

~~Re Patterns~~
~~Re Kalkow~~
C file

~~TOP SECRET/C~~

~~J. Patterson~~
BIP 003/02 971489-71
Page 1 of 47 pages.
Copy No. 5

CORONA CR

MISSION SUMMARY

AND

TELEMETRY ANALYSIS

MISSION 1114

AGENA 1660/PAYOUTLOAD CR-14

MAY 1971

Prepared By E. D. Clarke

E. D. Clarke

Reviewed [REDACTED]

Approved By J. R. Cretcher

J. R. Cretcher, Manager
Eng., Ops., & Analysis

Approved By Q. A. Riepe

Q. A. Riepe, Manager
Advanced Projects

GROUP 1
EXCLUDED FROM AUTOMATIC
DOWNGRADING AND DECLASSIFICATION

Distribution:

J. Baker
J. Cretcher/Q. Riepe [REDACTED] /CR-14 File

[REDACTED]
SPA File

~~TOP SECRET/C~~

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

~~TOP SECRET/C~~

BIF 003/02 971489-71

Page 2 of 47

TABLE OF CONTENTS

- 1.0 SUMMARY
- 2.0 SUB-SYSTEM PERFORMANCE
 - 2.1 Panoramic Cameras
 - 2.2 DISIC Camera
 - 2.3 Command & Control
 - 2.4 Data Systems
 - 2.5 Recovery
- 3.0 ORBITAL PERFORMANCE
 - 3.1 Orbital Parameters
 - 3.2 DMU Operation
- 4.0 ENVIRONMENTAL CONTROL
 - 4.1 Pressure Make-Up System
 - 4.2 Thermal Environment
- 5.0 POST EVENT 2 TESTING
- 6.0 HARDWARE DEFINITIONS
 - 6.1 Agena
 - 6.2 Payload
 - 6.3 Camera & Programmer Settings
- 7.0 FIGURES AND TABLES
 - 7.1 Payload Profile & Serial Numbers
 - 7.2 Pan Camera Cycle Period Data
 - 7.3 FMC Orbit Match Plot
 - 7.4 FMC Orbit Match Table
 - 7.5 Re-Entry Sequence of Events
 - 7.6 Orbit Parameter History
 - 7.7 Operation Distribution
 - 7.8 Thermal Predictions & Orbital Profile
 - 7.9 Thermal Summary

~~TOP SECRET/C~~

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

~~TOP SECRET/C~~

BIF 003/02 971489-71

Page 3 of 47

1.0 SUMMARY

Mission 1114 utilized a THORAD booster (SLV-2H) S/N 538, Agena vehicle 1660, and payload system CR-14. The CR-14 payload system contained panoramic cameras S/N 328 and 329, and DISIC camera S/N 1-R. Payload profile and additional component serial numbers are included in Figure 7-1.

Lift-off occurred at 13:06:00.5 PST on 24 March 1971 from Vandenberg, SLC-3 west pad. All payload ascent events were normal with In-flight Reset (door ejection), A/P-to Orbit mode, instrumentation switchover, and panoramic camera transfer to orbit mode occurring as programmed. The orbit attained was within the three sigma of predicted.

The normal mission plan was 8/11 days with an actual of 7/9 days due to an excessive usage of vehicle control gas and an Agena "H" Timer failure on Rev. 246.

The performance of Panoramic cameras S/N 328 and 329 was normal throughout the flight. The panoramic film supply was not exhausted due to an Agena vehicle "H" Timer failure during Rev. 246. A total of 450 cycles was not recovered from the supply.

The panoramic camera A-to-B Transfer Sequence was performed on Rev. 104 COOK and DISIC camera A-to-B Cut and Splice on Rev. 105 POGO. Both panoramic cameras and DISIC events were normal. The -1 mission recovery capsule was recovered by air catch on Rev. 115 at 1518 PST on 31 March 1971. The -2 mission recovery capsule was recovered by air catch on Rev. 260 at 1328 PST on 9 April 1971.

The clock system, command and instrumentation system, pressure make-up system, recovery systems, and the thermal environment were normal throughout the flight.

~~TOP SECRET/C~~

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY.

~~TOP SECRET/C~~

BIF 003/02 971489-71

Page 4 of 47

The early recovery of the -2 mission recovery capsule was necessitated due to the Agena vehicle "H" Timer failure on Rev. 246. The Life Boat recovery system timer was utilized for the -2 capsule recovery. All Life Boat systems performed satisfactorily.

On Rev. 159 Guam the first word loaded into the DSR was a 209 instead of a 201. The remaining thirty one (31) words loaded were correct. Post flight investigation of the problem revealed that the SILO decoder received an incomplete command message (SILO 311) because it was prematurely terminated due to a ground station problem. As a result the command was not executed and the SILO shift register in the Type 22 decoder was not cleared. The UNCLE Command system was then activated for DSR loading.. During the first word of the 32 word DSR load a "One" bit from the SILO Type 22 decoder register was added to the DSR load from the Uncle Type 22 decoder register causing the first word of the DSR load to be a 209 instead of a 201. This was normal for the sequence of events that occurred during this command sequence.

~~TOP SECRET/C~~

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

~~TOP SECRET/C~~

RIF 003/02 971489-71

Page 5 of 47

2.0 SUBSYSTEM PERFORMANCE

2.1 Panoramic Cameras

Panoramic cameras S/N 328 and 329 performed normally during the -1 and -2 missions.

2.1.1 Film Consumption and Type

	<u>FRAMES</u>	
	<u>Pan 328</u>	<u>Pan 329</u>
Sample	20	41
Pre-Launch	119	120
-1 Mission	2988	2972
-2 Mission	2815	2800
Left on Orbit	<u>220</u>	<u>229</u>
Total	6162	6162

Film Supply Length and Type

<u>Pan 328</u>	<u>Pan 329</u>
7800 Ft/3414	7800 Ft/3414
1000 Ft/3404	1000 Ft/3404
7500 Ft/3414	7500 Ft/3414
16,300 Ft Total	16,300 Ft Total

2.2 DISIC Camera

The DISIC camera system performed normally throughout the -1 and -2 missions.

2.2.1 Film Consumption

	<u>Frames</u>
	<u>Terrain</u>
Sample	26
Pre-Launch	91
-1 Mission	2457
-2 Mission	2550
Left on Orbit	<u>164</u>
Total	5288

Length/Type

<u>Terrain</u>	<u>Stellar</u>
2200 Ft/3400	2000 Ft/3401

~~TOP SECRET/C~~HANDLE VIA BYEMAN
CONTINUED ON REVERSE SIDE

~~TOP SECRET/C~~

HIF 003/02 971489-71

Page 6 of 47

2.3 Command and Control

2.3.1 Command System

The real time command (RTC) system operation was satisfactory throughout the flight except for Rev. 159 Guam. On Rev. 159 Guam the SILO Command system malfunctioned during vehicle commanding making it necessary to load the DSR with the Uncle Command system. The first word loaded was a 209 instead of the desired 201. The balance of the load was correct. The DSR was then enabled prior to fade and was re-loaded correctly at 159 POGO. Post flight investigation of the problem revealed that the SILO decoder received an incomplete command message due to a ground station problem that caused a premature termination of the command. As a result, the last SILO command was not executed and the SILO shift register in the Type 22 decoder was not cleared. Therefore, when the DSR was loaded with the Uncle Command system the command words for the first word from both SILO and Uncle shift registers were added together resulting in the incorrect first word. This was normal for the Command Sequence that occurred on Rev. 159 Guam. Post event 2 testing was conducted to attempt to simulate a DSR problem without any malfunctions. (See Para. 5.0).

2.3.2 FMC Match

The Ramp to Orbit match was satisfactory throughout both missions. During 82.5% of the first mission operations and during 82.1% of the second mission operations, the mis-match error was less than 1.0%.

~~TOP SECRET/C~~

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

~~TOP SECRET/C~~

BIP 003/02 971489-71

Page 7 of 47

To compensate for the reduction of mission lifetime due to abnormal vehicle control gas usage, the orbit altitude was increased to minimise gas usage and hence extend mission life. The increase in altitude exceeded the pre-launch setting of the slope-programmer operating limits of 80.0 to 95.0 nautical miles. An improved ramp-to-orbit match would have been maintained if the operating limits had not been exceeded.

2.3.3 Exposure Control System

The slit width control programmer performed satisfactorily throughout the -1 and -2 missions.

2.4 Data System

2.4.1 Instrumentation

The instrumentation system performed satisfactorily throughout the -1 and -2 missions. Diagnostic data on Link Two (2) channel fifteen (15) appeared noisy after Rev. 43. Signal was "In and Out" for remainder of the mission. This anomaly was attributed to a problem in the Agena vehicle Link Two (2) signal strength.

2.4.2 Clock System

Mission 1114 payload clock performed satisfactorily throughout the flight. The correlation equation and constants are:

First Order Fit

$$\text{System Time} = A_0 + A_1 \text{ (Clock Time)}$$

$$A_0 = -0.2767048117484806 \text{ D } 05$$

$$A_1 = 0.9999997942584964 \text{ D } 00$$

$$\Sigma = 0.01117422$$

Number of Points 257

~~TOP SECRET/C~~

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

~~TOP SECRET/C~~

BIF 003/02 971489-71

Page 8 of 47

Second Order Fit

$$\text{System Time} = A_0 + A_1 (\text{Clock Time}) + A_2 (\text{Clock Time})^2$$

$$A_0 = -0.2767052319235540 \text{ D } 05$$

$$A_1 = 0.9999999195136654 \text{ D } 00$$

$$A_2 = -0.7442426896944209 \text{ D } -13$$

$$\text{Sigma} = 0.00247612$$

Number of Points 257

2.4.3 SRV Tape Recorder

The SRV tape recorders for the -1 and -2 missions performed satisfactorily. A total of 210.2 minutes of data was recorded and processed from the two recorders (104.6 minutes for the -1 mission and 105.6 minutes for the -2 mission). Problems with the Automatic Data Processor delayed transmission of the customer data tape by two days.

2.5 Recovery

2.5.1 -1 Mission

The -1 recovery capsule was successfully recovered by air catch on Rev. 115 at 1518 PST on 31 March, 1971. All re-entry events were within tolerance with the impact approximately 10 miles North of the predicted. Refer to Table 7.5.

	<u>Actual</u>	<u>Predicted</u>
Impact Location	(24°11'N/162° 0'W)	(24°1'N/162° 14'W)

2.5.2 -2 Mission

The -2 recovery capsule was successfully recovered by air catch on Rev. 260 at 1328 PST on 9 April, 1971. All re-entry events were within tolerance with the impact very near predicted. Refer to Table 7.5.

	<u>Actual</u>	<u>Predicted</u>
Impact Location	(17°58'N/153° 46'W)	(18°0'N/153° 58'W)

~~TOP SECRET/C~~

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

~~TOP SECRET/C~~

BIF 003/02 971489-71

Page 9 of 47

3.0 ORBITAL PERFORMANCE

3.1 Orbital Parameters

<u>Parameter</u>	<u>Predicted</u>	<u>Tolerance</u>	<u>Actual STC</u>	<u>Actual APP</u>
Period (Min.)	88.67	+.32, -.36	88.56	88.55
Perigee (N.M.)	84.5	+ 8, - 8	84.7	87.6
Apogee (N.M.)	145.9	+12, -16	144.8	142.2
Eccentricity	88×10^{-4}	$+23 \times 10^{-4}, -30 \times 10^{-4}$	77×10^{-4}	75×10^{-4}
Inclination (Deg.)	81.50	+.21, -.18	81.50	81.52
Arg. of Perigee (Deg.)	147	+63, -57	130.6	129.0
Regression Rate (Deg./Rev.)	22.31	- -	-	-
Perigee Latitude (Deg.)	33 N	+59, -66	-	-

3.2 DMU Operation

Ground Track and period control were maintained during the flight by firing five (5) of the twelve (12) 3000 lb.-sec. DMU rockets. Refer to Table 3.2.1. The ground track and period control was affected by the change in orbit altitude to provide access to specific targets.

The ground track error at the ascending node ranged from 27.0 nautical miles east of nominal to 174.0 nautical miles west of nominal.

The firing of DMU rockets supported requirements due to the vehicle problem and due to the special access requested by the customer.

TABLE 3.2.1

DMU PERFORMANCE

Rocket No.	Rev. No.	System Time (Sec)	Period Change (Sec)	Velocity Change (Ft./Sec.)	Period at Firing (Min.)	Impulse (Lb./Sec.)
1	27	47142	13.82	22.28	88.44	3072
2	48	4440	13.48	21.54	88.52	2974
3	134	Stepped Over				
4	135	3972	15.35	24.55	88.31	3031
5	158	3957	15.45	24.71	88.43	3042
6	170	3927	15.40	24.60	88.63	3006

~~TOP SECRET/C~~HANDLE VIA SYEMAN
CONTROL SYSTEM ONLY

~~TOP SECRET/C~~

BIF 003/02 971489-71
Page 10 of 47

4.0 ENVIRONMENTAL CONTROL

4.1 Pressure Make-Up System

The pressure make-up system (PMU) operated properly throughout the flight. There were 109 panoramic camera operates for a total of 188.3 minutes which resulted in a gas consumption rate of 4.9 lbs/min of operate time. There were 262 DISIC camera operates for a total of 609.4 minutes for an alternate level gas consumption rate of 1.43 lbs/min of operate time.

4.2 Thermal Environment

The temperature data obtained during this flight indicated the temperature environment was within the pre-flight predictions for the duration of the flight. The averages of the panoramic camera temperatures ranged from 60°F to 62°F for S/N 328 and from 59°F to 64°F for S/N 329 during the -1 mission and 57°F to 64°F for S/N 328 and 59°F to 63°F for S/N 329 during the -2 mission. Refer to Tables 7.8.1 and 7.9.1 thru 7.9.4.

The on-orbit temperature profiles for Revs. 8, 105, and 186 are included in Figures 7.8.2 thru 7.8.14.

~~TOP SECRET/C~~

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

~~TOP SECRET/C~~

BIP 003/02 971489-71

Page 11 of 47

5.0 POST EVENT 2 TESTING

The Digital Storage Register (DSR) was loaded forty (40) times from various tracking stations in an attempt to repeat the anomaly that occurred on Rev. 159 Guam. No DSR loading malfunction occurred in any of the forty (40) loads.

6.0 HARDWARE DEFINITIONS

6.1 Agena

FTV 1660 was an Agena vehicle (SS-01B) and a THORAD Booster (SLV-2H) S/N 538. The Agena was oriented nose first with the following configuration:

- 1) Twelve Thiokol DMU rockets. All Thiokol DMU rockets were 3000 lb-sec.
- 2) Three primary control gas spheres installed with -5 heavy control gas mixture.
- 3) -3 payload system with digital storage register (DSR) and capability of accepting both Silo and Uncle commands.
- 4) Ten panel, single wing, solar array system with two (2) 1H batteries. (Depleting system).
- 5) AFT payload-Doppler Beacon No. 5 and OTEX A & B, Six Silo/Uncle commands for real time Doppler Beacon Control and Brush 18 (Doppler Beacon ON) and Brush 16 (Doppler Beacon OFF).
- 6) 3/4 speed Type VIII programmer (325 subcycles).
- 7) FTV 1660 was the second vehicle to utilize High Density Acid (oxidizer) and new fuel Hydrazine 300 (instead of IRFNA and UDMH).

~~TOP SECRET/C~~

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

~~TOP SECRET/C~~

BIF 003/02 971489-71

Page 12 of 47

6.2 Payload

The CR-14 payload configuration included the following:

1) Panoramic Camera

- a) Constant rotating type with a servo-controlled supply cassette.
- b) Digital Storage Register (DSR)/Cascade system utilized for camera enable/disable.
- c) Emergency program back-up available by RTC.

UHF 116/SILO 316 Emergency Program Select

UHF 118/SILO 318 Emergency Intermix Select

UHF 120/SILO 320 Emergency Mode Select

d) Exposure Control

- 1. Programmer control by SPC (51, 52, 17) and RTC UHF 105/SILO 305.
- 2. Automatic slit width control. Override by RTC UHF 101-126/SILO 301-326.

e) Filter Selection

- 1. Control by RTC UHF 103-104/SILO 303-304
- 2. The automatic filter change capability through the material change detector (MCD), was disconnected prior to launch.

f) Payload hardware modifications unique to this system.

- 1. The end of scan switch is now in series with the stow switch. Previously these switches were in parallel.
- 2. The instrument switch cluster has a 7-second timer added for back-up to the 20 second shutdown timer.

~~TOP SECRET/C~~

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

~~TOP SECRET/C~~

BIF 003/02 971489-71

Page 13 of 47

2) DISIC Camera

- a) Mode select controlled by RTC UHF 124/SILO 324.
- b) Both slave and independent modes of operation had a 1:1 ratio of stellar to terrain frames.
- c) Operate off provided by RTC UHF 107/SILO 307.

3) PMC Programmer

- a) Initiated by SPC 14 and SPC 27.
- b) Control delay increment by RTC UHF 125/SILO 325.
- c) Ramp profile provided by:

UHF 121/SILO 321 Eccentricity start level
UHF 122/SILO 322 Eccentricity half cycle level

4) Pressure Make-Up System

- a) Enable/Disable controlled by RTC UHF 110/SILO 310.
- b) Two (2) bottle system with dual range capability
- c) PMU operation in low range with DISIC independent mode of operation.

5) Panoramic camera "A" to "B" Transfer available by RTC KIK-SILO 38.

6) DISIC camera "A" to "B" Transfer available by RTC KIK-SILO 39.

7) Yaw steering available by RTC UHF 106/SILO 306.

8) Agena tape recorder time shared with vehicle data.

9) SERV tape recorder available in -1 and -2 recovery capsules.

10) Payload weight: EWO = 1810 lbs.

11) Instrumentation: RTC UHF 127/SILO 327 operational-diagnostic data select.

12) Thermal configuration: The top black was reduced to 56 degrees on the fairing and 76 degrees on the barrel and conic.

13) Command system included a DSR for primary operation of the camera system with a two program/4 rev. intermix emergency capability.

~~TOP SECRET/C~~

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

~~TOP SECRET/C~~

BIF 003/02 971489-71

Page 14 of 47

6.3 Camera and Programmer Settings

6.3.1 Panoramic Cameras

	<u>S/N 326</u>	<u>S/N 329</u>
Filter Type		
Primary	W/23, .037 Glass	W/25, .037 Glass
Alternate	W/23, .040 Glass	W/25, .040 Glass
Slit Width (Inches)		
Position 1	0.115	0.144
Position 2	0.145	0.177
Position 3	0.178	0.218
Position 4	0.283	0.308
Failsafe	0.155	0.190
Auxiliary Optics	<u>Take-Up</u>	<u>Supply</u>
Filter	W-25	W-25
Aperture	F6.3	F8.0

6.3.2 DISIC Camera

	<u>Stellar</u>	<u>Terrain</u>
Filter	None	W-12
Aperture	F2.8	F6.3
Cycle Period	9.375	9.375

6.3.3 Exposure Control Settings

	<u>Seconds</u>
T-1 (20 second Increment) initial setting	100
T-2 DISIC Exposure to 1/500	320
T-3 Slit Position 3 Duration	40
T-4 Slit Position 2 Duration	240
T-5 DISIC Exposure to 1/250	320
T-6 (T6 △ -T1)	320

~~TOP SECRET/C~~

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

~~TOP SECRET/C~~

RIF 003/02 971489-71

Page 15 of 47

DISIC exposure time was constant at 1/500 second for this mission. No system function was controlled by T2 or T5.

Position parameters were used to facilitate T/M monitoring

6.3.4 FMC Control Settings

Eccentricity function

- 1) Period - 4188 seconds
- 2) Delay step increment - 50 seconds

Oblateness function

- 1) Period - 5248 seconds
- 2) Gain factor - 0.1136

~~TOP SECRET/C~~

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY.

2. PAYLOAD FROTTES AND SERIAL NUMBERS

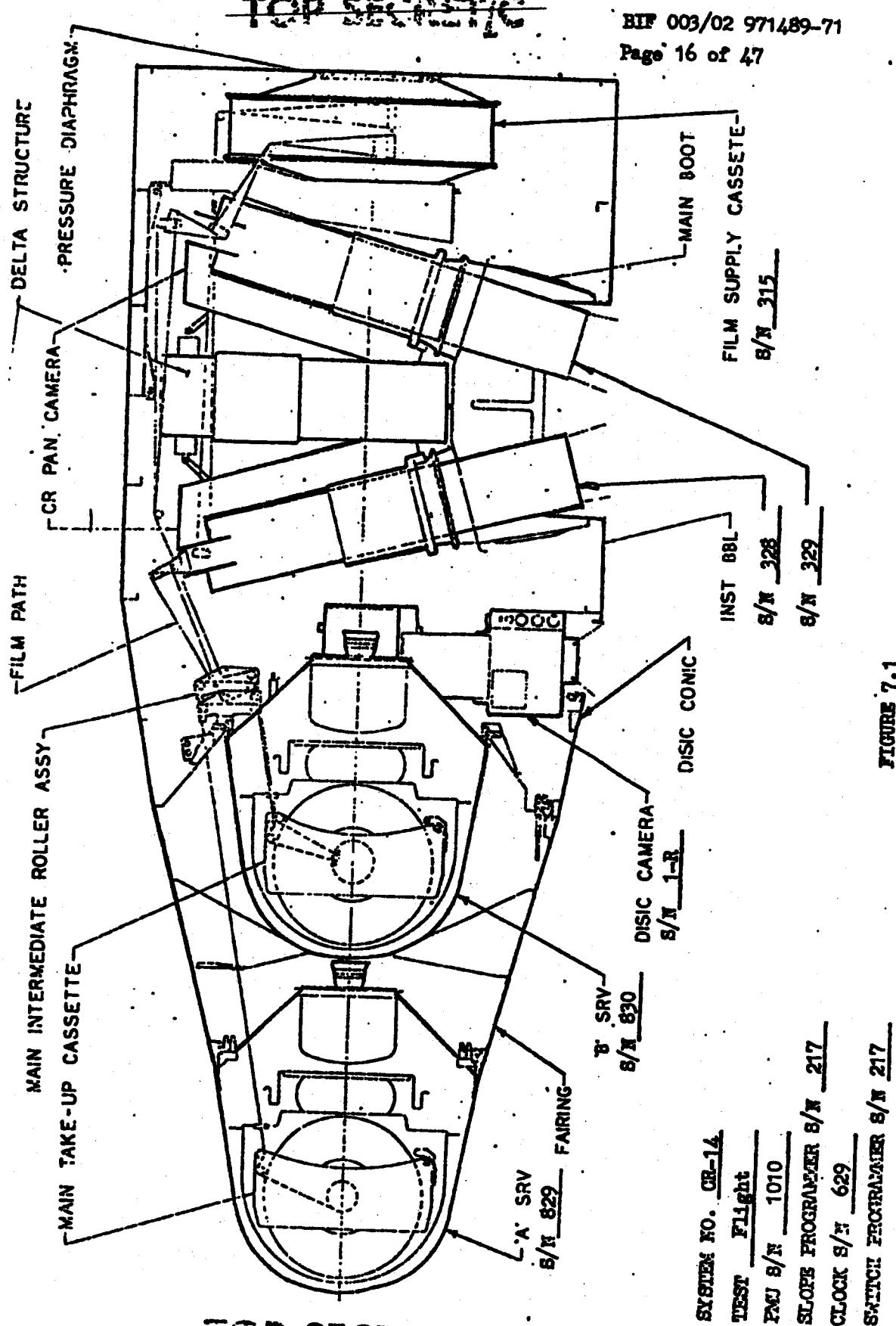


FIGURE 7.1

~~TOP SECRET/C~~

BIF 003/02 971489-71
Page 17 of 47

I ---- INST. 328 ----- I ---- INST. 329 ----- I

P O S	1/2	SYSTEM	OBL	ECC	ACTUAL UNIT	SYSTEM	ACTUAL UNIT	SYSTEM	328/3
REV	R P	POS.	CALIB.	TUR	TUR	PERIOD	DEV.	DEV.	PERIOD DEV.
9 0 0	2 14	2.526	1845	743	2.512	0.57F	0.57F	2.527	0.03S C.03S -0.6
32 0 0	1 13	1.852	3476	2301	1.835	0.91F	0.93F	1.840	0.68F C.66F -0.2
48 0 0	1 15	1.834	3557	2438	1.822	0.61F	0.64F	1.831	0.17F C.15F -0.4
97 0 0	4 4	2.075	3341	2424	2.058	0.79F	0.80F	2.062	0.62F C.61F -0.1
129 0 0	5 8	2.008	3374	2538	1.995	0.65F	0.67F	2.000	0.43F 0.42F -0.2
161 0 0	2 1	2.084	3462	2020	2.075	0.42F	0.43F	2.083	0.06F 0.04F -0.3
226 0 0	3 3	2.080	3390	2388	2.080	0.01S	0.01F	2.080	0.02F C.01F 0.0

NOTE: "F" = FAST and "S" = SLOW from the calibrated value

TABLE 7.2

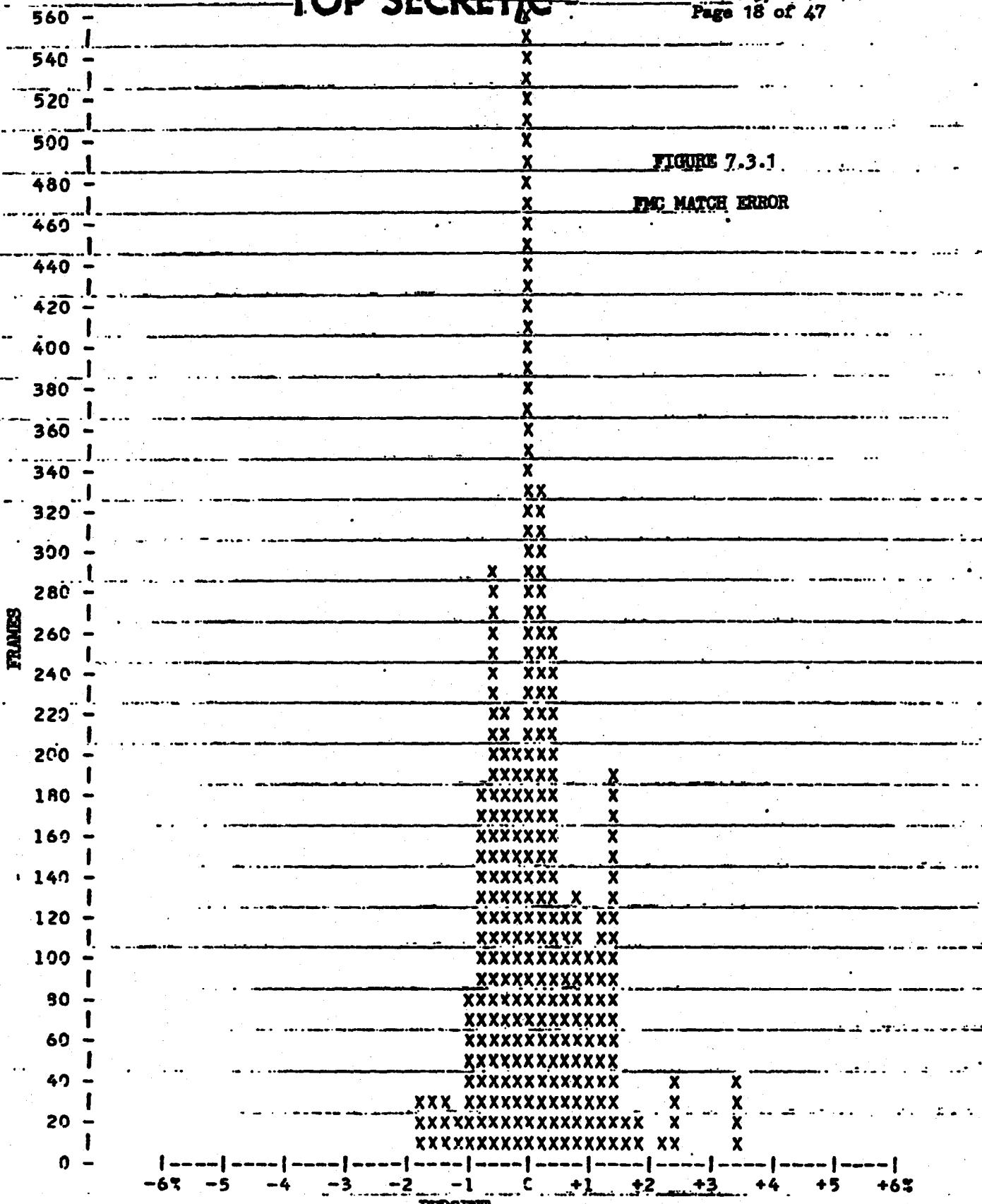
PANORAMIC CAMERA CYCLE RATE ERRORS

~~TOP SECRET/C~~

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY.

~~TOP SECRET/C~~

BIF 003/02 971489-71
Page 18 of 47



MISSION 1114-1 AFT LOOKING--ORBIT MATCH

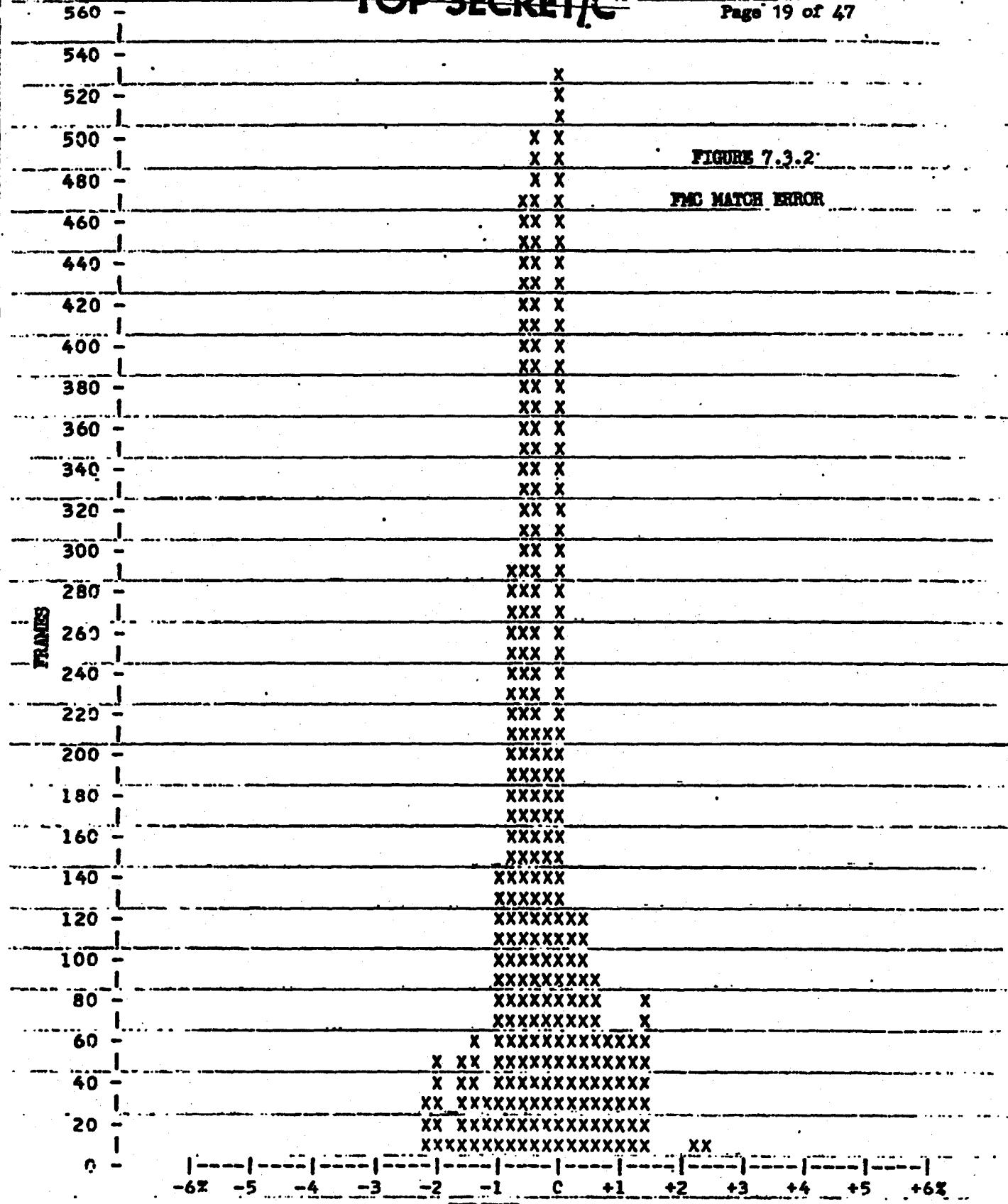
MEAN= C.16 ONE SIGMA= 0.84 TOTAL FRAMES=2988
2470 FRAMES MATCHED ORBIT +/- 1.7% REPRESENTS 82.66% OF THE MISSION

~~TOP SECRET/C~~

~~TOP SECRET/C~~

RIF 003/02 971489-71

Page 19 of 47



~~TOP SECRET/C~~

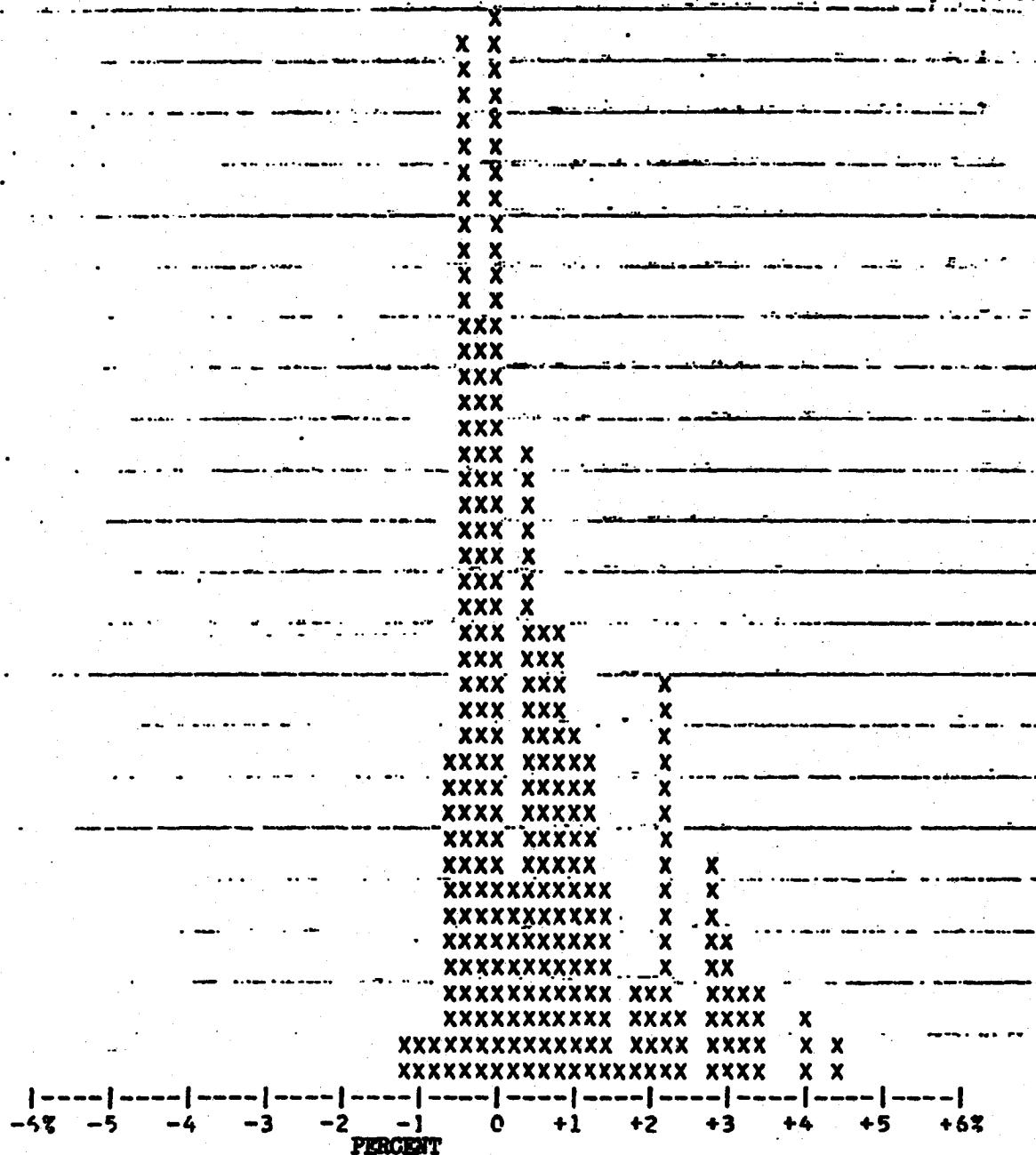
BIF 003/02 971489-71

Page 20 of 47

FIGURE 7.3.3

FMC MATCH ERROR

FRAMES



MISSION 1114-2 AFT LOOKING-TORBIT MATCH

MEAN= 0.65 ONE SIGMA= 1.16 TOTAL FRAMES=2918

2123 FRAMES MATCHED ORBIT +/- 1%, REPRESENTS 72.76% OF THE MISSION

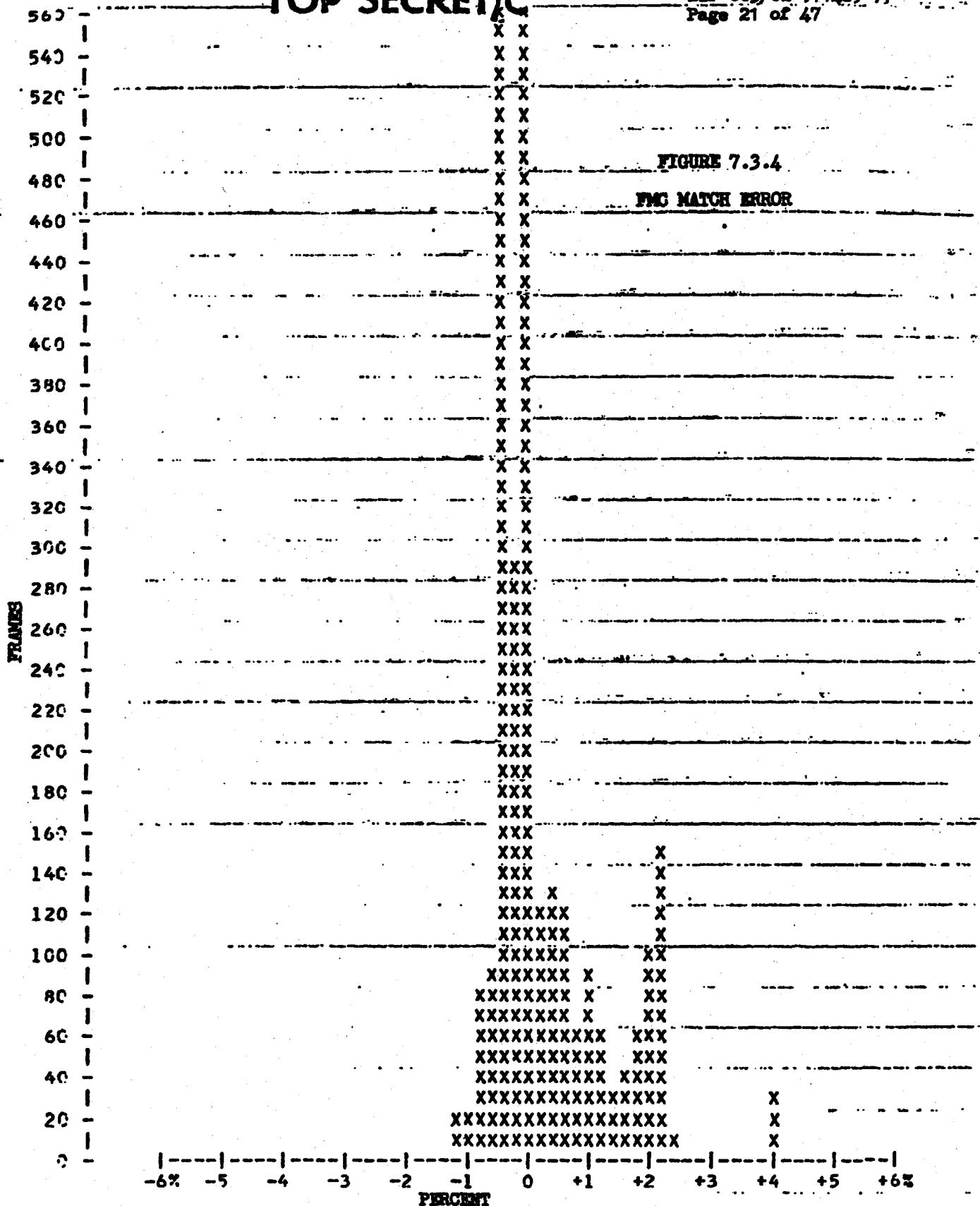
~~TOP SECRET/C~~

FORWARDED VIA BYEMAN

~~TOP SECRET//C~~

BLR 003/02 4/1489-71

Page 21 of 47



MISSION 1114-2 FWD LOOKING--ORBIT MATCH
MEAN= 0.26 ONE SIGMA= 0.89 TOTAL FRAMES=2992
2394 FRAMES MATCHED ORBIT +/- 1%, REPRESENTS 82.49% OF THE MISSION
~~TOP SECRET//C~~

HANDLE VIA BYEMAN

~~TOP SECRET/C~~BIF 003/02 971459-71
Page 22 of 47

MISSION 1114-2 AFT LOOKING, TOTAL FRAME COUNT - 2918

FRAME FREQUENCY DISTRIBUTION BETWEEN -6% AND +6% ORBIT MATCH

DISTRIBUTION OVER 61 POINTS INCREMENTED AT .2 PERCENT

PERCENT-FRAMES

PERCENT-FRAMES

		0.0	417
-0.2	296	0.2	80
-0.4	405	0.4	251
-0.6	134	0.6	182
-0.8	24	0.8	175
-1.0	24	1.0	135
-1.2	24	1.2	133
-1.4	0	1.4	79
-1.6	0	1.6	11
-1.8	0	1.8	40
-2.0	0	2.0	39
-2.2	0	2.2	160
-2.4	0	2.4	33
-2.6	0	2.6	0
-2.8	0	2.8	94
-3.0	0	3.0	60
-3.2	0	3.2	37
-3.4	0	3.4	36
-3.6	0	3.6	0
-3.8	0	3.8	0
-4.0	0	4.0	25
-4.2	0	4.2	0
-4.4	0	4.4	24
-4.6	0	4.6	0
-4.8	0	4.8	0
-5.0	0	5.0	0
-5.2	0	5.2	0
-5.4	0	5.4	0
-5.6	0	5.6	0
-5.8	0	5.8	0
-6.0	0	6.0	0

TABLE 7.4.1

~~TOP SECRET/C~~HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

~~TOP SECRET/C~~

REF 003/02 971489-71

Page 23 of 47

MISSION 1114-2 FWD LOOKING, TOTAL FRAME COUNT - 2902

FRAME FREQUENCY DISTRIBUTION BETWEEN -6% AND +6% ORBIT MATCH

DISTRIBUTION OVER 61 POINTS INCREMENTED AT .2 PERCENT

PERCENT-FRAMES PERCENT-FRAMES

-0.2	285	0.0	731
-0.4	674	0.2	118
-0.6	93	0.4	127
-0.8	75	0.6	119
-1.0	24	0.8	55
-1.2	24	1.0	93
-1.4	0	1.2	61
-1.6	0	1.4	33
-1.8	0	1.6	39
-2.0	0	1.8	63
-2.2	0	2.0	101
-2.4	0	2.2	148
-2.6	0	2.4	14
-2.8	0	2.6	0
-3.0	0	2.8	0
-3.2	0	3.0	0
-3.4	0	3.2	0
-3.6	0	3.4	0
-3.8	0	3.6	0
-4.0	0	3.8	0
-4.2	0	4.0	25
-4.4	0	4.2	0
-4.6	0	4.4	0
-4.8	0	4.6	0
-5.0	0	4.8	0
-5.2	0	5.0	0
-5.4	0	5.2	0
-5.6	0	5.4	0
-5.8	0	5.6	0
-6.0	0	5.8	0
		6.0	0

TABLE 7.4.2

~~TOP SECRET/C~~HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

~~TOP SECRET/C~~BLF 003/02 971489-71
Page 24 of 47

MISSION 1114-1 AFT LOOKING, TOTAL FRAME COUNT - 2988

FRAME FREQUENCY DISTRIBUTION BETWEEN -6% AND +6% ORBIT MATCH

DISTRIBUTION OVER 61 POINTS INCREMENTED AT .2 PERCENT

PERCENT-FRAMES	PERCENT-FRAMES
-0.2 195	0.0 586
-0.4 218	0.2 333
-0.6 285	0.4 263
-0.8 175	0.6 116
-1.0 75	0.8 125
-1.2 17	1.0 99
-1.4 26	1.2 118
-1.6 26	1.4 185
-1.8 26	1.6 16
-2.0 0	1.8 16
-2.2 0	2.0 0
-2.4 0	2.2 11
-2.6 0	2.4 41
-2.8 0	2.6 0
-3.0 0	2.8 0
-3.2 0	3.0 0
-3.4 0	3.2 0
-3.6 0	3.4 36
-3.8 0	3.6 0
-4.0 0	3.8 0
-4.2 0	4.0 0
-4.4 0	4.2 0
-4.6 0	4.4 0
-4.8 0	4.6 0
-5.0 0	4.8 0
-5.2 0	5.0 0
-5.4 0	5.2 0
-5.6 0	5.4 0
-5.8 0	5.6 0
-6.0 0	5.8 0
	6.0 0

TABLE 7.4.3

~~TOP SECRET/C~~HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

~~TOP SECRET/C~~BIP 003/02 971489-71
Page 25 of 47

MISSION 1114-1 FWD LOOKING, TOTAL FRAME COUNT - 2972

FRAME FREQUENCY DISTRIBUTION BETWEEN -6% AND +6% ORBIT MATCH

DISTRIBUTION OVER 61 POINTS INCREMENTED AT .2 PERCENT

PERCENT-FRAMES PERCENT-FRAMES

-0.2	210	0.0	532
-0.4	503	0.2	121
-0.6	469	0.4	115
-0.8	288	0.6	91
-1.0	137	0.8	60
-1.2	31	1.0	58
-1.4	55	1.2	57
-1.6	54	1.4	75
-1.8	13	1.6	0
-2.0	48	1.8	0
-2.2	34	2.0	0
-2.4	0	2.2	11
-2.6	0	2.4	10
-2.8	0	2.6	0
-3.0	0	2.8	0
-3.2	0	3.0	0
-3.4	0	3.2	0
-3.6	0	3.4	0
-3.8	0	3.6	0
-4.0	0	3.8	0
-4.2	0	4.0	0
-4.4	0	4.2	0
-4.6	0	4.4	0
-4.8	0	4.6	0
-5.0	0	4.8	0
-5.2	0	5.0	0
-5.4	0	5.2	0
-5.6	0	5.4	0
-5.8	0	5.6	0
-6.0	0	5.8	0
		6.0	0

TABLE 7.4.4

~~TOP SECRET/C~~HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY.

~~TOP SECRET/C~~

BIF 003/02 971489-71

Page 26 of 47

RE-ENTRY SEQUENCE OF EVENTS

Event	Nominal	Delta Time (Seconds)	
		Unit #1	Unit #2
D-Timer Start	0	0	0
Arm	6.0 ± .5	6.0	6.0
Transfer	81.0 ± .5	80.87	80.88
Elec. Disconnect	82.0 ± .5	81.83	81.88
Separation	83.0 ± .5	82.86	82.87
Spin	3.40 ± .30	3.27	3.41
Retro	7.55 ± .45	7.64	7.54
Despin	10.75 ± .54	10.63	10.64
Thrust Cone Sep.	1.50 ± .15	1.33	1.50
"G" Switch Open			
Parachute Cover Eject.	26.0 ± 1.5	25.93	26.10
Deceleration Chute Deploy	.58 ± .08	.55	.54
Ablative Shell Disconn.	.58 ± .08	.55	.54
Main Chute Bag Sep.	10.25 ± 1.5	10.28	10.06
Main Chute Deploy	.52 ± .13	.54	.56
Main Chute Disreef	4.50 ± .80	4.54	4.23
K-10 Reset	28.0 ± 1.9	27.85	28.21

TABLE 7.5

~~TOP SECRET/C~~HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

~~TOP SECRET/C~~

BIT 003/02 971489-71
Page 28 of 47

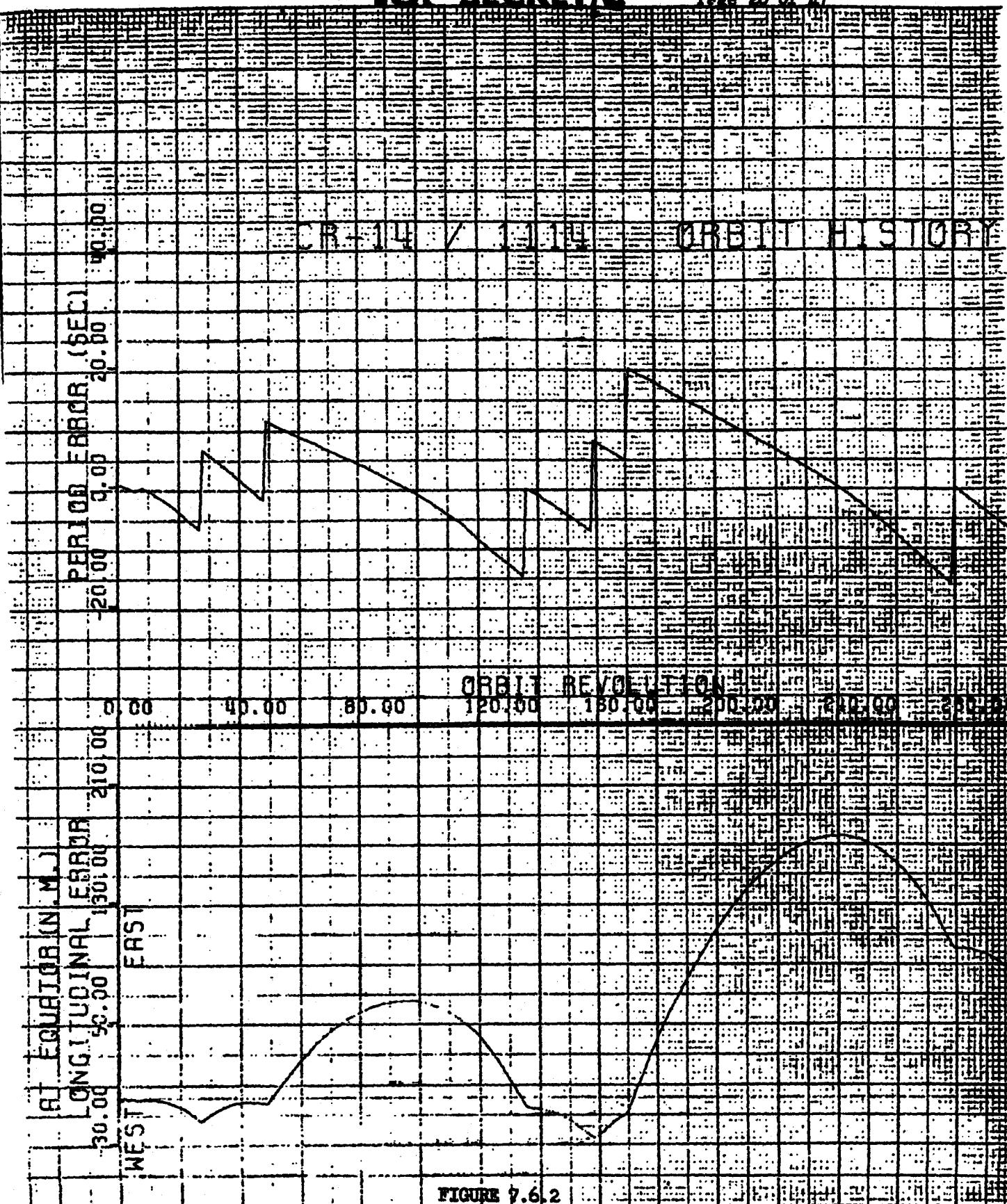


FIGURE 7.6.2

~~TOP SECRET/C~~

**HANDLE VIA BYEMAN
COMTRACI. SYSTEM ONLY**

~~TOP SECRET/C~~

BIF 003/02 971489-71
Page 27 of 47

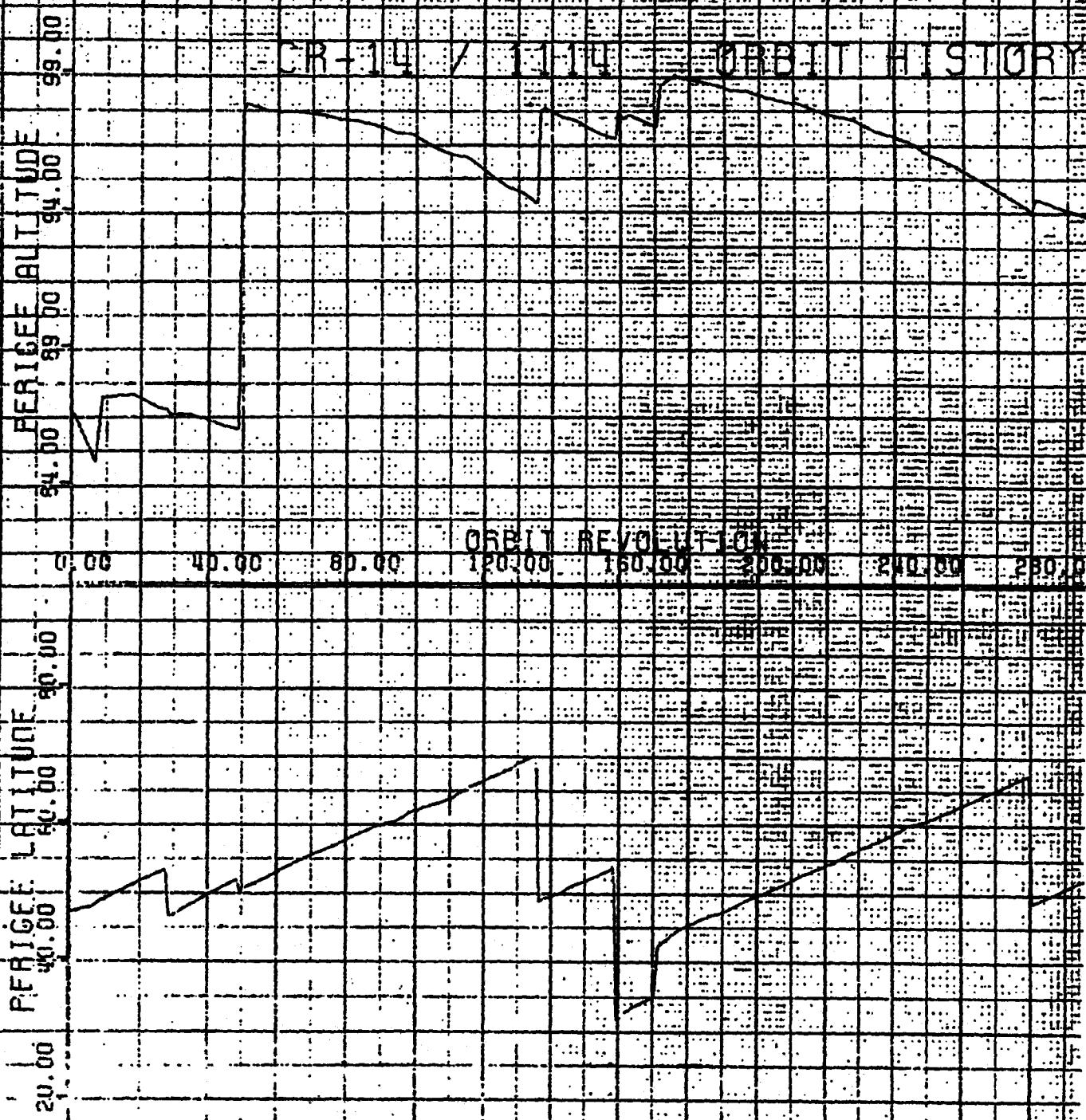


FIGURE 7.6.1

~~TOP SECRET/C~~

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

~~TOP SECRET//C~~

BIF 003/02 971489-71

Page 29 of 47

CR-14/1114/1660

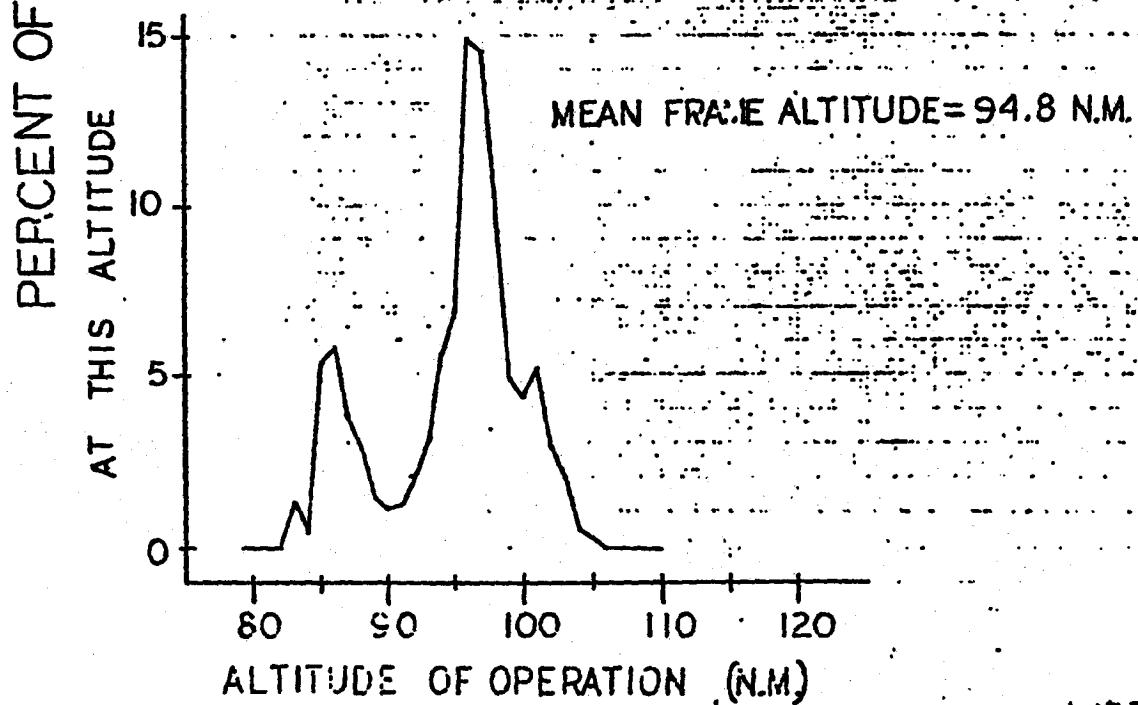
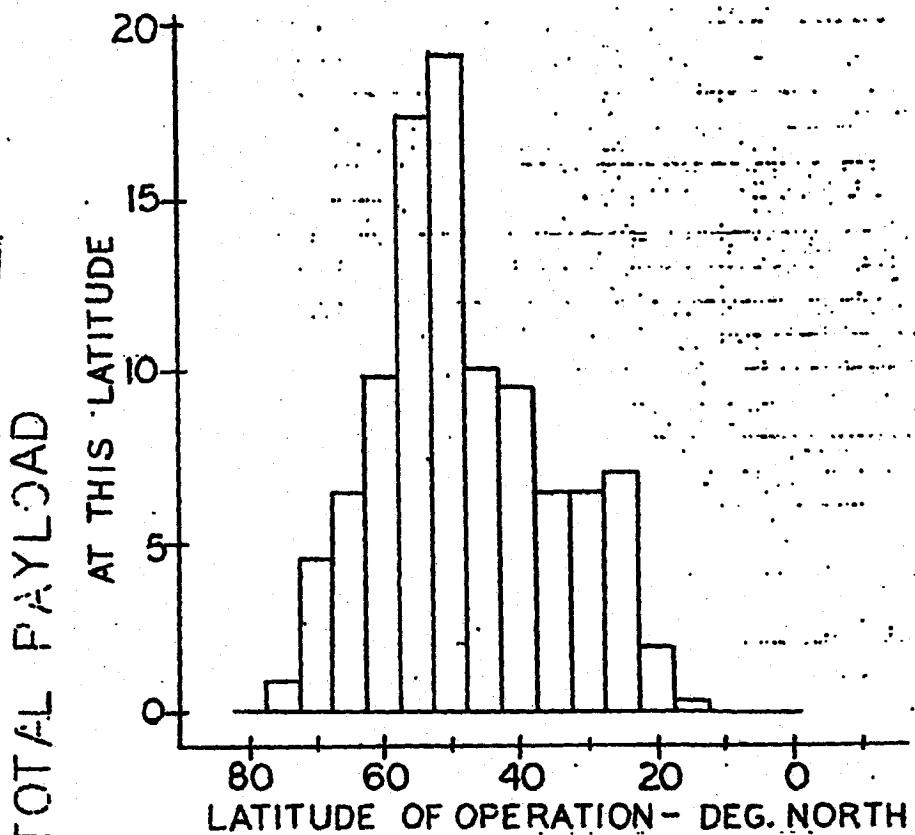


FIGURE 7.7

~~TOP SECRET//C~~

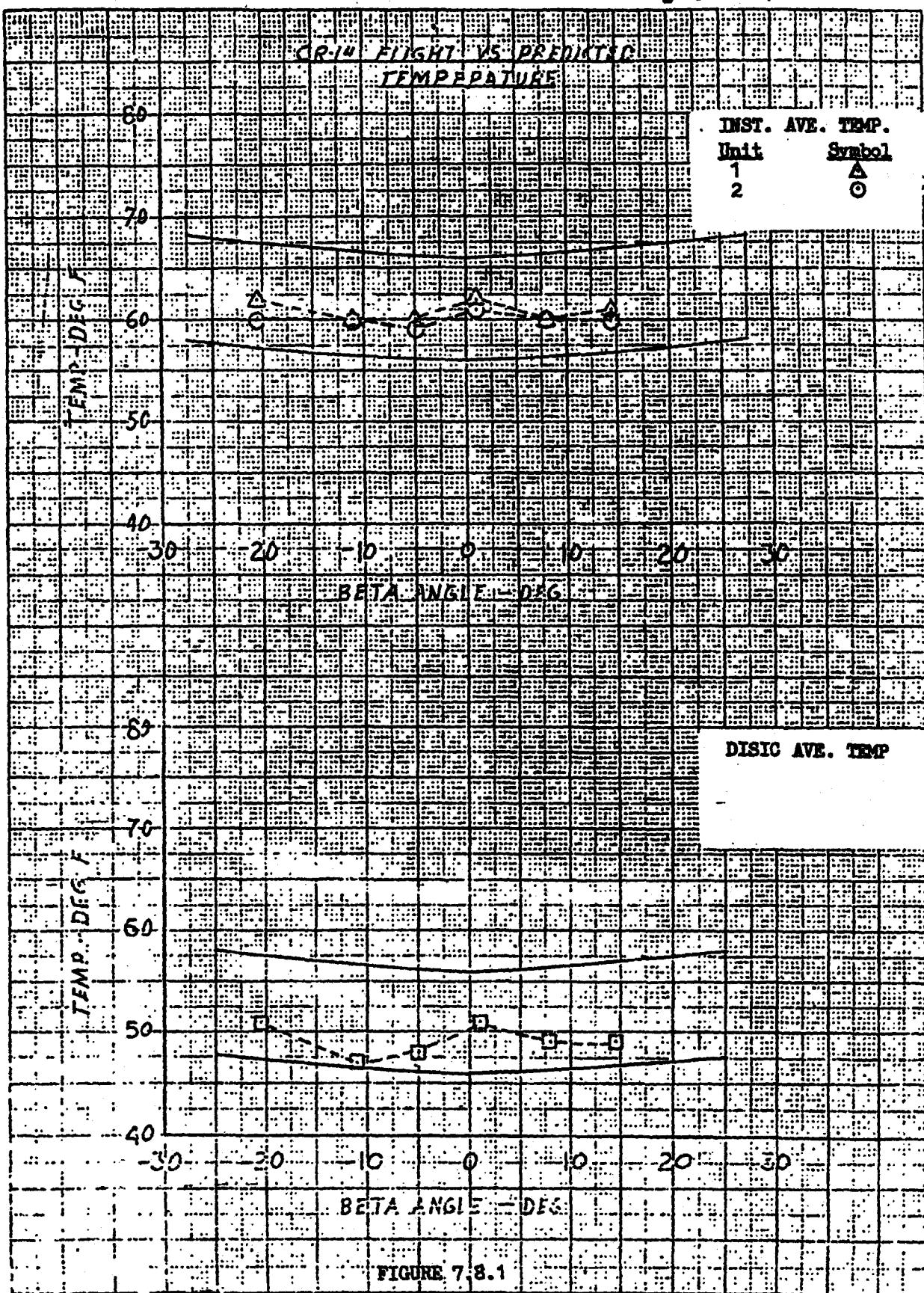
4-15-71

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

~~TOP SECRET/C~~

RIF 003/02 971489-71

Page 30 of 47



~~TOP SECRET/C~~

HANDLE VIA CYANAH
CONTROL SYSTEM ONLY.

BIF 003/02 4/1404-71

NO. 340-10 DICTAEN GRAPH PAPER
10 X 10 PER INCH

EUGENE DIETZEN CO.
MADE IN U. S. A.

FIGURE 7.8.2

200	2800	1400	2000	2600	3200	3800	4400	5000	5600
250	3300	1500	2100	2700	3300	3900	4500	5100	5700
300	4000	1600	2200	2800	3400	4000	4600	5200	5800
350	4700	1700	2300	2900	3500	4100	4700	5300	5900
400	5400	1800	2400	3000	3600	4200	4800	5400	6000
450	6100	1900	2500	3100	3700	4300	4900	5500	6100
500	6800	2000	2600	3200	3800	4400	5000	5600	6200
550	7500	2100	2700	3300	3900	4500	5100	5700	6300
600	8200	2200	2800	3400	4000	4600	5200	5800	6400
650	8900	2300	2900	3500	4100	4700	5300	5900	6500
700	9600	2400	3000	3600	4200	4800	5400	6000	6600
750	10300	2500	3100	3700	4300	4900	5500	6100	6700
800	11000	2600	3200	3800	4400	5000	5600	6200	6800
850	11700	2700	3300	3900	4500	5100	5700	6300	6900
900	12400	2800	3400	4000	4600	5200	5800	6400	7000
950	13100	2900	3500	4100	4700	5300	5900	6500	7100
1000	13800	3000	3600	4200	4800	5400	6000	6600	7200
1050	14500	3100	3700	4300	4900	5500	6100	6700	7300
1100	15200	3200	3800	4400	5000	5600	6200	6800	7400
1150	15900	3300	3900	4500	5100	5700	6300	6900	7500
1200	16600	3400	4000	4600	5200	5800	6400	7000	7600
1250	17300	3500	4100	4700	5300	5900	6500	7100	7700
1300	18000	3600	4200	4800	5400	6000	6600	7200	7800
1350	18700	3700	4300	4900	5500	6100	6700	7300	7900
1400	19400	3800	4400	5000	5600	6200	6800	7400	8000
1450	20100	3900	4500	5100	5700	6300	6900	7500	8100
1500	20800	4000	4600	5200	5800	6400	7000	7600	8200
1550	21500	4100	4700	5300	5900	6500	7100	7700	8300
1600	22200	4200	4800	5400	6000	6600	7200	7800	8400
1650	22900	4300	4900	5500	6100	6700	7300	7900	8500
1700	23600	4400	5000	5600	6200	6800	7400	8000	8600
1750	24300	4500	5100	5700	6300	6900	7500	8100	8700
1800	25000	4600	5200	5800	6400	7000	7600	8200	8800
1850	25700	4700	5300	5900	6500	7100	7700	8300	8900
1900	26400	4800	5400	6000	6600	7200	7800	8400	9000
1950	27100	4900	5500	6100	6700	7300	7900	8500	9100
2000	27800	5000	5600	6200	6800	7400	8000	8600	9200
2050	28500	5100	5700	6300	6900	7500	8100	8700	9300
2100	29200	5200	5800	6400	7000	7600	8200	8800	9400
2150	30000	5300	5900	6500	7100	7700	8300	8900	9500
2200	30700	5400	6000	6600	7200	7800	8400	9000	9600
2250	31400	5500	6100	6700	7300	7900	8500	9100	9700
2300	32100	5600	6200	6800	7400	8000	8600	9200	9800
2350	32800	5700	6300	6900	7500	8100	8700	9300	9900
2400	33500	5800	6400	7000	7600	8200	8800	9400	10000
2450	34200	5900	6500	7100	7700	8300	8900	9500	10100
2500	34900	6000	6600	7200	7800	8400	9000	9600	10200
2550	35600	6100	6700	7300	7900	8500	9100	9700	10300
2600	36300	6200	6800	7400	8000	8600	9200	9800	10400
2650	37000	6300	6900	7500	8100	8700	9300	9900	10500
2700	37700	6400	7000	7600	8200	8800	9400	10000	10600
2750	38400	6500	7100	7700	8300	8900	9500	10100	10700
2800	39100	6600	7200	7800	8400	9000	9600	10200	10800
2850	39800	6700	7300	7900	8500	9100	9700	10300	10900
2900	40500	6800	7400	8000	8600	9200	9800	10400	11000
2950	41200	6900	7500	8100	8700	9300	9900	10500	11100
3000	41900	7000	7600	8200	8800	9400	10000	10600	11200
3050	42600	7100	7700	8300	8900	9500	10100	10700	11300
3100	43300	7200	7800	8400	9000	9600	10200	10800	11400
3150	44000	7300	7900	8500	9100	9700	10300	10900	11500
3200	44700	7400	8000	8600	9200	9800	10400	11000	11600
3250	45400	7500	8100	8700	9300	9900	10500	11100	11700
3300	46100	7600	8200	8800	9400	10000	10600	11200	11800
3350	46800	7700	8300	8900	9500	10100	10700	11300	11900
3400	47500	7800	8400	9000	9600	10200	10800	11400	12000
3450	48200	7900	8500	9100	9700	10300	10900	11500	12100
3500	48900	8000	8600	9200	9800	10400	10500	11600	12200
3550	49600	8100	8700	9300	9900	10500	10600	11700	12300
3600	50300	8200	8800	9400	10000	10600	10700	11800	12400
3650	51000	8300	8900	9500	10100	10700	10800	11900	12500
3700	51700	8400	9000	9600	10200	10800	10900	12000	12600
3750	52400	8500	9100	9700	10300	10900	11000	12100	12700
3800	53100	8600	9200	9800	10400	11000	11100	12200	12800
3850	53800	8700	9300	9900	10500	11100	11200	12300	12900
3900	54500	8800	9400	10000	10600	11200	11300	12400	13000
3950	55200	8900	9500	10100	10700	11300	11400	12500	13100
4000	55900	9000	9600	10200	10800	11400	11500	12600	13200
4050	56600	9100	9700	10300	10900	11500	11600	12700	13300
4100	57300	9200	9800	10400	11000	11600	11700	12800	13400
4150	58000	9300	9900	10500	11100	11700	11800	12900	13500
4200	58700	9400	10000	10600	11200	11800	11900	13000	13600
4250	59400	9500	10100	10700	11300	11900	12000	13100	13700
4300	60100	9600	10200	10800	11400	12000	12100	13200	13800
4350	60800	9700	10300	10900	11500	12100	12200	13300	13900
4400	61500	9800	10400	11000	11600	12200	12300	13400	14000
4450	62200	9900	10500	11100	11700	12300	12400	13500	14100
4500	62900	10000	10600	11200	11800	12400	12500	13600	14200
4550	63600	10100	10700	11300	11900	12500	12600	13700	14300
4600	64300	10200	10800	11400	12000	12600	12700	13800	14400
4650	65000	10300	10900	11500	12100	12700	12800	13900	14500
4700	65700	10400	11000	11600	12200	12800	12900	14000	14600
4750	66400	10500	11100	11700	12300	12900	13000	14100	14700
4800	67100	10600	11200	11800	12400	13000	13100	14200	14800
4850	67800	10700	11300	11900	12500	13100	13200	14300	14900
4900	68500	10800	11400	12000	12600	13200	13300	14400	15000
4950	69200	10900	11500	12100	12700	13300	13400	14500	15100
5000	70000	11000	11600	12200	12800	13400	13500	14600	15200

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY.

~~TOP SECRET/C~~

~~TOP SECRET~~/C

BIF 003/02 971489-71

Page 33 of 37

NO. 240-10 DIAFRAGM GRAPH PAPER
10 X 10 PER INCH

FIGURE 7.8.4

LAWRENCE BERKELEY NATIONAL LABORATORY

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

REPRODUCED BY - DIAFRAGM

80 70 60 50 40 30 20 10 0

~~TOP SECRET~~

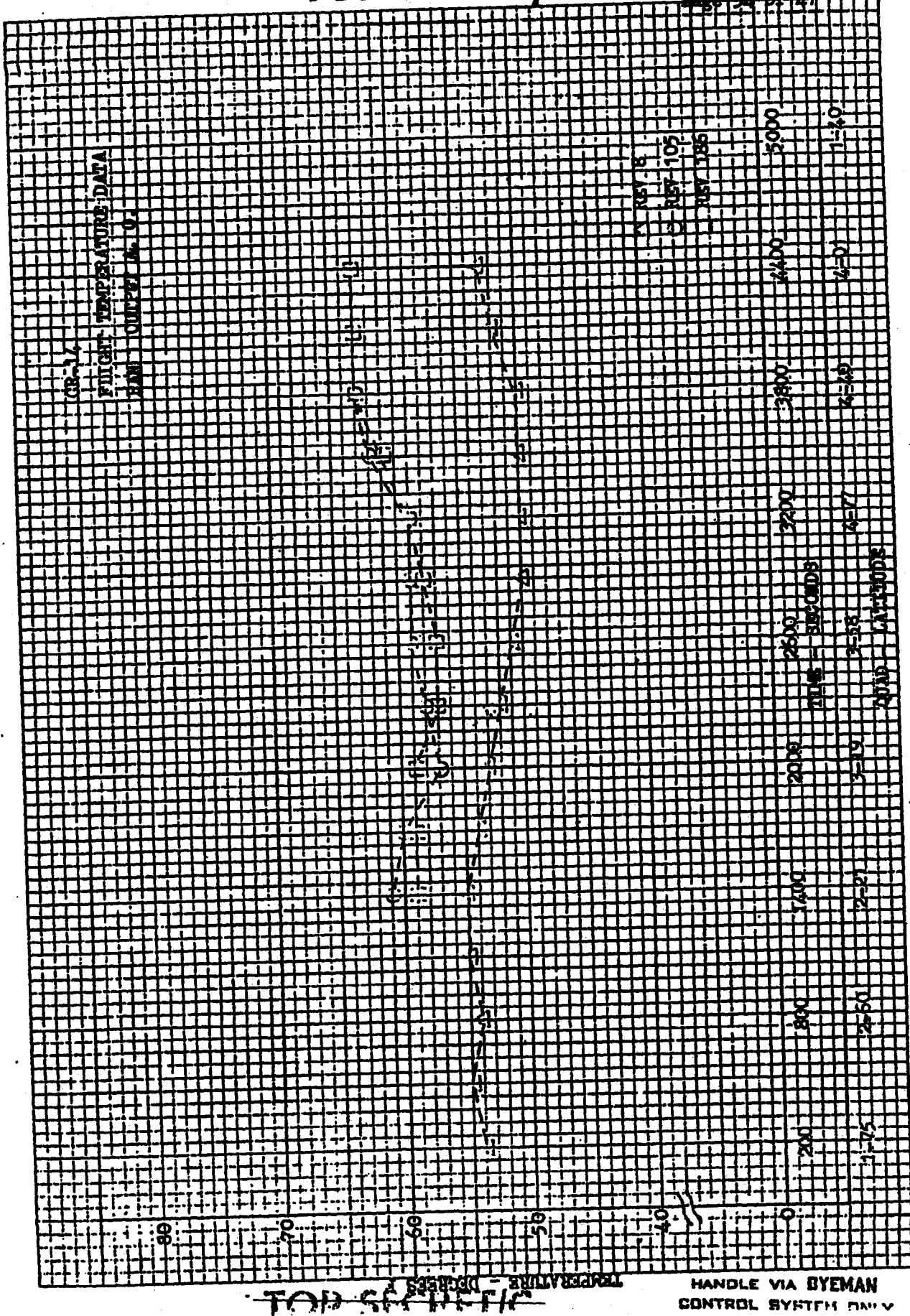
~~HUP SEEKEI/C~~

BLF 003/02 971489-71

Page 134 of 477

NO. 340-10 DICTAEN GRAPH PAPER
10 X 10 PER INCH

• EUGENE WILDECKE
MADE IN U. S. A.



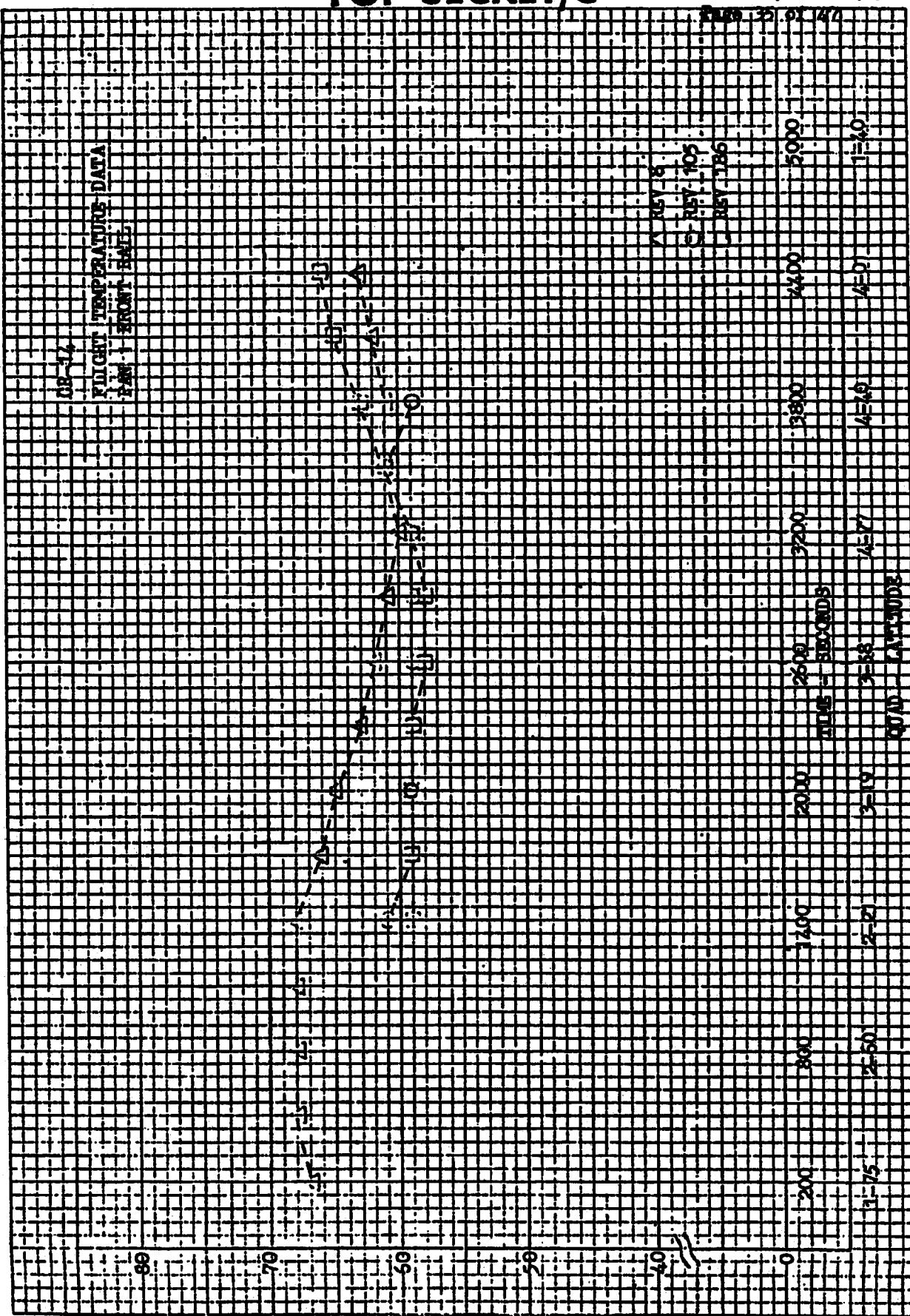


FIGURE 7.8.6

NO. 340-10 DISTANCE GRAPH PAPER
EIGHT DISTANCES TO 10 INCH

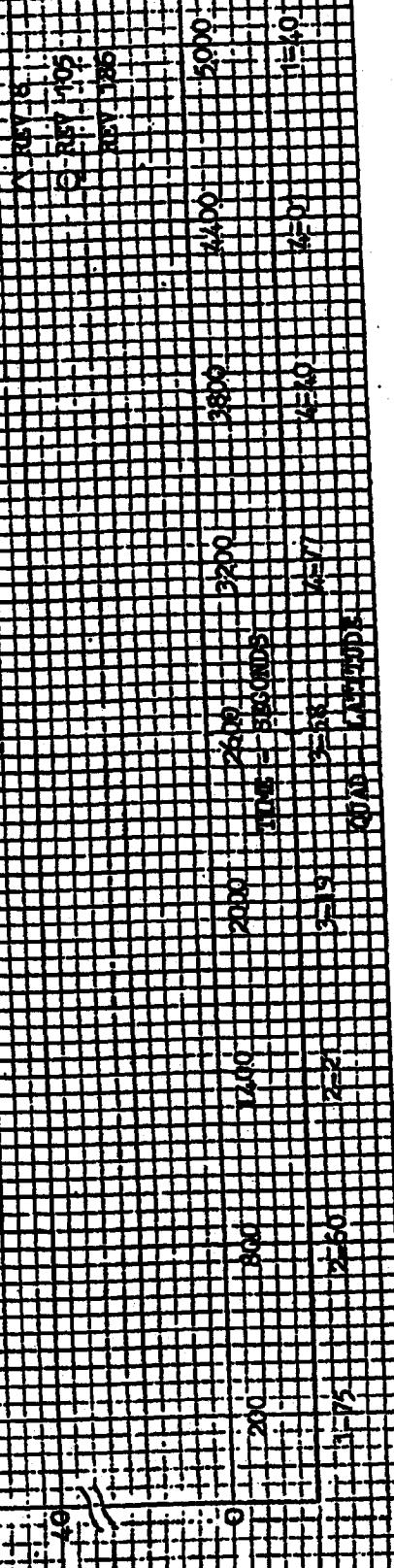
EIGHT DISTANCES TO 10 INCH

~~TOP SECRET/C~~

BIP 003/02 971489-71

Page 36 of 41

CR-12
FLIGHT TEMPERATURE DATA
PAN - REAR WING



NO. 240-10 DIAZINE GRID PAPER
10 X 10 PER INCH

EUROPE DIRECTORATE
MADE IN U.S.A.

FIGURE 7.8.7

HANDLE VIA BYEMAN
CONTROL SYSTEM

~~TOP SECRET/C~~

~~TOP SECRET//C~~

BUR 003/02 9/148 -71

EX-00 07/01 67

CR-1
PILOT PREPARATION DATA
2401 JUNIOR HORNET

TOP SECRET//C

PREPARE ATTIRE - DRESS
HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

ND 240-10 DISTANCE CHAMPS MILES
10 X 10 GRID PER INCH

FIGURE 7.8.8

~~TOP SECRET~~

سازمان اسناد و کتابخانه ملی

Page 36 of 41

NO. 340-10 DICTEEN GRAPH PAPER
10 X 10 PER INCH

SUSANNE DISTZEN CO.,
MASS IN U. S. A.

FIGURE 7.8.9

**HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY.**

~~TOP SECRET//C~~

BIF 003/02 9/1489-71

Page 39 of 47

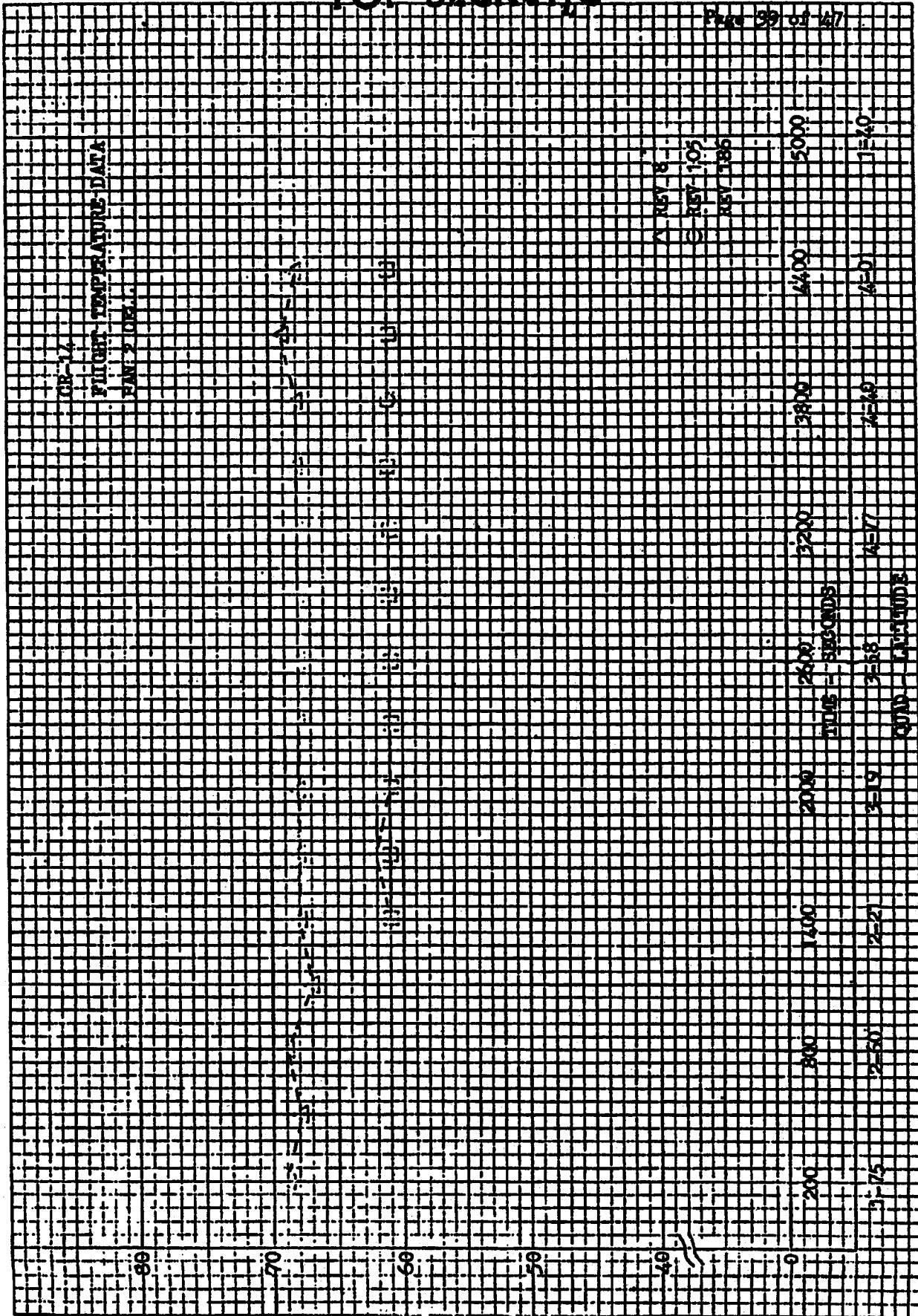


FIGURE 7.8.10

NO. 240-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH

Made in U.S.A.

~~TOP SECRET//C~~

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

~~TOP SECRET~~

BIV 003/02 971489-71

PAGE 40 OF 47

FLIGHT TEMPERATURE DATA
SAM 2 QUEEN A.Q.C.

18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

HANDLE VIA BYEMAN
CONTROLS SYSTEM ONLY

NO. 340-10 DIAZGEN GRAPH PAPER
10 X 10 PER INCH

EUGENE DIAZGEN CO.
MADE IN U.S.A.

FIGURE 7.8.11

~~HIER SECKE 1/6~~

Book VVJ/Vn p114v-11

Page 71 of 74

APR - 14
MIGHT TEMPERATURE DATA
Page 2 FRONT PAGE

NO. 240-10 DICTOGEN GRAPH PAPER
10 X 10 PER INCH

EUGENE DIETZEN & CO.
MADE IN U. S. A.

FIGURE 7.8.12

200	840	1200	2000	2600	3200	3800	4400	5000
25	260	270	310	350	390	430	470	510
25	270	280	320	380	440	500	560	620
25	280	290	330	390	450	510	570	630
Q113	Q114	Q115	Q116	Q117	Q118	Q119	Q120	Q121

**FANDEE VIA BYEMAN
CONTROL SYSTEM ONLY**

~~TOP SECRET/C~~

BLB WJ/UK 711409-11

Page 43 of 47

TOP SECRET//C

प्राचीन भारतीय दर्शक



HANDCE VIA BYTAN
CONTROL SYSTEM ONLY

NO. 340-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH

EWTON VITAMIN CO.
MADE IN U. S. A.

FIGURE 7.8.13

~~TOP SECRET/C~~

BIF 003/02 971489-71

PAGE 42 OF 47



HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

FIGURE 7.8.14

NO. 340-10 DICTATION UNITS MADE
10 X 10 PER INCH

BY EMERSON

~~TOP SECRET~~HIF 003/02 971489-71
Page 44 of 47

TEMPERATURE SUMMARY (°F) (CR-6 & Up)

Payload CR-14

Rev. No.	9	16	25	32	41	48	57	64	73	81	89	97	106	113	122	129	138	
Beta Angle	-19.3	-18.3	-17.1	-16	-14.9	-15.1	-12.6	-11.7	-10.4	-9.3	-8.2	-1.1	-5.8	-4.9	-3.6	-2.6	-1.4	
Pan No. 1 Lens Cell	2	68	66	65	65	65	64	63	63	63	62	63	62	63	65	66	65	
Lens Cone	4	69	67	66	66	65	65	64	63	63	62	63	62	63	64	66	65	
Rear Rail	6	65	57	63	57	63	57	62	56	60	55	60	56	61	57	63	58	65
Drive Mtr	10	65	62	63	63	63	62	62	62	61	61	62	61	62	62	62	63	
Front Rail	12	67	59	65	59	65	59	63	56	61	56	62	56	62	57	65	60	66
Average		67	62	64	62	64	61	63	60	62	60	62	60	64	61	65		
Pan 1 Output AD	8	54	49	54	50	55	50	54	49	54	49	54	50	56	52	58	55	60
Delta Top Left	14	61	49	58	51	58	48	58	47	56	47	57	49	57	48	58	50	60
Drum Support	16	61	57	59	57	59	57	58	56	57	56	57	55	58	56	58	57	60
Pan No. 2 Lens Cell	18	67	66	66	65	65	65	64	64	63	63	64	63	63	65	66	65	
Lens Cone	20	66	65	65	64	65	65	64	63	63	63	63	63	63	65	66	65	
Rear Rail	22	63	54	62	56	63	55	63	55	61	55	61	55	62	55	62	56	63
Drive Mtr	26	63	61	62	62	62	61	61	60	60	60	60	59	61	60	61	61	62
Front Rail	28	63	55	62	57	63	56	63	56	61	56	61	55	62	56	61	57	63
Average		64	60	63	61	64	60	63	60	62	59	62	59	63	59	63	61	64
Pan 2 Output AD	24	68	60	66	60	66	59	65	57	62	57	61	55	61	55	60	55	60
Supply Cassette	30	57	54	58	56	60	57	60	57	59	58	60	57	61	58	60	58	62
Aux. Electronic Box	32	69	61	67	61	66	59	65	57	62	57	62	56	62	55	62	56	62
Slope Programmer	34	84	85	84	86	84	84	83	83	82	83	81	81	81	81	80	80	80
P/I	36	70	61	68	63	66	61	63	59	59	59	61	57	61	59	66	61	66
Switch Programmer	43	62	59	62	62	62	55	59	55	55	55	55	52	55	52	52	52	55
Aft Power Box	49	45	42	45	49	49	45	52	45	49	49	49	49	49	52	49	52	49
SRV "A" T/U	40	56	47	51	47	50	55	48	55	46	55	46	55	54	55	-	-	-
Retro	42	58	56	54	52	53	51	50	46	47	47	48	46	49	48	-	-	-
SRV "B" T/U	44	65	64	63	65	64	64	62	61	59	60	59	59	63	52	66	68	71
Retro	46	62	60	60	60	60	59	57	56	56	56	56	57	57	60	61	63	

~~TOP SECRET~~ FIGURE 7.9.1HANDLE VIA BYEMAN
CONTINUED ON OTHER SIDE

TEMPERATURE SUMMARY (°F) CR-6 & Up

Payload CR-1A

Rev. No.	9	16	25	32	41	48	58	64	73	81	89	97	106	113	122	129	138	
Eta Angle	-19.3	-18.3	-17.1	-16	-14.9	-15.1	-12.6	-11.7	-10.4	-9.3	-8.2	-7.1	-5.8	-4.9	-3.6	-2.6	-1.4	
Blast Shield	43	53	46	49	49	49	42	46	39	39	42	42	39	42	42	29	91	25
	50	55	52	52	52	52	49	49	45	42	45	45	45	45	21	146	16	
DSSIC Fitter	53	63	56	61	56	60	55	56	51	53	51	54	51	55	52	59	58	62
Lens Cell	55	56	47	51	47	51	45	46	42	43	42	44	42	45	43	50	50	52
Fairing	5	13	121	6	127	6	96	3	90	-4	90	3	104	3	98	0	104	0
	7	62	95	56	95	53	81	53	71	44	65	47	65	47	65	37	81	37
	9	32	85	28	82	25	79	25	69	22	60	25	57	25	63	19	72	19
	11	26	58	26	61	26	52	26	45	19	42	23	42	23	45	-10	164	-13
	13	38	41	38	48	35	41	35	35	32	38	35	41	38	48	32	64	35
	15	6	91	2	99	2	82	-1	79	-4	85	2	99	2	99	2	108	2
DESICONIC	17	-19	107	-26	118	-26	86	-26	86	-32	92	-26	109	-26	104	-22	107	-22
	19	67	83	60	83	60	73	54	66	48	64	51	57	51	57	51	64	51
	21	25	65	21	62	18	58	18	48	15	48	18	41	18	45	18	52	21
	23	15	47	11	51	11	44	11	38	8	41	11	38	15	41	15	47	18
	25	45	45	45	48	45	48	45	41	41	45	45	45	45	51	51	61	56
	31	3	87	0	95	0	77	0	80	-4	89	3	101	0	104	3	106	6
Forward Barrel	33	36	80	33	84	26	57	26	53	19	53	23	57	19	50	19	46	23
	35	26	56	26	56	23	49	23	42	16	42	19	36	16	39	19	42	23
	37	23	48	23	48	23	45	23	42	19	42	23	39	23	42	26	45	29
	39	-14	66	-17	82	-17	44	-14	50	-17	59	-14	82	-17	75	-14	79	-11
Aft Barrel	41	45	78	35	81	35	58	35	54	28	54	31	54	25	48	25	45	28
	45	31	67	27	64	27	61	27	57	24	54	27	47	24	51	24	51	27
	47	18	51	18	54	18	48	21	48	18	48	21	44	18	48	21	48	24
	51	-13	44	-16	51	-16	34	-13	40	-16	50	-10	67	-10	67	-6	70	-3
DSR	38	-	-	-	-	-	-	80	-	79	-	80	-	80	-	-	-	-

FIGURE 7.9.2

~~TOP SECRET~~

HANDLE VIA BYEMAN
CONTROL SYSTEM FINIV

~~TOP SECRET~~BIF 003/02 971489-71
Page 46 of 47

TEMPERATURE SUMMARY (°F) (CR-6 & Up)

Payload CR-1A

Rev. No.	145	154	161	170	178	187	194	203	210	219	226	235	242	251		
Beta Angle	- .41	+ .8	+1.81	+3.19	4.16	5.41	+6	+6.3	+8.6	+9.8	+10.81	+12	+13.02	+14.3		
Pan No. 1 Lens Cell	2	65	65	64	64	64	63	63	64	64	64	65	65	65		
Lens Cone	4	65	64	64	63	63	63	63	63	63	63	64	64	64		
Rear Rail	6	58	63	58	63	57	62	57	62	57	63	57	63	57	63	
Drive Mtr	10	62	62	63	62	62	62	62	62	62	62	62	62	62	62	
Front Rail	12	59	64	60	64	59	64	57	63	57	64	58	64	58	64	
Average		61	64	62	63	61	63	60	63	60	63	60	63	61	63	
Pan 1 Output AO	8	55	59	56	60	56	61	56	62	57	63	59	64	59	65	
Delta Top Left	14	50	58	51	57	48	58	48	58	47	59	49	60	48	58	
Drum Support	16	57	59	57	59	57	58	57	58	56	59	57	59	57	59	
Pan No. 2 Lens Cell	18	65	65	64	64	64	63	63	63	64	64	64	65	65	65	
Lens Cone	20	65	65	65	64	64	64	64	64	65	65	66	66	66		
Rear Rail	22	56	61	57	62	55	62	54	61	54	62	56	62	55	61	
Drive Mtr	26	61	61	61	61	61	61	60	60	59	61	60	61	60	61	
Front Rail	28	56	61	57	61	56	61	55	61	55	62	56	62	56	61	
Average		60	63	61	62	60	62	60	62	60	63	60	63	60	63	
Pan 2 Output AO	24	54	58	54	57	52	56	50	55	49	55	49	54	49	51	
Supply Cassette	30	58	61	59	62	59	62	59	62	58	63	60	63	60	63	
Aux. Electronic Box	32	55	60	55	59	53	58	52	57	51	57	52	57	51	55	
Slope Programmer	34	80	79	81	80	80	78	78	77	77	78	78	77	77	61	
PSU	36	59	63	59	63	59	61	57	59	55	61	55	59	55	61	
Switch Programmer	43	48	52	52	52	48	48	48	48	42	48	45	45	42	38	
Aft Power Box	49	49	55	52	58	52	58	52	58	52	61	55	61	55	61	
SRV "A" T/U	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Retro	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SSV "B" T/U	44	69	68	69	68	67	68	66	66	64	66	66	64	65		
Retro	46	61	61	62	60	60	60	59	60	58	61	60	61	60	62	

~~TOP SECRET~~ FIGURE 7.9.3HANDLE VIA BYEMAN
CONTINUE

~~TOP SECRET/C~~

TEMPERATURE SUMMARY (°F) CR-6 & Up

Payload CR-14

Rev. No.	145	154	161	170	178	187	194	203	210	219	226	235	242	251			
Beta Angle	-41	+8	+1.81	3.19	4.16	5.41	+6	+6.3	+8.6	+9.8	+10.81	+12	+13.02	+14.3	.	.	.
Blast Shield	48	81	-	81	-	87	18	84	15	81	18	81	18	81	22	.	.
	50	135	-	135	-	152	8	149	8	146	11	138	11	143	11	.	.
DISCIC Platen	53	57	56	55	57	54	56	52	54	51	57	53	56	52	54	.	.
	55	49	46	46	46	44	46	43	44	43	47	44	46	44	45	.	.
Fairing	5	101	0	101	-7	81	-7	81	-7	-6	-4	84	-4	71	-7	.	.
	7	68	34	65	31	56	31	53	28	47	31	47	28	41	31	.	.
	9	72	19	72	16	66	16	66	13	69	16	66	13	63	13	.	.
	11	159	-10	165	-13	148	-16	151	-16	151	-16	168	-16	154	-16	.	.
	13	67	35	77	35	77	32	80	32	87	38	95	38	98	41	.	.
	15	110	2	113	-1	99	-1	102	2	102	6	119	6	108	6	.	.
DISCICONIC	17	109	-26	112	-29	89	-26	92	-26	89	-22	104	-26	92	-26	.	.
	19	57	48	54	44	48	41	44	38	38	41	38	38	38	38	.	.
	21	52	18	52	15	45	15	45	11	48	15	45	11	41	11	.	.
	23	51	18	54	15	47	15	51	11	57	15	54	15	51	15	.	.
	25	61	54	67	54	70	54	74	54	77	57	83	61	86	64	.	.
	31	112	6	118	3	104	6	109	6	109	10	123	10	115	6	.	.
Forward Barrel	33	46	16	43	13	29	13	26	13	19	13	23	13	16	6	.	.
	35	42	19	46	16	36	16	39	13	42	16	36	13	33	13	.	.
	37	48	29	51	26	45	26	48	26	55	29	51	29	48	29	.	.
	39	87	-11	93	-14	69	-11	75	-11	75	-6	80	-6	79	-7	.	.
Aft Barrel	41	41	21	41	18	28	18	25	18	21	18	21	18	15	11	.	.
	45	54	27	54	26	47	26	51	21	54	26	47	21	44	17	.	.
	47	51	24	57	24	51	24	51	21	61	28	64	24	51	24	.	.
	51	80	-6	87	-6	67	-3	77	-3	77	4	92	4	87	0	.	.
DSR	38														80	.	.

~~TOP SECRET/C~~

FIGURE 7.9.4

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY.