[redacted] TOP SECRET/C [redacted]

Copy No. [redacted]

[redacted]

CORONA CR

MISSION SUMMARY

AND

TELEMETRY ANALYSIS

MISSION 1116

AGENA 1661/PAYLOAD CR-16

10 MAY 1972

Prepared by [redacted]

Reviewed by [redacted]

Approved by [redacted]
Manager
Advanced Projects

Distribution:

[redacted]

TABLE OF CONTENTS

		PAGE
1.0	SUMMARY	4
2.0	SUBSYSTEM PERFORMANCE	5
2.1	Panoramic Camera	5
2.2	Command and Control	5
2.3	Data Systems	6
2.4	Recovery	8
3.0	ORBITAL PERFORMANCE	9
3.1	Orbital Parameters	9
3.2	DMU Operation	9
4.0	ENVIRONMENTAL CONTROL	10
4.1	Pressure Make-up System	10
4.2	Thermal Environment	10
5.0	POST EVENT 2 TESTING	11
6.0	HARDWARE DEFINITIONS	11
6.1	Agena	11
6.2	Payload	11
6.3	Camera and Programmer Settings	13
7.0	FIGURES AND TABLES	
7.1	Payload Profile and Serial Numbers	15
7.2	Panoramic Camera Cycle Period Data	16
7.3	FMC Orbit Match Plots	17 - 20
7.4	FMC Orbit Match Tables	21 - 24
7.5	Re-Entry Sequence of Events	25
7.6	Orbit Parameter History	26 - 46

7.7	Operation Distribution	47
7.8	Thermal Predictions and Orbital Profile	48 - 58
7.9	Thermal Summary	59 - 62

1.0 SUMMARY

Mission 1116 utilized a Thorad booster (SLV-2H) S/N 569, Agena vehicle 1661, and payload system CR-16. The CR-16 payload system contained panoramic cameras S/N 332 and S/N 333. Payload profile and additional component serial numbers are included in Figure 7-1.

Liftoff occurred at 1344 PST on April 19, 1972 from the Vandenberg SLC-3 west pad. All payload ascent events were normal with In-flight Reset (door ejection), AP 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 11/8 days.

Panoramic cameras S/N 332 and 333 performed normally throughout the flight with the film supply of both instruments exhausted on Rev 300.

The panoramic camera A to B transfer sequence was performed on Rev 155 [redacted] with all events occurring normally. The -1 mission recovery capsule was recovered by air catch on Rev 180 at 1702 PDT on April 30, 1972. The -2 mission recovery capsule was recovered by air catch on Rev 309 at 1535 PDT on May 8, 1972.

The -1 and -2 mission SRV tape recorder systems performed normally with all data extracted.

The twelve second instrumentation delay timer failed on Rev 89 [redacted] with the relays latched in the instrument mode for the duration of the flight.

The vehicle link I failed on Rev 105 [redacted] and remained inoperative for the remainder of the flight.

The slope programmer, switch programmer, command system, pressure make-up system, clock system, and the thermal environment were normal throughout the flight.

2.0 SUBSYSTEM PERFORMANCE

2.1 Panoramic Camera. Panoramic cameras S/N 332 and 333 performed normally during the -1 and -2 missions.

2.1.1 Film Consumption and Type.

	Frames	
	Pan 332	Pan 333
Sample	21	21
Pre-Launch	133	133
-1 Mission	2938	2936
-2 Mission	3083	3083
Total	6,175	6,173

Film Supply Length and Type

Pan 332	Pan 333
16,300 FT/3414	16,300 FT/3414

2.2 Command and Control.

2.2.1 Command System. The DSR malfunctioned three times during the flight, with no impact on the mission. On Rev 66 [redacted] and Rev 288 [redacted] the DSR memory did not erase when receiving the Silo 309 command. The load was disabled with a Silo 319, the next Silo 309 did erase the DSR memory. The block load was then sent and disabled. In testing the DSR in its early stages, this problem had been observed in some units, these units were reworked to eliminate the problem. There is no record of this DSR unit being reworked. On Rev 129 [redacted] a new block load was sent which contained 4 Silo 309's, 4 Silo 319's and 12 Silo 309's. This command was made to eliminate a question of not erasing the DSR memory. Although the DSR memory was erased, a problem occurred, the third word, not the first, in memory was shifted to the out put register upon execution of the next Silo 319. This new block

was used once only and due to lack of data, this problem could not be resolved.

2.2.2 FMC Match. The ramp to orbit match was maintained satisfactorily throughout the flight. Approximately 84% of the first mission operations and 75% of the second mission operations were less than ± 1.0% mismatch error.

2.2.3 Exposure Control System. The slit width control programmer performed satisfactorily throughout the -1 and -2 missions.

2.3 Data Systems.

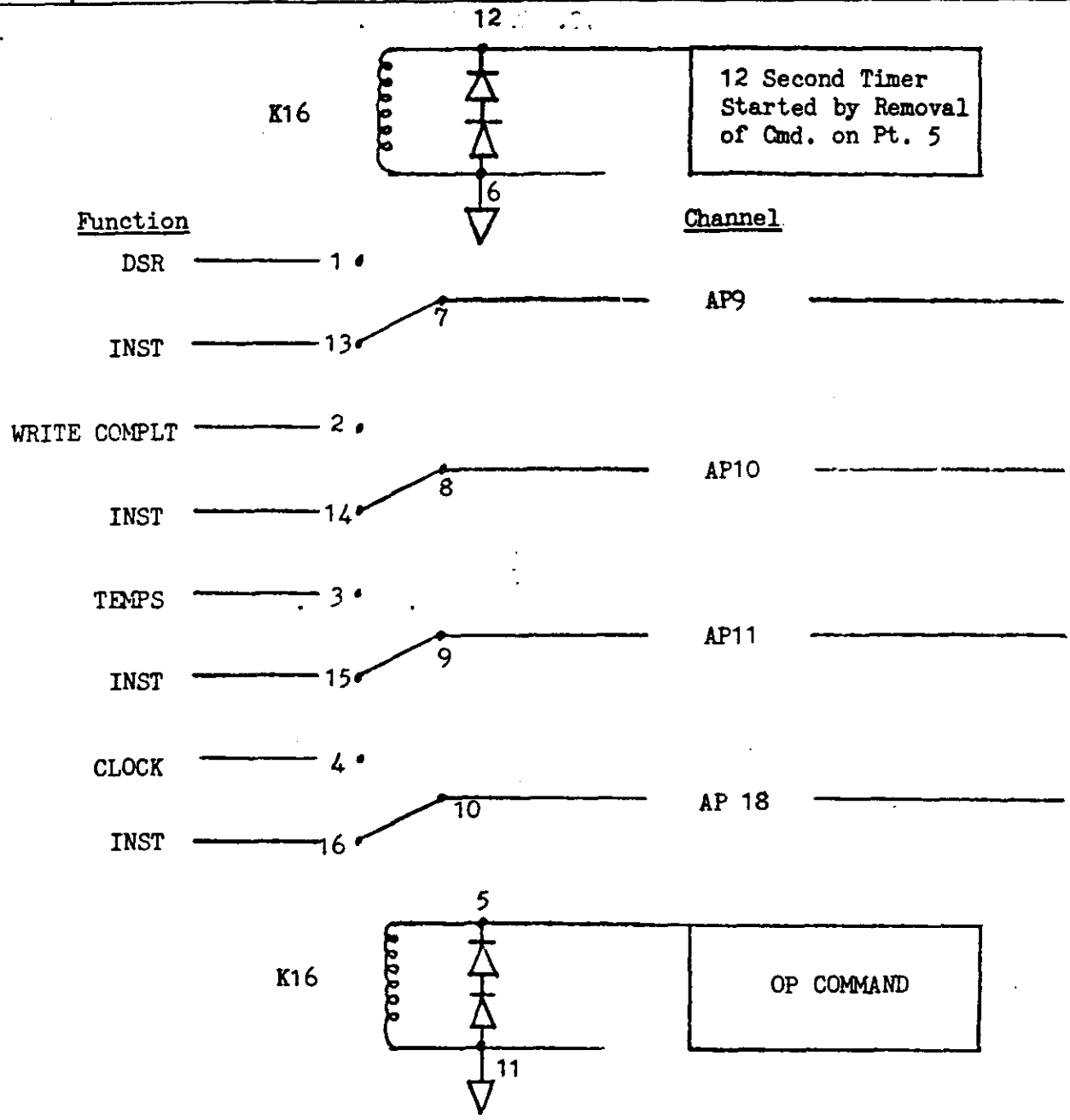
2.3.1 Instrumentation. The instrumentation system performed normally through Rev 88. The twelve (12) second telemetry delay timer failed on Rev 89 [redacted] This resulted in the following telemetry channels to be locked in the instrument mode, Link I CH 9, 10, 11, and 18. The relays remained latched in the instrument mode for the remainder of the flight. (Refer to Figure 2.3.1)

The vehicle telemetry Link I failed on Rev 105 [redacted] and resulted in the use of Link II for both the operational and diagnostic data verification. Link I remained inoperative for the duration of the flight.

The slit width telemetry monitor on instrument No. 1 was intermittent throughout the flight. However, there was no operational impact.

2.3.2 Clock System. The payload clock system performed satisfactorily throughout the -1 and -2 missions. Due to failure of the 12 second delay timer, the real time verification of the clock system was not possible. However, the parallel clock word on the film performed satisfactorily throughout the flight.

Checked			[redacted]	Model
Approved			12 SECOND TIMER FUNCTIONAL SCHEMATIC	Report No.



Problem noted on Rev 89 [redacted]

No OP on Rev 89
OP on Rev 90
Channels (some) changed level

FIGURE 2.3.1 (Shown in failed condition)

[redacted]

Third Order Fit

System Time = $A_o + A_1$ (Clock Time) + A_2 (Clock Time)^2 + A_3 (Clock Time)^3

A_o = 0.9321553467460832 + 05

A_1 = 0.9999999354786997 + 00

A_2 = 0.1105562847760144 - 12

A_3 = 0.1226092317364113 - 18

Sigma = 0.00127336

Number of Points = 161

2.3.3 SRV Tape Recorder. The -1 SRV tape recorder performed normally throughout the -1 mission with 102.7 minutes of data retrieved satisfactorily. The -2 SRV tape recorder performed normally throughout the -2 mission with 109.8 minutes of data retrieved satisfactorily.

2.4 Recovery.

2.4.1 -1 Mission. The -1 recovery capsule was successfully recovered by air catch on Rev 180 at 1702 PDT on April 30, 1972. All re-entry events were within tolerance with the impact close to nominal. Refer to Table 7.5.

	Actual	Predicted
Impact Location	24° 37N 172° 30W	24° 44.6N 172° 38.7W

2.4.2 -2 Mission. The -2 recovery capsule was successfully recovered by air catch on Rev 309 at 1535 PDT on May 8, 1972. All re-entry events were within tolerance with the impact within 5 miles of the predicted. Refer to Table 7.5.

	Actual	Predicted
Impact Location	27° .06N 166° 49W	27° .53N 166° 51.4W

3.0 ORBITAL PERFORMANCE

3.1 Orbital Parameters.

Parameter	Predicted	Tolerance	Actual(STC)	Actual(APF)
Period (min.)	88.67	+0.35,-0.37	88.85	88.85
Perigee(min.)	84.5	+9,-9	83.8	83.8
Apogee(min.)	146.2	+13,-16	152.8	152.3
Eccentricity	0.0088	+0.0027,-0.0030	0.0101	0.0091
Inclination(deg.)	81.50	+0.18,-0.16	81.46	81.48
Arg. of Perigee(deg.)	146	+79,-68	165.4	166

3.2 DMU Operation. The initial orbit period was high by the impulse energy of one DMU rocket. Thus, the ground track location errors were large prior to the first DMU rocket firing. Throughout the remainder of the flight, the ground track error was maintained at approximately 170 N.M. west of the nominal at the equator.

Eight of the twelve DMU rockets were used to maintain period control. Refer to Table 3.2.1 for DMU rocket firings.

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	61	56934	14.60	23.32	88.49	3106
2	101	11674	14.93	23.81	88.43	3160
3	134	14216	14.75	23.60	88.43	3031
4	158	55635	14.45	23.12	88.44	3019
5	186	31240	15.75	25.25	88.44	2920
6	223	55392	15.50	24.78	88.35	2876
7	249	21130	16.09	25.67	88.41	2967
8	291	70437	16.19	25.83	88.42	2956

NOTE: DMU Rockets 9 and 10 were fired after Event 2.

4.0 ENVIRONMENTAL CONTROL

4.1 Pressure Make-up System. The pressure make-up system (PMU) operated properly throughout the flight. There were 163 panoramic camera operates for a total of 195.5 minutes which resulted in a gas consumption rate of 7.4 psi/min of operate time.

4.2 Thermal Environment. The temperature data obtained indicated the temperature environment was within the pre-flight predictions through Rev 88. The real time temperature data was lost when the 12 second delay timer failed. The temperature environment for the remainder of the flight was obtained once a day from the vehicle tape recorder. The averages of the panoramic camera temperatures ranged from 60°F to 65°F for S/N 332 and 60°F to 64°F for S/N 333 during the flight.

Refer to Tables 7.8.1 and 7.9.1 thru 7.9.4.

The on-orbit temperature profiles for Rev 138 and Rev 300 are included in Figures 7.8.2 thru 7.8.11.

5.0 POST EVENT 2 TESTING

The panoramic cameras were enabled at the end of the H-timer tape in order to deplete the surplus vehicle power. No other payload testing was performed.

6.0 HARDWARE DEFINITION

6.1 Agena. FTV 1661 was an Agena vehicle (SS01B) and a Thorad booster (SLV-2H) S/N 569. The Agena was oriented nose first with the following configuration:

1) Twelve Thiokol 3000 lb/sec DMU rockets.
2) Three primary control gas spheres with the -5 heavy control gas mixture.
3) -3 payload system with a digital storage register (DSR) and the capability of accepting both Silo and Uncle commands.
4) Three 1K battery configuration with a Ten Panel, single wing solar array system.
5) 3/4 speed Type VIII programmer (325 subcycles).
6) Aft payloads - [redacted]
7) High density acid (HDA) oxidizer and new fuel Hyperzine 300.
8) Three real-time tape recorder control commands.
9) Four Silo/Uncle commands for RP SSD-987 and RP SSD 980 payloads.
10) Link II nominal frequency (Previous vehicle utilized Link III frequency).

6.2 Payload. The CR-16 payload system configuration included the following:

1) Panoramic Camera
   a) Constant rotating type with a servo-controlled supply cassette.
   b) Digital Storage Register/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

d.1) Programmer control by Stored Programmer Command (SPC) (51,52,17) and Real Time Command (RTC) UHF 105/Silo 305.

d.2) Automatic slit width control with override by RTC UHF 101-UHF 126/Silo 301 - Silo 326.

e) Filter Selection

e.1) Control by RTC UHF 103-104/Silo 303/304.

e.2) The automatic filter change capability through the material change detector (MCD) was disconnected prior to launch.

2) FMC Programmer

a) Initiated by SPC 14 and SPC 27.

b) Control delay increment by RTC UHF 125/Silo 325.

c) Ramp profile by:

UHF 121/Silo 321 Eccentricity start level.

UHF 122/Silo 322 Eccentricity half cycle.

3) Pressure Make-up System

a) Enable/disable controlled by RTC UHF 110/Silo 310.

b) Two bottle system

4) Panoramic camera "A" to "B" transfer available by RTC KIK-Silo 38.

5) Yaw steering available by RTC UHF 106/Silo 306.

6) Agena tape recorder for on-orbit temperature profiles time shared with vehicle data.

7) SRV tape recorder available in -1 and -2 recovery capsule for camera diagnostic data.

8) Payload weight: EWO = 1717 lbs.

9) Instrumentation: RTC UHF 127/Silo 327 for operational/diagnostic commutator selection.

10) Thermal Configuration: The top black surface was 56 degrees on the fairing and 76 degrees on the conic and barrel section. Also a black surface covering 90 degrees of top and bottom and aluminized mystic tape covering 90 degrees on each side.

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

6.3 Camera and Programmer Settings.

6.3.1 Panoramic Cameras.

	S/N 332	S/N 333
Filter type	W-23A	W-25
Primary	.037 glass	.037 glass
Alternate	.040 glass	.040 glass
Slit Width (inches)		
Position 1	0.111	0.134
Position 2	0.130	0.169
Position 3	0.162	0.202
Position 4	0.196	0.244
Failsafe	0.119	0.146

Auxiliary Optics	Take-up	Supply	Take-up	Supply
Filter	W-25	W-25	W-25	W-25
Aperature	F6.3	F8.0	F8.0	F6.3

6.3.2 Exposure Control Settings.

	Seconds
T-1 (40 second increment) initial setting	640
T-3 Slit position 3 duration	160
T-4 Slit position 2 duration	200
T-6Δ	200
T-6	840

NOTE: T-2 and T-5 are disconnected.

6.3.3 FMC Control Settings.

1) Eccentricity function

   a) Period - 3712 seconds

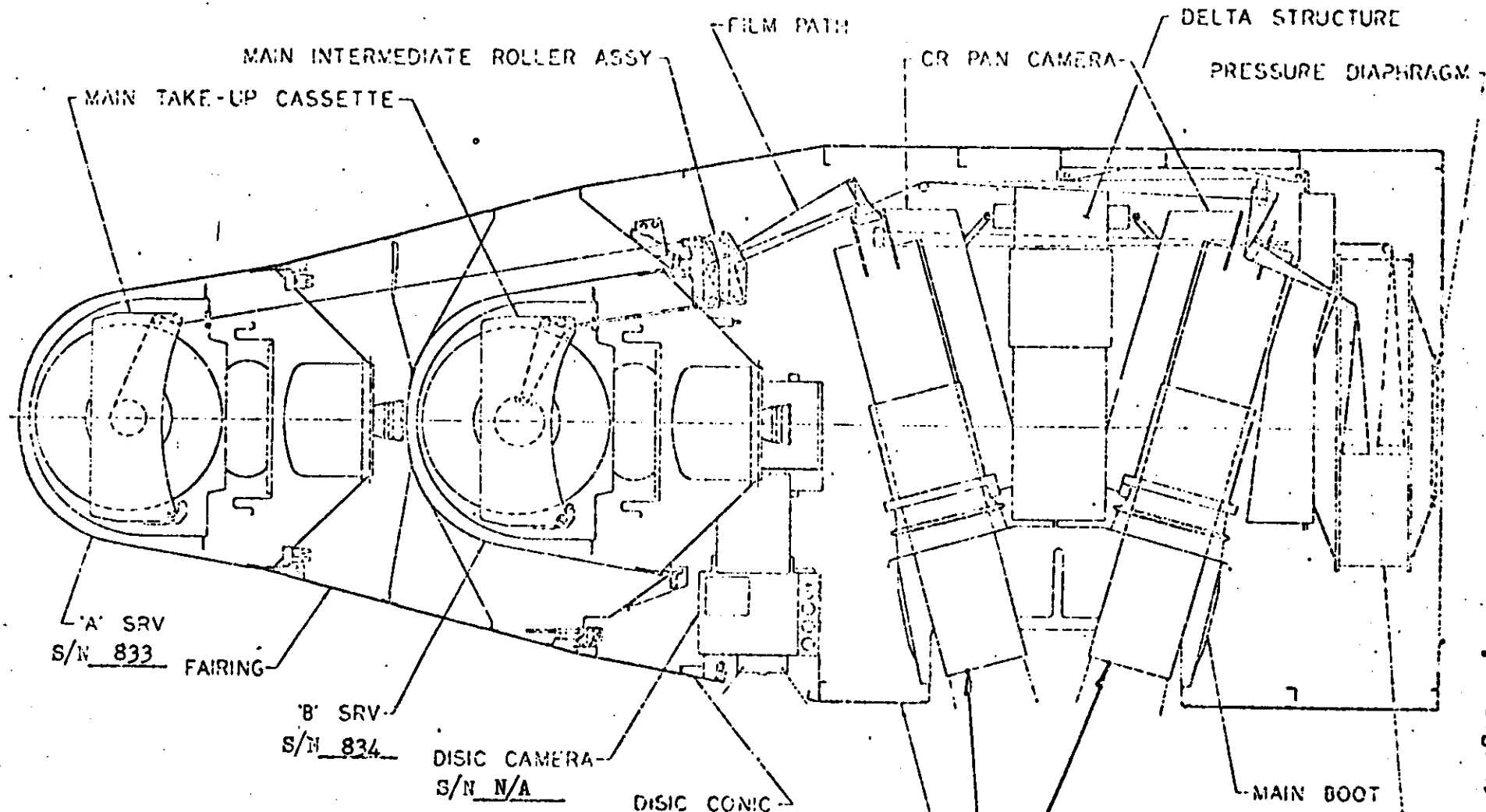
   b) Delay step increment - 50 seconds

2) Oblateness Function

   a) Period - 5249 seconds

   b) Gain factor - 0.1092

2. PAYLOAD PROFILE AND SERIAL NUMBERS



SYSTEM NO. CR-16

TEST Flight

PNU S/N 1018

SLOPE PROGRAMMER S/N 218

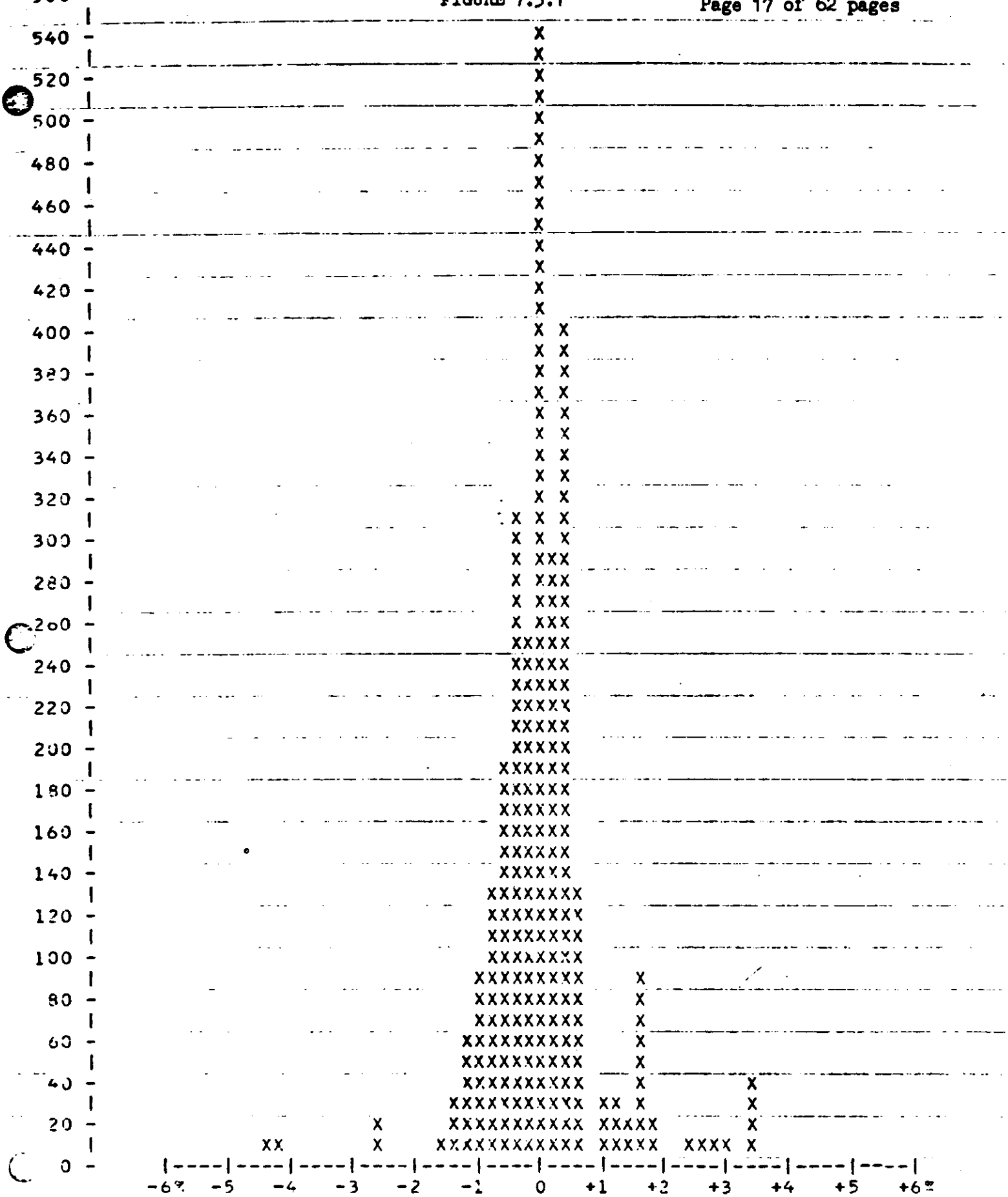
CLOCK S/N 619

SWITCH PROGRAMMER S/N 215

FIGURE 7-1

PANORAMIC CAMERA CYCLE PERIOD DATA

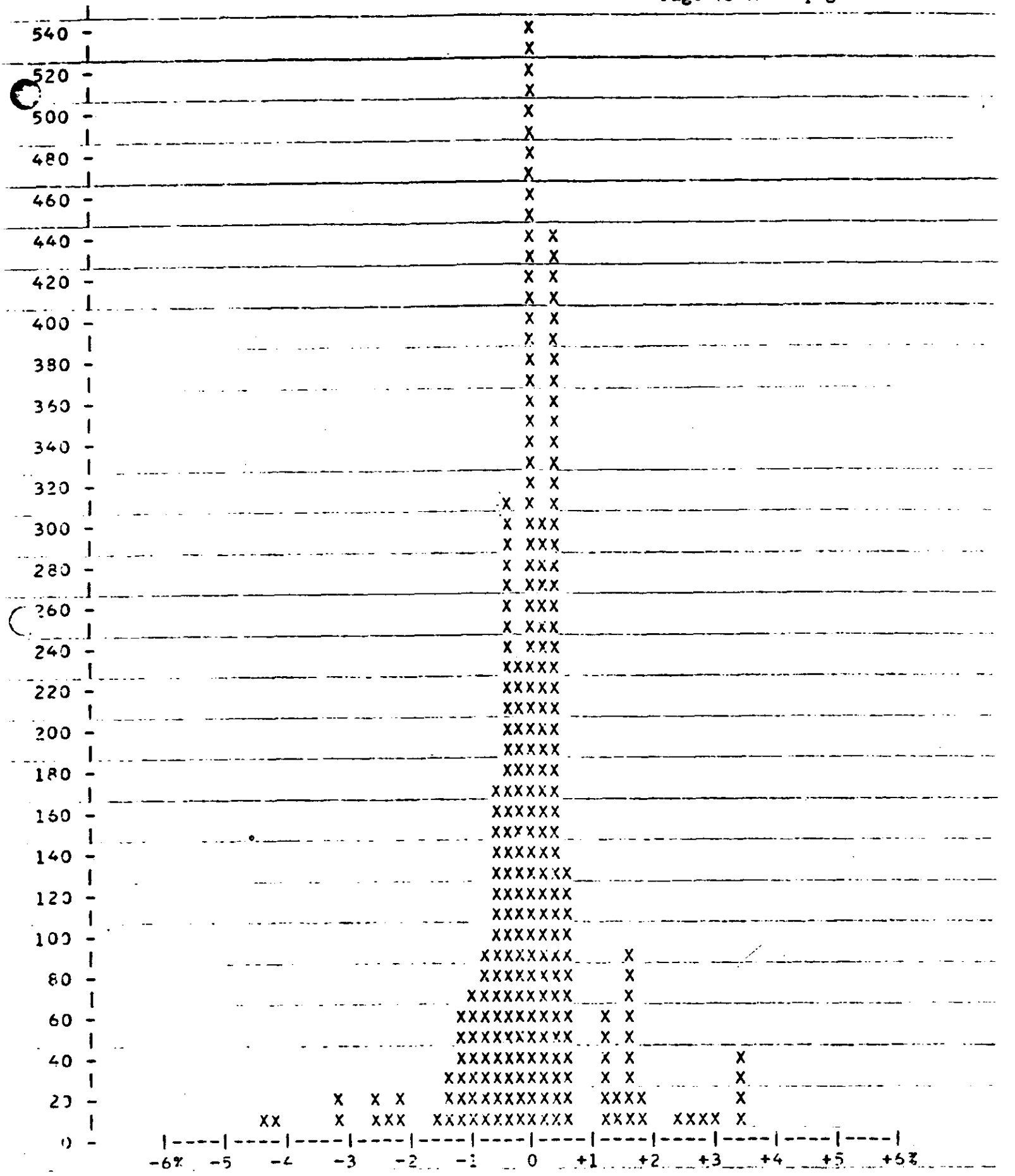
REV	P R	O P	S 1/2 POS.	SYSTEM CALIB.	OBL TUR	ECC TUR	INST. 332 ACTUAL PERIOD	INST. 332 UNIT DEV.	INST. 332 SYSTEM DEV.	INST. 333 ACTUAL PERIOD	INST. 333 UNIT DEV.	INST. 333 SYSTEM DEV.	332/33 DIFF.
9	0	0	1	13	2.841	1925	0	2.810	1.17F	1.10F	2.810	1.05F	1.10F	0.0
30	0	0	1	13	1.977	3275	1462	1.957	1.03F	1.02F	1.955	1.11F	1.12F	0.1C
64	0	0	3	13	1.871	3423	1851	1.870	0.06F	0.05F	1.870	0.04F	0.05F	0.0



MISSION 1116-1 AFT LOOKING--ORBIT MATCH

MEAN= 0.03 ONE SIGMA= 0.94 TOTAL FRAMES=2760

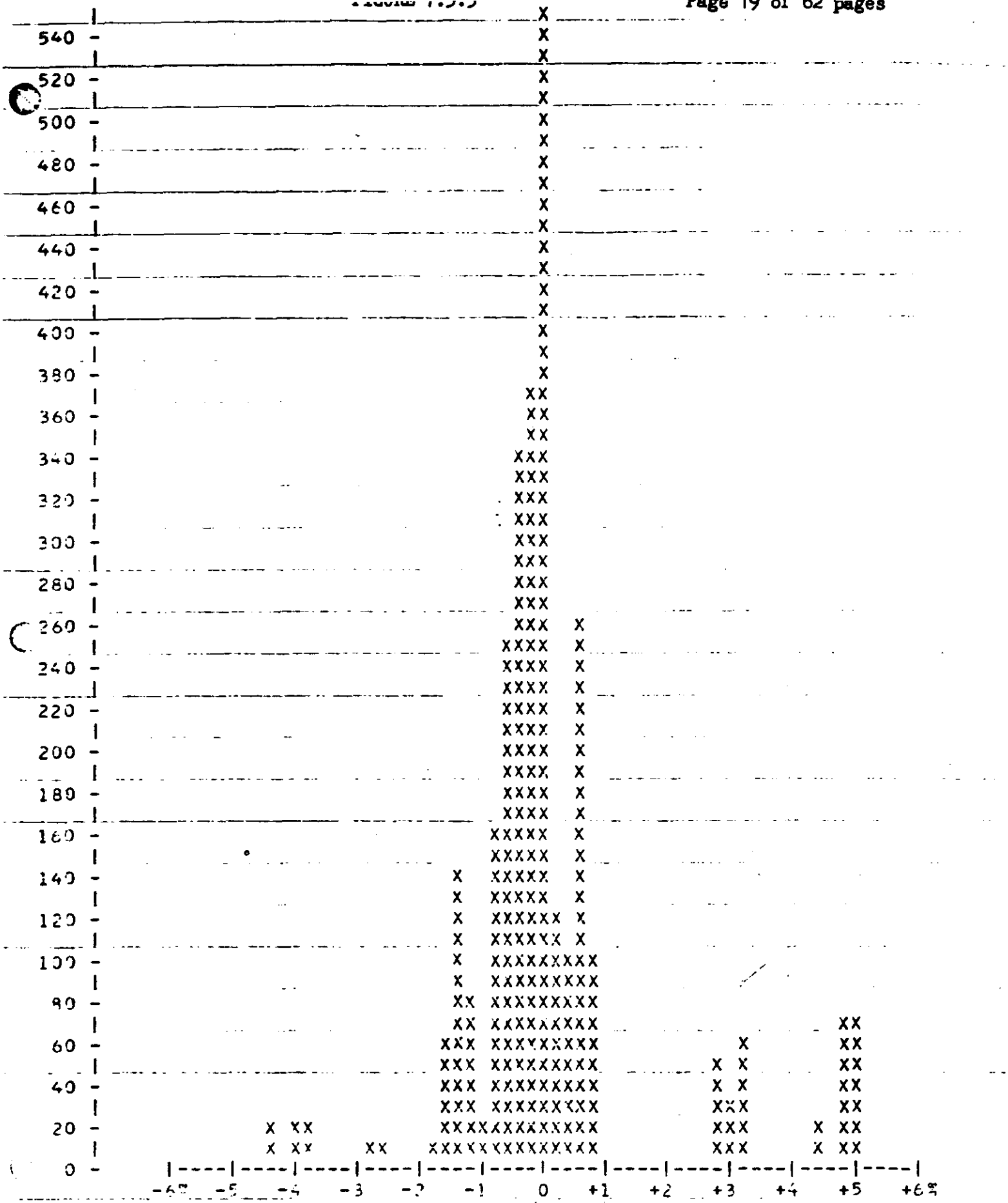
2359 FRAMES MATCHED ORBIT +/- 1σ, REPRESENTS 85.43%, OF THE MISSION



MISSION: 1116-1 FWD LOOKING--ORBIT MATCH

MEAN= 0.01 ONE SIGMA= 1.01 TOTAL FRAMES=2753

2280 FRAMES MATCHED ORBIT +/- 1σ, REPRESENTS 82.67%, OF THE MISSION



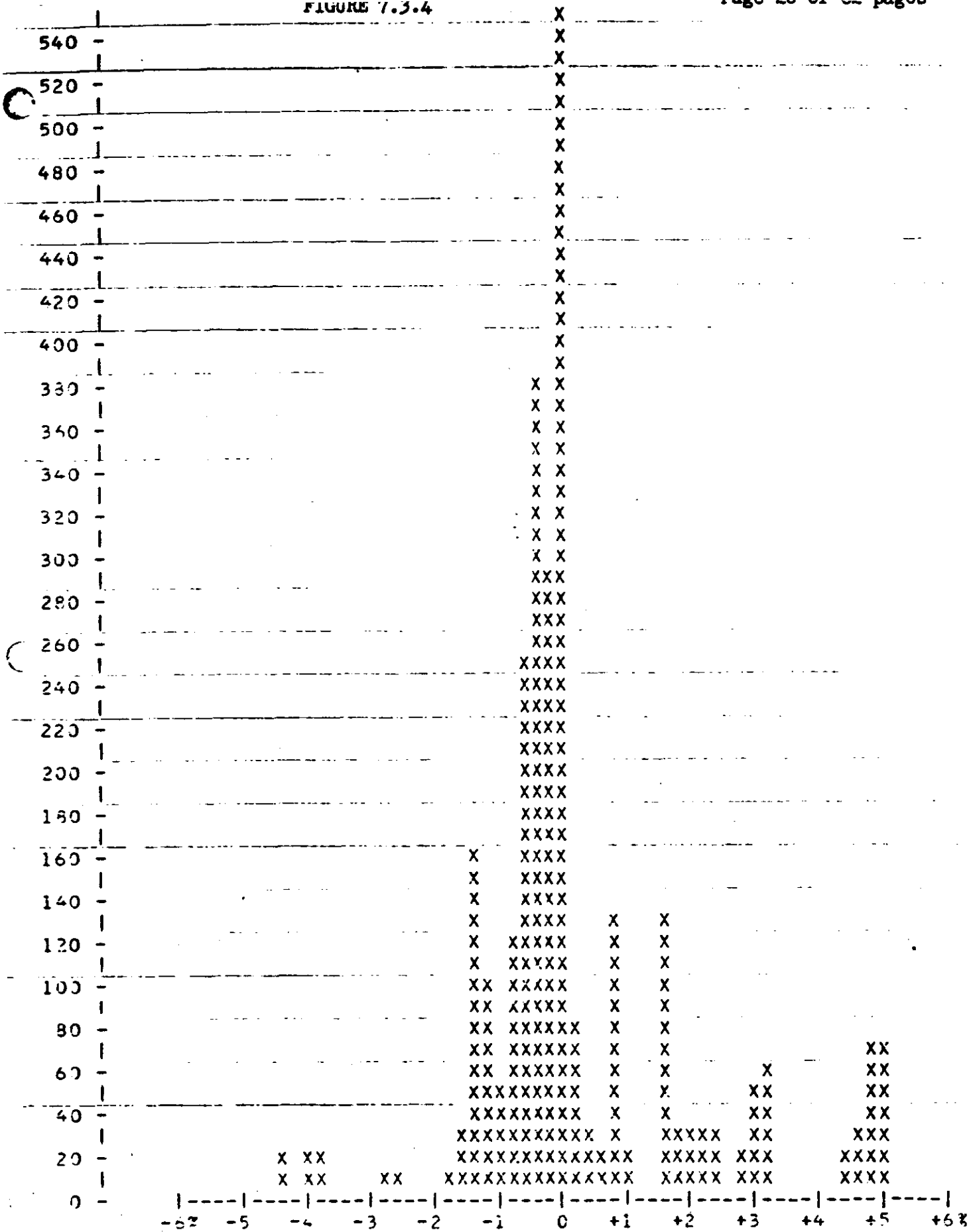
MISSION 1216-2 AFT LOOKING--ORBIT MATCH

MEAN= 0.07 OUT SIGMA= 1.49 TOTAL FRAMES=3102

2477 FRAMES MATCHED 1σ REPRESENTS 7-.05%, OF THE MI

HANDLE VIA

FIGURE 7.3.4



MISSION 1116-2 END LOOKING--ORBIT MATCH

MEAN= 0.21 ONE SIGMA= 1.62 TOTAL FRAMES=3109

2168 FRAMES MATCHED UNIT +/- 1S. REPRESENTS 70.22% OF THE MISSION

[redacted]

HANDLE VIA [redacted]

MISSION 1116-1 AFT LOOKING, TOTAL FRAME COUNT= 2760

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

DISTRIBUTION OVER 61 POINTS INCREMENTED AT .2 PERCENT

PERCENT	FRAMES	PERCENT	FRAMES
		0.0	540
-0.2	251	0.2	294
-0.4	313	0.4	400
-0.6	191	0.6	128
-0.8	125	0.8	0
-1.0	88	1.0	28
-1.2	57	1.2	27
-1.4	27	1.4	24
-1.6	13	1.6	94
-1.8	0	1.8	24
-2.0	0	2.0	0
-2.2	0	2.2	0
-2.4	0	2.4	12
-2.6	22	2.6	12
-2.8	0	2.8	12
-3.0	0	3.0	11
-3.2	0	3.2	0
-3.4	0	3.4	41
-3.6	0	3.6	0
-3.8	0	3.8	0
-4.0	0	4.0	0
-4.2	13	4.2	0
-4.4	13	4.4	0
-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

MISSION 1116-1 FWD LOOKING, TOTAL FRAME COUNT- 2758

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

DISTRIBUTION OVER 61 POINTS INCREMENTED AT .2 PERCENT

PERCENT	FRAMES	PERCENT	FRAMES
		0.0	537
-0.2	232	0.2	304
-0.4	310	0.4	436
-0.6	170	0.6	128
-0.8	90	0.8	0
-1.0	73	1.0	0
-1.2	57	1.2	55
-1.4	27	1.4	24
-1.6	13	1.6	94
-1.8	0	1.8	24
-2.0	0	2.0	0
-2.2	15	2.2	0
-2.4	14	2.4	12
-2.6	22	2.6	12
-2.8	0	2.8	12
-3.0	0	3.0	11
-3.2	19	3.2	0
-3.4	0	3.4	41
-3.6	0	3.6	0
-3.8	0	3.8	0
-4.0	0	4.0	0
-4.2	13	4.2	0
-4.4	13	4.4	0
-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 7.4.2

MISSION 1116-2 AFT LOOKING, TOTAL FRAME COUNT- 3105

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

DISTRIBUTION OVER 61 POINTS INCREMENTED AT .2 PERCENT

PERCENT	FRAMES	PERCENT	FRAMES
		0.0	745
-0.2	367	0.2	121
-0.4	341	0.4	96
-0.6	253	0.6	256
-0.8	159	0.8	98
-1.0	21	1.0	0
-1.2	82	1.2	0
-1.4	136	1.4	0
-1.6	58	1.6	0
-1.8	12	1.8	0
-2.0	0	2.0	0
-2.2	0	2.2	0
-2.4	0	2.4	0
-2.6	12	2.6	0
-2.8	12	2.8	45
-3.0	0	3.0	25
-3.2	0	3.2	62
-3.4	0	3.4	0
-3.6	0	3.6	0
-3.8	16	3.8	0
-4.0	16	4.0	0
-4.2	0	4.2	0
-4.4	23	4.4	21
-4.6	0	4.6	0
-4.8	0	4.8	65
-5.0	0	5.0	65
-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 7.4.3

MISSION 1116-2 FWD LOOKING, TOTAL FRAME COUNT- 3109

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

DISTRIBUTION OVER 61 POINTS INCREMENTED AT .2 PERCENT

PERCENT	FRAMES	PERCENT	FRAMES
		0.0	909
-0.2	285	0.2	82
-0.4	384	0.4	30
-0.6	248	0.6	18
-0.8	121	0.8	129
-1.0	54	1.0	23
-1.2	100	1.2	0
-1.4	156	1.4	0
-1.6	33	1.6	129
-1.8	12	1.8	27
-2.0	0	2.0	27
-2.2	0	2.2	26
-2.4	0	2.4	26
-2.6	12	2.6	0
-2.8	12	2.8	23
-3.0	0	3.0	48
-3.2	0	3.2	62
-3.4	0	3.4	0
-3.6	0	3.6	0
-3.8	16	3.8	0
-4.0	16	4.0	0
-4.2	0	4.2	0
-4.4	23	4.4	21
-4.6	0	4.6	27
-4.8	0	4.8	65
-5.0	0	5.0	65
-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 7.4.4

Re-entry Sequence of Events

Event	Sequence Control	DELTA TIME (SECONDS) Nominal	Unit #1	Unit #2
D-Timer Start		0	0	0
Arm			6.0	6.0
Transfer		81.0 ± .5	80.77	80.78
Elec. Disconnect		82.0 ± .5	81.75	81.77
Separation		83.0 ± .5	82.75	82.78
Spin		3.40 ± .30	3.42	3.42
Retro		7.55 ± .45	7.35	7.52
Despin		10.75 ± .54	10.60	10.77
Thrust Cone Sep.		1.50 ± .15	1.50	1.50
"G" Switch Open Parachute Cover Ejec.		26.0 ± 1.5	24.83	26.40
Deceleration Chute Deploy		.58 ± .08	.55	.55
Ablative Shell Disconnect		.58 ± .08	.55	.55
Main Chute Bag Sep.		10.25 ± 1.5	11.39	11.02
Main Chute Deploy		.52 ± .13	.50	.48
Main Chute Disreef		4.50 ± .80	4.33	4.60
K-10 Reset		28.0 ± 1.9	27.86	28.34

TABLE 7.5

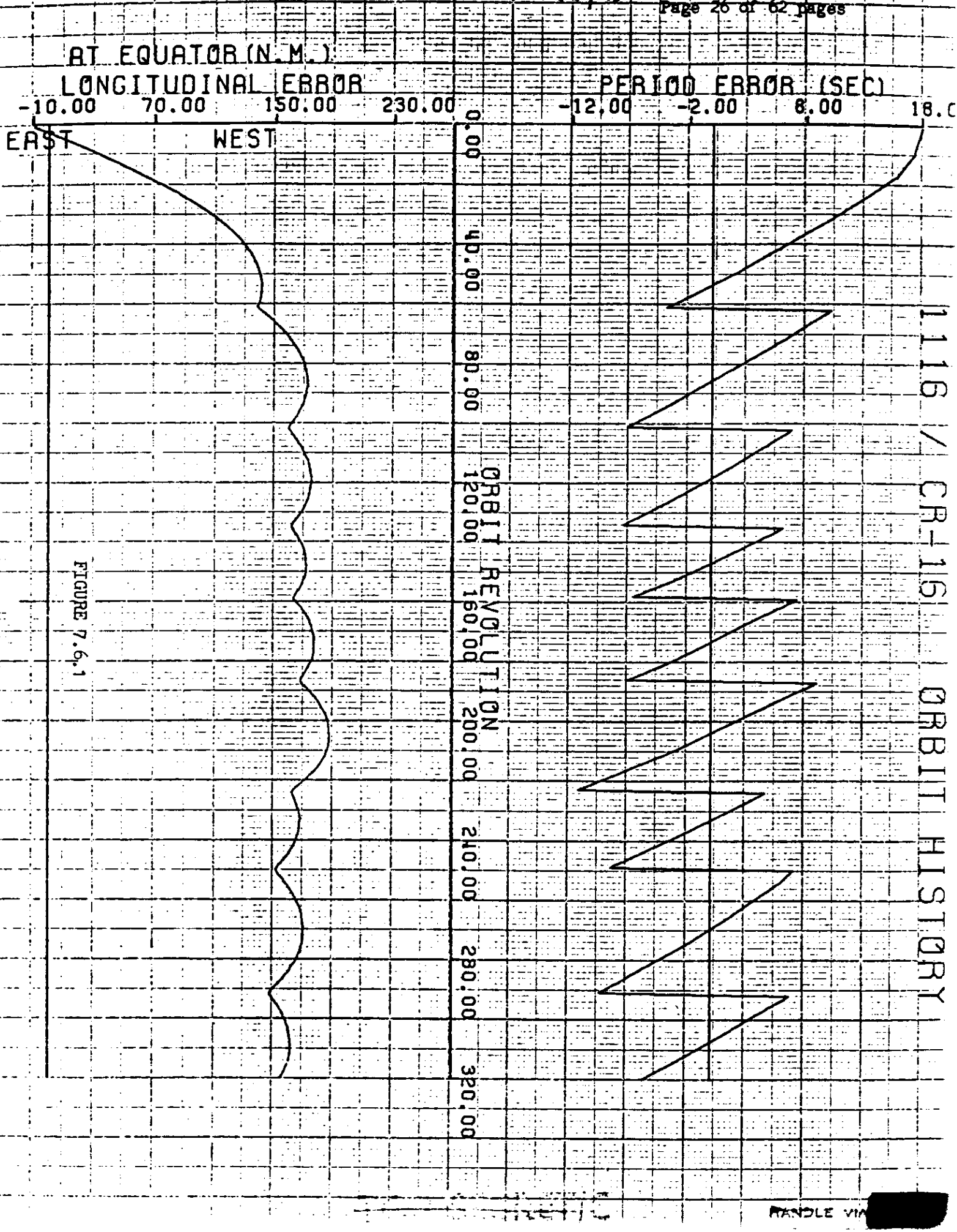

AT EQUATOR (N.M.)
LONGITUDINAL ERROR
-10.00
70.00
150.00
230.00
EAST
WEST
PERIOD ERROR (SEC)
-12.00
-2.00
8.00
18.0
0.00
40.00
80.00
120.00
160.00
200.00
240.00
280.00
320.00
ORBIT REVOLUTION
1116 / CR-15 ORBIT HISTORY

FIGURE 7.6.1

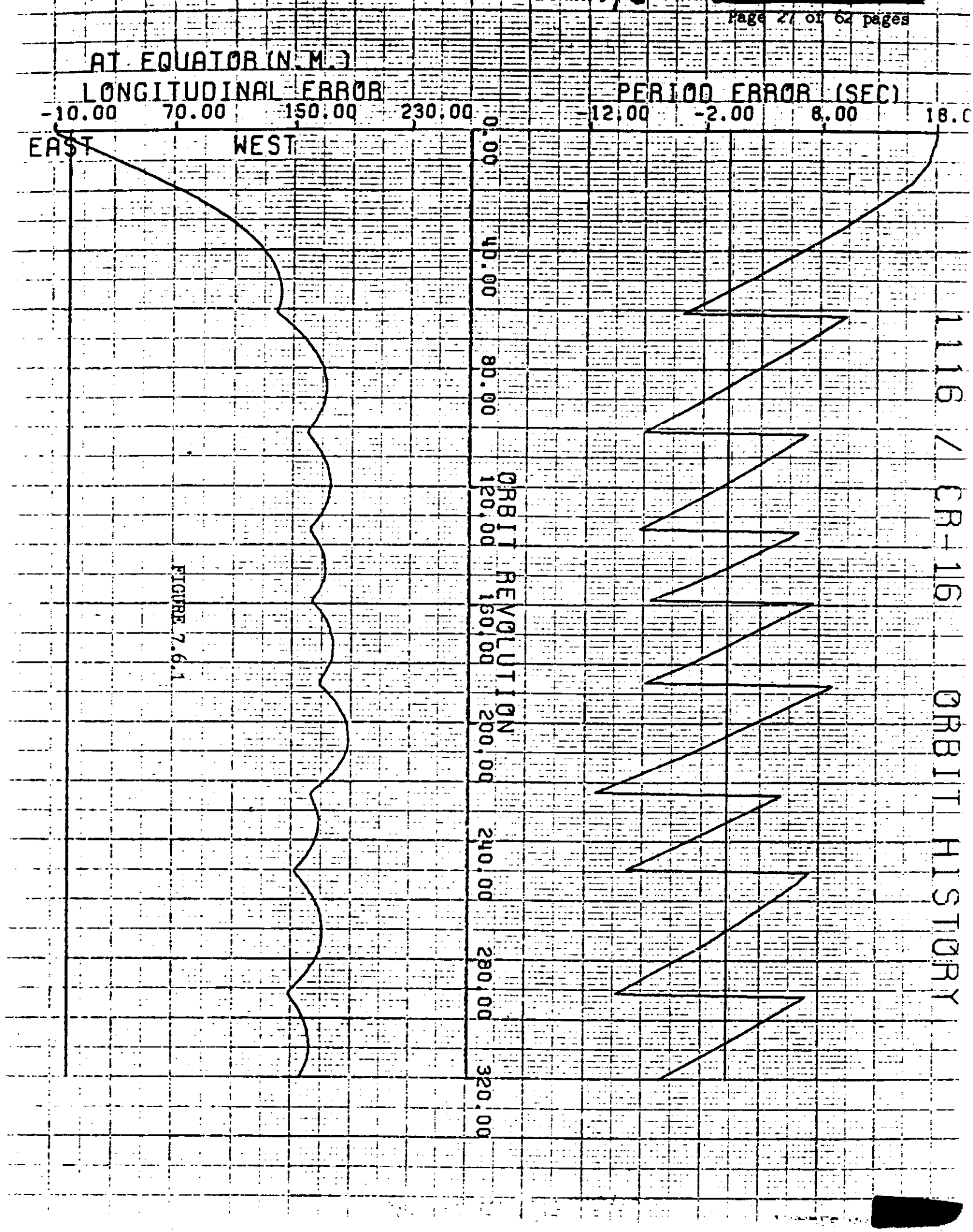

AT EQUATOR (N.M.)
LONGITUDINAL ERROR
-10.00
70.00
150.00
230.00
EAST
WEST
PERIOD ERROR (SEC)
-12.00
-2.00
8.00
18.0
0.00
40.00
80.00
120.00
160.00
200.00
240.00
280.00
320.00
ORBIT REVOLUTION
1116 / CR-16 ORBIT HISTORY

FIGURE 7.6.1

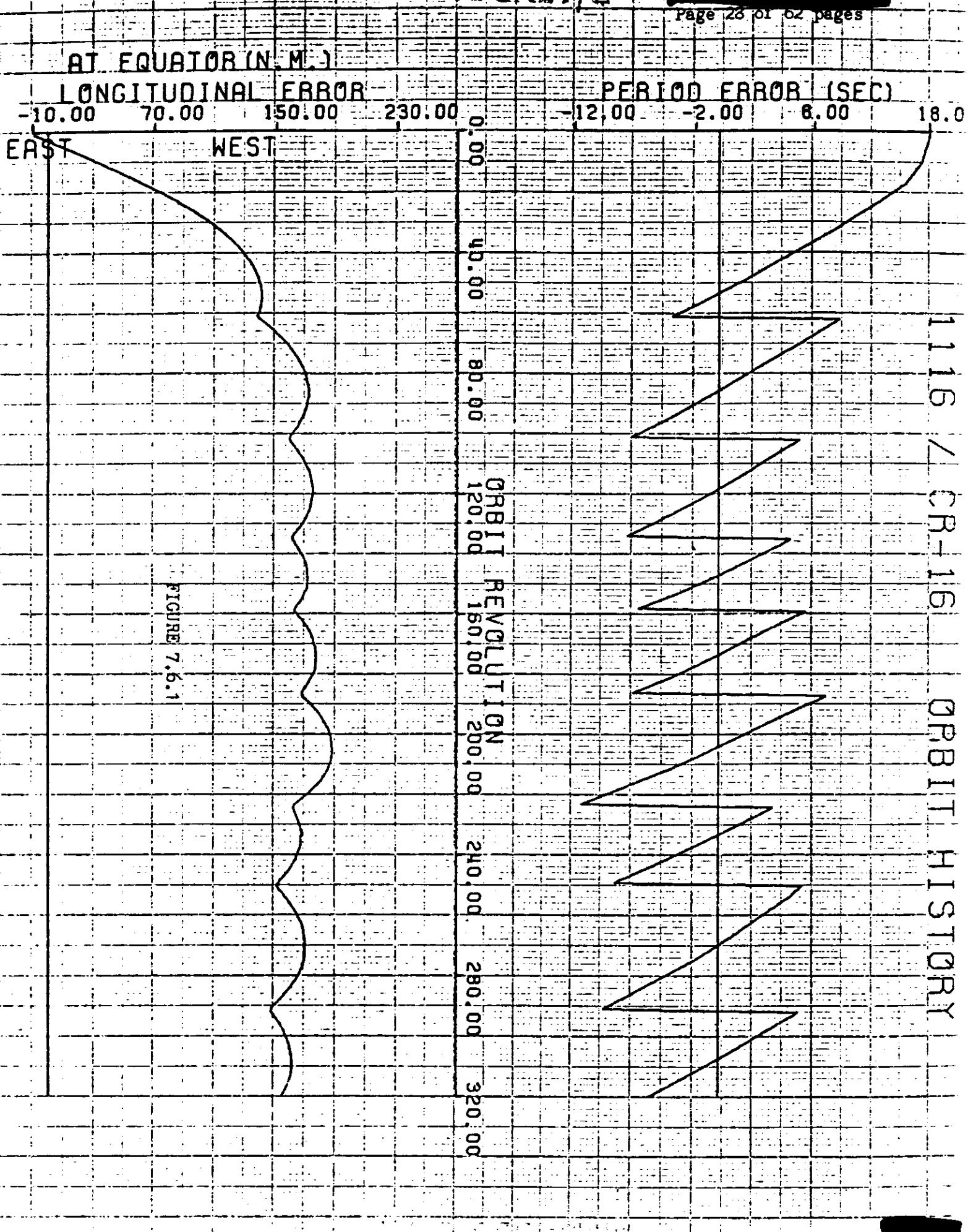

AT EQUATOR (N.M.)
LONGITUDINAL ERROR
-10.00
70.00
150.00
230.00
EAST
WEST
PERIOD ERROR (SEC)
-12.00
-2.00
6.00
18.0
0.00
40.00
80.00
120.00
160.00
200.00
240.00
280.00
320.00
ORBIT REVOLUTION
11116 / CR-116 ORBIT HISTORY

FIGURE 7.6.1

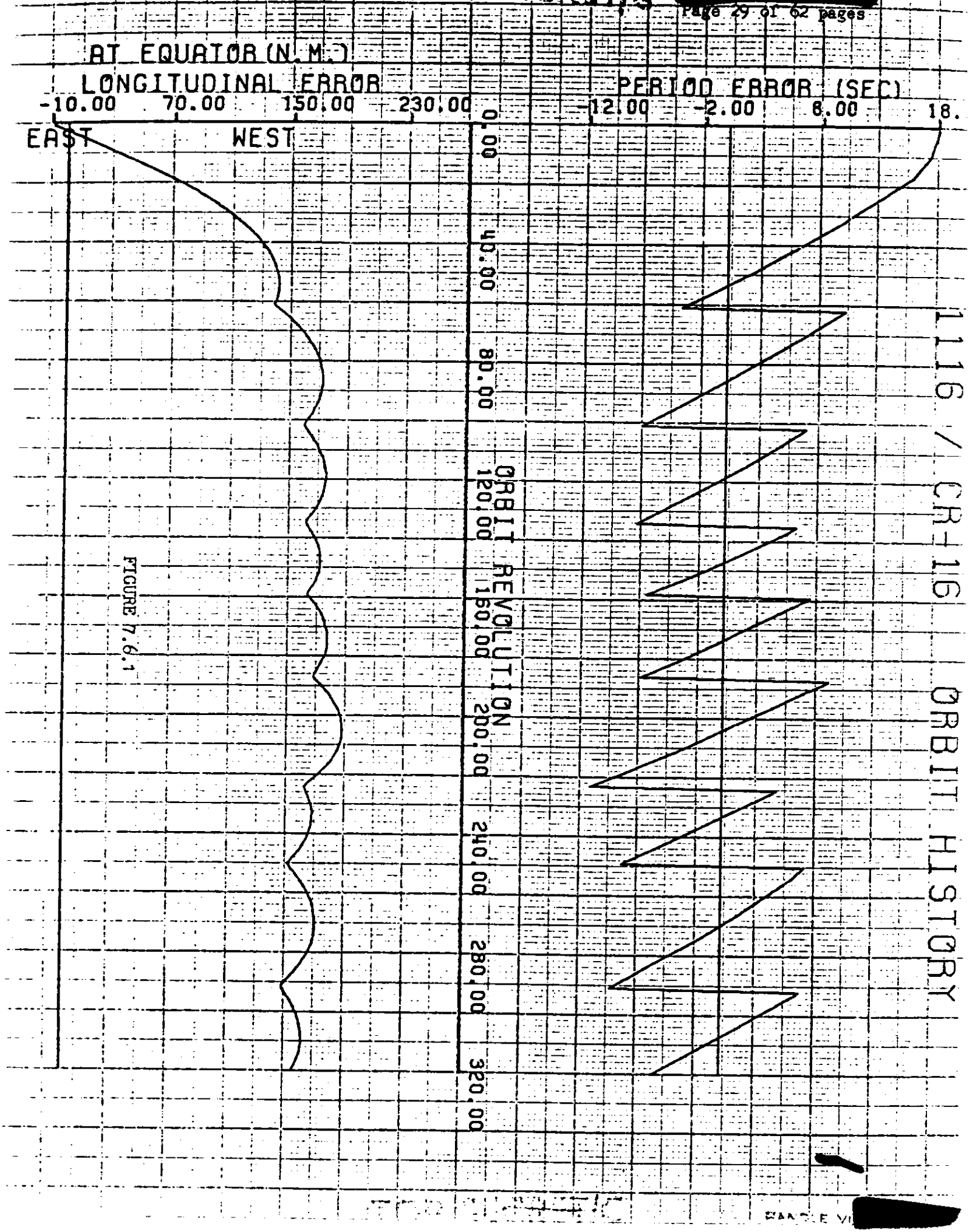

AT EQUATOR (N.M.)
LONGITUDINAL ERROR
-10.00
70.00
150.00
230.00
EAST
WEST
PERIOD ERROR (SEC)
-12.00
-2.00
6.00
18.
0.00
40.00
80.00
120.00
160.00
200.00
240.00
280.00
320.00
ORBIT REVOLUTION
1116 / CR-116 ORBIT HISTORY

FIGURE 7.6.1

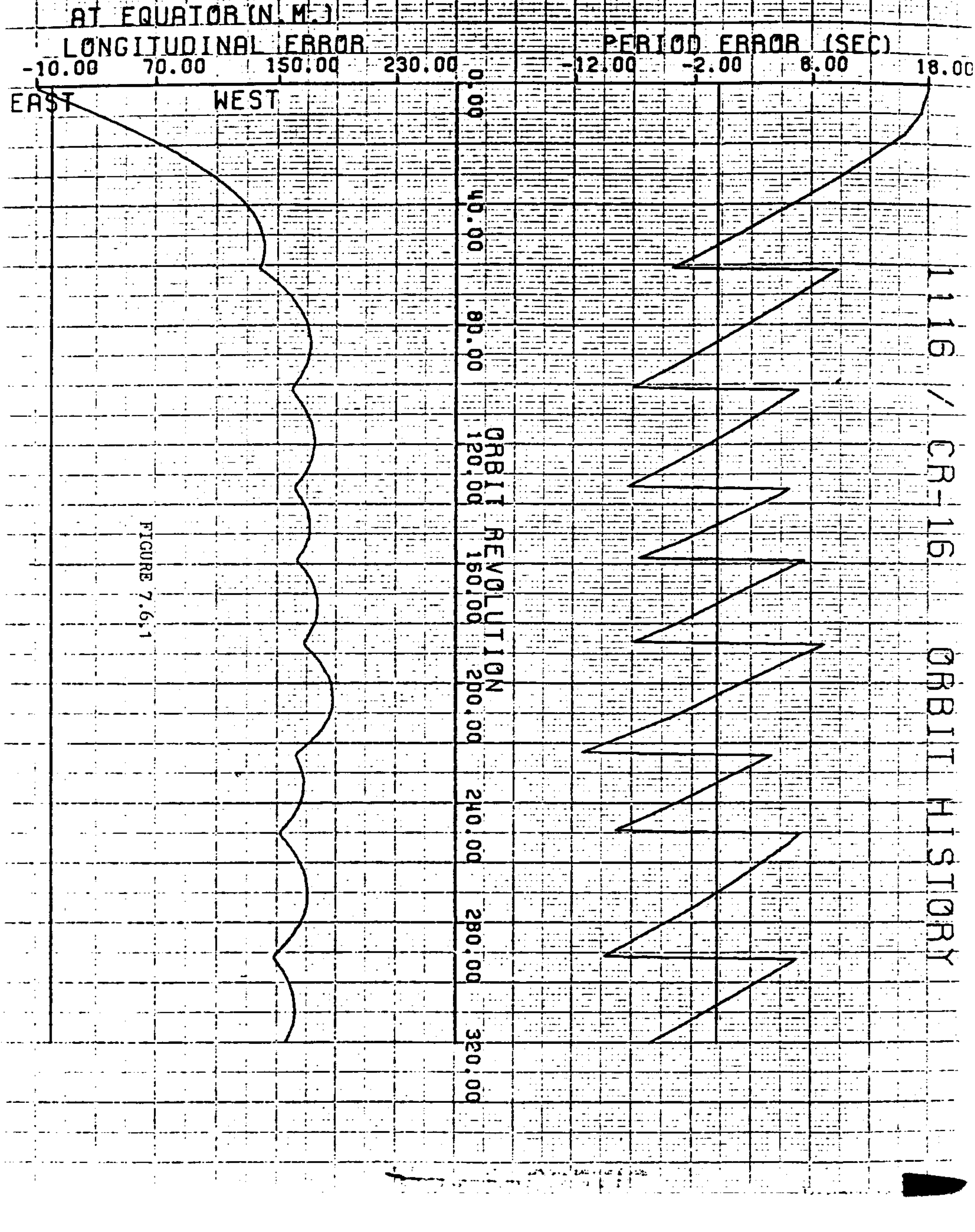

AT EQUATOR (N.M.)
LONGITUDINAL ERROR
PERIOD ERROR (SEC)
-10.00
70.00
150.00
230.00
-12.00
-2.00
8.00
18.00
EAST
WEST
0.00
40.00
80.00
120.00
160.00
200.00
240.00
280.00
320.00
ORBIT REVOLUTION
1116 / CR-16 ORBIT HISTORY

FIGURE 7.6.1

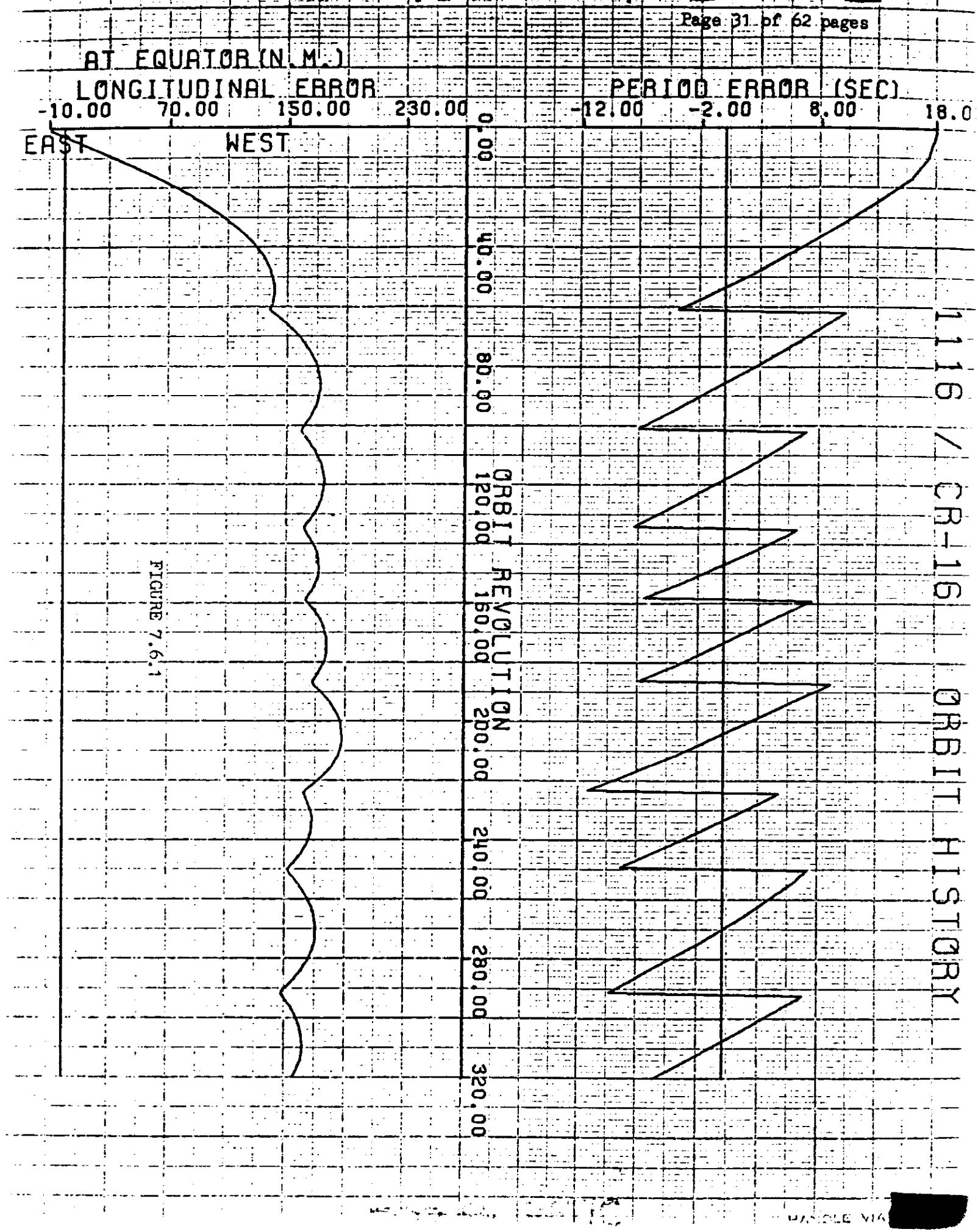

AT EQUATOR(N.M.)
LONGITUDINAL ERROR
-10.00
70.00
150.00
230.00
EAST
WEST
PERIOD ERROR (SEC)
-12.00
-2.00
8.00
18.0
0.00
40.00
80.00
120.00
160.00
200.00
240.00
280.00
320.00
ORBIT REVOLUTION
1116 / CR-16 ORBIT HISTORY

FIGURE 7.6.1

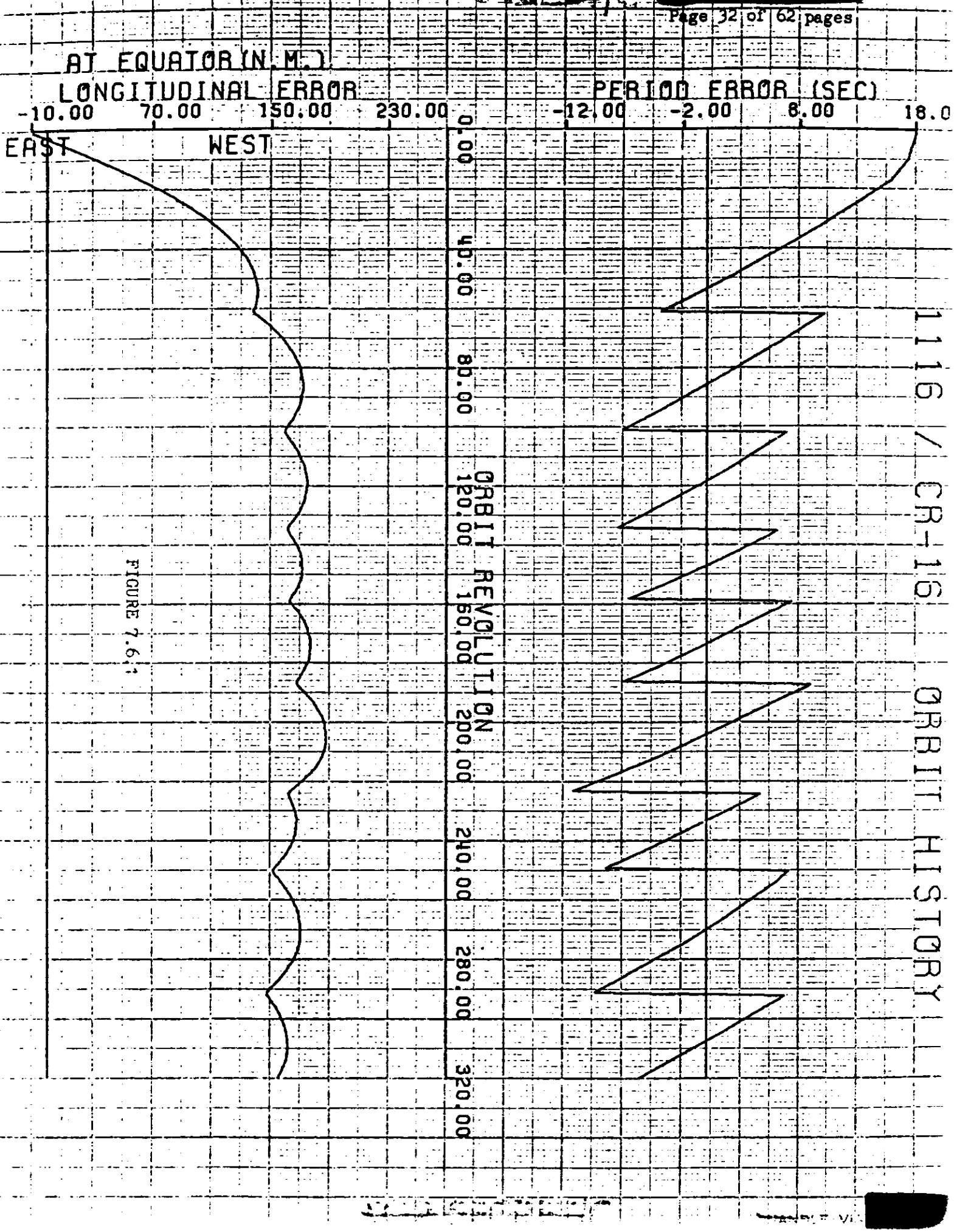

AT EQUATOR (N.M.)
LONGITUDINAL ERROR
PERIOD ERROR (SEC)
-10.00
70.00
150.00
230.00
-12.00
-2.00
8.00
18.0
EAST
WEST
0.00
40.00
80.00
120.00
160.00
200.00
240.00
280.00
320.00
ORBIT REVOLUTION
1116 / CR-16 ORBIT HISTORY

FIGURE 7.6-1

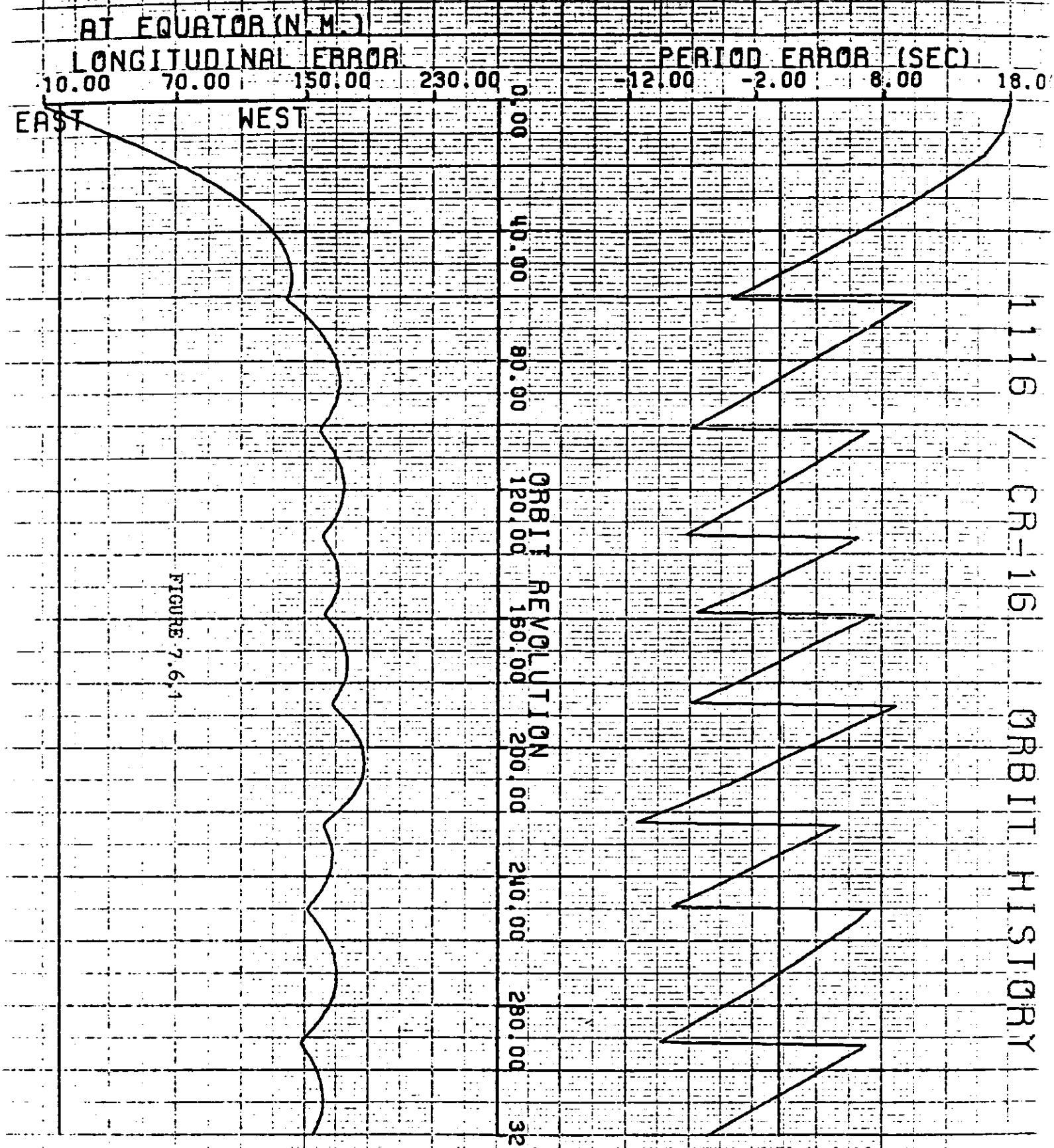

AT EQUATOR(N.M.)
LONGITUDINAL ERROR
10.00
70.00
150.00
230.00
EAST
WEST
PERIOD ERROR (SEC)
-12.00
-2.00
8.00
18.0
0.00
40.00
80.00
120.00
160.00
200.00
240.00
280.00
320.00
ORBIT REVOLUTION

FIGURE 7.6.1