[redacted]

CORONA J

PERFORMANCE EVALUATION REPORT

MISSION 1027-1

FTV 1621 JX-27

29 AUGUST 1966

APPROVED: [redacted] Manager
Advanced Projects

APPROVED: [redacted] Manager
Program [redacted]

~~TOP SECRET~~ [redacted]

[redacted]

~~TOP SECRET~~ [redacted]

[redacted]

21 September 1966

TO: V. Webb
C. Murphy
A. Johnson
[redacted]

THRU: [redacted]

FROM: [redacted]

SUBJECT: MISSION 1027-1 FINAL REPORT

Enclosed is the Final Performance Evaluation Report for Mission 1027-1.

[redacted], Manager
Advanced Projects

IF ENCLOSURES ARE WITHDRAWN OR NOT ATTACHED THE CLASSIFICATION OF THIS DOCUMENT WILL BE CHANGED TO UNCLASSIFIED

~~TOP SECRET~~ [redacted]

FOREWARD

This report details the performance of the payload system during the operational phase of the Program [redacted] Flight Test Vehicle 1621.

Lockheed Missiles and Space Company has the responsibility for evaluating payload performance under the level of effort and "J" System contracts.

This document is the final payload test and performance evaluation report for Missions 1027-1 which was launched on 9 December 1965.

[redacted]

TABLE OF CONTENTS

TOP SECRET [redacted]

LIST OF ILLUSTRATIONS

INTRODUCTION

This report presents the final performance evaluation of Mission 1027-1 of the Corona Program. The purpose of this report is to define the performance characteristics of the JX-27 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.

Notice of Missing Page(s)

Page 2 of the original document was missing.

TOP SECRET [redacted]

SCHEMATIC INBOARD PROFILE - CORONA J SYSTEM

MISSION 1027

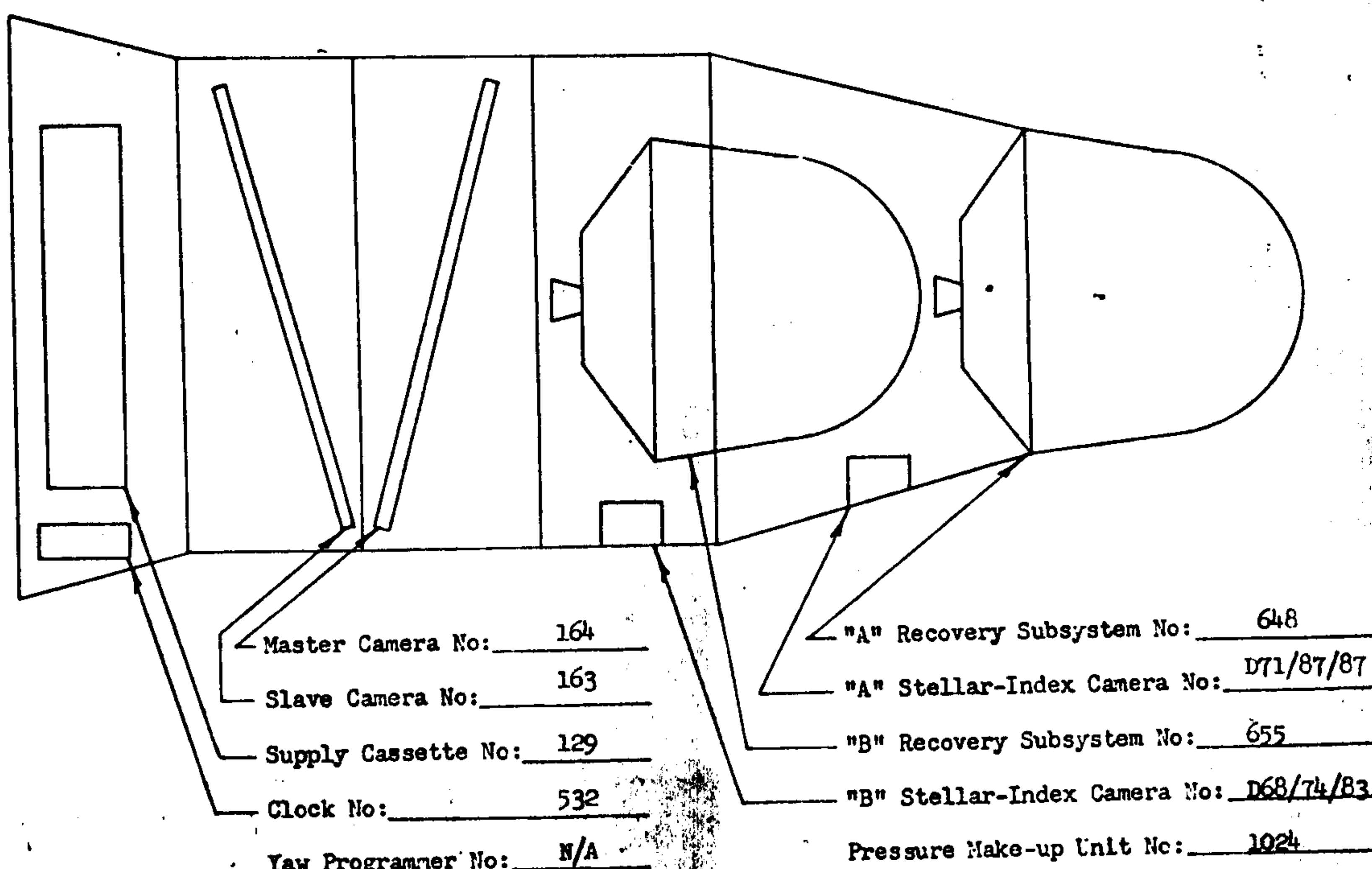


FIGURE 1-1

[redacted]

SRV #1 contained 73% of payload capacity. SRV #2 had no payload.

C. PANORAMIC CAMERAS

The Master and Slave panoramic cameras operated throughout the A mission with no significant problems and produced good photographic quality. The cloud cover observed in the photography averaged 45% for the flight.

D. STELLAR-INDEX CAMERAS

Stellar-Index camera #D-71 used during Mission 1027-1 provided good star and terrain imagery.

E. OTHER SUBSYSTEMS

The clock, instrumentation, command, thermal control and PMU subsystems performed satisfactorily. After the Agena yaw around manuever, the guidance pneumatics failed to switch to low gain resulting in the control gas depletion by orbit 9.

SECTION 2

PRE-FLIGHT SYSTEMS TEST

A. ENVIRONMENTAL TESTING

1. Test Objective

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

2. Test Summary

The JX-27 system was altitude tested for six days in the HIVOS chamber from 20 - 26 May 1965. During this period, internal camera pressures ranged from 1.4 to 60 microns. The latter value was representative of the internal pressure during operation of the PMU. The simulated "A" mission consisted of 2500 cycles and 2800 cycles during the "B" mission. The test film used in this test was not pre-dried.

In completion of the HIVOS test, it was found that there was oil contamination on internal lens surfaces of the Slave camera #163, as well as small regions on the supply cassette. The pan instrument assemblies were returned to Boston for cleaning. It has been determined that these operations do not result in any requirement for further altitude testing. Subsequent inspection of the lenses showed them to be acceptable for flight.

Instrument #164 exhibited some start-up corona with a density of 0.25. This is within acceptable system standards. Instrument #163 was free of corona marking.

The Stellar-Index camera D-71 provided good lamp and reseau imagery. Both cameras were free of corona marking.

The Stellar-Index camera D-68 requires a higher intensity on #1 and #2 stellar fiducials. All other lamps and reseau imagery was acceptable. Fourteen frames of stellar photography had corona markings of 0.35 density, which is not disqualifying. The index unit had no corona marks.

3. Panoramic Camera Performance

The cycle rates for the panoramic cameras exceeded the specification limits for ramp repeatability. The ramp repeatability should be 1% or less, and both the master and slave instruments exceeded this at random times up the ramp. This lack of repeatability was not limited to a certain ramp, but all the ramps used during the HIVOS test exhibited this repeatability problem. Table 2-1 shows the cycle rate measurements taken during the test.

These instruments also showed greater deviations in repeatability during acceptance testing than many other systems, although there were no violations of the specification limits per se.

The lack of cycle rate repeatability was the major problem with the panoramic cameras. The occurrence of a fail-safe was an isolated instance, and did not happen again. The slave instrument has less internal friction than the master instrument, and coasts further than the master instrument after the instruments off command. The slave instrument's shuttle also cycles from the 99 to the 101 side faster than the master instrument's shuttle. There was an extremely long coast to the shutdown on a mono slave operation during orbit 12 in the "A" mode. This caused the lens cell to coast almost into the photographic scan portion of the cycle.

There were other instances in which the slave 99% and 101% clutch deviated more than 1 from an established average. In the "A" mode the master and slave 101% and 99% clutches averaged 7/7 and 6/5 respectively. In the "B" mode the respective averages were 7/7 and 6/6.

The "A" cut and wrap sequence and the "B" recovery sequence proceeded correctly and all T/M points made a proper switchover. The vehicle deactivate sequence had six cycles instead of five, and the slave instrument did not make a good lens stow.

4. Stellar-Index Performance

The "A" and "B" Stellar-Index cameras performed satisfactorily.

5. Clock Performance

The clock (534) did not function properly during the test, and was removed after the test.

Clock (532) was introduced into the JX-27 system as the replacement for 534.

6. Instrumentation

Ground loops were a consistent problem with the instrumentation. This was a problem that is indigenous to the HIVO8 chamber. Previous tests run on other systems also produced severe ground loops.

There were problems with the status channel point 13-13. This was the point for the Phillips Gauge. The charge time constant, determined by the Phillips Guage T/M electrical circuitry, causes this point to appear open when the adjacent point 13-12 has a voltage higher than the T/M output of the Phillips Gauge. Moving this T/M point to a position with a cal zero before it should alleviate this problem.

The correlation between the film footage pots and the cycle counter for the master and slave instruments was reasonable.

7. Pressure Make-Up

The pressure make-up system performed satisfactorily. All gas on operations achieved pressures of approximately 60 microns. The average gas consumption for the "A" mode was 5.2 psi per minute of camera operation.

8. Temperature Summary

The payload system showed no adverse effects from the exposure to the different temperatures. All the commutated temperature points appeared to follow the variations in chamber temperature. The average instrument temperatures during the HIVO8 test were:

Orbit 2 "A" Mode		Orbit 16 "A" Mode	
#1	81	#1	91
#2	78	#2	89

Orbit 1 "B" Mode		Orbit 13 "B" Mode	
#1	94	#1	70
#2	91	#2	64

The above temperature averages are not corrected for self-heating.

B. RESOLUTION TEST

The dynamic resolution test of the JX-27 payload system was performed at the A/P facility on 16 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

The examination of the film threaded in the JX-27 system during the light leak test determined that minor film fogging was present. The light tight integrity of the system was considered acceptable for flight.

D. FLIGHT LOADING AND CERTIFICATION

Pan instrument payload exhibits from the flight readiness test were processed and examined on 1 December 1965. The exhibits showed the instruments to be acceptable for flight loading.

Final assembly of the system was accomplished on 5 December. Payload tracking was normal throughout the system.

[redacted]

JX-27 HIVOS TEST RAMPS

REV/MODE		RAMP		T.U.R.	INST 164 ACT.	INST 164 NOM.	INST 164 DEV.	INST 163 ACT.	INST 163 NOM.	INST 163 DEV.	164/163 DIFF.
8	A	4	1	1015	2.670	2.717	1.75	2.693	2.707	0.50	0.86
8	B	4	1	1015	2.718	2.717	-0.02	2.743	2.707	-1.34	0.92
2	A	4	1	2025	2.170	2.163	-0.34	2.175	2.166	-0.41	0.23
2	B	4	1	2130	2.148	2.166	0.82	2.180	2.168	-0.55	1.49
13	A	4	1	2630	2.303	2.356	2.27	2.335	2.354	0.82	1.39
13	B	4	1	2630	2.348	2.356	0.36	2.378	2.354	-1.00	1.28
9	A	4	1	3210	3.373	3.479	3.05	3.355	3.434	2.30	-0.53
9	B	4	1	3210	3.453	3.479	0.75	3.455	3.434	-0.61	0.06
2	A	5	8	730	2.880	2.859	0.67	2.875	2.882	0.25	-0.17
2	B	5	8	730	2.873	2.859	0.91	2.893	2.882	-0.37	0.70
6	A	5	8	1090	2.658	2.696	1.40	2.695	2.686	-0.35	1.39
6	B	5	8	1090	2.678	2.696	0.66	2.713	2.686	-1.02	1.31
6	A	5	8	1445	2.455	2.497	1.69	2.500	2.492	-0.30	1.83
3	A	5	8	1550	2.445	2.455	0.41	2.458	2.451	-0.28	0.53
2	B	5	8	1550	2.415	2.455	1.64	2.460	2.451	-0.36	1.86
15	A	5	8	1930	2.343	2.387	1.86	2.373	2.385	0.49	1.28
15	A	5	8	3120	2.830	2.899	2.39	2.855	2.882	0.95	0.88
10	A	7	7	315	3.508	3.581	2.05	3.498	3.530	0.91	-0.29
1	B	7	7	390	3.440	3.539	2.79	3.448	3.490	1.21	0.23
6	B	7	7	1180	2.850	2.873	0.79	2.883	2.857	-0.92	1.16
7	A	7	7	1590	2.518	2.562	1.73	2.573	2.556	-0.66	2.18
11	B	7	7	1910	2.463	2.481	0.74	2.503	2.477	-1.05	1.62

TABLE 2-1

~~TOP SECRET~~ [redacted]

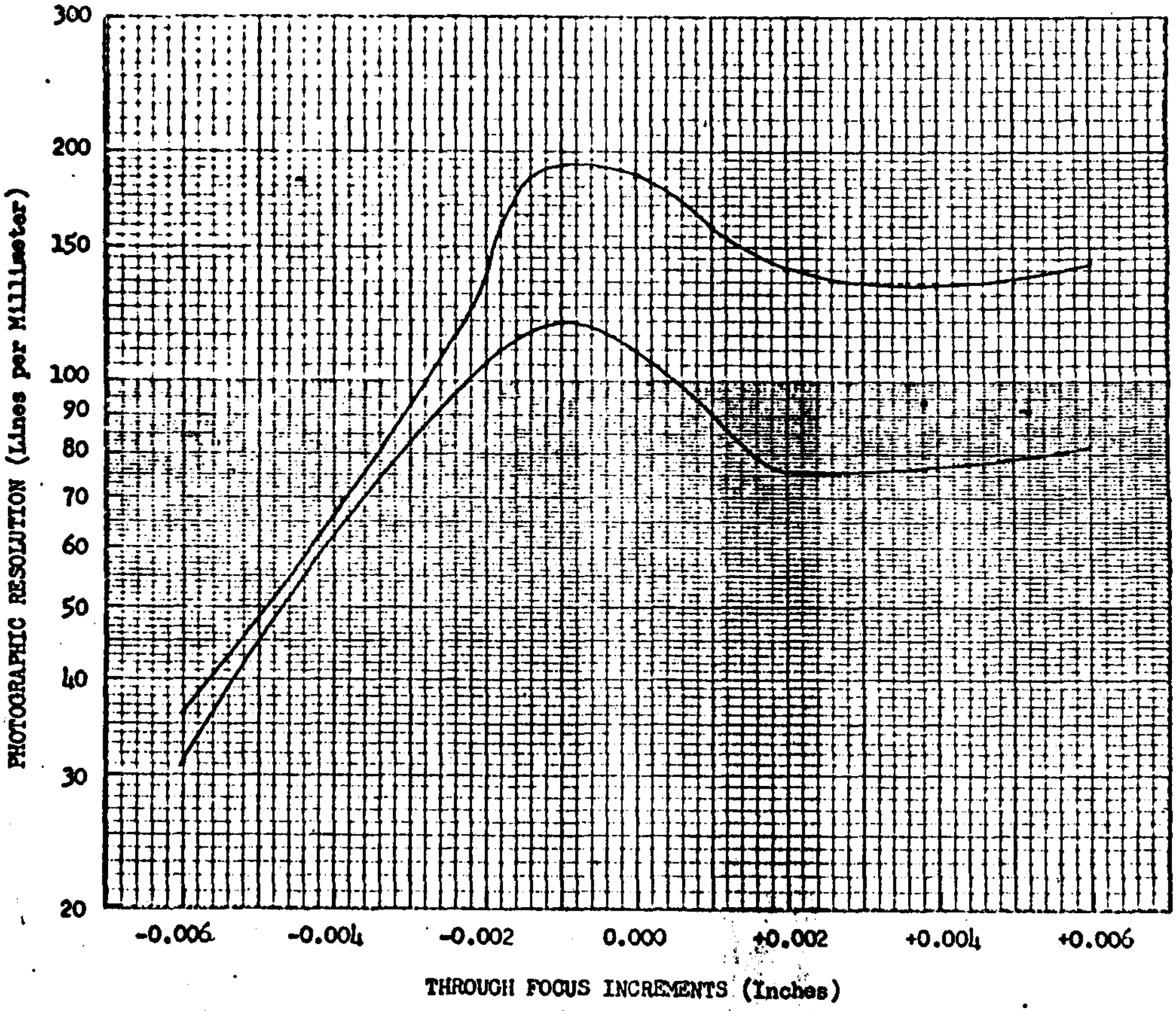
REV/MODE		RAMP		T.U.R.	INST 164 ACT.	INST 164 NOM.	INST 164 DEV.	INST 163 ACT.	INST 163 NOM.	INST 163 DEV.	164/163 DIFF.
1	B	7	7	2215	2.503	2.542	1.54	2.548	2.536	-0.46	1.80
4	A	7	7	2280	2.538	2.572	1.34	2.563	2.566	0.11	0.99
3	B	7	7	2280	2.538	2.572	1.34	2.573	2.566	-0.28	1.38
11	B	7	7	2280	2.570	2.572	0.09	2.593	2.566	-1.06	0.89
16	A	8	2	0	5.513	5.758	4.25	5.370	5.490	2.18	-2.59
16	A	8	2	0	5.533	5.758	3.90	5.398	5.490	1.67	-2.44
5	A	8	2	340	5.090	5.265	3.33	4.975	5.060	1.68	-2.26
4	B	8	2	340	5.108	5.265	2.99	5.048	5.060	0.24	-1.17
11	B	8	2	1155	2.978	2.979	0.04	3.000	2.959	-1.39	0.74
16	A	8	2	2620	2.735	2.806	2.53	2.748	2.792	1.59	0.48
9	B	11	1	865	4.603	4.646	0.92	4.550	4.508	-0.92	-1.15
9	A	11	1	890	4.415	4.524	2.41	4.345	4.399	1.22	-1.59
5	B	11	1	1460	2.630	2.643	0.49	2.673	2.634	-1.47	1.63
9	A	11	1	1880	2.228	2.272	1.92	2.255	2.271	0.70	1.21
13	A	11	1	1975	2.[illegible]38	2.272	1.51	2.263	2.272	0.38	1.12
6	B	11	1	2040	2.2[illegible]	[illegible]90	0.72	2.300	2.289	-0.50	1.19
9	B	11	1	2965	4.513	4.548	0.77	4.433	4.420	-0.29	-1.77
14	A	11	1	3085	4.958	5.184	4.36	4.863	4.988	2.52	-1.92

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

TABLE 2-1

~~TOP~~ [redacted]

PRE-FLIGHT DYNAMIC RESOLUTION



Camera No: 164

Payload No: JX-27

Resolution (1/mm)

High Contrast: 192

Low Contrast: 119

Film Type: 3404

Test Date: 6/17/65

FIGURE 2-1

~~TOP SECRET~~ [redacted]

[redacted]

PRE-FLIGHT DYNAMIC RESOLUTION

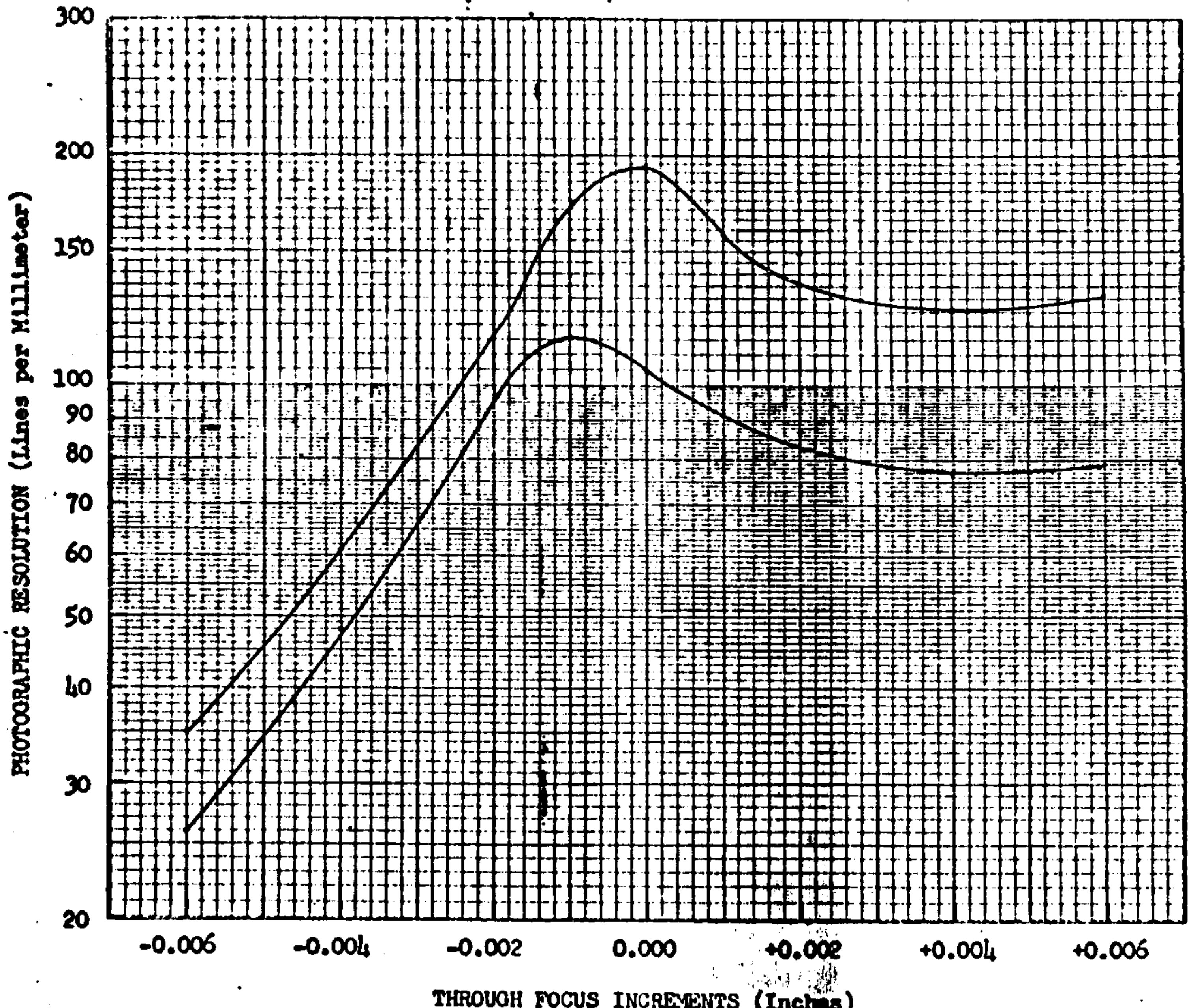


FIGURE 2-2

Camera No: 163

Payload No: JX-27

Resolution (1/mm)

High Contrast: 192

Low Contrast: 116

Film Type: 3404

Test Date: 6/17/65

~~TOP SECRET~~ [redacted]

SECTION 3

FLIGHT OPERATIONS

A. SUMMARY

All launch, ascent and injection events occurred as programmed. Both Thor and Agena propulsion and guidance was normal and resulted in the desired orbit. After the Agena yaw around maneuver, the guidance pneumatics failed to switch to low gain. This condition resulted in gas supply depletion by orbit 9 and loss of stability by orbit 15.

Loss of vehicle stability necessitated first mission recovery on orbit 17 and second recovery on orbit 33. Both recoveries were executed using the lifeboat system and aircraft pickup.

With the loss of stability imminent, the payload system was operated at maximum comsumption rate and approximately 73% of nominal mission consumption was achieved by orbit 16. All payload systems operated normal throughout both missions, however, the camera subsystem was not operated in the second mission to minimize vehicle perturbations.

B. PANORAMIC CAMERA PERFORMANCE

The camera system dynamics were observed during [redacted] acquisitions on orbit 9 and 16. Film transport and metering was normal on both units and cycle rate data indicated both units were running approximately 0.5% slower than pre-flight calibrations.

1. Panoramic Film Consumption

These data are based on cycle counter readings and a nominal film supply.

	Predicted	Actual	
		Master	Slave
Pre-Launch - Frames	100	103	106
-1 Mission - Frames	3000	2174	2119
-2 Mission - Frames	2940	0	0
Total Frames	6040	2277	2225

C. FMC MATCH

The achieved orbit was near nominal. The pre-flight V/H ramp settings were used until orbit 7 when a slight change was made to improve the FMC match in the target area.

The FMC match throughout the -1 mission was estimated to be within 1 to 2% of the desired.

D. STELLAR-INDEX CAMERA PERFORMANCE

The -1 Stellar-Index camera operated normally during the mission. Film depletion was not attained due to short mission (one day). The -2 Stellar-Index was not operated.

E. INSTRUMENTATION AND COMMAND SYSTEM

1. Instrumentation

The instrumentation system performed satisfactorily throughout the missions. JX-27 payload was equipped with the older temperature monitoring system and required self-heating corrections to the indicated temperatures. These corrections averaged 7 to 10 deg. F.

A ± 25 G vibration pickup was installed on the forward pyro electrical box to monitor ascent levels. This special monitor performed satisfactorily except that the 25 G calibration range was exceeded during booster lift-off.

2. Command System

Normal payload response was obtained from all stored and real time commands.

F. CLOCK PERFORMANCE

The payload clock performance was satisfactory and good correlation between clock time and [redacted] system time was obtained.

G. INTERNAL SYSTEM PRESSURE

The pressure make-up system performance was satisfactory and the consumption was 5.0 PSIA per minute of camera operation. This consumption rate was the lowest to date and is attributed to the type of camera operation in the emergency program. The emergency program normally consists of fewer number of operations per orbit, but the operations are longer in time. This type of operation reduces the gas loss that occurs at each shutdown and produces the lowest overall consumption rate.

H. THERMAL ENVIRONMENT

The temperature data obtained from [redacted] acquisitions showed the average panoramic camera temperature was varying between 74 and 86 degs. F. All temperatures appeared normal and generally agreed with predictions.

I. ASCENT VIBRATION

The vibration pickup was installed on the pyro junction box cover in the recovery barrel. The ascent phase showed high activity at two basic frequencies of 190 and 1000 cps. This activity occurred at launch ignition and in the transonic region and the duration was approximately 5 seconds in each case. Short duration high level activity was noted at door ejection.

SECTION 4

MISSION 1027-1 RECOVERY SYSTEM

SRV #648 was received at A/P on 9 October 1963. The receiving inspection weight was 150.9 pounds. After modifications and the incorporation of outstanding Engineering Orders, the SRV was delivered to Systems Test for incorporation into the JX-27 system.

The Recovery System was shipped to VAFB on 25 October 1965.

Recovery was enabled in the lifeboat mode on pass 16 [redacted] and executed on pass 17 on December 10, 1965. All events monitored occurred within their prescribed tolerances. Lifeboat gas pressure indicated an adequate supply for a second lifeboat recovery attempt.

Predicted Impact	22° 00'N, 152° 01'W
Actual Impact	22° 22'N, 151° 50'W

Recovery sequence of events with their associated times are listed in Table 4-1.

The condition of the air recovered capsule was normal.

MISSION 1027-1

RECOVERY SEQUENCE OF EVENTS

Event	Delta Time (Seconds) Actual	Delta Time (Seconds) Nominal Events + T
*Arm	77.34	77.0 ± 1.0
(1)*Transfer	2.51	2.5 ± 0.25
Electrical Disconnect	1.11	0.900 + 0.430 − 0.400
Separation	---	---
**Spin	3.44	2.4 ± 0.30
Retro	7.58	7.55 ± 0.45
Despin	10.69	10.75 ± 0.59
T/C Separation	1.50	1.5 ± 0.15
***"G" Switch Open	N/A	
Parachute Cover Off	N/A	34.0 ± 1.5
Drogue Chute Deployed	N/A	0.63 ± 0.08
Main Chute Bag Separate	N/A	10.25 ± 1.5
Main Chute Deployed	N/A	0.52 ± 0.13
Main Chute Disreefed	N/A	4.5 ± 0.80

* From Separation

** From Electrical Disconnect

*** From Retro

(1) Normal Time using Lifeboat Capabilities

TABLE 4-1

[redacted]

SECTION 5

MISSION 1027-2 RECOVERY SYSTEM

SRV #655 was received at A/P on 30 December 1963. The receiving inspection weight was 151.9 pounds. After modifications per outstanding Engineering Orders the SRV was installed in the JX-27 system.

The Recovery System was shipped to VAFB on 25 October 1965.

Recovery was enabled and executed in the lifeboat mode on pass 33. The capsule was air recovered on 11 December 1965. All events monitored occurred within the prescribed tolerances. See Table 5-1.

Predicted Impact	24° 00'N, 147° 03'W
Actual Impact	23° 31'N, 146° 30'W

The condition of the recovered capsulewas normal.

~~TOP SECRET~~ [redacted]

MISSION 1027-2

RECOVERY SEQUENCE OF EVENTS

Event	Delta Time (Seconds) Actual	Delta Time (Seconds) Nominal Events + T
*Arm	77.40	77.0 ± 1.0
(1)*Transfer	2.50	2.5 ± 0.25
Electrical Disconnect	0.99	+0.900 + 0.430 − 0.400
Separation	---	---
**Spin	3.40	+3.4 ± 0.30
Retro	7.56	+7.55 ± 0.45
Despin	10.77	+10.75 ± 0.59
T/C Separation	1.50	+1.5 ± 0.15
***"G" Switch Open	N/A	
Parachute Cover Off	N/A	+34.0 ± 1.5
Drogue Chute Deployed	N/A	0.63 ± 0.08
Drogue Chute Release	N/A	+10.25 ± 1.5
Main Chute Deployed	N/A	+0.52 ± 0.13
Main Chute Disreefed	N/A	4.50 ± 0.80

* From Separation

** From Electrical Disconnect

*** From Retro

(1) Normal Time using Lifeboat Capabilities

TABLE 5-1

SECTION 6

MASTER PANORAMIC CAMERA

A. COMPONENT ASSIGNMENT

Component	Serial Number
Main Camera	164
Main Camera Lens	1382435
Supply Horizon Camera	184-G8
Supply Horizon Camera Lens	813510
Take-up Horizon Camera	177-G9
Take-up Horizon Camera Lens	812271
Supply Cassette	SC-29

B. CAMERA DATA AND FLIGHT SETTINGS

Main Camera:

Lens	24" f/3.5
Slit Width	0.250"
Filter Type	Wratten 25
Film Type	Eastman Type 3404

Supply (Port Horizon Camera:

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

Take-up (Starboard) Horizon Camera:

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

C. POST FLIGHT PERFORMANCE EVALUATION

The image quality of the photography produced was good and probably comparable with Mission 1025. However, because of control problems, a maximum amount of coverage was ordered for the one day of operation with the result that there was only a small amount of coverage suitable for quality evaluation. The system experienced high attitude rates because of a control gas valve failure, but the pan camera imagery showed no detectable degradation. No coverage of ground target displays was obtained so that there is no basis for objective quality measurements.

D. ANOMALIES

Density of the slave output H.O. fiducial at the data block edge varied in intensity throughout the mission. Dirt (film support or emulsion) intermittently obstructs light. Dirt from rail scratches is an instrument characteristic, but experience has shown it to be a minor hazard.

All but one of the light leaks are traced to two sources: (1) felt seals at the instrument drums, and (2) laminated strips at the rear of the instrument drums. A third fog source is indicated but the location is not known.

SECTION 7

SLAVE PANORAMIC CAMERA

A. COMPONENT ASSIGNMENT

Component	Serial Number
Main Camera	163
Main Camera Lens	1392435
Supply Horizon Camera	180-G10
Supply Horizon Camera Lens	814015
Take-up Horizon Camera	182-G9
Take-up Horizon Camera Lens	812306
Supply Cassette	SC-29

B. CAMERA DATA AND FLIGHT SETTINGS

Main Camera:	
Lens	24" f/3.5
Slit Width	0.175"
Filter Type	Wratten 21
Film Type	Eastman Type 3404
Supply (Starboard) Horizon Camera:	
Lens	55 mm f/6.8
Aperture Setting	f/8.0
Exposure Time	1/100 second
Filter Type	Wratten 25
Take-up (Port) Horizon Camera:	
Lens	55 mm f/6.8
Aperture Setting	f/6.8
Exposure Time	1/100 second
Filter Type	Wratten 25

SECTION 8

PANORAMIC CAMERA EXPOSURE

The camera settings for the Master instrument was 0.250 inch slit with a Wratten 25 filter. The Slave instrument contained a 0.175 inch slit and a Wratten 21 filter. These conditions place the nominal exposure for film type 3404 between the full and intermediate processing levels.

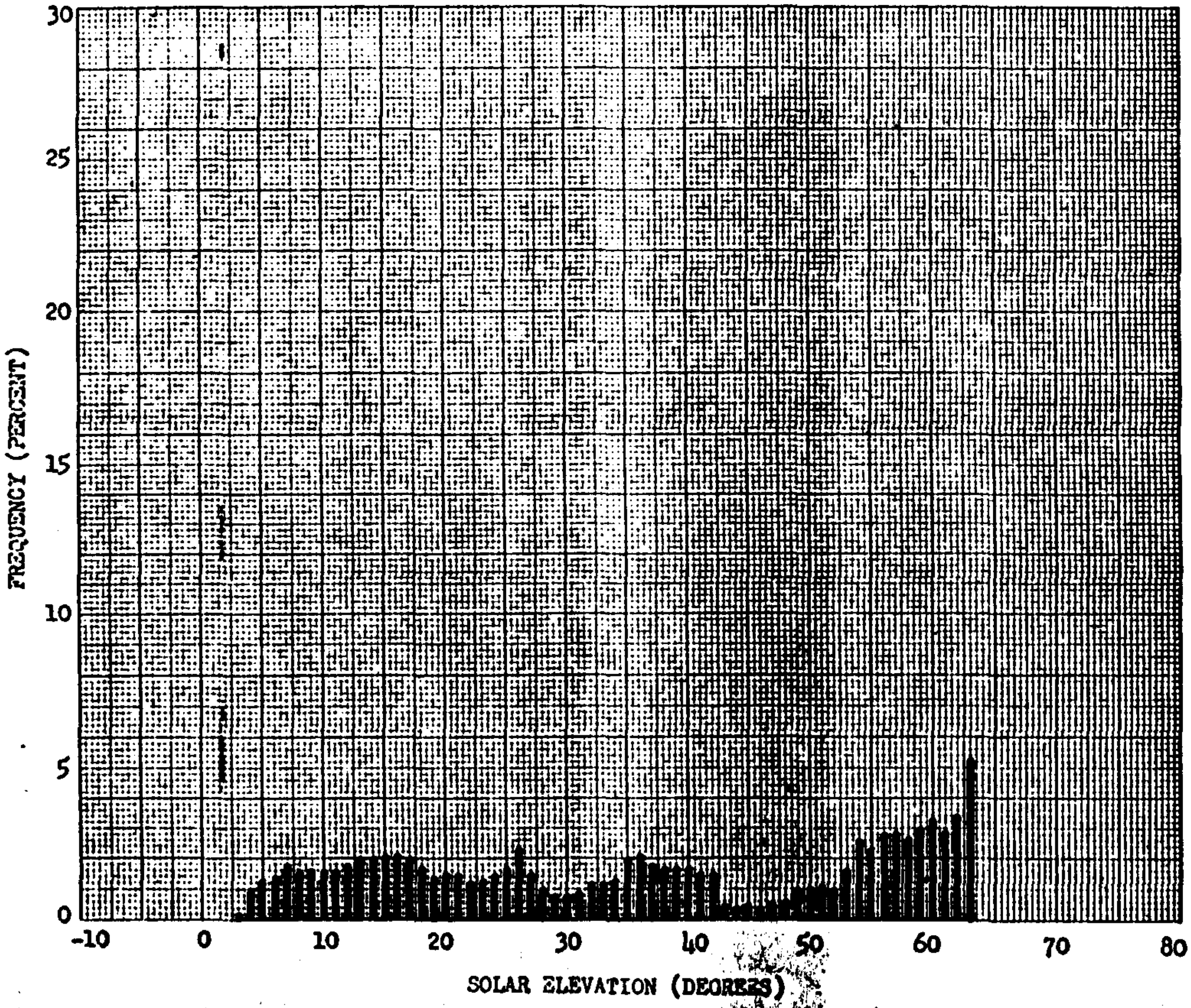
The frequency distributions of the solar elevations and solar azimuths encountered during the photographic operations are shown in Figures 8-1 and 8-2.

The nominal exposure times are shown as a function of latitude for pass D-8, in Figures 8-3 and 8-4. 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
1027-1	FWD	Predicted	0	0	100
		Reported	0	0.2	99.8
1027-1	AFT	Predicted	0	0	100
		Reported	0	21	79

[redacted]

SOLAR ELEVATION FREQUENCY DISTRIBUTION



Mission No: 1027-1

Payload No: JX-27

Camera No: 164

Launch Date: 12/9/65

Launch Time: 2110 Z

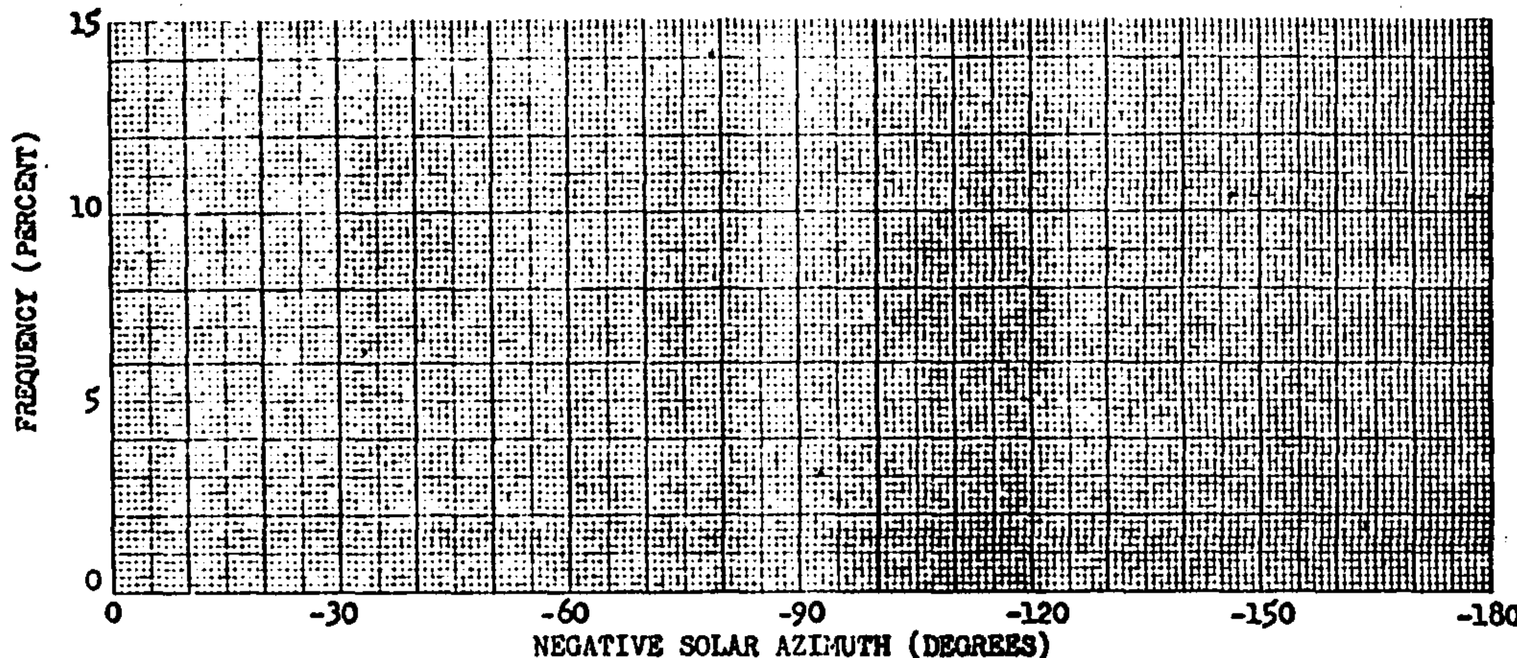
Inclination: 80°

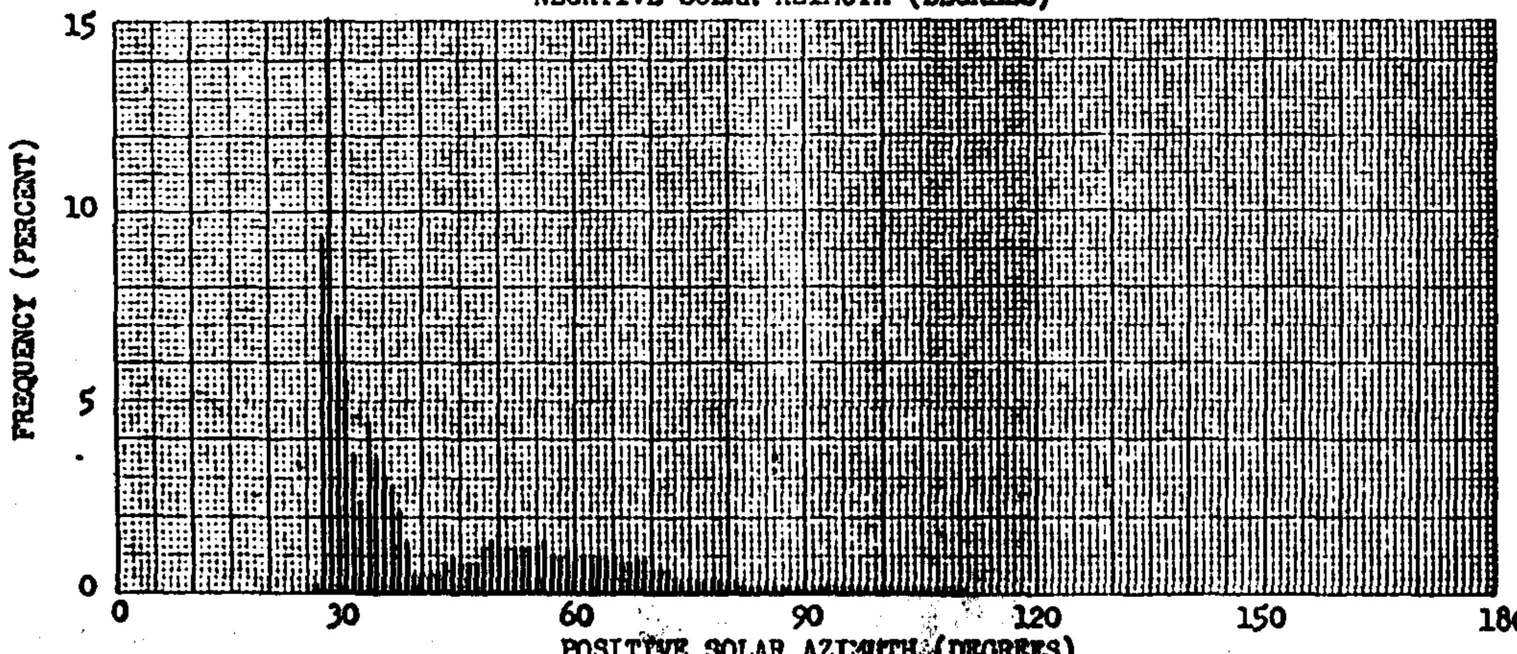
Figure 8-1

TOP SECRET [redacted]

[redacted]

SOLAR AZIMUTH FREQUENCY DISTRIBUTION





Mission No: 1027-1

Payload No: JX-27

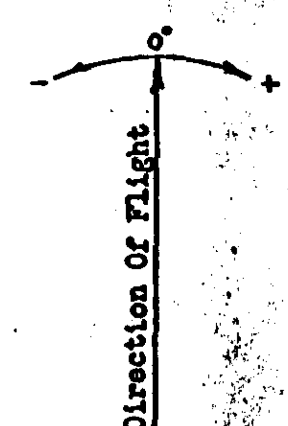
Camera No: 164

Launch Date: 12/9/65

Launch Time: 2110 Z

Inclination: 80°

SIGN NOTATION



[redacted]

[redacted]

EXPOSURE POINTS

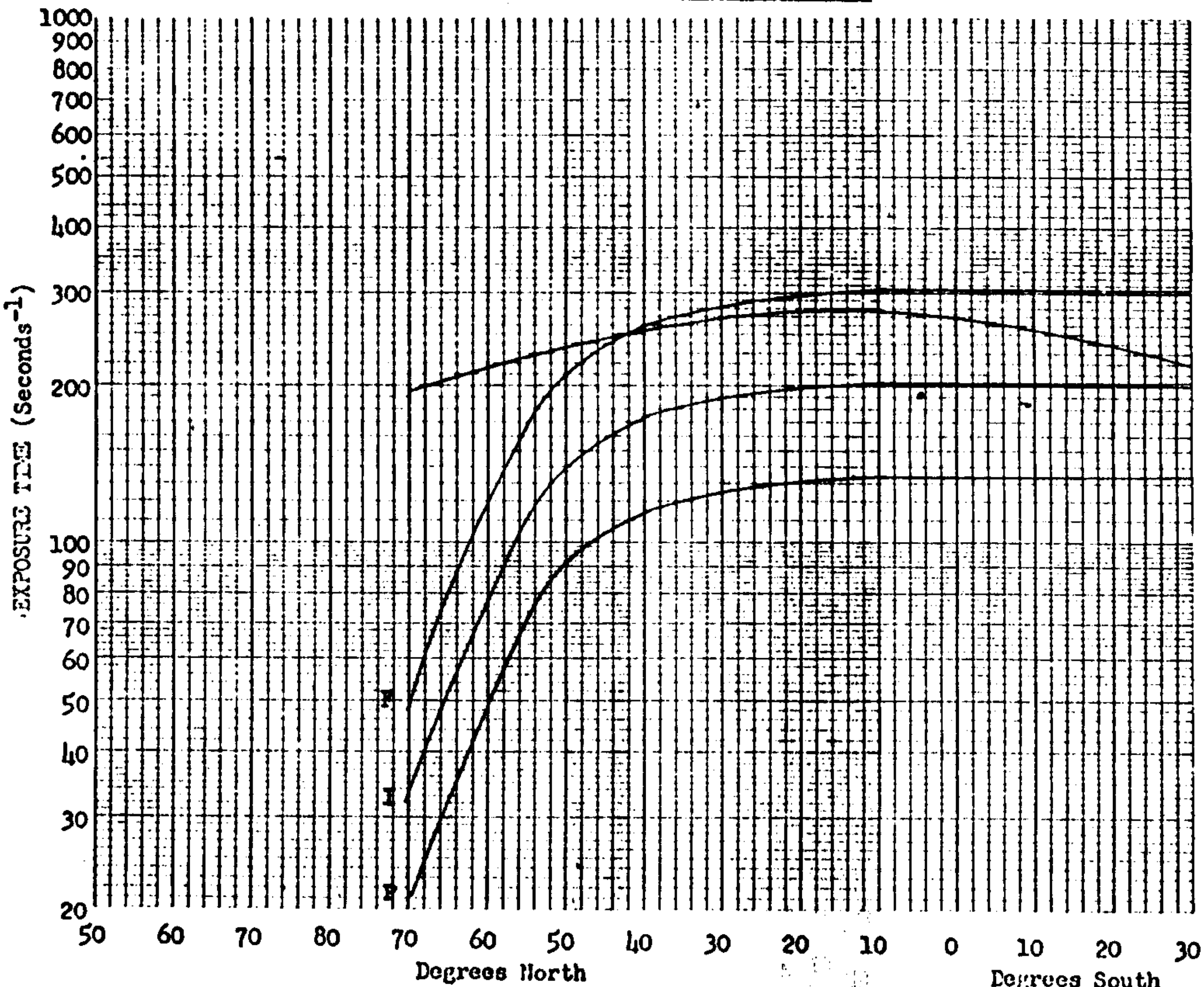


Figure 8-4

Mission No: 1027

Payload No: JX-27

Camera No: 164

Pass No: 8

Launch Date: 12/9/65

Launch Time: 2110 Z

Slit Width: .250

Filter Type: Wratten 25

Film Type: 3404

[redacted]