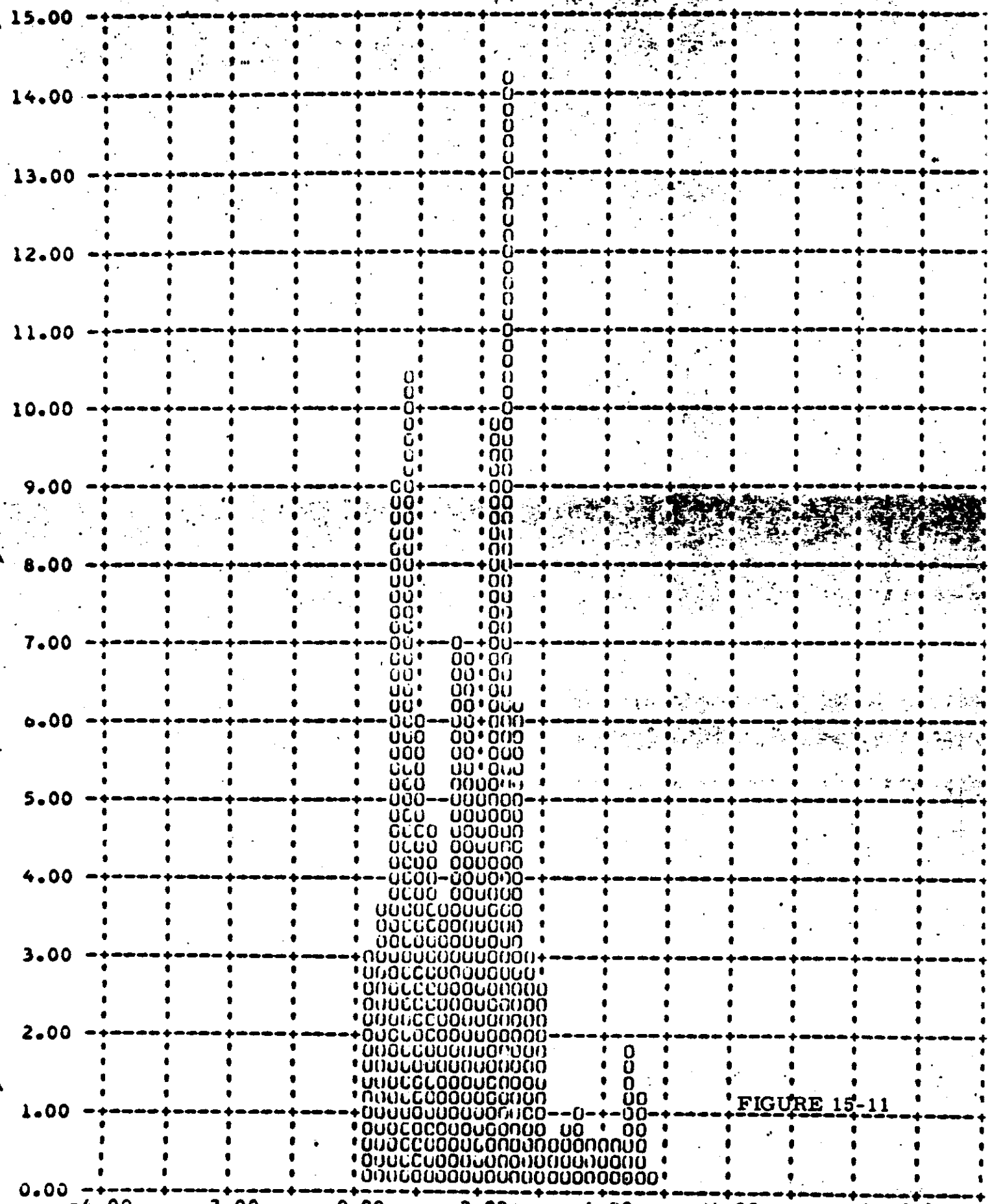


FIGURE 15-11

J-23 B BUCKET - AFT INSTR FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT

Y CROSS TRACK RESOLUTION LIMIT - FEET (X) VERSUS FREQUENCY - PERCENT (Y

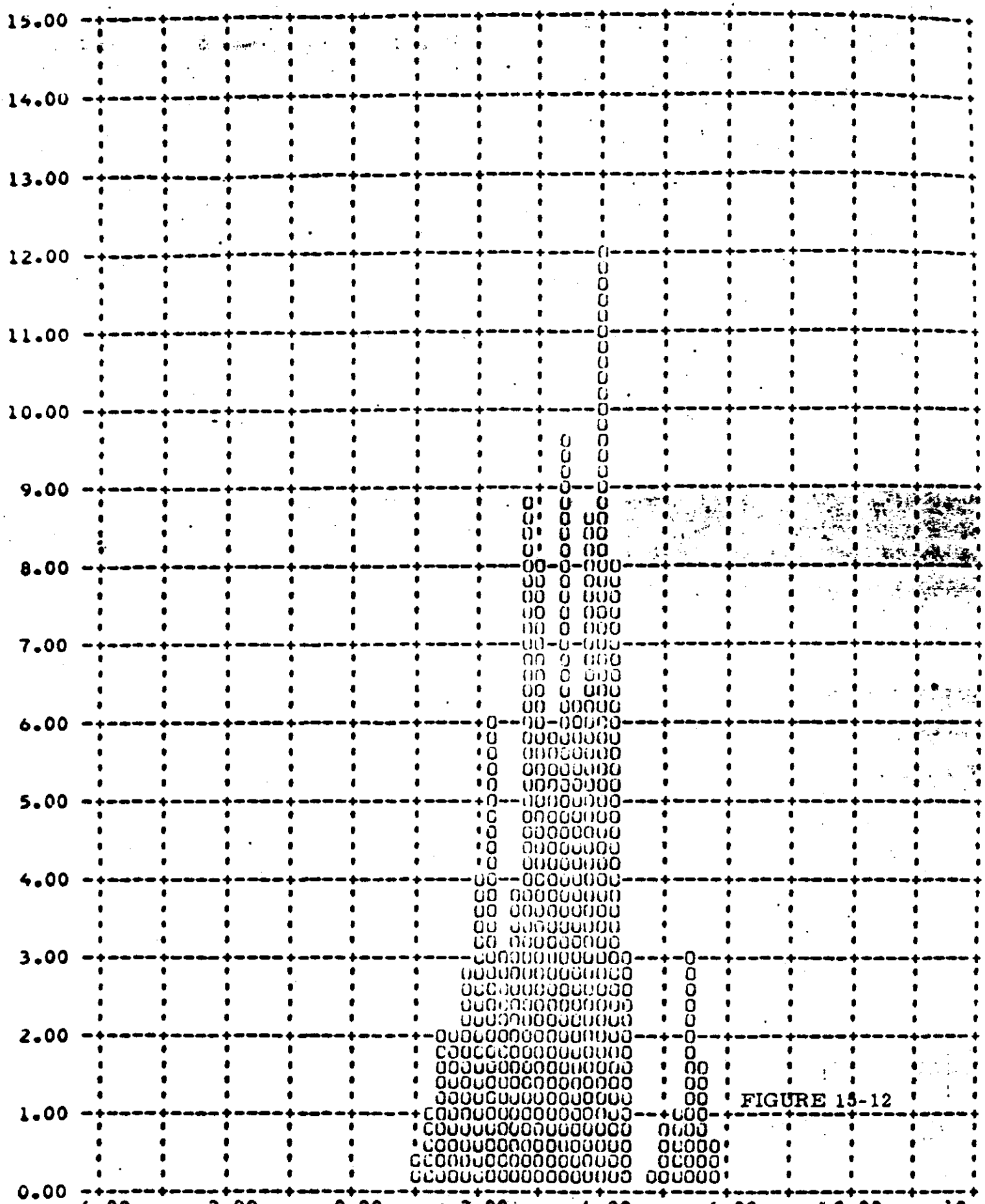


FIGURE 15-12

MISSION 1023

V/h RATIO AND RESOLUTION LIMITS

Value	Units	Camera	Mission 1023-1 90%	Mission 1023-1 Range	Mission 1023-2 90%	Mission 1023-2 Range
V/h Ratio Error	%	FWD	3.37	-7.4 to +2.0	2.45	-4.8 to +0.6
		AFT	3.50	-7.8 to +2.2	2.49	-5.2 to +0.6
Along Track Resolution Limit	Feet	FWD	3.9	0 to 9.4	3.9	0 to 6.8
		AFT	2.7	0 to 6.2	2.7	0 to 4.8
Cross Track Resolution Limit	Feet	FWD	6.4	0 to 9.4	6.3	1.4 to 8.6
		AFT	4.3	0 to 6.4	4.2	1.0 to 5.8

TABLE 15-1

SECTION 16

RADIATION DOSAGE

Each recovery system flown on a Corona mission contains a sealed packet of Eastman Type 4401 and Royal X Pan emulsions to determine the total radiation received at the take-up cassette. Both film types have been irradiated by LMSC at various levels and the base plus fog densities recorded after controlled processing.

Following recovery the film dosimeter packets are removed at A/P and processed with a pre-flight sample of the same film type and sensitometric control film. The resulting base plus fog density measurement of the dosimeter strips is used to ascertain the total radiation level. The table below presents the base plus fog readings for the dosimeter strips and the radiation level equivalents.

	Mission 1023-1		Mission 1023-2	
Emulsion	B + F Density	Radiation	B + F Density	Radiation
Type 4401	0.13	0.2 R	0.16	0.4 R
Royal X Pan	0.18	0.2 R	0.22	0.3 R

The mean total radiation seen by the take-up cassettes during both missions was approximately 0.3 roentgens. This level is somewhat less than received during recent missions and is well below the level that will degrade the panoramic photography.

SECTION 17

SYSTEM RELIABILITY

Reliability calculations for the payload are based on a sample beginning with M-7. Hence both the major part of the Mural Program and the "J" Program are covered in the calculation. For certain auxiliaries, i. e., the stellar-index camera and the horizon cameras, the sample size is changed to recognize incorporation of modified equipment or new designs where reliability was one of the principal reasons for the modification. However, for primary mission function, the sample size is consistent with reliability reporting for the vehicle.

The reliability estimates of this section deal exclusively with the payload. Failures to achieve orbit or vehicle induced failures are thereby excluded. Recoveries before a complete mission has been completed are considered as full missions providing that early termination was caused by reasons not connected with payload operation. Film quality is not considered in the reliability estimate calculation. Hence, only electrical and mechanical functioning are considered.

The reliability estimate is also divided into primary and secondary functions. The primary functions are operation of the panoramic cameras, main camera door operation, operation of the payload clock, and recovery operations. The secondary mission functions are horizon camera operation excluding catastrophic open shutter failure mode, auxiliary data recording, and stellar-index camera operation. A summary of estimated reliability is shown in Tables 17-1 and 17-2.

Panoramic Camera Reliability

Sample Size - 114 opportunities to operate.
One failure - S/I Programmer on system J-19
Assume - 3000 cycles per camera per mission
Estimated Reliability = 98.6% at 50% confidence level.

Main Camera Door Reliability

Sample Size - 41 vehicles x 2 doors = 32 opportunities to operate
Estimated Reliability = 99.2% at 50% confidence level.

Payload Command & Control Reliability

Sample size: 6000 hours operation
Two failures .
Estimated Reliability = 95.8% at 50% confidence level

Payload Clock Reliability

Sample size: 6000 hours operation
No Failures
Estimated Reliability = 98.9% at 50% confidence level.

Estimated Reliability of Payload Functioning on orbit: 96.2% at 50% confidence level

Recovery System Reliability

47 opportunities to recover
1 failure - improper separation due to water seal - cutter failure.
Estimated Reliability = 96.5% at 50% confidence level.

Stellar-Index Camera Reliability

Sample begins with J-5
Sample size = 12,190 cycles
Number of failures = 2
Estimated Reliability = 91.1% at 50% confidence.

Horizon Camera Reliability

Sample includes J5 and up
Sample size: 77,700 cycles
Estimated Reliability of Single Camera = 98.0% at 50% confidence level.
Estimated Reliability of Four Horizon Cameras at a Parallel Redundant System = 99.9% at 50% confidence level

ESTIMATED RELIABILITY SUMMARY

TOP SECRET [redacted]

(AT 50% CONFIDENCE LEVEL)

MISSION NUMBER	PRIMARY FUNCTIONS						SECONDARY FUNCTIONS	
	PANORAMIC CAMERA	PANORAMIC CAMERA DOORS	COMMAND & CONTROL SYSTEM	PAYLOAD CLOCK	ON-ORBIT FUNCTIONS	RECOVERY SYSTEM	STELLAR-INDEX CAMERAS	HORIZON CAMERAS
	SAMPLE (OPERATIONS) / FAILURES / RELIABILITY	SAMPLE (DOORS) / FAILURES / RELIABILITY	SAMPLE (HOURS) / FAILURES / RELIABILITY	SAMPLE (HOURS) / FAILURES / RELIABILITY	RELIABILITY	SAMPLE (CAPSULES) / FAILURES / RELIABILITY	SAMPLE (CYCLES) / FAILURES / RELIABILITY	SAMPLE (CYCLES) / FAILURES / RELIABILITY
9038 TO 1008	60 / 1 / 97.3	52 / 0 / 98.6	3124 / 0 / 98.0	3124 / 0 / 98.0	96.1	18 / 1 / 90.7	3400 / 3 / 83.1	18,000 / 0 / 91.7
1009	64 / 1 / 97.4	64 / 0 / 98.7	3216 / 0 / 98.0	3216 / 0 / 98.0	96.2	20 / 1 / 91.5	4280 / 3 / 89.3	18,000 / 0 / 93.4
1010	68 / 1 / 97.6	56 / 0 / 98.8	3432 / 0 / 98.1	3432 / 0 / 98.1	96.4	22 / 1 / 92.5	5100 / 3 / 73.7	18,000 / 0 / 94.4
1011	72 / 1 / 97.7	58 / 0 / 98.9	3600 / 0 / 98.1	3600 / 0 / 98.1	96.8	24 / 1 / 93.0	5825 / 0* / 94.7	21,000 / 0 / 95.2
1012	76 / 1 / 97.8	60 / 0 / 98.9	3720 / 0 / 98.2	3720 / 0 / 98.2	96.9	26 / 1 / 93.5	5825 / 0 / 94.7	24,000 / 0 / 95.8
1013	78 / 1 / 97.8	62 / 0 / 99.0	3840 / 1 / 95.9	3840 / 0 / 98.3	96.0	28 / 1 / 94.0	5980 / 0 / 95.1	28,500 / 0 / 96.0
1014	82 / 1 / 97.9	64 / 0 / 99.0	4056 / 1 / 96.1	4056 / 0 / 98.3	96.1	30 / 1 / 94.4	6375 / 1 / 89.6	28,500 / 0 / 96.0
1015	86 / 1 / 98.0	66 / 0 / 99.0	4320 / 1 / 96.3	4320 / 0 / 98.4	96.1	32 / 1 / 94.6	7225 / 1 / 90.4	31,500 / 0 / 96.2
1016	90 / 1 / 98.1	68 / 0 / 99.0	4560 / 1 / 96.5	4560 / 0 / 98.5	96.4	34 / 1 / 95.2	7680 / 1 / 91.0	34,500 / 0 / 96.6
1017	94 / 0* / 99.3	70 / 0 / 99.0	4760 / 1 / 96.7	4760 / 0 / 98.6	97.6	36 / 1 / 96.4	8925 / 1 / 92.3	37,500 / 0 / 97.3
1018	98 / 1 / 98.3	72 / 0 / 99.1	4980 / 1 / 96.8	4980 / 0 / 98.7	96.7	38 / 1 / 95.6	8980 / 1 / 92.5	40,500 / 0 / 97.5
1019	102 / 1 / 98.4	74 / 0 / 99.1	5136 / 1 / 96.9	5136 / 0 / 98.7	96.8	39 / 1 / 95.8	8075** / 1 / 91.5	43,500 / 0 / 97.6

* DESIGN FIX NEGATED PREVIOUS FAILURE CONSIDERATIONS

** 3RD SAMPLE OUT OF SEQUENCE

TABLE 12 [redacted]

TOP SECRET [redacted]

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ESTIMATED RELIABILITY SUMMARY

(AT 50% CONFIDENCE LEVEL)

MISSION NUMBER	PRIMARY FUNCTIONS						SECONDARY FUNCTIONS	
	PANORAMIC CAMERA	PANORAMIC CAMERA DOORS	COMMAND & CONTROL SYSTEM	PAYLOAD CLOCK	ON-ORBIT FUNCTIONS	RECOVERY SYSTEM	STELLAR-INDEX CAMERAS	HORIZON CAMERAS
	SAMPLE / FAILURES / RELIABILITY	SAMPLE / FAILURES / RELIABILITY	SAMPLE / FAILURES / RELIABILITY	SAMPLE / FAILURES / RELIABILITY	RELIABILITY	SAMPLE / FAILURES / RELIABILITY	SAMPLE / FAILURES / RELIABILITY	SAMPLE / FAILURES / RELIABILITY
1020	108 / 1 / 98.8	78 / 0 / 99.1	5544 / 1 / 97.1	5544 / 0 / 98.9	96.9	43 / 1 / 96.1	10,680 / 2 / 89.9	48,000 / 0 / 97.8
1021	104 / 1 / 98.8	76 / 0 / 99.1	5376 / 1 / 97.0	5376 / 0 / 98.8	96.9	41 / 1 / 96.0	9630 / 2 / 89.1	46,500 / 0 / 97.8
1022	112 / 1 / 98.8	90 / 0 / 99.2	5784 / 1 / 97.3	5784 / 0 / 98.9	96.9	45 / 1 / 96.3	11,550 / 2 / 90.7	51,000 / 0 / 98.0
1023	114 / 1 / 98.8	82 / 0 / 99.2	6000 / 2 / 95.8	6000 / 0 / 98.9	96.2	47 / 1 / 96.8	12,190 / 2 / 91.1	54,000 / 0 / 98.1

TABLE [illegible]

SECTION 18

SUMMARY DATA

The comparison of the operating parameters and the performance achieved by previous missions has been difficult due to the large volume of data that results from each mission. Some of the pertinent characteristics from prior missions have been summarized in Tables 18-1 through 18-3

The summary data was started with Mission 1004 as the J-05 camera system was the first to incorporate the major modifications of the titanium drum and scan arm, four roller scan head and Corona J capabilities. Only those missions that culminated in the recovery of some photography have been listed, therefore Missions 1003 and 1005 are deleted.

MISSION SUMMARY

MISSION NUMBER	PAYLOAD NUMBER	VEHICLE NUMBER	LAUNCH DATE	LAUNCH TIME	ORBIT INCLINATION (°)	PERIGEE ALTITUDE (NM)	PERIGEE LOCATION (°N)	RECOVERY PASS	MASTER CAMERA CAMERA NUMBER	MASTER CAMERA SLIT (")	MASTER CAMERA FILTER TYPE	SLAVE CAMERA CAMERA NUMBER	SLAVE CAMERA SLIT (")	SLAVE CAMERA FILTER TYPE	STELLAR-INDEX CAMERA NUMBER
1004	J-05	1174	2/15/64	2139 Z	74.9	99.9	29.0	49/112	124	0.250	W-21	125	0.250	W-21	[redacted]
1006	J-09	1176	6/4/64	2259 Z	79.9	84.0	63.2	65/126	148	0.200	W-21	149	0.200	W-21	[redacted]
1007	J-07	1609	6/19/64	2318 Z	85.0	99.2	41.6	65/128	144	0.250	W-25	145	0.200	W-21	[redacted]
1008	J-10	1177	7/10/64	2314 Z	85.0	99.4	40.8	49/112	150	0.200	W-21	151	0.200	W-21	[redacted]
1009	J-12	1605	8/3/64	2316 Z	80.1	99.8	39.5	49/128	154	0.200	W-21	155	0.200	W-21	[redacted]
1010	J-11	1178	9/14/64	2254 Z	84.9	97.4	42.5	65/144	152	0.175	W-21	153	0.175	W-21	[redacted]
1011	J-3X	1170	10/5/64	2150 Z	79.9	99.3	20.9	65/—	160	0.175	W-21	161	0.175	W-21	[redacted]
1012	J-13	1179	10/17/64	2202 Z	75.0	96.2	32.4	49/81	156	0.200	W-21	157	0.200	W-21	[redacted]
1013	J-15	1173	11/2/64	2130 Z	80.0	100.0	25.0	65/—	158	0.225	W-21	159	0.225	W-21	[redacted]
1014	J-16	1180	11/18/64	2036 Z	70.0	103.2	65.6	81/145	162	0.250	W-25	139	0.175	W-21	[redacted]
1015	J-17	1607	12/19/64	2110 Z	74.9	96.7	21.6	81/175	138	0.250	W-25	141	0.175	W-21	[redacted]
1016	J-18	1606	1/15/65	2101 Z	74.9	98.4	30.2	81/159	132	0.250	W-25	133	0.175	W-21	[redacted]
1017	J-14	1611	2/25/65	2144 Z	75.0	97.2	28.9	81/145	140	0.250	W-25	165	0.175	W-21	[redacted]
1018	J-19	1612	3/25/65	2111 Z	96.0	100.2	40.3	66/99	122	0.250	W-25	123	0.175	W-21	[redacted]
1019	J-04	1614	4/25/65	2144 Z	85.0	99.1	27.1	80/—	116	0.250	W-25	119	0.175	W-21	[redacted]
1020	J-20	1613	5/9/65	2158 Z	75.1	97.1	40.6	97/113	136	0.250	W-25	137	0.175	W-21	[redacted]
1021	J-21	1615	5/18/65	1853 Z	75.0	109.2	84.2	81/161	166	0.175	W-21	167	0.250	W-25	[redacted]
1022	J-22	1617	7/19/65	2201 Z	85.0	99.7	30.5	80/144	168	0.250	W-25	169	0.175	W-21	[redacted]
1023	J-23	1616	8/17/65	2100 Z	70.0	97.8	29.0	81/144	170	0.225	W-25	171	0.150	W-21	[redacted]

TABLE 13-1

PERFORMANCE SUMMARY

MISSION NUMBER	CAMERA	SERIAL NUMBER	M I P VALUE	VISUAL RES.	AFSPPL MTF/AIM SLIT (μ)	AFSPPL MTF/AIM AVERAGE	[redacted] SLIT (μ)	[redacted] AVERAGE	[redacted] SLIT (μ)	[redacted] AVERAGE ALL	[redacted] AVERAGE HIGH	90% ATTITUDE ERROR (°) PITCH	90% ATTITUDE ERROR (°) ROLL	90% ATTITUDE ERROR (°) YAW	90% ATTITUDE RATES (°/HR) PITCH	90% ATTITUDE RATES (°/HR) ROLL	90% ATTITUDE RATES (°/HR) YAW	90% V/H ERROR (%)	90% RESOLUTION LOST (FEET) ALONG TRACK	90% RESOLUTION LOST (FEET) CROSS TRACK
1019-1	FWD	118	85	81	—	—	80	78	80	88	104	0.43	0.36	0.97	31.6	34.7	33.0	3.3	8.3	8.1
	AFT	119		89				83		87	101	0.44	0.37	0.96	31.6	34.9	33.1	3.8	8.0	8.2
1020-1	FWD	136	80	88	—	—	80	69	80	78	90	0.46	0.35	0.78	37.4	31.8	28.7	8.4	8.8	8.4
	AFT			89				82		94	105	0.46	0.35	0.78	37.4	31.8	28.7	8.3	4.2	8.9
1020-2	FWD	137	—	—				—		—	—	0.41	0.17		42.6	23.8	42.5	3.5	8.4	7.8
	AFT			—				—		—	—	0.41	0.17		42.6	23.8	42.5	3.4	4.8	8.2
1021-1	FWD	166	85	88	—	—	80	77	80	86	99	0.85	0.37	0.81	34.9	32.6	28.2	8.7	8.8	8.0
	AFT			90				90		98	109	0.85	0.38	0.81	34.8	33.0	28.3	8.4	8.8	8.8
1021-2	FWD	167	85	85				74		88	112	0.89	0.65	——	44.7	50.8	——	3.1	8.2	8.1
	AFT			74				82		—	—	——	——	——	——	——	——	——	——	——
1022-1	FWD	168	85	88	—	—	80	66	80	78	91	0.47	0.51	0.89	28.3	27.1	23.8	3.8	9.8	8.6
	AFT			91				83		101	111	0.47	0.51	0.90	27.9	26.6	23.8	3.0	8.2	8.1
1022-2	FWD	169	85	90				88		74	84	0.40	0.51	0.90	29.4	27.3	31.0	2.8	8.0	8.4
	AFT			92				92		99	110	0.40	0.51	0.90	29.4	27.3	31.1	1.8	4.9	8.2
1023-1	FWD	170	85	—	—	—	80	84	80	97	110	0.48	0.33	0.50	33.0	28.7	23.5	3.4	4.0	8.4
	AFT							87		83	101	0.49	0.33	0.50	32.9	28.7	23.5	3.8	8.7	8.3
1023-2	FWD	171	85					71		76	87	0.42	0.36	0.53	29.7	21.0	28.6	2.4	8.9	8.2
	AFT							89		88	76	0.43	0.37	0.53	29.6	21.3	28.6	2.8	8.7	8.5

TABLE 18-2

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EXPOSURE - PROCESSING SUMMARY

MISSION NUMBER	CAMERA	SOLAR ELEVATION RANGE (°) LOW	SOLAR ELEVATION RANGE (°) HIGH	SOLAR AZIMUTH RANGE (°) LOW	SOLAR AZIMUTH RANGE (°) HIGH	PREDICTED PROCESSING (%) P	PREDICTED PROCESSING (%) I	PREDICTED PROCESSING (%) F	REPORTED PROCESSING (%) P	REPORTED PROCESSING (%) I	REPORTED PROCESSING (%) F	COMPUTED PROCESSING (%) P	COMPUTED PROCESSING (%) I	COMPUTED PROCESSING (%) F	TERRAIN D-MIN RANGE LOW	TERRAIN D-MIN RANGE HIGH	TERRAIN D-MIN MEAN	TERRAIN D-MIN MEDIAN	TERRAIN D-MAX RANGE LOW	TERRAIN D-MAX RANGE HIGH	TERRAIN D-MAX MEAN	TERRAIN D-MAX MEDIAN	CLOUD D-MAX RANGE LOW	CLOUD D-MAX RANGE HIGH	CLOUD D-MAX MEAN	CLOUD D-MAX MEDIAN	UNDER EXPOSED (%)	UNDER PROCESSED (%)	NOMINAL EXP. & PRO (%)	OVER PROCESSED (%)	OVER EXPOSED (%)	FOUND COVER (%)
1019-1	FWD	24	70	24	152	0	21	79	22	32	46	4	56	40	0.26	1.92	0.71	0.61	0.60	2.15	1.45	1.50	0.64	2.26	1.94	2.00	4	7	64	17	7	[redacted]
	AFT	23	70	21	152	0	92	8	26	55	19	3	87	10	0.13	1.70	0.66	0.60	0.59	2.26	1.46	1.45	0.80	2.30	1.96	2.02	1	13	70	14	3	[redacted]
1020-1	FWD	30	75	19	156	0	19	81	13	48	39	1	58	41	0.23	1.30	0.93	0.82	0.80	2.28	1.57	1.54	1.40	2.36	2.10	2.16	1	18	78	4	0	[redacted]
	AFT	29	78	17	156	0	64	36	15	56	29	0	74	26	0.23	1.20	0.85	0.54	0.70	2.20	1.47	1.46	1.22	2.29	2.04	2.10	0	18	76	6	0	[redacted]
1020-2	FWD	47	89	18	38	← INSUFFICIENT DATA →																										
	AFT	46	88	17	33																											
1021-1	FWD	15	66	-149	-23	0	68	32	14	39	47	1	52	47	0.25	1.90	0.64	0.58	0.74	2.18	1.80	1.50	0.97	2.36	1.92	2.00	5	9	72	11	3	[redacted]
	AFT	14	66	-147	-25	0	99	1	15	38	47	0	57	43	0.17	1.70	0.65	0.57	0.84	2.24	1.48	1.42	0.85	2.30	1.90	2.00	5	5	75	12	3	[redacted]
1021-2	FWD	13	52	-133	-41	0	29	71	13	41	46	0	57	43	0.18	1.52	0.54	0.50	0.80	2.36	1.56	1.54	1.05	2.23	1.82	1.85	14	13	66	6	0	[redacted]
	AFT	13	52	-133	-41	0	100	0	23	25	22	0	50	50	0.33	1.38	0.76	0.76	0.78	2.20	1.52	1.50	1.30	2.36	1.94	1.94	6	0	71	21	1	[redacted]
1022-1	FWD	28	87	30	180	0	36	64	8	36	56	0	42	58	0.18	1.49	0.45	0.40	0.64	2.42	1.57	1.60	1.32	2.55	2.24	2.29	30	19	47	3	0	[redacted]
	AFT	27	87	26	150	0	89	11	7	42	51	0	53	47	0.24	1.48	0.57	0.50	0.52	2.30	1.63	1.68	1.30	2.47	2.21	2.25	4	15	71	9	1	[redacted]
1022-2	FWD	29	74	21	152	0	8	92	1	37	62	0	43	57	0.20	0.99	0.39	0.35	0.62	2.05	1.43	1.45	1.16	2.45	2.23	2.28	35	28	35	1	0	[redacted]
	AFT	28	74	19	152	0	100	0	10	44	46	0	53	47	0.21	1.40	0.48	0.44	0.80	2.32	1.51	1.52	1.45	2.49	2.25	2.28	10	25	61	4	0	[redacted]
1023-1	FWD	22	82	8	164	0	5	95	19	54	27	0	72	28	0.15	1.26	0.39	0.35	0.43	2.41	1.22	1.22	0.87	2.41	2.06	2.11	20	44	34	2	0	[redacted]
	AFT	20	81	8	163	0	11	89	0	39	61	0	42	58	0.20	1.40	0.53	0.48	0.41	2.21	1.31	1.37	0.94	2.45	2.15	2.20	13	14	65	7	0	[redacted]
1023-2	FWD	29	81	-13	177	0	7	93	0	19	81	0	18	82	0.22	1.38	0.48	0.42	0.41	2.03	1.18	1.22	0.90	2.41	2.03	2.11	35	2	60	2	1	[redacted]
	AFT	28	80	-13	178	0	3	97	0	34	66	0	28	72	0.22	1.60	0.52	0.48	0.44	2.21	1.24	1.24	1.08	2.46	2.10	2.17	13	10	73	4	0	[redacted]

TABL[redacted]

~~TOP SECRET~~ [redacted]

Distribution:

[redacted]

[redacted]