CORONA J

PERFORMANCE EVALUATION REPORT

MISSION 1024-1 and 1024-2

FTV 1619, J-24

16 February 1966

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Manager
Advanced Projects

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Program

~~TOP SECRET~~ [redacted]

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15 April 1966

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FROM:

SUBJECT: MISSION 1024-1 AND 1024-2 FINAL REPORT

Enclosed is the Final Performance Evaluation Report for Mission 1024-1 and 1024-2.

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~~TOP SECRET~~ [redacted]

FOREWORD

This report details the performance of the payload system during the operational phase of the Program [redacted] Flight Test Vehicle 1619.

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 1024-1 and 1024-2 which was launched on 22 September 1965.

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INTRODUCTION

This report presents the final performance evaluation of Missions 1024-1 and 1024-2 of the Corona Program. The purpose of this report is to define the performance characteristics of the J-24 payload system, and to identify the source of in-flight anomalies.

The performance evaluation was jointly conducted by representatives of Lockheed Missiles and Space Company (LMSC) and ITEK at the facilities of NPIC and AFSPPF. 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, and MTF/AIM resolution are produced by AFSPPF. 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 1024, placed into orbit by Flight Test Vehicle #1619 and LV-2A booster #458, 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-24 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 profile was two 5 day photographic missions with no deactivation. The predicted period was not achieved and certain pre-programmed target areas were not going to be covered. In the second mission a 1 orbit deactivation was successfully performed and the desired areas were covered.

B. MISSION DESCRIPTION

The payload was launched from Vandenberg Air Force Base (VAFB) at 2131:14Z (1431:14 PDT) on 22 September 1965. Tracking and command support was effected by the Air Force Satellite Control Facility [redacted], under central control of the Satellite Test Center at Sunnyvale, California. Mission 1024-1 consisted of five days operation and was completed by air recovery on orbit 81, 27 September 1965. Mission 1024-2 was completed with an air recovery from orbit 161 on 2 October 1965 following five days of photographic operations.

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

SCHEMATIC INBOARD PROFILE - CORONA J SYSTEM

MISSION 1024

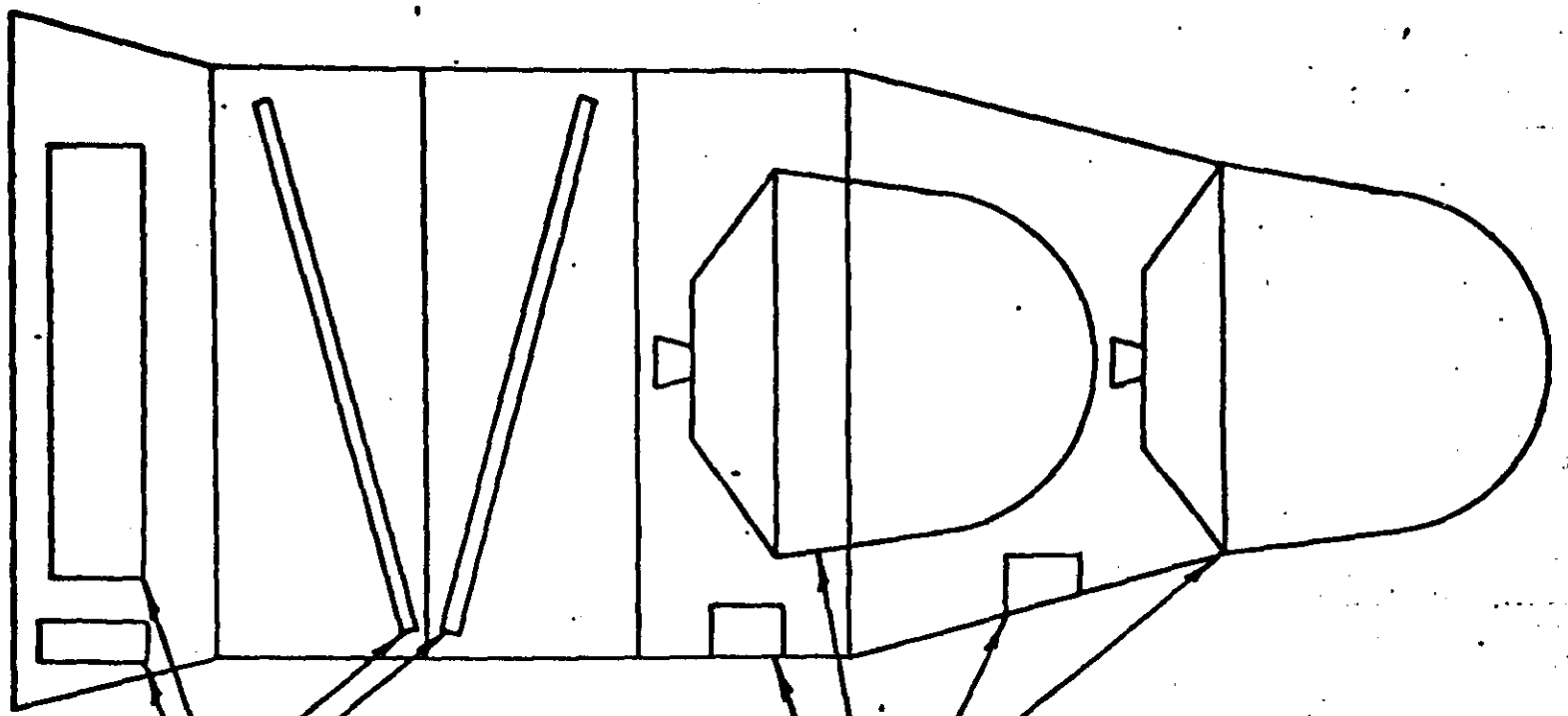


FIGURE 1-1

ORBITAL PARAMETERS

Parameter	Predicted	Orbit 1 Actuals
Period (Min.)	90.87 ± 0.20	90.16
Perigee (N. M.)	99.9 $^{+3.}_{-4.}$	95.97
Apogee (N. M.)	245.3 $^{+12.}_{-11.}$	207.89
Inclination (Deg.)	80.00 ± 0.10	80.06
Perigee Latitude (Deg. N.)	23. $^{+10.}_{-14.}$	8.25
Eccentricity	0.0202 $^{+0.0016}_{-0.0015}$	0.0156

SRV #1 and SRV #2 each contained 100% of the normal amount of payload expected from Mission 1024-1 and 1024-2 respectively.

C. PANORAMIC CAMERAS

The Master and Slave panoramic cameras operated throughout both missions with no significant problems and produced excellent photographic coverage. The cloud cover observed in the photography was the lowest of all missions to date during 1965 and averaged 35% for the entire flight.

D. STELLAR-INDEX CAMERAS

Stellar-Index camera D-69 used during Mission 1024-1 and S/I D 64 used during Mission 1024-2 operated normally. S/I D-69 acquired approximately 50 stars per frame while S/I D-64 recorded approximately 20 stars per frame.

E. OTHER SUBSYSTEMS

The telemetry instrumentation, command, thermal control, and pressure make-up subsystems performed satisfactorily throughout both missions.

With the exception of two incorrect time words, one recorded on frame 53, pass D-35 and the other recorded on frame 152, pass D-40, clock performance was excellent throughout both missions.

F. CONCLUSIONS

The panoramic and Stellar-Index photography was of high quality throughout Mission 1024-1 and 1024-2 and adequate to meet the search and surveillance objective of the "J" Program.

The low cloud cover (35%) throughout the flight combined with consistently good system performance was responsible for providing the highest information content in Mission 1024 photography compared to any other flight made to date in 1965.

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 susceptibility to corona discharge. Such discharge fogs the film thus degrading the operational photography.

2. Test Summary

The J-24 payload system completed a 4-1/2 day orbit simulation test at the Sunnyvale HIVOS chamber on 13 May 1965. The HIVOS test consisted of 2-1/2 days of SRV-"A" testing followed by one day of J-24 deactivate, and one day of SRV-"B" operation. Approximately 14,000 feet of 3404 type flight film was programmed thru panoramic cameras #172 and #173 during altitude testing. No corona discharge marks were present in either the Master or Slave film exhibits. S/I D-69, tested with SRV #1, demonstrated acceptable performance. S/I D-64, tested with SRV #2, was rated unacceptable for flight due to failure of the Index camera shutter in the open position. S/I D-64 shutter and shutter solenoid were replaced. Subsequent to installation of the new shutter and solenoid, 500 cycles of operation demonstrated S/I D-64 to be acceptable for flight.

3. Panoramic Camera Performance

Both panoramic cameras operated satisfactorily throughout the test with exception of the following:

The 99/101 clutch on the master camera exhibited an abnormal change during orbit 15 of the "A" phase. The normal clutch ratio was approximately 6/7 and changed to 8/9 during this time. Post test inspection revealed that the flanges of take-up cassette #2 were rubbing together causing a change in the camera tension.

Take-up cassette #2 was replaced and the system returned to the altitude chamber. Subsequent operation at altitude revealed acceptable system performance.

An instrument Off command occurred during the center of format pulse on the Master camera during the "A" phase and the camera operated one extra cycle. This suggested that the dwell time of switch S-107 was less than 10^{o}. It should be approximately 20^{o}.

A special mag amp up-ramp test was conducted prior to altitude test #2. The results showed that the mag amp of the Master camera reached 63% of steady state in 3.7 seconds. The mag amp of the Slave camera reached this level in 2.6 seconds. Both rates are acceptable for flight.

The cycle periods for the Master and Slave averaged 0.94% and 1.36% slower than the predicted values in the "A" phase. The cycle periods for the Master and Slave averaged 0.03% and 0.28% slower than the predicted values in the "B" phase.

The 99/101 percent clutch ratios averaged 6/7 for instrument No. 1 and 6/6 for instrument No. 2.

The cut and wrap operation was normal with both instruments operating 4 cycles and both lens stopping in the stowed position.

A deactivate sequence was performed between the "A" and "B" phase with both instruments operating 5 cycles and the lens stopping in the stowed position.

4. Stellar/Index Camera Performance

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

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

5. Instrumentation Performance

Correlation between the film footage pots and the cycle counters during the "A" and "B" phase were as follows:

CYCLE COUNTERS VS. POTS

Rev.	Cycle Counter #1	Delta #1	Pot #1	Cycle Counter #2	Delta #2	Pot #2
1A	8757		116	5400		148
15 C&W	11527	2770	2959	8103	2703	2907
1B	11531			8107		
12B	14311	2780	2692	0904	2797	2850

The cycle counter on the master failed to advance properly when a center of format pulse occurred. The ten position commutator point was sloped during the "A" phase giving the indication of an open point.

The Phillips gauge read 0 volts throughout the test and also during pre-HIVOS tests. The gauge was replaced with an acceptable unit prior to flight.

Current transients were present on the continuous channels when real time commands were being given. This condition was observed on numerous occasions throughout the test and accepted for flight.

Current transients similar to the center of format pulse were observed during horizon camera shutter operation. Transients were also present on the continuous channels at instrument start up and instrument shut-down.

Sixty cycle noise was present on tape recorder track No. 1 during the cut and wrap operation.

6. Temperature Environment

A tabulation of the temperature environment is shown as follows:

AVERAGE TEMPERATURE ENVIRONMENT
(Degrees Fahrenheit)

"A" Phase	Orbit 1	Orbit 7	Orbit 15
Master	73	61	
Slave	75	61	60
"B" Phase	**Orbit 1**	**Orbit 6**	**Orbit 12**
Master	82	86	91
Slave	80	81	87

7. Clock Performance

The clock system operated satisfactorily through the "A" phase and through Rev. 6 of the "B" phase. An error of approximately 125 milliseconds was present between Rev. 6 and Rev. 7. Since the IRIG "C" standard time generator, used to calibrate the clock was not coorelated during this period of time, the cause of this anomaly was not apparent. Subsequent clock tests demonstrated acceptable performance. The following table shows clock performance during the altitude test.

Rev.	IRIG "C"				Clock Time	Error
	Days	Hours	Minutes	Seconds		
1A	129	07	07	07.215	51563.907	
12A	131	12	12	59.620	242716.255	-.057
1B	132	08	35	17.090	48326.985	
6B	133	08	16	32.280	133602.158	-.017
12B	133	17	32	22.660	166952.692	-.154

8. Pressure Make-Up System Performance

The pressure make-up system operated satisfactorily throughout the test. The average gas consumption was approximately 6.2 lbs./minute of operate time. The maximum pressure attained with the PMU on was approximately 86 microns during an instrument operation. The minimum pressure attained during the test was approximately 2.0 microns during a static condition.

STATIC PRESSURES - MICRONS

Day	Microns
1	33.0
2	8.0
3	2.0
4	2.0
5	2.0
6	2.0

No corona discharge marks were present on altitude test film from the master, slave or S/I #69 cameras. Test film from S/I #64 contained minor corona discharge fog that was within the flight acceptable requirements.

B. RESOLUTION TEST

The dynamic resolution test of the J-24 payload system was performed at the A/P facility on 4 June 1965. Each panoramic camera photographed high and low contrast resolution targets. The resulting through focus resolution data is shown in Figure 2-1 for the Master camera and in Figure 2-2 for the Slave camera.

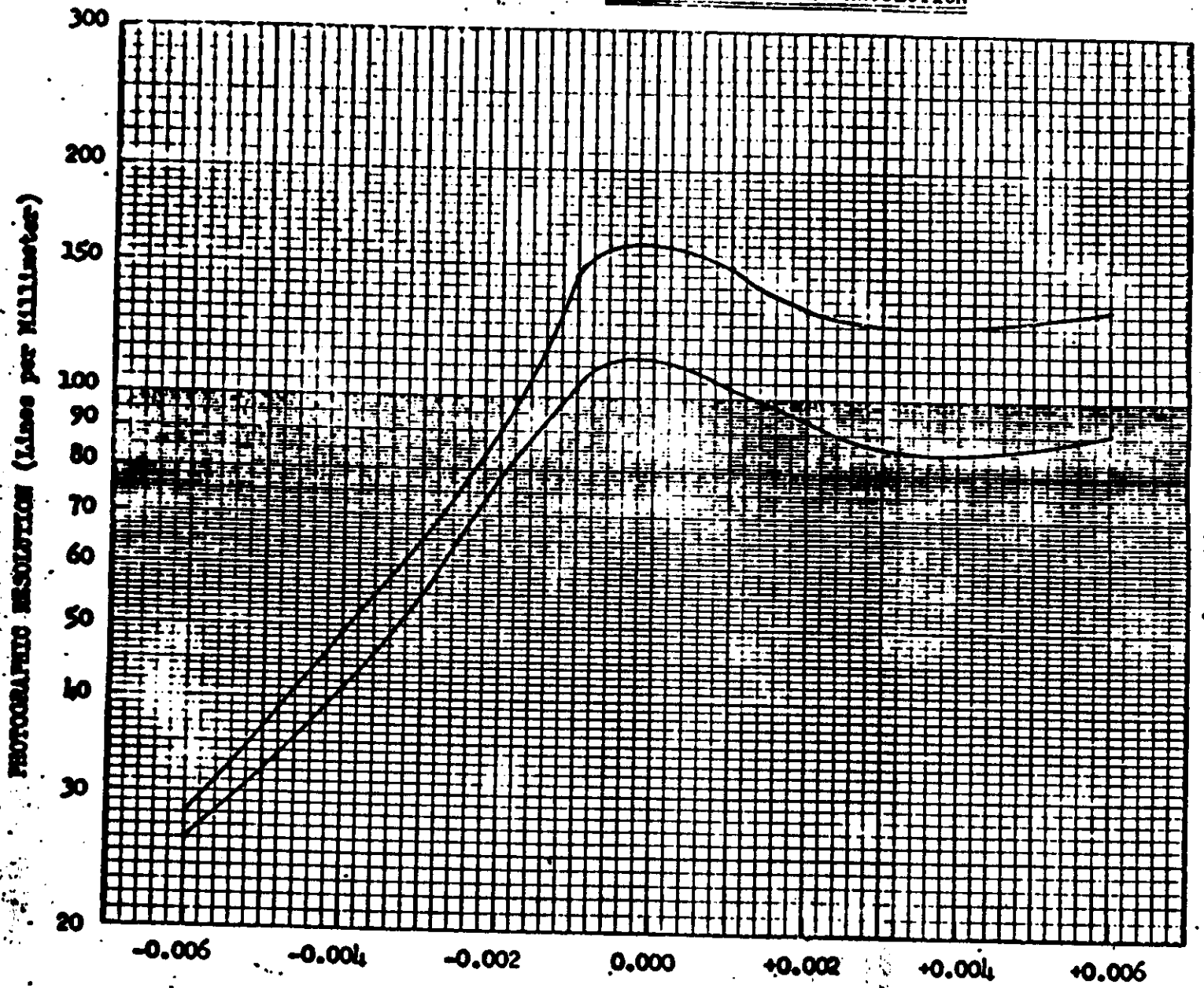
C. LIGHT LEAK TEST

J-24 System was tested and evaluated for light leaks on 23 and 26 June, 1965. A fog pattern on the test film indicated a light leak was present in the immediate vicinity of the interface between SRV #1 and the Fairing section, suggesting a forebody leak. A second fog pattern was present on the Master Instrument 1.5 frames from the platen and toward the take-up cassette suggesting a drum or horizon boot light leak.

After examination of SRV #1 forebody it was discovered that the light was leaking through the ablative shield. Additional black paint on the inside surface of the affected area eliminated the light leak.

Examination of the Master camera in the vicinity of the drum light leak revealed a punched hole in the boot of the output horizon camera. The boot was repaired and a second system light leak test performed. Evaluation of the film exhibit from the second light leak test showed no indication of light fog.

PRE-FLIGHT DYNAMIC RESOLUTION



Camera No: 172

Payload No: J-24

Resolution (l/mm)

High Contrast: 15°

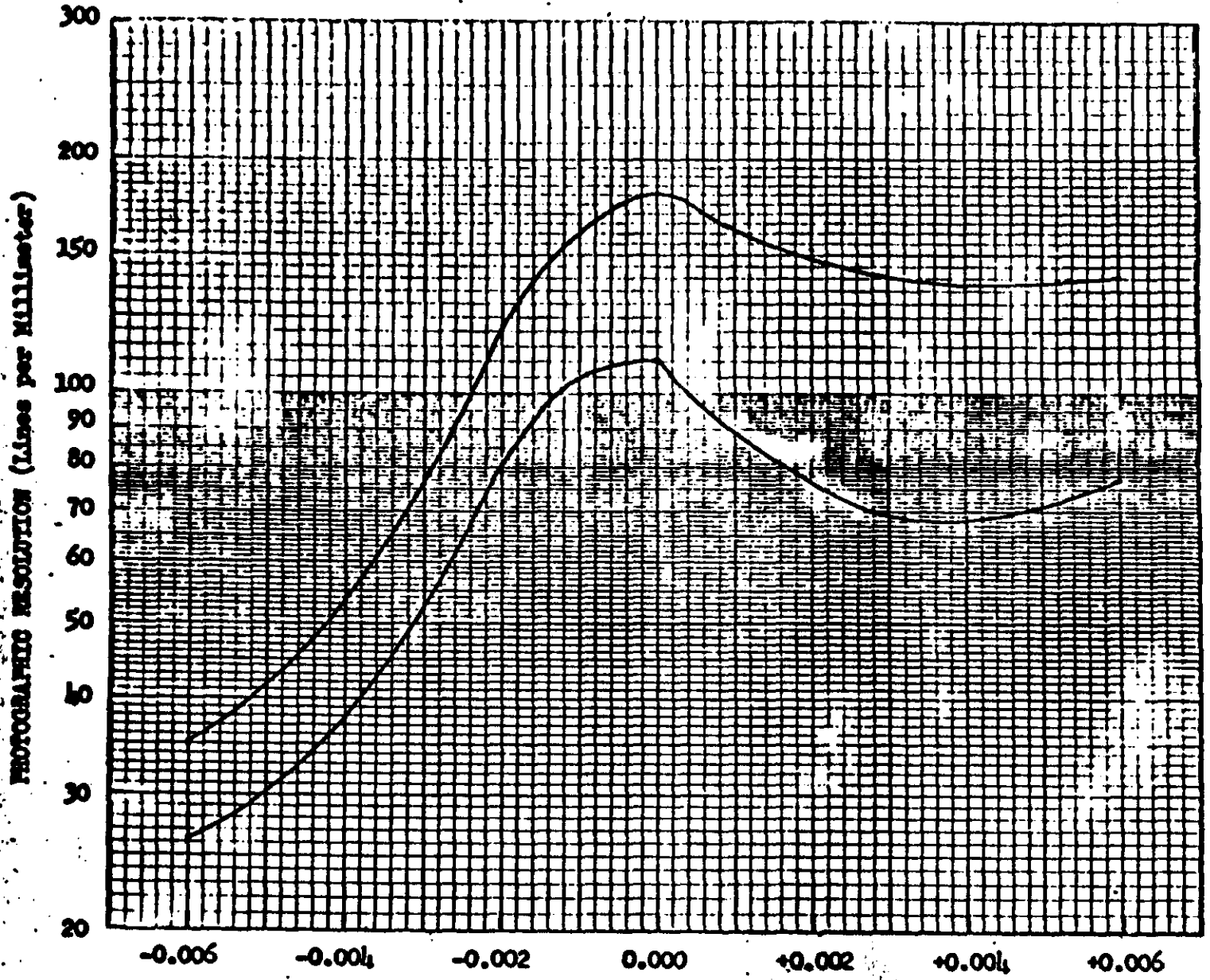
Low Contrast: 0°

Film Type: 3404

Test Date: 6/4/65

FIGURE 2-1

PRE-FLIGHT DYNAMIC RESOLUTION



Camera No: 173

Payload No: J-24

Resolution (l/mm)

High Contrast: 15°

Low Contrast: 0°

Film Type: 3404

Test Date: 6/4/65

FIGURE 2-2

SECTION 3

FLIGHT OPERATIONS

A. INSTRUMENTATION AND COMMAND PERFORMANCE

The telemetry instrumentation system operation was satisfactory throughout the mission. Two temperature monitors (Fairing #4 and #5) malfunctioned during ascent. The points showed both out of band high and low, thus no conclusion can be made to pinpoint possible failure location. The most probable explanation is that the sensor was damaged from ascent heating. These points were switched in the transfer box at the first recovery and temp data on these points were good in Mission 1024-2. Normal response was obtained from all stored and real-time commands.

B. PANORAMIC CAMERA PERFORMANCE

Instrument system dynamics were observed on telemetry during several [redacted] Tracking Station acquisitions. Instrument dynamic operation was good on all engineering operations observed. Payload transport was smooth as indicated by the supply and horizon idler monitors. Instrument startup and shutdown was normal in each case. The 99/101 clutch ratio averaged 6/6 for both instruments.

Cycle rate data obtained from engineering operations showed that the instrument cycle rate errors averaged less than 1% from the calibrated values as shown in Table 3-1.

C. STELLAR/INDEX CAMERA PERFORMANCE

Mission 1024-1 and 1024-2 Stellar/Index cameras operated properly during the entire mission. Stellar/Index events were observed on all of the engineering operations at [redacted] Tracking Station. Metering was normal for both units. Shutter pulses were observed on all daytime engineering passes. Mission 1024-1 index payload was depleted during the cut and wrap sequence while the stellar/index was slewing. Mission 1024-2 index payload was depleted on orbit 159 engineering operation at [redacted] This depletion was expected based on the load length and number of cycles taken by the panoramic instruments.

TABLE 3-1

CYCLE PERIOD DATA (Minutes)

Orbit	Time Up Ramp (Sec.)	FORWARD Actual	FORWARD CAL.	FORWARD %Error	AFT Actual	AFT CAL.	AFT % Error
9	10	4.170	4.222	1.22F	4.175	4.197	0.54F
16	1530	2.320	2.314	0.24S	2.325	2.314	0.49S
32	1575	2.300	2.280	0.86S	2.302	2.280	0.97S
47	1653	2.274	2.255	0.86S	2.269	2.250	0.84S
63	1685	2.267	2.252	0.68S	2.260	2.248	0.54S
88	269	3.661	3.654	0.18S	3.650	3.641	0.26S
95	1865	2.244	2.242	0.10S	2.240	2.240	0.01F
111	1839	2.260	2.242	0.78S	2.250	2.241	0.42S
127	1905	2.263	2.241	0.97S	2.249	2.240	0.41S
143	1770	2.264	2.245	0.86S	2.249	2.242	0.29S

F = Fast
S = Slow
CAL. = Calibrated

The main plate temperature averages showed a decrease of 15° through the duration of the flight.

During Mission 1024-1, 3035 frames were taken in the Master camera and 3055 frames in the slave camera. Master and Slave cameras produced 2895 and 2872 frames respectively during Mission 1024-2 based on cycle counter data.

D. CLOCK PERFORMANCE

Good correlation was obtained between the clock and [redacted] system time. Table 3-2 contains clock/system time correlation. Two incorrect time words were recorded during Mission 1024-1; one for frame 53, pass D-35, the other on frame 152 pass D-40. The test history of the flight clock was investigated and no such anomalies were detected in either component or system test. No anomaly of this type has occurred since the inception of the digital clock effort. Investigation has revealed no indication of the source of the anomaly and it remains an unknown phenomena.

E. PRESSURE MAKE-UP (PMU) SYSTEM PERFORMANCE

The T/M data indicated satisfactory performance by the pressure make-up system throughout Mission 1024-1 and 1024-2

The PMU supply consumption vs. camera operate time is plotted in Figure 3-1. The overall average consumption rate was 7.48 PSIA per minute of operate time.

The Phillips pressure gauge operated properly throughout the mission. Figure 3-2 shows the conic chamber pressure vs. days on orbit. Included in the plot is a typical pressure profile recorded from a Pirani gauge flown on J-03, J-11, J-12 and J-13 systems.

F. TEMPERATURE ENVIRONMENT

All thermal data from the [redacted] Tracking Station are presented in Tables 3-3 and 3-4. The panoramic camera temperature sensors are corrected for self-heating, all other payload temperature sensors are not corrected for self-heating.

Figures 3-3, 3-4 and 3-5 show the in-flight predicted and actual temperatures. Predicted temperatures for the instrument scan arm sensors, drum sensors, and lens assembly sensors are based on the scan arm in line with the center of format.

CLOCK SUMMARY

ORDER FIT 1

SYS TIME I/P	CL TIME I/P	COMP SYS TM	DELTA ST	REV	STA
77909.957	103197.51990	77909.96090	-0.00295	0	1
38452.145	150139.70990	38452.14800	-0.00202	9	1
77824.792	189512.35290	77824.78850	0.00443	16	1
33158.697	231246.26390	33158.69690	0.00104	24	1
77923.647	276011.22490	77923.65510	-0.00717	32	1
33248.947	317736.51590	33248.94350	0.00443	40	1
38653.047	323140.61490	38653.04620	0.00177	41	1
72504.107	356991.68390	72504.10910	-0.00112	47	1
33217.050	404104.62690	33217.04910	0.00182	56	1
72640.779	443528.35790	72640.77770	0.00228	63	1
33342.682	490630.27090	33342.68770	-0.00478	72	1
72725.187	530012.75690	72725.17130	0.01667	79	1
33357.685	40174.37690	33357.70030	-0.01440	88	1

A0=-0.25287552620 05 A1= 0.999999937631D 00
SIGMA=0.00668 NO. POINTS= 13
RATIO OF CLOCK TIME TO SYS TIME= 0.10000000623700 01

ORDER FIT 2

SYS TIME I/P	CL TIME I/P	COMP SYS TM	DELTA ST	REV	STA
77909.957	103197.51990	77909.95770	0.00025	0	1
38452.145	150139.70990	38452.14550	-0.00059	9	1
77824.792	189512.35290	77824.78830	-0.00468	16	1
33158.697	231246.26390	33158.69760	0.00032	24	1
77923.647	276011.22490	77923.65650	-0.00857	32	1
33248.947	317736.51590	33248.94520	0.00271	40	1
38653.047	323140.61490	38653.04790	0.00003	41	1
72504.107	356991.68390	72504.11080	-0.00287	47	1
33217.050	404104.62690	33217.05050	0.00040	56	1
72640.779	443528.35790	72640.77850	0.00144	63	1
33342.682	490630.27090	33342.68750	-0.00458	72	1
72725.187	530012.75690	72725.16990	0.01805	79	1
33357.685	40174.37690	33357.69720	-0.01126	88	1

A0=-0.25287561060 05 A1= 0.999999947594D 00
A2=-0.87973442394700-13
SIGMA=0.00648 NO. POINTS= 13

TABLE 3-2

MISSION CLOCK SYSTEM TIME CORRELATION

ORDER FIT 1

SYS TIME I/P	CL TIME I/P	COMP SYS TM	DELTA ST	REV	STA
72728.632	46919.83390	72728.63230	0.00062	95	1
33223.942	93815.15790	33223.94950	-0.00658	104	1
72660.610	133251.81890	72660.60480	0.00614	111	1
33233.607	180224.82990	33233.60900	-0.00105	120	1
72560.177	219551.40390	72560.17730	0.00065	127	1
33116.697	266507.92590	33116.69250	0.00546	136	1
72337.869	305729.11290	72337.87380	-0.00385	143	1
32964.647	352755.89590	32964.65000	-0.00203	152	1
72170.423	391961.67490	72170.42330	0.00065	159	1

A0= 0.25808805190 05 A1= 0.9999998549790 00
SIGMA=0.00363. NO. POINTS= 9
RATIO OF CLOCK TIME TO SYS TIME= 0.1000000145020 01

ORDER FIT 2

SYS TIME I/P	CL TIME I/P	COMP SYS TM	DELTA ST	REV	STA
72728.632	46919.83390	72728.63110	0.00186	95	1
33223.942	93815.15790	33223.94930	-0.00633	104	1
72660.610	133251.81890	72660.60520	0.00580	111	1
33233.607	180224.82990	33233.60980	-0.00181	120	1
72560.177	219551.40390	72560.17820	-0.00022	127	1
33116.697	266507.92590	33116.69320	0.00474	136	1
72337.869	305729.11290	72337.87420	-0.00421	143	1
32964.647	352755.89590	32964.64960	-0.00168	152	1
72170.423	391961.67490	72170.42210	0.00184	159	1

A0= 0.25808802650 05 A1= 0.9999998858850 00
A2=-0.70079225416440-13
SIGMA=0.00356 NO. POINTS= 9

TABLE 3-2

MISSION CLOCK SYSTEM TIME CORRELATION

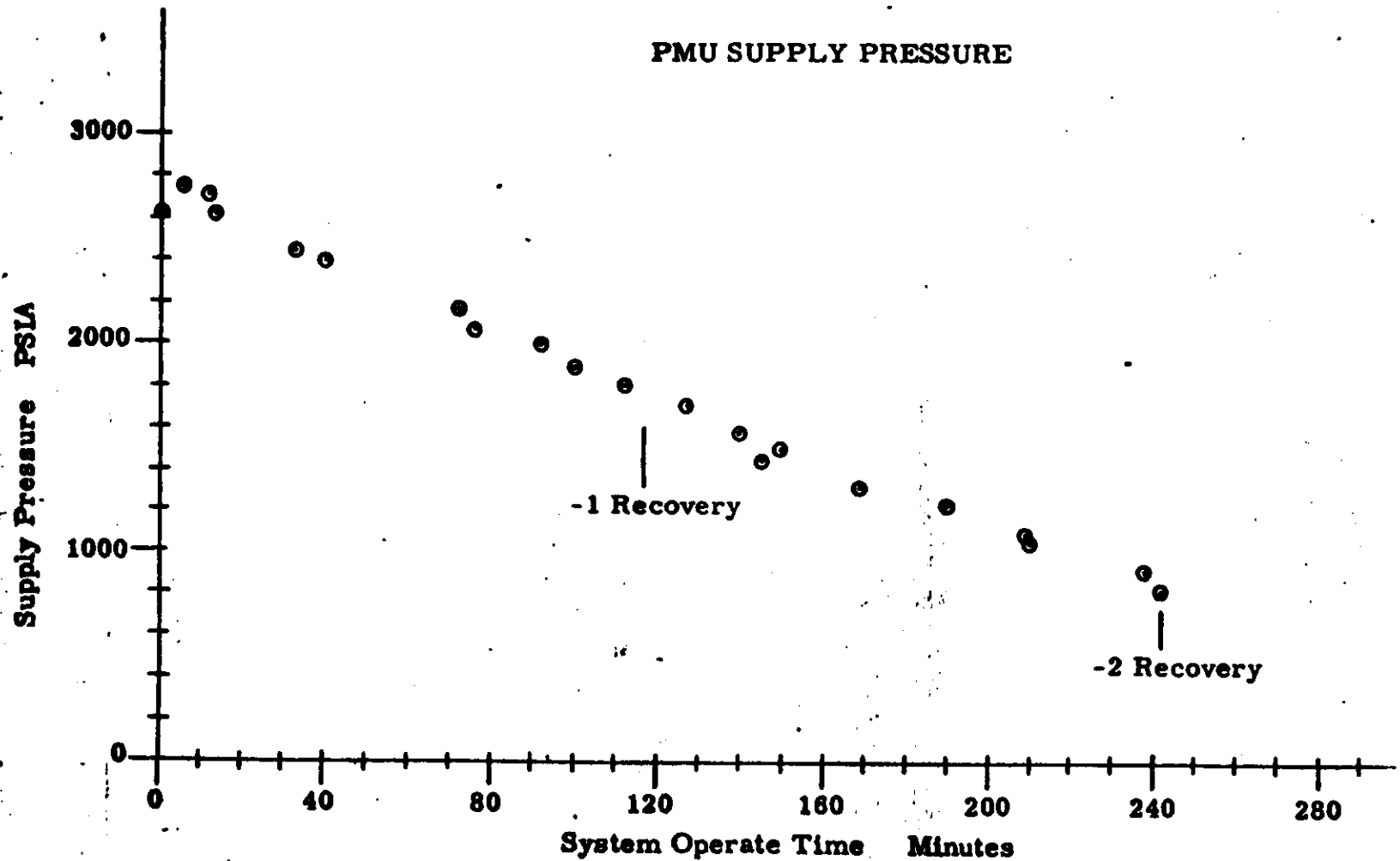

PMU SUPPLY PRESSURE
Supply Pressure PSIA
3000
2000
1000
0
-1 Recovery
-2 Recovery
0
40
80
120
160
200
240
280
System Operate Time Minutes

FIGURE 3-1

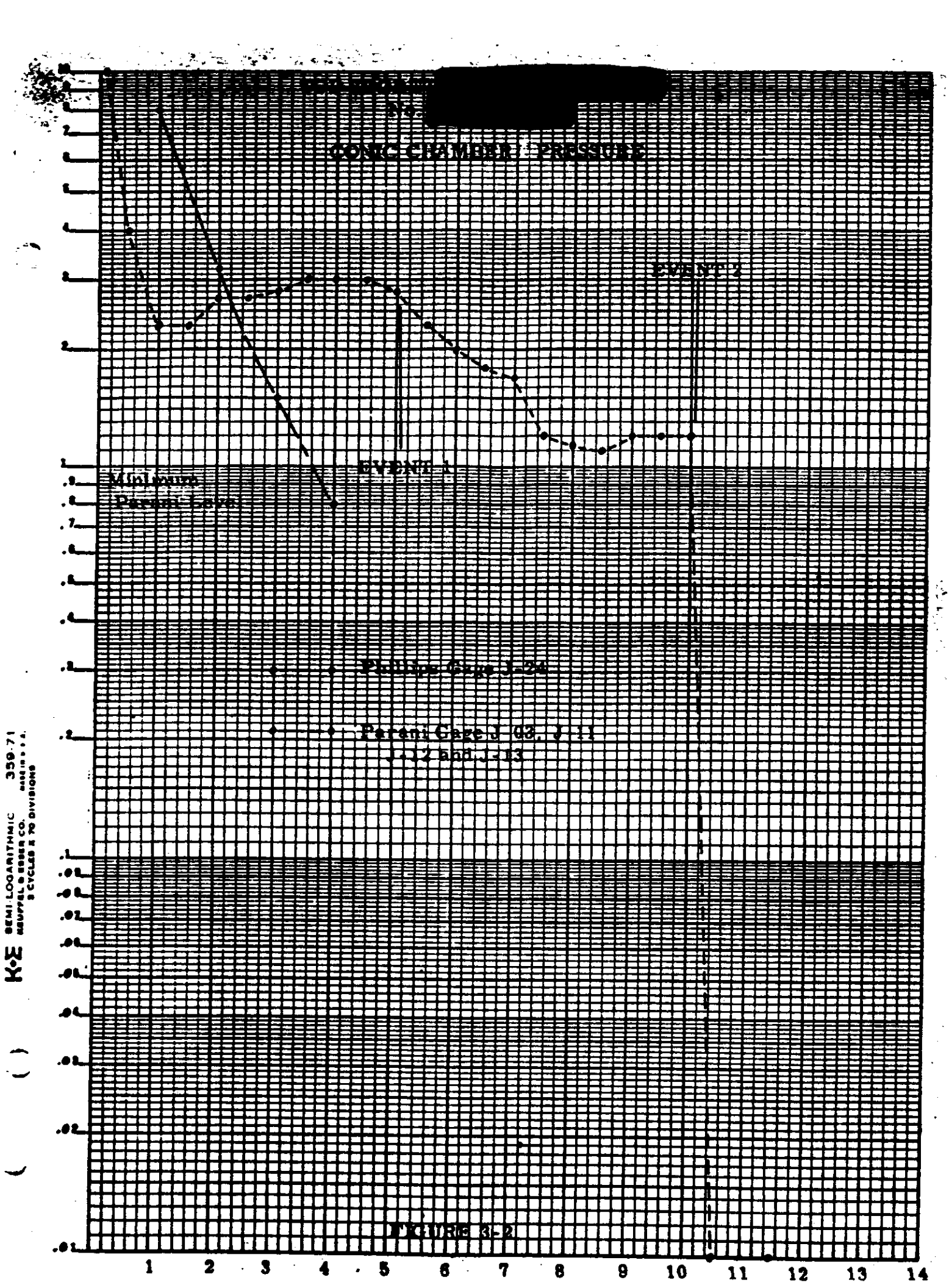

CONC CHAMBER PRESSURE
EVENT 2
EVENT 1
Minimum
Parent Level
Pulse Cage 3-24
Parent Cage J-03, J-11
J-12 and J-13
1
2
3
4
5
6
7
8
9
10
11
12
13
14

FIGURE 3-2

TABLE 3-3

MISSION 1024-1 TEMPERATURE SUMMARY

ORBITS ACQUIRED

SENSOR										
Master Camera	9	16	24	32	40	47	56	63	72	79
3	73	72	74	72	74	74	74	70	73	70
4	79	77	80	76	78	75	78	75	78	73
5	86	83	86	82	85	81	84	80	83	79
6	85	81	84	81	82	80	81	78	79	77
7	81	80	82	79	80	79	79	78	78	76
8	85	81	84	80	83	79	82	77	81	77
9	87	84	88	83	86	82	85	79	84	78
10	-	-	-	-	-	-	-	-	-	-
11	92	90	92	88	89	86	88	84	86	83
12	81	76	80	76	79	75	79	74	79	73
13	79	77	78	76	75	74	75	72	73	72
AVG.	83	80	83	80	81	78	80	77	79	76
Slave Camera										
3	79	78	79	76	78	76	76	73	74	71
4	75	72	76	71	75	70	73	69	72	67
5	80	80	82	79	81	79	81	77	80	76
6	75	74	76	74	75	73	74	71	73	72
7	81	80	83	80	80	79	79	78	78	77
8	79	74	78	74	78	74	77	73	76	72
9	83	79	84	80	83	80	82	79	82	78
10	-	-	-	-	-	-	-	-	-	-
11	71	69	71	71	70	68	70	68	69	68
12	81	75	81	75	79	75	79	73	77	71
13	73	73	74	75	72	72	72	71	71	70
AVG.	78	76	78	76	77	75	76	72	75	72

TABLE 3-3
MISSION 1024-1 TEMPERATURE SUMMARY
ORBITS ACQUIRED

SENSOR										
Supply Spool	9	16	24	32	40	47	56	63	72	79
1	59	60	62	61	63	62	64	62	63	61
2	67	65	68	65	68	65	68	65	67	67
Fairing/Barrel #1 ("A") ("B")										
1	42	53	42	50	42	50	47	47	44	50
2	5	-2	5	-5	9	-1	09	-5	9	-5
3	16	22	14	22	16	22	16	21	16	22
4	N	NG	-	-	-	OBL	-		-	-
5	N	NG	-	-	-	OBL	-		-	-
6	62	80	59	77	56	71	59	65	53	62
Barrel No. 2										
1	51	70	49	65	49	62	49	57	49	51
2	53	93	53	86	51	86	48	76	48	74
3	61	103	64	99	64	103	66	99	66	107
4	58	53	64	55	61	55	64	55	64	58
5	56	61	54	61	56	61	56	61	56	59
Conic Adapter										
1	52	58	47	52	49	52	49	47	47	41
Clock										
1	63	63	63	61	63	61	63	61	63	59
2	63	63	66	61	63	63	63	61	63	59
Thrust Cone "A" to "B" SRV										
1	41	38	40	37	39	37	39	37	40	36
2	63	58	60	54	57	54	57	53	54	51
Stellar/Index "A" to "B"										
1	53	56	53	50	50	50	50	49	53	46
2	57	53	53	45	49	45	49	49	49	41
Recovery Batt. "B" SRV										
1	72	71	70	70	70	70	70	70	68	67
Master Cassette "A" SRV										
2	71	72	72	70	70	68	69	67	67	68

TABLE 3-4

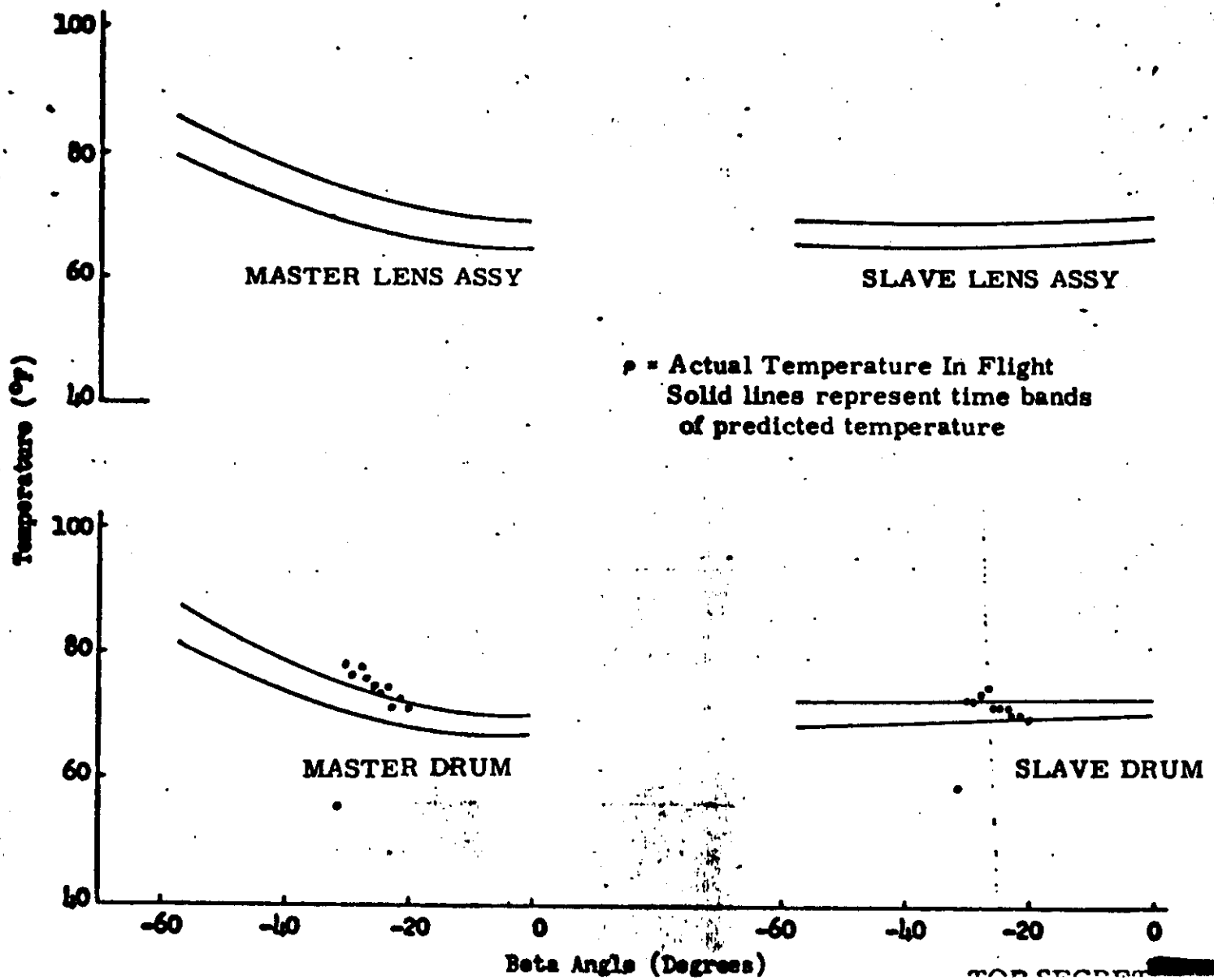
MISSION 1024-2 TEMPERATURE SUMMARY
ORBITS ACQUIRED

SENSOR Master Camera	88	95	104	111	120	127	136	143	152	159
3	68	64	64	62	64	61	64	61	64	62
4	74	68	69	67	69	66	69	66	69	66
5	79	74	75	72	74	70	74	70	73	70
6	74	71	71	69	70	67	68	67	68	66
7	74	71	70	69	69	68	69	69	68	67
8	77	72	74	69	73	68	71	68	72	67
9	79	74	76	72	75	70	74	70	74	69
10	-	-	-	-	-	-	-	-	-	-
11	80	76	76	73	75	72	73	70	72	69
12	74	69	71	68	70	66	70	67	71	68
13	68	65	63	62	63	62	62	61	61	61
AVG.	75	70	71	68	70	67	69	67	69	67
Slave Camera										
3	69	66	65	63	63	60	63	59	61	57
4	69	62	65	61	62	58	62	58	61	56
5	75	71	72	70	71	69	70	68	70	68
6	69	66	65	61	65	63	63	63	64	63
7	75	71	70	69	68	68	68	67	68	67
8	72	67	69	65	69	64	67	64	67	63
9	78	73	74	71	74	70	73	70	74	70
10	-	-	-	-	-	-	-	-	-	-
11	64	63	62	59	62	58	61	58	60	58
12	73	66	69	64	67	62	66	62	65	61
13	65	64	60	61	60	60	60	60	60	60
AVG.	71	67	67	65	66	63	65	63	65	62

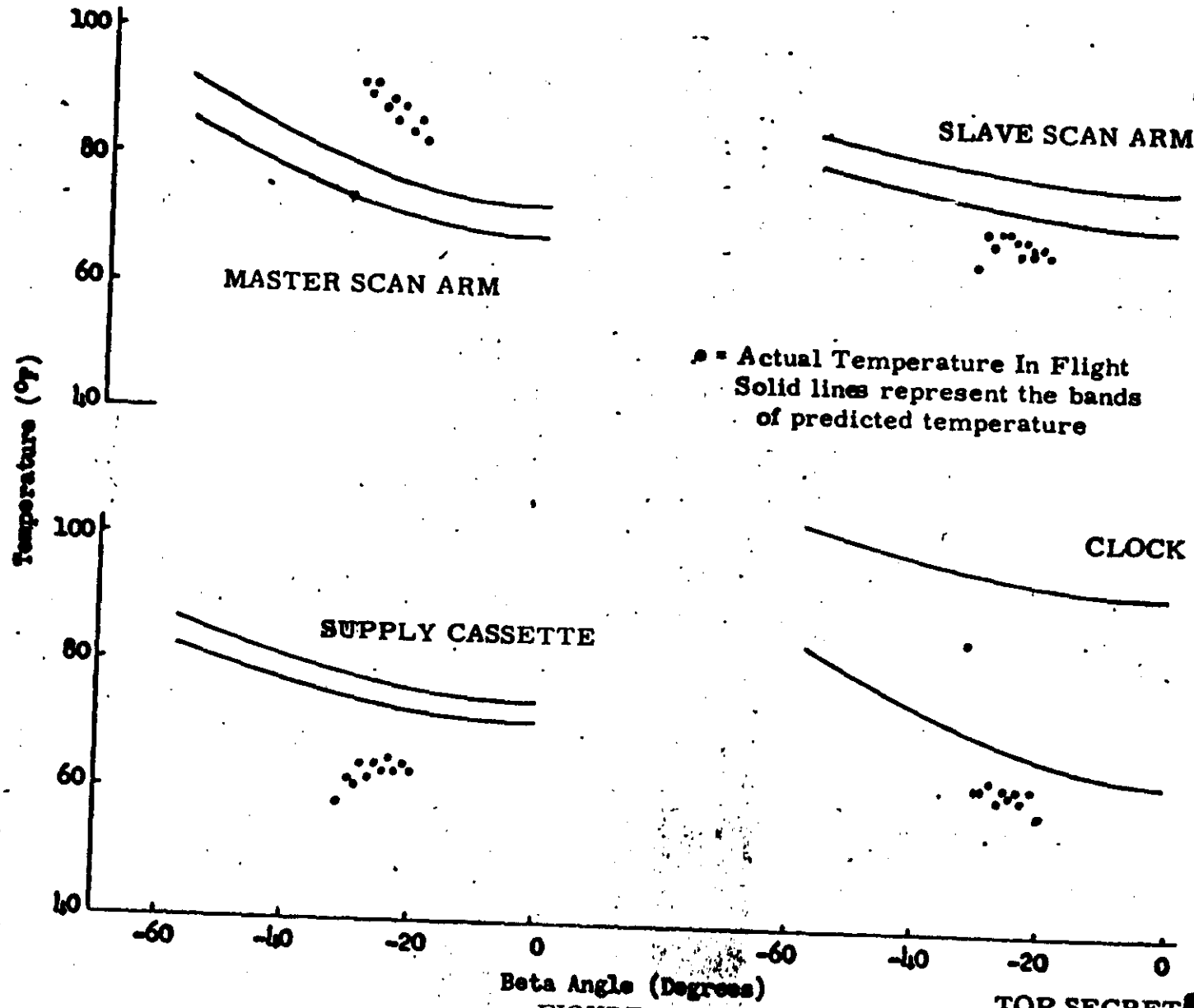
TABLE 3-4
MISSION 1024-2 TEMPERATURE SUMMARY
ORBITS ACQUIRED

SENSOR										
Supply Spool	88	95	104	111	120	127	136	143	152	159
1	60	56	55	54	54	53	55	53	54	53
2	64	59	59	57	58	56	58	56	57	55
Fairing/Barrel #1 ("A") ("B")										
1	29	43	26		26	38	32	35	29	35
2	64	59	61		61	61	64	61	66	64
3	71	114	71		71	108	71	99	71	96
4	47	75	47		32	65	42	57	42	50
5	46	54	43		43	49	40	43	37	54
6	29	43	26		-	-	-	-	-	-
Barrel No. 2										
1	38	46	35	44	35	41	35	35	33	33
2	45	71	40	66	40	61	40	51	37	48
3	61	45	61	107	61	99	61	87	61	87
4	61	55	61	58	61	58	64	61	64	61
5	46	54	40	51	43	48	48	48	46	48
Conic Adapter										
1	35	35	32	32	32	26	32	23	26	23
Clock										
1	55	51	51	51	53	48	53	48	51	48
2	55	51	51	51	51	48	53	48	51	48
Thrust Cone "A" to "B" SRV										
1	63	60	60	59	60	57	60	57	59	56
2	75	72	70	70	68	67	67	64	66	65
Stellar/Index "A" to "B"										
1	60	57	54	57	54	54	54	51	51	51
2	59	57	57	57	57	54	54	54	54	54
Recovery Batt. "B" SRV										
1	84	77	74	87	85	78	76	84	78	82
Master Cassette "A" SRV										
2	-	-	-	-	-	-	-	-	-	-

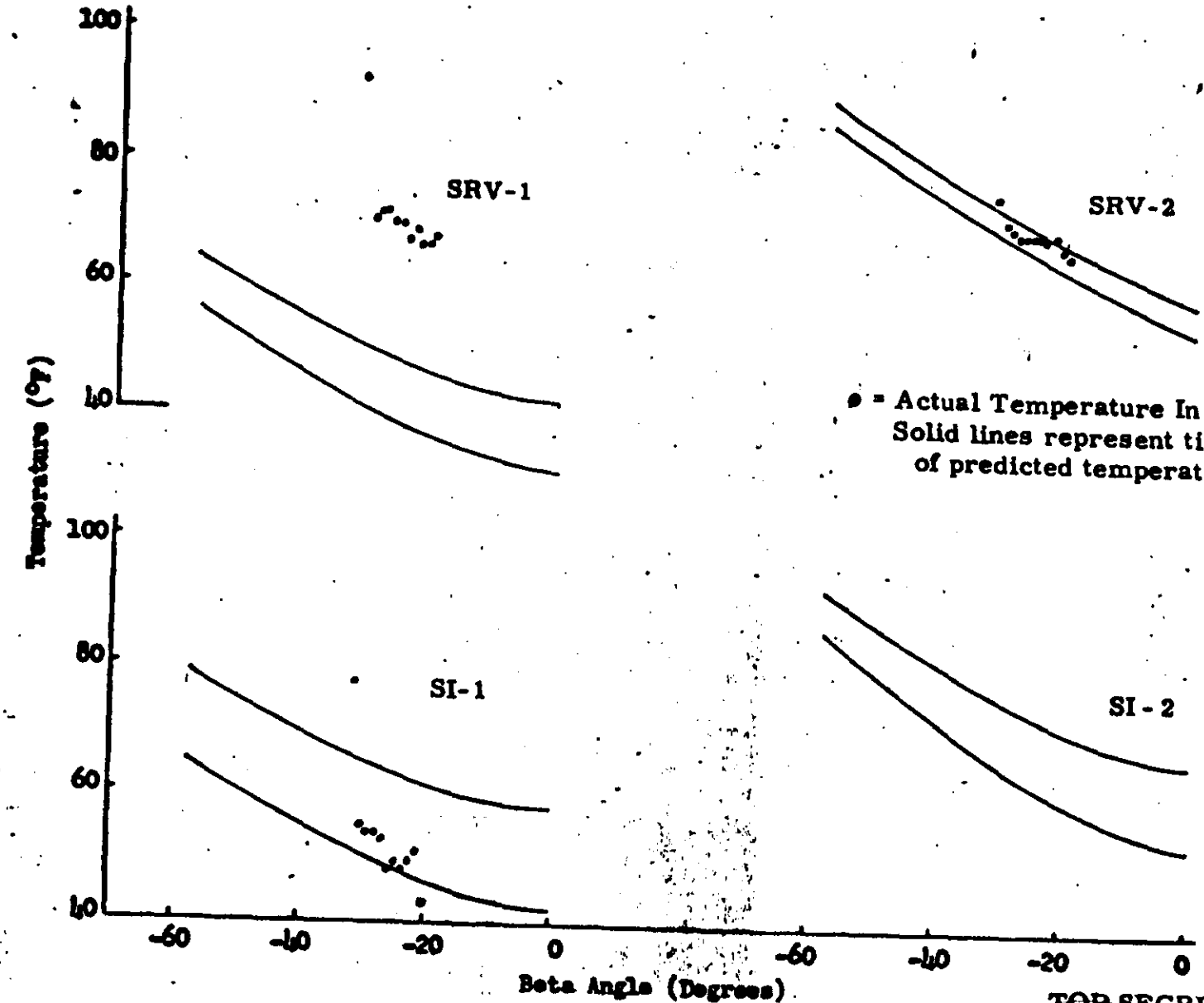
MISSION 1024 PREDICTED AND ACTUAL TEMPERATURES



MISSION 1024 PREDICTED AND ACTUAL TEMPERATURES



MISSION 1024 PREDICTED AND ACTUAL TEMPERATURES



SECTION 4

MISSION 1024-1 RECOVERY SYSTEM

SRV #622 was received at A/P on 21 March 1963. The receiving inspection weight was 149.9 pounds. After modifications and incorporation of outstanding Engineering orders, the SRV was delivered to Systems Test for incorporation into the J-24 system.

The Recovery System was shipped to VAFB on 26 June 1965.

A successful air catch was made during orbit 81 on 27 September 1965. The impact point was within predicted tolerances as follows:

Predicted Impact	26° 01'N, 155° 38' W
Actual Impact	25° 58'N, 155° 44' W

All recovery event times were within the required tolerances. Table 4-1 shows the time sequence of recovery events.

The condition of the recovered capsule was satisfactory. A complete post flight recovery sequence was conducted on the recovered capsule and all parameters were within specification.

MISSION 1024-1 RE-ENTRY SEQUENCE OF EVENTS

Event	Delta Time (Seconds) Actual	Nominal
Transfer		
Electrical Disconnect	1.00	$+0.900^{+0.430}_{-0.400}$
*Separation	2.00	$+2.0 \pm 0.250$
**Spin	3.43	$+3.4 \pm 0.30$
Retro	7.50	$+7.55 \pm 0.45$
Despin	10.31	$+10.75 \pm 0.54$
T/C Separation	1.62	$+1.5 \pm 0.15$
"G" Switch Open	482.43	483.1 to 486.9
Parachute Cover Off	34.35	$+34.0 \pm 1.5$
Drogue Chute Deployed	0.64	$+0.63 \pm 0.08$
Main Chute Deployed	.56	$+0.52 \pm 0.13$
Main Chute Disreefed	4.64	$4.46^{+0.49}_{-0.29}$

* From Transfer
** From Electrical Disconnect

Spin Rate: 66.6 RPM
Despin Rate: 10.6 RPM
Retro Velocities: 1048 Ft/Sec.

TABLE 4-1

SECTION 5

MISSION 1024-2 RECOVERY SYSTEM

The capsule was shipped to VAFB on 25 June 1965.

A successful air catch was made during orbit 161 on 2 October 1965. The impact point was within predicted tolerances as follows:

Predicted Impact	24° 43'N, 165° 40' W
Actual Impact	24° 52'N, 165° 42' W

All event times were within the required tolerances except thrust cone separation. This event was initiated on time but the separation switches opened 0.33 seconds later. Table 5-1 shows the time sequence of recovery events.

The condition of the recovered capsule was satisfactory. A complete post flight recovery sequence was conducted on the recovered capsule and all parameters were within specification.

MISSION 1024-2 RE-ENTRY SEQUENCE OF EVENTS

Event	Delta Time (Seconds) Actual	Nominal
Transfer		
Electrical Disconnect	0.97	+0.900 $^{+0.430}_{-0.400}$
* Separation	2.01	+2.0 ± 0.0250
** Spin	3.53	+3.4 ± 0.30
Retro	7.52	+7.55 ± 0.45
Despin	10.72	+10.75 ± 0.54
T/C Separation	1.83	+ 1.5 ± 0.15
"G" Switch Open	481.27	483.1 to 486.9
Parachute Cover Off	33.35	+34.0 ± 1.5
Drogue Chute Deployed	0.64	+0.63 ± 0.08
Main Chute Deployed	0.52	+0.52 ± 0.13
Main Chute Disreefed	4.79	4.46 $^{+0.49}_{-0.29}$

* From Transfer
** From Electrical Disconnect

Spin Rate: N/A
Despin Rate: N/A
Retro Velocity: 1120 Ft/Sec.

TABLE 5-1

SECTION 6

MASTER PANORAMIC CAMERA

A. COMPONENT ASSIGNMENT

Component	Serial Number
Main Camera	172
Main Camera Lens	1602435
Supply Horizon Camera	176G10
Supply Horizon Camera Lens	812276
Take-up Horizon Camera	179G9
Take-up Horizon Camera Lens	812288
Supply Cassette	SC-34

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 4404

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 quality of the photography produced by the Master camera was rated equal to the best photography acquired during 1965. The presence of good terrain detail throughout Mission 1024-1 and 1024-2 is attributed to a combination of favorable conditions that include a relatively clear atmosphere and less severe thermals near the surface of the earth at this time of year.

The electro-mechanical operation of the camera system was good during both missions.

Light leaks affected the first, fifth, and next to last frames of most operations. The density of the fog patterns correlates with the duration of camera off times. Analysis of the fog patterns relative to their position in the camera system is under investigation. Preliminary findings indicate that at least one minor light leak occurred in the vicinity of the Master camera compartment.

Auxiliary data recording such as the 200 pps track, blanked pulse, S/I slur pulse, instrument serial number, and start of pass mark were consistently good throughout Mission 1024-1 and 1024-2. Horizon fiducials were consistently good.

There was a total of 5,965 frames of Master camera photography processed from Mission 1024-1 and 1024-2. The binary time word was acceptable 5880 times. The remaining 85 time words were unacceptable because of either weak or no index lamp recording (80 occurrences) or the absence of the time word (5 occurrences) all on the last frame of camera operation. The weak index lamp recording on the last frame of most Master camera operations was caused when camera power was removed nearly coincident with the request for the index lamp printing pulse. In future missions, adjustment of the camera cam to request the index lamp printing pulse earlier in the cycle is expected to correct this problem.

Dendritic static and corona discharge marking were absent from Mission 1024-1 photography. Minor traces of dendritic static were present on the last 14 frames of Mission 1024-2. No corona discharge marking was present in Mission 1024-2 photography.

Systematic rail scratches and minor scan head roller scratches were present throughout both missions as on previous missions.

SECTION 7

SLAVE PANORAMIC CAMERA

A. COMPONENT ASSIGNMENT

Component	Serial Number
Main Camera	173
Main Camera Lens	1522435
Supply Horizon Camera	185G8
Supply Horizon Camera Lens	814018
Take-up Horizon Camera	184G7
Take-up Horizon Camera Lens	813555
Supply Cassette	SC-34

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 4404

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 photographic quality and information content of the imagery produced by the Slave camera during both missions was rated slightly better on the average than the Master camera. However, frames of Master camera photography were found that contained terrain imagery that was rated higher in certain ground detail characteristics compared to identical Slave camera terrain imagery.

Small areas of light fog degraded parts of three to four frames of each operation. Fog density correlated with duration of camera non-operate period. Light fog marks located on the second, third, and fourth frames from the end of camera operation are attributed to the light leak in the Master camera compartment described in Section 6. A 1 x 3 inch fog mark located on the 7th frame from the end of pass mark is attributed to a minor light leak in the vicinity of the SRV #1/Fairing interface. This light leak is under investigation.

The 200 PPS timing track, blanked pulse, instrument serial number, and horizon fiducials were excellent throughout the flight.

There was a total of 5,964 frames of Slave camera photography processed from Mission 1024-1 and 1024-2. Of this photography, only frames number 30 thru 65 of Pass D-56 were affected by minor dendritic static along the 200 PPS timing track film edge. Corona discharge marks were absent from all Slave camera photography.

Systematic rail scratches were present throughout both missions as on previous missions.

SECTION 8

PANORAMIC CAMERA EXPOSURE

Exposures generated by the Master camera were made using a 0.225 inch wide slit and Wratten 25 filter while the Slave camera employed a 0.150 inch slit and Wratten 21 filter. These conditions place the nominal exposure in the immediate vicinity of the full level processing curve as published by [redacted] for 3404 emulsion.

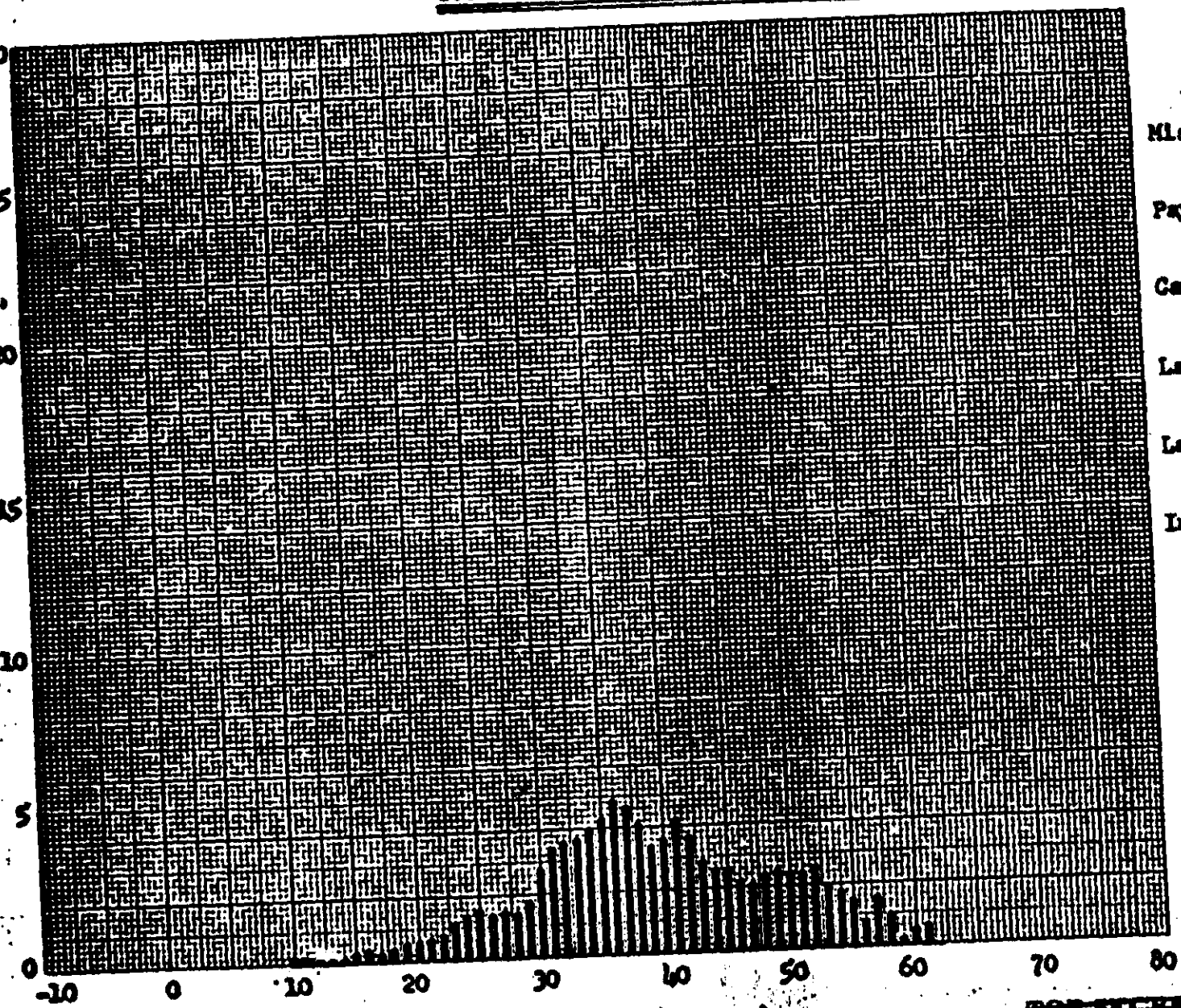
The illumination conditions during the mission were relatively constant. The frequency distributions of the solar elevations and solar azimuths encountered during the photographic operations are shown in Figures 8-1 to 8-4.

The nominal exposure times are shown as a function of latitude for passes D-8, D-56, D-121, and D-161 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
1024-1	FWD	Predicted	0	0	100
		Reported	0	28	72
		Computed	0	72	28
1024-1	AFT	Predicted	0	0	100
		Reported	0	28	72
		Computed	0	82	18
1024-2	FWD	Predicted	0	0	100
		Reported	12	19	69
		Computed	0	25	75
1024-2	AFT	Predicted	0	0	100
		Reported	1	22	77
		Computed	0	66	34

The variation between the predicted and reported processing levels shows better agreement than many previous missions. Further analysis and calculations are in process to attempt to ascertain the optimum exposure processing conditions.

SOLAR ELEVATION FREQUENCY DISTRIBUTION



Mission No: 1024-1

Payload No: J-24

Camera No: 172

Launch Date: 9/22/65

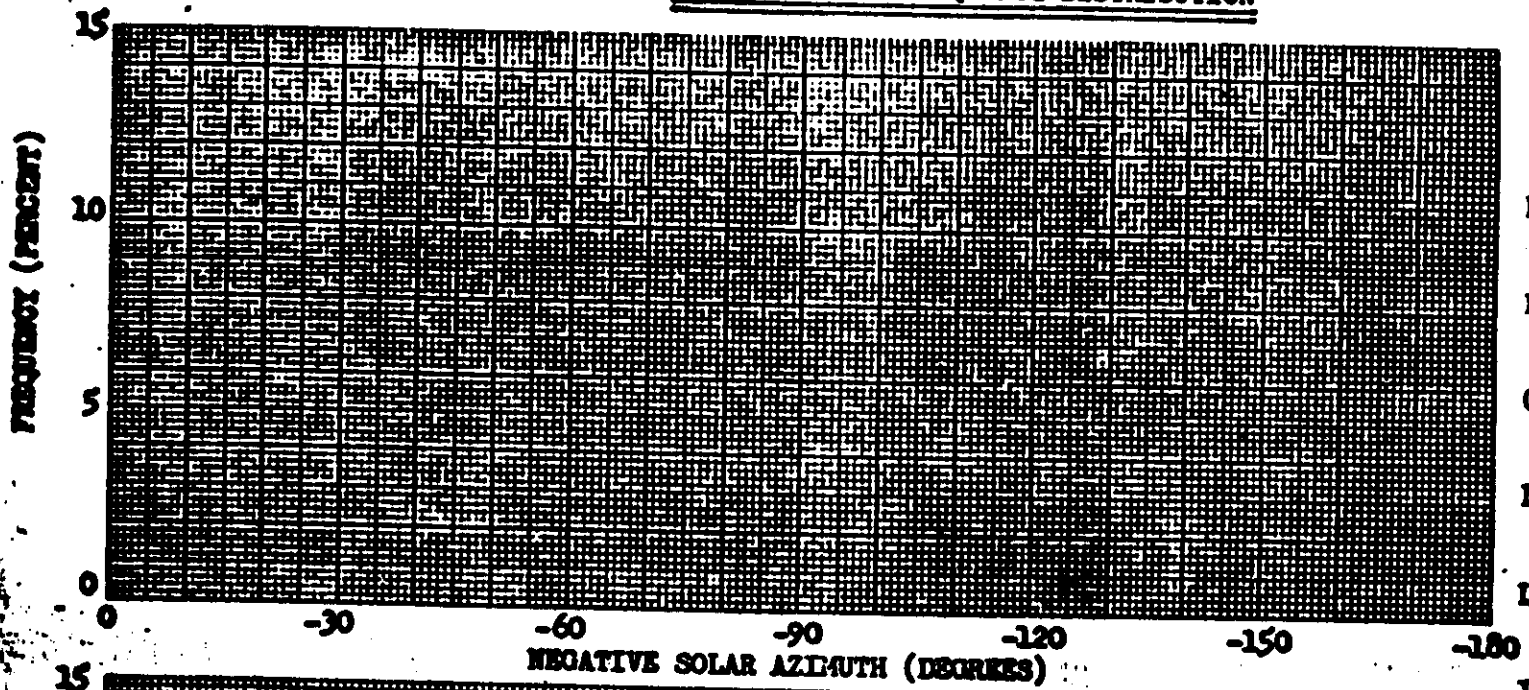
Launch Time: 2131 Z

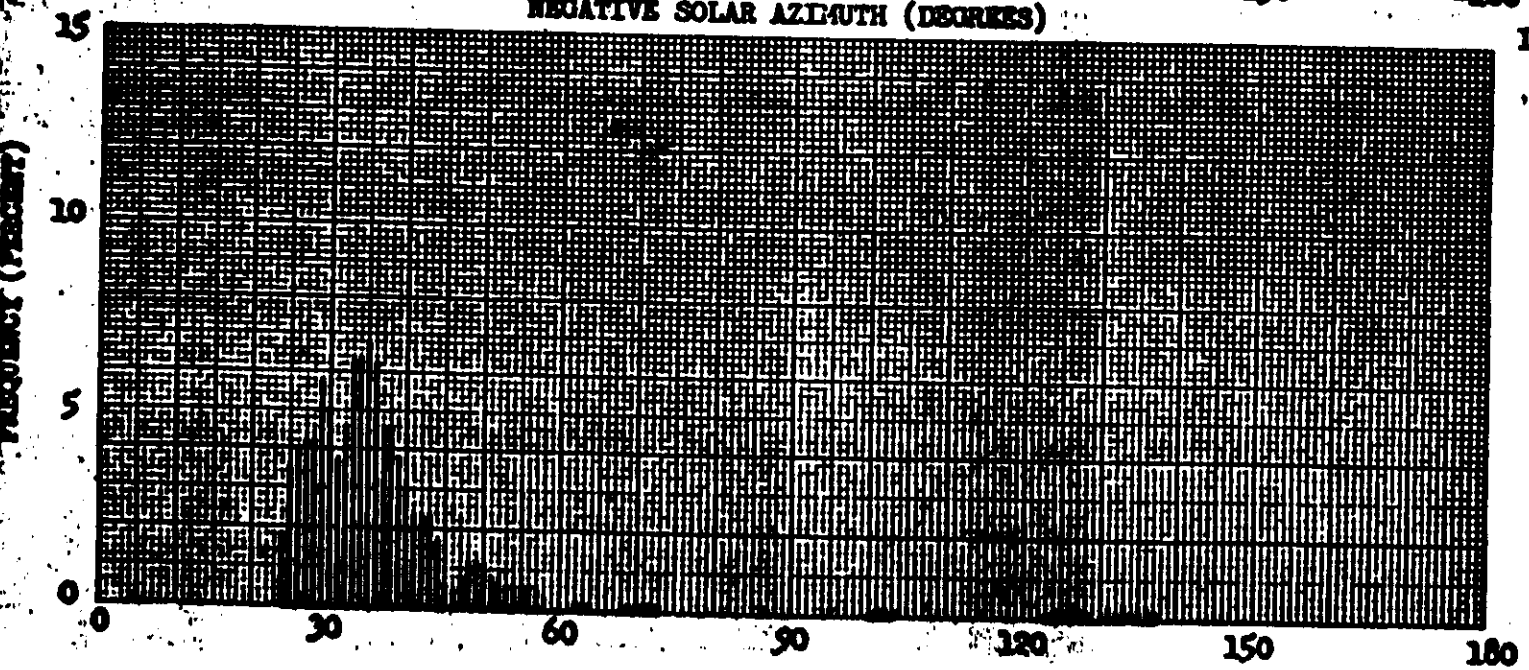
Inclination: 80°

FIGURE 8-1

~~TOP SECRET~~ [redacted]

SOLAR AZIMUTH FREQUENCY DISTRIBUTION





Mission No: 1024-1

Payload No: J-24

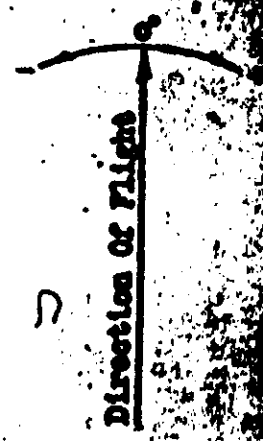
Camera No: 172

Launch Date: 9/22/65

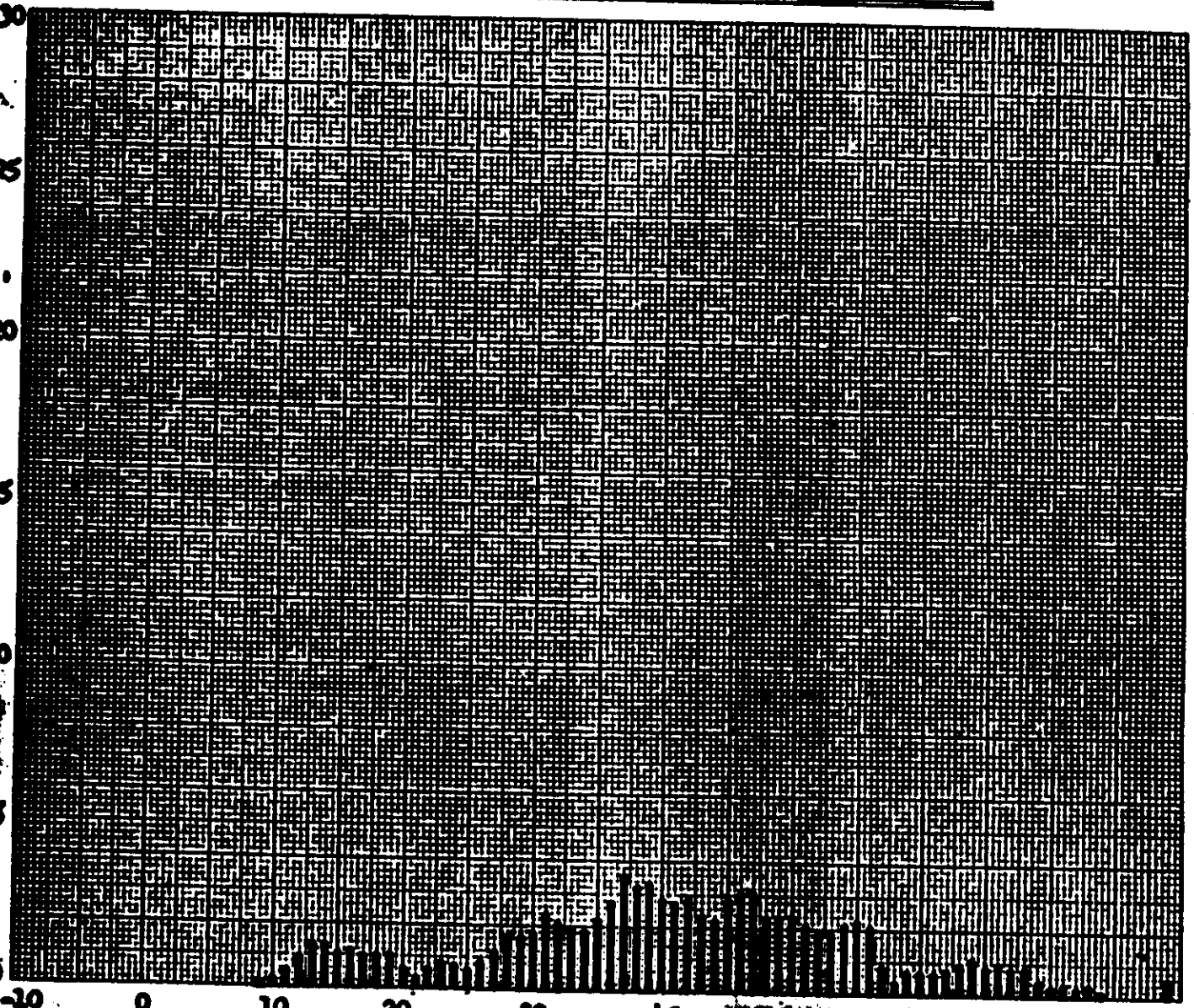
Launch Time: 2131 Z

Inclination: 80°

SIGN NOTATION



SOLAR ELSVATION FREQUENCY DISTRIBUTION



Mission No: 1024-2

Payload No: J-24

Camera No: 172

Launch Date: 9/22/65

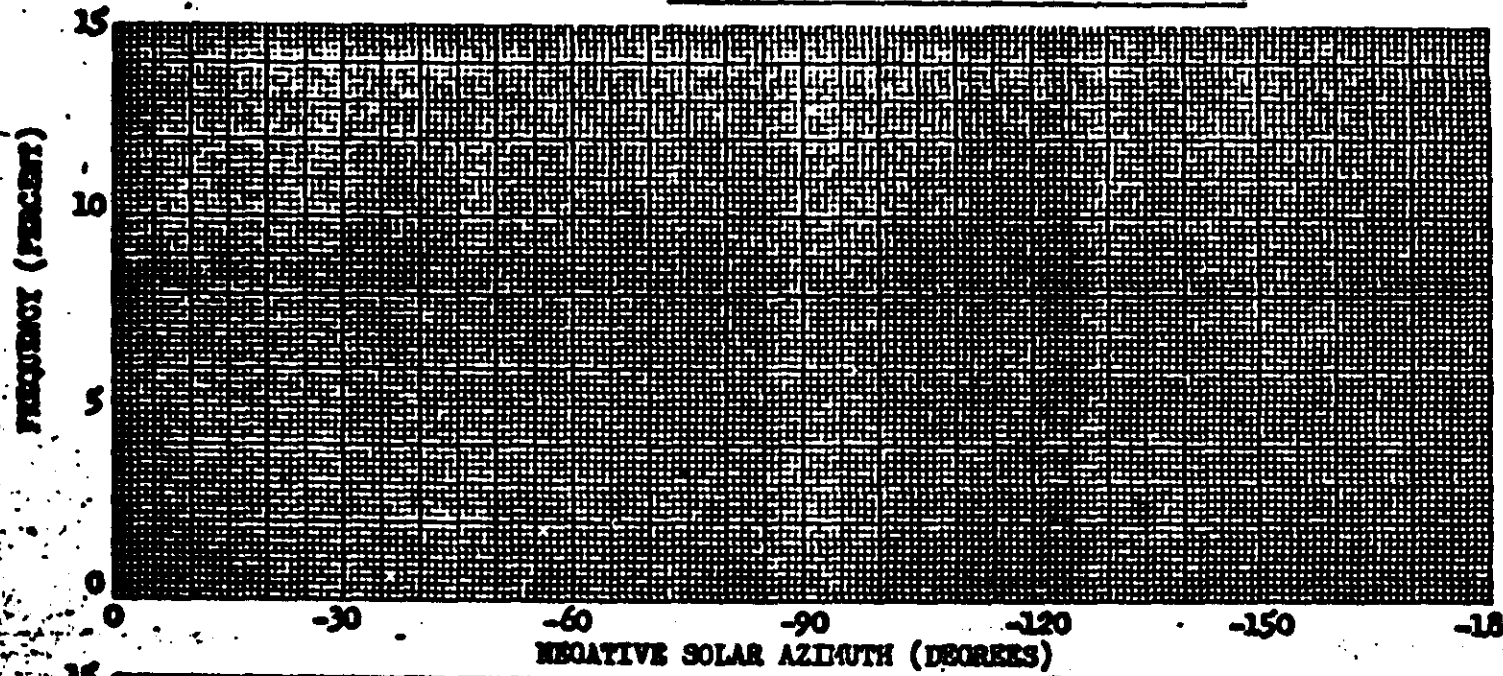
Launch Time: 2131 Z

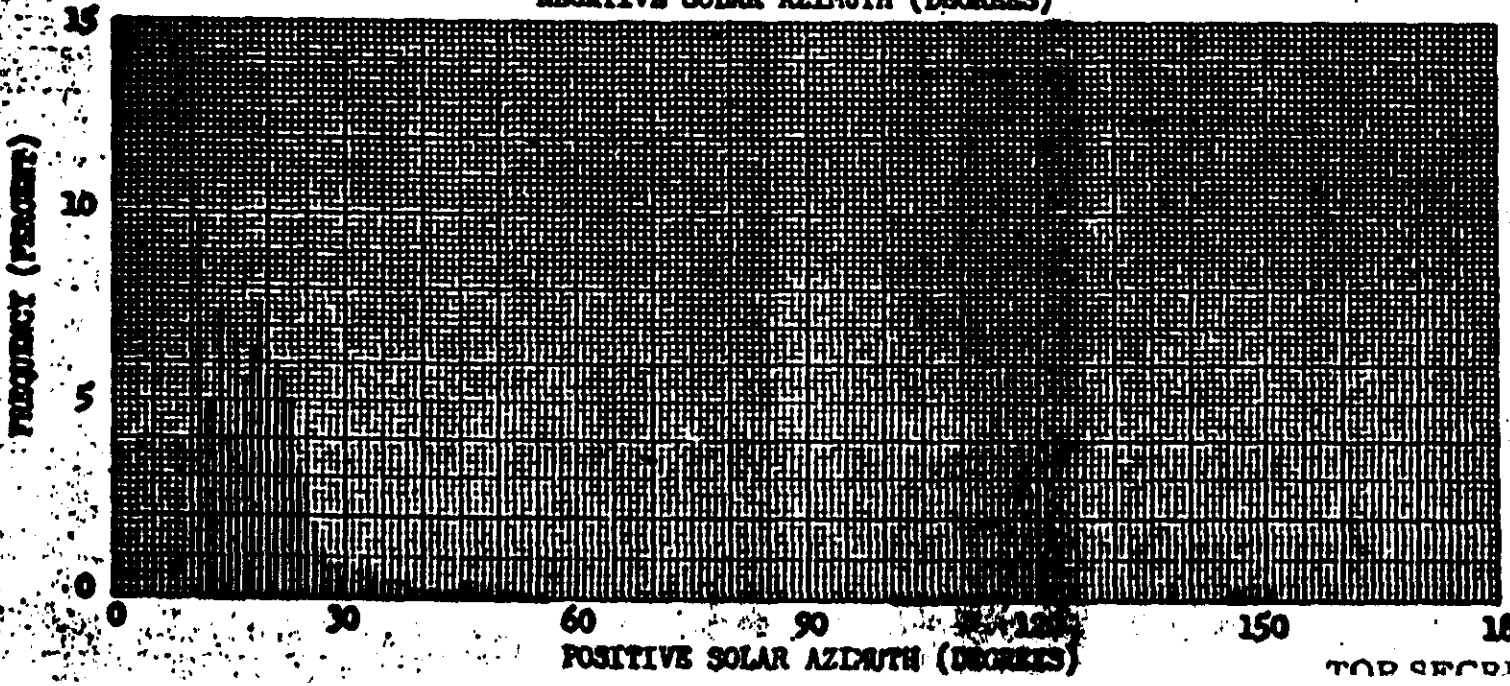
Inclination: 80°

FIGURE 8-3

TOP SECRET [redacted]

SOLAR AZIMUTH FREQUENCY DISTRIBUTION





Mission No: 1024-2

Payload No: J-24

Camera No: 172

Launch Date: 9/22/65

Launch Time: 2131 Z

Inclination: 80°

SIGN NOTATION

TOP SECRET [redacted]

EXPOSURE POINTS

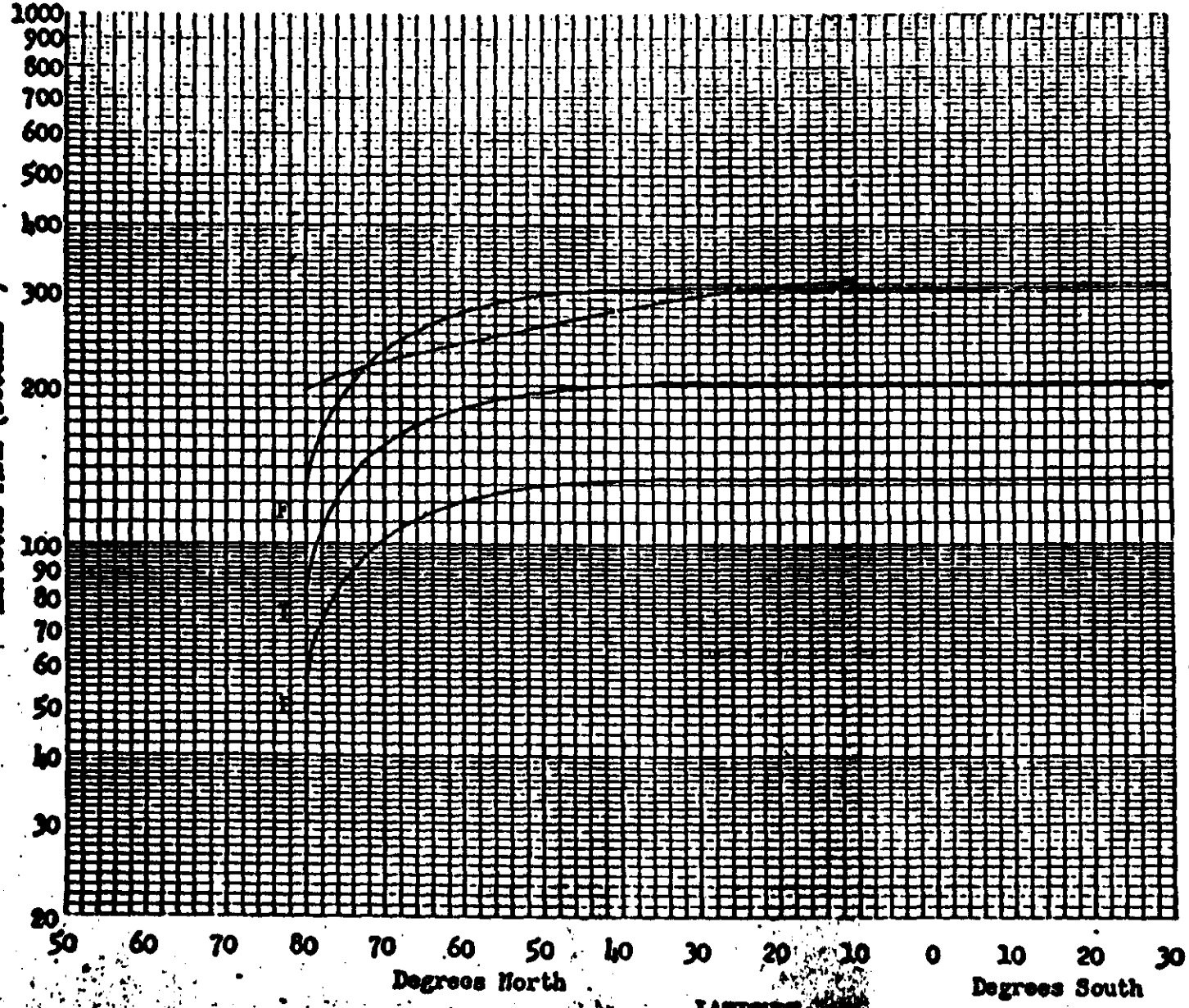


FIGURE 8-5

Mission No: 1024

Payload No: J-24

Camera No: 172

Pass No: 8

Launch Date: 9/22/65

Launch Time: 2131 Z

Slit Width: .225

Filter Type: Wratten 2

Film Type: 3404

EXPOSURE POINTS

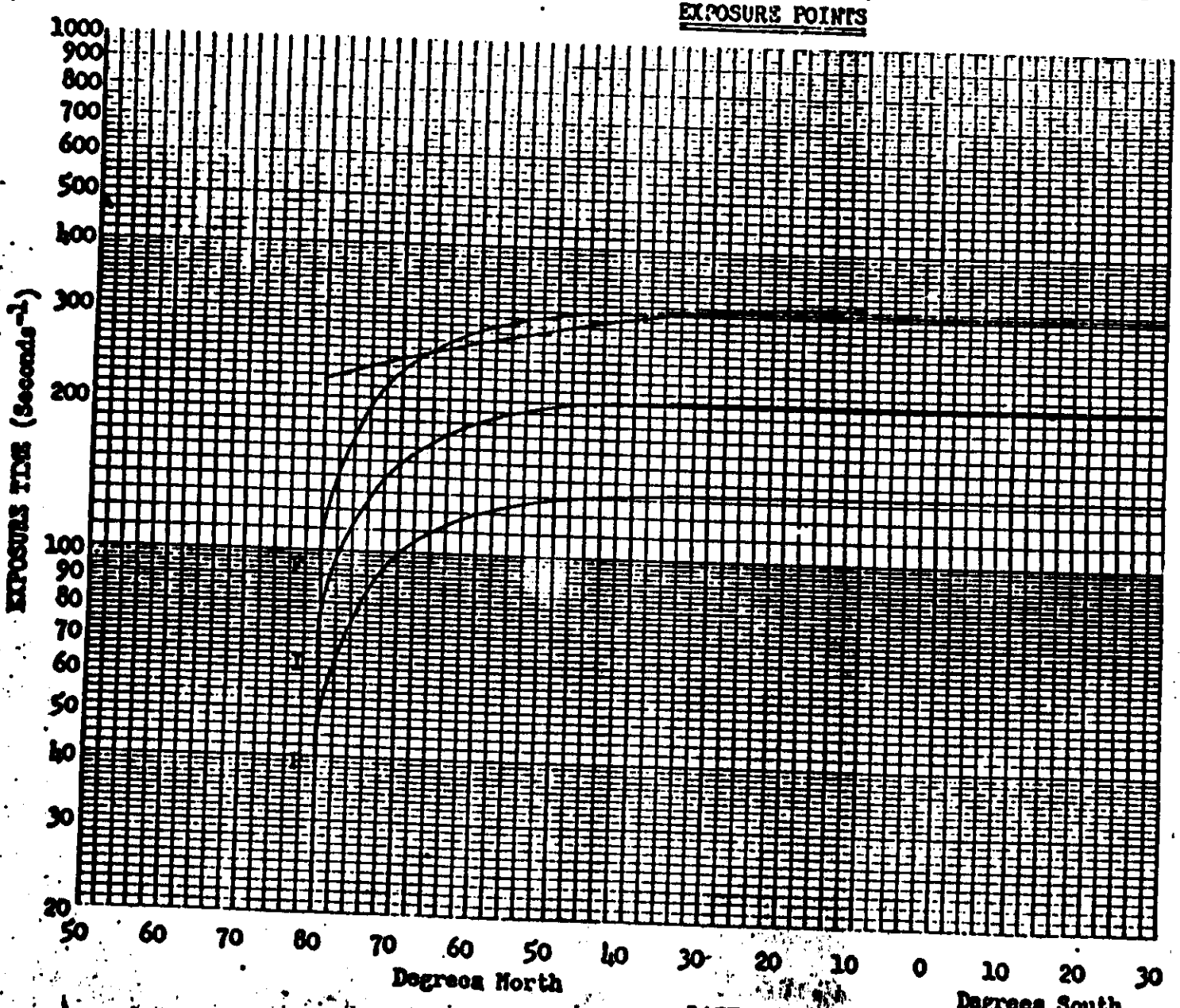


FIGURE 8-6

Mission No: 1024

Payload No: J-24

Camera No: 172

Pass No: 56

Launch Date: 9/22/65

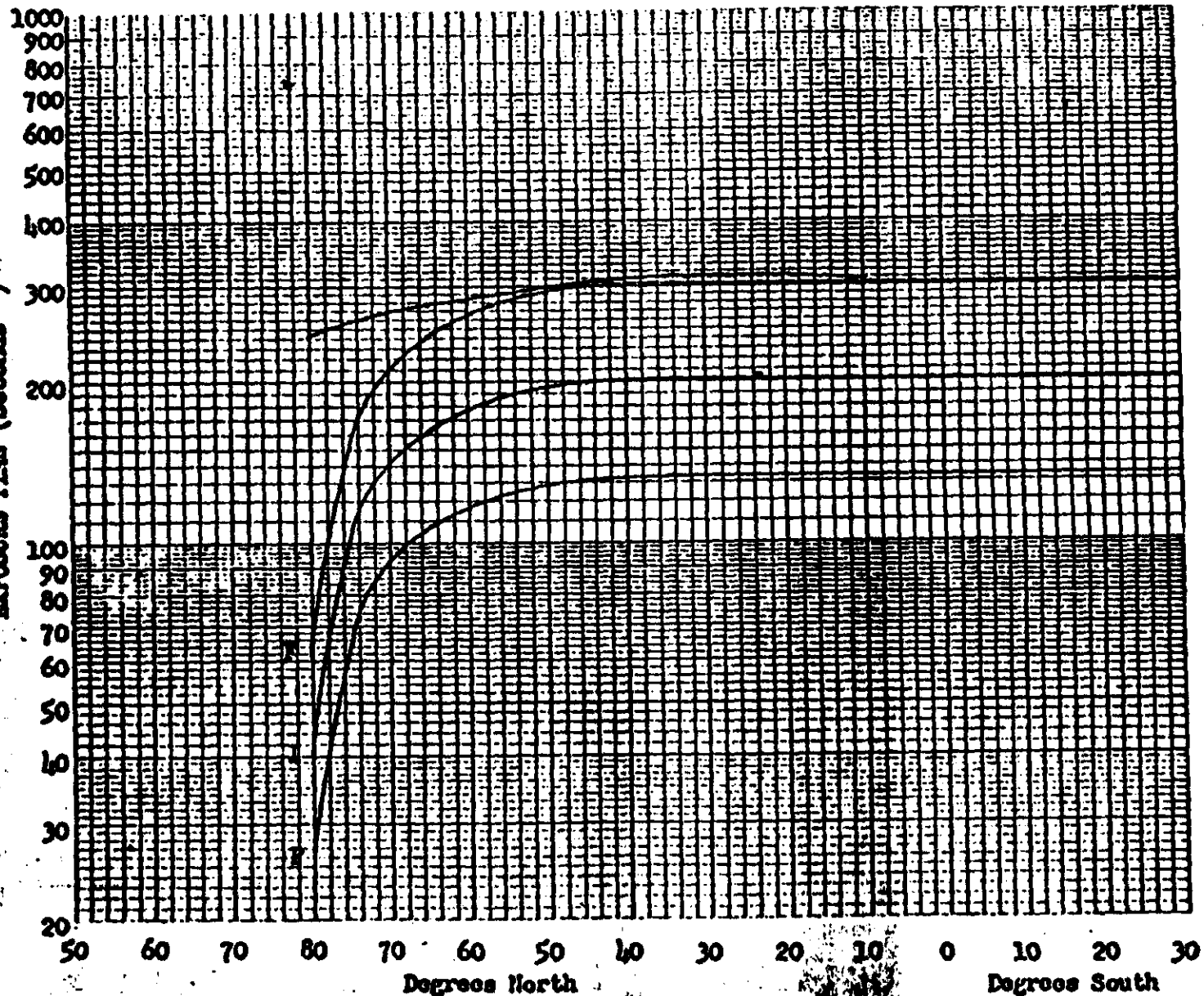
Launch Time: 2131 Z

Slit Width: .225

Filter Type: Wratten 25

Film Type: 3404

EXPOSURE POINTS



Mission No: 1024

Payload No: J-24

Camera No: 172

Pass No: 121

Launch Date: 9/22/65

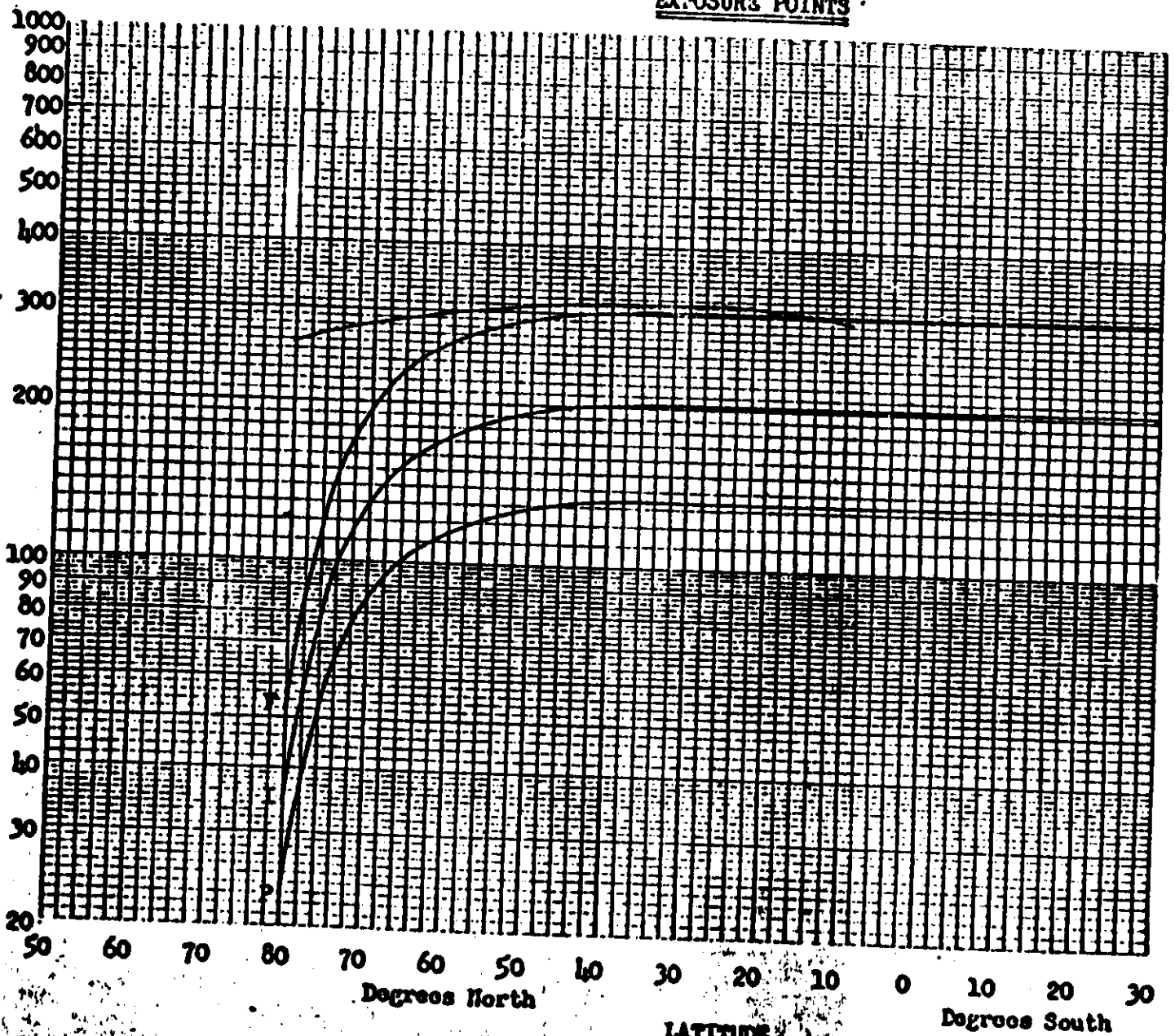
Launch Time: 2131 Z

Slit Width: .225

Filter Type: Wratten 25

Film Type: 3404

FIGURE 8-7



Mission No: 1024

Payload No: J-24

Camera No: 172

Pass No: 161

Launch Date: 9/22/65

Launch Time: 2131 Z

Slit Width: .225

Filter Type: Wratten 2

Film Type: 3404

FIGURE 8-8

EXPOSURE POINTS

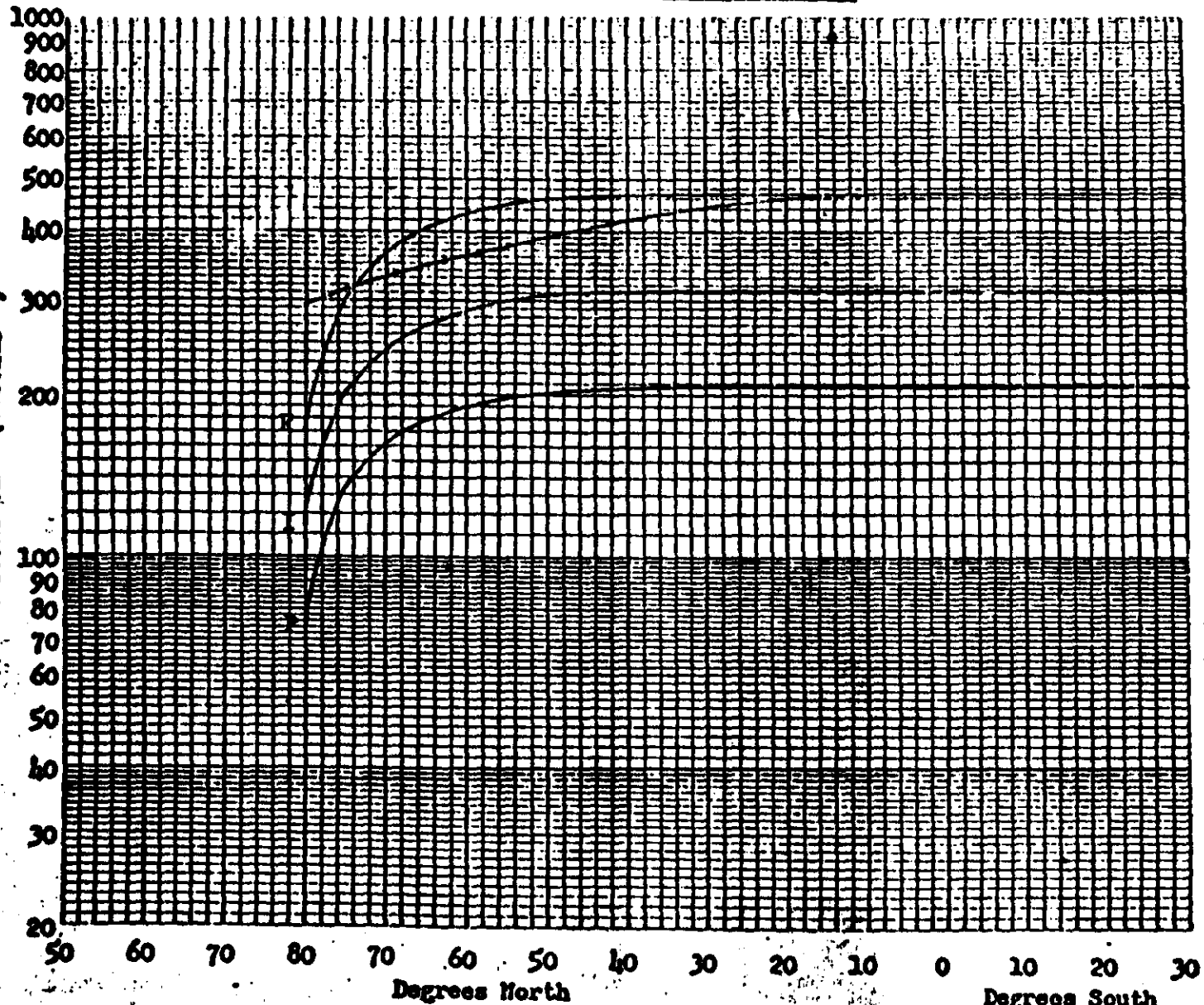


FIGURE 8-9

Mission No: 1024

Payload No: J-24

Camera No: 173

Pass No: 8

Launch Date: 9/22/65

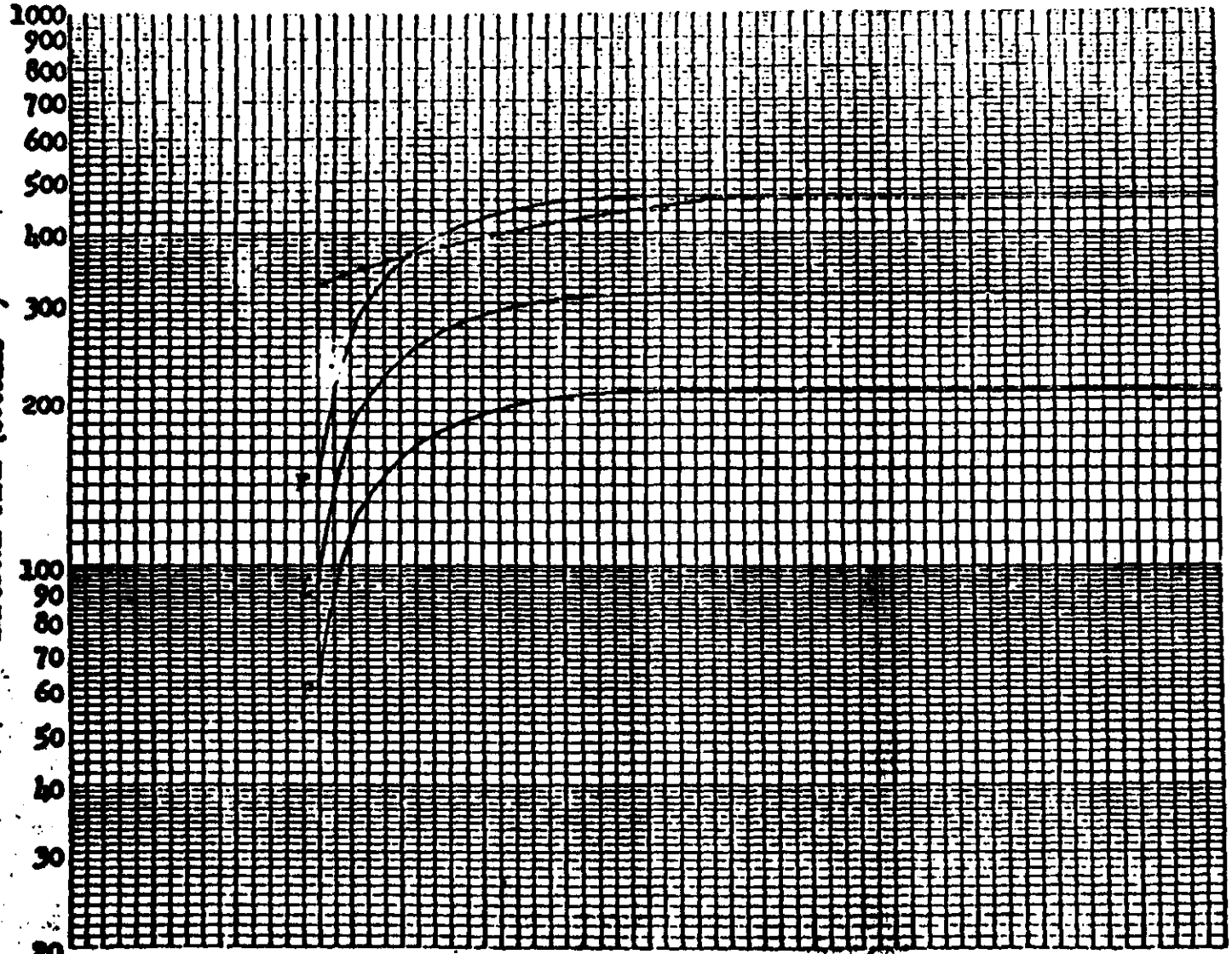
Launch Time: 2131 Z

Slit Width: .150

Filter Type: Wratten [redacted]

Film Type: 3404

EXPOSURE POINTS



Mission No: 1024

Payload No: J-24

Camera No: 173

Pass No: 56

Launch Date: 9/22/65

Launch Time: 2131 Z

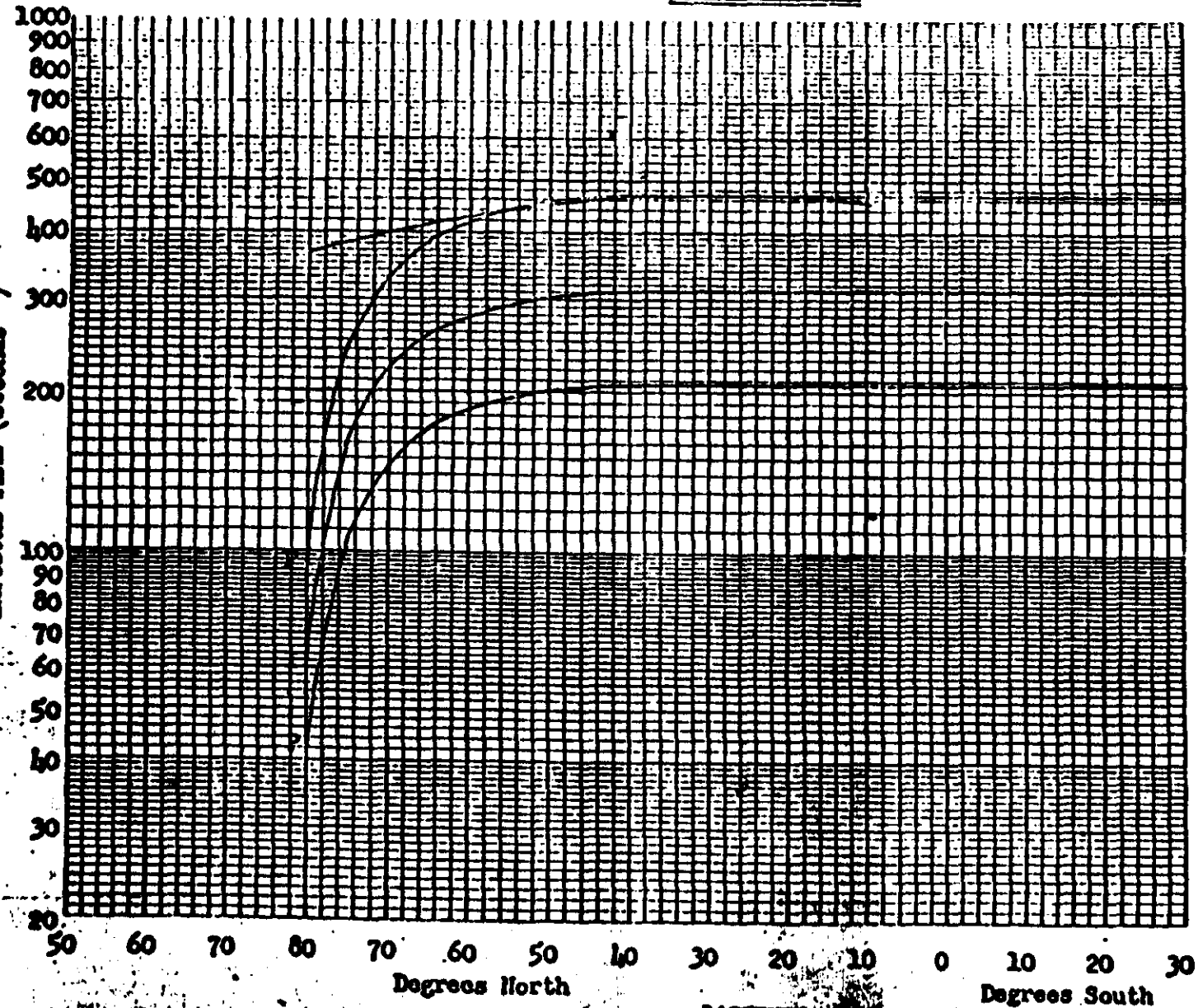
Slit Width: .150

Filter Type: Wratten 21

Film Type: 3404

FIGURE 8-10

EXPOSURE POINTS



Mission No: 1024

Payload No: J-24

Camera No: 173

Pass No: 121

Launch Date: 9/22/65

Launch Time: 2131 Z

Slit Width: .150

Filter Type: Wratten

Film Type: 3404

FIGURE 8-11

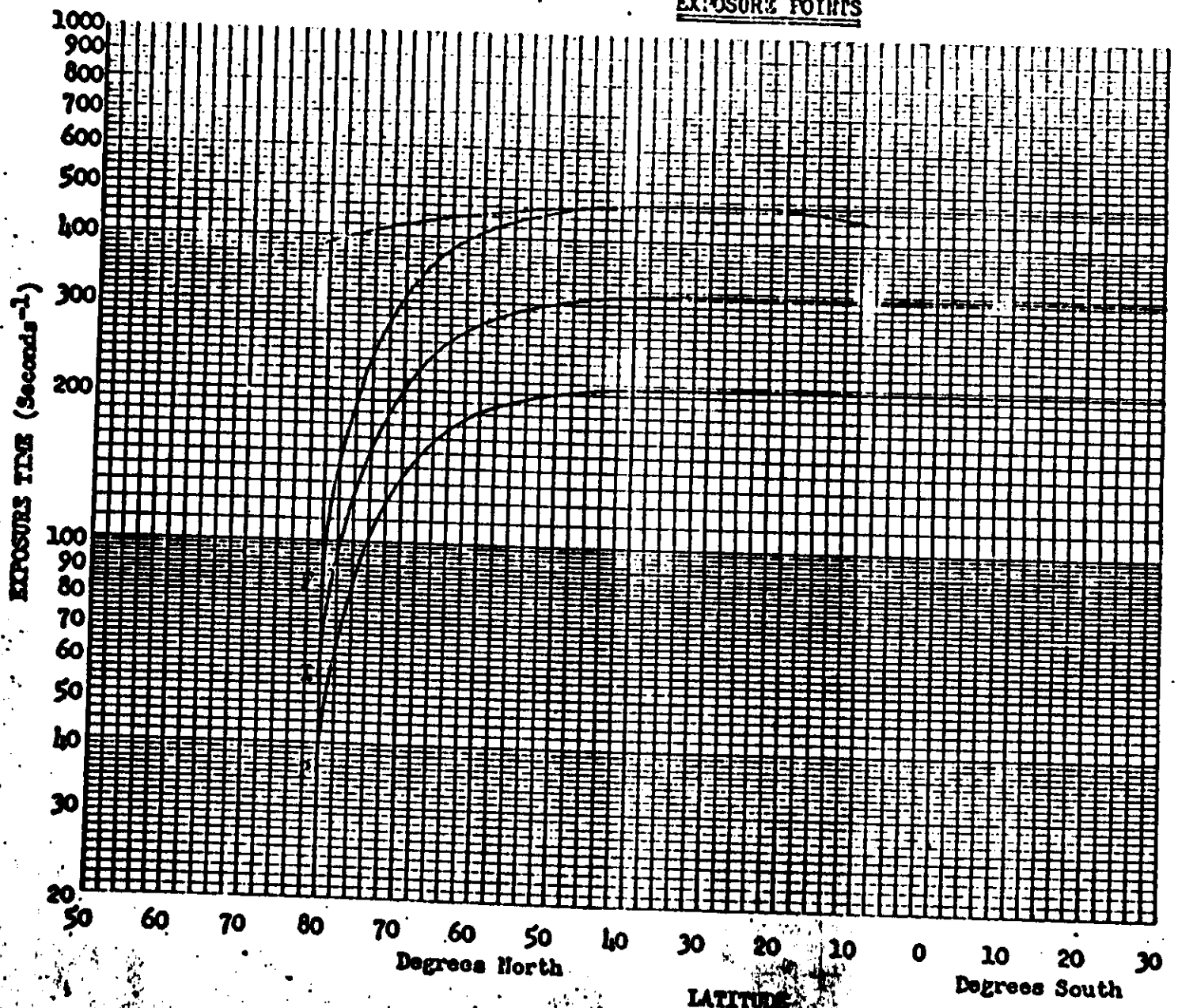


FIGURE 8-12

Mission No: 1024

Payload No: J-24

Camera No: 173

Pass No: 161

Launch Date: 9/22/65

Launch Time: 2131 Z

Slit Width: .150

Filter Type: Wratten

Film Type: 3404

Yardleigh vs Trenton Processing

Frame by Frame processing was tried for the first time using the Yardleigh Processor for developing the Master camera film recovered in Mission 1024-2. A detailed comparison, made by the PET team, of terrain photography produced by the Yardleigh and the Trenton processors revealed comparable photographic quality. No significant difference could be found in the photographic quality of terrain detail produced by the Yardleigh and the Trenton produced product. The photographic quality of Yardleigh and Trenton processing were both rated good.

The processing level changed 355 times using the Yardleigh processor and 30 times using the Trenton processor. The frequent changes in Yardleigh process level caused a noticeable change in the density difference between the binary dot imagery in the time word and the base plus fog level that caused severe time word read-out problems. The Eastman Kodak representative suggested that a special print could be made to provide time word imagery that was more compatible with the existing read-out equipment. It was observed that the range of terrain D min values produced by the Yardleigh process was significantly reduced (.28 to .88 for the Yardleigh vs .4 to 1.6 for the Trenton) and the D min values averaged approximately 0.3 density lower in the Yardleigh compared to the Trenton processed material. It was concluded that Yardleigh vs Trenton processing should be made available on future flights in order that more comparative data might be made available for analysis.

Mission 1024 Micro-D Trace of Stepwedge - Analysis

During Pass 142D of Mission 1024-2, an engineering operation was performed over Phillipsburgh, Kansas, where a mobile eight-step grey scale step wedge had been positioned. Each step in the step wedge measured 20 x 40 feet. A micro-densitometer trace was made for the step wedge image in both an original negative and a duplicate positive for each the Master and the Slave instruments. Site manning personnel obtained periodic photometer measurements of illumination and the respective brightness levels of each of the eight panels during the period in which the engineering operation was scheduled.

By relating the distribution of measured panel brightness values to the resulting density profiles, it was possible to relate the system performance directly to the film/processing characteristic sensitometric curve. In order to achieve this relation it was necessary to include a haze, or non-image forming light, contribution to the measured luminances to bring them to the level apparent to the camera as recorded on the negative. This analysis indicated an apparent haze contribution on the order of 250 foot lamberts at this particular location and time.

Figures 8-13 and 8-14 show the eight step grey scale density profile for the original negative and one duplicate positive for the Master and Slave cameras, respectively. There is a distinctive variation in the shapes of the ON and DP curves, the flatness of the DP in the lower density ranges indicate that the duplicate positive material was exposed well into the toe of the H & D curve for the processing used. Relating these profiles to the respective sentitometric curves shown in Figure 8-15 for the Master camera graphically illustrates that the DP exposure falls into the toe of its characteristic curve, whereas the ON density distribution is very effectively located over the straight-line portion, indicating optimum exposure of the original negative in-flight followed by the correct selection of processing level.

Figure 8-15 shows the tone reproduction cycle for the eight step grey scale photographed by the forward looking camera during pass D-142 and a duplicate positive print generated at NPIC. Table 8-1 shows the brightness measurements made on the ground of the eight step grey scale at the time pass D-142 film was exposed.

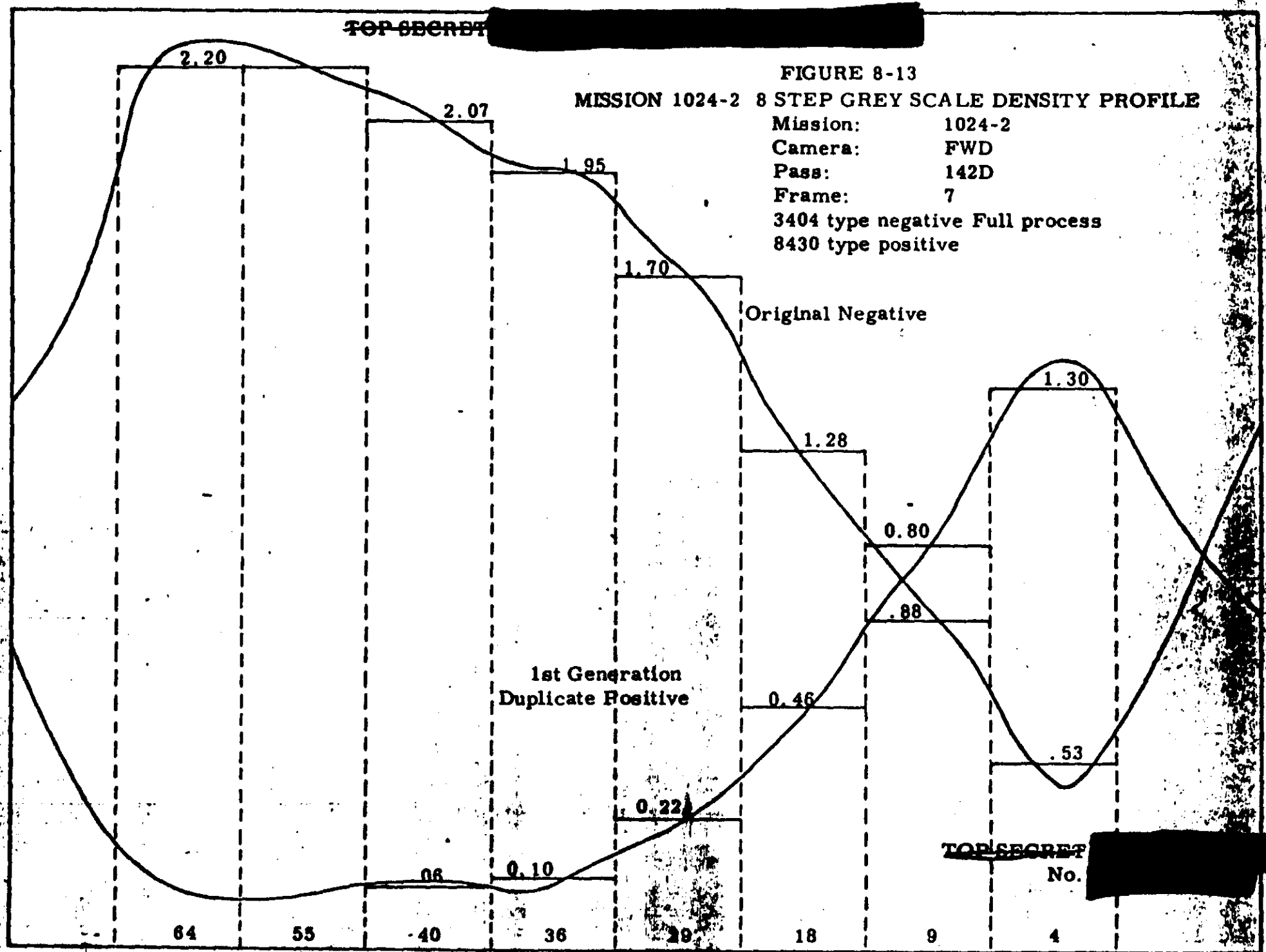


FIGURE 8-13

MISSION 1024-2 8 STEP GREY SCALE DENSITY PROFILE

Mission: 1024-2
Camera: FWD
Pass: 142D
Frame: 7
3404 type negative Full process
8430 type positive

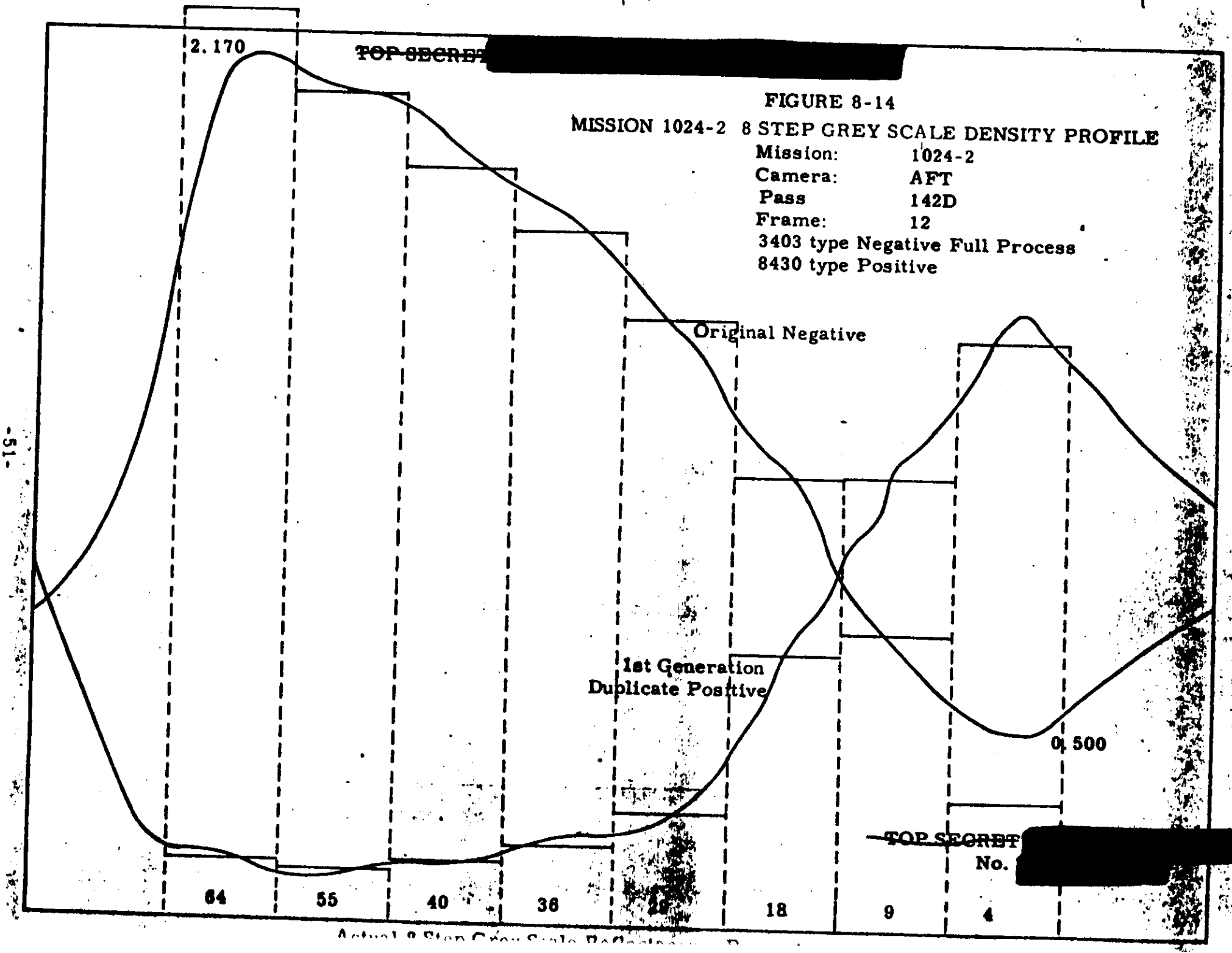


FIGURE 8-14

MISSION 1024-2 8 STEP GREY SCALE DENSITY PROFILE

Mission: 1024-2
Camera: AFT
Pass 142D
Frame: 12
3403 type Negative Full Process
8430 type Positive

8 STEP GREY SCALE TONE REPRODUCTION CYCLE
FWD CAMERA MISSION 1024-2

3404 Type Negative Film Full Processing
8430 Type Positive Film Standard Process
Pass 142D
Frame 7
Phillipsburg, Kansas 1 October 1965

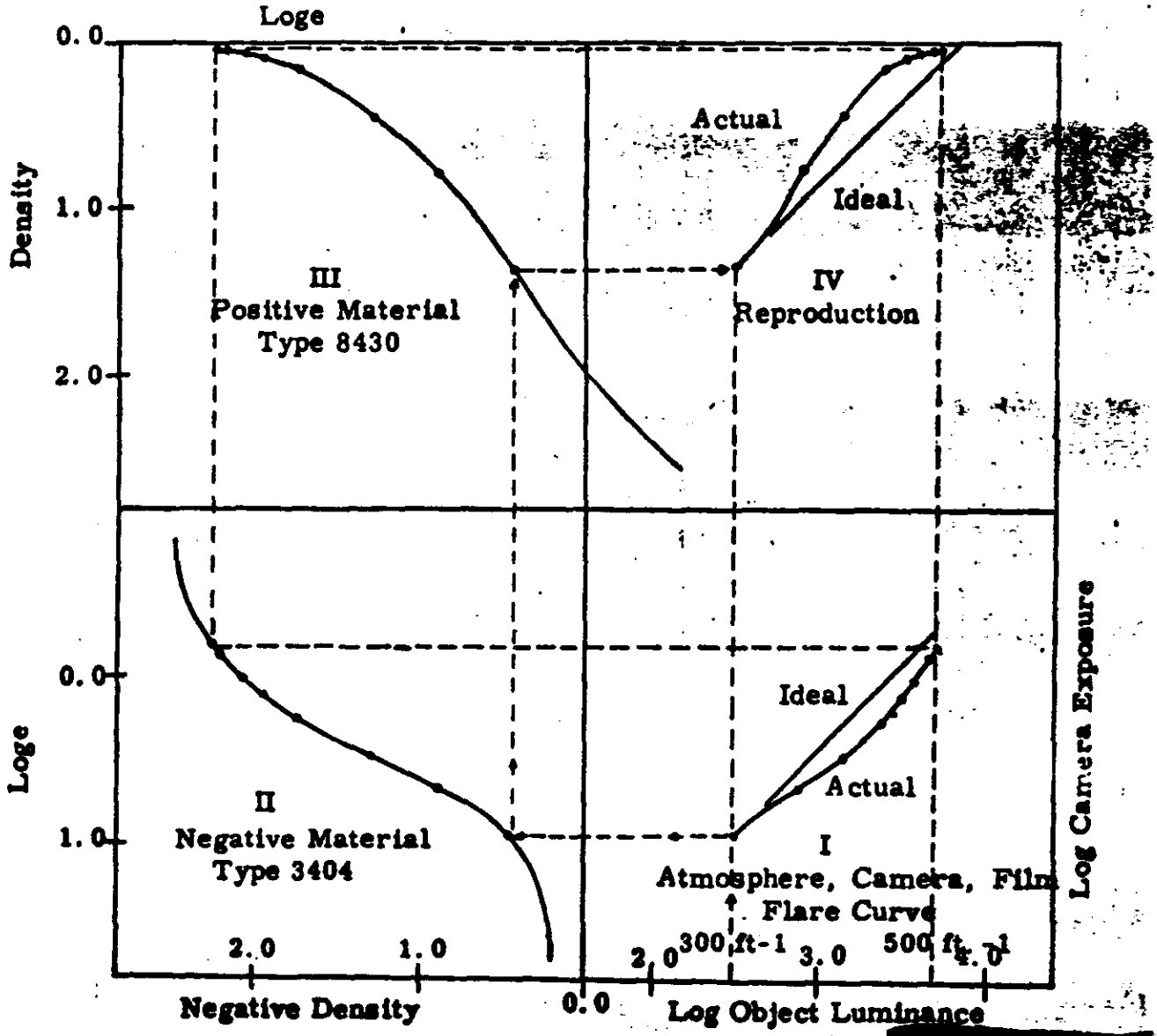


FIGURE 8-15

TABLE 8-1

SITE MANNING REPORT 1 October 1965

LOCATION Airport, Phillipsburg, Kansas — Gray Scale

TARGET BRIGHTNESS IN FOOT LAMBERTS

LOCAL TIME 15 MIN INTERVALS	ESTIMATED CLOUD COVER AND PIX NR		EIGHT STEP GRAY SCALE								
			DISC	BLACK	GRAY	GRAY	GRAY	GRAY	GRAY	GRAY	WHITE
METER SET NORMAL											
1130	0%	1	8400	290	920	1500	2600	3300	3800	5500	6100
1145	0%	2	8200	300	910	1500	2700	3400	4000	5000	5900
1200	0%	3	8400	300	850	1500	2600	3400	3800	5000	5600
1215	0%	4	9000	320	910	1600	2600	3500	4200	5500	6500
1230	0%	5	8900	340	930	1800	2800	3600	4300	5600	6700
1245	0%	6	9100	340	910	1600	2700	3500	3900	5300	6400
1300	0%	7	8900	320	865	1600	2400	3200	4200	5300	6000
1315	0%	8	8500	260	840	1600	2600	3300	4000	5000	5800
1330	0%	9	8400	290	860	1600	2600	3200	3800	4800	5800
1345	0%	10	8500	300	720	1400	2400	3000	3100	4600	5000
METER SET 15° OFF VERTICAL											
1130			8300	240	710	1300	2200	3300	4000	5100	5700
1145			8600	280	820	1600	2200	3200	4000	5000	6000
1200			9000	300	850	1500	2400	3000	3800	5000	6300
1215			9000	340	900	1500	2600	3400	3900	5300	6400
1230			9100	290	880	1600	2600	3400	3900	5250	6100
1245			9150	310	880	1600	2600	3400	3900	5300	6000
1300			9000	290	790	1400	2500	3300	3500	4900	5100
1315			8800	340	720	1600	2500	3300	3600	4900	5800
1330			8800	380	840	1400	2500	3300	3600	4600	5300
1345			8700	320	820	1500	2400	3200	3300	4300	5400

SECTION 9

DIFFUSE DENSITY MEASUREMENTS

The diffuse density measurements made by AFSPPF 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
1024-1	FWD	Predicted	0	0	100
		Reported	0	28	72
		Computed	0	72	28
1024-1	AFT	Predicted	0	0	100
		Reported	0	28	72
		Computed	0	82	18
1024-2	FWD	Predicted	0	0	100
		Reported	12	19	69
		Computed	0	25	75
1024-2	AFT	Predicted	0	0	100
		Reported	1	22	77
		Computed	0	66	34

The tabulations of density frequency distributions for Missions 1024-1 and 1024-2 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 1024-1 and 1024-2.

Table 9-5 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. The percentage of values below 0.40 is noticeable but essentially all of these values are above 0.30 density. The percentage of under processed film is significant and cause for concern.

An extensive study is in process to ascertain the inter-relationship of the conditions of illumination, resulting densities and exposure-processing parameters.

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	166	6	0	68	2	0	234	8	0

TABLE 9-1

TOP SECRET [redacted] - CONTROL NO. [redacted]

MISSION - 1024-1 INSTRUMENT - FRUG 12-06-65 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
0.51	0	0	0	2	0	0	0	0	0	2	0	0
0.52	0	0	0	2	0	0	0	0	0	4	0	0
0.53	0	0	0	3	0	0	0	0	0	2	0	0
0.54	0	0	0	0	0	0	0	0	0	3	0	0
0.55	0	0	0	1	0	0	0	0	0	0	0	0
0.56	0	0	0	1	0	0	0	0	0	1	0	0
0.57	0	0	0	0	0	0	0	0	0	2	0	0
0.58	0	0	0	0	0	0	0	0	0	0	0	0
0.59	0	0	0	2	0	0	0	0	0	3	0	0
0.60	0	0	0	0	0	0	0	0	0	1	0	0
0.61	0	0	0	0	0	0	0	0	0	0	0	0
0.62	0	0	0	0	0	0	0	0	0	0	0	0
0.63	0	0	0	0	0	0	0	0	0	0	0	0
0.64	0	0	0	0	0	0	0	0	0	0	0	0
0.65	0	0	0	0	0	0	0	0	0	0	0	0
0.66	0	0	0	0	0	0	0	0	0	0	0	0
0.67	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	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	20	60	2	6	35	0	26	95	2

TOP SECRET [redacted] - CONTROL NO. [redacted]

TABLE 9-1

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	0	2	0	0	1	0	0	3	0
1.03	0	0	0	0	2	0	0	1	0	0	2	0
1.04	0	0	0	0	2	0	0	1	0	0	2	0
1.05	0	0	0	0	2	0	0	1	0	0	1	0
1.06	0	0	0	0	2	0	0	1	0	0	2	0
1.07	0	0	0	0	2	0	0	1	0	0	4	0
1.08	0	0	0	0	2	0	0	1	0	0	2	0
1.09	0	0	0	0	2	0	0	1	0	0	2	0
1.10	0	0	0	0	2	0	0	1	0	0	3	0
1.11	0	0	0	0	2	0	0	1	0	0	1	0
1.12	0	0	0	0	2	0	0	1	0	0	1	0
1.13	0	0	0	0	2	0	0	1	0	0	4	0
1.14	0	0	0	0	2	0	0	1	0	0	2	0
1.15	0	0	0	0	2	0	0	1	0	0	2	0
1.16	0	0	0	0	2	0	0	1	0	0	3	0
1.17	0	0	0	0	2	0	0	1	0	0	1	0
1.18	0	0	0	0	2	0	0	1	0	0	1	0
1.19	0	0	0	0	2	0	0	1	0	0	4	0
1.20	0	0	0	0	2	0	0	1	0	0	2	0
1.21	0	0	0	0	2	0	0	1	0	0	2	0
1.22	0	0	0	0	2	0	0	1	0	0	3	0
1.23	0	0	0	0	2	0	0	1	0	0	1	0
1.24	0	0	0	0	2	0	0	1	0	0	1	0
1.25	0	0	0	0	2	0	0	1	0	0	4	0
1.26	0	0	0	0	2	0	0	1	0	0	2	0
1.27	0	0	0	0	2	0	0	1	0	0	2	0
1.28	0	0	0	0	2	0	0	1	0	0	3	0
1.29	0	0	0	0	2	0	0	1	0	0	1	0
1.30	0	0	0	0	2	0	0	1	0	0	1	0
1.31	0	0	0	0	2	0	0	1	0	0	4	0
1.32	0	0	0	0	2	0	0	1	0	0	2	0
1.33	0	0	0	0	2	0	0	1	0	0	2	0
1.34	0	0	0	0	2	0	0	1	0	0	3	0
1.35	0	0	0	0	2	0	0	1	0	0	1	0
1.36	0	0	0	0	2	0	0	1	0	0	1	0
1.37	0	0	0	0	2	0	0	1	0	0	4	0
1.38	0	0	0	0	2	0	0	1	0	0	2	0
1.39	0	0	0	0	2	0	0	1	0	0	2	0
1.40	0	0	0	0	2	0	0	1	0	0	3	0
1.41	0	0	0	0	2	0	0	1	0	0	1	0
1.42	0	0	0	0	2	0	0	1	0	0	1	0
1.43	0	0	0	0	2	0	0	1	0	0	4	0
1.44	0	0	0	0	2	0	0	1	0	0	2	0
1.45	0	0	0	0	2	0	0	1	0	0	2	0
1.46	0	0	0	0	2	0	0	1	0	0	3	0
1.47	0	0	0	0	2	0	0	1	0	0	1	0
1.48	0	0	0	0	2	0	0	1	0	0	1	0
1.49	0	0	0	0	2	0	0	1	0	0	4	0
1.50	0	0	0	0	2	0	0	1	0	0	2	0
SUBTOTAL	0	0	0	0	71	0	0	22	0	0	93	0

TABLE 9-1

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	0	0	0	0	0
1.52	0	0	0	0	0	2	0	0	0	0	0	2
1.53	0	0	0	0	0	1	0	0	0	0	0	1
1.54	0	0	0	0	0	0	0	0	0	0	0	0
1.55	0	0	0	0	0	1	0	0	0	0	0	1
1.56	0	0	0	0	0	2	0	0	2	0	0	4
1.57	0	0	0	0	0	1	0	0	1	0	0	2
1.58	0	0	0	0	0	0	0	0	0	0	0	0
1.59	0	0	0	0	0	0	0	0	0	0	0	0
1.60	0	0	0	0	0	1	0	0	0	0	0	1
1.61	0	0	0	0	0	0	0	0	0	0	0	0
1.62	0	0	0	0	0	0	0	0	0	0	0	0
1.63	0	0	0	0	0	1	0	0	0	0	0	1
1.64	0	0	0	0	0	0	0	0	1	0	0	1
1.65	0	0	0	0	0	4	0	0	0	0	0	4
1.66	0	0	0	0	0	2	0	0	0	0	0	2
1.67	0	0	0	0	0	1	0	0	0	0	0	1
1.68	0	0	0	0	0	0	0	0	0	0	0	0
1.69	0	0	0	0	0	3	0	0	1	0	0	4
1.70	0	0	0	0	0	0	0	0	2	0	0	2
1.71	0	0	0	0	0	0	0	0	0	0	0	0
1.72	0	0	0	0	0	1	0	0	0	0	0	1
1.73	0	0	0	0	0	0	0	0	0	0	0	0
1.74	0	0	0	0	0	0	0	0	0	0	0	0
1.75	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0
1.79	0	0	0	0	0	0	0	0	0	0	0	0
1.80	0	0	0	0	0	0	0	0	0	0	0	0
1.81	0	0	0	0	0	0	0	0	0	0	0	0
1.82	0	0	0	0	0	0	0	0	0	0	0	0
1.83	0	0	0	0	0	0	0	0	0	0	0	0
1.84	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	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	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	1	35	74	0	10	22	1	45	96

TABLE 9-1

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	2	3	0	0	1	0	2	4
2.02	0	0	0	0	1	4	0	0	3	0	1	4
2.03	0	0	0	0	0	3	0	0	0	0	0	3
2.04	0	0	0	0	1	2	0	0	2	0	1	4
2.05	0	0	0	0	3	7	0	0	2	0	3	9
2.06	0	0	0	0	1	3	0	0	3	0	1	3
2.07	0	0	0	0	0	3	0	0	1	0	1	6
2.08	0	0	0	0	1	0	0	0	3	0	1	6
2.09	0	0	0	0	1	0	0	0	2	0	1	2
2.10	0	0	0	0	1	1	0	0	3	0	1	2
2.11	0	0	0	0	0	6	0	0	0	0	0	6
2.12	0	0	0	0	0	6	0	0	0	0	0	6
2.13	0	0	0	0	0	3	0	0	1	0	1	3
2.14	0	0	0	0	0	7	0	0	1	0	1	9
2.15	0	0	0	0	1	2	0	0	2	0	1	4
2.16	0	0	0	0	1	5	0	0	1	0	1	6
2.17	0	0	0	0	1	1	0	0	0	0	1	6
2.18	0	0	0	0	1	6	0	0	3	0	1	9
2.19	0	0	0	0	1	2	0	0	0	0	1	8
2.20	0	0	0	0	0	5	0	0	1	0	0	7
2.21	0	0	0	0	0	6	0	0	0	0	0	7
2.22	0	0	0	0	0	5	0	0	2	0	0	7
2.23	0	0	0	0	0	2	0	0	1	0	0	3
2.24	0	0	0	0	0	2	0	0	3	0	0	2
2.25	0	0	0	0	0	0	0	0	1	0	0	1
2.26	0	0	0	0	0	2	0	0	1	0	0	3
2.27	0	0	0	0	0	2	0	0	0	0	0	3
2.28	0	0	0	0	0	2	0	0	2	0	0	4
2.29	0	0	0	0	0	0	0	0	0	0	0	0
2.30	0	0	0	0	0	0	0	0	1	0	0	1
2.31	0	0	0	0	0	0	0	0	0	0	0	0
2.32	0	0	0	0	0	0	0	0	1	0	0	1
2.33	0	0	0	0	0	0	0	0	0	0	0	0
2.34	0	0	0	0	0	1	0	0	0	0	0	1
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	0	0	0	0
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	0	0	0	0
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	15	104	0	5	36	0	20	140

TABLE 9-1

MISSION • 1024-1 • 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	187	187	187	74	74	65	261	261	252

MISSION 1024-1 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	187	6 PC	69 PC	25 PC	0 PC	1 PC
FULL	74	80 PC	0 PC	20 PC	0 PC	0 PC
ALL LEVELS	261	27 PC	49 PC	23 PC	0 PC	0 PC

PROCESS LEVEL	BASE + FOG	UNDER EXPUSED	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 9-1

MISSION • 1024-1 • INSTR • FRWD • 12-06-65 PLOT OF D MIN • TERRAIN • PROCESSING • INTERMEDIATE

ARITH MEAN • 0.35 • MEDIAN • 0.31 • STD DEV • 0.16 • RANGE • 0.17 TO 1.74 WITH 187 SAMPLES

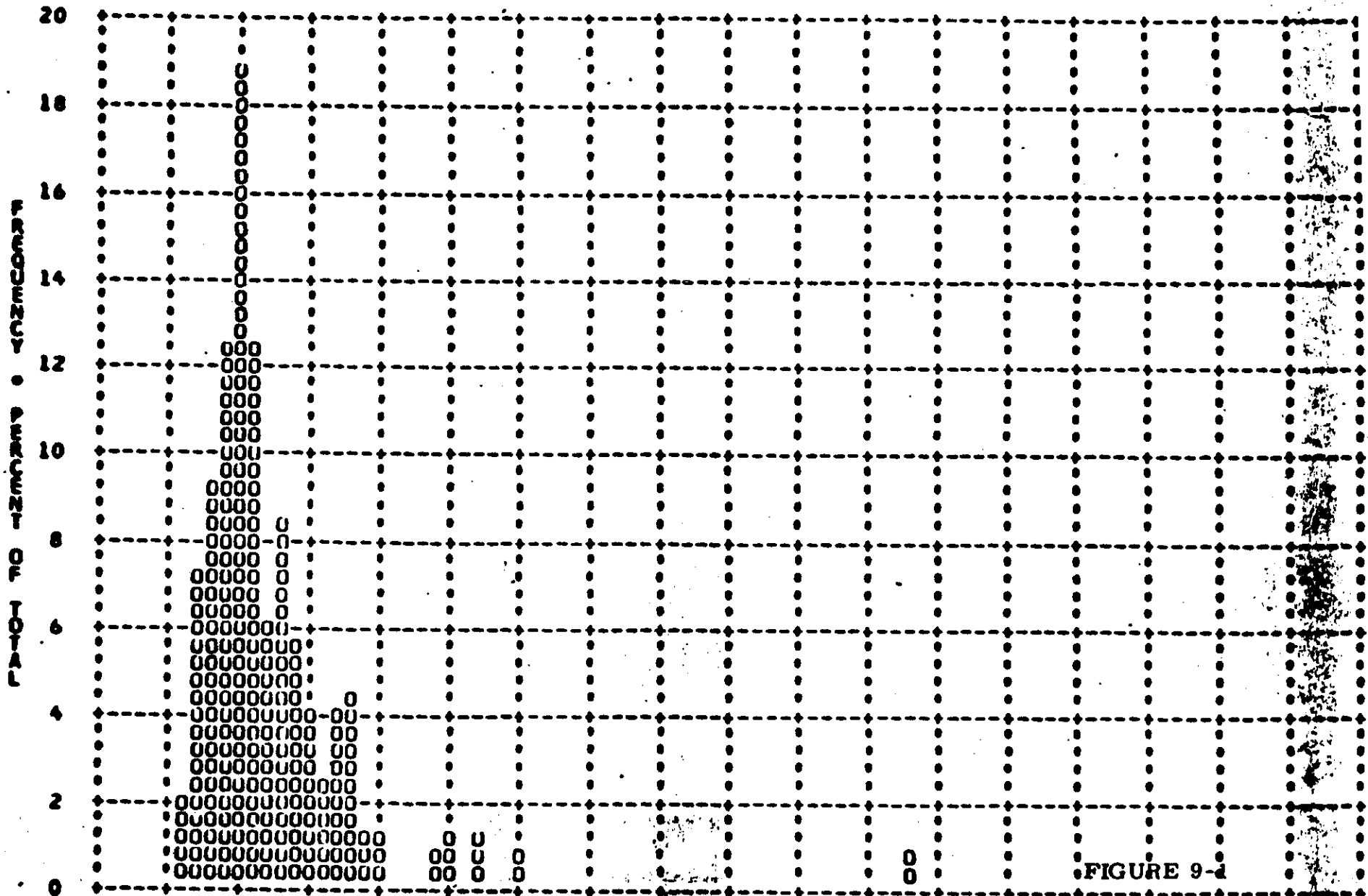


FIGURE 9-4

MISSION • 1024-1 • INSTR • FRWD • 12-06-65 PLOT OF D MAX • TERRAIN • PROCESSING • INTERMEDIATE

ARITH MEAN • 1.26 • MEDIAN • 1.21 • STD DEV • 0.44 • RANGE • 0.40 TO 2.19 WITH 187 SAMPLES

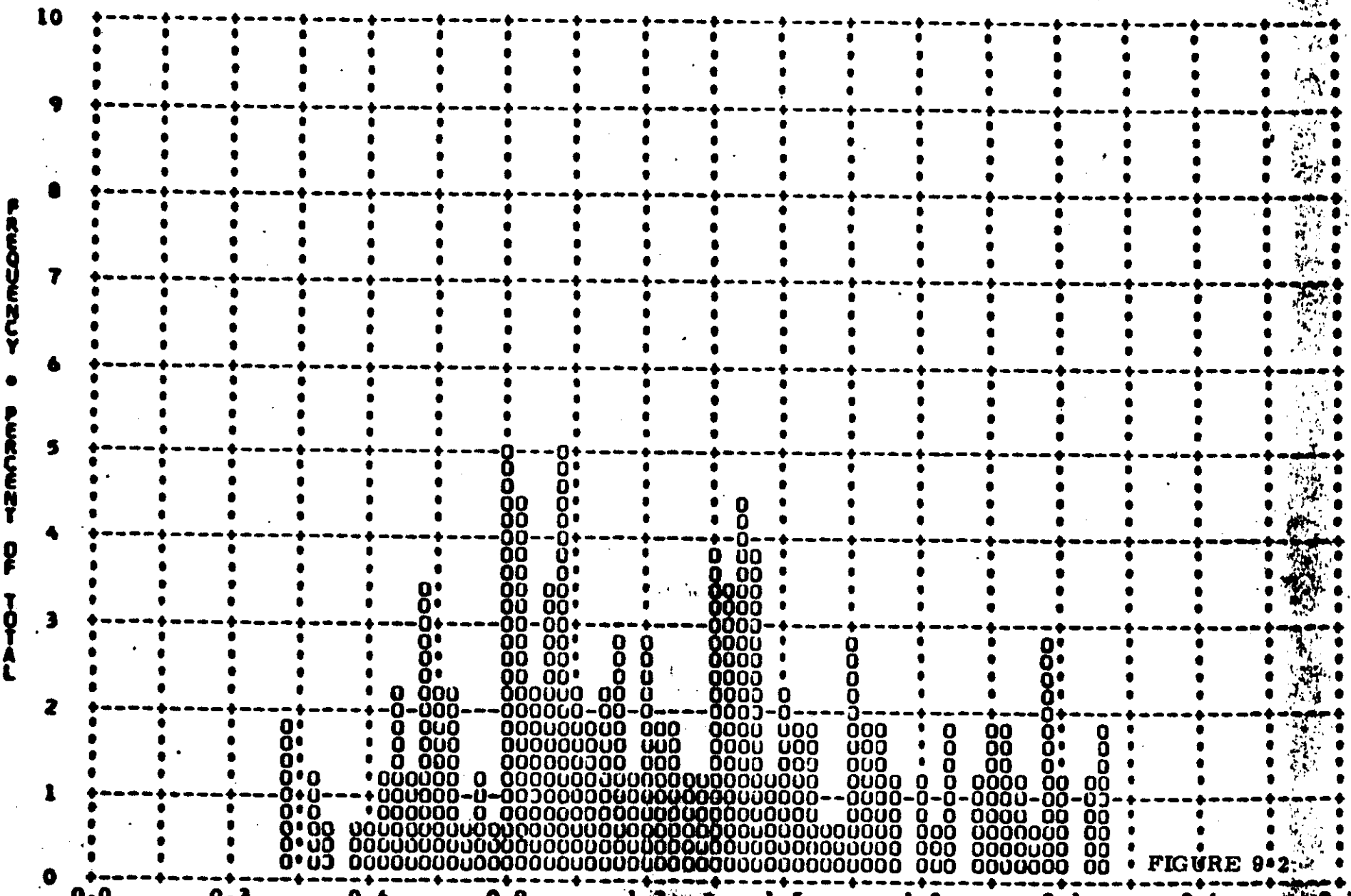


FIGURE 9-2

MISSION • 1024-1 • INSTR • FRWD • 12-0[illegible] PLOT OF D MAX • CLOUD • PROCESSING • INTERMEDIATE

ARITH MEAN • 1.98 • MEDIAN • 2.03 • STD DEV • 0.25 • RANGE • 0.58 TO 2.34 WITH 187 SAMPLES

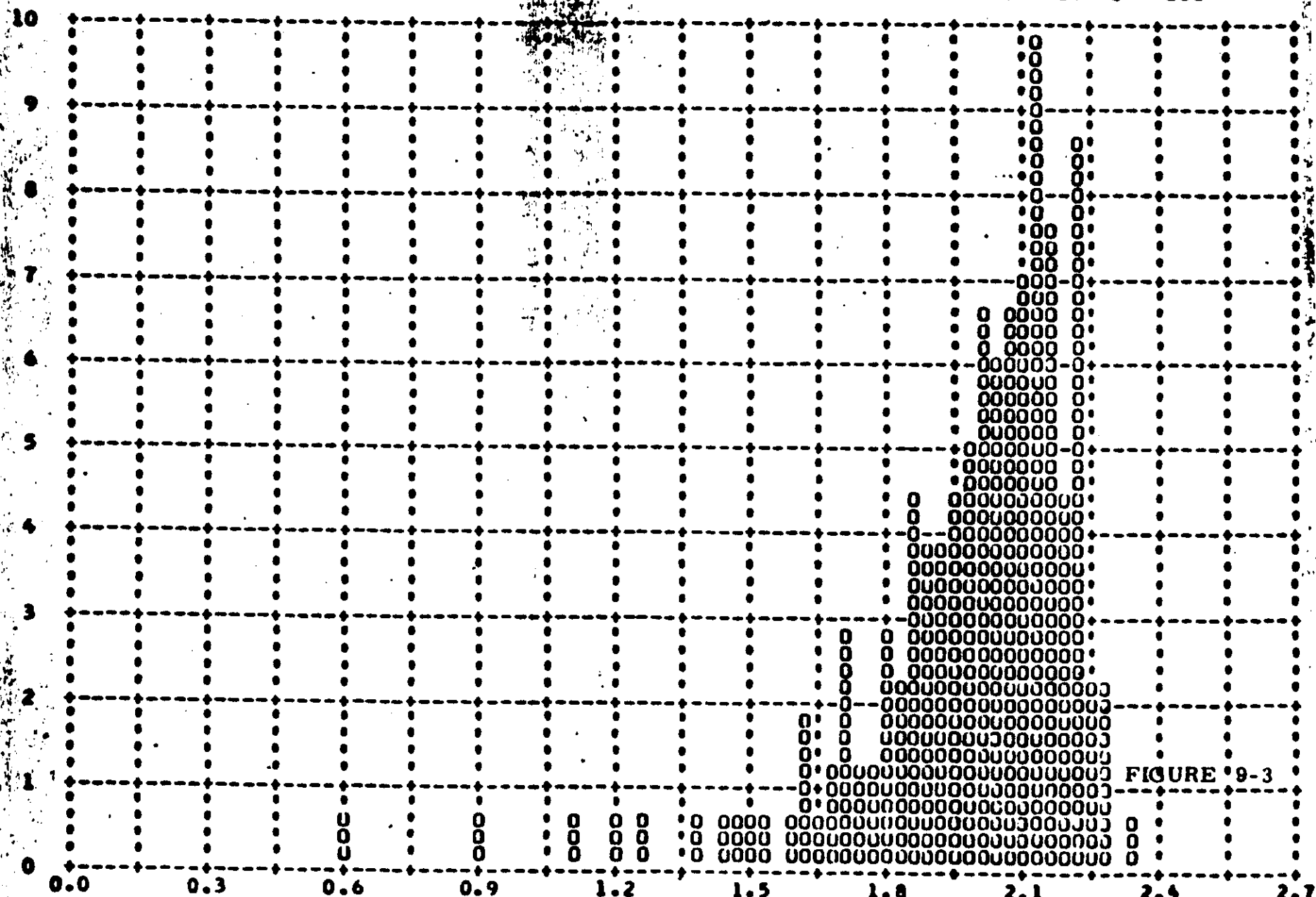


FIGURE 9-3

MISSION • 1024-1 • INSTR • FRWD • 12-06-65 PLOT OF D MIN • TERRAIN • PROCESSING • FULL

ARITH MEAN • 0.35 • MEDIAN • 0.33 • STD DEV • 0.09 • RANGE • 0.24 TO 0.65 WITH 74 SAMPLES

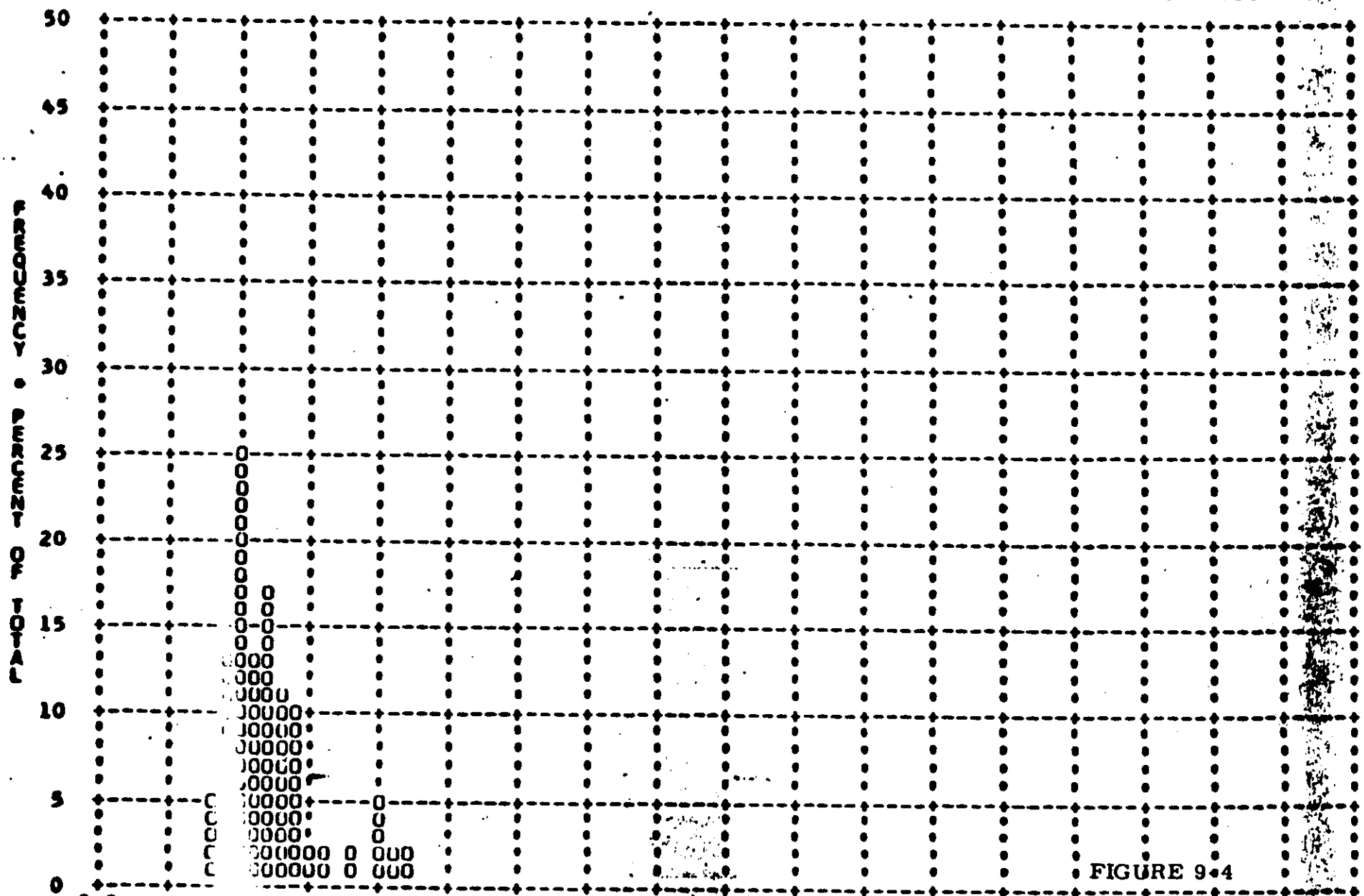


FIGURE 9-4

MISSION • 1024-1 • INSTR • FRWD • 12-06-65 PLOT OF D MAX • TERRAIN • PROCESSING • FULL

ARITH MEAN • 1.14 • MEDIAN • 1.01 • STD DEV • 0.44 • RANGE • 0.40 TO 2.25 WITH 74 SAMPLES

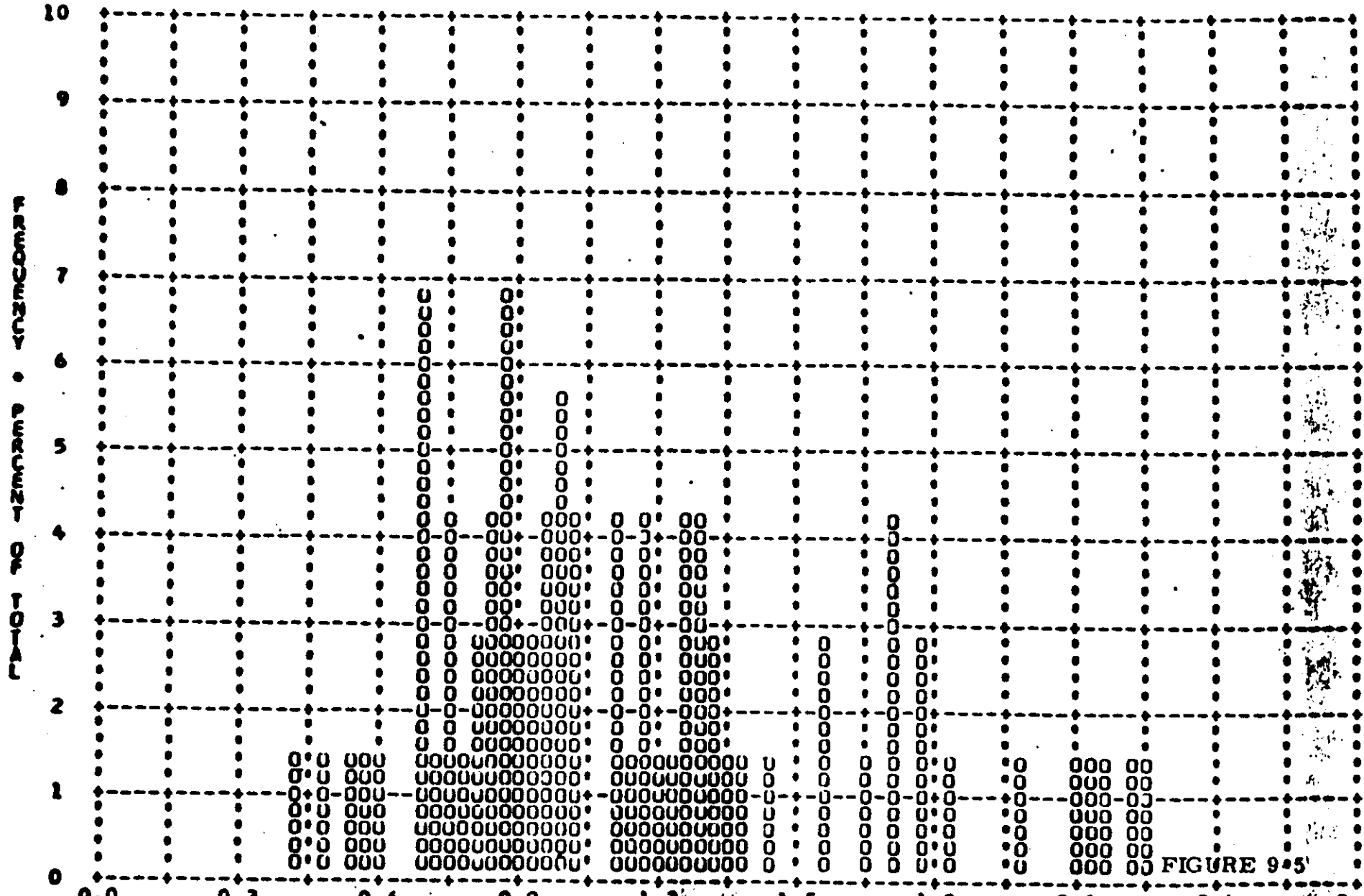


FIGURE 9-5

MISSION • 1024-1 • INSTR • FRWD • 12-06-65 PLOT OF D MAX • CLOUD • PROCESSING • FULL

ARITH MEAN • 1.95 • MEDIAN • 2.02 • STD DEV • 0.29 • RANGE • 1.18 TO 2.32 WITH 65 SAMPLES

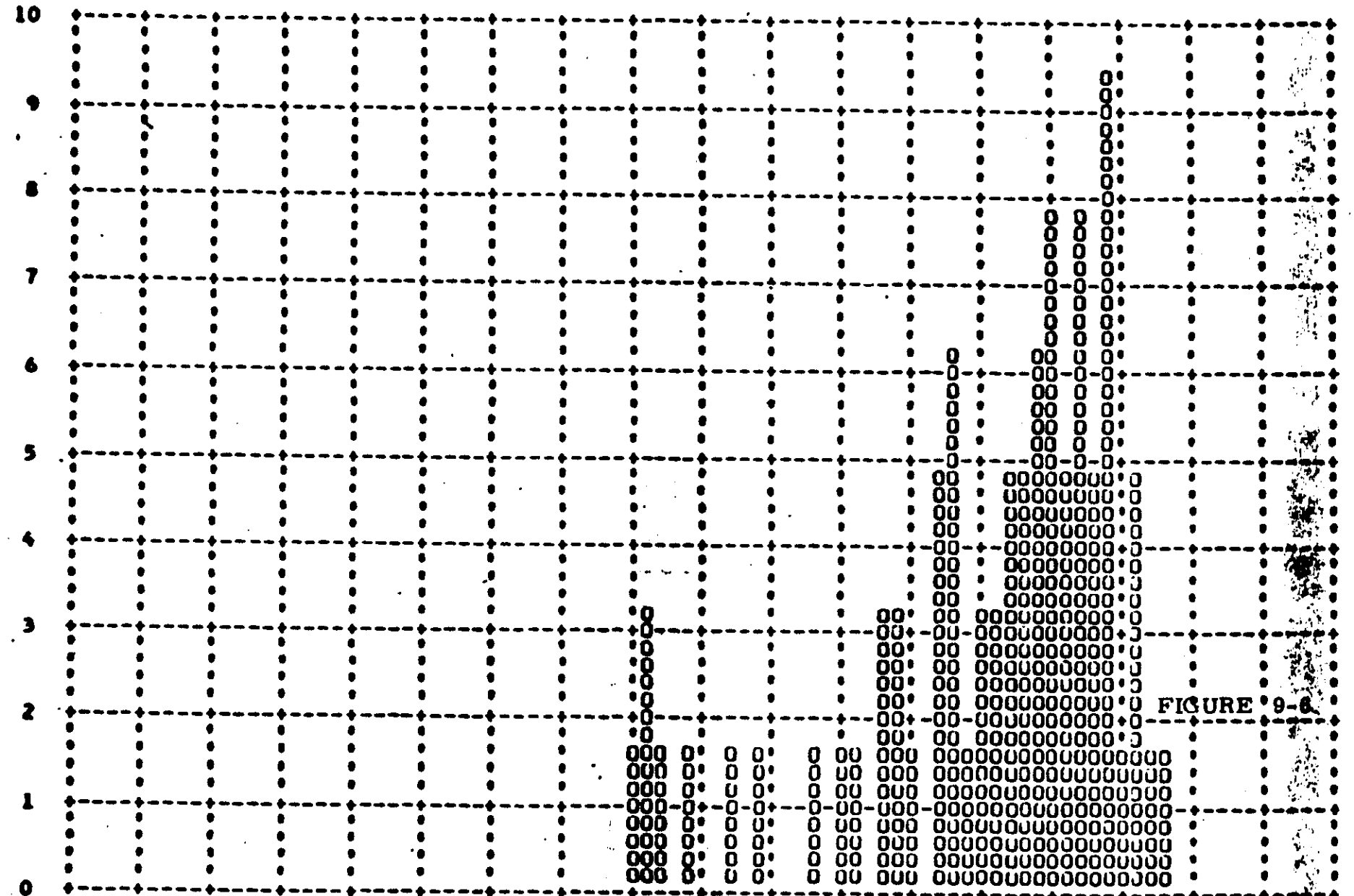


FIGURE 9-6

MISSION • 1024-1 • INSTR • FRWD • 12-06-65 PLOT OF D MIN • TERRAIN • PROCESSING • ALL LEVELS

ARITH MEAN • 0.35 • MEDIAN • 0.32 • STD DEV • 0.14 • RANGE • 0.17 TO 1.74 WITH 261 SAMPLES

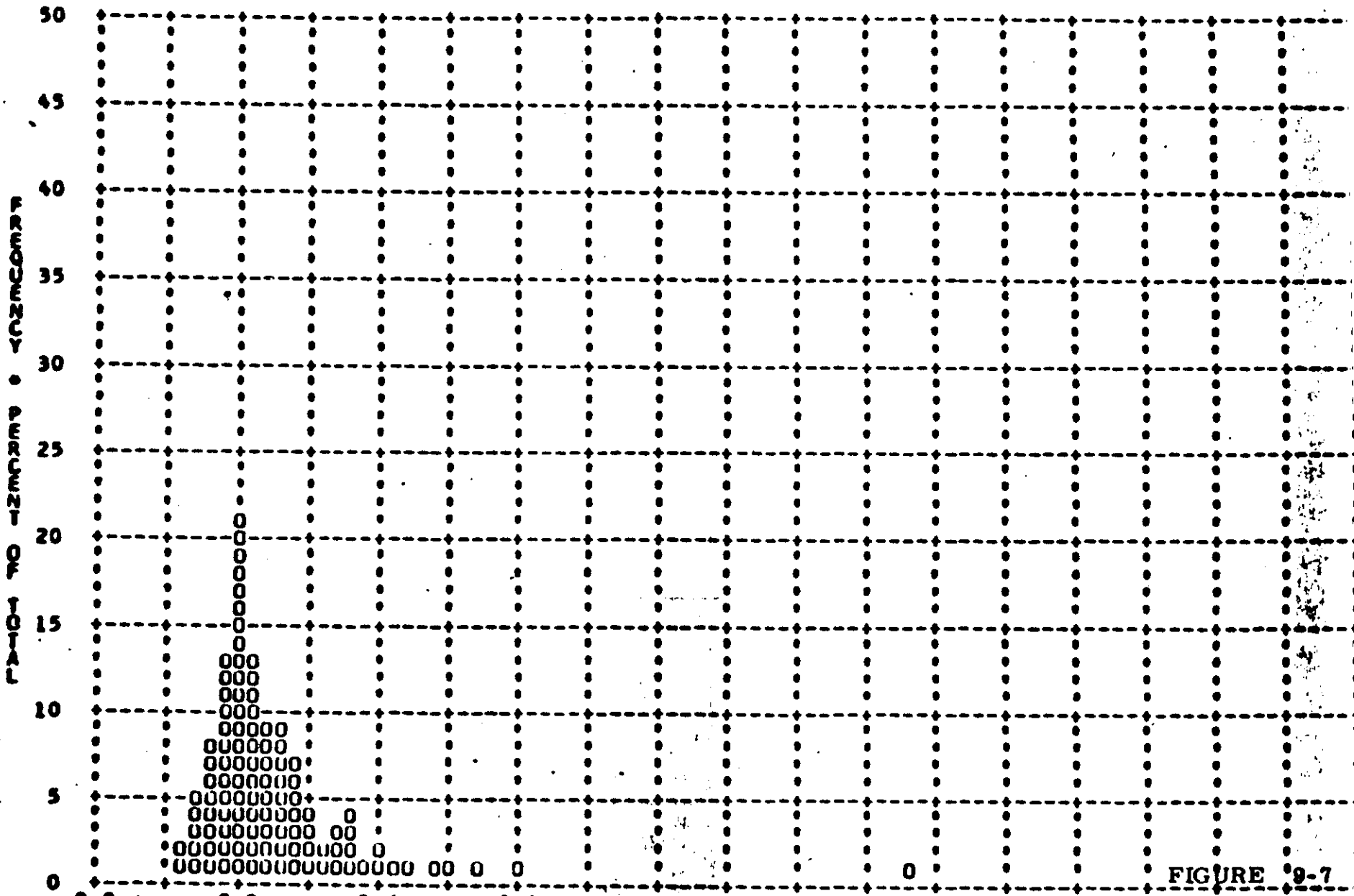


FIGURE 9-7

MISSION • 1024-1 • INSTR • FRWD • 12-06-65 PLOT OF D MAX • TERRAIN • PROCESSING • ALL LEVELS

ARITH MEAN • 1.22 • MEDIAN • 1.15 • STD DEV • 0.45 • RANGE • 0.40 TO 2.25 WITH 261 SAMPLES

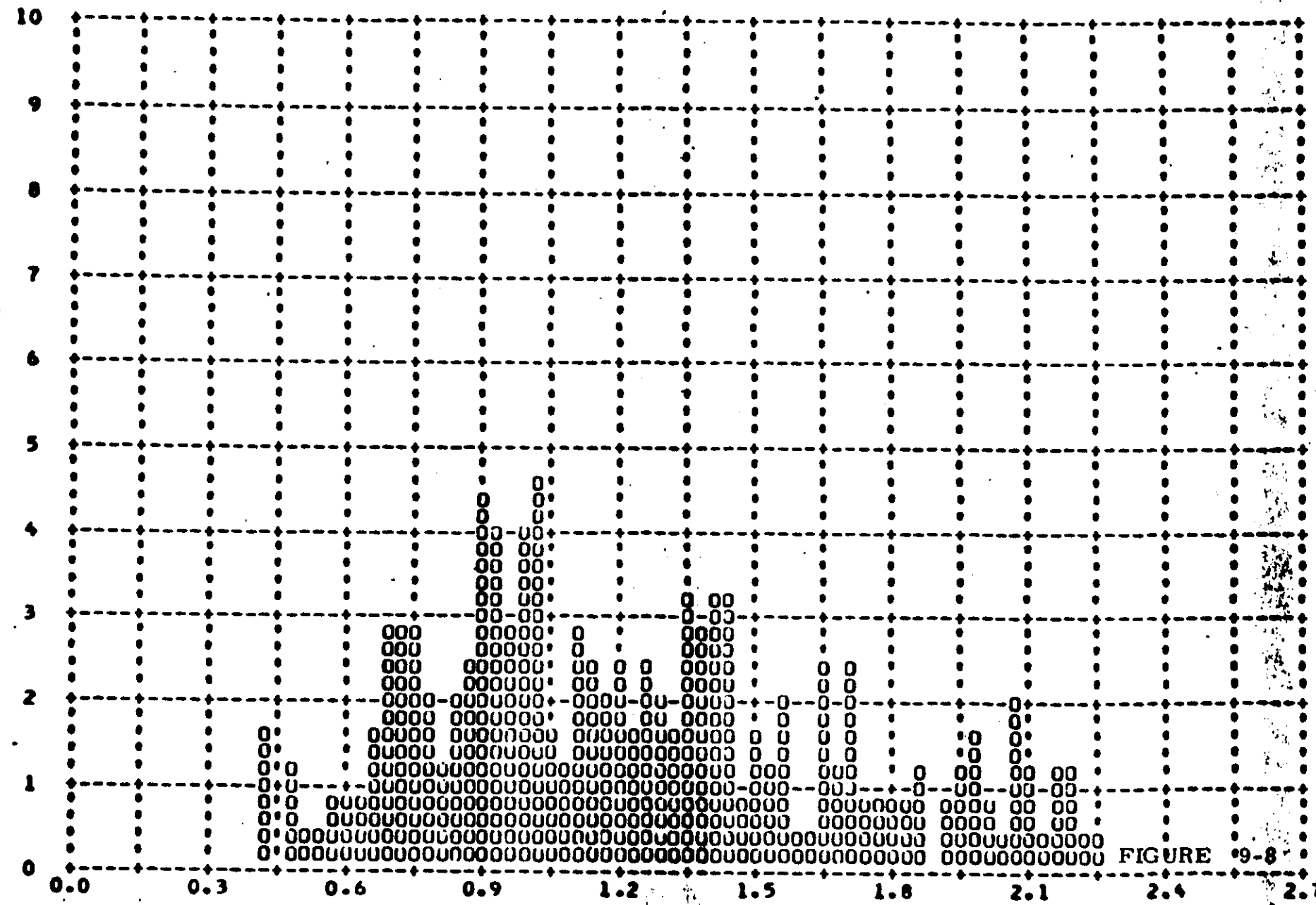


FIGURE 9-8

MISSION • 1024-1 • INSTR • FRWD • 12-06-65 PLOT OF D MAX • CLOUD • PROCESSING • ALL LEVELS

ARITH MEAN • 1.97 • MEDIAN • 2.03 • STD DEV • 0.26 • RANGE • 0.58 TO 2.34 WITH 252 SAMPLES

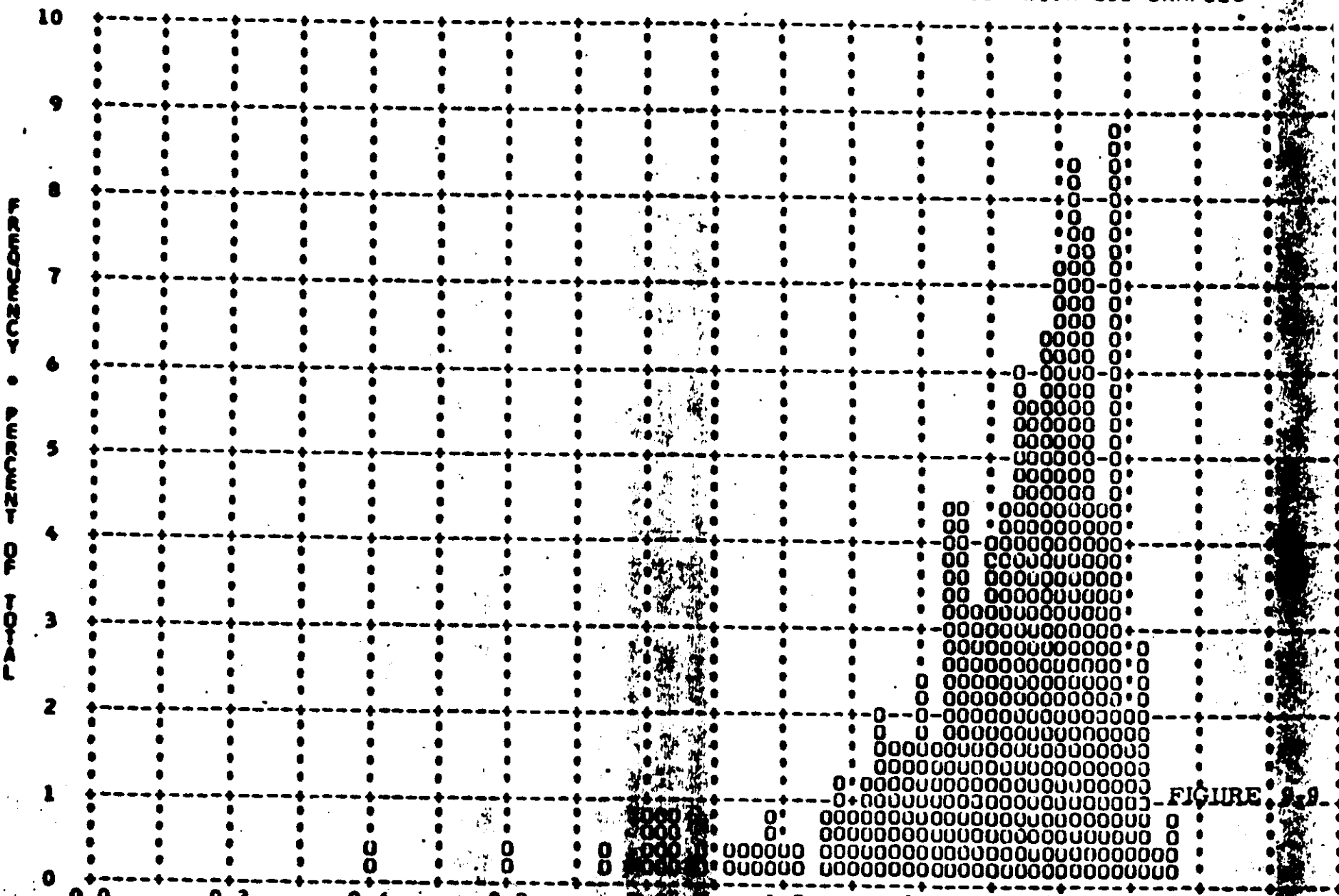


FIGURE 9.9

~~TOP SECRET~~ [redacted] - CONTROL NO. [redacted]

MISSION • 1024-1 • INSTRUMENT • AFI [redacted] • 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
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	2	0	0	0	0	0	2	0	0
0.21	0	0	0	4	0	0	0	0	0	4	0	0
0.22	0	0	0	0	0	0	0	0	0	0	0	0
0.23	0	0	0	2	0	0	0	0	0	2	0	0
0.24	0	0	0	0	0	0	0	0	0	0	0	0
0.25	0	0	0	12	0	0	1	0	0	13	0	0
0.26	0	0	0	3	0	0	0	0	0	3	0	0
0.27	0	0	0	5	0	0	1	0	0	6	0	0
0.28	0	0	0	8	0	0	1	0	0	9	0	0
0.29	0	0	0	2	0	0	1	0	0	3	0	0
0.30	0	0	0	18	0	0	0	0	0	18	0	0
0.31	0	0	0	8	0	0	2	0	0	10	0	0
0.32	0	0	0	16	0	0	2	0	0	18	0	0
0.33	0	0	0	4	0	0	0	0	0	4	0	0
0.34	0	0	0	11	0	0	4	0	0	15	0	0
0.35	0	0	0	4	0	0	2	0	0	6	0	0
0.36	0	0	0	11	0	0	6	0	0	17	0	0
0.37	0	0	0	5	0	0	2	0	0	7	0	0
0.38	0	0	0	13	0	0	4	0	0	17	0	0
0.39	0	0	0	3	0	0	2	0	0	5	0	0
0.40	0	0	0	12	0	0	3	0	0	15	0	0
0.41	0	0	0	0	0	0	0	0	0	0	0	0
0.42	0	0	0	8	0	0	1	0	0	9	0	0
0.43	0	0	0	2	0	0	1	0	0	3	0	0
0.44	0	0	0	4	0	0	4	0	0	8	0	0
0.45	0	0	0	5	0	0	2	0	0	7	0	0
0.46	0	0	0	5	0	0	0	0	0	5	0	0
0.47	0	0	0	1	0	0	1	0	0	2	0	0
0.48	0	0	0	8	0	0	0	0	0	8	0	0
0.49	0	0	0	3	0	0	0	0	0	3	0	0
0.50	0	0	0	7	1	0	0	0	0	7	1	0
SUBTOTAL	0	0	0	179	1	0	45	0	0	224	1	0

~~TOP SECRET~~ [redacted] - CONTROL NO. [redacted]

TABLE 9-2

MISSION • 1024-1 • INSTRUMENT • API [redacted] • 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
0.51	0	0	0	4	1	0	0	0	0	4	1	0
0.52	0	0	0	6	0	0	1	0	0	7	0	0
0.53	0	0	0	4	0	0	0	0	0	4	0	0
0.54	0	0	0	0	1	0	0	0	0	1	1	0
0.55	0	0	0	1	1	0	0	0	0	1	1	0
0.56	0	0	0	2	0	0	0	0	0	2	0	0
0.57	0	0	0	1	2	0	0	0	0	1	2	0
0.58	0	0	0	1	1	0	0	0	0	1	1	0
0.59	0	0	0	1	0	0	0	0	0	1	0	0
0.60	0	0	0	0	1	0	0	0	0	0	1	0
0.61	0	0	0	0	1	0	0	0	0	0	1	0
0.62	0	0	0	1	0	0	0	0	0	1	0	0
0.63	0	0	0	1	0	0	0	0	0	1	0	0
0.64	0	0	0	1	0	0	0	0	0	1	0	0
0.65	0	0	0	1	0	0	0	0	0	1	0	0
0.66	0	0	0	1	0	0	0	0	0	1	0	0
0.67	0	0	0	1	0	0	0	0	0	1	0	0
0.68	0	0	0	1	0	0	0	0	0	1	0	0
0.69	0	0	0	1	0	0	0	0	0	1	0	0
0.70	0	0	0	1	0	0	0	0	0	1	0	0
0.71	0	0	0	1	0	0	0	0	0	1	0	0
0.72	0	0	0	1	0	0	0	0	0	1	0	0
0.73	0	0	0	1	0	0	0	0	0	1	0	0
0.74	0	0	0	1	0	0	0	0	0	1	0	0
0.75	0	0	0	1	0	0	0	0	0	1	0	0
0.76	0	0	0	1	0	0	0	0	0	1	0	0
0.77	0	0	0	1	0	0	0	0	0	1	0	0
0.78	0	0	0	1	0	0	0	0	0	1	0	0
0.79	0	0	0	1	0	0	0	0	0	1	0	0
0.80	0	0	0	2	0	0	0	0	0	2	0	0
0.81	0	0	0	2	0	0	0	0	0	2	0	0
0.82	0	0	0	2	0	0	0	0	0	2	0	0
0.83	0	0	0	2	0	0	0	0	0	2	0	0
0.84	0	0	0	2	0	0	0	0	0	2	0	0
0.85	0	0	0	2	0	0	0	0	0	2	0	0
0.86	0	0	0	2	0	0	0	0	0	2	0	0
0.87	0	0	0	2	0	0	0	0	0	2	0	0
0.88	0	0	0	2	0	0	0	0	0	2	0	0
0.89	0	0	0	2	0	0	0	0	0	2	0	0
0.90	0	0	0	2	0	0	0	0	0	2	0	0
0.91	0	0	0	2	0	0	0	0	0	2	0	0
0.92	0	0	0	2	0	0	0	0	0	2	0	0
0.93	0	0	0	2	0	0	0	0	0	2	0	0
0.94	0	0	0	2	0	0	0	0	0	2	0	0
0.95	0	0	0	2	0	0	0	0	0	2	0	0
0.96	0	0	0	2	0	0	0	0	0	2	0	0
0.97	0	0	0	2	0	0	0	0	0	2	0	0
0.98	0	0	0	2	0	0	0	0	0	2	0	0
0.99	0	0	0	2	0	0	0	0	0	2	0	0
1.00	0	0	0	1	0	0	0	0	0	1	0	0
SUBTOTAL	0	0	0	35	59	3	3	15	0	38	74	3

TABLE 9-2

~~TOP SECRET~~ [redacted] - CONTROL NO. [redacted]

MISSION # 1024-1 # INSTRUMENT [illegible] 12-06-65 # 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	0	0	0	0	0	0	0	0
1.02	0	0	0	0	2	0	0	1	0	0	3	0
1.03	0	0	0	0	1	0	0	0	0	0	1	0
1.04	0	0	0	0	1	0	0	0	0	0	1	0
1.05	0	0	0	0	3	0	0	0	0	0	3	0
1.06	0	0	0	0	1	0	0	0	0	0	1	0
1.07	0	0	0	0	2	0	0	0	0	0	2	0
1.08	0	0	0	0	1	0	0	0	0	0	1	0
1.09	0	0	0	0	3	0	0	0	0	0	3	0
1.10	0	0	0	0	0	0	0	2	0	0	2	0
1.11	0	0	0	0	4	0	0	0	0	0	4	0
1.12	0	0	0	0	0	0	0	0	0	0	0	0
1.13	0	0	0	0	3	0	0	0	0	0	3	0
1.14	0	0	0	0	0	0	0	0	0	0	0	0
1.15	0	0	0	0	2	0	0	0	0	0	2	0
1.16	0	0	0	0	0	0	0	0	0	0	0	0
1.17	0	0	0	0	6	0	0	0	0	0	6	0
1.18	0	0	0	0	0	0	0	0	0	0	0	0
1.19	0	0	0	0	5	0	0	0	0	0	5	0
1.20	0	0	0	0	3	0	0	0	0	0	3	0
1.21	0	0	0	0	1	0	0	0	0	0	1	0
1.22	0	0	0	0	2	0	0	0	0	0	2	0
1.23	0	0	0	0	3	0	0	0	0	0	3	0
1.24	0	0	0	0	1	0	0	0	0	0	1	0
1.25	0	0	0	0	6	0	0	0	0	0	6	0
1.26	0	0	0	0	0	0	0	0	0	0	0	0
1.27	0	0	0	0	4	0	0	0	0	0	4	0
1.28	0	0	0	0	1	0	0	0	0	0	1	0
1.29	0	0	0	0	2	0	0	0	0	0	2	0
1.30	0	0	0	0	3	0	0	0	0	0	3	0
1.31	0	0	0	0	1	0	0	0	0	0	1	0
1.32	0	0	0	0	2	0	0	0	0	0	2	0
1.33	0	0	0	0	4	0	0	0	0	0	4	0
1.34	0	0	0	0	2	0	0	0	0	0	2	0
1.35	0	0	0	0	3	0	0	0	0	0	3	0
1.36	0	0	0	0	1	0	0	0	0	0	1	0
1.37	0	0	0	0	2	0	0	0	0	0	2	0
1.38	0	0	0	0	4	0	0	0	0	0	4	0
1.39	0	0	0	0	2	0	0	0	0	0	2	0
1.40	0	0	0	0	4	0	0	0	0	0	4	0
1.41	0	0	0	0	2	0	0	0	0	0	2	0
1.42	0	0	0	0	4	0	0	0	0	0	4	0
1.43	0	0	0	0	2	0	0	0	0	0	2	0
1.44	0	0	0	0	4	0	0	0	0	0	4	0
1.45	0	0	0	0	2	0	0	0	0	0	2	0
1.46	0	0	0	0	4	0	0	0	0	0	4	0
1.47	0	0	0	0	2	0	0	0	0	0	2	0
1.48	0	0	0	0	4	0	0	0	0	0	4	0
1.49	0	0	0	0	2	0	0	0	0	0	2	0
1.50	0	0	0	0	4	0	0	0	0	0	4	0
SUBTOTAL	0	0	0	1	92	12	0	20	1	1	112	13

~~TOP SECRET~~ [redacted] - CONTROL NO. [redacted]

TABLE 9-2

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	1	0	0	1	0
1.52	0	0	0	0	0	0	0	0	0	0	0	0
1.53	0	0	0	0	0	0	0	0	0	0	0	0
1.54	0	0	0	0	0	0	0	0	0	0	0	0
1.55	0	0	0	0	0	0	0	0	0	0	0	0
1.56	0	0	0	0	0	0	0	0	0	0	0	0
1.57	0	0	0	0	0	0	0	0	0	0	0	0
1.58	0	0	0	0	0	0	0	0	0	0	0	0
1.59	0	0	0	0	0	0	0	0	0	0	0	0
1.60	0	0	0	0	0	0	0	0	0	0	0	0
1.61	0	0	0	0	0	0	0	0	0	0	0	0
1.62	0	0	0	0	0	0	0	0	0	0	0	0
1.63	0	0	0	0	0	0	0	0	0	0	0	0
1.64	0	0	0	0	0	0	0	0	0	0	0	0
1.65	0	0	0	0	0	0	0	0	0	0	0	0
1.66	0	0	0	0	0	0	0	0	0	0	0	0
1.67	0	0	0	0	0	0	0	0	0	0	0	0
1.68	0	0	0	0	0	0	0	0	0	0	0	0
1.69	0	0	0	0	0	0	0	0	0	0	0	0
1.70	0	0	0	0	0	0	0	0	0	0	0	0
1.71	0	0	0	0	0	0	0	0	0	0	0	0
1.72	0	0	0	0	0	0	0	0	0	0	0	0
1.73	0	0	0	0	0	0	0	0	0	0	0	0
1.74	0	0	0	0	0	0	0	0	0	0	0	0
1.75	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0
1.79	0	0	0	0	0	0	0	0	0	0	0	0
1.80	0	0	0	0	0	0	0	0	0	0	0	0
1.81	0	0	0	0	0	0	0	0	0	0	0	0
1.82	0	0	0	0	0	0	0	0	0	0	0	0
1.83	0	0	0	0	0	0	0	0	0	0	0	0
1.84	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	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	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	44	72	0	8	18	0	52	90

TABLE 9-2

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	4	0	0	2	0	0	6
2.02	0	0	0	0	1	3	0	0	0	0	1	3
2.03	0	0	0	0	0	3	0	0	0	0	1	3
2.04	0	0	0	0	1	1	0	0	1	0	1	2
2.05	0	0	0	0	0	2	0	0	0	0	0	2
2.06	0	0	0	0	1	0	0	0	1	0	1	1
2.07	0	0	0	0	0	2	0	0	0	0	0	2
2.08	0	0	0	0	1	1	0	0	1	0	1	2
2.09	0	0	0	0	0	2	0	0	0	0	0	2
2.10	0	0	0	0	1	0	0	0	1	0	1	1
2.11	0	0	0	0	0	2	0	0	0	0	0	2
2.12	0	0	0	0	0	1	0	0	1	0	0	2
2.13	0	0	0	0	0	1	0	0	0	0	0	1
2.14	0	0	0	0	0	1	0	0	0	0	0	1
2.15	0	0	0	0	0	1	0	0	0	0	0	1
2.16	0	0	0	0	0	1	0	0	0	0	0	1
2.17	0	0	0	0	0	1	0	0	0	0	0	1
2.18	0	0	0	0	0	1	0	0	0	0	0	1
2.19	0	0	0	0	0	1	0	0	0	0	0	1
2.20	0	0	0	0	0	1	0	0	0	0	0	1
2.21	0	0	0	0	0	1	0	0	0	0	0	1
2.22	0	0	0	0	0	1	0	0	0	0	0	1
2.23	0	0	0	0	0	1	0	0	0	0	0	1
2.24	0	0	0	0	0	1	0	0	0	0	0	1
2.25	0	0	0	0	0	1	0	0	0	0	0	1
2.26	0	0	0	0	0	1	0	0	0	0	0	1
2.27	0	0	0	0	0	1	0	0	0	0	0	1
2.28	0	0	0	0	0	1	0	0	0	0	0	1
2.29	0	0	0	0	0	1	0	0	0	0	0	1
2.30	0	0	0	0	0	1	0	0	0	0	0	1
2.31	0	0	0	0	0	1	0	0	0	0	0	1
2.32	0	0	0	0	0	1	0	0	0	0	0	1
2.33	0	0	0	0	0	1	0	0	0	0	0	1
2.34	0	0	0	0	0	1	0	0	0	0	0	1
2.35	0	0	0	0	0	1	0	0	0	0	0	1
2.36	0	0	0	0	0	1	0	0	0	0	0	1
2.37	0	0	0	0	0	1	0	0	0	0	0	1
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	1	0	0	0	0	0	1
2.43	0	0	0	0	0	1	0	0	0	0	0	1
2.44	0	0	0	0	0	1	0	0	0	0	0	1
2.45	0	0	0	0	0	1	0	0	0	0	0	1
2.46	0	0	0	0	0	1	0	0	0	0	0	1
2.47	0	0	0	0	0	1	0	0	0	0	0	1
2.48	0	0	0	0	0	1	0	0	0	0	0	1
2.49	0	0	0	0	0	1	0	0	0	0	0	1
2.50	0	0	0	0	0	1	0	0	0	0	0	1
SUBTOTAL	0	0	0	0	19	111	0	5	28	0	24	139

TABLE 9-2

MISSION • 1024-1 • • 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	215	215	198	48	48	47	263	263	245

MISSION 1024-1 INSTR - AFT 12-06-65 PROCESSING AND EXPOSURE AVALYSI

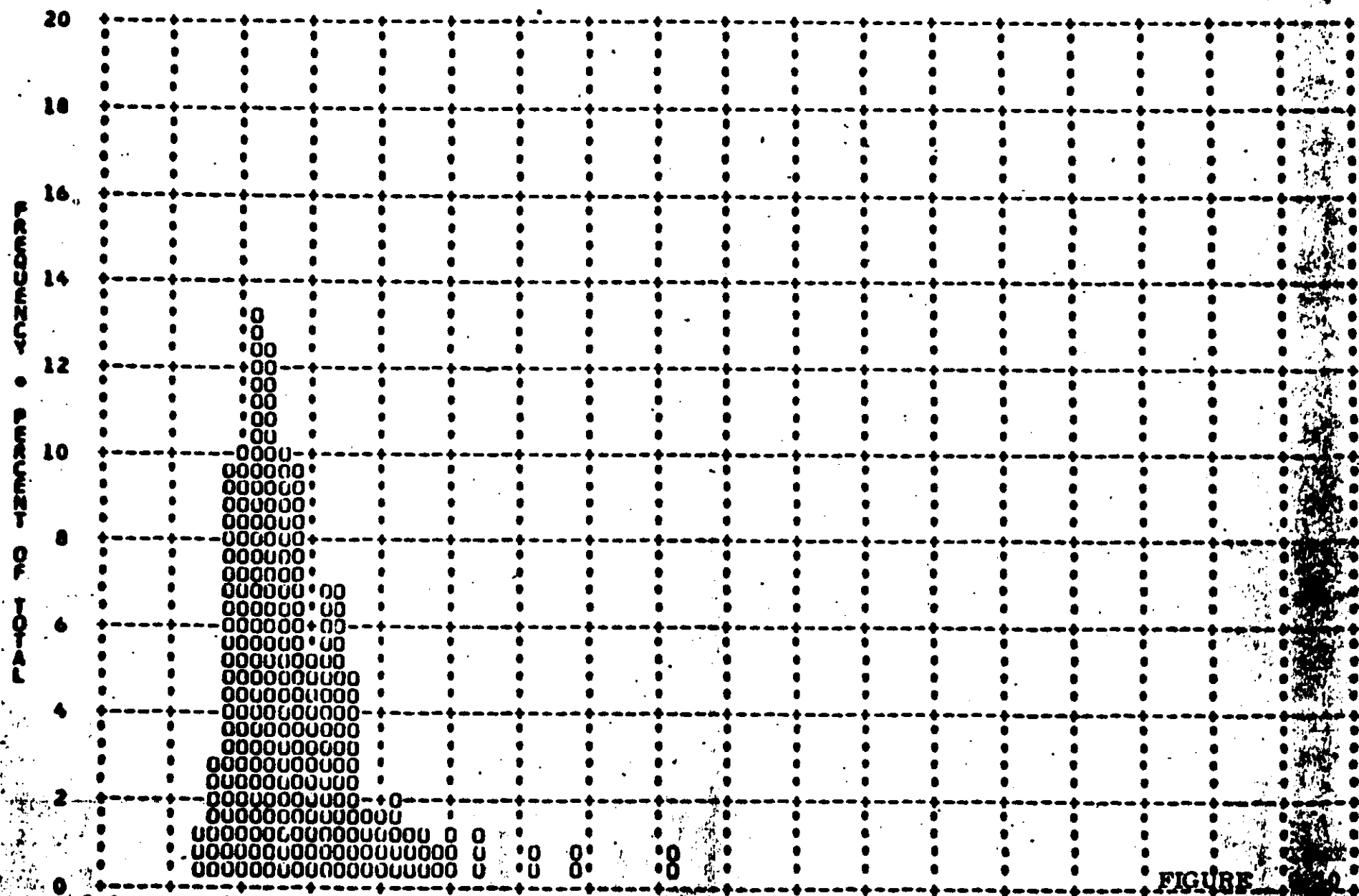
PROCESS LEVEL	SAMPLE SIZE	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0	0 PC	0 PC	0 PC	0 PC	0 PC
INTERMEDIATE	215	1 PC	57 PC	41 PC	1 PC	0 PC
FULL	48	69 PC	0 PC	29 PC	2 PC	0 PC
ALL LEVELS	263	13 PC	46 PC	39 PC	2 PC	0 PC

PROCESS LEVEL	BASE + FOG	UNUER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPUSED
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 • 1024-1 • INSTR • AFT • 12-06-65 PLOT OF D MIN • TERRAIN • PROCESSING • INTERMEDIATE

ARITH MEAN • 0.40 • MEDIAN • 0.37 • STD DEV • 0.14 • RANGE • 0.20 TO 1.22 WITH 215 SAMPLES



FIGURE

MISSION • 1024-1 • INSTR • AFT • 12-06-65 PLOT OF D MAX • TERRAIN • PROCESSING • INTERMEDIATE

ARITH MEAN • 1.31 • MEDIAN • 1.26 • STD DEV • 0.43 • RANGE • 0.48 TO 2.31 WITH 215 SAMPLES

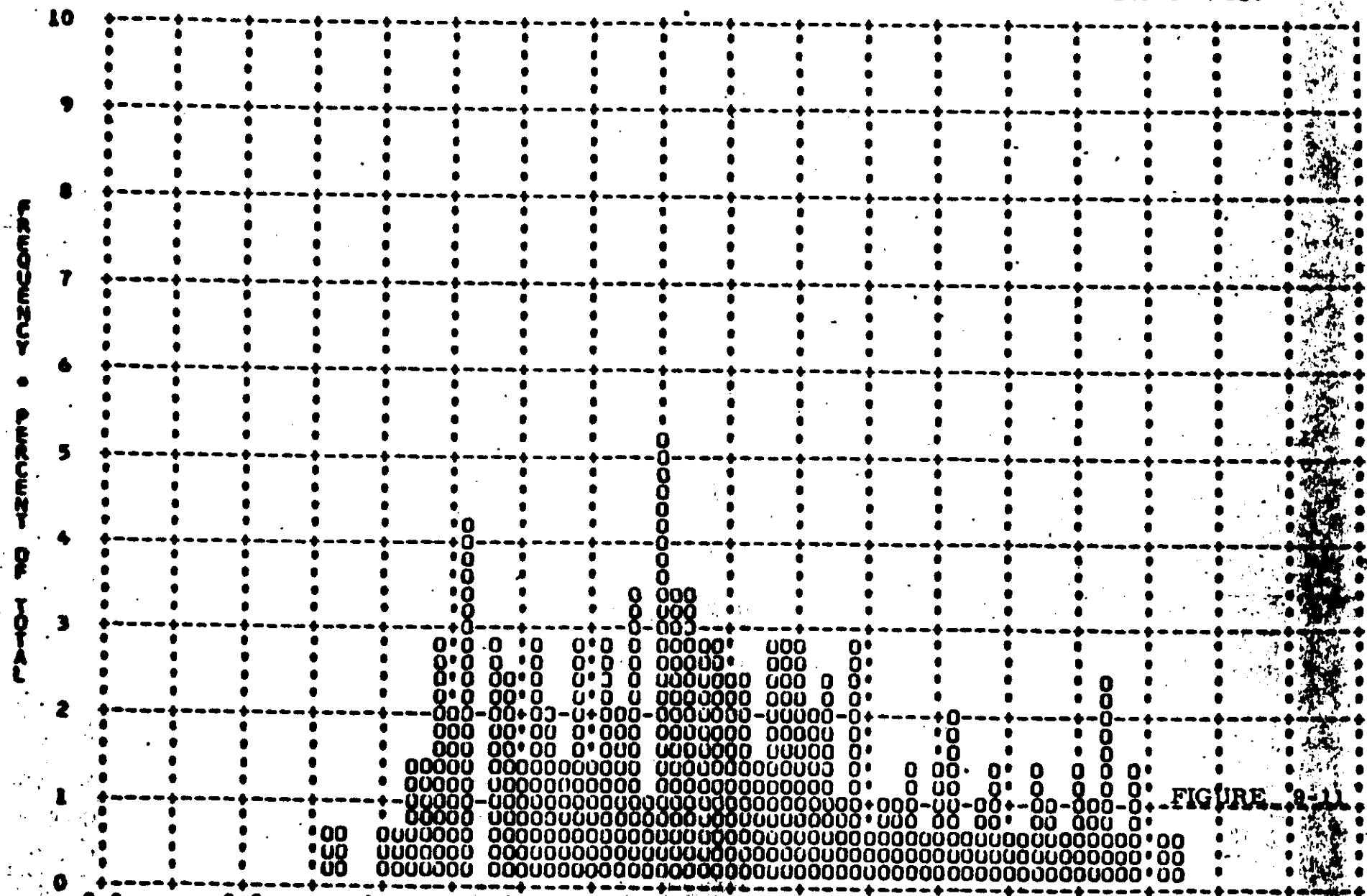


FIGURE 9-11

MISSION • 1024-1 • INSTR • AFT • 12-06-65 PLOT OF D MAX • CLOUD • PROCESSING • INTERMEDIATE

ARITH MEAN • 1.96 • MEDIAN • 2.06 • STD DEV • 0.28 • RANGE • 0.94 TO 2.40 WITH 198 SAMPLES

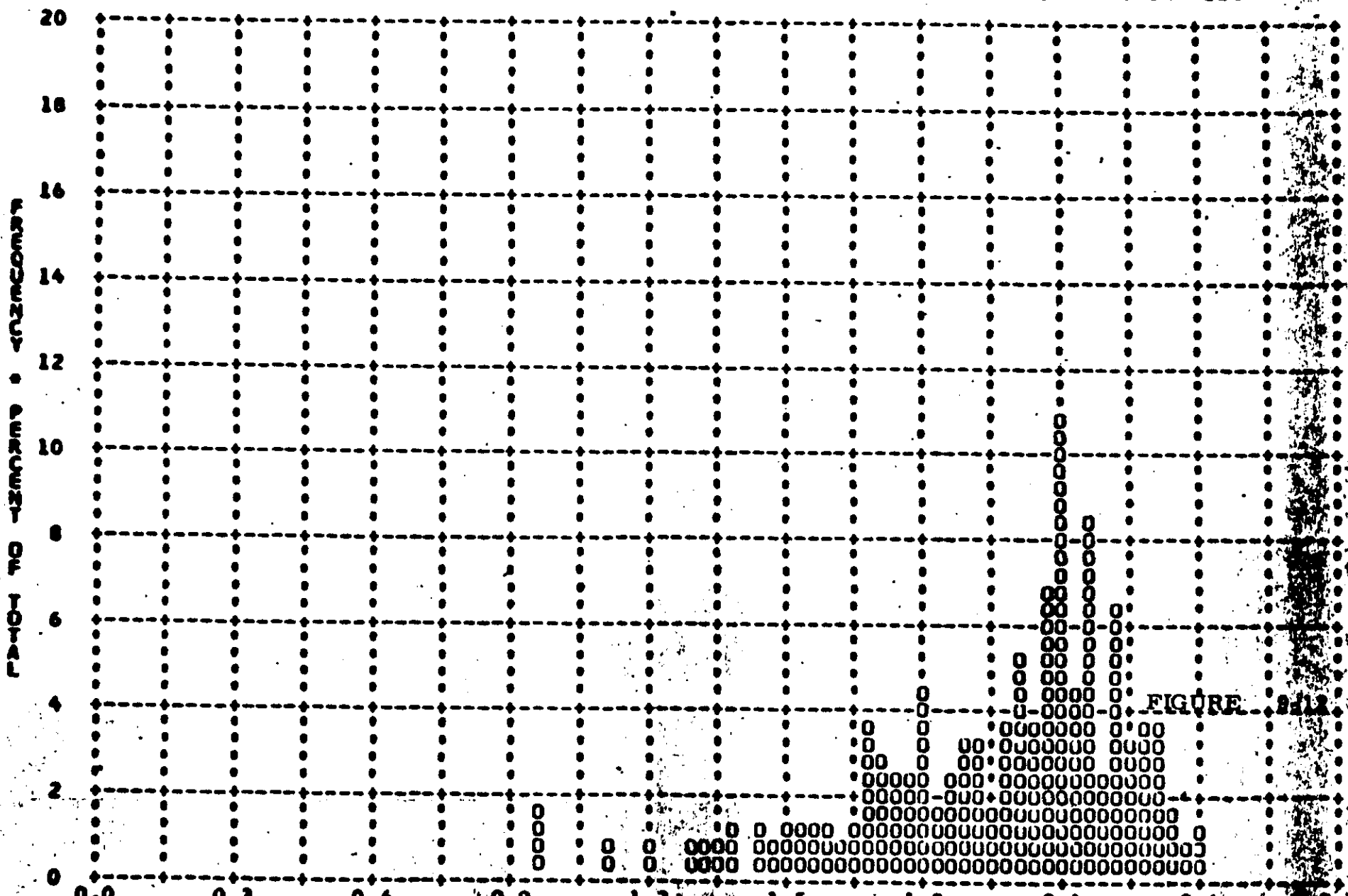


FIGURE [redacted]

MISSION • 1024-1 • INSTR • AFT • 12-06-65 PLOT OF D MIN • TERRAIN • PROCESSING • FULL

ARITH MEAN • 0.39 • MEDIAN • 0.36 • STD DEV • 0.12 • RANGE • 0.25 TO 0.96 WITH 48 SAMPLES

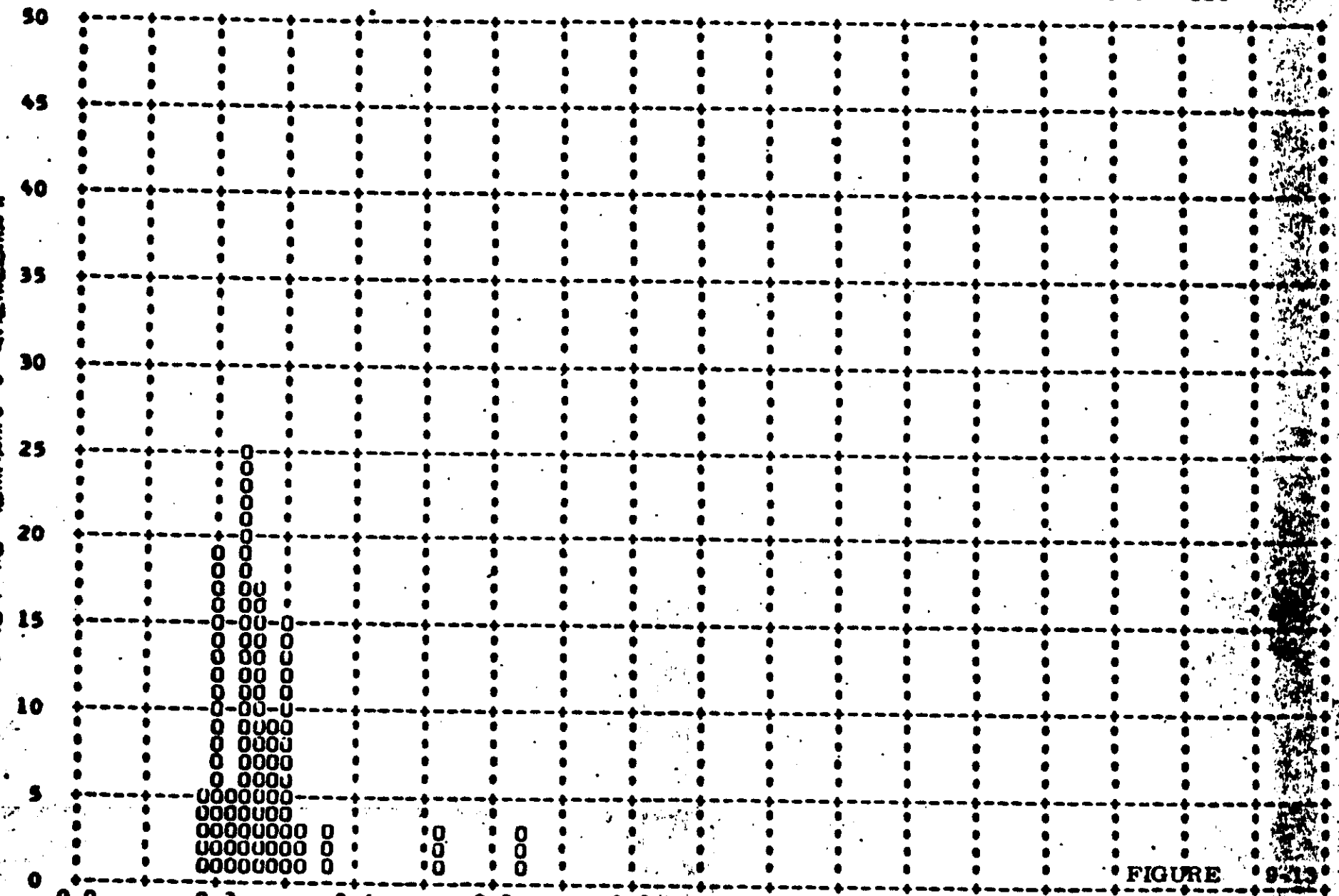


FIGURE 9-13

MISSION • 1024-1 • INSTR • AFT • 12-06-65 PLOT OF D MAX • TERRAIN • PROCESSING • FULL

ARITH MEAN • 1.25 • MEDIAN • 1.18 • STD DEV • 0.48 • RANGE • 0.52 TO 2.32 WITH 48 SAMPLES.

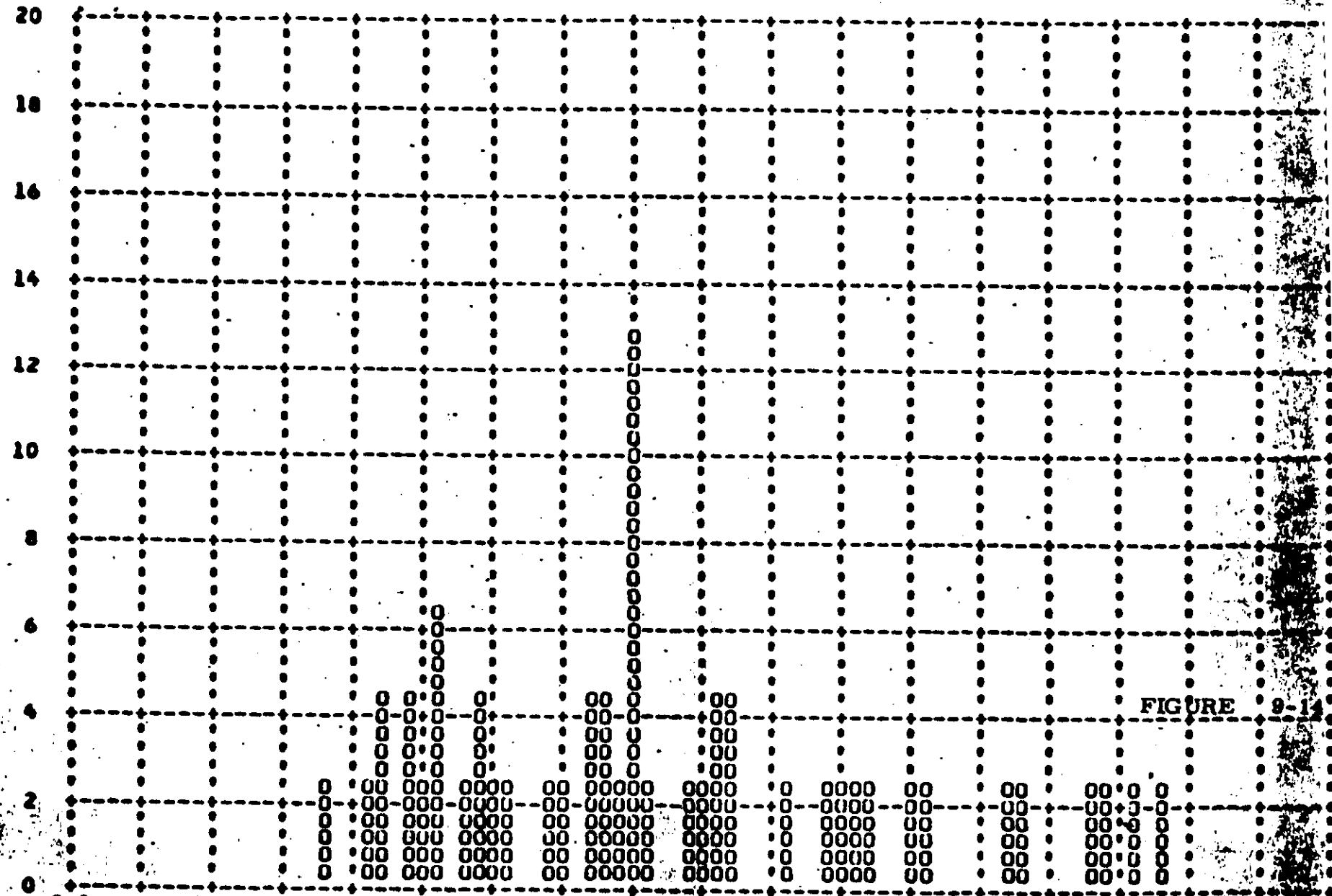


FIGURE 9-14

MISSION • 1024-1 • INSTR • AFT • 12-06-65 PLOT OF D MAX • CLOUD • PROCESSING • FULL

ARITH MEAN • 2.01 • MEDIAN • 2.08 • STD DEV • 0.24 • RANGE • 1.03 TO 2.32 WITH 47 SAMPLES

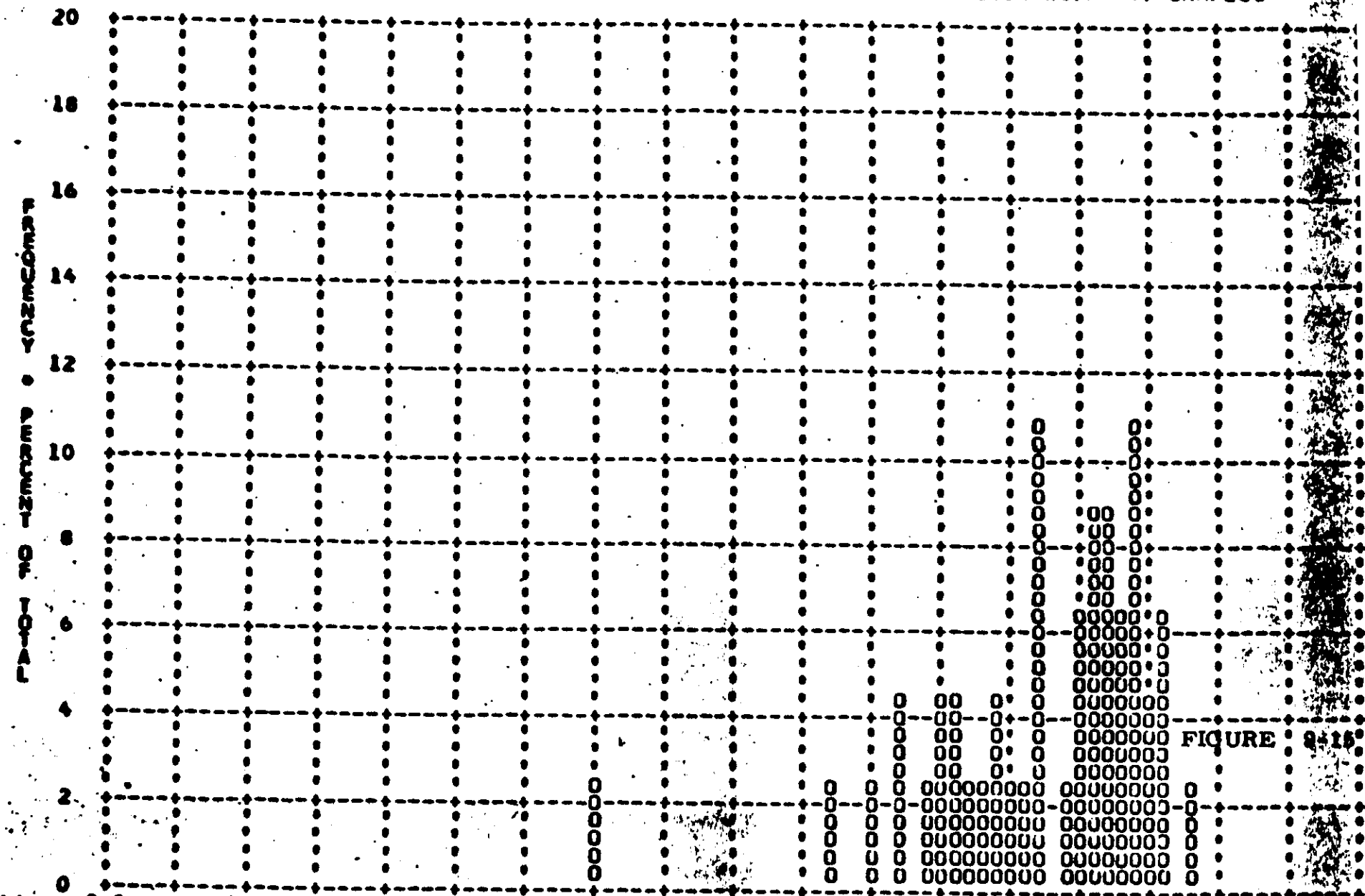


FIGURE 9-15

MISSION • 1024-1 • INSTR • AFT • 12-06-65 PLOT OF D MIN • TERRAIN • PROCESSING • ALL LEVELS

ARITH MEAN • 0.40 • MEDIAN • 0.37 • STD DEV • 0.14 • RANGE • 0.20 TO 1.22 WITH 263 SAMPLES

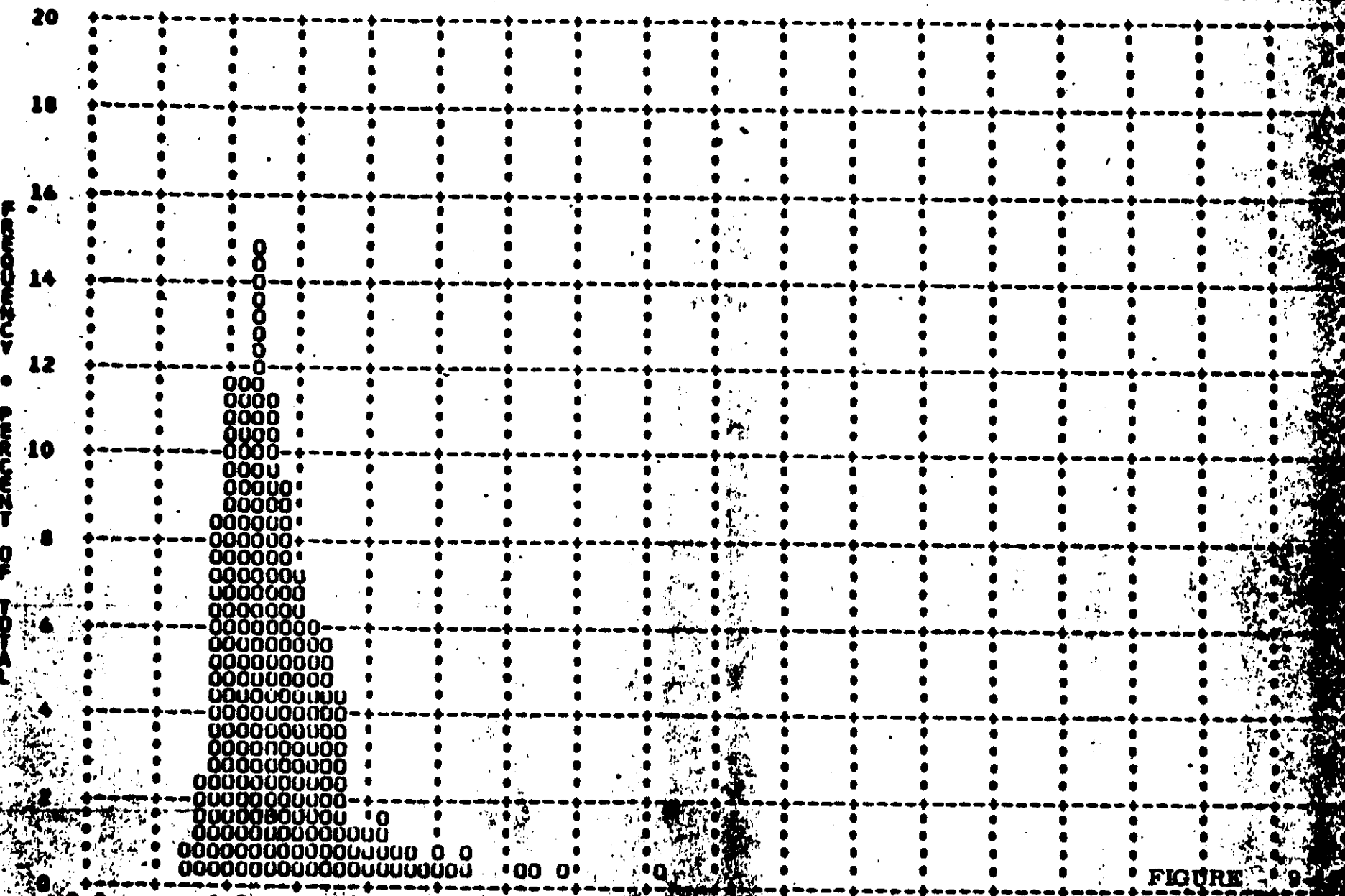


FIGURE 9

MISSION • 1024-1 • INSTR • AFT • 12-06-65 PLOT OF D MAX • TERRAIN • PROCESSING • ALL LEVELS

ARITH MEAN • 1.30 • MEDIAN • 1.24 • STD DEV • 0.44 • RANGE • 0.48 TO 2.32 WITH 263 SAMPLES

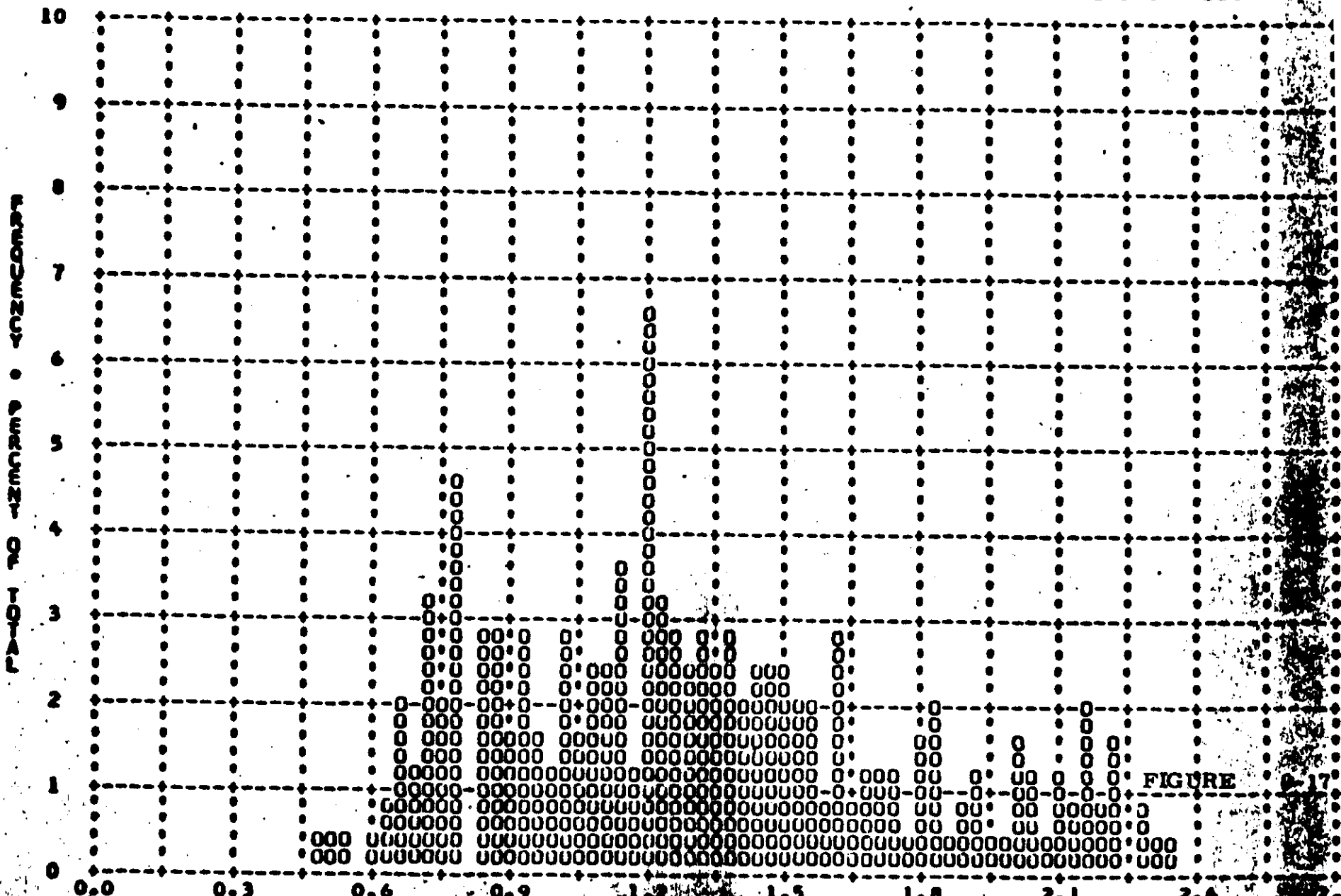


FIGURE 17

MISSION • 1024-1 • INSTR • AFT • 12-06-65 PLOT OF D MAX • CLOUD • PROCESSING • ALL LEVELS

ARITH MEAN • 1.97 • MEDIAN • 2.06 • STD DEV • 0.28 • RANGE • 0.94 TO 2.40 WITH 245 SAMPLES

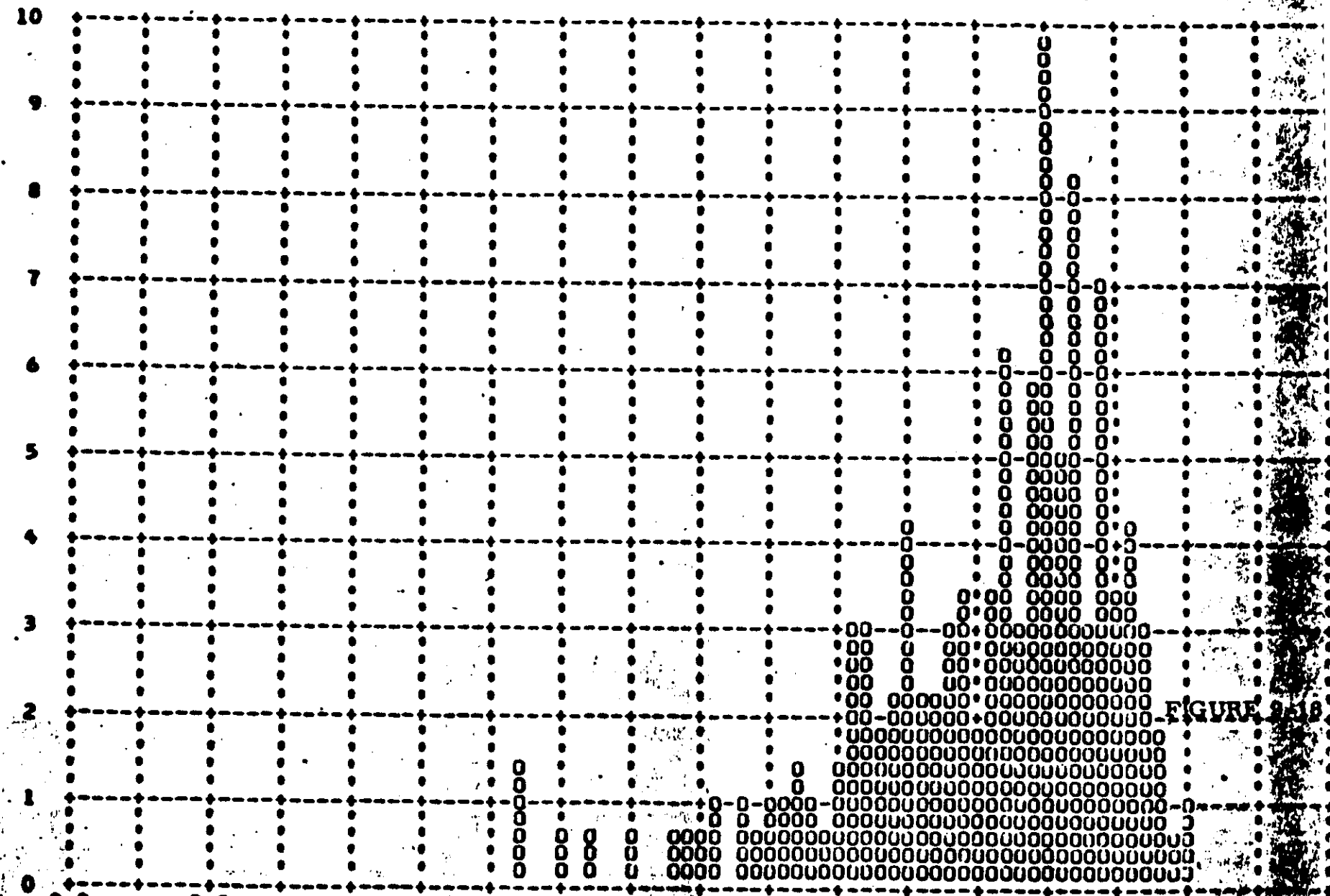


FIGURE 2.18

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	36	0	0	131	9	0	167	10	0

TABLE 9-3

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	1	0	2	0	0	2	1	0
0.52	0	0	0	3	0	0	5	0	0	8	0	0
0.53	0	0	0	1	0	0	3	0	0	4	0	0
0.54	0	0	0	1	0	0	0	1	0	1	1	0
0.55	0	0	0	1	0	0	0	0	0	1	0	0
0.56	0	0	0	4	0	0	5	0	0	9	0	0
0.57	0	0	0	0	0	0	4	0	0	4	0	0
0.58	0	0	0	1	0	0	3	0	0	4	0	0
0.59	0	0	0	1	2	0	3	0	0	4	0	0
0.60	0	0	0	2	0	0	6	0	0	8	0	0
0.61	0	0	0	0	3	0	0	1	0	3	1	0
0.62	0	0	0	2	0	0	1	0	0	3	0	0
0.63	0	0	0	2	0	0	1	0	0	3	0	0
0.64	0	0	0	1	0	0	1	0	0	2	0	0
0.65	0	0	0	1	0	0	2	0	0	3	0	0
0.66	0	0	0	0	0	0	2	1	0	2	1	0
0.67	0	0	0	0	0	0	1	0	0	1	0	0
0.68	0	0	0	1	0	0	1	0	0	2	0	0
0.69	0	0	0	1	0	0	0	1	0	1	1	0
0.70	0	0	0	1	0	0	1	0	0	2	0	0
0.71	0	0	0	0	1	0	0	0	0	0	1	0
0.72	0	0	0	0	1	0	0	0	0	0	1	0
0.73	0	0	0	0	1	0	0	0	0	0	1	0
0.74	0	0	0	1	0	0	0	0	0	1	0	0
0.75	0	0	0	0	0	0	0	1	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	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	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	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	23	12	0	49	42	0	72	54	0

TABLE 9-3

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	1	0	0	0	0	1	1
1.02	0	0	0	0	0	0	0	2	0	0	2	0
1.03	0	0	0	0	0	0	0	3	0	0	3	0
1.04	0	0	0	0	1	0	0	1	0	0	1	0
1.05	0	0	0	0	0	0	0	0	0	0	0	0
1.06	0	0	0	0	0	0	0	2	0	0	4	0
1.07	0	0	0	0	0	0	0	0	0	0	0	0
1.08	0	0	0	0	0	0	0	2	0	0	2	0
1.09	0	0	0	0	0	0	0	0	0	0	0	0
1.10	0	0	0	0	1	0	0	5	0	0	6	0
1.11	0	0	0	0	0	0	0	1	0	0	3	0
1.12	0	0	0	0	0	0	0	3	0	0	3	0
1.13	0	0	0	0	0	0	0	1	0	0	1	0
1.14	0	0	0	0	1	0	0	1	0	0	2	0
1.15	0	0	0	0	0	0	0	0	0	0	0	0
1.16	0	0	0	0	1	0	0	1	0	0	2	0
1.17	0	0	0	0	0	0	0	2	0	0	2	0
1.18	0	0	0	0	0	0	0	7	0	0	7	0
1.19	0	0	0	0	0	0	0	0	0	0	0	0
1.20	0	0	0	0	1	0	0	8	0	0	8	0
1.21	0	0	0	0	0	0	0	1	0	0	1	0
1.22	0	0	0	0	0	0	0	3	0	0	3	0
1.23	0	0	0	0	0	0	0	2	0	0	2	0
1.24	0	0	0	0	0	0	0	1	0	0	1	0
1.25	0	0	0	0	0	0	0	2	0	0	3	0
1.26	0	0	0	0	0	0	0	1	0	0	1	0
1.27	0	0	0	0	0	0	0	0	0	0	0	0
1.28	0	0	0	0	0	0	0	1	0	0	2	0
1.29	0	0	0	0	0	0	0	0	0	0	0	0
1.30	0	0	0	0	0	0	0	3	0	0	6	0
1.31	0	0	0	0	0	0	0	0	0	0	0	0
1.32	0	0	0	0	0	0	0	1	0	0	8	0
1.33	0	0	0	0	0	0	0	4	0	0	3	0
1.34	0	0	0	0	0	0	0	1	0	0	3	0
1.35	0	0	0	0	0	0	0	1	0	0	3	0
1.36	0	0	0	0	0	0	0	2	0	0	3	0
1.37	0	0	0	0	0	0	0	0	0	0	0	0
1.38	0	0	0	0	0	0	0	1	0	0	1	0
1.39	0	0	0	0	0	0	0	0	0	0	0	0
1.40	0	0	0	0	0	0	0	4	0	0	5	0
1.41	0	0	0	0	0	0	0	0	0	0	0	0
1.42	0	0	0	0	0	0	0	1	0	0	2	0
1.43	0	0	0	0	0	0	0	0	0	0	0	0
1.44	0	0	0	0	0	0	0	1	0	0	2	0
1.45	0	0	0	0	0	0	0	0	0	0	0	0
1.46	0	0	0	0	0	0	0	2	0	0	2	0
1.47	0	0	0	0	0	0	0	0	0	0	0	0
1.48	0	0	0	0	0	0	0	6	0	0	6	0
1.49	0	0	0	0	0	0	0	1	0	0	1	0
1.50	0	0	0	0	0	0	0	0	1	0	0	2
SUBTOTAL	0	0	0	2	38	15	1	64	11	3	102	26

TABLE 9-3

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	0	0	0	0	0
1.52	0	0	0	0	0	0	0	0	0	0	0	0
1.53	0	0	0	0	0	0	0	0	0	0	0	0
1.54	0	0	0	0	0	0	0	0	0	0	0	0
1.55	0	0	0	0	0	0	0	0	0	0	0	0
1.56	0	0	0	0	0	0	0	0	0	0	0	0
1.57	0	0	0	0	0	0	0	0	0	0	0	0
1.58	0	0	0	0	0	0	0	0	0	0	0	0
1.59	0	0	0	0	0	0	0	0	0	0	0	0
1.60	0	0	0	0	0	0	0	0	0	0	0	0
1.61	0	0	0	0	0	0	0	0	0	0	0	0
1.62	0	0	0	0	0	0	0	0	0	0	0	0
1.63	0	0	0	0	0	0	0	0	0	0	0	0
1.64	0	0	0	0	0	0	0	0	0	0	0	0
1.65	0	0	0	0	0	0	0	0	0	0	0	0
1.66	0	0	0	0	0	0	0	0	0	0	0	0
1.67	0	0	0	0	0	0	0	0	0	0	0	0
1.68	0	0	0	0	0	0	0	0	0	0	0	0
1.69	0	0	0	0	0	0	0	0	0	0	0	0
1.70	0	0	0	0	0	0	0	0	0	0	0	0
1.71	0	0	0	0	0	0	0	0	0	0	0	0
1.72	0	0	0	0	0	0	0	0	0	0	0	0
1.73	0	0	0	0	0	0	0	0	0	0	0	0
1.74	0	0	0	0	0	0	0	0	0	0	0	0
1.75	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0
1.79	0	0	0	0	0	0	0	0	0	0	0	0
1.80	0	0	0	0	0	0	0	0	0	0	0	0
1.81	0	0	0	0	0	0	0	0	0	0	0	0
1.82	0	0	0	0	0	0	0	0	0	0	0	0
1.83	0	0	0	0	0	0	0	0	0	0	0	0
1.84	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	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	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	6	41	0	48	58	0	54	99

TABLE 9-3

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	1	0	0	2	0	0	3
2.02						1		2	8		2	9
2.03						1		0	1		0	1
2.04						0		2	2		2	3
2.05						0		0	1		0	1
2.06						0		1	1		1	1
2.07						0		0	1		0	1
2.08						0		0	1		0	1
2.09						0		0	1		0	1
2.10						0		0	1		0	1
2.11						0		0	1		0	1
2.12						0		0	1		0	1
2.13						0		0	1		0	1
2.14						0		0	1		0	1
2.15						0		0	1		0	1
2.16						0		0	1		0	1
2.17						0		0	1		0	1
2.18						0		0	1		0	1
2.19						0		0	1		0	1
2.20						0		0	1		0	1
2.21						0		0	1		0	1
2.22						0		0	1		0	1
2.23						0		0	1		0	1
2.24						0		0	1		0	1
2.25						0		0	1		0	1
2.26						0		0	1		0	1
2.27						0		0	1		0	1
2.28						0		0	1		0	1
2.29						0		0	1		0	1
2.30						0		0	1		0	1
2.31						0		0	1		0	1
2.32						0		0	1		0	1
2.33						0		0	1		0	1
2.34						0		0	1		0	1
2.35						0		0	1		0	1
2.36						0		0	1		0	1
2.37						0		0	1		0	1
2.38						0		0	1		0	1
2.39						0		0	1		0	1
2.40						0		0	1		0	1
2.41						0		0	1		0	1
2.42						0		0	1		0	1
2.43						0		0	1		0	1
2.44						0		0	1		0	1
2.45						0		0	1		0	1
2.46						0		0	1		0	1
2.47						0		0	1		0	1
2.48						0		0	1		0	1
2.49						0		0	1		0	1
2.50						0		0	1		0	1
SUBTOTAL	0	0	0	0	4	16	0	18	93	0	22	109

TABLE 9-3

MISSION • 1024-2 • INSTRUMENT • FRWD • 12-06-65 • 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
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	61	61	72	181	181	162	242	242	234

MISSION 1024-2 INSTR - FRWD 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	61	0 PC	13 PC	82 PC	5 PC	0 PC
FULL	181	49 PC	0 PC	50 PC	2 PC	0 PC
ALL LEVELS	242	36 PC	3 PC	58 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 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 9-3

MISSION • 1024-2 • INSTR • FRWD • 12-06-65 PLOT OF D MIN • TERRAIN • PROCESSING • INTERMEDIATE

ARITH MEAN • 0.52 • MEDIAN • 0.49 • STD DEV • 0.17 • RANGE • 0.28 TO 1.14 WITH 61 SAMPLES

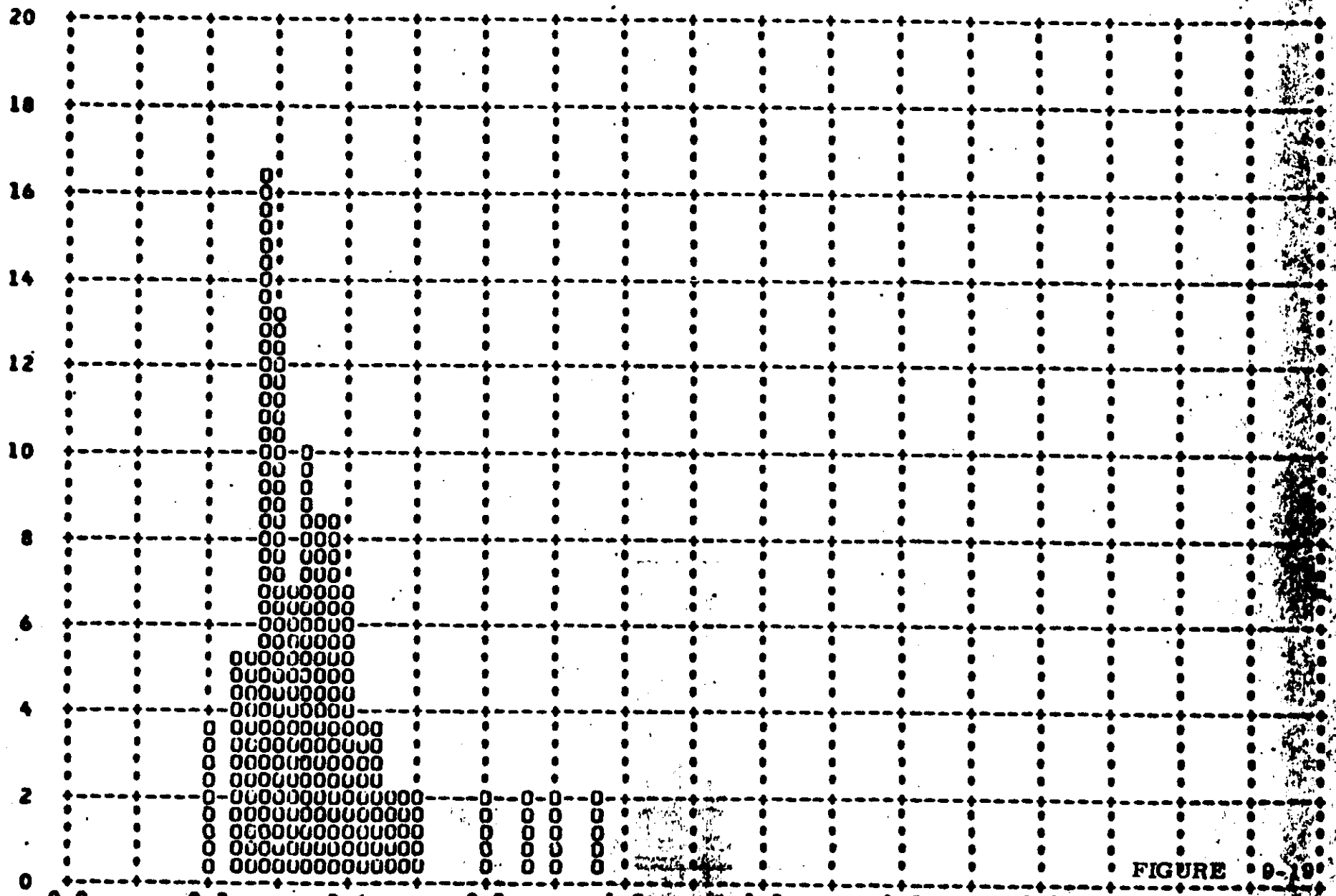


FIGURE D-19

MISSION • 1024-2 • INSTR • FRWD • 12-06-65 PLOT OF D MAX • TERRAIN • PROCESSING • INTERMEDIATE

ARITH MEAN • 1.24 • MEDIAN • 1.23 • STD DEV • 0.37 • RANGE • 0.42 TO 2.22 WITH 61 SAMPLES

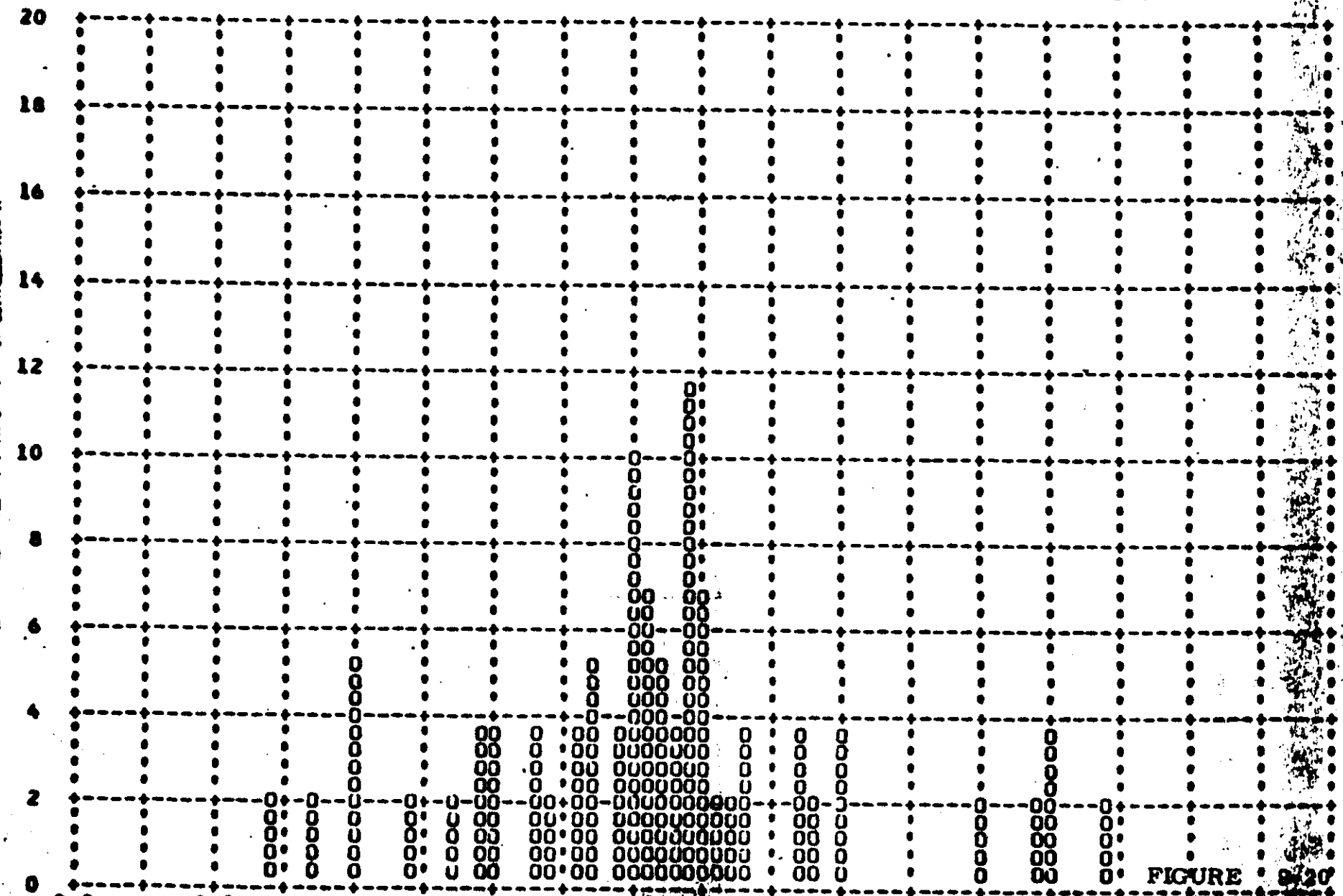


FIGURE 9-20

MISSION • 1024-2 • INSTR • FRWD • 12-06-65 PLOT OF D MAX • CLOUD • PROCESSING • INTERMEDIATE

ARITH MEAN • 1.74 • MEDIAN • 1.72 • STD DEV • 0.29 • RANGE • 1.01 TO 2.28 WITH 72 SAMPLES

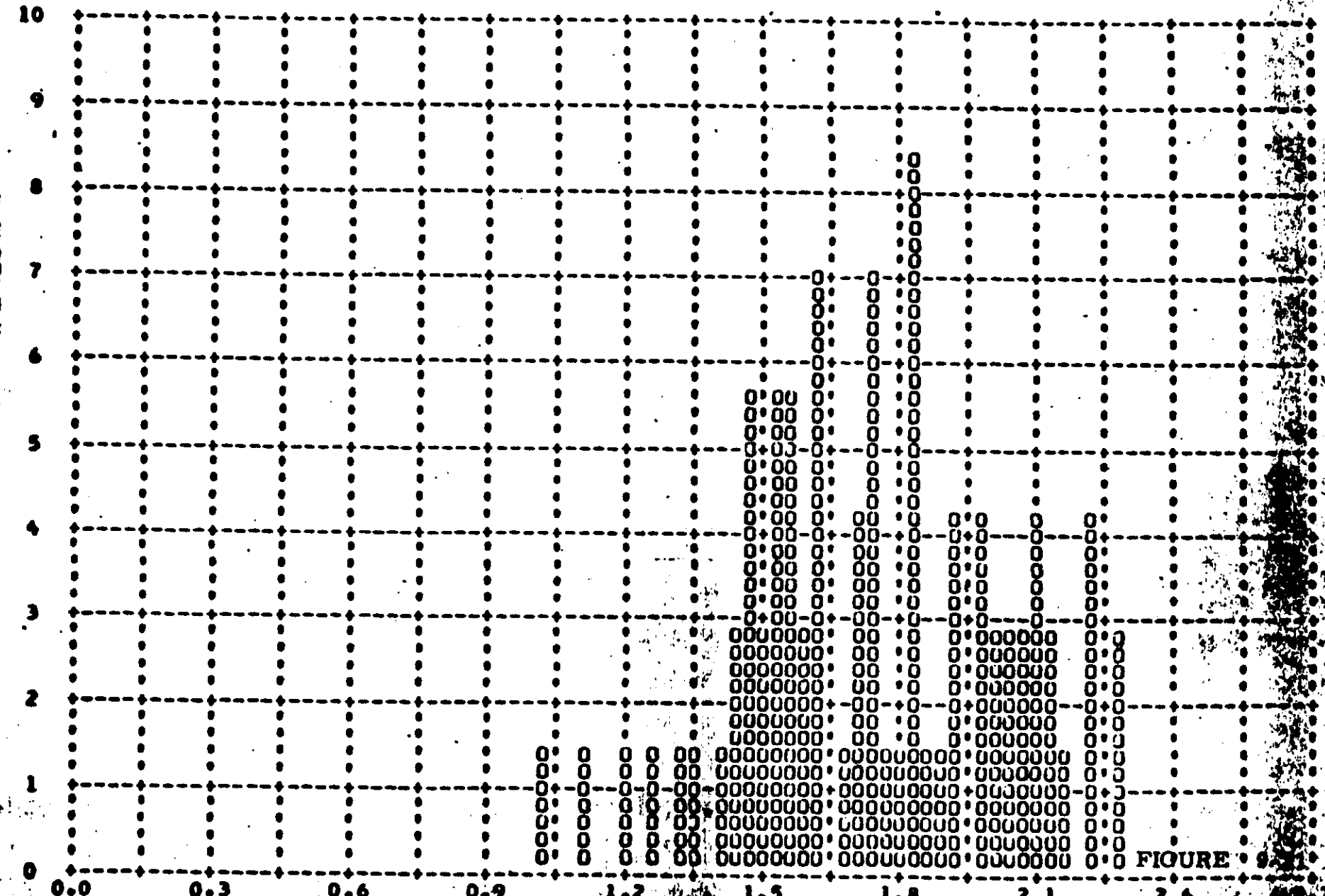


FIGURE 9.2.7

MISSION • 1024-2 • INSTR • FRWD • 12-06-65 PLOT OF D MIN • TERRAIN • PROCESSING • FULL

ARITH MEAN • 0.44 • MEDIAN • 0.40 • STD DEV • 0.15 • RANGE • 0.24 TO 1.17 WITH 181 SAMPLES

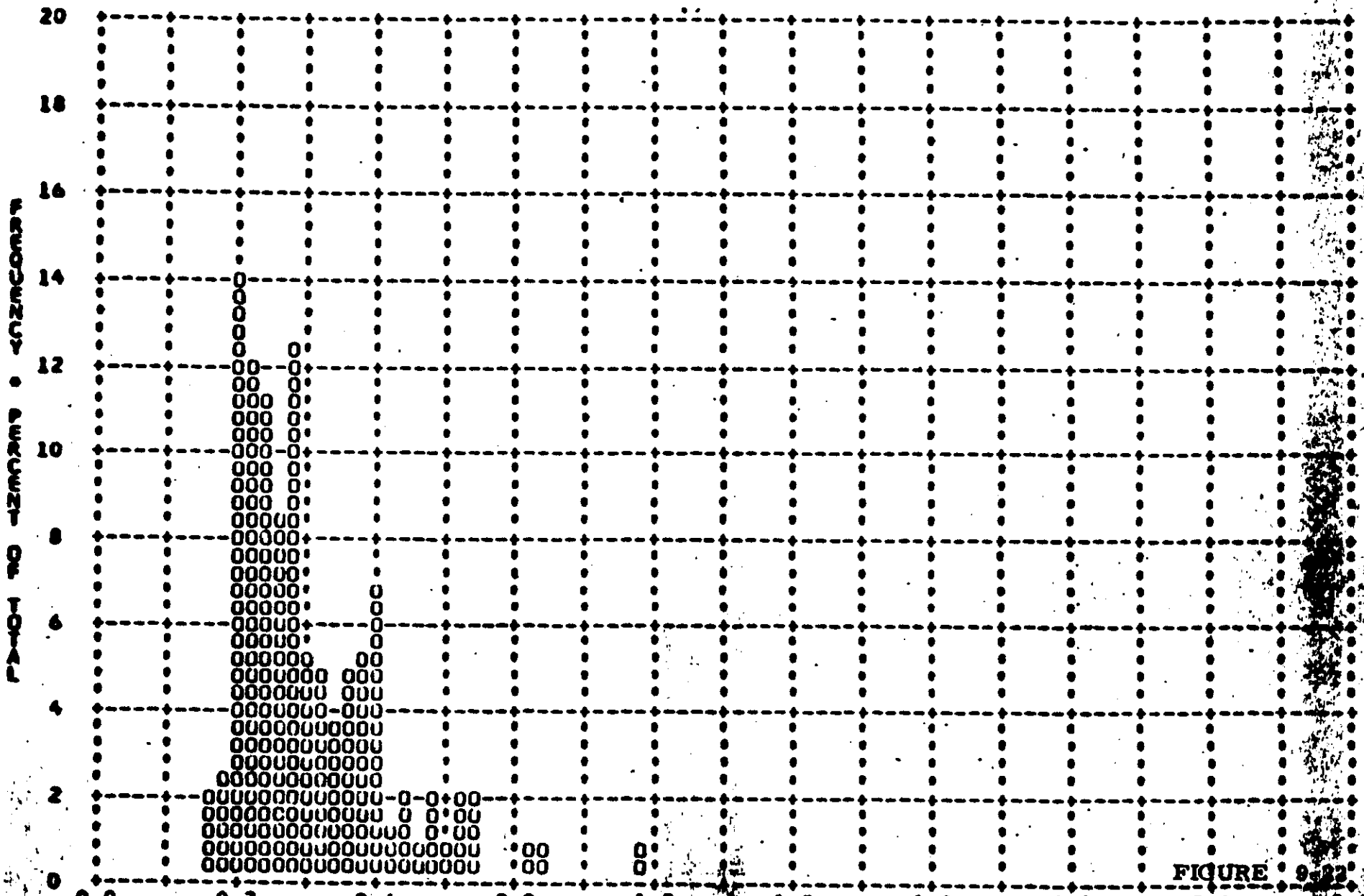


FIGURE 9-22

MISSION • 1024-2 • INSTR • FRWD • 12-06-65 PLOT OF D MAX • TERRAIN • PROCESSING • FULL

ARITH MEAN • 1.33 • MEDIAN • 1.30 • STD DEV • 0.49 • RANGE • 0.35 TO 2.40 WITH 181 SAMPLES

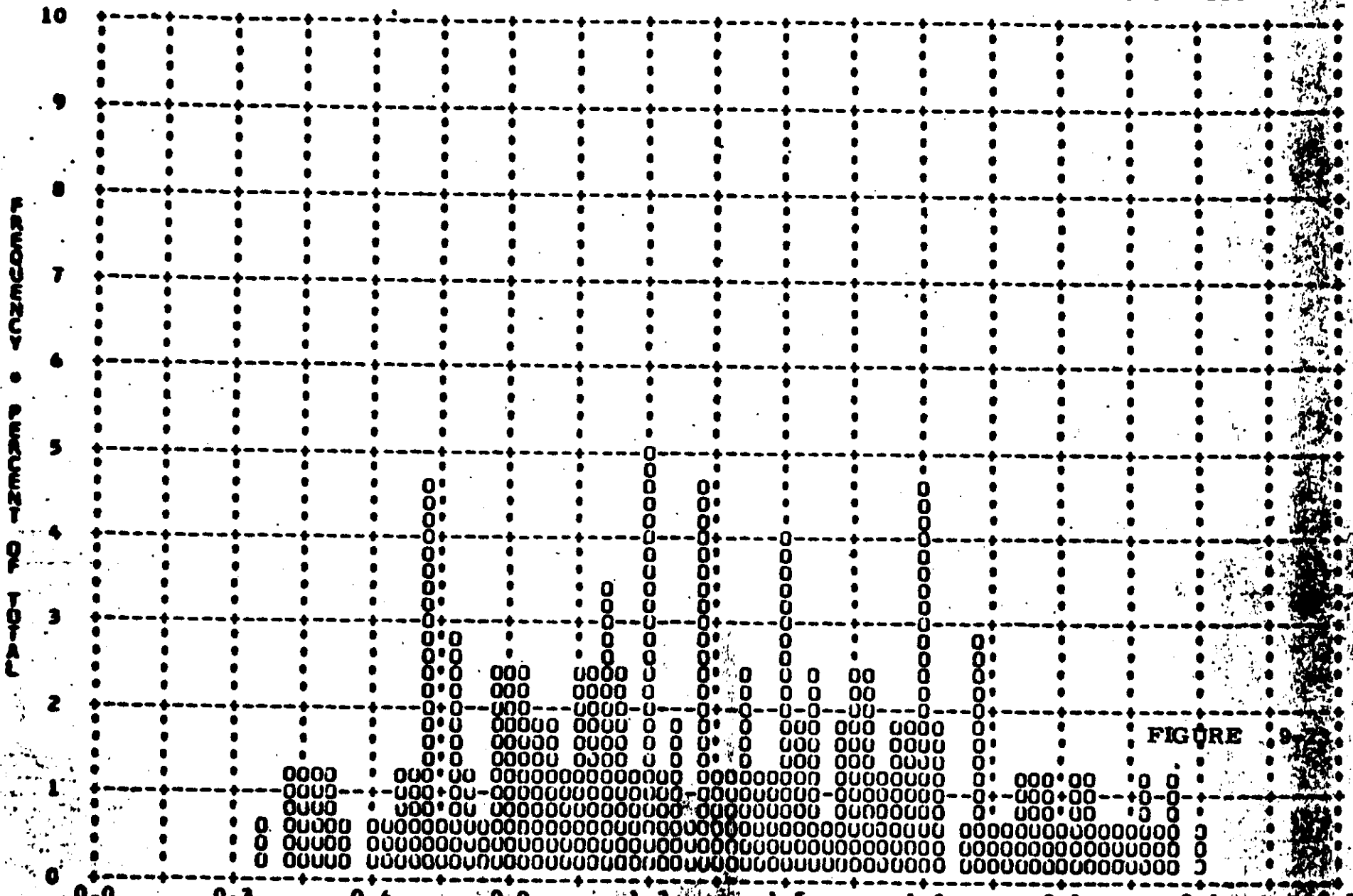


FIGURE 9-2

MISSION • 1024-2 • INSTR • FRWD • 12-06-65 PLOT OF D MAX • CLOUD • PROCESSING • FULL

ARITH MEAN • 1.99 • MEDIAN • 2.05 • STD DEV • 0.29 • RANGE • 1.10 TO 2.45 WITH 162 SAMPLES

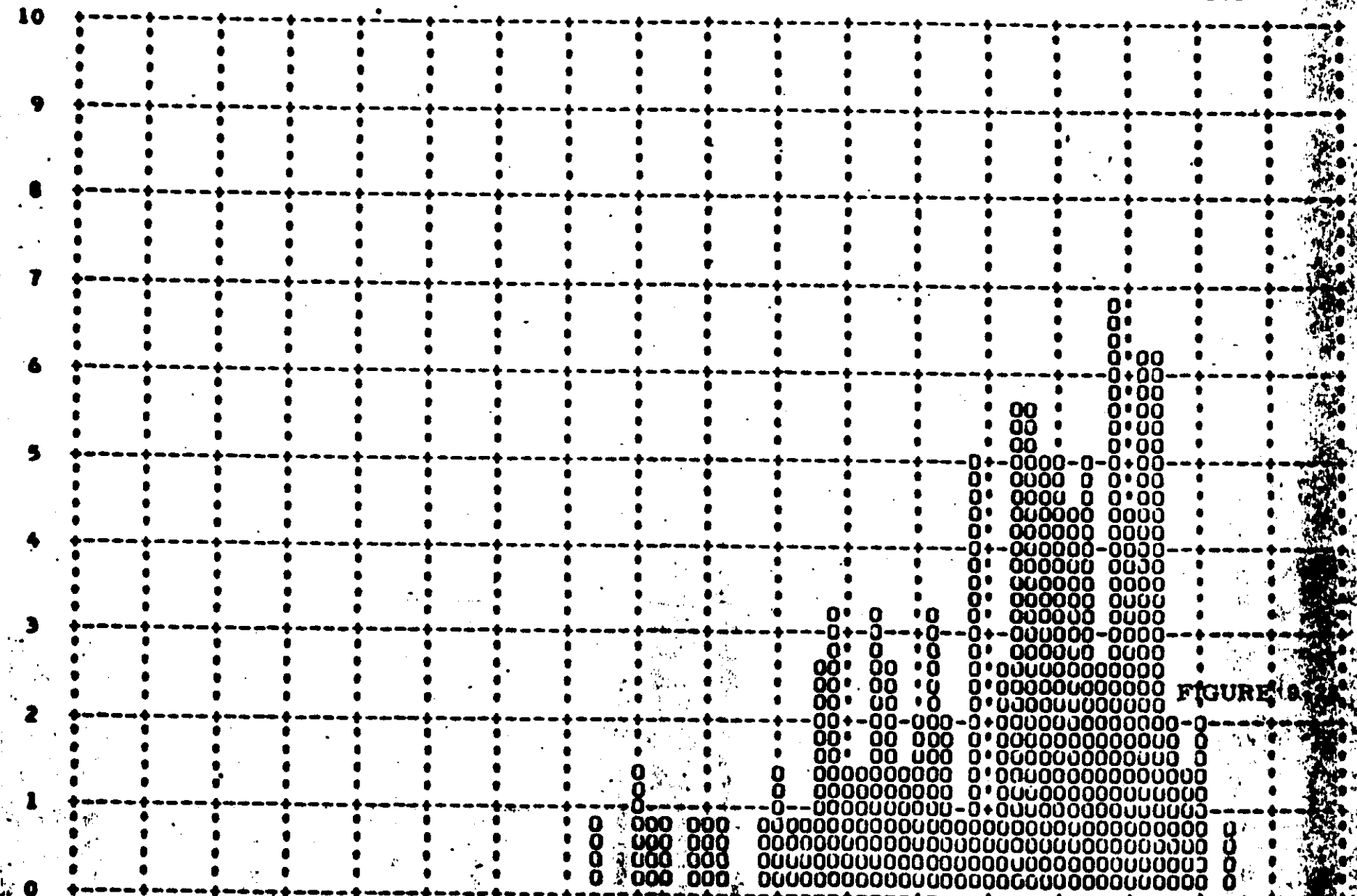


FIGURE 8

MISSION • 1024-2 • INSTR • FRWD • 12-06-65 PLOT OF D MIN • TERRAIN • PROCESSING • ALL LEVELS

ARITH MEAN • 0.46 • MEDIAN • 0.42 • STD DEV • 0.16 • RANGE • 0.24 TO 1.17 WITH 242 SAMPLES

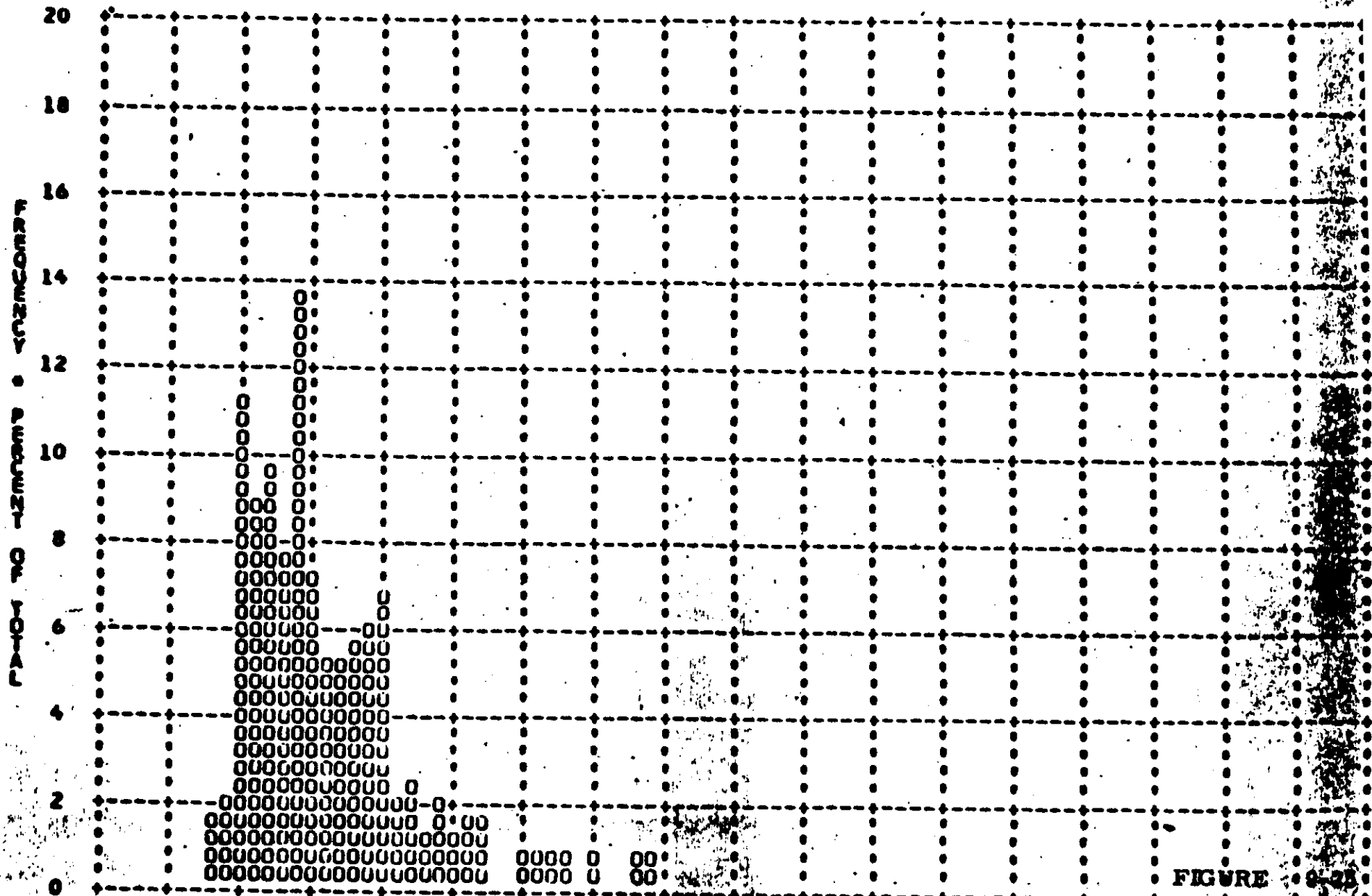


FIGURE 8-23

MISSION • 1024-2 • INSTR • FRWD • 12-06-65 PLOT OF D MAX • TERRAIN • PROCESSING • ALL LEVELS

ARITH MEAN • 1.30 • MEDIAN • 1.27 • STD DEV • 0.46 • RANGE • 0.35 TO 2.40 WITH 242 SAMPLES

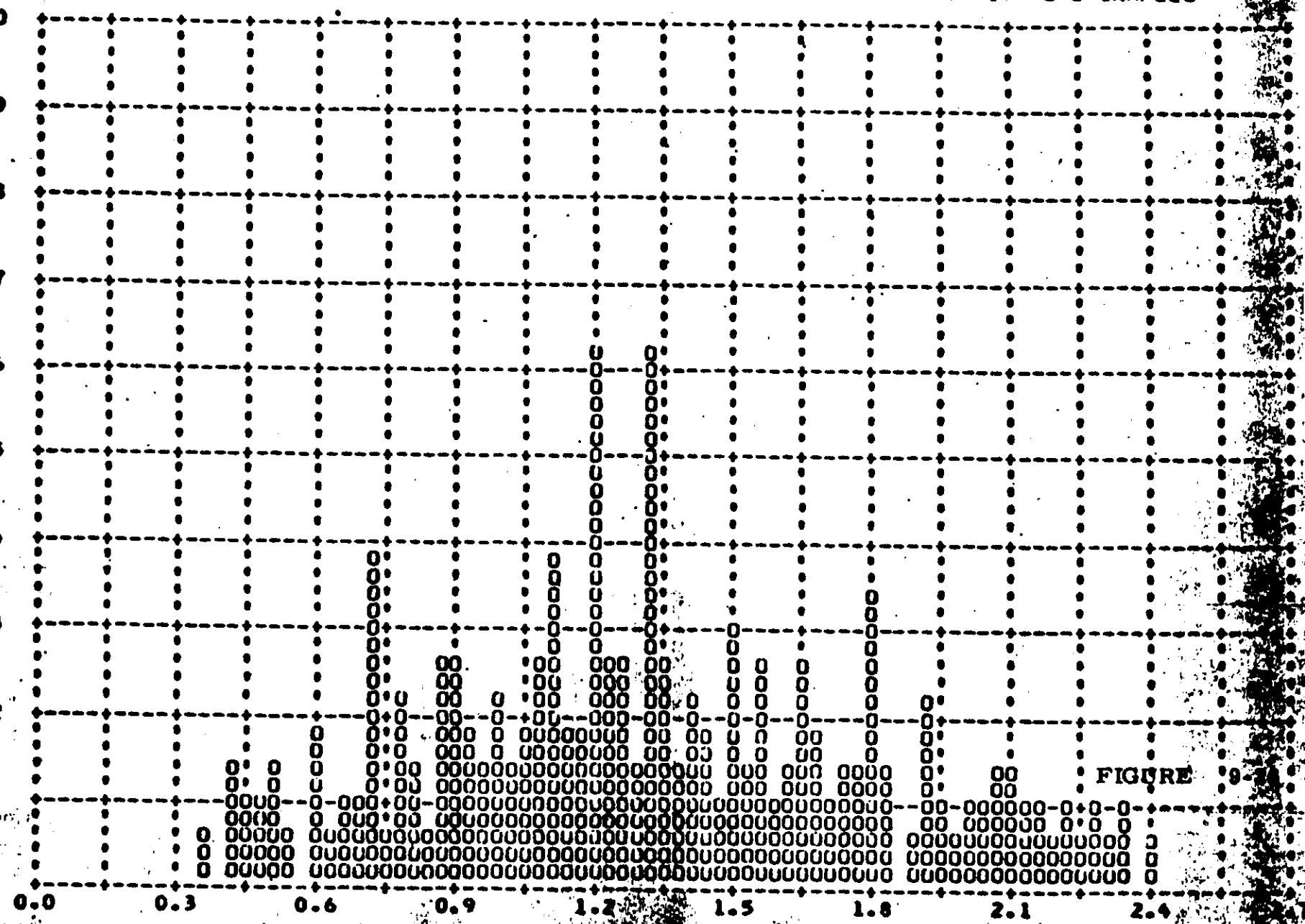


FIGURE 9-14

MISSION • 1024-2 • INSTR • FRWD • 12-06-65 PLOT OF D MAX • CLOUD • PROCESSING • ALL LEVELS

ARITH MEAN • 1.91 • MEDIAN • 1.99 • STD DEV • 0.31 • RANGE • 1.01 TO 2.45 WITH 234 SAMPLES

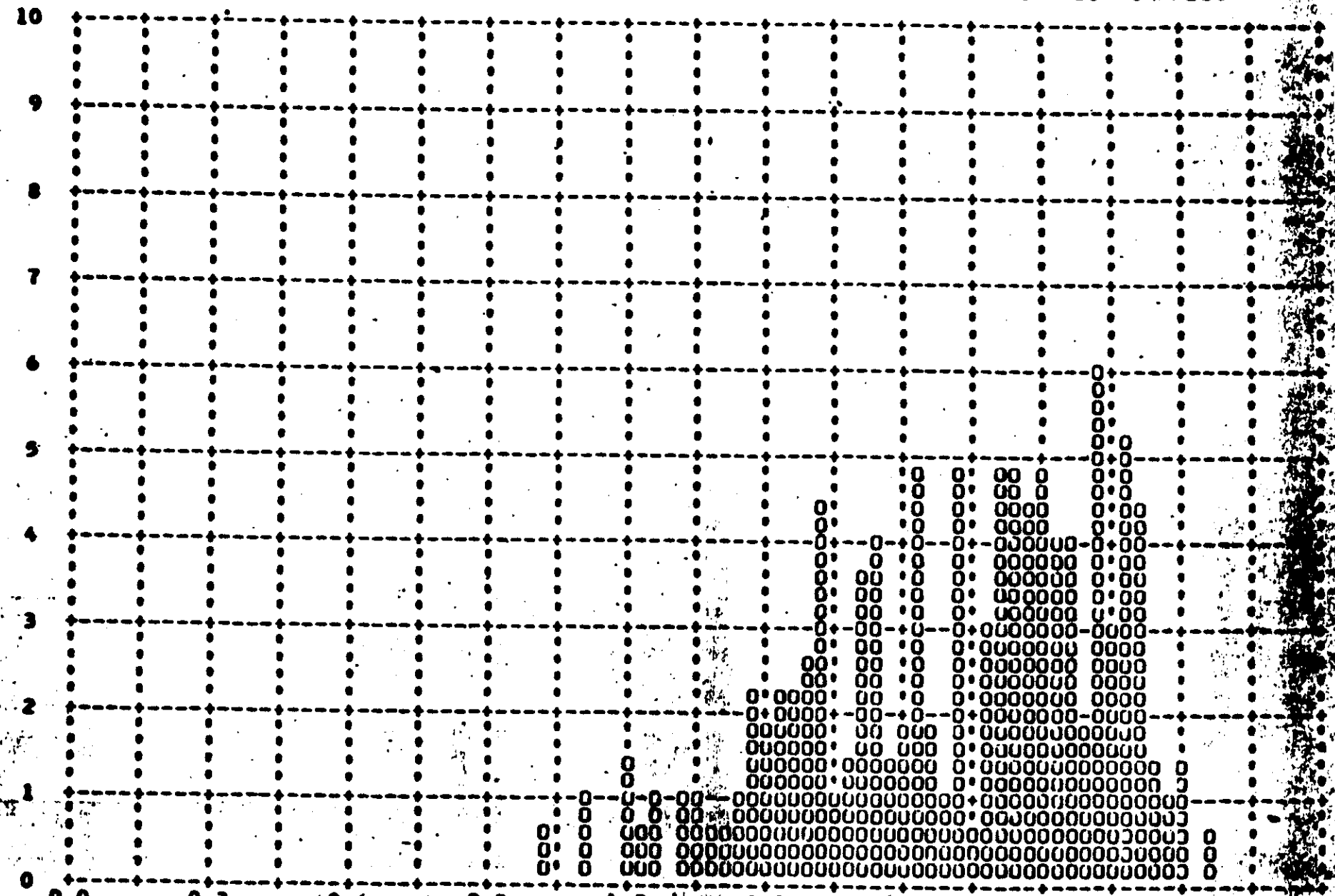


FIGURE 9-27

[redacted] CONTROL NO. [redacted]

MISSION 1024-2 INSTRUMENT [redacted] DENSITY ERROR 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
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	1	0	0	0	0	0	1	0	0
0.31	0	0	0	3	0	0	0	0	0	2	0	0
0.32	0	0	0	1	0	0	0	0	0	0	0	0
0.33	0	0	0	2	0	0	0	0	0	4	0	0
0.34	0	0	0	3	0	0	0	0	0	1	0	0
0.35	0	0	0	2	0	0	0	0	0	0	0	0
0.36	0	0	0	8	0	0	0	0	0	1	0	0
0.37	0	0	0	0	0	0	0	0	0	0	0	0
0.38	0	0	0	6	0	0	0	0	0	1	0	0
0.39	0	0	0	2	0	0	0	0	0	0	0	0
0.40	0	0	0	4	0	0	0	0	0	1	0	0
0.41	0	0	0	1	0	0	0	0	0	0	0	0
0.42	0	0	0	2	0	0	0	0	0	1	0	0
0.43	0	0	0	1	0	0	0	0	0	0	0	0
0.44	0	0	0	7	0	0	0	0	0	1	0	0
0.45	0	0	0	3	0	0	0	0	0	0	0	0
0.46	0	0	0	5	0	0	0	0	0	1	0	0
0.47	0	0	0	1	0	0	0	0	0	0	0	0
0.48	0	0	0	4	0	0	0	0	0	1	0	0
0.49	0	0	0	0	0	0	0	0	0	0	0	0
0.50	0	0	0	1	0	0	0	0	0	1	0	0
SUBTOTAL	0	0	0	99	0	0	67	0	0	166	0	0

~~TOP SECRET~~ [redacted] CONTROL NO. [redacted]

TABLE 9-4

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	1	0	0	0	0	0	1	0
0.52	0	0	0	3	0	0	2	0	0	3	0	0
0.53	0	0	0	1	0	0	0	0	0	2	0	0
0.54	0	0	0	2	0	0	1	0	0	3	0	0
0.55	0	0	0	3	0	0	0	0	0	4	0	0
0.56	0	0	0	1	0	0	0	0	0	5	0	0
0.57	0	0	0	3	0	0	0	0	0	1	0	0
0.58	0	0	0	0	0	0	0	0	0	3	0	0
0.59	0	0	0	2	0	0	0	0	0	0	0	0
0.60	0	0	0	0	0	0	0	0	0	2	0	0
0.61	0	0	0	3	0	0	0	0	0	1	0	0
0.62	0	0	0	0	0	0	0	0	0	3	0	0
0.63	0	0	0	1	0	0	0	0	0	0	0	0
0.64	0	0	0	0	0	0	0	0	0	1	0	0
0.65	0	0	0	2	0	0	0	0	0	0	0	0
0.66	0	0	0	0	0	0	0	0	0	2	0	0
0.67	0	0	0	1	0	0	0	0	0	0	0	0
0.68	0	0	0	0	0	0	0	0	0	1	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	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	1	0	0	0	0	0	2	0	0
SUBTOTAL	0	0	0	51	32	1	14	19	1	65	51	2

TABLE 9-4

MISSION [redacted] INSTRUMENT [redacted] DENSITY [redacted]

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	2	0	0	1	0	0	2	0
1.03	0	0	0	0	2	0	0	1	0	0	3	0
1.04	0	0	0	0	1	0	0	1	0	0	3	0
1.05	0	0	0	0	1	0	0	0	0	0	1	0
1.06	0	0	0	1	0	0	0	0	0	0	1	0
1.07	0	0	0	0	1	0	0	0	0	0	1	0
1.08	0	0	0	0	1	0	0	0	0	0	1	0
1.09	0	0	0	0	1	0	0	0	0	0	1	0
1.10	0	0	0	0	2	0	0	0	0	0	1	0
1.11	0	0	0	0	2	0	0	0	0	0	1	0
1.12	0	0	0	1	3	0	0	1	0	1	4	0
1.13	0	0	0	0	3	0	0	1	0	0	4	0
1.14	0	0	0	0	2	0	0	1	0	0	3	0
1.15	0	0	0	0	2	0	0	1	0	0	3	0
1.16	0	0	0	0	1	0	0	2	0	0	2	0
1.17	0	0	0	0	0	0	0	0	0	0	1	0
1.18	0	0	0	0	0	0	0	0	0	0	1	0
1.19	0	0	0	0	0	0	0	0	0	0	1	0
1.20	0	0	0	0	3	0	0	2	0	0	2	0
1.21	0	0	0	0	3	0	0	1	0	0	2	0
1.22	0	0	0	0	2	0	0	1	0	0	2	0
1.23	0	0	0	0	2	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	1	0	0	2	0
1.26	0	0	0	0	1	0	0	1	0	0	2	0
1.27	0	0	0	0	1	0	0	1	0	0	2	0
1.28	0	0	0	0	1	0	0	1	0	0	2	0
1.29	0	0	0	0	1	0	0	1	0	0	2	0
1.30	0	0	0	0	1	0	0	1	0	0	2	0
1.31	0	0	0	0	1	0	0	1	0	0	2	0
1.32	0	0	0	0	1	0	0	1	0	0	2	0
1.33	0	0	0	0	1	0	0	1	0	0	2	0
1.34	0	0	0	0	1	0	0	1	0	0	2	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	1	0	0	2	0
1.38	0	0	0	0	1	0	0	1	0	0	2	0
1.39	0	0	0	0	1	0	0	1	0	0	2	0
1.40	0	0	0	0	1	0	0	1	0	0	2	0
1.41	0	0	0	0	1	0	0	1	0	0	2	0
1.42	0	0	0	0	1	0	0	1	0	0	2	0
1.43	0	0	0	0	1	0	0	1	0	0	2	0
1.44	0	0	0	0	1	0	0	1	0	0	2	0
1.45	0	0	0	0	1	0	0	1	0	0	2	0
1.46	0	0	0	0	1	0	0	1	0	0	2	0
1.47	0	0	0	0	1	0	0	1	0	0	2	0
1.48	0	0	0	0	1	0	0	1	0	0	2	0
1.49	0	0	0	0	1	0	0	1	0	0	2	0
1.50	0	0	0	0	1	0	0	1	0	0	2	0
SUBTOTAL	0	0	0	7	61	17	0	44	6	7	105	23

TABLE 9-4

~~TOP SECRET~~ [redacted] CONTROL NO. [redacted]

MISSION 1024-2 INSTRUMENT [redacted] DENSITY [redacted]

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	0	0	1	0
1.52	0	0	0	0	1	0	0	0	0	0	1	0
1.53	0	0	0	0	0	0	0	0	0	0	0	0
1.54	0	0	0	0	0	0	0	0	0	0	0	0
1.55	0	0	0	0	0	0	0	0	0	0	0	0
1.56	0	0	0	0	0	0	0	0	0	0	0	0
1.57	0	0	0	0	0	0	0	0	0	0	0	0
1.58	0	0	0	0	0	0	0	0	0	0	0	0
1.59	0	0	0	0	0	0	0	0	0	0	0	0
1.60	0	0	0	0	0	0	0	0	0	0	0	0
1.61	0	0	0	0	0	0	0	0	0	0	0	0
1.62	0	0	0	0	0	0	0	0	0	0	0	0
1.63	0	0	0	0	0	0	0	0	0	0	0	0
1.64	0	0	0	0	0	0	0	0	0	0	0	0
1.65	0	0	0	0	0	0	0	0	0	0	0	0
1.66	0	0	0	0	0	0	0	0	0	0	0	0
1.67	0	0	0	0	0	0	0	0	0	0	0	0
1.68	0	0	0	0	0	0	0	0	0	0	0	0
1.69	0	0	0	0	0	0	0	0	0	0	0	0
1.70	0	0	0	0	0	0	0	0	0	0	0	0
1.71	0	0	0	0	0	0	0	0	0	0	0	0
1.72	0	0	0	0	0	0	0	0	0	0	0	0
1.73	0	0	0	0	0	0	0	0	0	0	0	0
1.74	0	0	0	0	0	0	0	0	0	0	0	0
1.75	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0
1.79	0	0	0	0	0	0	0	0	0	0	0	0
1.80	0	0	0	0	0	0	0	0	0	0	0	0
1.81	0	0	0	0	0	0	0	0	0	0	0	0
1.82	0	0	0	0	0	0	0	0	0	0	0	0
1.83	0	0	0	0	0	0	0	0	0	0	0	0
1.84	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	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	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	45	76	0	16	37	0	61	113

~~TOP SECRET~~ [redacted] CONTROL NO. [redacted]

TABLE 9-4

MISSION • 1024-2 • INSTRUMENT • AP[illegible] 2-06-65 • DENSITY FIELD 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
2.01	0	0	0	0	1	3	0	0	0	0	1	3
2.02	0	0	0	0	2	8	0	0	1	0	2	9
2.03	0	0	0	0	1	2	0	0	0	0	1	2
2.04	0	0	0	0	0	1	0	0	0	0	0	1
2.05	0	0	0	0	0	0	0	0	0	0	0	0
2.06	0	0	0	0	0	0	0	0	0	0	0	0
2.07	0	0	0	0	0	0	0	0	0	0	0	0
2.08	0	0	0	0	0	0	0	0	0	0	0	0
2.09	0	0	0	0	0	0	0	0	0	0	0	0
2.10	0	0	0	0	0	0	0	0	0	0	0	0
2.11	0	0	0	0	0	0	0	0	0	0	0	0
2.12	0	0	0	0	0	0	0	0	0	0	0	0
2.13	0	0	0	0	0	0	0	0	0	0	0	0
2.14	0	0	0	0	0	0	0	0	0	0	0	0
2.15	0	0	0	0	0	0	0	0	0	0	0	0
2.16	0	0	0	0	0	0	0	0	0	0	0	0
2.17	0	0	0	0	0	0	0	0	0	0	0	0
2.18	0	0	0	0	0	0	0	0	0	0	0	0
2.19	0	0	0	0	0	0	0	0	0	0	0	0
2.20	0	0	0	0	0	0	0	0	0	0	0	0
2.21	0	0	0	0	0	0	0	0	0	0	0	0
2.22	0	0	0	0	0	0	0	0	0	0	0	0
2.23	0	0	0	0	0	0	0	0	0	0	0	0
2.24	0	0	0	0	0	0	0	0	0	0	0	0
2.25	0	0	0	0	0	0	0	0	0	0	0	0
2.26	0	0	0	0	0	0	0	0	0	0	0	0
2.27	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0
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	0	0	0	0
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	0	0	0	0
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	14	58	0	2	39	0	16	97

TABLE 9-4

MISSION • 1024-2 • 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
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	157	157	152	81	81	83	238	238	235

MISSION 1024-2 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	157	2 PC	38 PC	53 PC	6 PC	1 PC
FULL	81	56 PC	0 PC	43 PC	1 PC	0 PC
ALL LEVELS	238	20 PC	25 PC	50 PC	5 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	0.40-0.92	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 9-4

MISSION • 1024-2 • INSTR • AFT • 12-06-65 PLOT OF D MIN • TERRAIN • PROCESSING • INTERMEDIATE

ARITH MEAN • 0.50 • MEDIAN • 0.45 • STD DEV • 0.24 • RANGE • 0.20 TO 1.39 WITH 157 SAMPLES

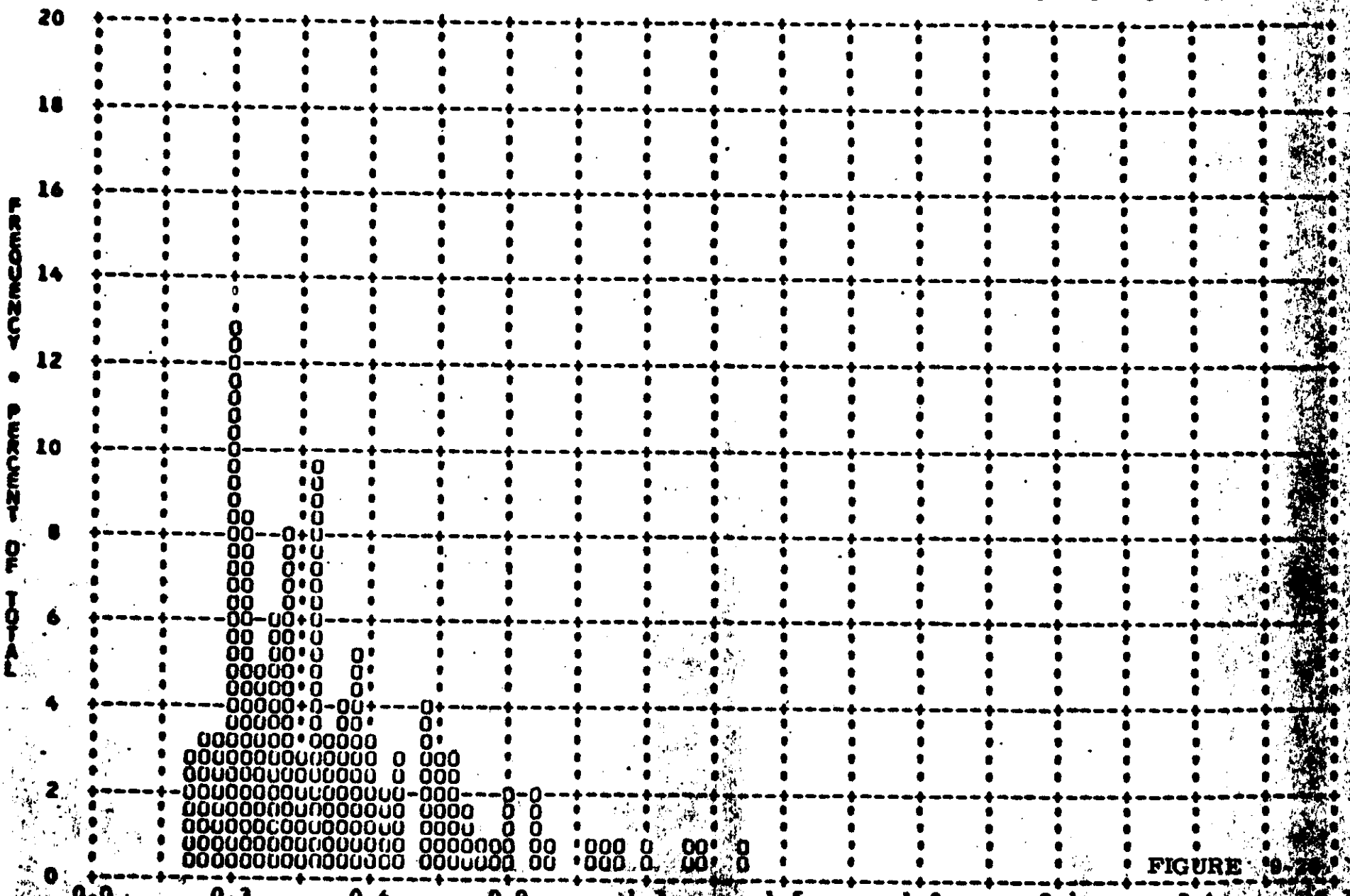


FIGURE [illegible]

MISSION • 1024-2 • INSTR • AFT • 12-06-65 PLOT OF D MAX • TERRAIN • PROCESSING • INTERMEDIATE

ARITH MEAN • 1.34 • MEDIAN • 1.34 • STD DEV • 0.45 • RANGE • 0.29 TO 2.26 WITH 157 SAMPLES

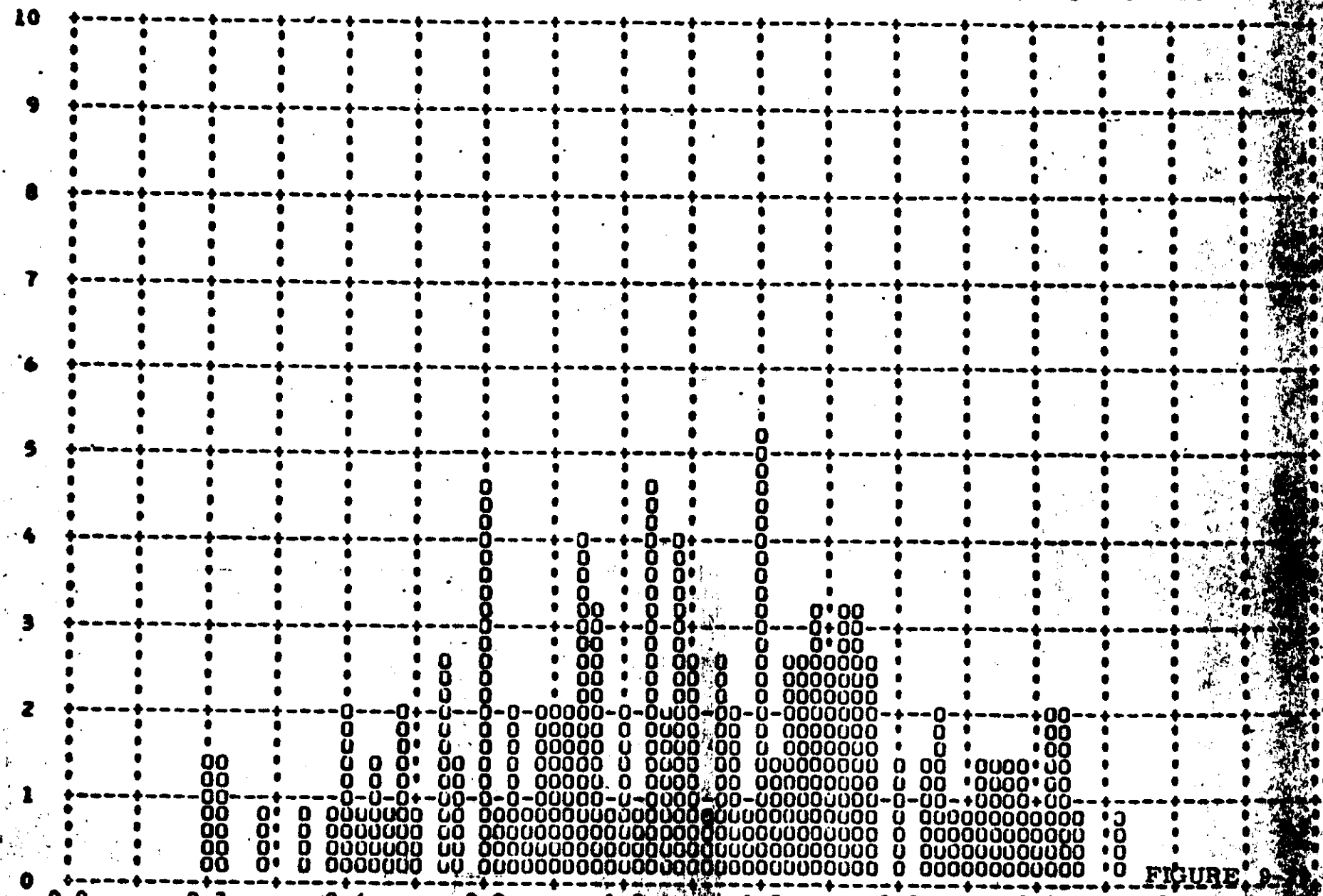


FIGURE 9-

MISSION • 1024-2 • INSTR • AFT • 12-06-65 PLOT OF D MAX • CLOUD • PROCESSING • INTERMEDIATE

ARITH MEAN • 1.87 • MEDIAN • 1.92 • STD DEV • 0.29 • RANGE • 0.90 TO 2.35 WITH 152 SAMPLES

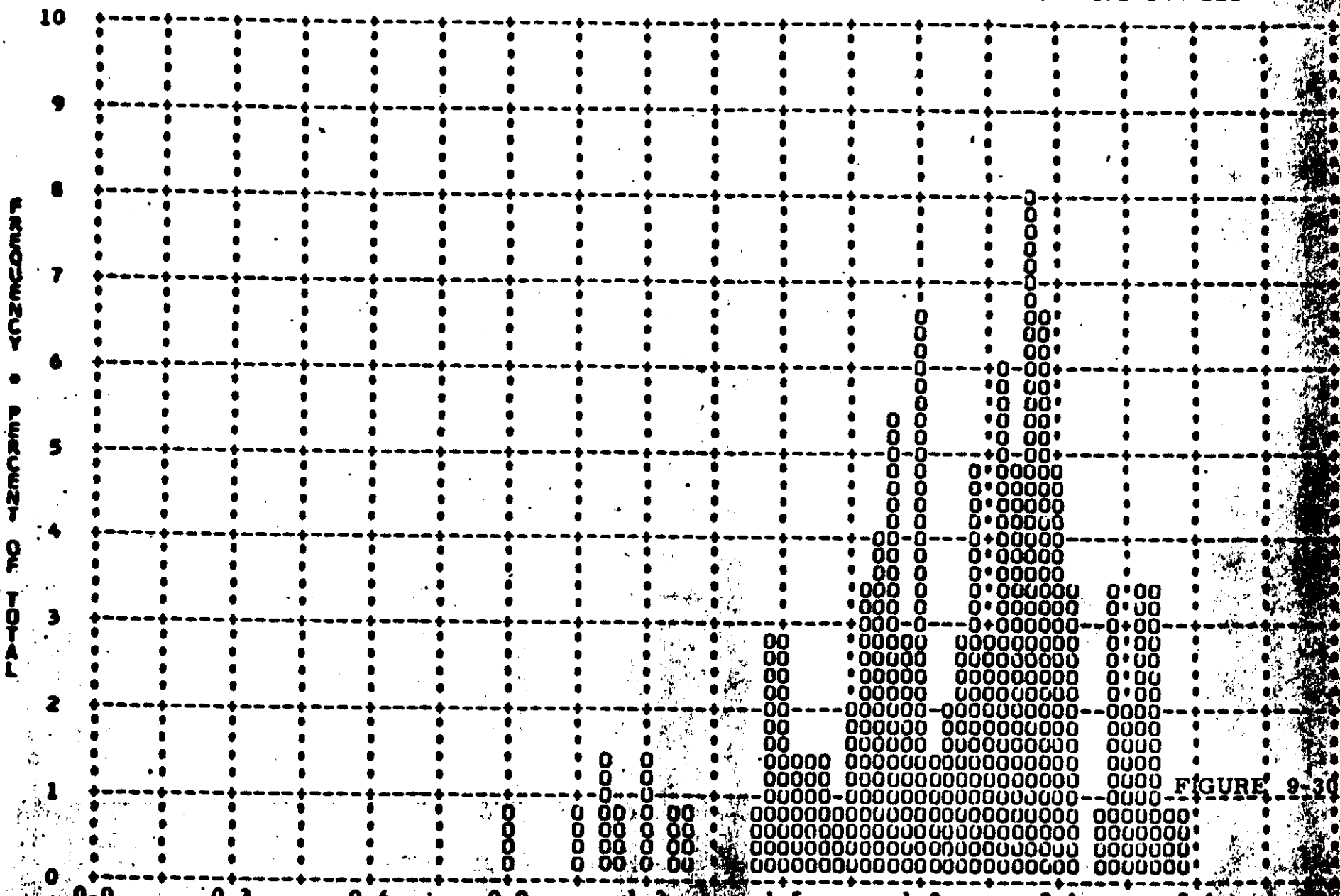


FIGURE 9-30

MISSION • 1024-2 • INSTR • AFT • 12-06-65 PLOT OF 0 MIN • TERRAIN • PROCESSING • FULL

ARITH MEAN • 0.42 • MEDIAN • 0.36 • STD DEV • 0.15 • RANGE • 0.22 TO 0.96 WITH 81 SAMPLES

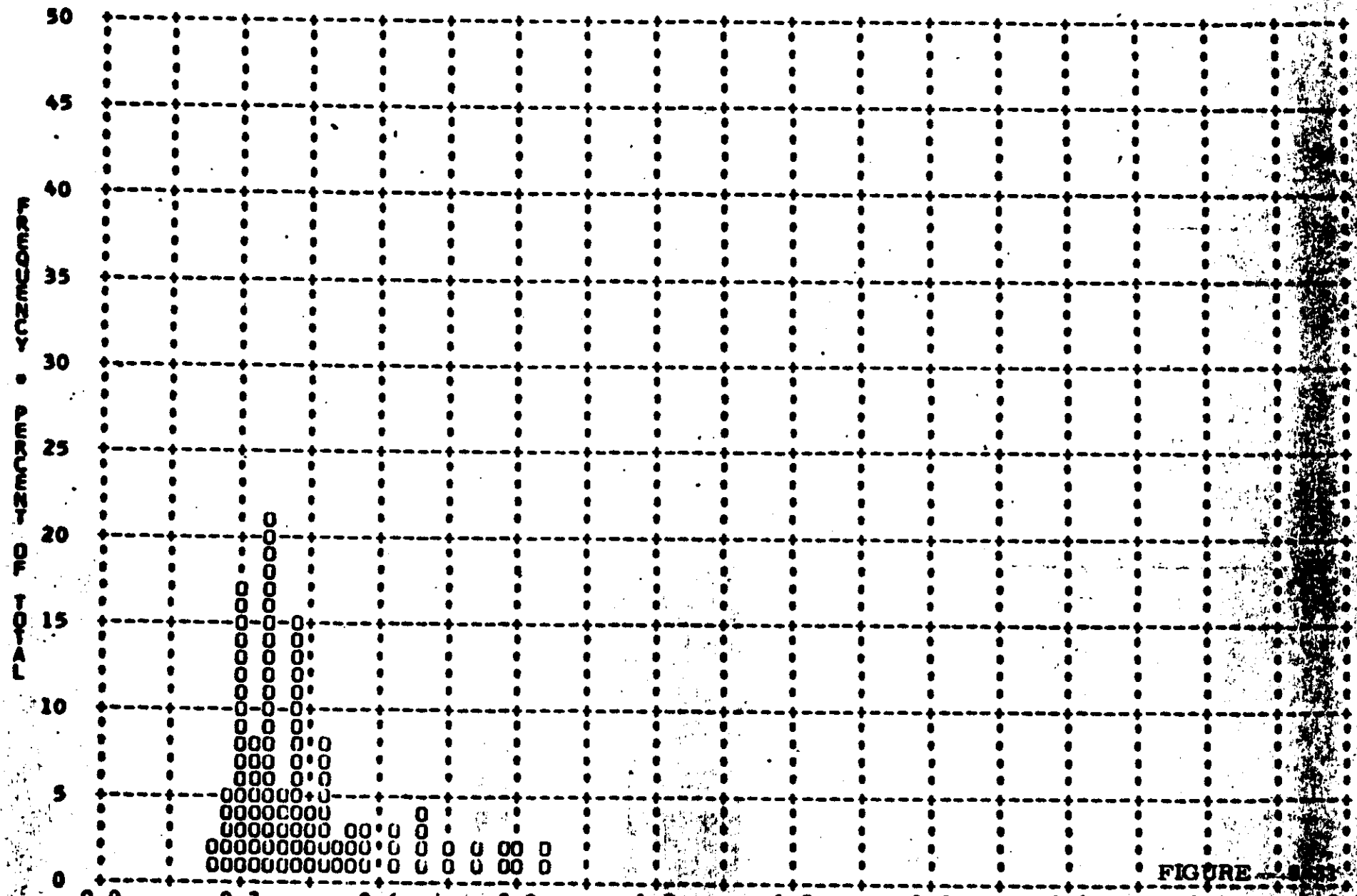


FIGURE [redacted]

MISSION • 1024-2 • INSTR • AFT • 12-06-65 PLOT OF D MAX • TERRAIN • PROCESSING • FULL

ARITH MEAN • 1.26 • MEDIAN • 1.20 • STD DEV • 0.37 • RANGE • 0.54 TO 2.20 WITH 81 SAMPLES

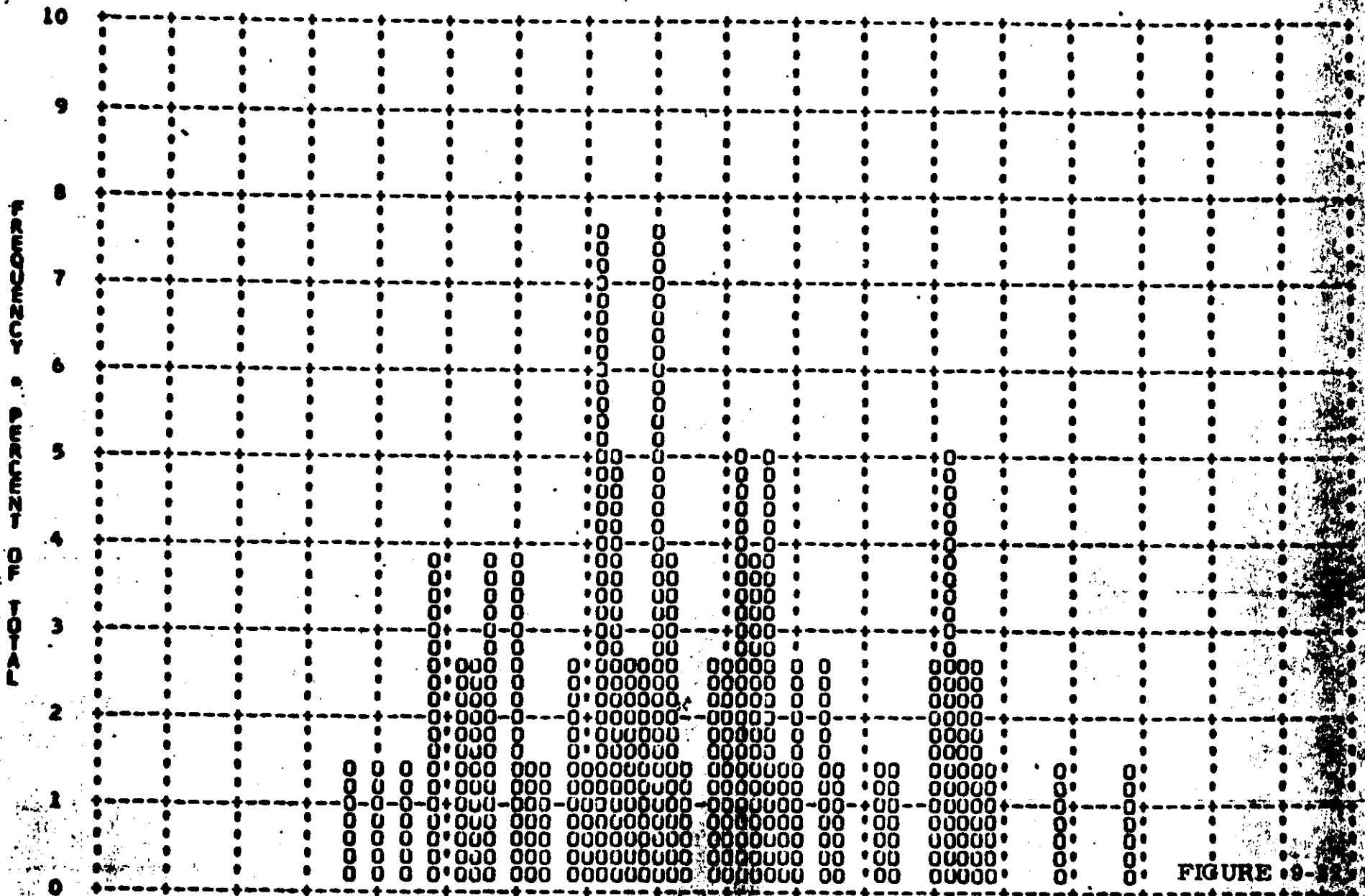


FIGURE 9-[illegible]

MISSION • 1024-2 • INSTR • AFT • 12-06-65 PLOT OF D MAX • CLOUD • PROCESSING • FULL

ARITH MEAN • 1.94 • MEDIAN • 2.00 • STD DEV • 0.30 • RANGE • 0.90 TO 2.40 WITH 83 SAMPLES

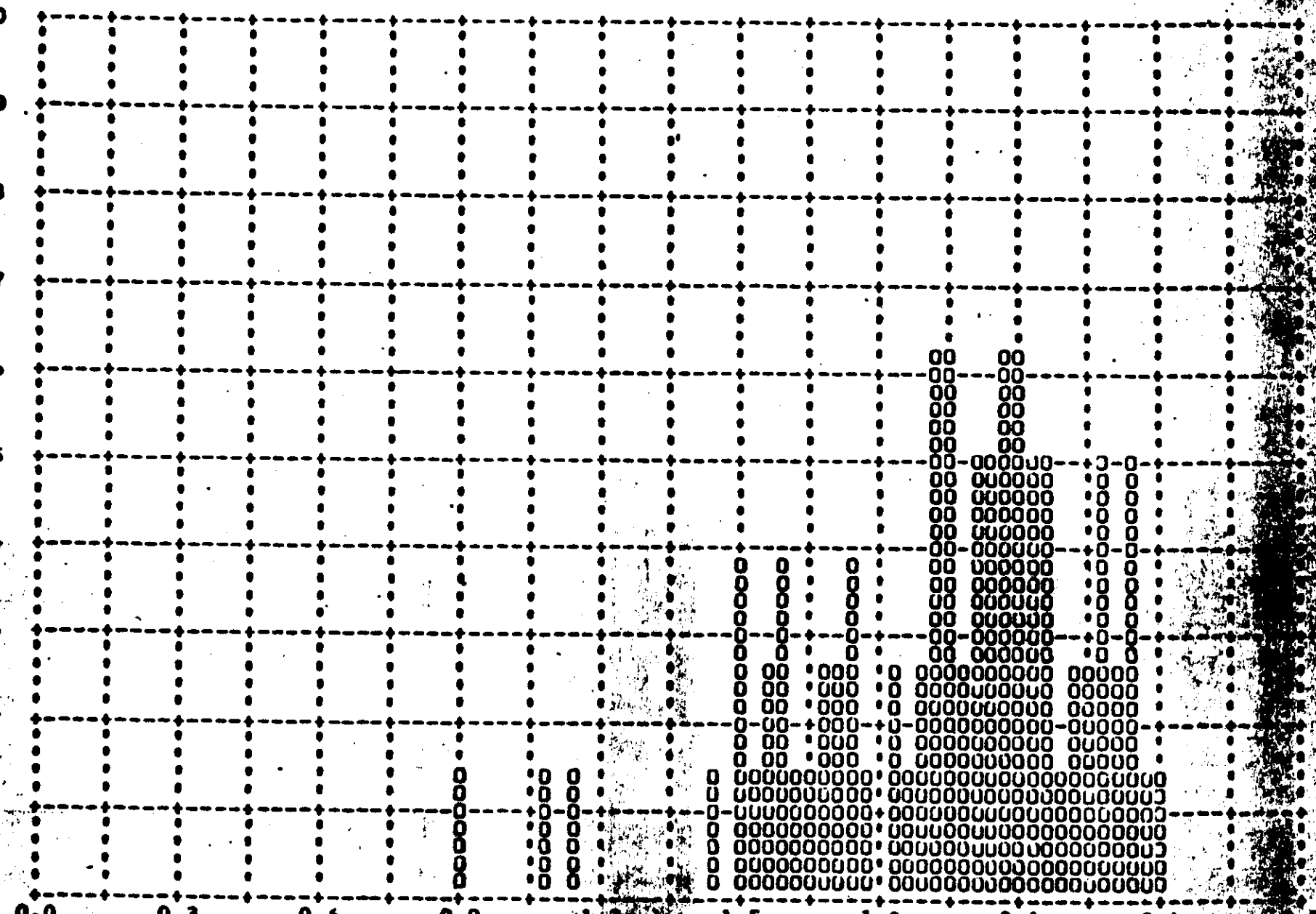


FIGURE 9-33

MISSION • 1024-2 • INSTR • AFT • 12-06-65 PLOT OF D MIN • TERRAIN • PROCESSING • ALL LEVELS

ARITH MEAN • 0.47 • MEDIAN • 0.40 • STD DEV • 0.22 • RANGE • 0.20 TO 1.39 WITH 238 SAMPLES

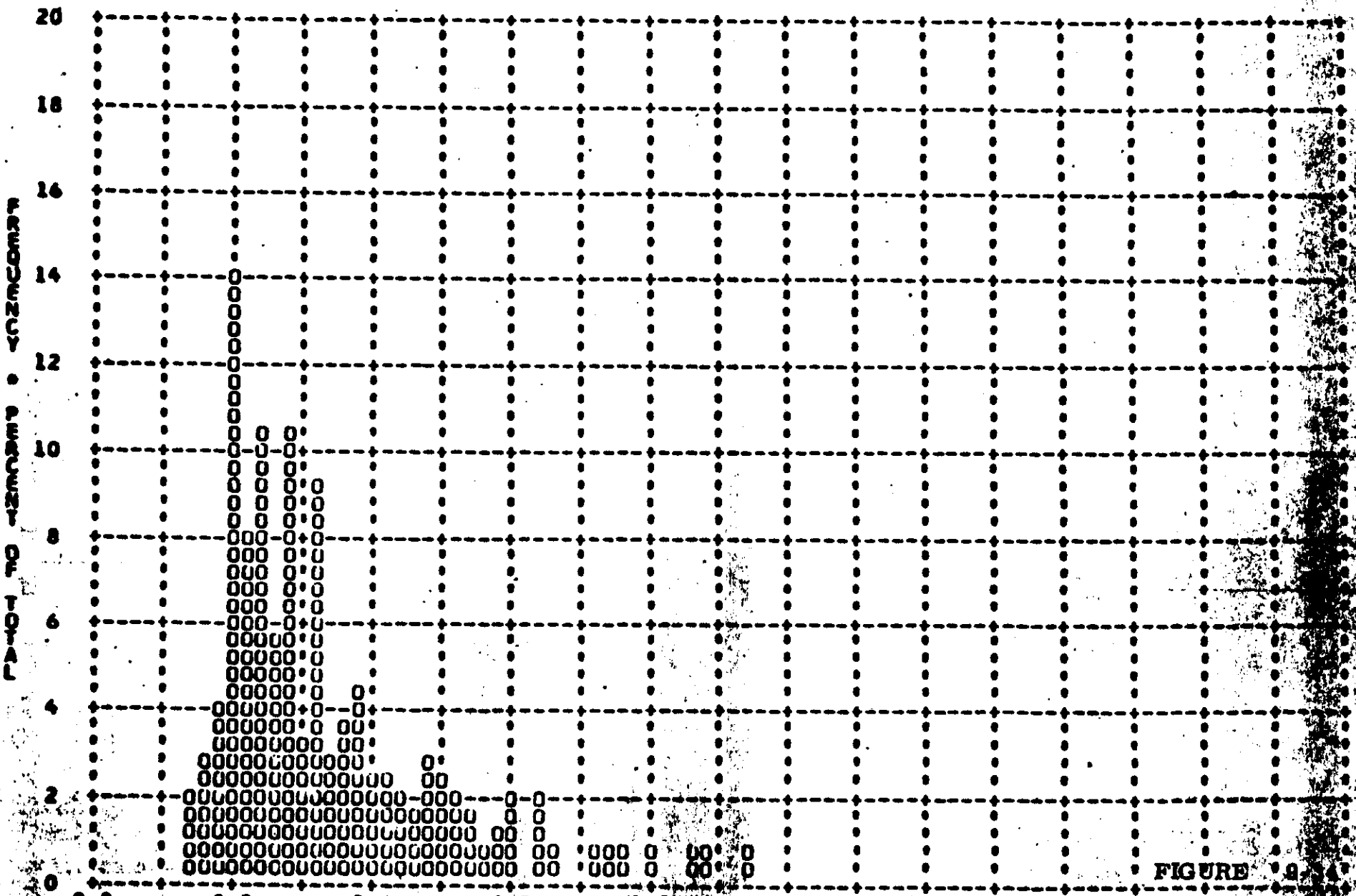


FIGURE 9.2.4

MISSION • 1024-2 • INSTR • AFT • 12-06-65 PLOT OF D MAX • TERRAIN • PROCESSING • ALL LEVELS

ARITH MEAN • 1.31 • MEDIAN • 1.32 • STD DEV • 0.43 • RANGE • 0.29 TO 2.26 WITH 238 SAMPLES

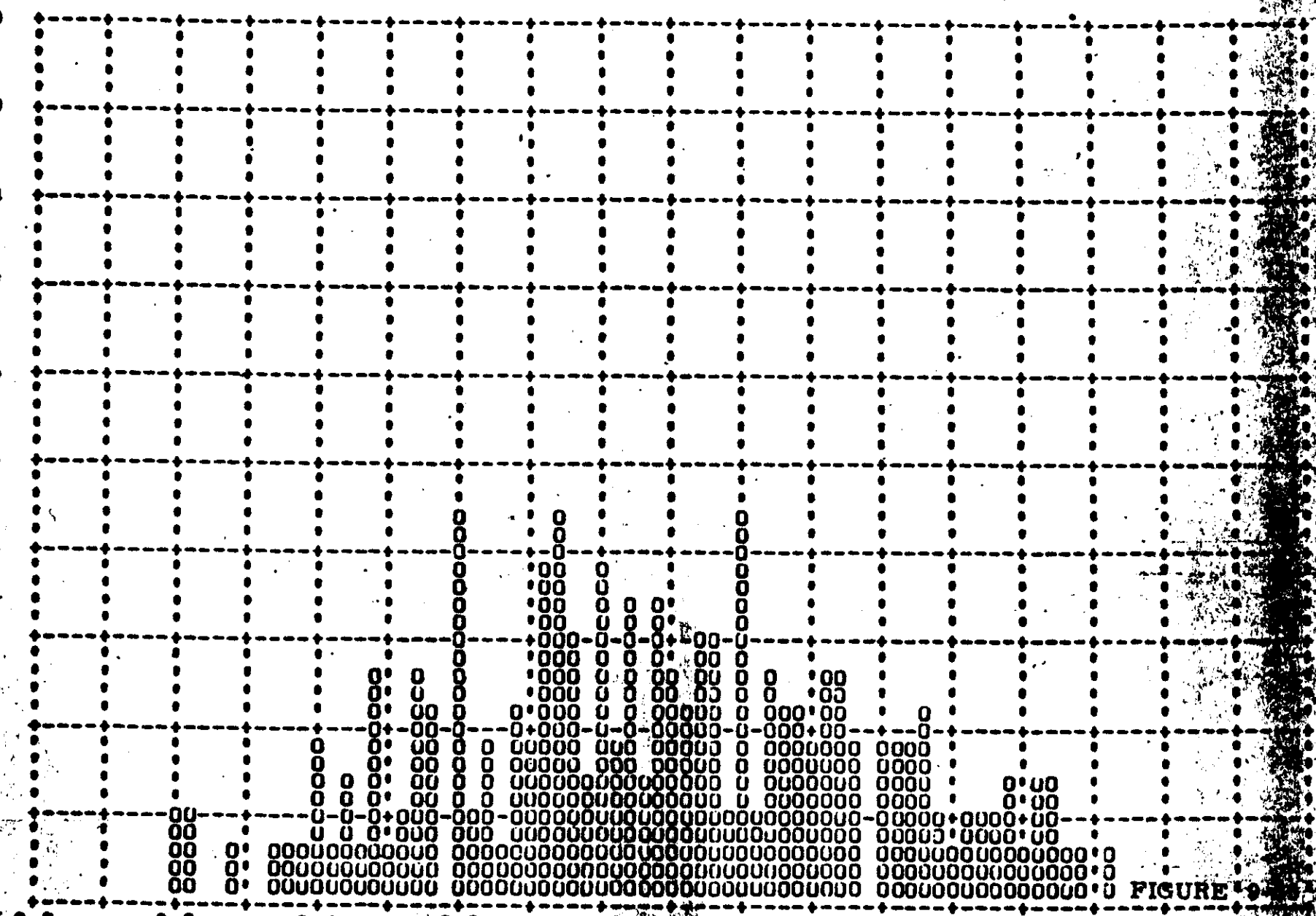


FIGURE 9-[illegible]

MISSION • 1024-2 • INSTR • AFT • 12-06-65 PLOT OF D MAX • CLOUD • PROCESSING • ALL LEVELS

ARITH MEAN • 1.89 • MEDIAN • 1.95 • STD DEV • 0.30 • RANGE • 0.90 TO 2.40 WITH 235 SAMPLES

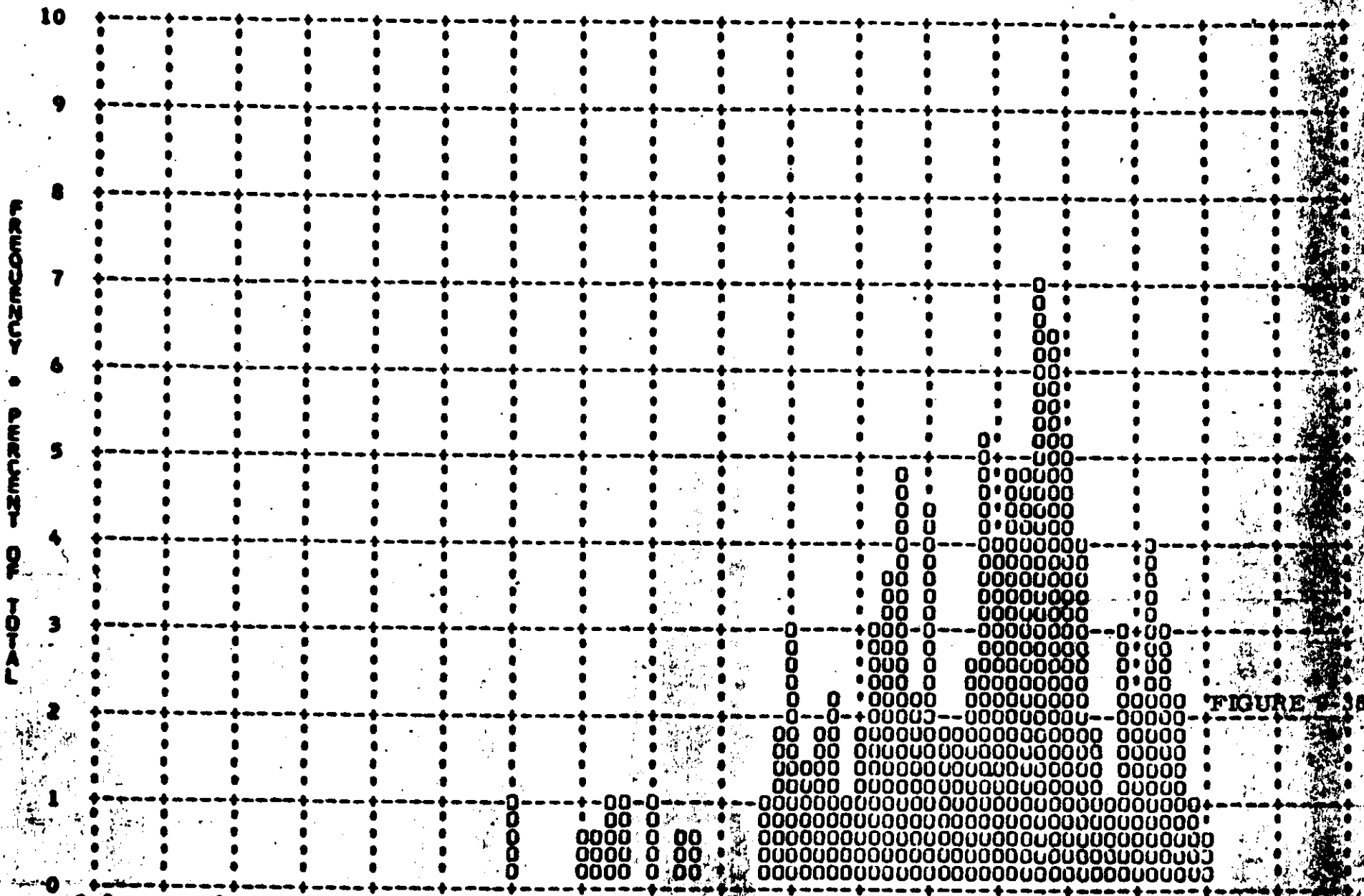


FIGURE 2-38

~~TOP SECRET~~ [redacted] - CONTROL NO. [redacted]

MISSION 1024-1 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	187	6 PC	69 PC	25 PC	0 PC	1 PC
FULL	74	80 PC	0 PC	20 PC	0 PC	0 PC
ALL LEVELS	261	27 PC	49 PC	23 PC	0 PC	0 PC

MISSION 1024-1 INSTR - AFT 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	215	1 PC	57 PC	41 PC	1 PC	0 PC
FULL	48	69 PC	0 PC	29 PC	2 PC	0 PC
ALL LEVELS	263	13 PC	46 PC	39 PC	2 PC	0 PC

MISSION 1024-2 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	61	0 PC	13 PC	82 PC	5 PC	0 PC
FULL	181	49 PC	0 PC	50 PC	2 PC	0 PC
ALL LEVELS	242	36 PC	3 PC	58 PC	2 PC	0 PC

MISSION 1024-2 INSTR - AFT 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	157	2 PC	38 PC	53 PC	6 PC	1 PC
FULL	81	56 PC	0 PC	43 PC	1 PC	0 PC
ALL LEVELS	238	20 PC	25 PC	50 PC	5 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] - CONTROL NO. [redacted]

TABLE 9-5

PROCESSING EXPOSURE SUMMARY

SECTION 10

PERFORMANCE MEASUREMENTS

The photography acquired by both panoramic cameras during Missions 1024-1 and 1024-2 received a MIP rating of 85. A summary is tabulated below of the average MTF/AIM resolution values measured by AFSPPF and by [redacted]. The length of the microdensitometer slit used by AFSPPF was 350 microns whereas [redacted] used an 80 micron slit; both slits were one micron wide.

Mission	Camera	AFSPPF	[redacted] All	[redacted] High
1024-1	FWD	79	90	102
1024-1	AFT	95	94	105
1024-2	FWD	86	89	101
1024-2	AFT	95	100	114

The [redacted] data normally contains 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 AFSPPF and are not normally included in this report.

SECTION 11

OBSERVED DATA

Domestic photography was obtained on eleven daylight passes for engineering purposes. Several of these operations did not produce terrain pictures suitable for evaluating the system performance capability. Passes D01, D16 and D127 were all clouds and water. Pass D81 was a pitch-down operation for the recovery sequence.

In general, the aft-looking camera performed slightly better than the forward-looking in areas covered by both. This is consistent with the results of preflight resolution testing as reported in Section 2.

Careful study of culture contained in areas not obviously degraded by atmospherics indicates system performance to be as good as, and in some cases better than, the best yet produced on the Corona program. The ability to detect isolated vehicles, aircraft engine nacelles, the network of steel bridges and other objects with known dimensions as small as 2 - 3 feet, compares favorably with previous missions in a subjective sense.

A more objective measure of system performance can be derived from analysis of CORN (Controlled Range Network) target displays, five of which were activated for this mission. Not all of these facilities were photographed by both cameras.

On pass D46 both cameras covered the mobile, medium contrast, T-bar target displayed at Lunken field in Cincinnatti, Ohio. The Site Manning Report showed "intermittent heavy haze". This was verified by the corresponding Index camera photography, even though not detectable in the main format. The forward camera resolved 12 - 16 feet and the aft resolved 12 feet.

Targets at Indian Springs and Pahrump, Nevada on pass D111, and Edwards AFB on D127 could not be resolved because of adverse atmospheric conditions.

During Mission 1024-2, a mobile, medium contrast T-bar target displayed on an airstrip at Phillipsburg, Kansas was photographed by both Pan cameras on pass D142. Here, both cameras resolved 12 feet along-track and cross-track. Again, examination of the Index photograph showed haze that was not discernable in the main formats. This was probably the principle factor limiting ground resolution to 12 feet.

Returning attention to Mission 1024-1, we found that only the aft-looking camera covered Wright-Patterson AFB on pass D46. Here, 10.1 feet was resolved along-track and cross-track. There appeared to be a very slight haze, again limiting resolution. This could not be confirmed as the Index camera did not photograph this target.

During pass D63 only the forward-looking camera photographed a mobile, medium contrast T-bar target at Gonado, Arizona. A number of observers have reported resolving this display to 7 feet. One observer, viewing the original negative reported resolving one more element in the along-track target which is equivalent to 6.4 feet.

This high resolution performance is attributed to a combination of favorable conditions that include exposure, processing and atmospherics as well as near optimum system performance.

Eastman Kodak exposure criteria, dated October 1963, was used to select the 0.225 inch slit and Wratten 25 filter combination used on the forward-looking camera. This filter/slit choice produced an exposure of 1/295 seconds for frame 20, pass D63. Slant range to the target was 104 nautical miles. The corresponding photographic scale was 1:314,000. This was better scale than for most targets acquired on this mission.

The Site Manning Report shows that this medium contrast target during pass D63 had a highlight/lowlight brightness ratio of 5.6 to 1, reflecting approximately 2750 and 490 foot-lamberts respectively, measured at the ground. The CORN manual shows that this T-bar target, when new, had a high-light/low-light reflectance of 37%/4% for a brightness ratio of 9 to 1. Micro-densitometer traces of the T-bar target, made on the original negative, produced densities of the high-light/low-light of approximately 1.25 and 0.75 respectively.

This frame was processed at the intermediate level as reported by [redacted] The target densities of 1.25 and 0.75 produced at the intermediate processing level correspond to exposures of 1.68 and 1.46 meter-candle-seconds respectively and produce an apparent brightness ratio of 1.66 to 1 in 3404 type film.

Full processing level was predicted for Mission 1024-1 pass D63. It is suggested that the intermediate level of processing enhanced the ground resolution observed at Gonado relative to the resolution that would have been produced at the full process level by generating a lower density negative, with lower silver granularity requiring less printing light with a corresponding reduction of light-scatter or film-flare degradation.

It is interesting to note that primary processing would have placed the low-light and the high-light of the T-bar on the straight portion of the D log E curve for 3404 type film, above the 0.40 density process control point.

Using the 7 foot ground resolution quoted by most photo-evaluation team members and the photographic scale for this target, camera resolution is 147 L/mm for an apparent T.O.C. of 1.66 to 1. The average low contrast (2 to 1) bar target resolution produced by this forward camera at A/P for the peak focus setting was 111 L/mm. However, examination of individual test targets that made up the average test resolution reveal values as high as 143 L/mm.

Atmospherics associated with the Gonado, Arizona site at the time this frame was exposed were described in the Site Manning Report as "clear, with no apparent ground haze". The absence of severe ground thermals at this time of year is expected to contribute toward improved resolution performance.

SECTION 12

MISSION 1024-1 STELLAR-INDEX CAMERA

A. COMPONENT ASSIGNMENT

Component	Serial Number
Camera	D-69
Index Reseau	72
Stellar Reseau	84

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 camera functioned properly throughout the mission with no observed equipment or photographic anomalies. Approximately 50 stars were recorded on each of 401 frames of photography. Stellar baffle flare fog appeared normal with several star images recorded within the fog flared area. Fiducial imagery was excellent. Stellar correlation lamp imagery was consistently good.

Stellar frames No. 9, 365, and 366 contained minor dendritic static fog. Thirty two frames of Mission 1024-1 stellar photography contained one or more streaks usually attributed to jettisoned fuel particles. By comparison 34 frames of Mission 1023-1 stellar photography were affected by similar streaks. Multiple streaks are common in photography up through approximately the first 20 frames of stellar photography; thereafter one streak per affected frame is common.

The Index camera produced 418 frames of processed photography. Index photography compared to the best photography ever recovered on the J program.

Most stellar imagery was elongated and comet shaped. Stars of 4th, 5th, and 6th magnitude were used for attitude determination. Elongated imagery measured approximately 70 microns in length; equivalent to six minutes of pitch motion and two minutes of roll during stellar shutter open time. Yaw motion was negligible.

SECTION 13

MISSION 1042-2 STELLAR-INDEX CAMERA

A. COMPONENT ASSIGNMENT

Component	Serial Number
Camera	D-64
Index Reseau	82
Stellar Reseau	66

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 camera functioned properly throughout the mission. Good stellar imagery was acquired in all 411 frames of stellar photography. Approximately 15 star images were recorded in each frame of stellar photography. The baffle flare fog pattern was somewhat heavier in Mission 1024-2 relative to Mission 1024-1. However, sufficient stellar imagery was present to provide vehicle attitude data to meet program objectives.

Fiducial and coorelation lamp imagery were good throughout Mission 1024-2. The quality of elongated star imagery was similar to Mission 1024-1.

There are random traces of dendritic static fog on the last fourteen frames of stellar photography. The last 100 frames of stellar photography were severely damaged during processing due to separation of a processor splice. Development of the damaged stellar film appears to be relatively normal as evidenced by good star imagery throughout the physically damaged last 100 frames. However the severe scratch, crease, and crinkled nature of some of the damaged stellar frames would render them useless for accurate vehicle attitude data reduction.

Minor plus density continuous streaks were present throughout Mission 1024-2 stellar photography. Some plus density streaks have been observed in stellar film used for test purposes prior to launch. This is currently under investigation.

The Index camera produced 432 frames of processed photography. Index photography was rated good throughout Mission 1024-2. However, many frames of index photography were affected by many minute plus density comet shaped marks that generally were only detected in clear areas of the original negative. These plus density comet shaped marks were attributed to electrostatic discharges that occurred throughout Mission 1024-2 between the film and the chromium reseau grid.

SECTION 14

VEHICLE ATTITUDE

The vehicle attitude errors for both Mission 1024-1 and 1024-2 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 1024-1 and Figures 14-7 through 14-12 for Mission 1024-2.

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

	Mission 1024-1		Mission 1024-2	
Value	90%	Range	90%	Range
Pitch Error (^{o})	0.42	-0.48 to +0.70	0.36	-0.75 to +0.50
Roll Error (^{o})	0.25	-0.38 to +0.50	0.31	-0.36 to +0.70
Yaw Error (^{o})	0.62	-1.05 to +0.85	0.93	-0.25 to +1.60
Pitch Rate (^{o}/hr.)	32.22	-65 to +95	30.45	-85 to +80
Roll Rate (^{o}/hr.)	24.91	-85 to +70	24.51	-55 to +95
Yaw Rate (^{o}/hr.)	30.47	-80 to +100	36.42	-48 to +70

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-24 A-BUCKET FORWARD INSTRU. FRAMES 1-6 OF EACH 20 OMITTED 90 PERCENT a 0.42

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

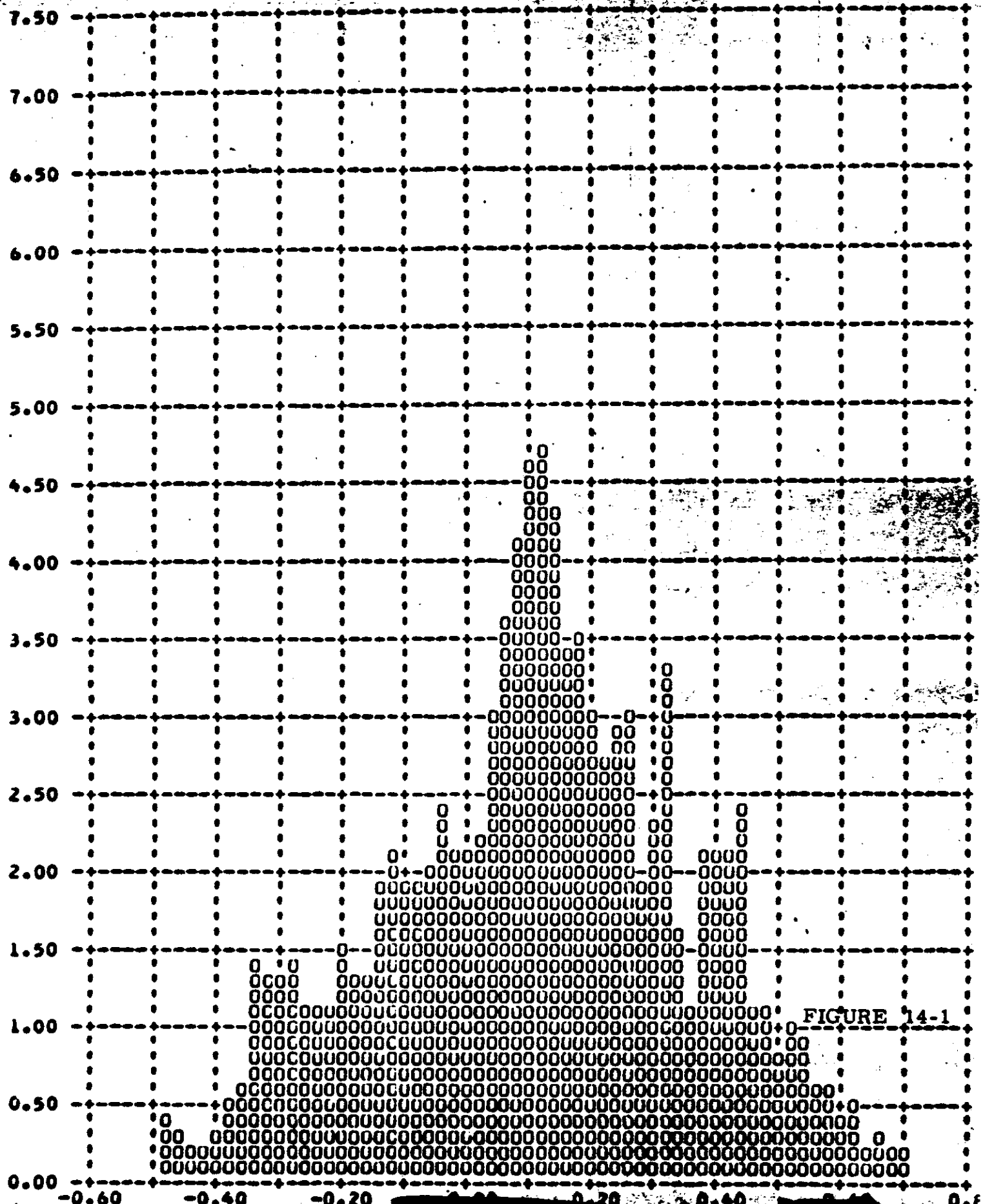


FIGURE 14-1

J-24 A-BUCKET FORWARD INSTRU. FRAMES 1-6 OF EACH OF OMITTED .. 90 PERCENT [illegible]

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

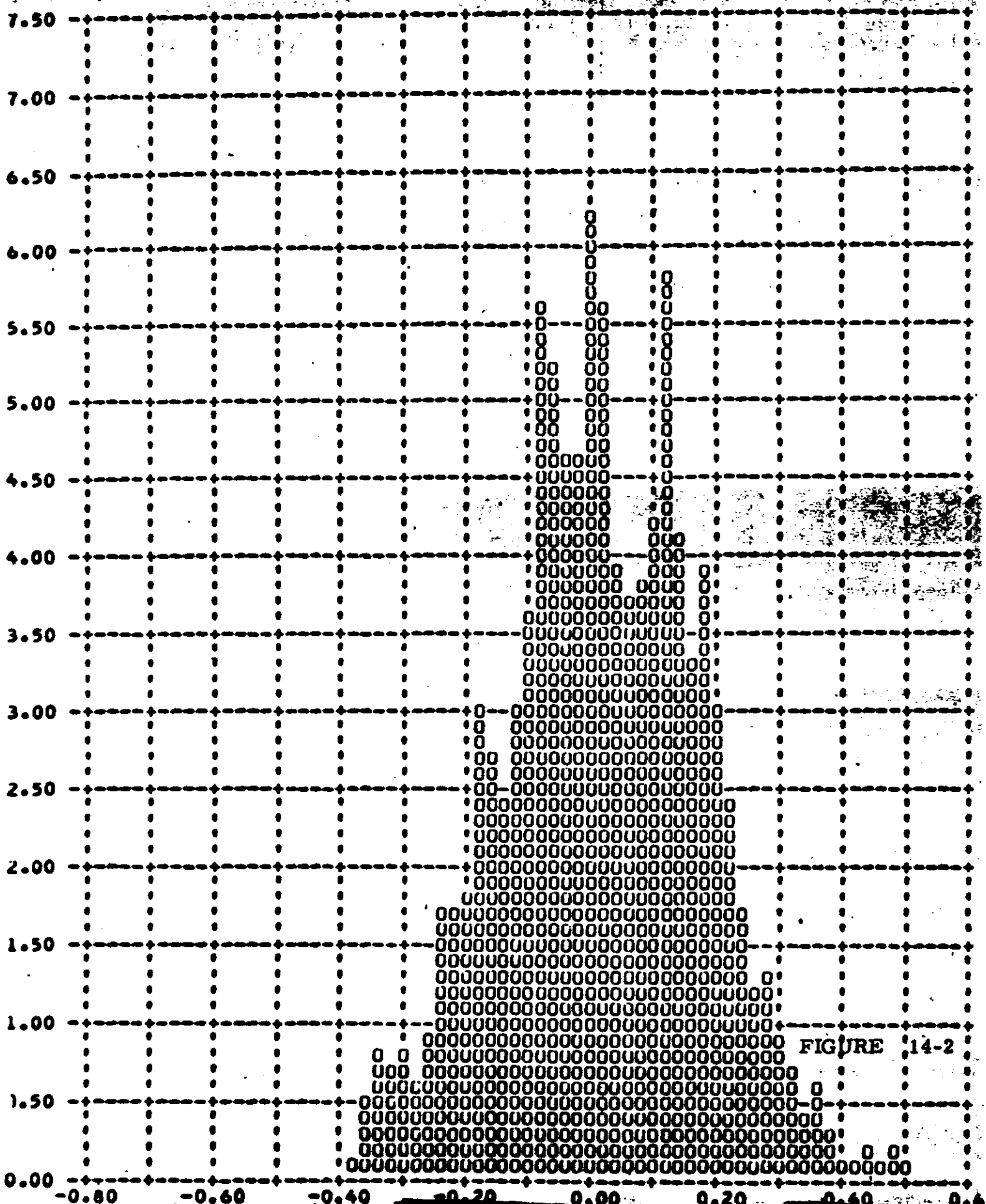


FIGURE 14-2

J-24 A-BUCKET FORWARD INSTRU FRAMES 1-6 OF EACH OF OMITTED 90 PERCENT = 0.62

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

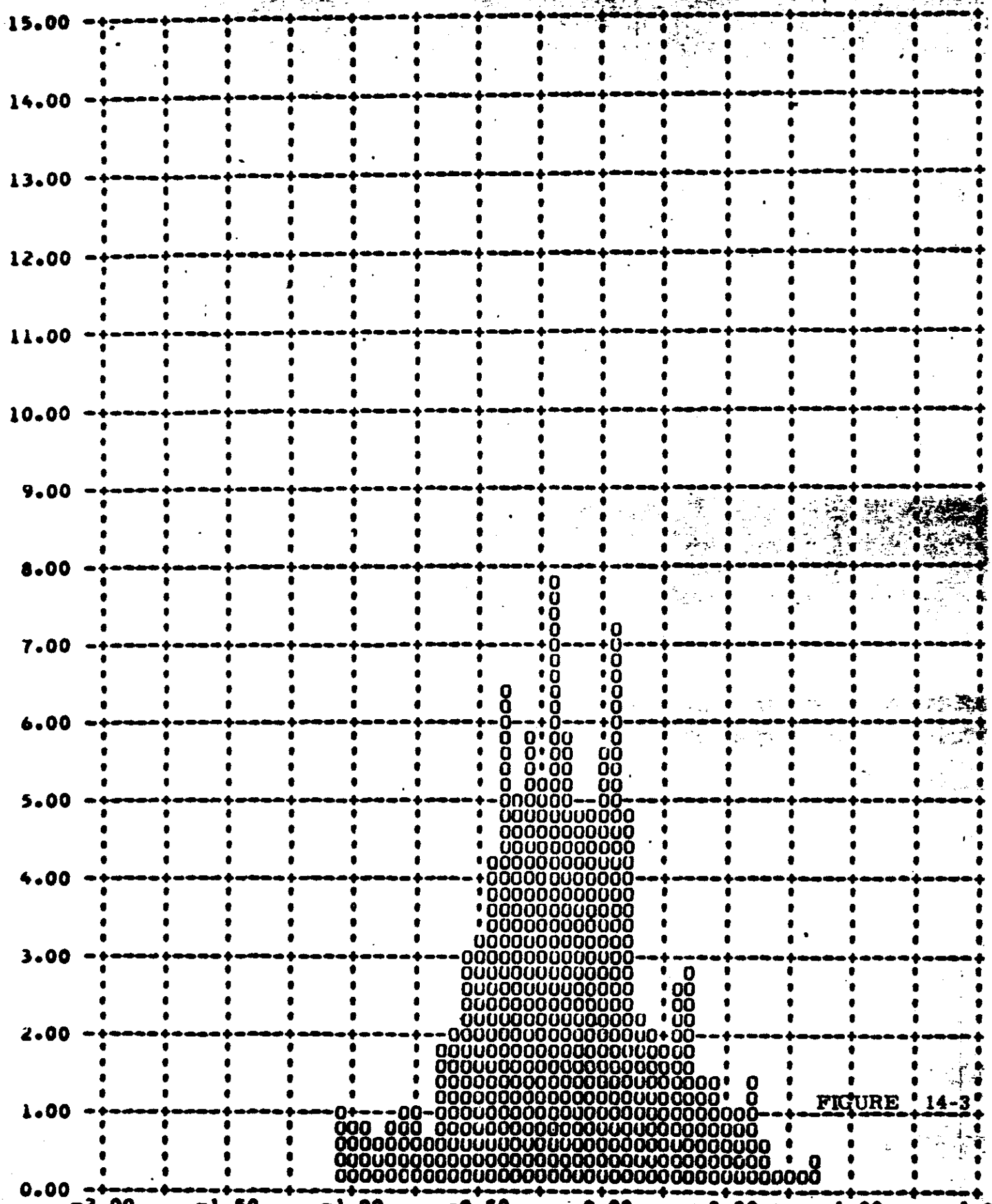


FIGURE 14-3

J-24 A-BUCKET FORWARD INSTRU FRAMES 1-6 OF EACH OF OMITTED - 90 PERCENT = 32.22

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

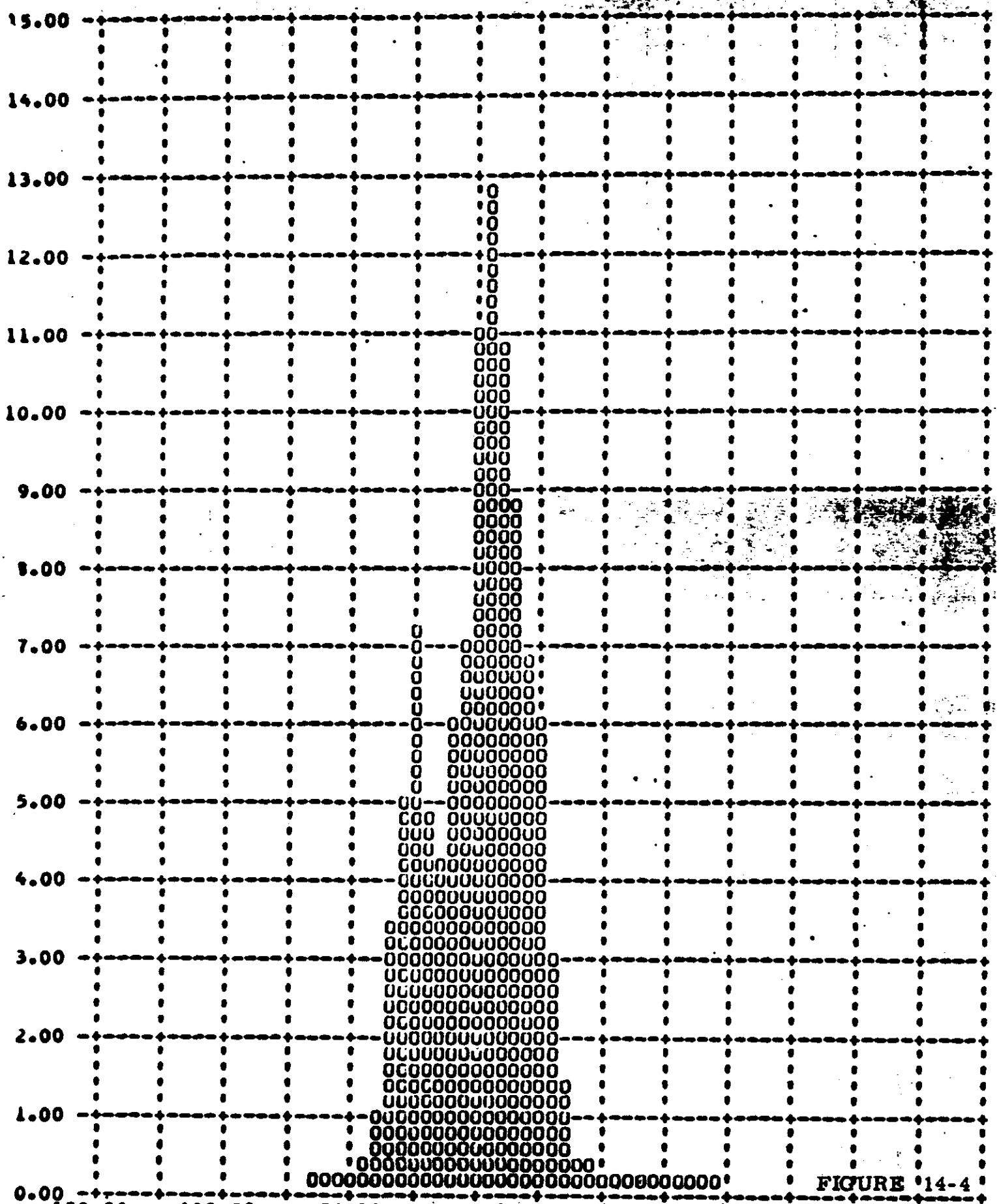


FIGURE 14-4

J-24 A-BUCKET FORWARD INSTRU FRAMES 1-6 OF EACH DE OMITTED 90 PERCENT = 24.9

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

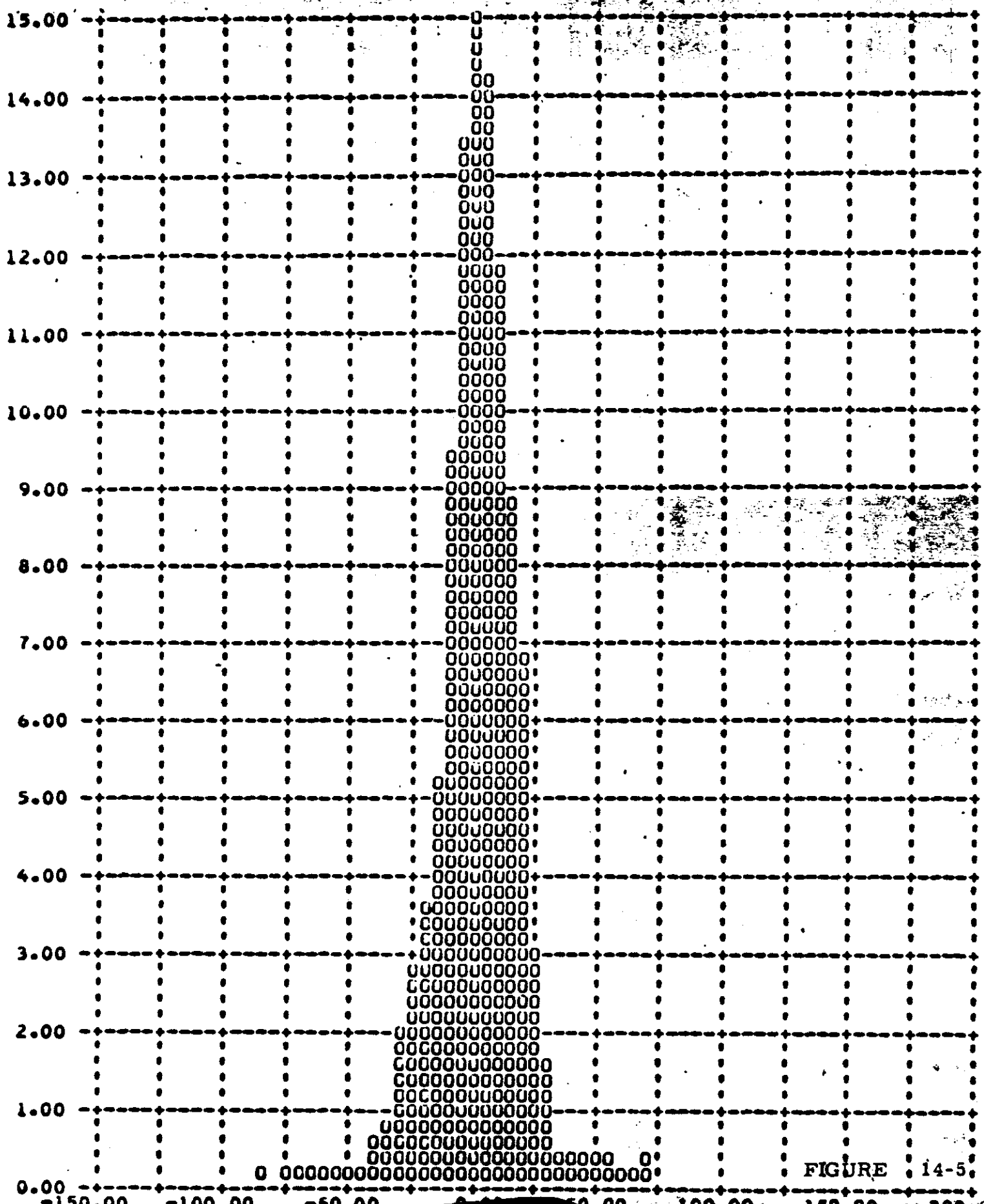


FIGURE 14-5

J-24. A-BUCKET FORWARD INSTRU FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 30.47

Y YAW RATE ERROR - DEG/HOUR TX1 VERSUS FREQUENCY - PERCENT TX1

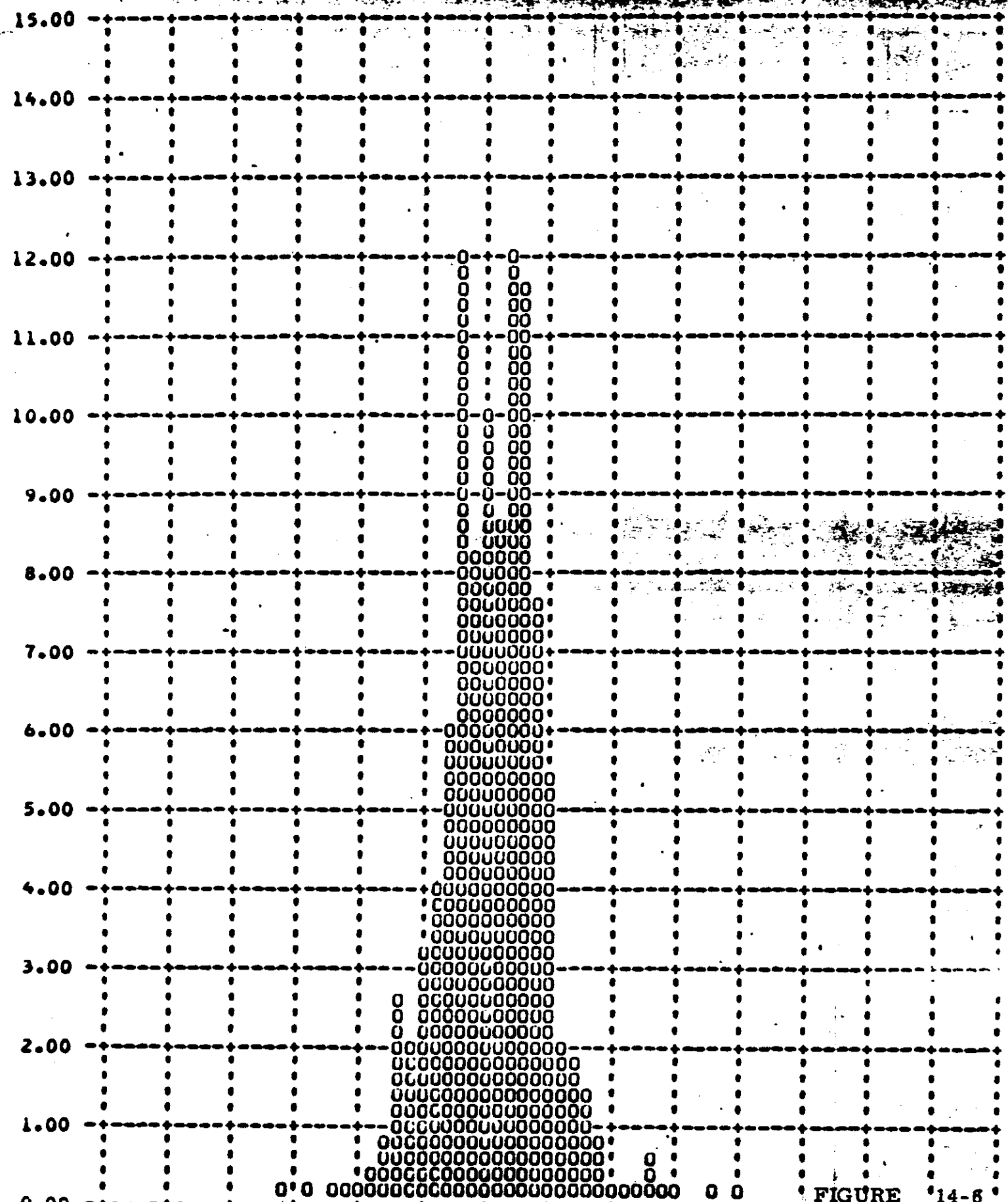


FIGURE 14-6

J-24 B BUCKET FORWARD INSTRUME FRAMES 1-6 OF EACH OR OMITTED 90 PERCENT [illegible]

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

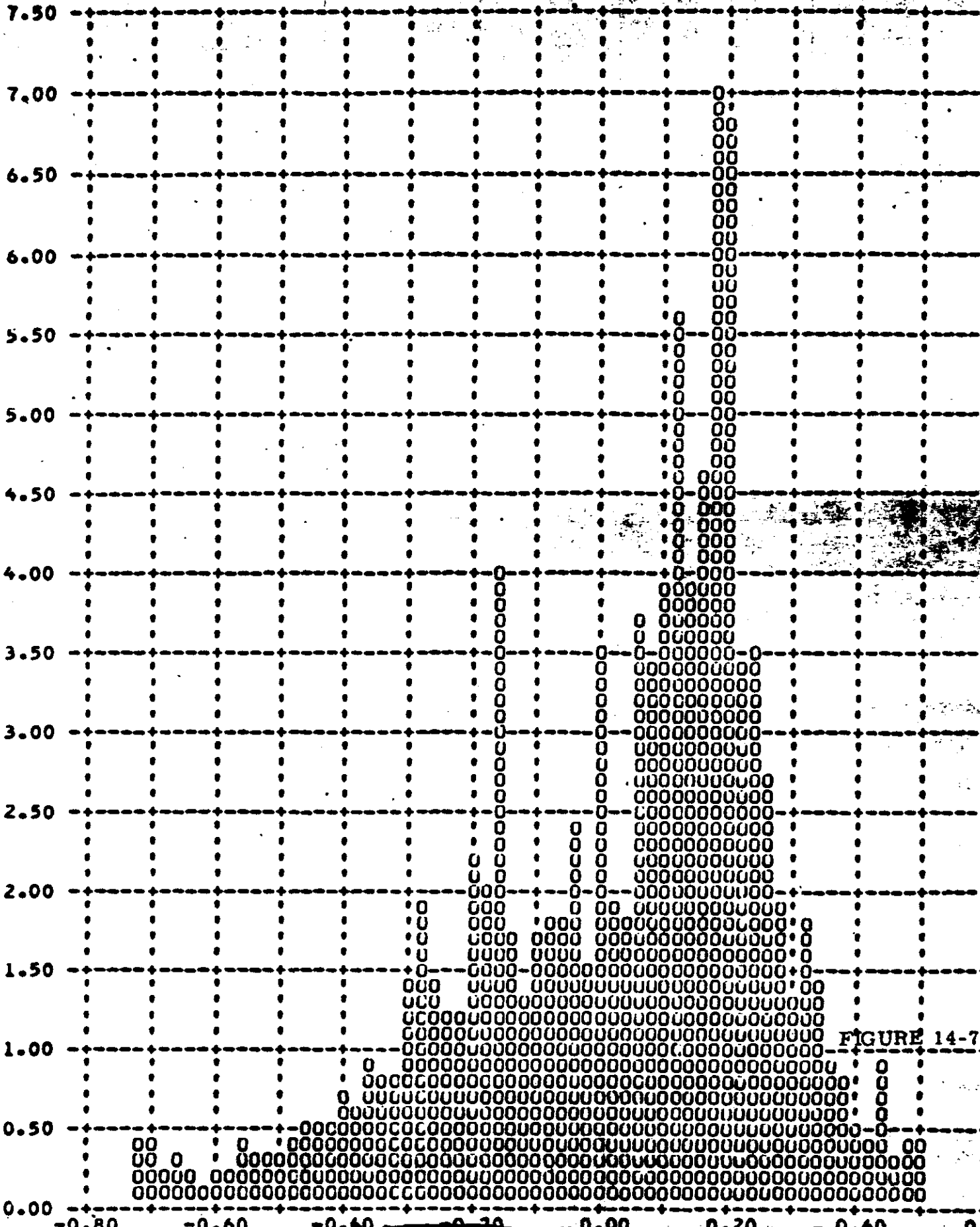


FIGURE 14-7

J-24 B BUCKET FORWARD INSTRUME FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 0.

Y ROLL ANGLE ERROR - DEGREES TXT VERSUS FREQUENCY - PERCENT TXT

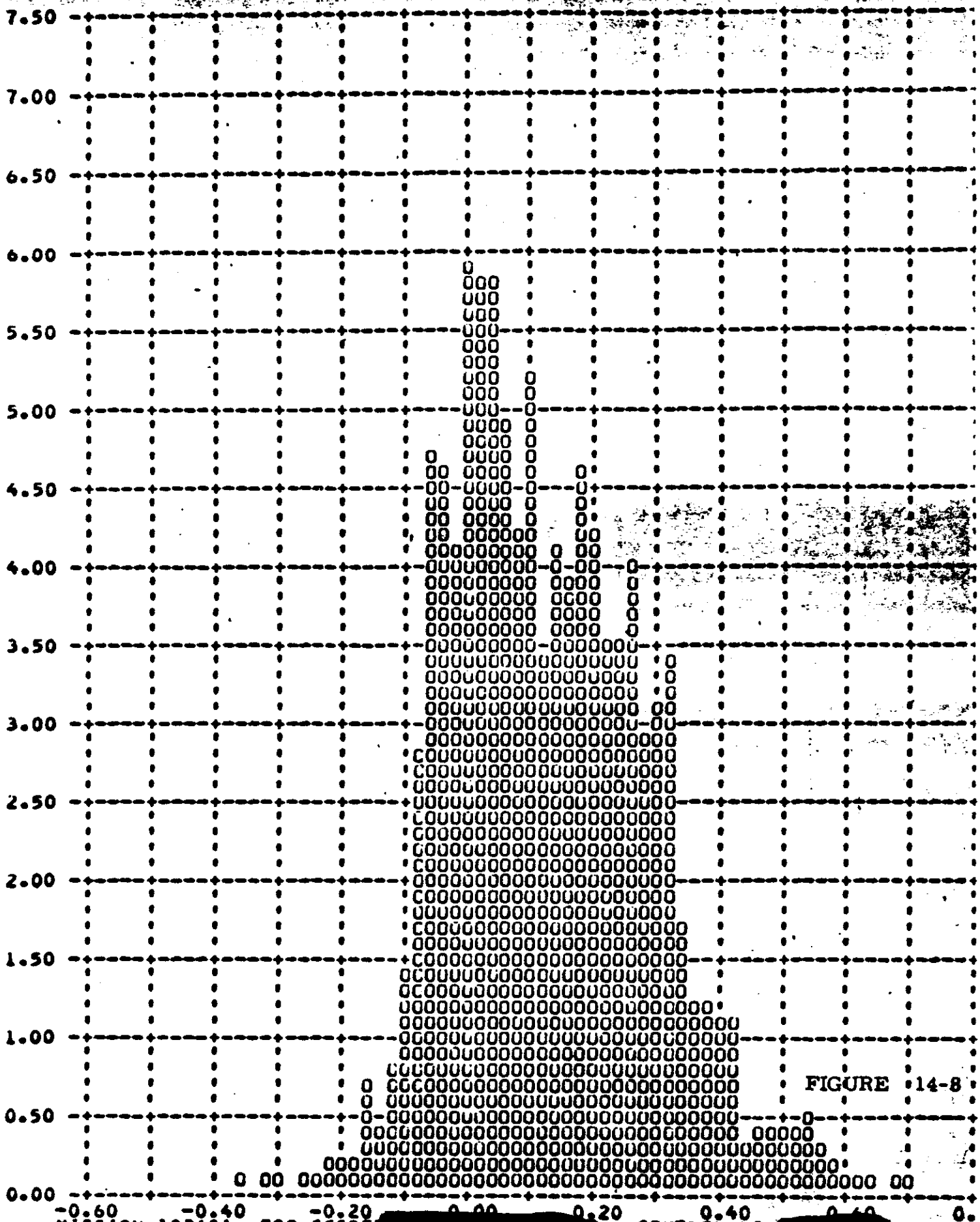


FIGURE 14-8

J-24 8 BUCKET FORWARD INSTRUME FRAMES 1-6 OF EACH DP OMITTED 90 PERCENT = 0.5

Y YAW ANGLE ERROR - DEGREES X VERSUS FREQUENCY - PERCENT OVER

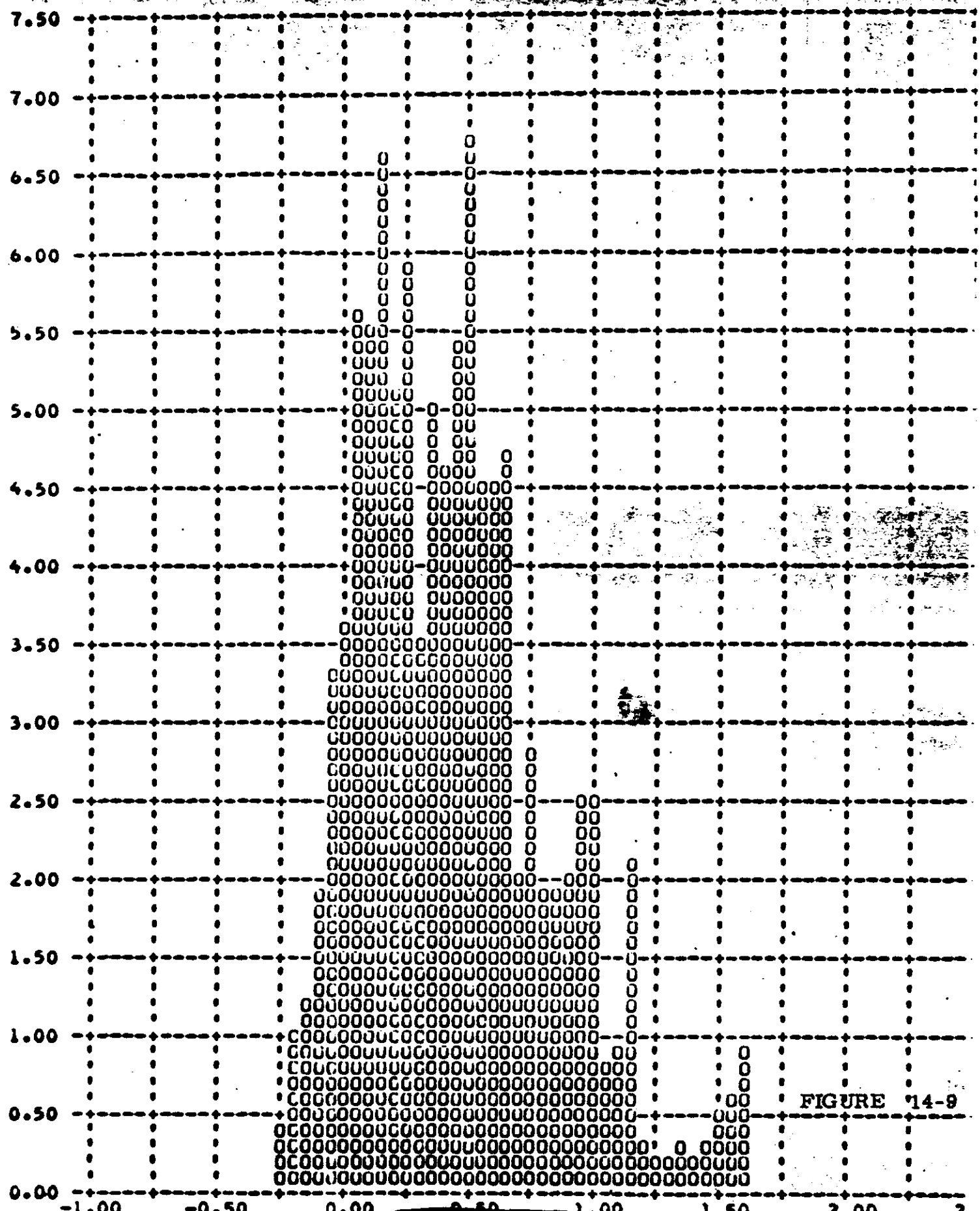


FIGURE 14-9

J-24 B BUCKET FORWARD INSTRUME. FRAMES 1-6 OF EACH OP OMITTED. 90 PERCENT = 30.4

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

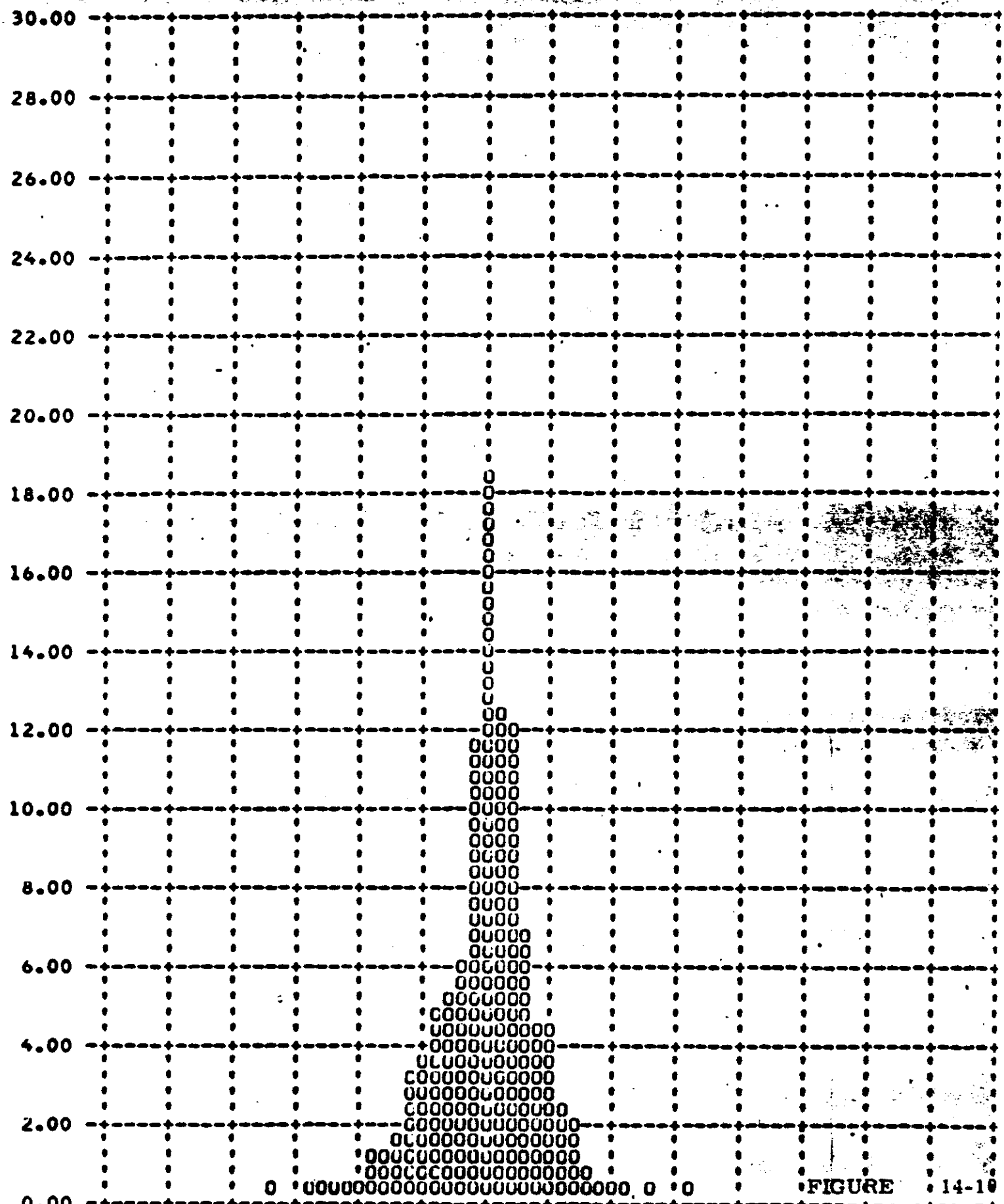


FIGURE 14-10

J-24 B BUCKET FORWARD, INSTRUMENT FRAMES 1-6 OF EACH DATA BLOCK, 90 PERCENT @ 24

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

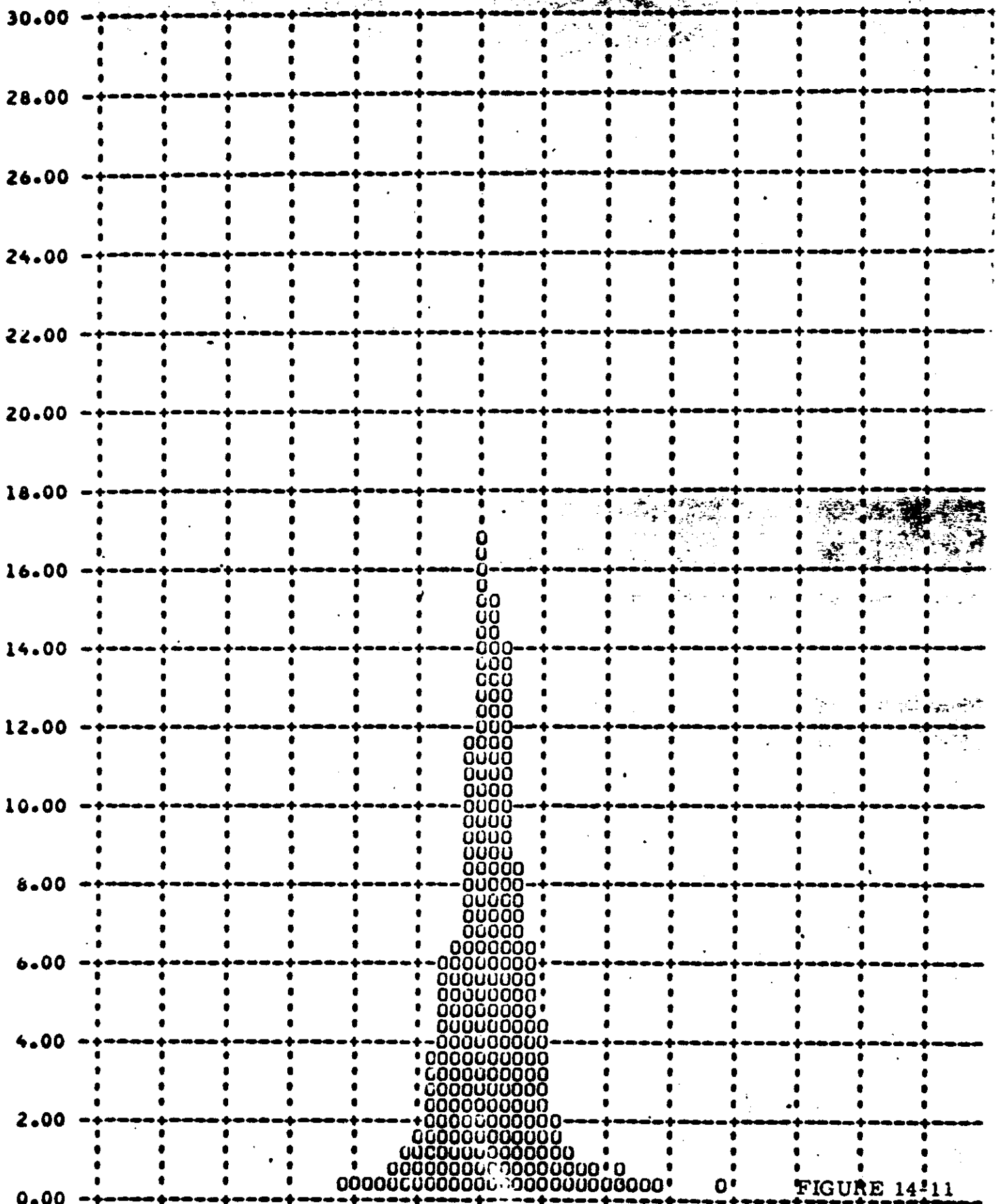


FIGURE 14-11

J-24 B BUCKET FORWARD INSTRUM, FRAMES 1-6 OF EACH OF OMITTED = 90 PERCENT R 36.4

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

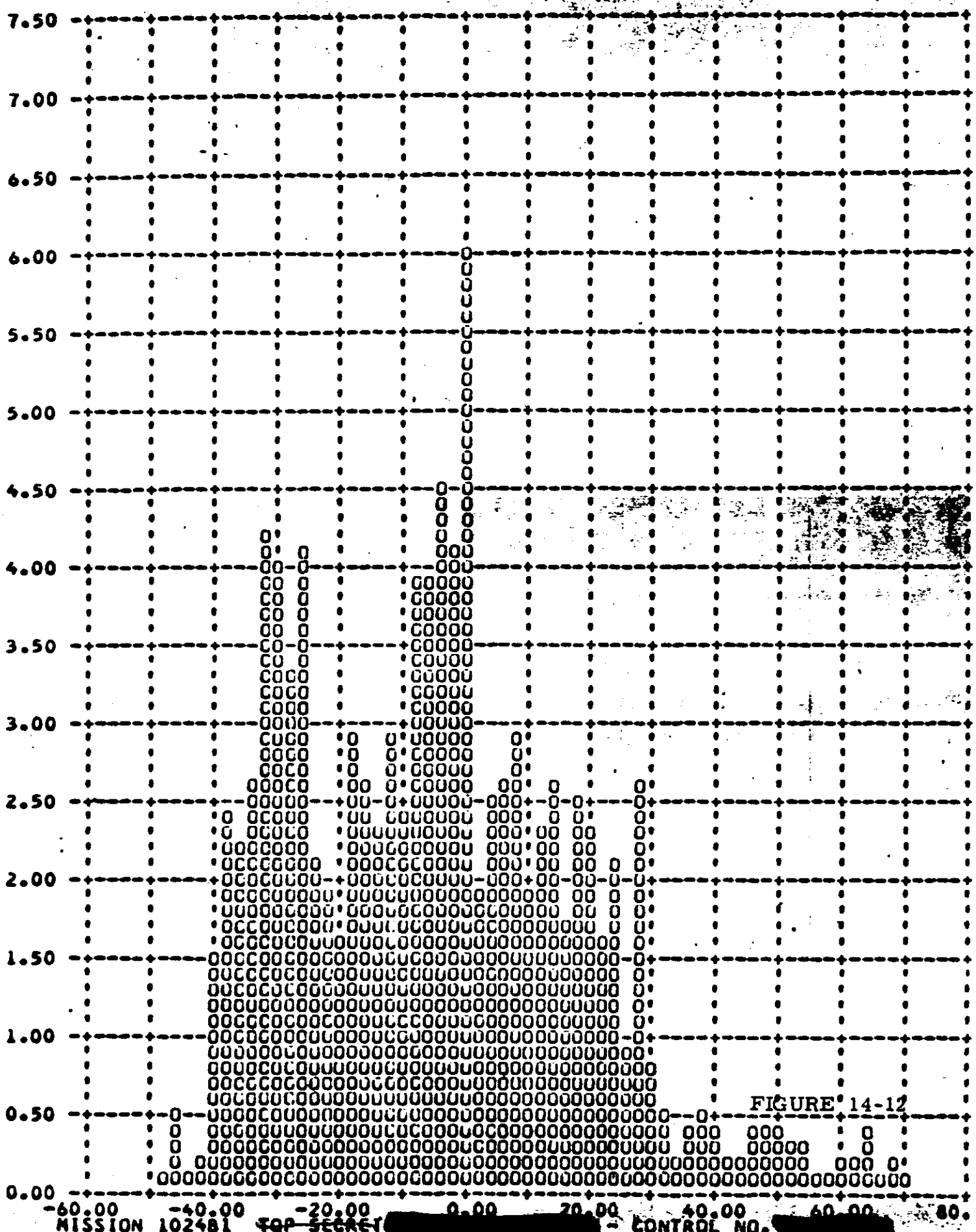


FIGURE 14-12

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 are computer plotted and are shown in Figures 15-1 through 15-3 for the FWD camera of Mission 1024-1, Figures 15-4 through 15-6 for the AFT camera. The FWD camera plots for Mission 1024-2 are shown in Figures 15-7 to 15-9, AFT camera plots are shown in Figures 15-10 to 15-12.

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

J-24 A-BUCKET FORWARD INSTRU FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 2.6

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

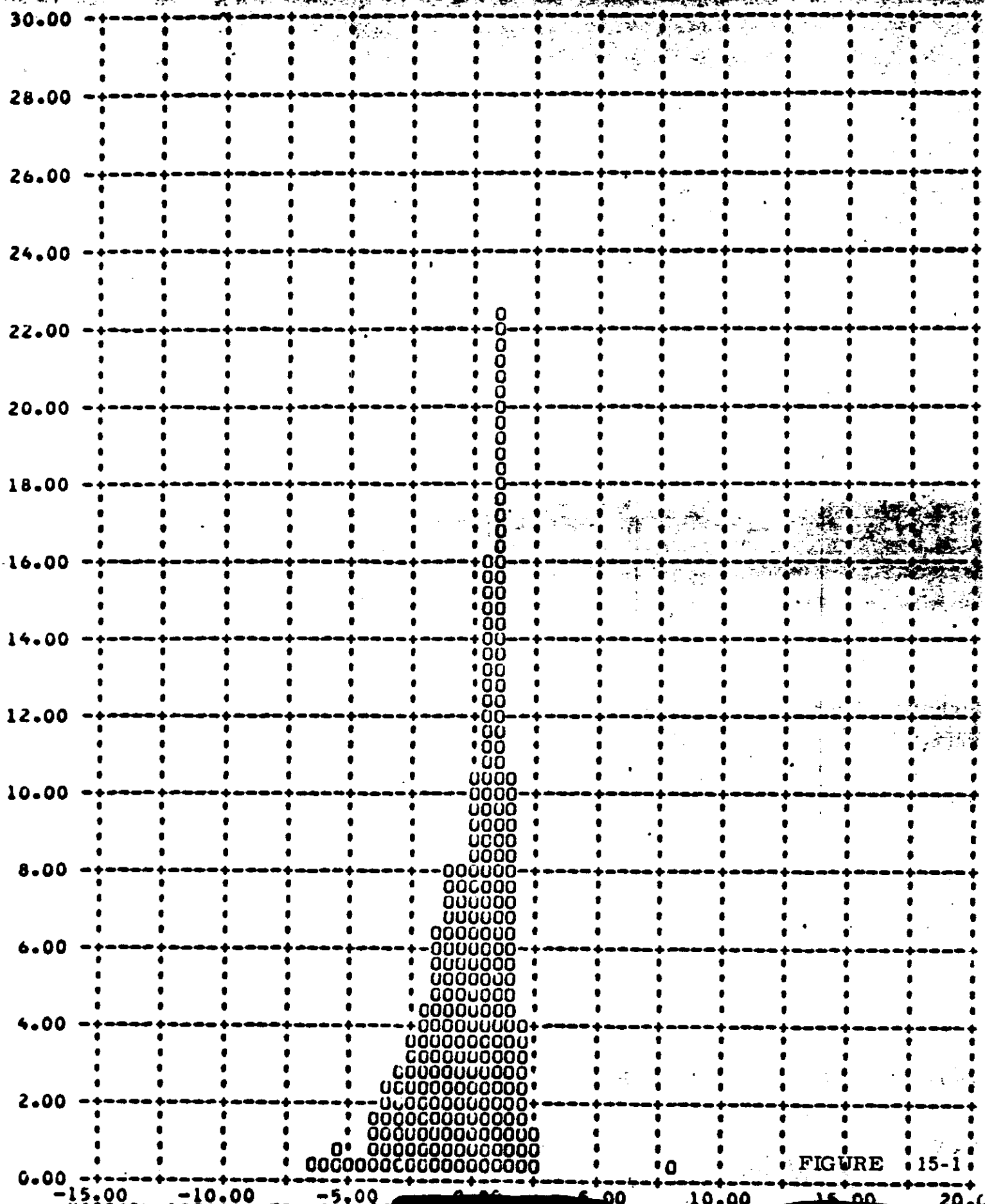


FIGURE 15-1

J-24 A-BUCKET FORWARD INSTRU FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 5.9

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

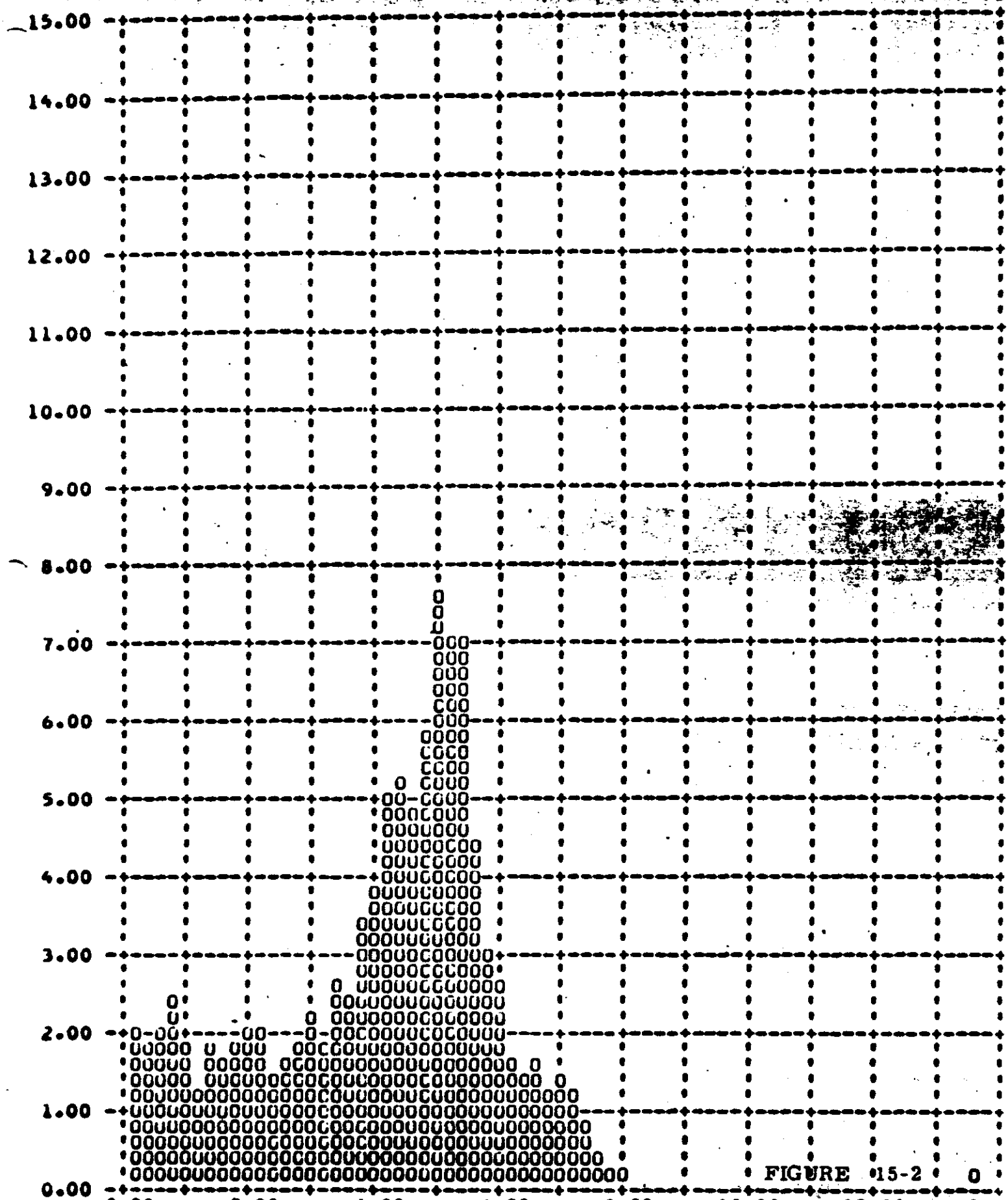


FIGURE 15-2

J-24 A-BUCKET FORWARD INSTRU FRAMES 1-6 OF EACH OF OMITTED 90 PERCENT = 6.7

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

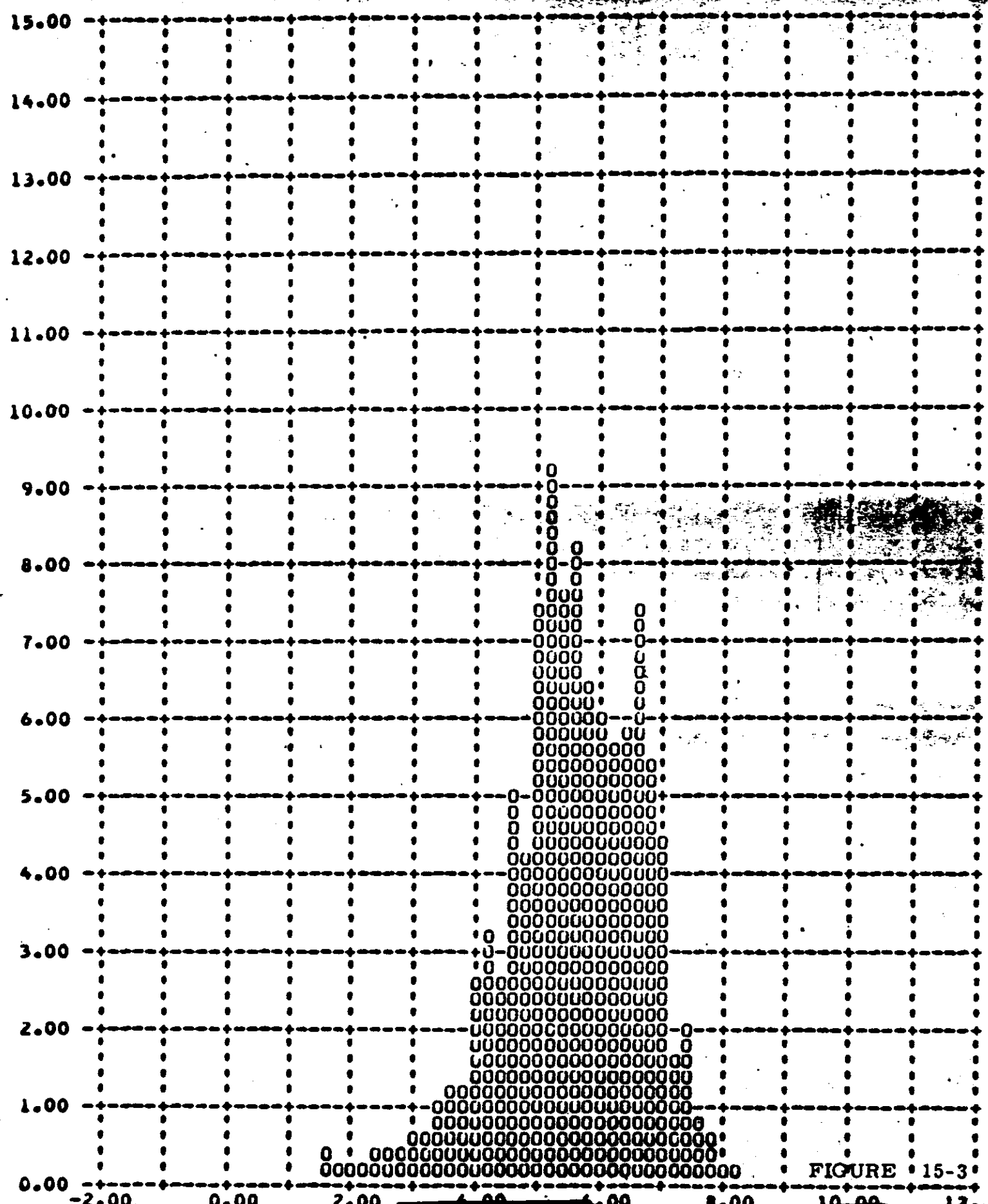


FIGURE 15-3

J-24 A BUCKET AFT INSTRUMENT - FRAMES 1-6 OF EACH OR OMITTED - 90 PERCENT = 2.05

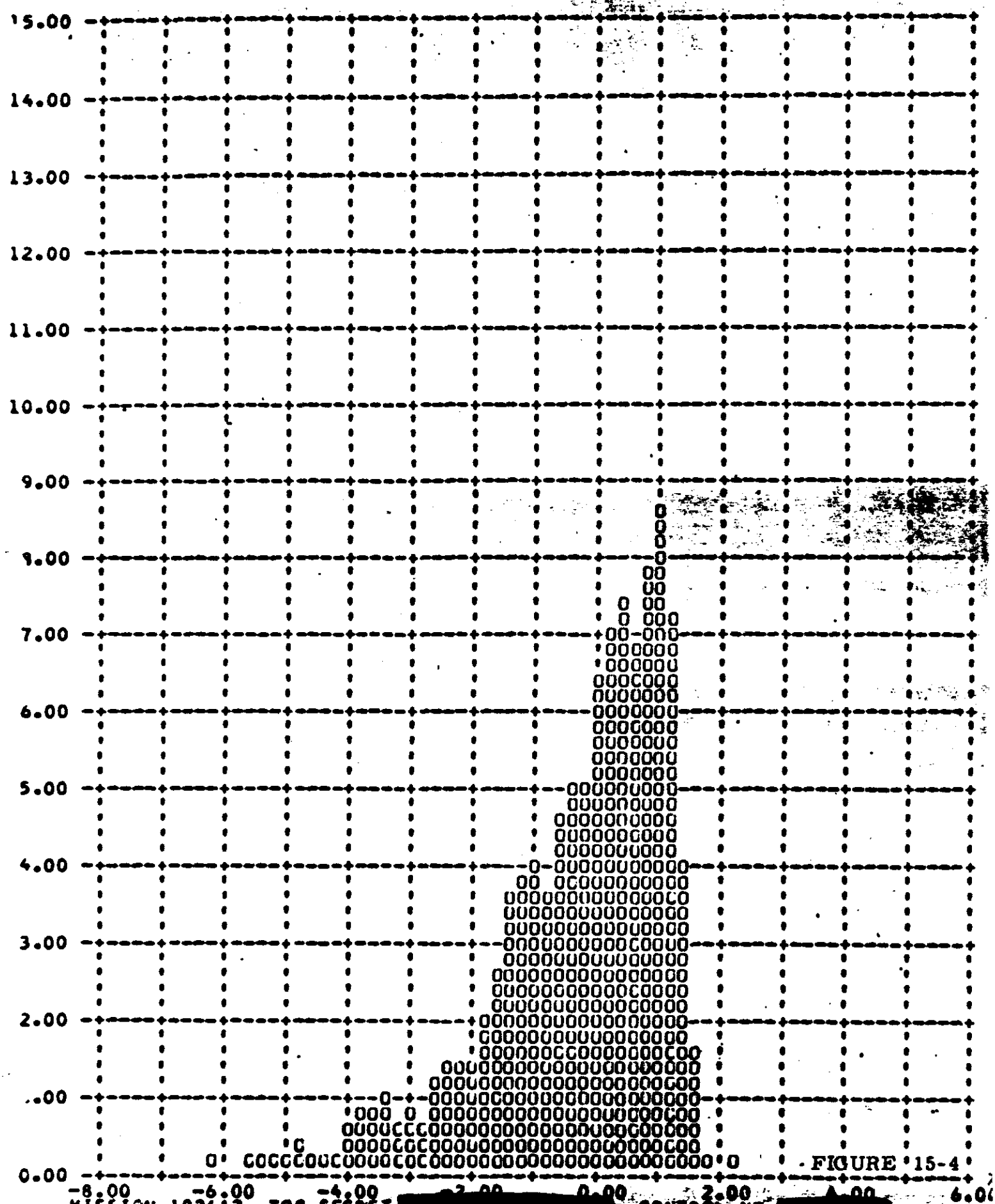


FIGURE 15-4

-24 A BUCKET AFT INSTRUMENT [illegible] FRAMES 1-8 ON EACH [illegible] SPLITTED AT 90 PERCENT [illegible]

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

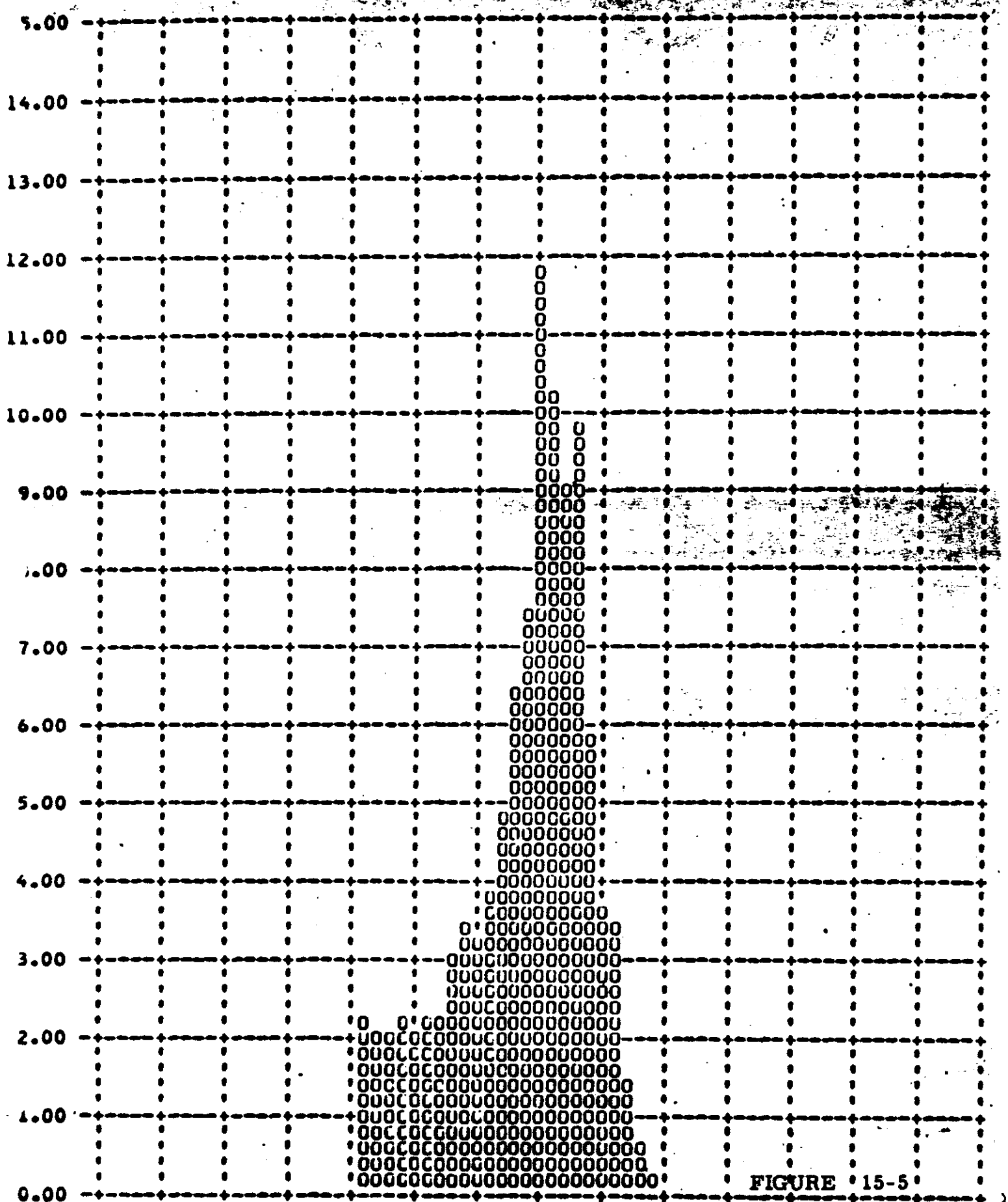


FIGURE 15-5

1-24 BUCKET AFT INSTRUMENT [illegible] FRAMES 1-6 OF [illegible] TILED 90 PERCENT = [illegible]

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

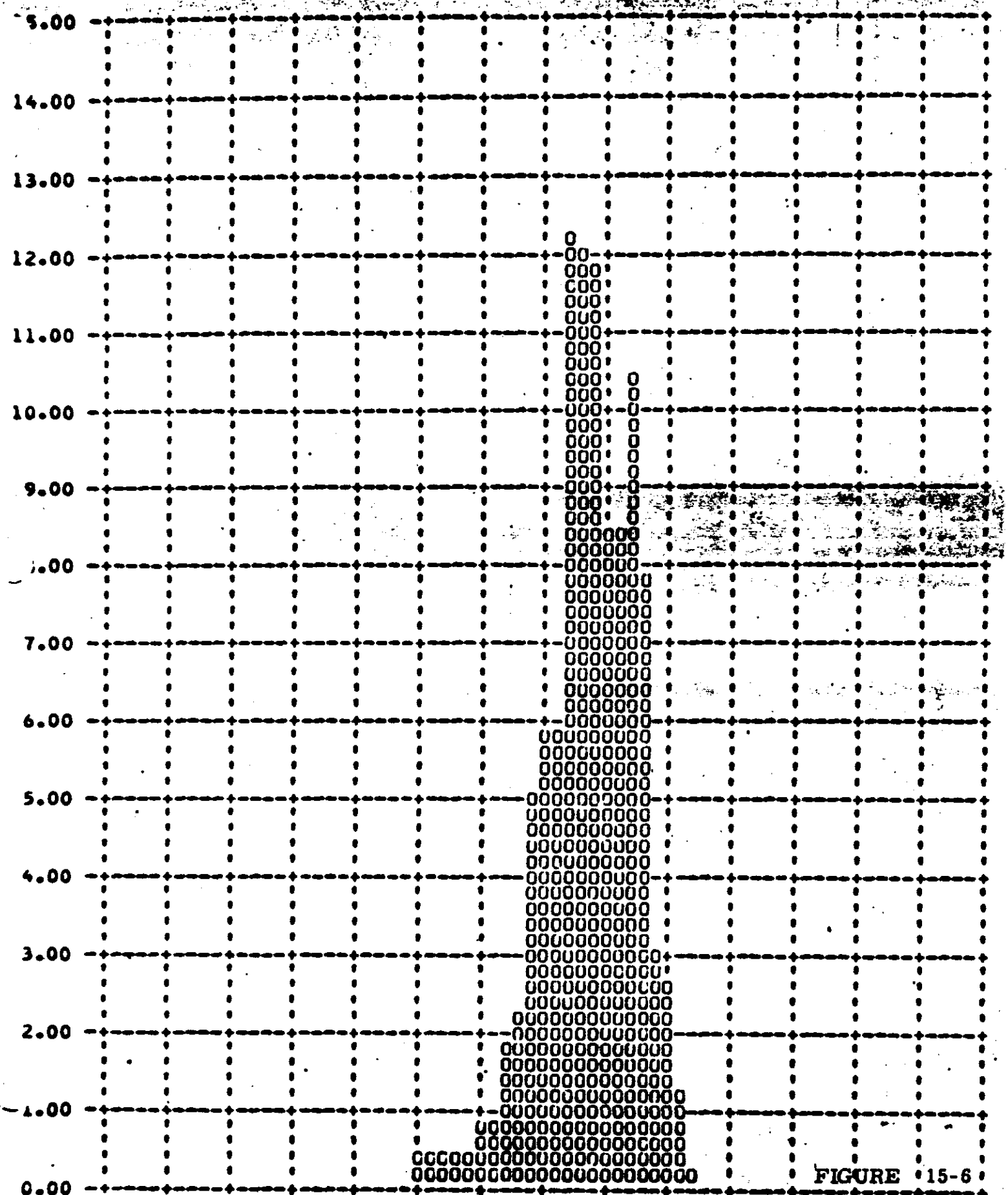


FIGURE 15-6

J-24 B BUCKET FORWARD INSTRUME FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 5.5

V = V/H RATIO ERROR P PERCENT TYPE ERROR FREQUENCY = PERCENT (Y)

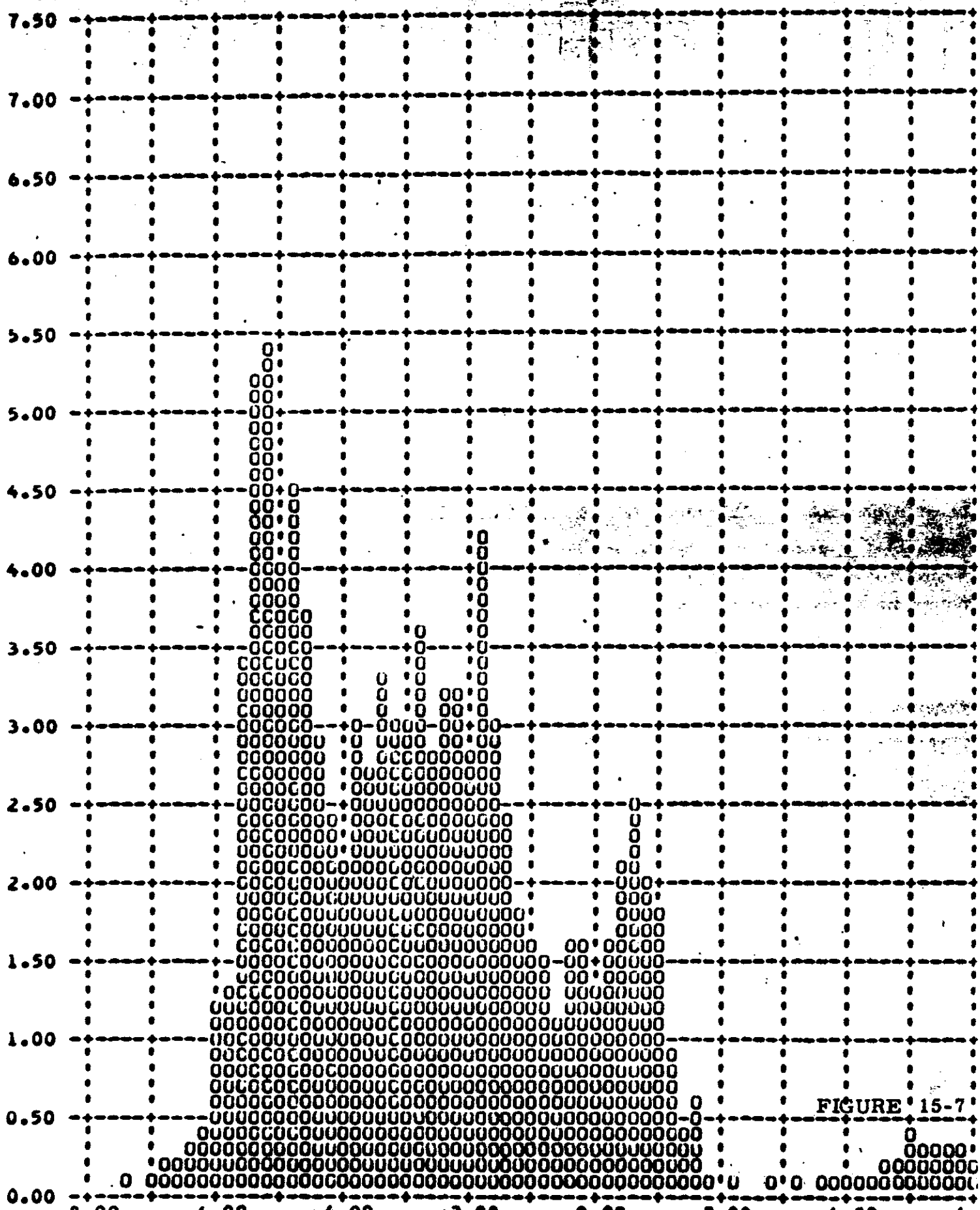


FIGURE 15-7

J-24 B BUCKET FORWARD INSTRUME FRAMES 1-6 OF EACH OR OMITTED = 90 PERCENT

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

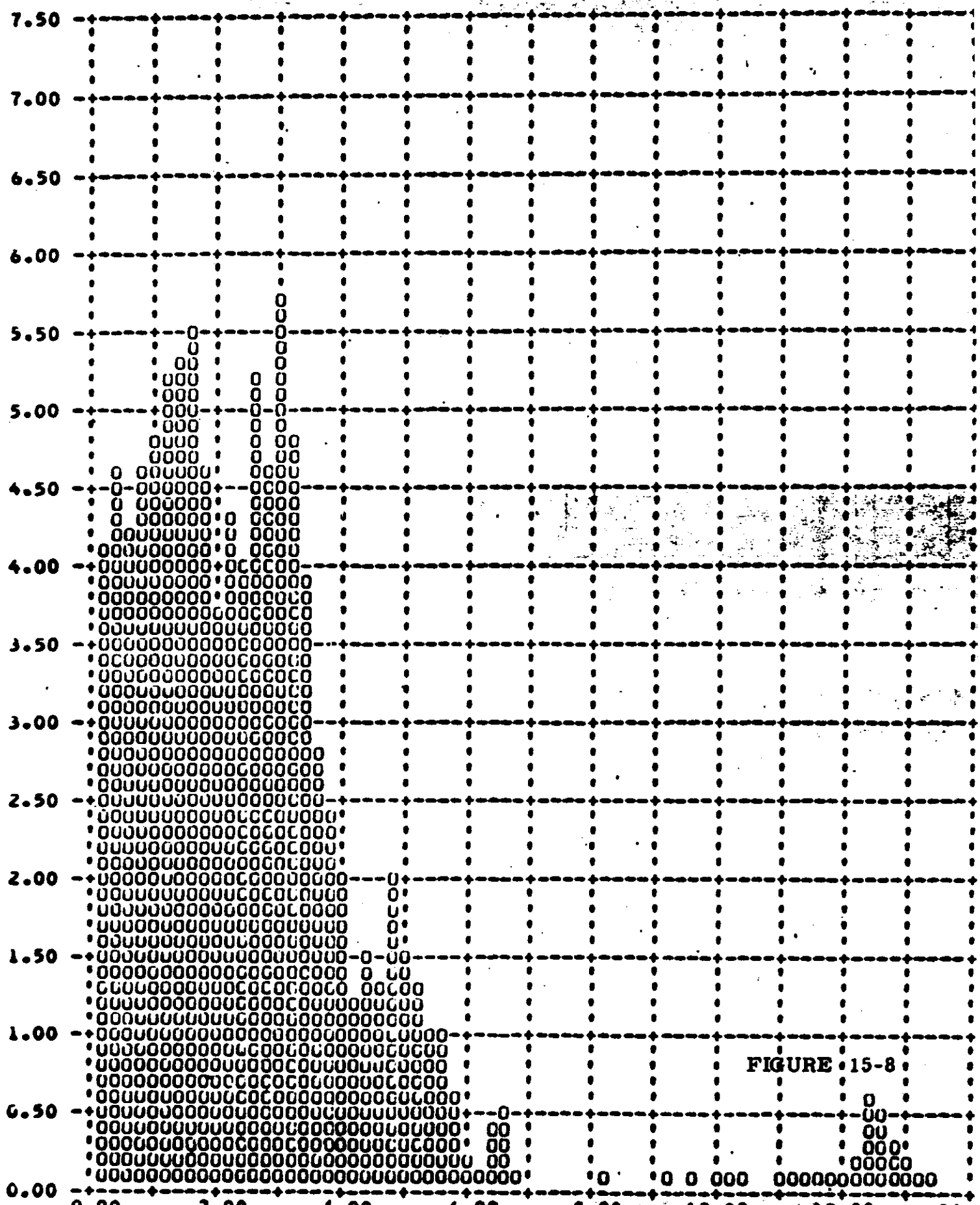


FIGURE 15-8

J-24 B BUCKET FORWARD INSTRUME FRAMES 1-6 OF EACH OR OMITTED 90 PERCENT = 5.4

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

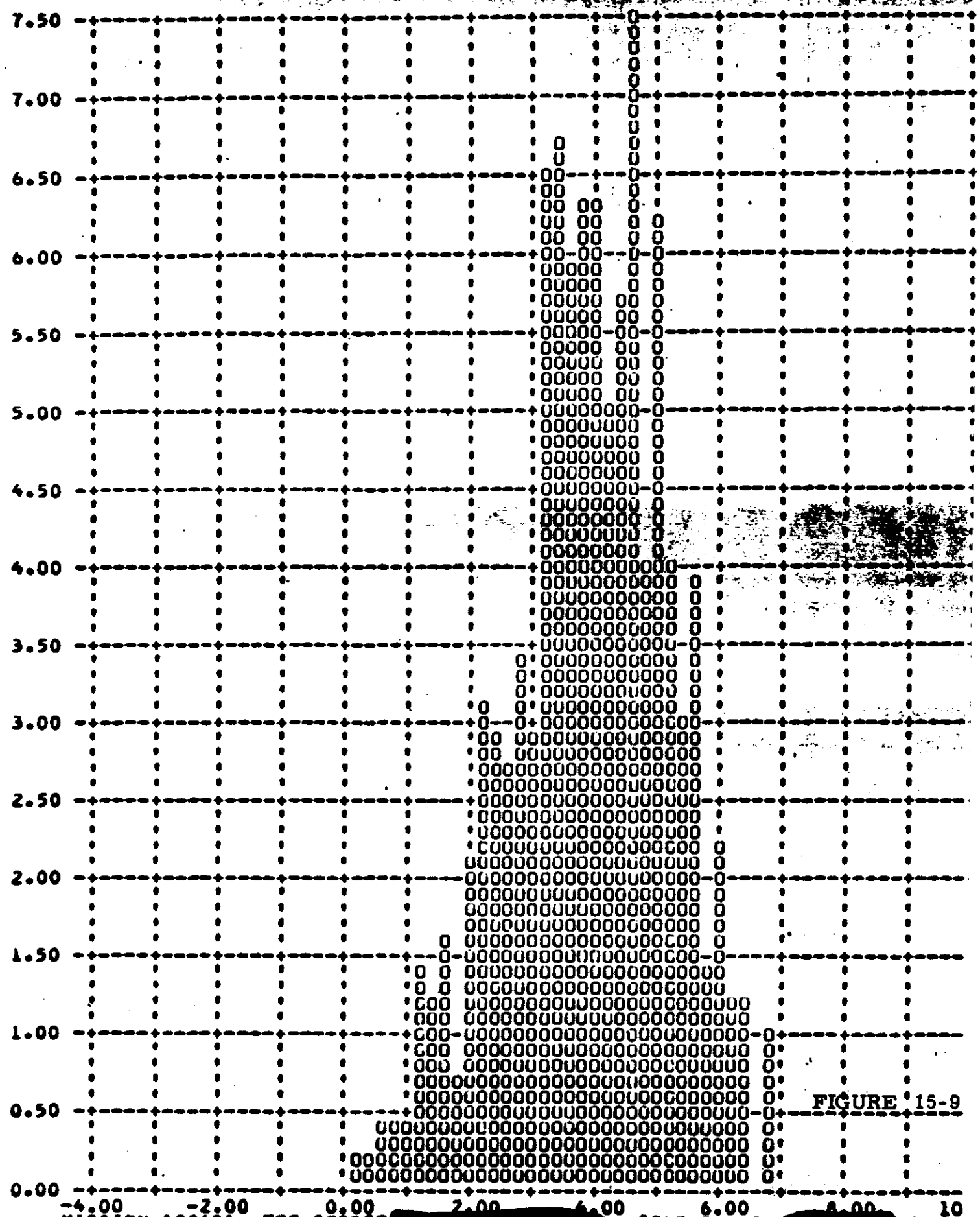


FIGURE 15-9

J-24 B BUCKET AFT INSTRUMENT 2 FRAMES 1-6 OF EACH OF OMITTED 90 PERCENT = 5.0

V V/H RATIO ERROR - PERCENT (X) VERTICAL ACCURACY - PERCENT (Y)

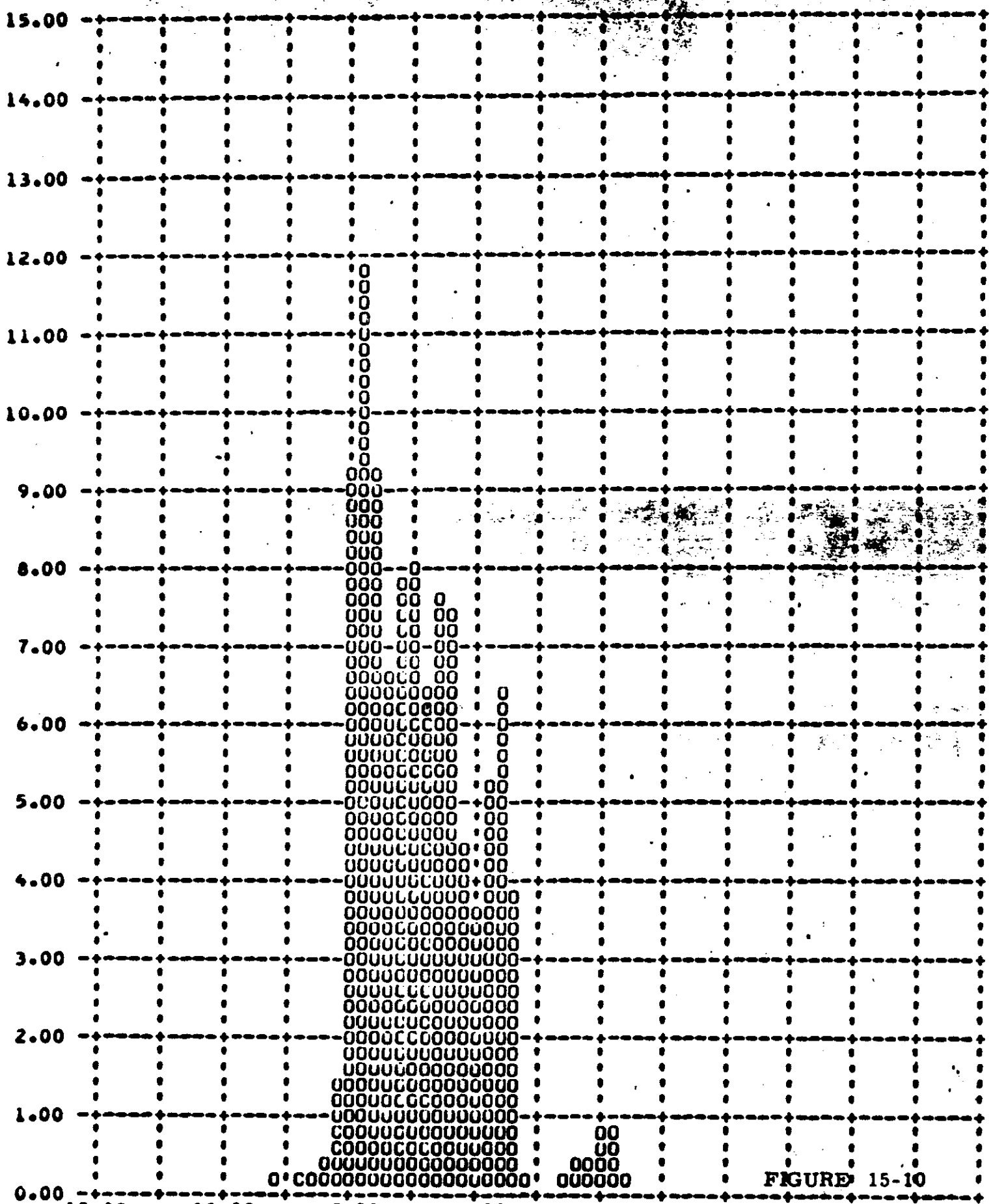


FIGURE 15-10

J-24 B BUCKET AFT INSTRUMENT P FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT

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

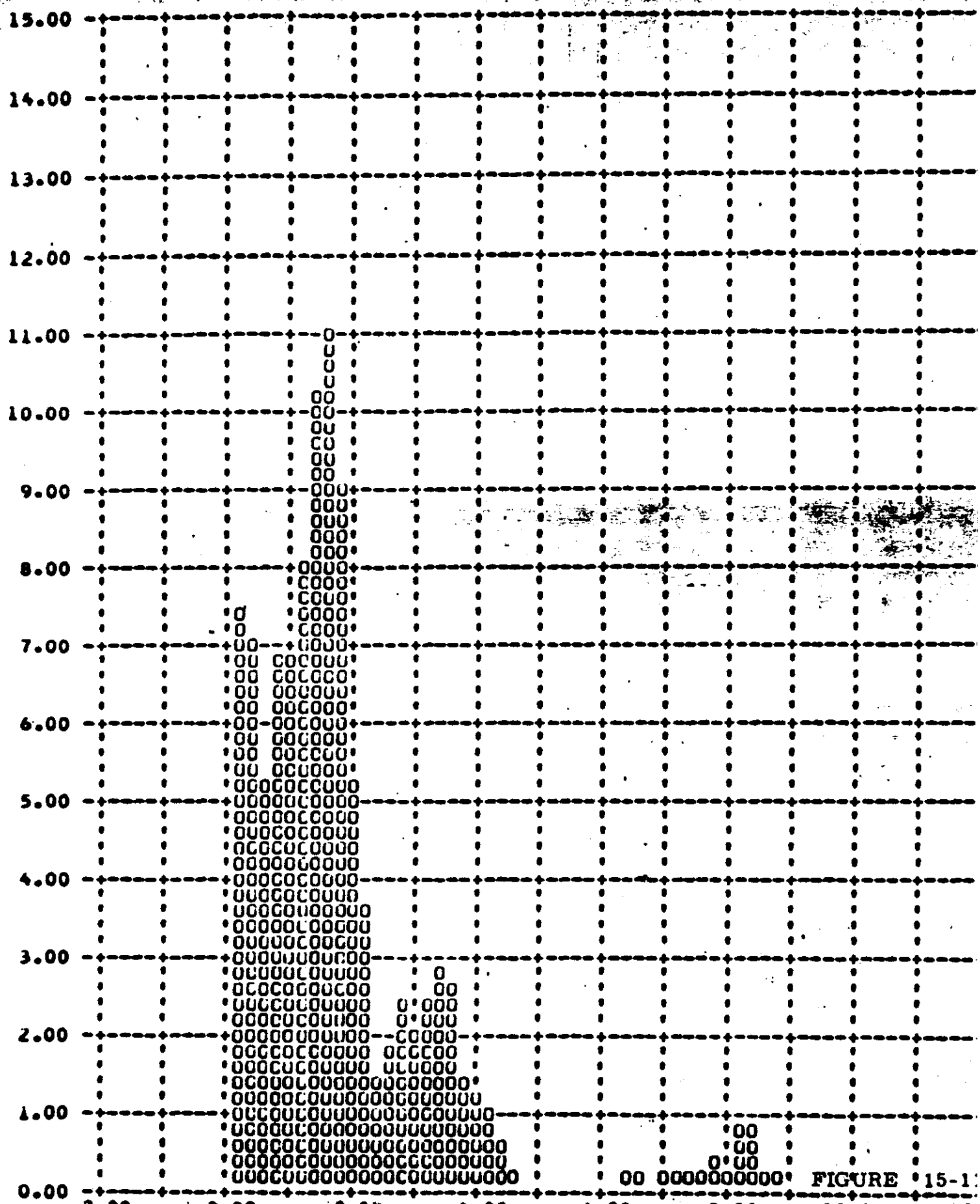


FIGURE 15-1

J-24 B BUCKET AFT INSTRUMENT P FRAMES 1-6 OF EACH DP OMITTED 90 PERCENT = 3.5

CROSS TRACK RESOLUTION LINE PAIR (LP) VERSUS FREQUENCY PERCENT

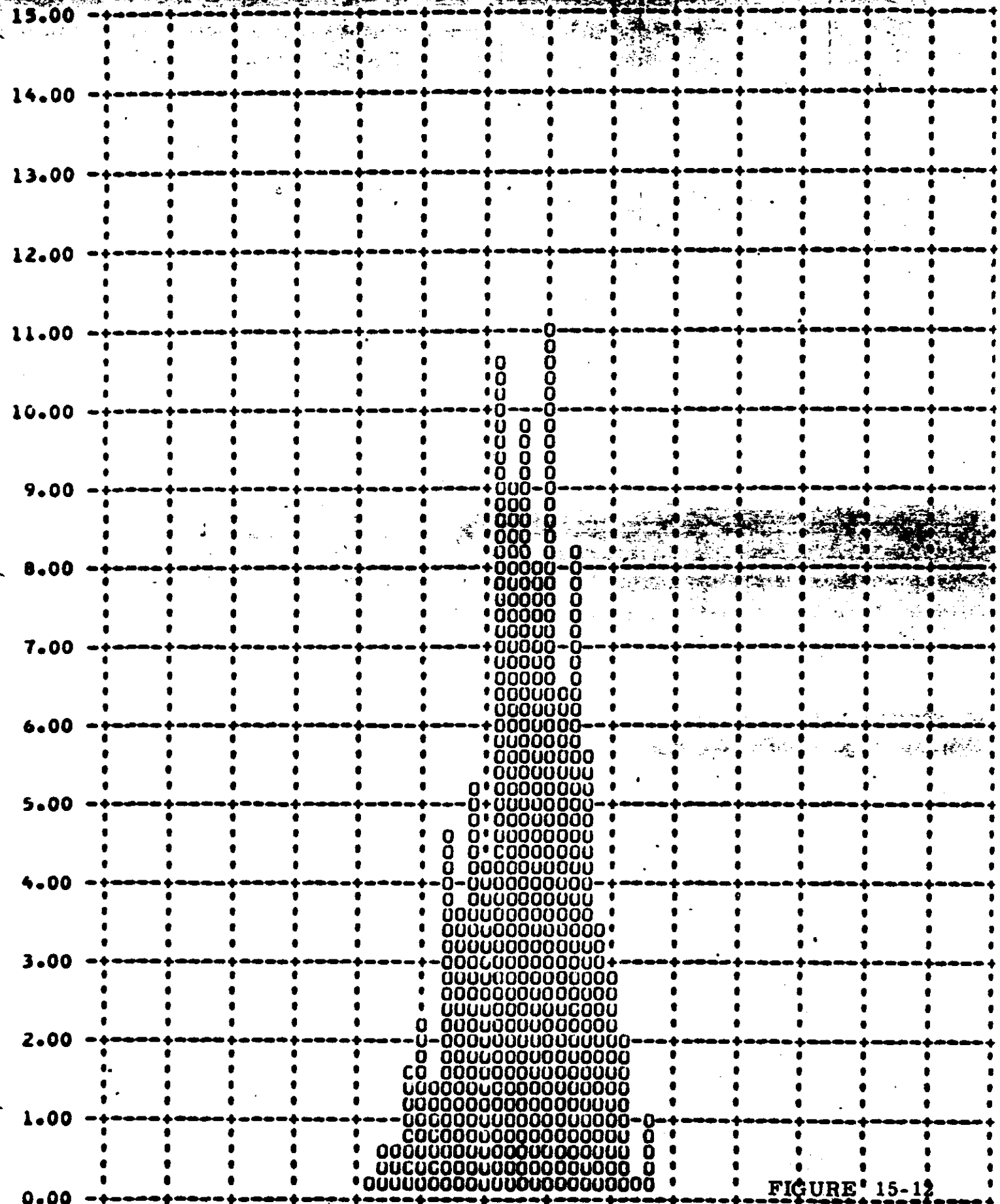


FIGURE 15-12

MISSION 1024

V/h RATIO AND RESOLUTION LIMITS

VALUE	UNITS	CAMERA	MISSION 1024-1 90%	MISSION 1024-1 RANGE	MISSION 1024-2 90%	MISSION 1024-2 RANGE
V/h Ratio Error	%	FWD	2.62	-6.5 to +2.5	5.50	-7.4 to +6.0
		AFT	2.05	-6.2 to +2.2	5.08	-8.0 to +6.0
Along Track Resolution Limit	Feet	FWD	5.92	0 to 8.0	4.66	0.2 to 13.4
		AFT	3.76	0.2 to 4.8	3.31	0.2 to 8.8
Cross Track Resolution Limit	Feet	FWD	6.77	1.6 to 8.2	5.42	0.2 to 6.8
		AFT	4.51	1.0 to 5.4	3.56	0.2 to 4.6

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 1024-1		Mission 1024-2	
Emulsion	B + F Density	Radiation	B + F Density	Radiation
Type 4401	0.16	0.5 R	0.20	.8 R
Royal X Pan	0.19	0.3 R	0.24	0.5 R

The mean total radiation seen by the take-up cassettes during both missions was approximately 0.6 roentgens. This level is comparable to that received during recent missions and is 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 - 118 opportunities to operate.
- One failure - capping shutter on slave instrument on system M-7
- Assume - 3000 cycles per camera per mission
- Estimated Reliability = 98.6% at 50% confidence level

Main Camera Door Reliability
- Sample Size - 42 vehicles x 2 doors = 84 opportunities to operate
- Estimated Reliability = 99.2% at 50% confidence level.

Payload Command and Control

Sample Size - 6240 hours operation in sample
Two failures
Estimated Reliability = 96.0% at 50% confidence level

Payload Clock Reliability

Sample Size - 6240 hours operation in sample
No failures
Estimated Reliability = 98.9% at 50% confidence level

Estimated Reliability of Payload Functioning on orbit = 96.3% at 50% confidence level.

Recovery System Reliability

49 opportunities to recover
1 failure - improper separation due to water seal - cutter failure
Estimated Reliability = 96.6% at 50% confidence level

Stellar-Index Camera Reliability

Sample begins with J5
Sample size = 13,040 cycles
Two failures
Estimated Reliability = 91.6% at 50% confidence

Horizon Camera Reliability

Sample begins with J5 - 38 samples
Estimated Reliability of Single Camera = 98.2% at 50% confidence level.
Estimated Reliability of Four Horizon cameras at a Parallel Redundant System = 99.967% at 50% confidence level.

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 SPECIFIED / FAILURES / RELIABILITY	SAMPLE SPECIFIED / FAILURES / RELIABILITY	SAMPLE HOURS / FAILURES / RELIABILITY	SAMPLE HOURS / FAILURES / RELIABILITY	RELIABILITY	SAMPLE EXPOSURES / FAILURES / RELIABILITY	SAMPLE FRAMES / FAILURES / RELIABILITY	SAMPLE FRAMES / FAILURES / RELIABILITY
0026 TO 1008	60 / 1 / 97.3	32 / 0 / 98.6	3124 / 0 / 98.0	3124 / 0 / 98.0	98.1	10 / 1 / 90.7	3400 / 3 / 83.1	12,000 / 0 / 91.7
1009	64 / 1 / 97.4	54 / 0 / 98.7	3216 / 0 / 98.0	3216 / 0 / 98.0	98.2	20 / 1 / 91.8	4250 / 3 / 89.3	15,000 / 0 / 93.4
1010	68 / 1 / 97.6	56 / 0 / 98.8	3432 / 0 / 98.1	3432 / 0 / 98.1	98.4	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	98.6	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	98.9	26 / 1 / 93.5	5825 / 0 / 94.7	24,000 / 0 / 95.8
1013	78 / 1 / 97.8	62 / 0 / 99.0	3840 / 1 / 96.9	3840 / 0 / 98.3	98.0	28 / 1 / 94.0	6950 / 0 / 96.1	28,500 / 0 / 96.6
1014	82 / 1 / 97.9	64 / 0 / 99.0	4056 / 1 / 96.1	4056 / 0 / 98.3	98.1	30 / 1 / 94.4	6375 / 1 / 89.6	28,500 / 0 / 96.6
1015	86 / 1 / 98.0	66 / 0 / 99.0	4320 / 1 / 96.3	4320 / 0 / 98.4	98.1	32 / 1 / 94.8	7225 / 1 / 90.4	31,500 / 0 / 96.7
1016	90 / 1 / 98.1	68 / 0 / 99.0	4680 / 1 / 96.5	4680 / 0 / 98.5	98.4	34 / 1 / 95.2	7650 / 1 / 91.0	34,500 / 0 / 97.0
1017	94 / 0* / 98.3	70 / 0 / 99.0	4760 / 1 / 96.7	4760 / 0 / 98.5	97.6	36 / 1 / 95.4	8925 / 1 / 92.3	32,500 / 0 / 97.2
1018	98 / 1 / 98.3	72 / 0 / 99.1	4920 / 1 / 96.8	4920 / 0 / 98.7	98.7	38 / 1 / 95.6	9350 / 1 / 92.3	40,500 / 0 / 97.6
1019	102 / 1 / 98.4	74 / 0 / 99.1	5136 / 1 / 96.9	5136 / 0 / 98.7	98.8	39 / 1 / 95.8	9375** / 1 / 91.5	43,500 / 0 / 97.8

*DESIGN FIX RELATED PREVIOUS FAILURE CONSIDERATIONS

TABLE 17-1

ESTIMATED RELIABILITY SUMMARY

(AT 50% CONFIDENCE LEVEL)

SESSION 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 / 98.1	5844 / 1 / 97.1	5844 / 0 / 98.9	96.9	45 / 1 / 96.1	10,680 / 2 / 99.9	48,000 / 0 / 97.9
1021	104 / 1 / 98.8	76 / 0 / 98.1	5376 / 1 / 97.0	5376 / 0 / 98.8	96.9	41 / 1 / 96.0	9630 / 2 / 99.1	44,800 / 0 / 97.8
1022	112 / 1 / 98.8	80 / 0 / 98.2	5784 / 1 / 97.5	5784 / 0 / 98.9	96.9	45 / 1 / 96.3	11,880 / 2 / 99.7	51,000 / 0 / 98.0
1023	114 / 1 / 98.6	82 / 0 / 98.2	6000 / 2 / 96.8	6000 / 0 / 98.9	96.2	47 / 1 / 96.8	12,190 / 2 / 99.1	54,000 / 0 / 98.1
1024	118 / 1 / 98.6	84 / 0 / 98.2	6240 / 2 / 96.0	6240 / 0 / 98.9	96.3	49 / 1 / 96.6	13,040 / 2 / 99.6	57,000 / 0 / 98.6

TABLE 7-2

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-08	1174	2/15/64	2136 Z	74.9	99.9	29.0	49 / 112	124	0.250	W-21	125	0.250	W-21	029/29/29
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	045/47/45
1007	J-07	1609	6/19/64	2316 Z	85.0	98.2	41.5	66 / 128	144	0.250	W-25	145	0.200	W-21	043/43/43
1008	J-10	1177	7/10/64	2314 Z	85.0	99.4	40.6	49 / 112	150	0.200	W-21	151	0.200	W-21	048/45/48
1009	J-12	1605	8/8/64	2316 Z	80.1	99.6	39.5	66 / 128	154	0.200	W-21	155	0.200	W-21	056/54/56
1010	J-11	1178	9/14/64	2254 Z	84.9	97.4	42.5	66 / 144	152	0.175	W-21	153	0.175	W-21	041/41/41
1011	J-22	1170	10/5/64	2150 Z	79.9	99.3	20.9	66 / —	160	0.175	W-21	161	0.175	W-21	030/30/30
1012	J-13	1179	10/17/64	2202 Z	75.0	96.2	32.4	69 / 81	156	0.200	W-21	157	0.200	W-21	051/51/47
1013	J-15	1173	11/2/64	2130 Z	80.0	100.0	25.0	66 / 81	158	0.225	W-21	159	0.225	W-21	052/49/55
1014	J-16	1180	11/18/64	2036 Z	70.0	103.2	65.6	81 / 148	162	0.250	W-25	139	0.175	W-21	053/59/49
1015	J-17	1607	12/15/64	2110 Z	74.9	96.7	21.6	81 / 170	138	0.250	W-25	141	0.175	W-21	061/61/61
1016	J-18	1608	1/15/65	2101 Z	74.9	99.4	30.2	81 / 186	132	0.250	W-25	133	0.175	W-21	055/55/50
1017	J-14	1611	2/25/65	2144 Z	75.0	97.2	28.9	81 / 128	140	0.250	W-25	168	0.175	W-21	021/21/21
1018	J-19	1612	3/25/65	2111 Z	94.8	100.2	40.3	66 / 99	122	0.250	W-25	123	0.175	W-21	020/20/20
1019	J-04	1614	4/23/65	2144 Z	83.0	98.1	27.1	69 / —	118	0.250	W-25	119	0.175	W-21	039/39/38
1020	J-20	1613	5/9/65	2158 Z	75.1	97.1	40.6	66 / 128	136	0.250	W-25	137	0.175	W-21	067/65/68
1021	J-21	1615	5/28/65	1605 Z	75.0	109.2	24.3	81 / 121	164	0.175	W-21	167	0.250	W-25	063/69/65
1022	J-22	1617	7/19/65	2201 Z	85.0	98.7	30.5	66 / 144	168	0.250	W-25	169	0.175	W-21	065/71/70
1023	J-23	1618	8/17/65	2100 Z	70.0	97.8	29.0	81 / 144	170	0.225	W-25	171	0.150	W-21	017/19/82
1024	J-24	1619	9/22/65	2131 Z	80.0	98.9	18.4	66 / 121	172	0.225	W-25	173	0.150	W-21	069/72/84

TABLE [redacted]

PERFORMANCE SUMMARY

MISSION NUMBER	CAMERA	SERIAL NUMBER	M I P VALUE	VISUAL RES	AF SPPL MTF/AIM SLIT (μ)	AF SPPL MTF/AIM AVERAGE	[redacted] MTF/AIM SLIT (μ)	[redacted] MTF/AIM AVERAGE	[redacted] SLIT (μ)	[redacted] MTF/AIM AVERAGE ALL	[redacted] MTF/AIM 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 (N)	90% RESOLUTION LIMIT (FEET) ALONG TRACK	90% RESOLUTION LIMIT (FEET) CROSS TRACK
1004-1	FWD	124	85	78	350	97	43	109	320	115	127	0.48	0.42	1.06	30.0	25.0	21.0	5.1	7.7	6.6
1004-2	AFT	125	85	86		80		96		117	124									
	FWD			76		88		113		82	90	0.74	0.60	0.91	44.0	30.0	29.0	4.9	6.8	6.2
	AFT			73		83		106		89	95									
1006-1	FWD	148	90	78	350	88	43	98	320	84	97	0.41	0.42	1.14	26.8	28.5	27.8	15.4	13.8	6.7
1006-2	AFT	149	90	74		71		90		87	92									
	FWD			85		64		81		84	90	0.49	0.40	1.06	31.1	27.9	30.0	11.6	10.1	7.0
	AFT			83		72		90		87	94									
1007-1	FWD	144	88	80	350	80	43	87	320	82	91	0.58	0.46	1.43	37.6	23.9	29.9	3.8	3.1	5.4
1007-2	AFT	145	88	86		83		83		97	110							4.6	2.1	7.0
	FWD			79		72		81		88	74	0.64	0.47	—	43.0	25.8	—	3.2	2.4	—
	AFT			81		77		92		74	81							4.2	1.8	—
1008-1	FWD	150	85	80	350	80	43	95	320	81	89	0.59	0.38	0.94	43.8	23.9	29.6	2.9	4.9	6.8
1008-2	AFT	151	85	76		73		89		86	95									
	FWD			82		84		96		83	92	0.63	0.36	0.71	42.9	24.0	32.5	2.8	4.2	8.4
	AFT			79		91		83		85	91									
1009-1	FWD	154	85	92	350	80	—	—	80	75	88	0.65	0.65	0.71	29.2	22.7	27.6	3.3	5.3	8.2
1009-2	AFT	155	85	89		85				75	83									
	FWD			94		85				76	84	0.46	0.68	0.59	33.8	23.9	27.2	2.6	4.9	8.0
	AFT			87		87				72	79									
1010-1	FWD	152	85	90	350	90	80	88	80	87	98	0.93	0.50	0.87	39.1	23.6	30.8	4.5	2.3	4.4
1010-2	AFT	153	85	88		86		80		92	103									
	FWD			92		81		82		82	93	0.89	0.70	1.21	45.4	23.6	30.7	4.6	7.5	5.8
	AFT			90		82		85		87	98									
1011-1	FWD	160	90	84	350	76	80	98	80	78	87	0.77	0.39	0.97	43.1	28.9	31.1	2.3	5.3	8.4
	AFT	161		84		77		86		83	93									
1012-1	FWD	156	85	92	—	—	80	91	80	84	98	0.65	0.81	—	47.1	33.2	—	1.5	4.8	—
1012-2	AFT	157	85	91				87		89	100									
	FWD			91				89		84	91	0.97	0.77	0.51	45.2	30.7	20.4	5.9	3.3	8.0
	AFT			89				96		85	98									
1013-1	FWD	158	85	89	—	—	80	94	80	85	98	0.64	0.32	1.34	38.9	29.0	32.5	3.7	7.8	8.1
	AFT	159		77				97		81	103	0.64	0.32	1.34	38.9	29.0	32.5	4.6	5.8	8.8
1014-1	FWD	162	80	87	—	—	80	78	80	74	86	0.62	0.41	1.46	35.0	36.1	38.5	2.2	6.2	8.2
1014-2	AFT	139	80	83				80		95	107	0.62	0.41	1.44	34.8	36.0	38.3	3.3	2.8	6.2
	FWD			83				75		70	77	1.06	0.85	—	38.4	36.4	—	1.4	6.4	—
	AFT			86				84		80	88	1.06	0.89	—	38.1	36.0	—	3.2	2.2	—
1015-1	FWD	138	85	87	—	—	80	76	80	90		0.68	0.38	0.53	47.0	29.4	38.2	5.0	8.5	9.0
1015-2	AFT	141	85	87				73		97	—	0.64	0.39	0.63	46.9	29.2	38.2	6.3	3.4	8.0
	FWD			83				72		89		[redacted]								
	AFT			82				72		90										
1016-1	FWD	132	85	85	—	—	80	86	80	81		0.72	0.83	2.01	48.9	30.2	40.4	2.0	8.8	6.6
1016-2	AFT	133	85	83				61		94	—	0.72	0.83	2.01	48.4	30.1	40.4	2.8	3.4	7.4
	FWD			90				85		92		0.85	0.93	2.19	42.2	27.2	39.9	1.6	4.9	6.0
	AFT			91				86		91		0.85	0.93	2.19	42.2	27.3	39.9	2.3	3.3	7.4
1017-1	FWD	140	85	72	—	—	80	87	80	78	88	0.49	0.76	2.50	35.5	32.2	38.4	3.3	9.8	11.0
1017-2	AFT	165	85	75				70		94	107	0.49	0.76	2.49	35.3	32.0	38.5	4.3	8.3	8.1
	FWD			85				68		80	84	0.84	0.45	—	36.5	34.0	—	1.8	6.2	—
	AFT			85				69		86	101	0.84	0.45	—	36.3	33.8	—	2.3	5.3	—
1018-1	FWD	122	85	79	—	—	80	70	80	82	92	0.91	0.48	—	47.4	36.7	—	3.4	5.6	—
1018-2	AFT	123	85	77				74		96	109	0.84	0.47	—	48.2	36.2	—	3.2	3.7	—
	FWD			84				75		77	89	0.84	0.63	—	34.7	30.7	—	3.1	5.6	—
	AFT			88				71		91	103	0.84	0.63	—	34.8	30.7	—	2.8	4.1	—

* DATA NOT PRESENTLY AVAILABLE

TABLE 16-2

TOP SECRET [redacted]

PERFORMANCE SUMMARY

MISSION NUMBER	CAMERA	SERIAL NUMBER	M I P VALUE	VISUAL RES	AFSPPL MTF/AIM SLIT (μ)	AFSPPL MTF/AIM AVERAGE	MTF/AIM SLIT (μ)	MTF/AIM AVERAGE	[redacted] SLIT (μ)	[redacted] MTF/AIM AVERAGE ALL	[redacted] MTF/AIM AVERAGE HIGH	90% ATTITUDE ERROR (") PITCH	90% ATTITUDE ERROR (") ROLL	90% ATTITUDE ERROR (") YAW	90% ATTITUDE RATES (7HR) PITCH	90% ATTITUDE RATES (7HR) ROLL	90% ATTITUDE RATES (7HR) YAW	90% V/H ERROR (%)	90% RESOLUTION LIMIT (FEET) ALONG TRACK	90% RESOLUTION LIMIT (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	9.3	9.1
	AFT	119		99				63		87	101	0.44	0.37	0.96	31.6	34.9	33.1	3.8	5.0	6.3
1020-1	FWD	136	80	88	—	—	80	69	80	78	90	0.46	0.35	0.78	37.4	31.8	26.7	5.4	5.8	8.4
	AFT			89				82		94	105	0.46	0.33	0.78	37.4	31.8	26.7	5.3	4.2	6.9
1020-2	FWD	137	—	—				—		—	—	0.41	0.17	1.06	42.6	23.8	42.5	3.5	6.4	7.6
	AFT			—				—		—	—	0.41	0.17	1.06	42.6	23.8	42.5	3.4	4.8	8.0
1021-1	FWD	166	85	88	—	—	80	77	80	88	99	0.85	0.37	0.81	34.9	32.6	26.2	8.7	8.8	8.0
	AFT			90				90		98	109	0.85	0.38	0.81	34.8	33.0	26.3	8.4	8.6	8.3
1021-2	FWD	167	85	85				74		88	112	0.89	0.68	—	44.7	50.6	—	3.1	9.2	—
	AFT			74				62		—	—	—	—	—	—	—	—	—	—	—
1022-1	FWD	168	85	88	—	—	80	66	80	78	91	0.47	0.81	0.89	28.3	27.1	23.8	3.8	9.8	8.6
	AFT			91				83		101	111	0.47	0.81	0.90	27.9	26.6	23.8	3.0	6.2	6.1
1022-2	FWD	169	85	90				68		74	84	0.40	0.81	0.90	29.4	27.3	31.0	2.6	8.0	8.0
	AFT			92				92		99	110	0.40	0.81	0.90	29.4	27.3	31.1	1.8	4.9	8.9
1023-1	FWD	170	85	—	—	—	80	94	80	97	110	0.49	0.33	0.50	33.0	28.7	23.5	3.4	4.0	6.4
	AFT							87		83	101	0.49	0.33	0.50	32.9	28.7	23.5	3.8	8.7	4.3
1023-2	FWD	171	85					71		76	87	0.42	0.36	0.53	29.7	21.0	28.6	2.4	3.9	6.3
	AFT							89		88	98	0.43	0.37	0.53	29.6	21.3	28.6	2.8	2.7	4.2
1024-1	FWD	172	85	—	—	—	80	79	80	90	102	0.42	0.25	0.62	32.2	24.9	30.5	2.6	8.9	8.0
	AFT							98		94	105	0.42	0.29	0.62	32.2	24.9	30.4	2.1	3.8	4.8
1024-2	FWD	173	88					86		89	101	0.38	0.31	0.93	30.4	24.5	36.4	5.5	4.7	8.4
	AFT							98		100	114	0.38	0.31	0.93	30.6	23.6	36.9	3.1	3.3	3.6

TABLE 12-2

TOP SECRET [redacted]

TOP SECRET [redacted]

EXPOSURE - PROCESSING SUMMARY

MISSION NUMBER	CAMERA	SOLAR ELEVATION RANGE (°)		SOLAR AZIMUTH RANGE (°)		PREDICTED PROCESSING (%)			REPORTED PROCESSING (%)			COMPUTED PROCESSING (%)			TERRAIN D-MIN				TERRAIN D-MAX				CLOUD D-MAX				UNDER EXPOSED (%)	UNDER PROCESSED (%)	NOMINAL EXP & PRO (%)	OVER PROCESSED (%)	OVER EXPOSED (%)	CLOUD COVER (%)
															RANGE				RANGE				RANGE									
		LOW	HIGH	LOW	HIGH	P	I	F	P	I	F	P	I	F	LOW	HIGH	MEAN	MEDIAN	LOW	HIGH	MEAN	MEDIAN	LOW	HIGH	MEAN	MEDIAN						
1004-1	FWD	-3	61	23	124	5	76	19	4	79	17	0	78	21	0.26	1.89	0.83	0.78	0.43	2.43	1.97	2.02	1.00	2.43	2.04	2.08	0	4	60	31	5	[redacted]
	AFT	-3	61	23	124	5	74	21	4	79	17	0	80	20	0.22	1.56	0.76	0.70	0.93	2.45	1.92	1.94	1.08	2.43	1.98	2.03	1	4	67	26	3	
1004-2	FWD	-4	68	10	131	7	76	17	37	50	13	4	83	13	0.29	1.80	0.83	0.78	0.36	2.30	1.84	1.90	0.41	2.37	1.87	1.93	0	4	69	27	3	
	AFT	-4	68	10	131	7	76	17	37	50	13	4	77	19	0.29	1.91	0.81	0.73	0.36	2.39	1.89	1.99	0.43	2.46	1.89	1.98	0	4	67	20	9	
1006-1	FWD	38	86	32	140	1	99	0	1	51	48	0	51	49	0.23	1.81	0.71	0.68	0.80	2.31	1.88	1.92	1.31	2.40	2.20	2.24	0	5	72	21	1	
	AFT	38	86	32	140	1	99	0	0	23	77	0	24	76	0.36	1.66	0.87	0.84	0.96	2.35	1.72	1.72	1.14	2.40	2.24	2.28	0	1	58	40	1	
1006-2	FWD	32	84	36	147	2	98	0	30	41	29	11	59	30	0.21	1.14	0.53	0.50	0.86	2.28	1.49	1.50	1.30	2.33	2.11	2.16	2	21	72	4	0	
	AFT	32	84	36	147	2	98	0	35	40	25	21	54	25	0.26	1.34	0.62	0.58	0.85	2.19	1.48	1.47	1.56	2.50	2.12	2.16	0	11	77	9	3	
1007-1	FWD	12	49	50	103	0	5	95	1	20	79	0	25	75	0.26	1.22	0.52	0.47	0.62	2.20	1.44	1.40	1.22	1.36	2.17	2.21	20	8	67	5	0	
	AFT	11	49	48	102	0	100	0	10	42	48	6	77	17	0.26	1.76	0.58	0.58	0.78	2.31	1.82	1.82	1.54	2.39	2.20	2.24	1	13	80	5	1	
1007-2	FWD	32	87	43	112	0	25	75	3	28	69	0	26	74	0.26	1.23	0.51	0.48	0.70	2.32	1.44	1.40	0.90	2.37	2.15	2.20	18	9	71	2	0	
	AFT	31	87	38	111	0	100	0	19	41	40	3	88	9	0.24	1.86	0.60	0.56	0.64	2.27	1.60	1.52	0.84	2.41	2.17	2.25	1	16	74	9	1	
1008-1	FWD	30	81	50	102	0	100	0	4	32	64	1	35	64	0.32	1.48	0.66	0.62	0.78	2.24	1.88	1.84	1.46	2.35	2.21	2.24	2	2	86	8	1	
	AFT	30	81	50	102	0	100	0	4	27	69	0	34	66	0.32	1.57	0.71	0.69	0.81	2.21	1.87	1.88	1.08	2.37	2.21	2.24	1	1	84	13	0	
1008-2	FWD	29	56	42	105	0	100	0	3	31	66	0	27	73	0.14	1.81	0.76	0.72	0.87	2.10	1.84	1.55	1.09	2.40	2.20	2.25	2	1	73	23	1	
	AFT	29	56	42	105	0	100	0	3	30	67	0	29	71	0.32	1.64	0.77	0.76	0.73	2.10	1.88	1.55	1.10	2.35	2.18	2.22	1	3	69	27	0	
1009-1	FWD	12	49	42	132	0	100	0	1	26	73	0	34	66	0.32	1.40	0.65	0.62	0.85	2.41	1.83	1.82	0.83	2.51	2.30	2.36	5	4	77	14	0	
	AFT	12	49	42	132	0	100	0	0	40	60	0	45	55	0.28	1.42	0.70	0.64	0.92	2.28	1.88	1.85	0.83	2.51	2.32	2.36	1	8	73	20	0	
1009-2	FWD	23	68	35	138	2	98	0	3	21	76	0	40	60	0.29	1.85	0.69	0.64	0.73	2.37	1.83	1.83	1.06	2.45	2.25	2.30	4	4	74	17	0	
	AFT	23	68	35	138	2	98	0	4	47	49	0	56	44	0.26	1.47	0.69	0.64	0.64	2.42	1.81	1.80	1.61	2.50	2.31	2.34	1	4	77	18	0	
1010-1	FWD	18	47	45	83	0	21	79	0	13	87	0	9	91	0.28	1.14	0.52	0.47	0.43	2.32	1.38	1.32	1.11	2.42	2.16	2.20	18	3	75	4	0	
	AFT	18	47	45	83	0	21	79	0	19	81	0	16	84	0.27	1.25	0.57	0.52	0.78	2.42	1.48	1.41	0.96	2.48	2.20	2.26	9	4	81	6	0	
1010-2	FWD	15	52	38	76	0	50	50	0	16	84	0	13	87	0.26	1.51	0.55	0.50	0.52	2.36	1.41	1.38	1.00	2.44	2.14	2.20	22	4	67	6	0	
	AFT	15	52	38	76	0	50	50	0	23	77	0	25	75	0.20	1.48	0.59	0.56	0.30	2.40	1.42	1.45	1.29	2.48	2.18	2.22	13	3	76	8	0	
1011-1	FWD	2	55	33	86	0	64	36	2	23	75	2	23	75	0.18	0.99	0.50	0.46	0.56	2.36	1.48	1.43	0.78	2.40	2.07	2.16	17	11	70	2	0	
	AFT	2	55	33	86	0	67	33	3	47	50	0	37	63	0.24	1.48	0.60	0.56	0.60	2.38	1.57	1.55	0.74	2.37	2.11	2.16	3	7	81	8	0	
1012-1	FWD	0	45	38	71	0	64	36	7	56	37	0	65	35	0.25	1.30	0.59	0.53	0.84	2.39	1.48	1.42	0.90	2.39	1.93	2.00	6	17	68	10	0	
	AFT	0	45	38	71	0	64	36	0	33	67	0	49	51	0.26	1.40	0.61	0.58	0.47	2.27	1.44	1.40	0.72	2.32	1.89	1.96	5	10	74	11	0	
1012-2	FWD	0	57	34	106	0	77	23	6	44	50	0	49	51	0.30	1.20	0.58	0.55	0.73	2.32	1.49	1.42	0.67	2.34	1.91	2.00	4	9	80	7	0	
	AFT	0	57	34	106	0	77	23	3	15	82	0	10	90	0.30	1.27	0.68	0.62	0.48	2.38	1.55	1.58	0.70	2.38	1.96	2.02	4	0	72	23	0	
1013-1	FWD	0	56	28	83	0	64	36	0	42	58	0	55	45	0.20	1.66	0.56	0.56	0.52	2.29	1.58	1.59	1.21	2.41	2.03	2.10	7	13	76	4	0	
	AFT	0	56	28	82	0	64	36	2	7	91	0	33	67	0.28	1.56	0.66	0.48	0.64	2.26	1.59	1.63	1.10	2.36	1.97	2.03	5	8	74	16	0	
1014-1	FWD	0	59	15	71	0	21	79	1	38	61	0	63	37	0.17	0.99	0.40	0.36	0.28	2.36	1.48	1.42	1.01	2.38	1.94	2.05	27	33	39	1	0	
	AFT	0	59	14	69	0	31	69	0	13	87	0	36	64	0.18	1.26	0.51	0.48	0.25	2.36	1.48	1.49	0.42	2.43	1.91	2.00	19	12	64	5	0	
1014-2	FWD	0	77	0	36	0	21	79	0	26	74	0	61	39	0.17	1.06	0.36	0.31	0.23	2.32	1.30	1.36	0.42	2.36	1.72	1.80	31	40	27	2	0	
	AFT	0	76	0	34	0	29	71	0	5	95	0	68	32	0.18	1.49	0.44	0.40	0.27	2.28	1.34	1.45	0.26	2.44	1.71	1.84	19	29	50	2	0	
1015-1	FWD	5	68	19	68	0	8	92	2	2	96	0	2	98	0.25	1.70	0.54	0.47	0.54	2.28	1.46	1.46	0.46	2.41	1.86	1.90	28	0	65	7	0	
	AFT	4	68	18	67	0	30	70	0	5	95	0	4	96	0.29	1.20	0.60	0.56	0.46	2.28	1.48	1.50	0.80	2.36	1.86	1.95	14	0	77	8	0	
1015-2	FWD	0	80	-2	71	0	10	90	0	10	90	0	11	89	0.22	1.10	0.50	0.46	0.34	2.07	1.29	1.30	0.28	2.34	1.69	1.78	28	4	65	3	0	
	AFT	0	79	-2	71	0	21	79	0	9	91	0	8	91	0.26	1.21	0.59	0.52	0.36	2.22	1.37	1.38	0.38	2.40	1.74	1.80	17	1	70	12	0	
1016-1	FWD	5	69	13	76	0	7	93	1	41	58	0	59	41	0.13	1.55	0.51	0.45	0.70	2.47	1.67	1.68	0.85	2.44	1.91	1.90	19	17	56	8	1	
	AFT	4	69	12	76	0	27	73	0	26	74	0	42	58	0.22	1.65	0.64	0.58	0.62	2.34	1.68	1.72	0.98	2.48	1.90	1.92	11	9	62	17	1	
1016-2	FWD	1	84	-4	78	0	8	92	0	31	69	0	48	52	0.18	1.56	0.48	0.44	0.29	2.36	1.48	1.44	0.34	2.80	1.76	1.82	22	18	56	3	0	
	AFT	0	84	-4	78	0	19	81	1	27	72	0	40	60	0.20	1.88	0.55	0.49	0.28	2.36	1.52	1.60	0.30	2.49	1.75	1.82	23	8	65	4	1	
1017-1	FWD	-11	80	21	99	0	0	100	13	63	24	0	82	18	0.20	1.65	0.66	0.61	0.46	2.32	1.78	1.78	0.60	2.32	1.93	2.00	1	8	77	13	1	
	AFT	-1	87	19	98	0	17	83	24	58	18	4	90	6	0.20	1.62	0.64	0.60	0.60	2.30	1.75	1.75	1.18	2.36	1.89	1.90	1	13	74	11	2	
1017-2	FWD	1	78	9	139	0	0	100	5	62	33	7	77	16	0.22	1.22	0.58	0.55	0.37	2.00	1.78	1.80	0.86	2.37	1.93	1.94	3	14	74	9	0	
	AFT	1	79	7	135	0	7	93	18	62	20	0	89	11	0.20	1.84	0.64	0.62	0.30	2.36	1.82	1.88	0.38	2.34	1.85	1.92	2	13	74	10	1	
1018-1	FWD	6	77	13	134	0	0	100	9	63	28	1	83	16	0.19	1.46	0.56	0.52	0.64	2.22	1.72	1.73	1.00	2.32	1.96	1.99	2	19	71	7	0	
	AFT	6	78	10	125	0	22	78	9	53	38	5	72	23	0.18	1.36	0.62	0.58	0.68	2.28	1.80	1.80	1.03	2.28	1.95	2.00	1	12	77	8	2	
1018-2	FWD	8	77	14	134	0	0	100	18	74	8	17	79	4	0.16	1.79	0.57	0.49	0.80	2.24	1.82	1.84	0.90	2.26	1.85	1.91	1	31	56	9	4	
	AFT	8	77	10	132	0	15	85	1	50	49	0	74	26	0.22	1.80	0.81	0.79	0.94	2.28	1.82	1.74	1.09	2.35	1.98	2.04	0	8	56	35	2	

TABLE 18-31

TOP SECRET [redacted]

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 (%)	GLARE (%)
1019-1	FWD	24	70	24	152	0	21	79	22	32	46	4	56	40	0.28	1.92	0.71	0.61	0.60	2.18	1.48	1.50	0.84	2.26	1.94	2.00	4	7	64	17	7	4
	AFT	23	70	21	152	0	92	8	26	55	19	3	87	10	0.13	1.70	0.66	0.60	0.39	2.26	1.46	1.45	0.80	2.30	1.96	2.02	1	13	70	14	3	4
1020-1	FWD	30	75	19	156	0	19	81	13	48	39	1	59	41	0.23	1.30	0.55	0.52	0.80	2.28	1.67	1.54	1.40	2.38	2.10	2.16	1	18	78	4	0	4
	AFT	29	75	17	156	0	64	36	15	56	29	0	74	26	0.23	1.20	0.55	0.54	0.70	2.20	1.47	1.46	1.22	2.29	2.04	2.10	0	18	76	5	0	4
1020-2	FWD	47	69	18	35	INSUFFICIENT DATA																										
	AFT	46	68	17	33																											
1021-1	FWD	15	66	-148	-23	0	68	32	14	39	47	1	82	47	0.25	1.90	0.64	0.56	0.74	2.18	1.80	1.80	0.97	2.36	1.92	2.00	5	9	72	11	3	3
	AFT	14	66	-147	-25	0	99	1	15	38	47	0	87	43	0.17	1.70	0.65	0.57	0.54	2.24	1.48	1.42	0.85	2.30	1.90	2.00	5	5	75	12	3	3
1021-2	FWD	13	52	-133	-41	0	29	71	13	41	46	0	57	43	0.18	1.52	0.54	0.50	0.60	2.26	1.84	1.84	1.05	2.23	1.82	1.85	14	13	66	6	0	1
	AFT	13	52	-133	-41	0	100	0	53	25	22	0	50	50	0.35	1.38	0.76	0.76	0.70	2.28	1.82	1.80	1.30	2.36	1.94	1.94	6	0	71	21	1	1
1022-1	FWD	28	67	30	150	0	36	64	8	36	56	0	48	52	0.18	1.49	0.45	0.40	0.54	2.42	1.87	1.80	1.32	2.55	2.24	2.29	30	19	47	3	0	2
	AFT	27	67	26	150	0	89	11	7	42	51	0	53	47	0.24	1.48	0.57	0.50	0.58	2.30	1.63	1.68	1.30	2.47	2.21	2.25	4	15	71	9	1	2
1022-2	FWD	29	74	21	152	0	8	92	1	37	62	0	43	57	0.20	0.99	0.39	0.35	0.66	2.03	1.45	1.45	1.16	2.45	2.23	2.28	35	28	35	1	0	1
	AFT	28	74	19	152	0	100	0	10	44	46	0	53	47	0.21	1.40	0.48	0.44	0.80	2.42	1.81	1.82	1.45	2.49	2.25	2.28	10	25	61	4	0	1
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	2.21	1.22	1.22	0.87	2.41	2.06	2.11	20	44	34	2	0	2
	AFT	20	81	8	163	0	11	89	0	39	61	0	42	58	0.20	1.40	0.53	0.48	0.61	2.21	1.31	1.37	0.94	2.45	2.15	2.20	13	14	65	7	0	1
1023-2	FWD	29	81	-13	177	0	7	93	0	19	81	0	18	82	0.22	1.38	0.48	0.42	0.61	2.20	1.18	1.22	0.90	2.41	2.03	2.11	35	2	60	2	1	2
	AFT	28	80	-13	178	0	3	97	0	34	66	0	28	72	0.22	1.60	0.52	0.48	0.64	2.20	1.24	1.24	1.08	2.46	2.10	2.17	13	10	73	4	0	2
1024-1	FWD	10	61	24	137	0	0	100	0	57	43	0	72	28	0.17	1.74	0.35	0.32	0.60	2.28	1.22	1.15	0.58	2.34	1.97	2.03	27	49	23	0	0	1
	AFT	9	61	21	136	0	0	100	0	28	72	0	82	18	0.20	1.22	0.40	0.37	0.48	2.32	1.30	1.24	0.94	2.40	1.97	2.06	13	46	39	2	0	1
1024-2	FWD	9	79	11	151	0	0	100	12	19	69	0	25	75	0.24	1.17	0.46	0.42	0.39	2.48	1.30	1.27	1.01	2.45	1.91	1.99	36	3	58	2	0	1
	AFT	8	79	9	151	0	0	100	1	22	77	0	66	34	0.20	1.39	0.47	0.40	0.29	2.48	1.31	1.32	0.90	2.40	1.89	1.95	20	25	50	5	0	1

TABLE [illegible]

Distribution:

Copy No.	To
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