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NASA PROGRAM APOLLO WORKING PAPER NO. 1179

FLIGHT DATA REPORT FOR APOLLO MISSION PA-2

(BP-23A)

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AUGUST 12, 1965

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FLIGHT DATA REPORT

FOR

APOLLO MISSION PA-2,
(BP-23A)

Prepared by: Computation and
Analysis Division

Authorized for Distribution:

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

HOUSTON, TEXAS

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FLIGHT DATA REPORT FOR APOLLO

MISSION PA-2 (BP-23A)

By Data Processing and Planning Office

INTRODUCTION

The purpose of this report is to document all meaningful flight data from the Apollo Mission PA-2 (BP-23A) in a form useful for future reference. The spacecraft was launched from Launch Complex 36 at White Sands Missile Range (WSMR), White Sands, New Mexico, on June 29, 1965 at 06:00:01.448 a.m., m.s.t. This time is the time of four-inch motion and is defined as zero time (T-0). All data, unless otherwise specified, are referenced to T-0. The data were obtained from spacecraft telemetry and range information, including radar and optical tracking data and ambient atmospheric conditions. The range information was used in the processing of aerodynamic quantities and derived data such as Q-ball, pressure coefficients, and thrust. Plots of post-flight trajectory simulations are included in this report. The range telemetry tape was used as a primary data source. No analysis of the data is presented herein, since this function is accomplished in the Post-Launch Report for Apollo Mission PA-2 (BP-23A) (reference 1).

This paper gives a brief description of data processing techniques and presents the flight data in graphical form.

DATA PRESENTATION

The data from the flight are presented in formats which had been requested by the cognizant sub-system analyst. Digital time histories are used for selected continuous data and for all commutated data which were converted to engineering units. Quantities which required additional computations, such as pressure coefficients, are also presented in the form of digital plots. Oscillatory acceleration data were reduced using analog techniques and are presented in analog form. Oscillatory data are also presented in the form of digital power spectral density plots.

Certain quantities, such as temperatures and surface pressures, are affected by sensor location. The locations of these sensors are shown in figures 1 through 4.

Time Histories

Spacecraft data, with the exception of event data, were converted to engineering units using digital techniques. Digitizing rates, points averaged, transient limits, plotting densities, and tabulation rates are listed in table I by parameter grouping. Data smoothing, when used, was accomplished by a routine which averages a predetermined number of points, drops the first point in the group, picks up the next point, and repeats the procedure. The data are sampled at a fixed rate, determined from consideration of the nature of the data. For some parameters it is desirable to determine transients in addition to the fixed rate data. The transient detection procedure is a routine which compares each new data sample with the preceding sample which has been processed for plotting and/or tabulation. If the difference between the two values is more than a predetermined percentage of the full scale range, both the new sample and its immediately preceding sample are processed for subsequent plotting and/or tabulation. This adds two points to those plotted at the fixed rate. Tabulations of the data are available from the Central Metric Data File, ED14, Manned Spacecraft Center, Houston, Texas.

In addition to the digital time histories, the acceleration data are presented in the form of direct analog recordings. Power spectral density plots for selected times are also presented for the accelerations.

Corrections for Ambient Conditions

Certain parameters measured during the flight were biased to read known values at lift-off. The corrections were then applied to these parameters for the entire flight. Table II lists the parameters, the amount of the correction, and the resultant value.

REFERENCE

1. Staff of Manned Spacecraft Center: Postlaunch Report for Apollo Mission PA-2 (BP-23A). MSC-R-A-65-3, NASA Manned Spacecraft Center, July 29, 1965.

TABLE I.- DIGITALLY PROCESSED DATA

Measurement Type	Digitizing Rate (samples/sec)	Number of Samples Averaged	Transient Limit	Plotting Density (samples/sec)
Acclerations	200	21	3%	10 plus transients
Baro-static Press. Ref	200	21	3%	10 plus transients
Spacecraft pressures	10		2%	1 plus transients
Temperature	10		2%	1 plus transients
Voltage	10		2%	1 plus transients
Current	10		2%	1 plus transients
Altitude (computed)	200	21	3%	10 plus transients
Delta pressure	10			10
Attitude gyros	10			10
Rate gyros	200	21	3%	10 plus transients
Pressure coefficients (computed)	10			10
Escape motor chamber pressure	200	3		100
Escape motor thrust (computed)	200	3		100
Pitch control motor chamber pressure	200	3		100
Pitch control motor thrust (computed)	200	3		100
Aerodynamic angles (Q-ball)	10			10
Dynamic pressure	10			10
Accelerations*	1000	N.A.**	N.A.	N.A.

* Data are presented in the form of power spectral density plots.

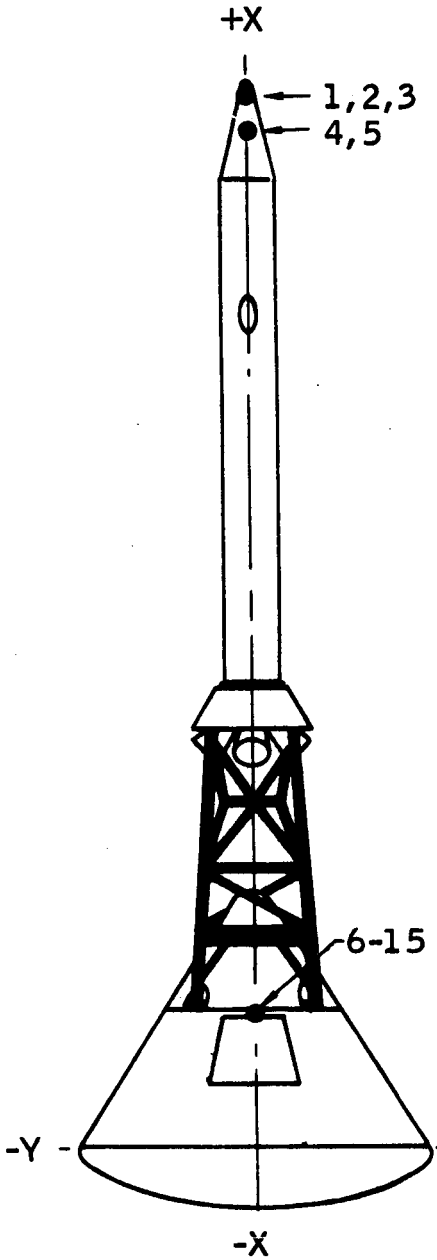
** Not applicable.

TABLE II.- CORRECTIONS TO KNOWN AMBIENT CONDITIONS

Parameter Name	Amount of Correction	Corrected to:
Roll rate gyro output	-0.100 deg/sec	0 deg/sec
Yaw rate gyro output	0.311 deg/sec	0 deg/sec
Pitch rate gyro output	1.104 deg/sec	0 deg/sec
Roll attitude gyro output	-2.629 deg	0 deg
Yaw attitude gyro output	2.739 deg	0 deg
Pitch attitude gyro output	91.876 deg	90 deg
Delta pressure, Alpha	1.126 psf	0 psf
Delta pressure, Beta	9.399 psf	0 psf
Delta Pressure, Q	-0.336 psf	0 psf
Z-axis spacecraft accel	-0.036 g	0 g
Y-axis spacecraft accel	0.101 g	0 g
X-axis spacecraft accel (high)	-0.048 g	1 g
X-axis spacecraft accel (low)	-0.006 g	1 g
Y-axis tower accel	-0.108 g	0 g
Z-axis tower accel	0.057 g	0 g
Escape motor chamber pressure	29.677 psia	12.76 psia
Pitch control motor chamber pressure	28.926 psia	12.76 psia
Baro-press static ref No. 1	-0.093 psia	12.76 psia
Baro-press static ref No. 2	0.302 psia	12.76 psia
Pressure BPC-CM interface loc 1	0.107 psia	12.76 psia
Pressure BPC-CM interface loc 2	0.131 psia	12.76 psia
Pressure BPC-CM interface loc 3	0.260 psia	12.76 psia
Pressure BPC-CM interface loc 4	0.254 psia	12.76 psia
Pressure BPC-CM interface loc 5	0.263 psia	12.76 psia
Pressure BPC-CM interface loc 6	0.236 psia	12.76 psia
Base pressure 1	0.042 psia	12.76 psia
Base pressure 2	-0.058 psia	12.76 psia
Base pressure 3	0.042 psia	12.76 psia
Base pressure 4	-0.085 psia	12.76 psia

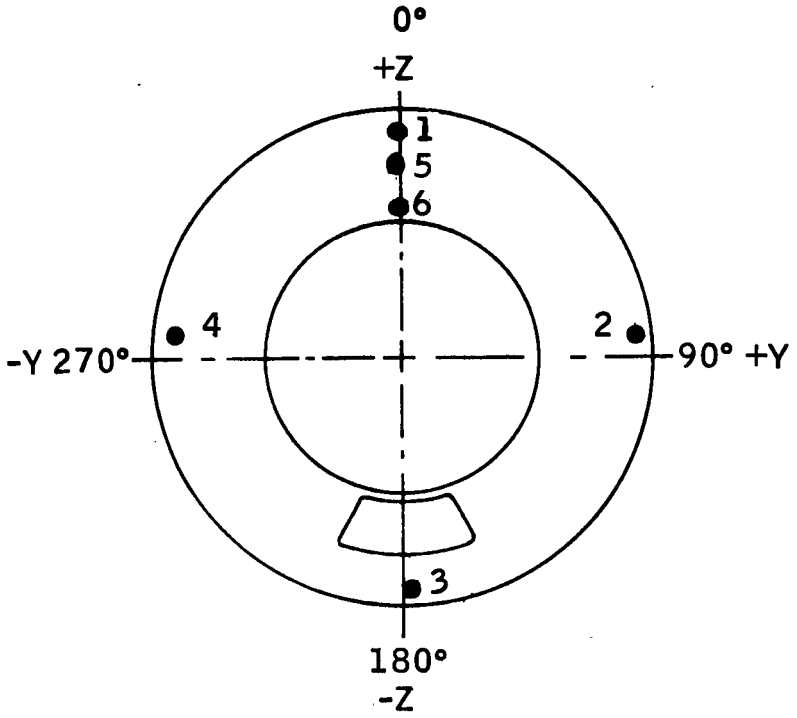
TABLE II.- CORRECTIONS TO KNOWN AMBIENT CONDITIONS - Concluded

Parameter Name	Amount of Correction	Corrected to:
Base pressure 6	0.111 psia	12.76 psia
Base pressure 7	0.004 psia	12.76 psia
Base pressure 8	0.073 psia	12.76 psia
Base pressure 9	0.077 psia	12.76 psia
Base pressure 10	-0.004 psia	12.76 psia
Base pressure 11	0.140 psia	12.76 psia
Base pressure 12	0.077 psia	12.76 psia



Measurement	Location		
Q-ball			
1. LK0023H	X_L 399	Y0	Z0
2. LK0024H	X_L 399	Y0	Z0
3. LK0025P	X_L 399	Y0	Z0
Accelerometer			
4. LA0011A	X_L 380	Y0	Z6
5. LA0012A	X_L 380	Y6	Z0
6. CA0001A	X_C 78	Y0	Z21
7. CA0002A	X_C 78	Y0	Z21
8. CA0005A	X_C 78	Y0	Z21
9. CA0007A	X_C 78	Y0	Z21
Rate gyro			
10. CK0001R	X_C 78	Y0	Z21
11. CK0002R	X_C 78	Y0	Z21
12. CK0003R	X_C 78	Y0	Z21
Attitude gyro			
13. CK0016H	X_C 78	Y0	Z21
14. CK0017H	X_C 78	Y0	Z21
15. CK0018H	X_C 78	Y0	Z21

Figure 1.- Attitude, rate and acceleration sensor locations for BP-23A, Mission PA-2.

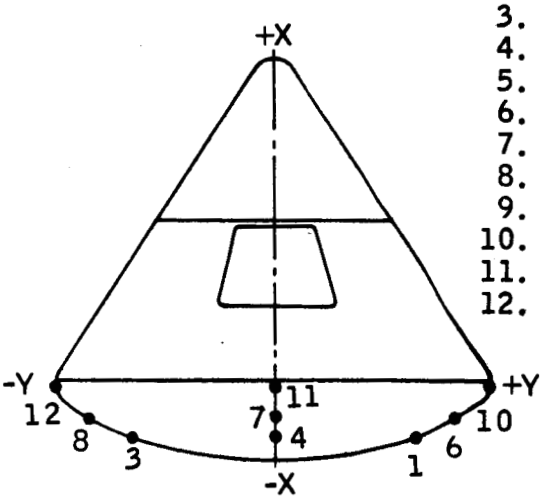


CM top view

Measurement		Location	
1.	CA0022P	X_C30	359°
2.	CA0023P	X_C30	84°
3.	CA0024P	X_C30	179.5°
4.	CA0025P	X_C30	276°
5.	CA0026P	$X_C50.5$	359°
6.	CA0027P	X_C79	359°

Figure 2.- Boost protective cover, command module interface pressure sensor locations for BP-23A, Mission PA-2.

Measurement	Location
1. CA0100P	Bottom 50" R, 90°
2. CA0101P	Bottom 50" R, 0°
3. CA0102P	Bottom 50" R, 270°
4. CA0103P	Bottom 50" R, 180°
5. CA0104P	Bottom 65" R, 0°
6. CA0105P	Bottom 65" R, 90°
7. CA0106P	Bottom 65" R, 180°
8. CA0107P	Bottom 65" R, 270°
9. CA0108P	Bottom 77" R, 0°
10. CA0109P	Bottom 77" R, 90°
11. CA0110P	Bottom 77" R, 180°
12. CA0111P	Bottom 77" R, 270°



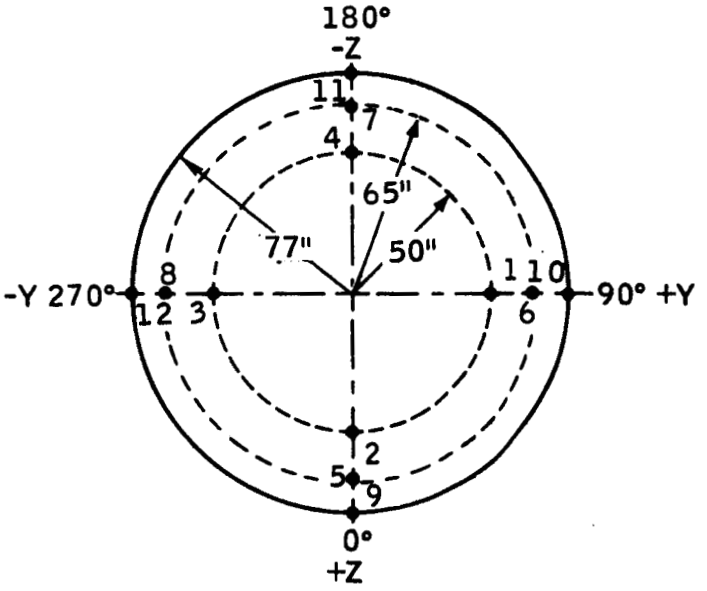
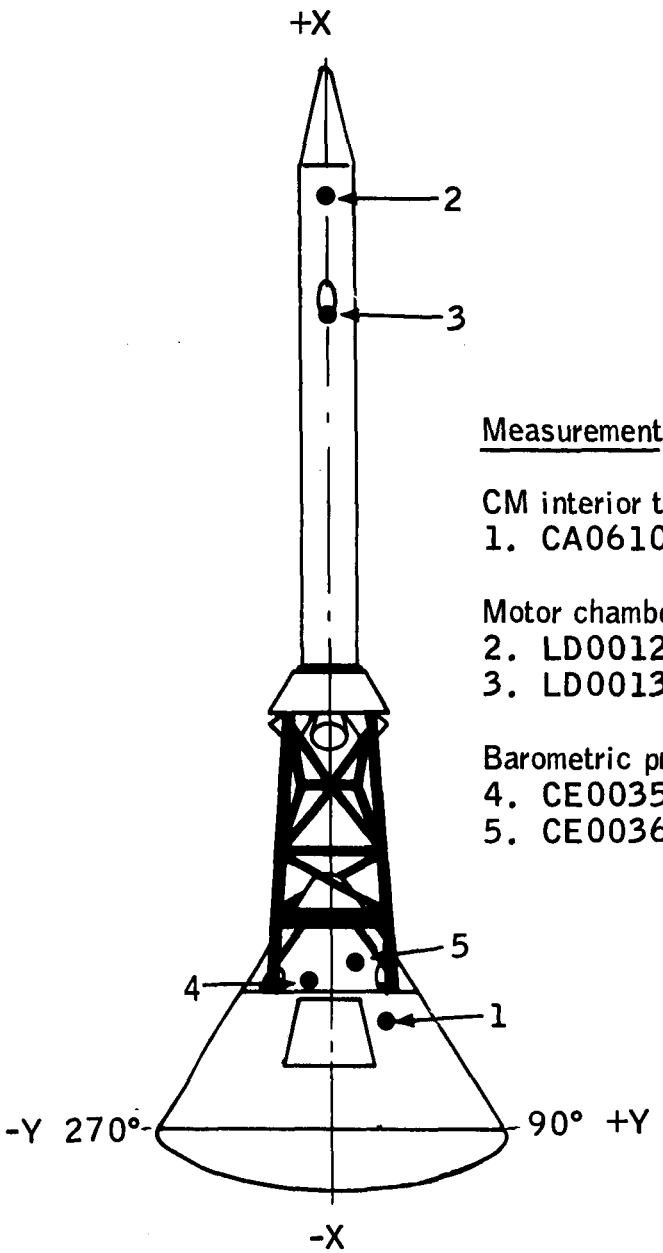


Figure 3.- Base pressure sensor locations for BP-23A, Mission PA-2.



Measurement	Location		
CM interior temperature			
1. CA0610T	CM interior		
Motor chamber pressure			
2. LD0012P	X_L345	Y0	Z-13
3. LD0013P	X_L290	Y0	Z0
Barometric pressure, static reference			
4. CE0035P no. 1	CM forward compartment		
5. CE0036P no. 2	CM forward compartment		

Figure 4.- Pressure and temperature sensor locations for BP-23A, Mission PA-2.

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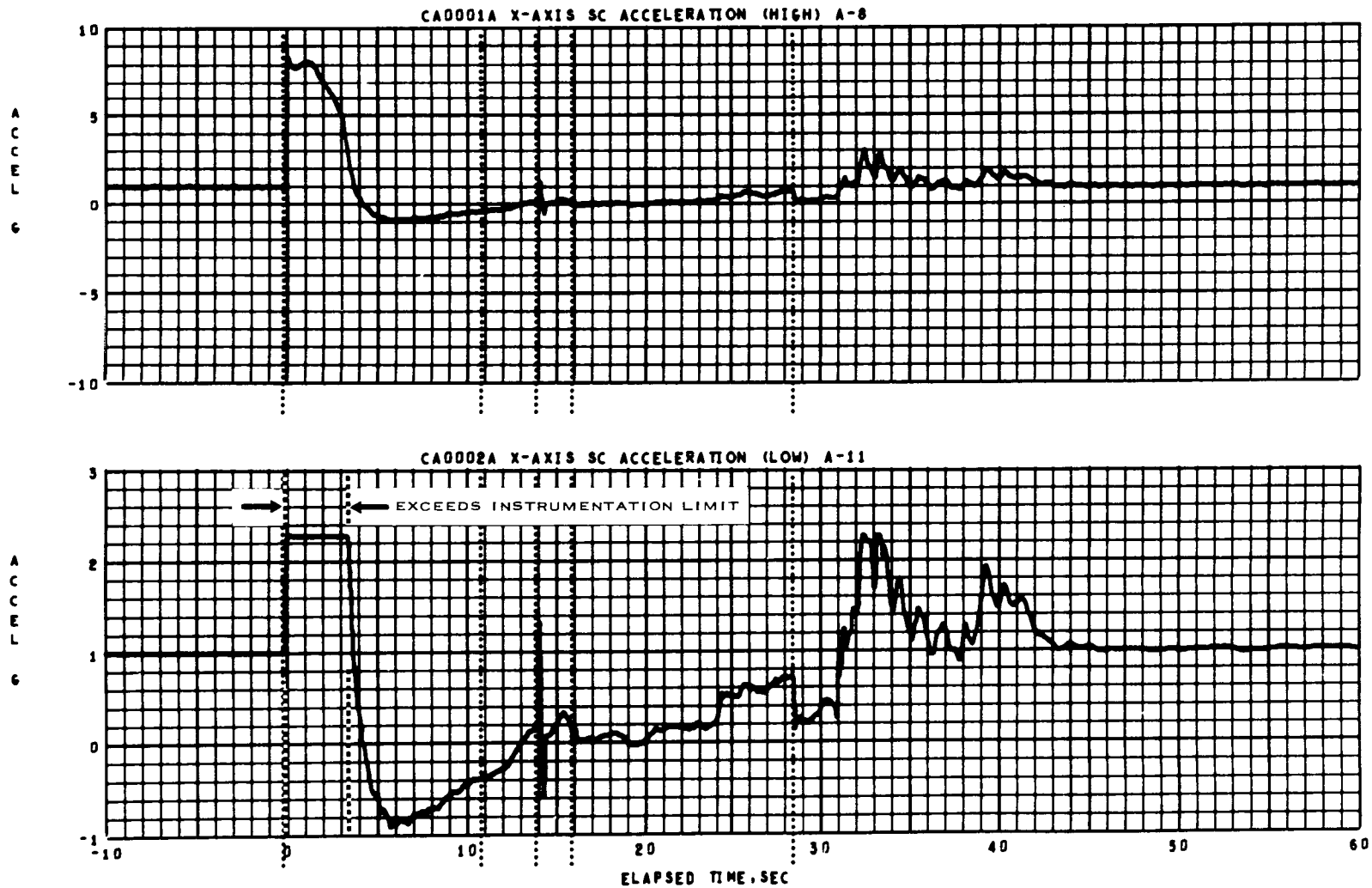

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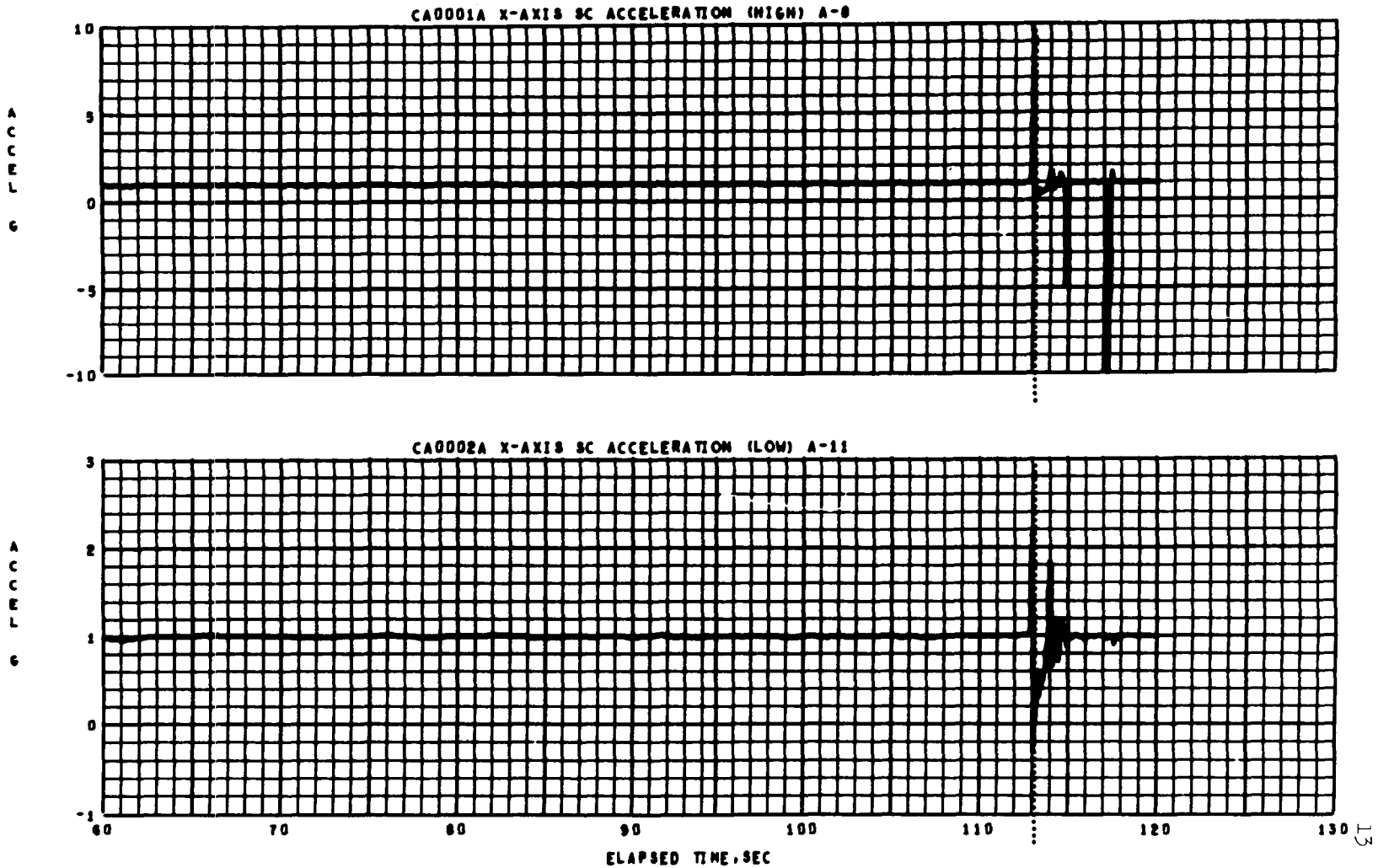

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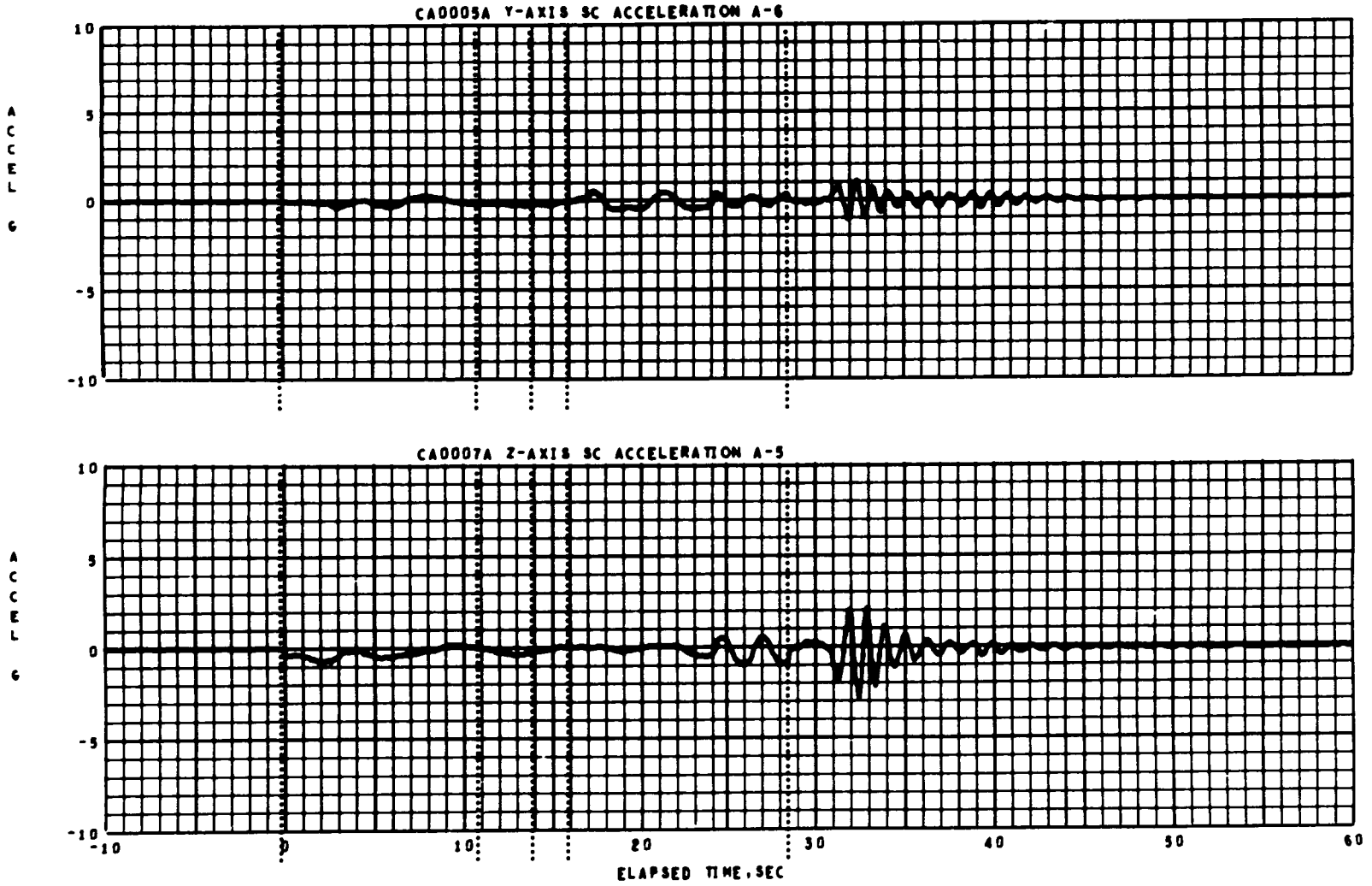

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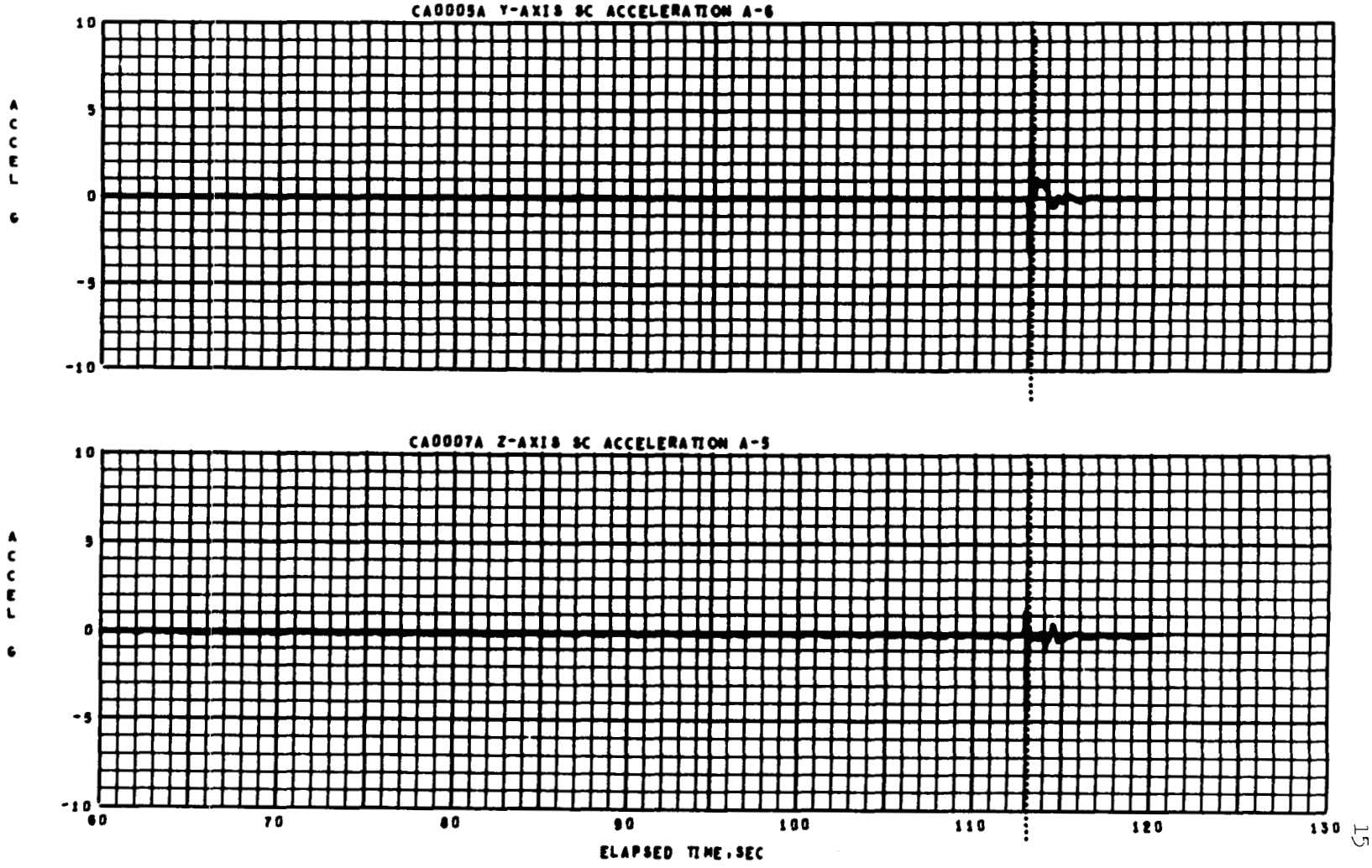

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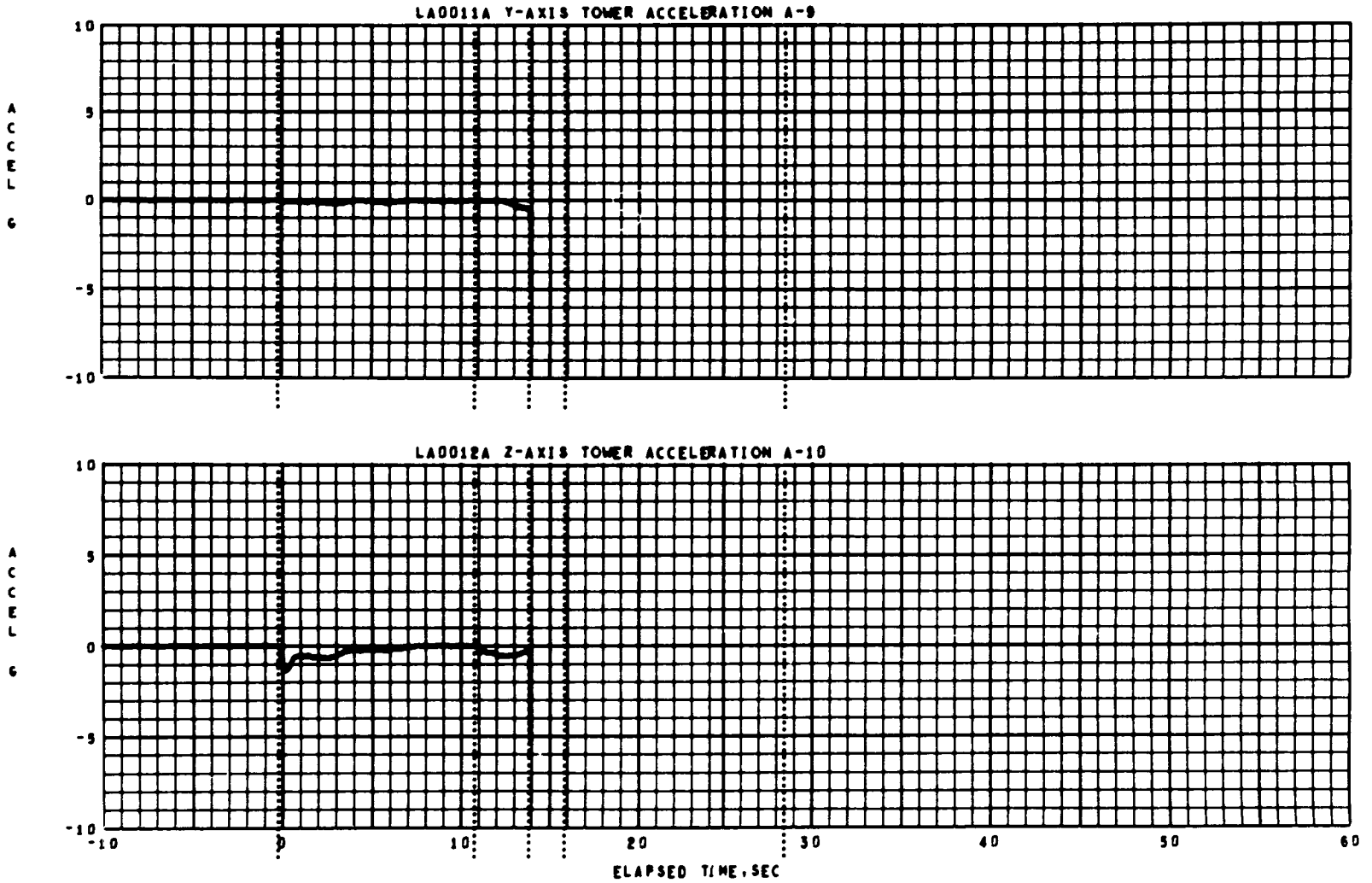

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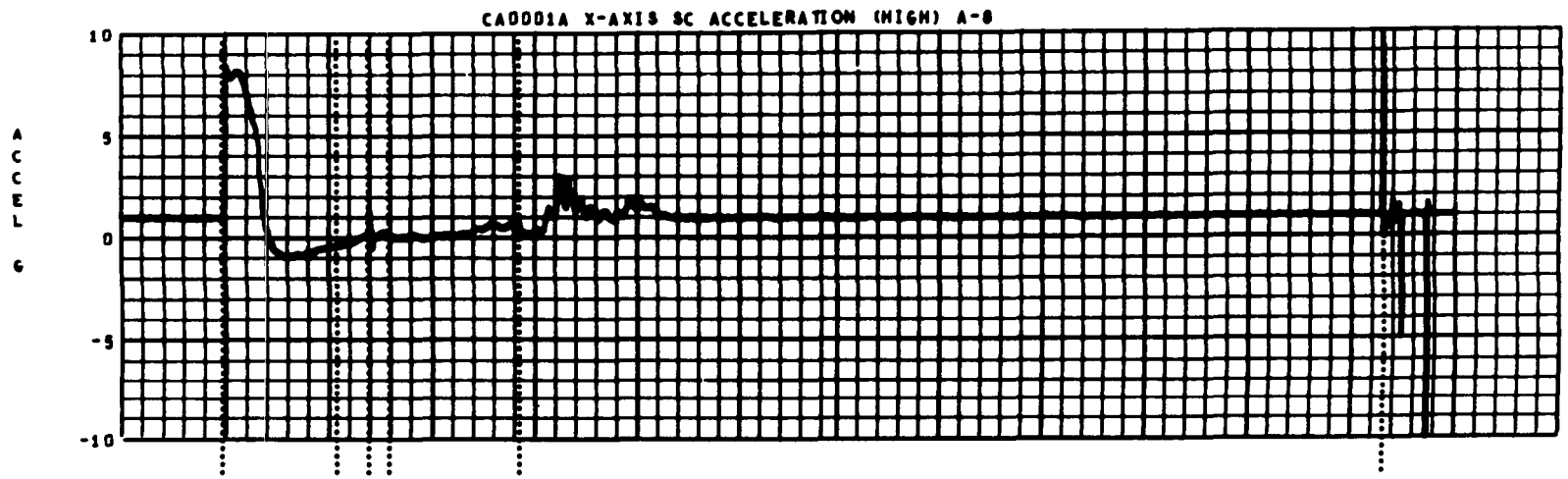

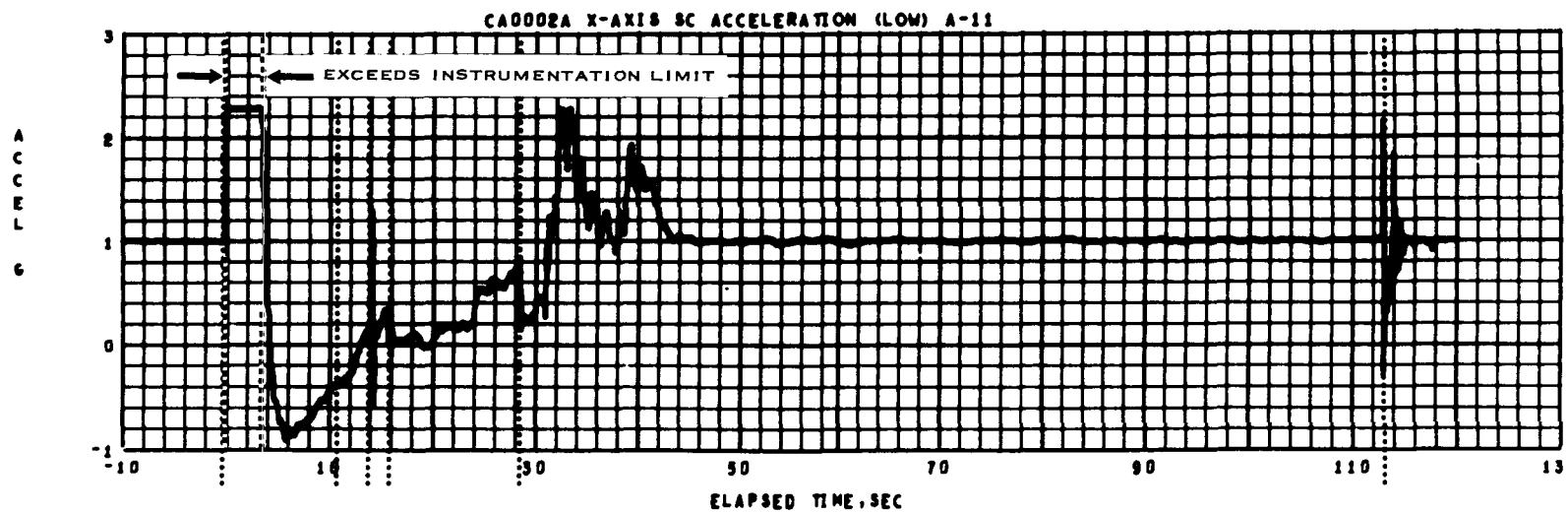

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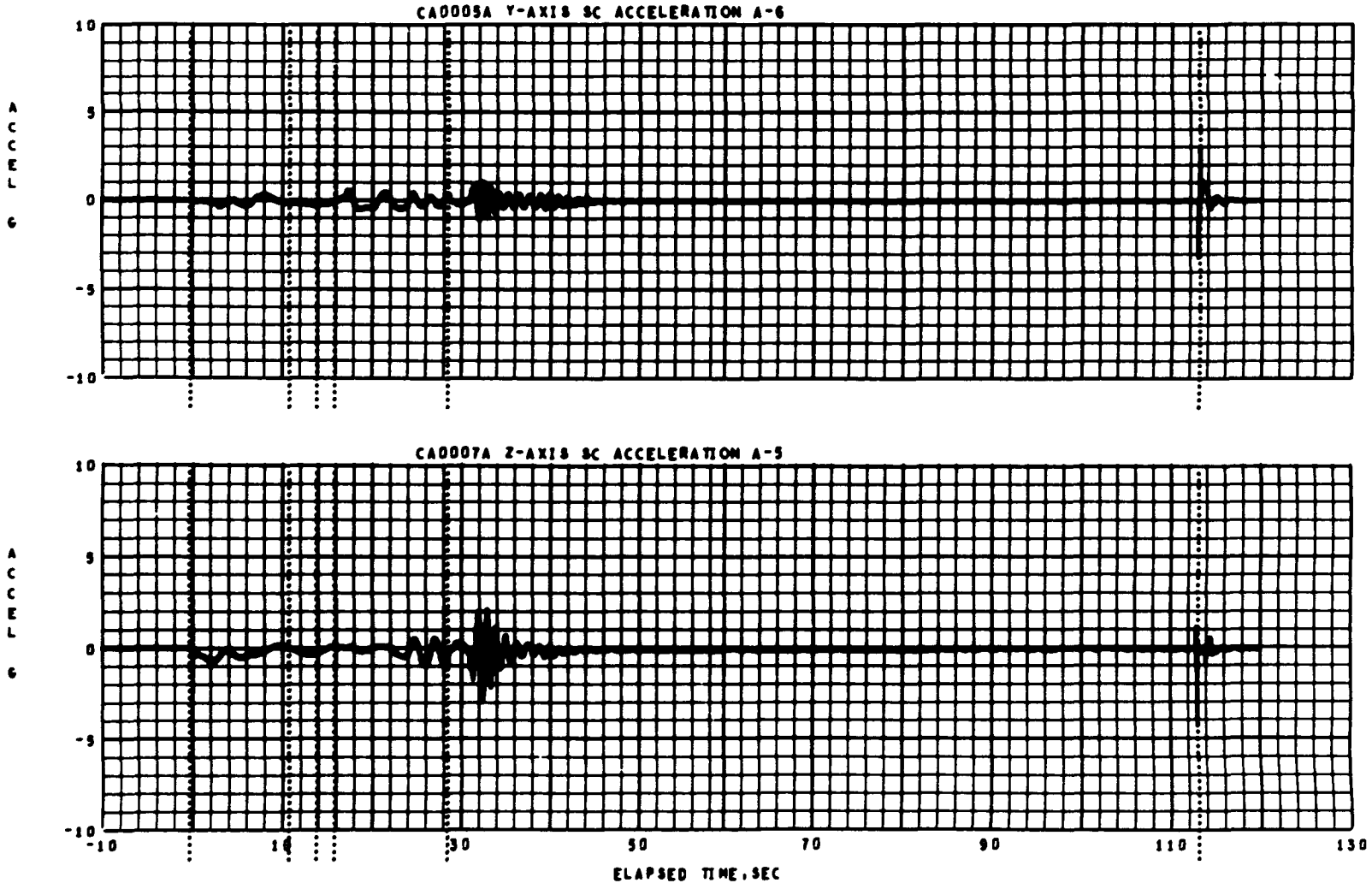

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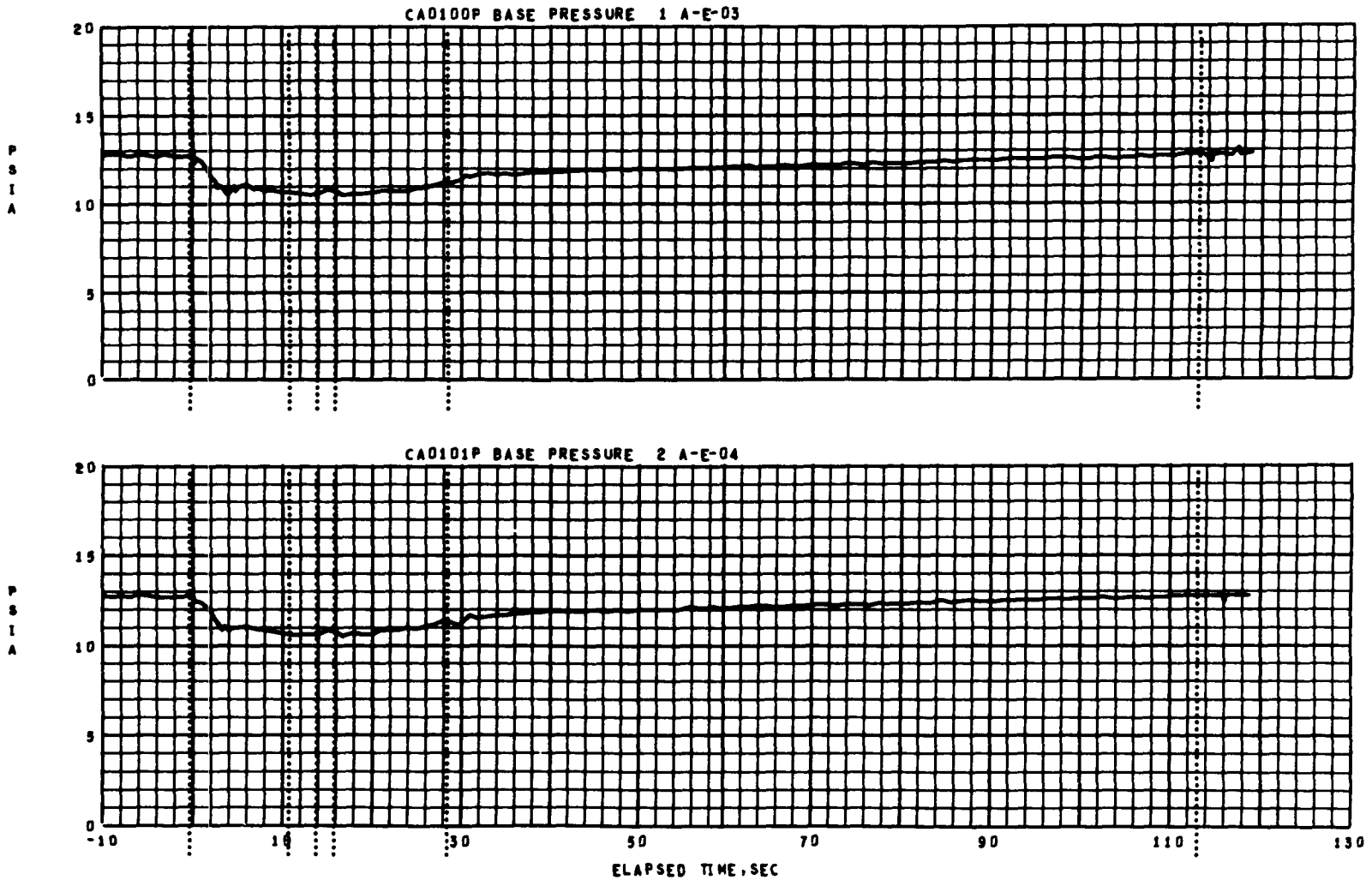

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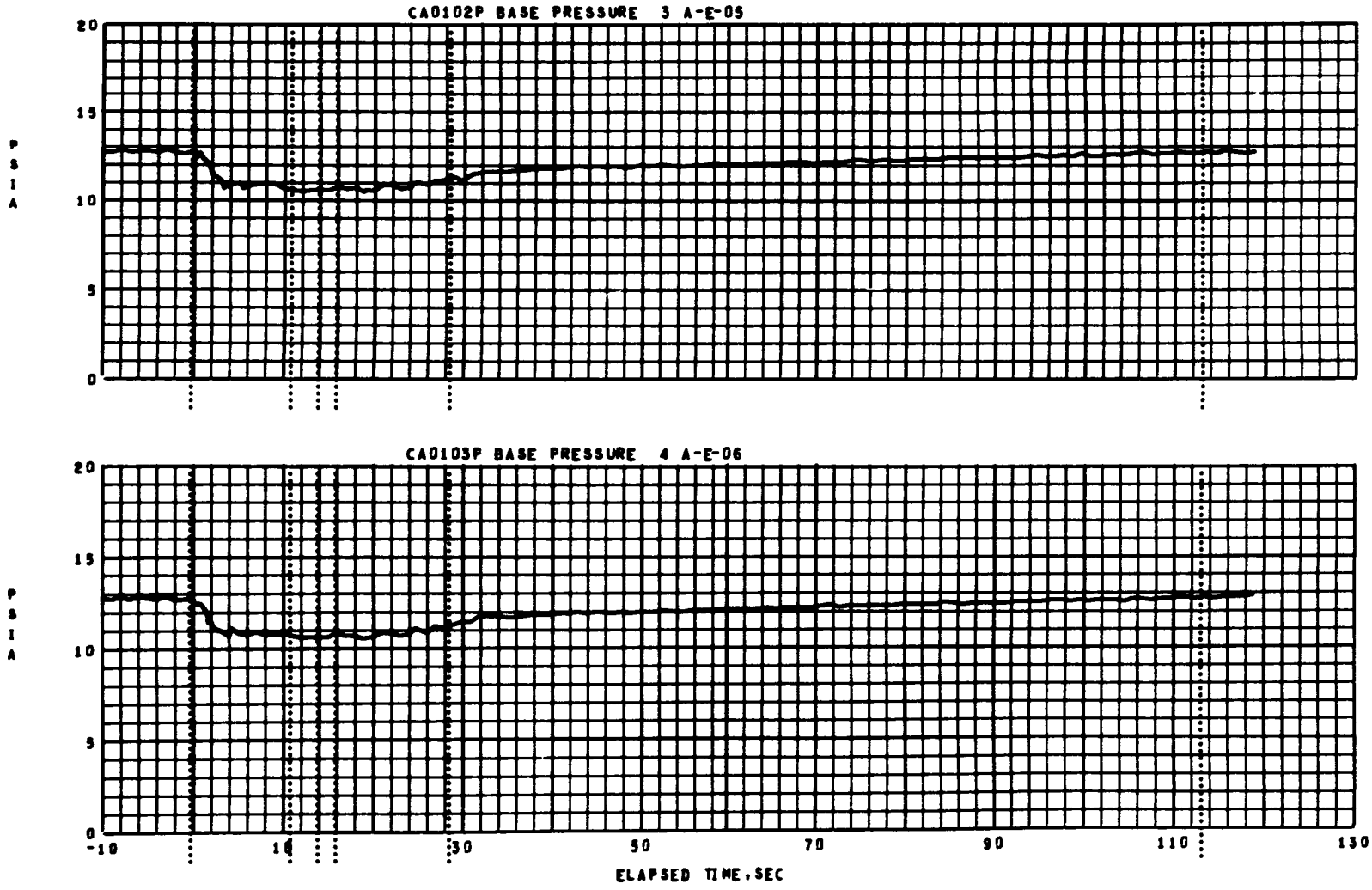

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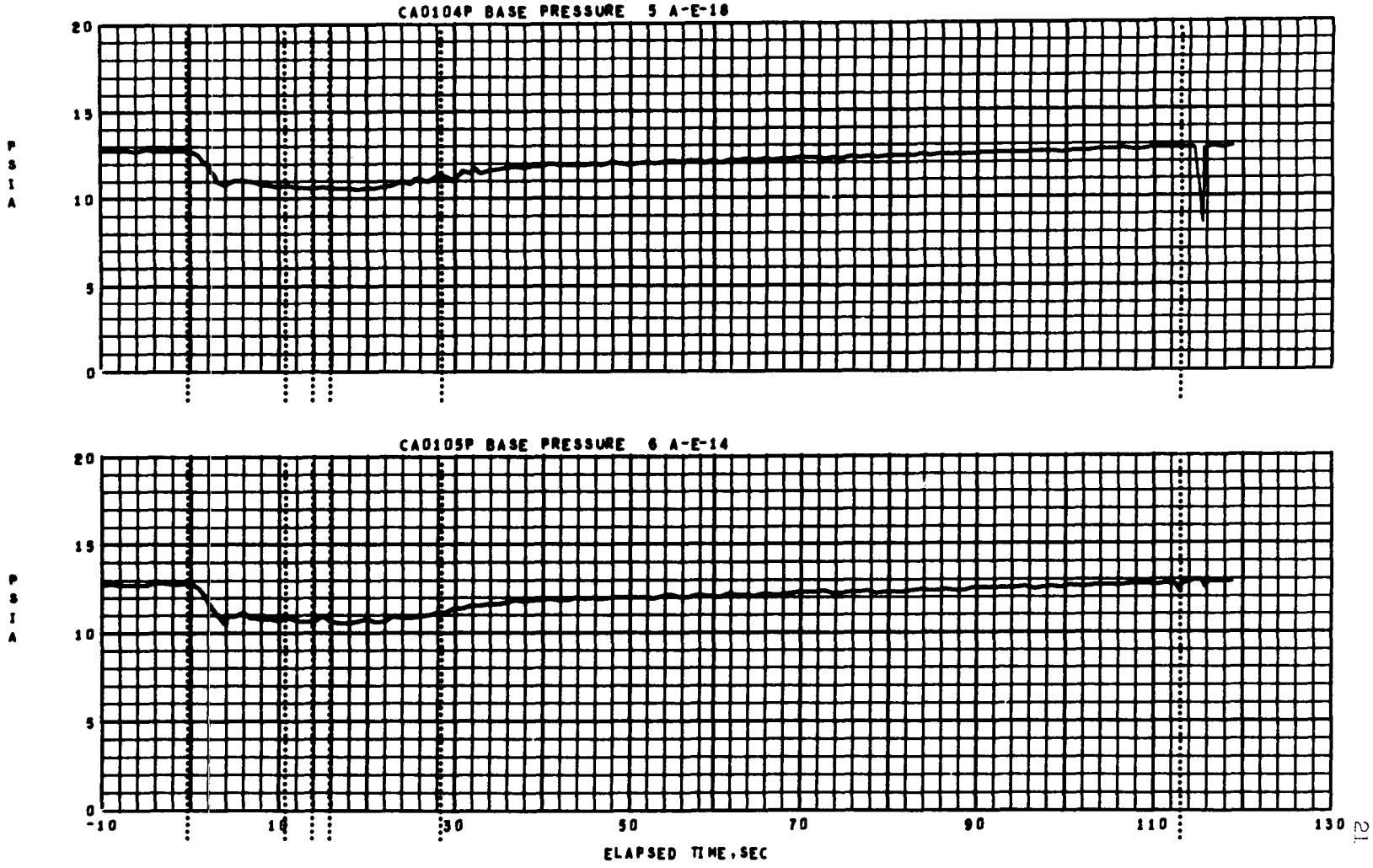

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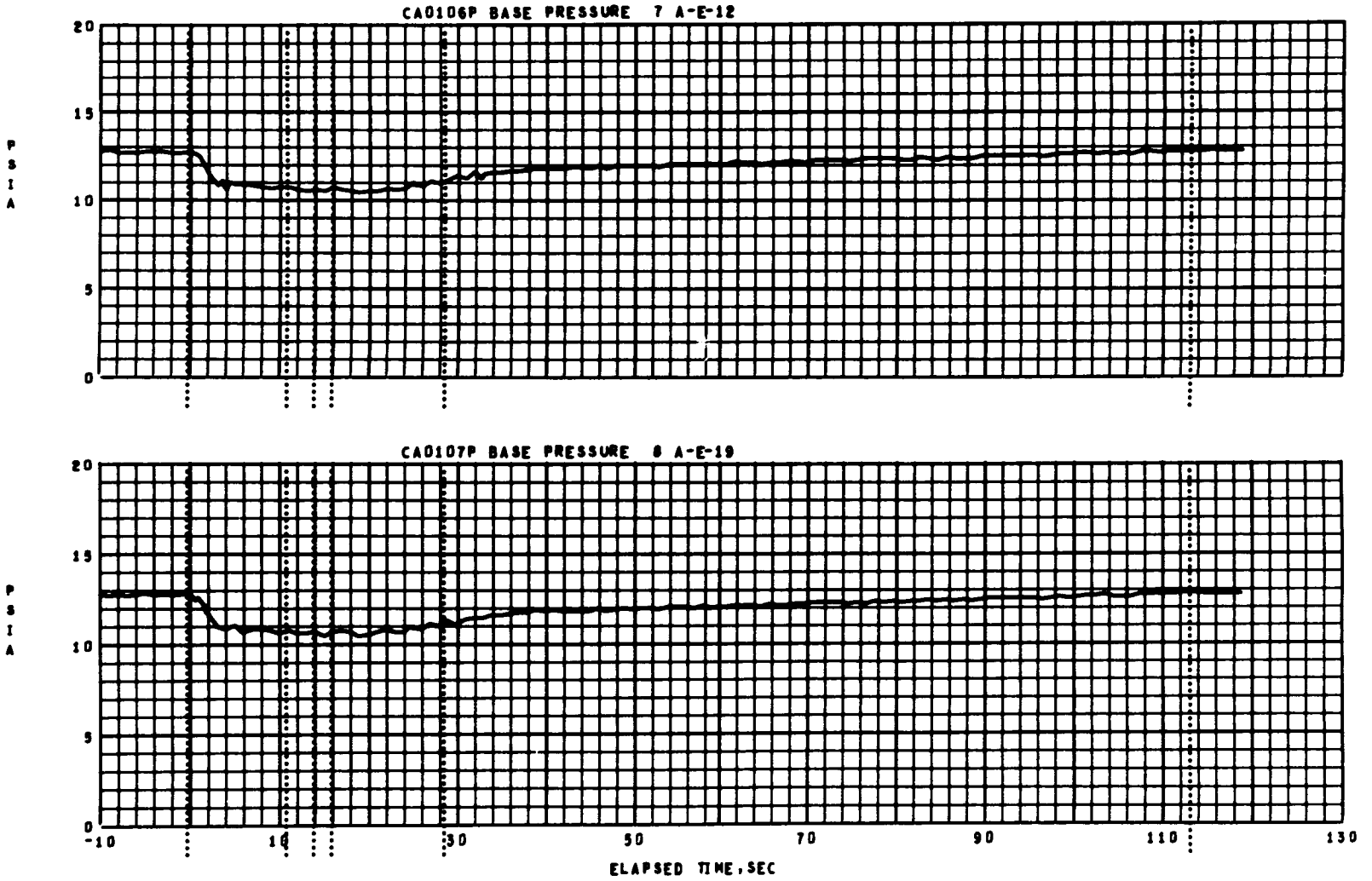

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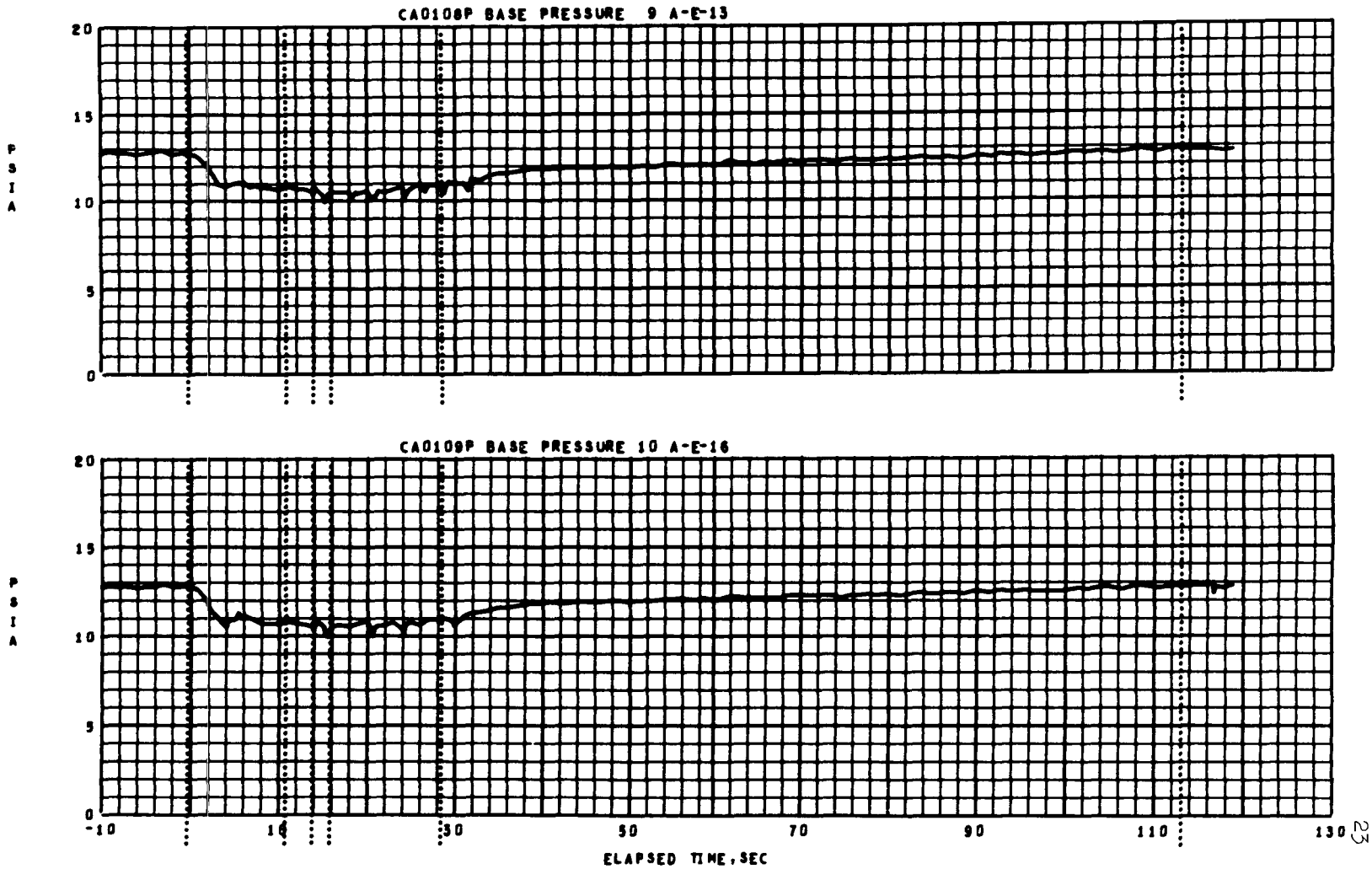

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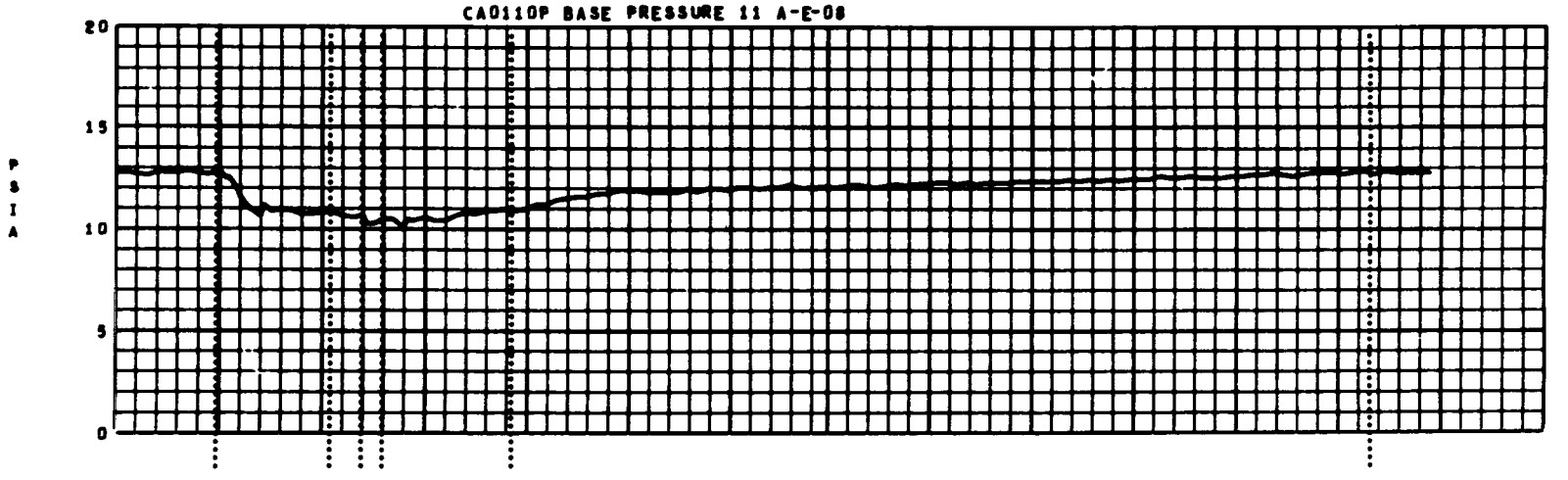

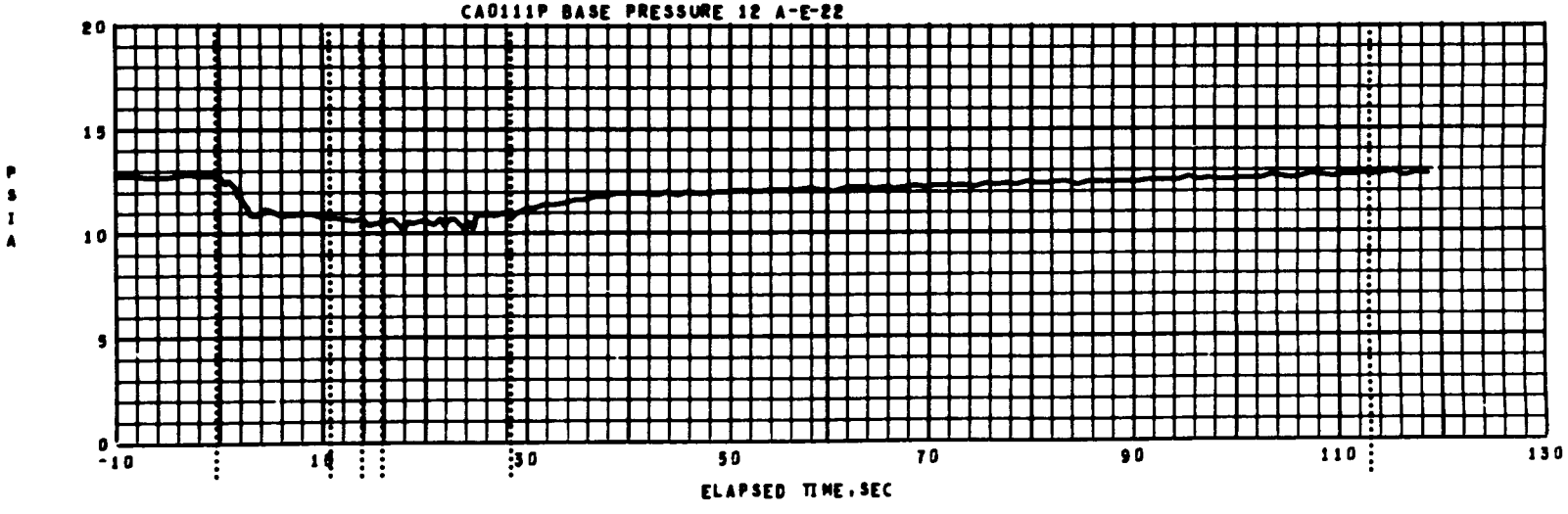

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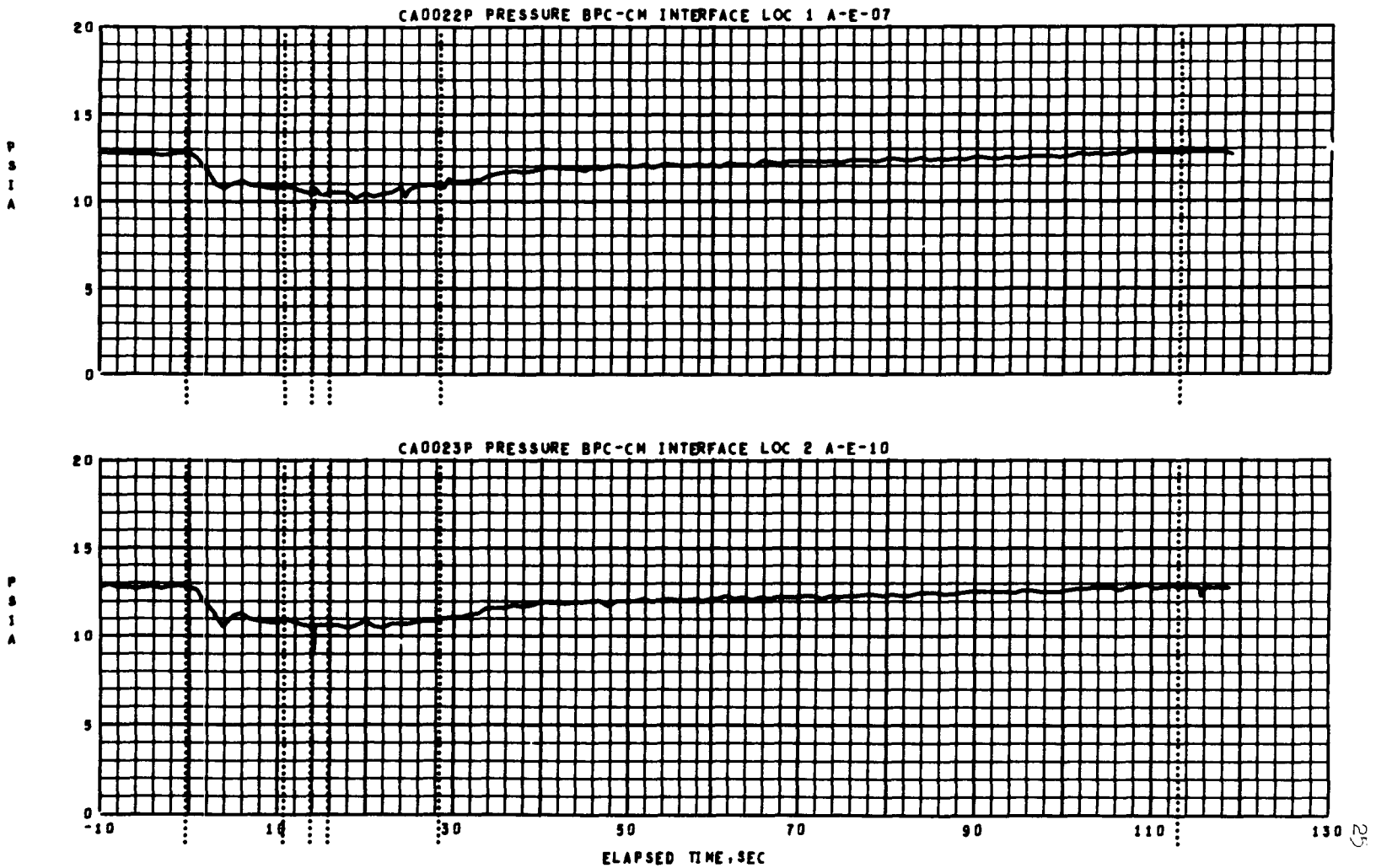

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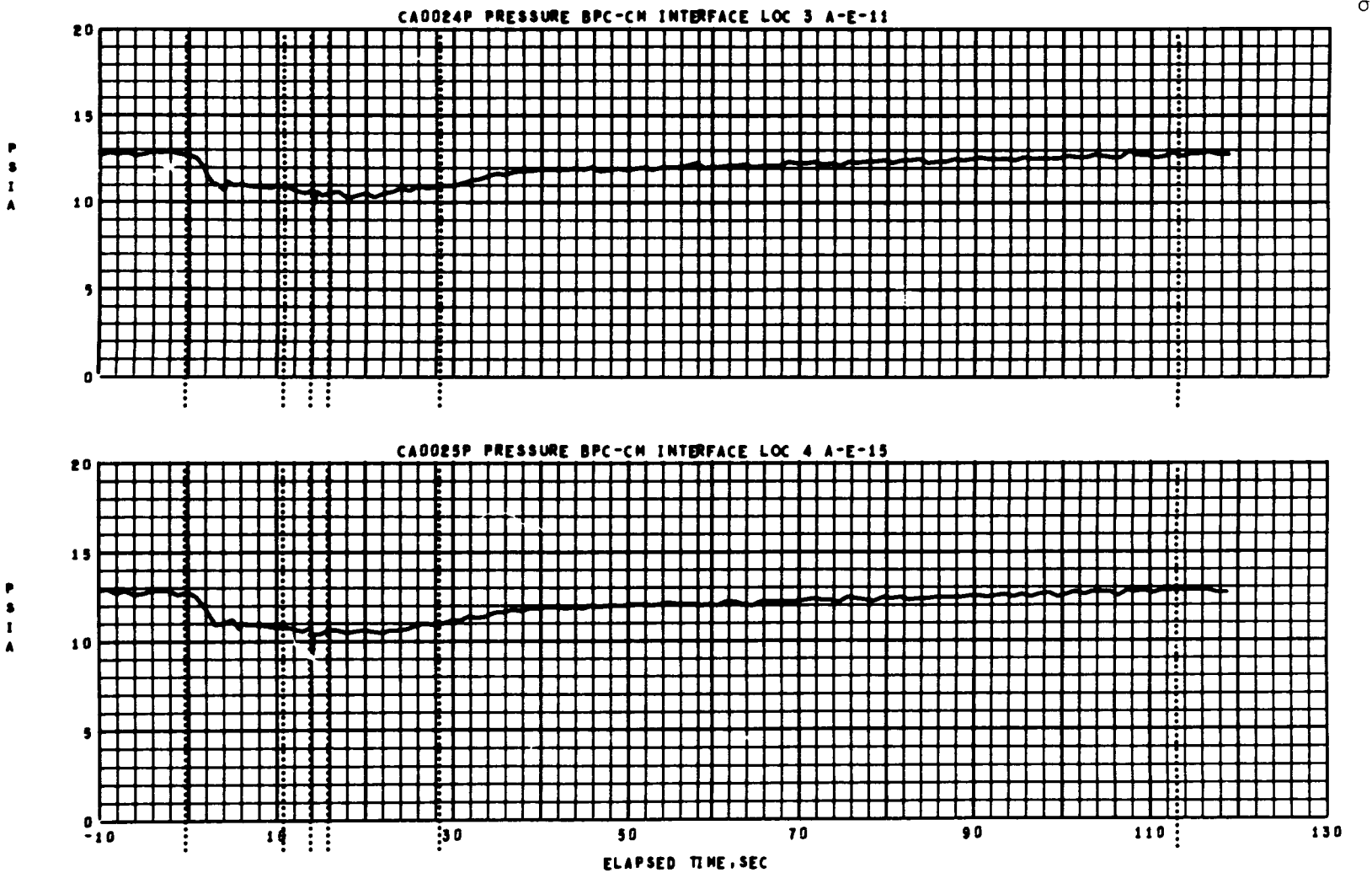

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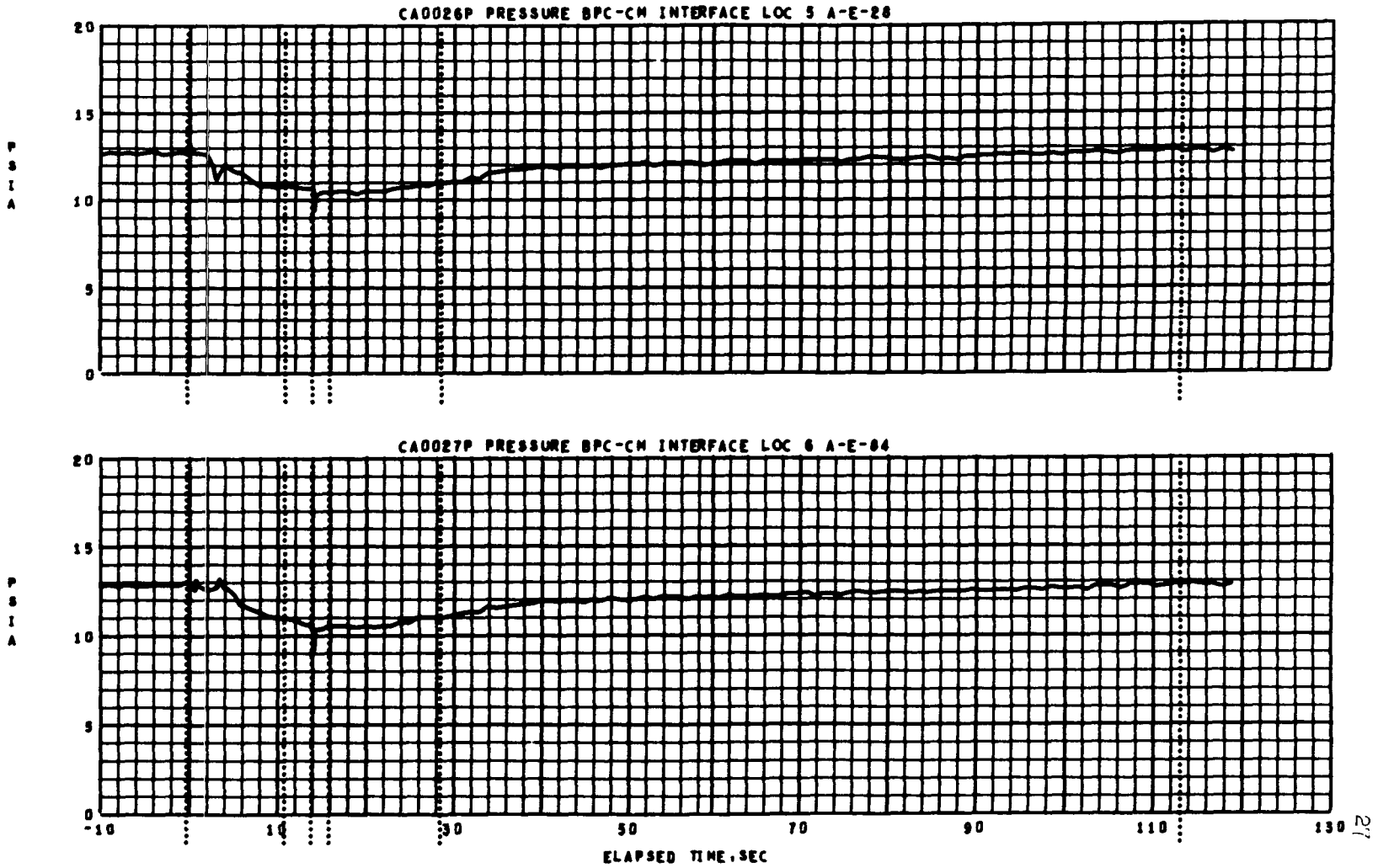

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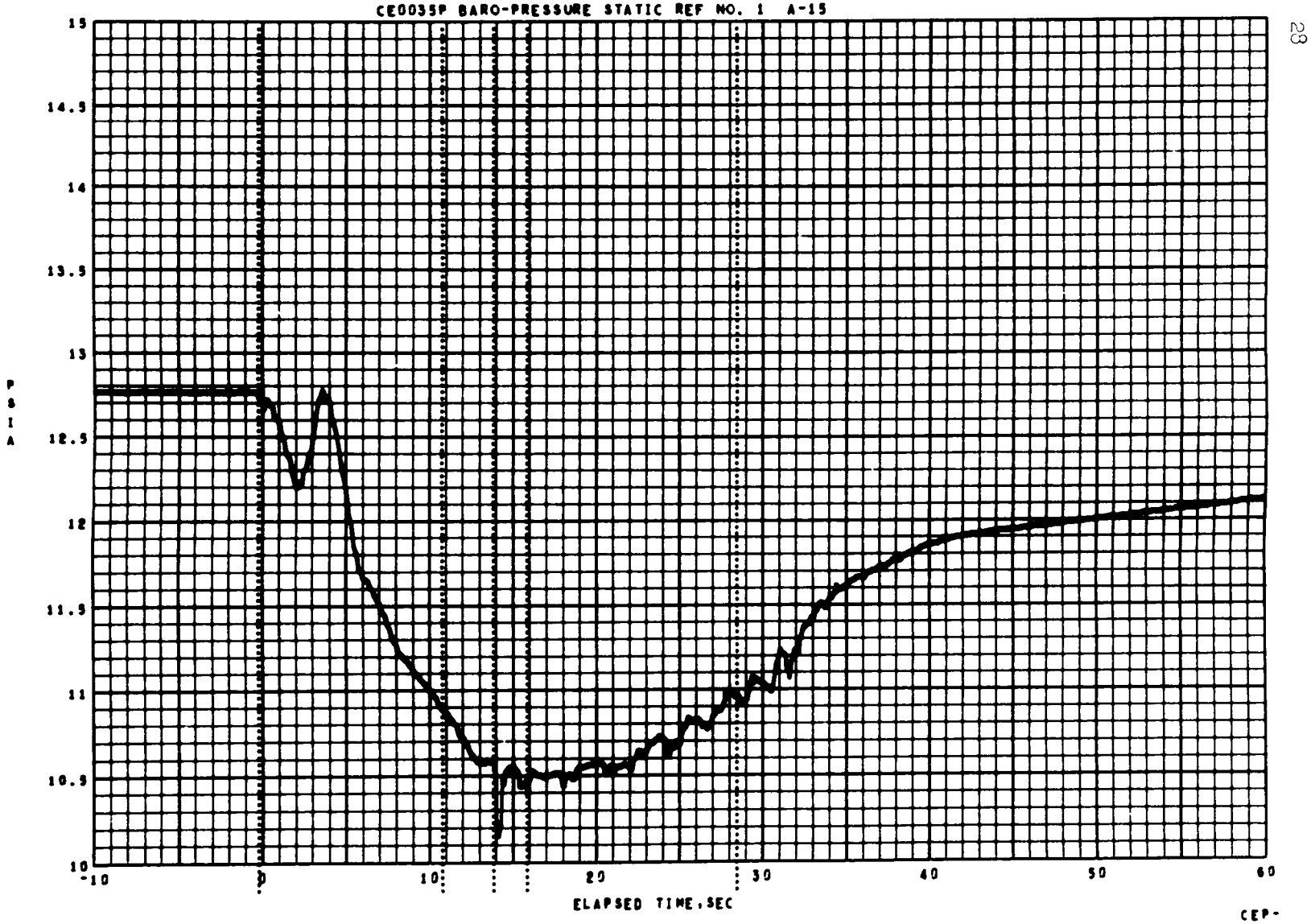

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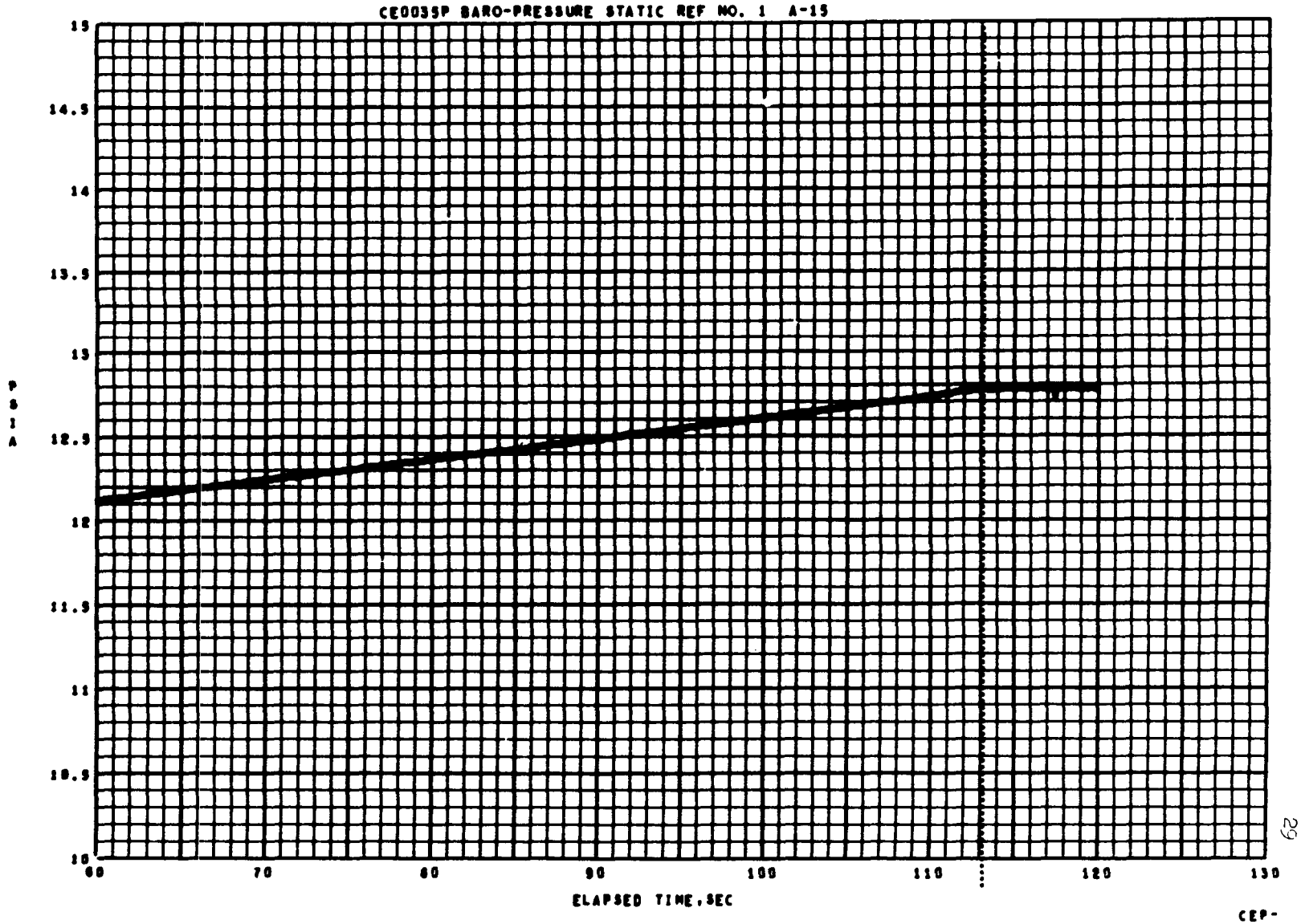

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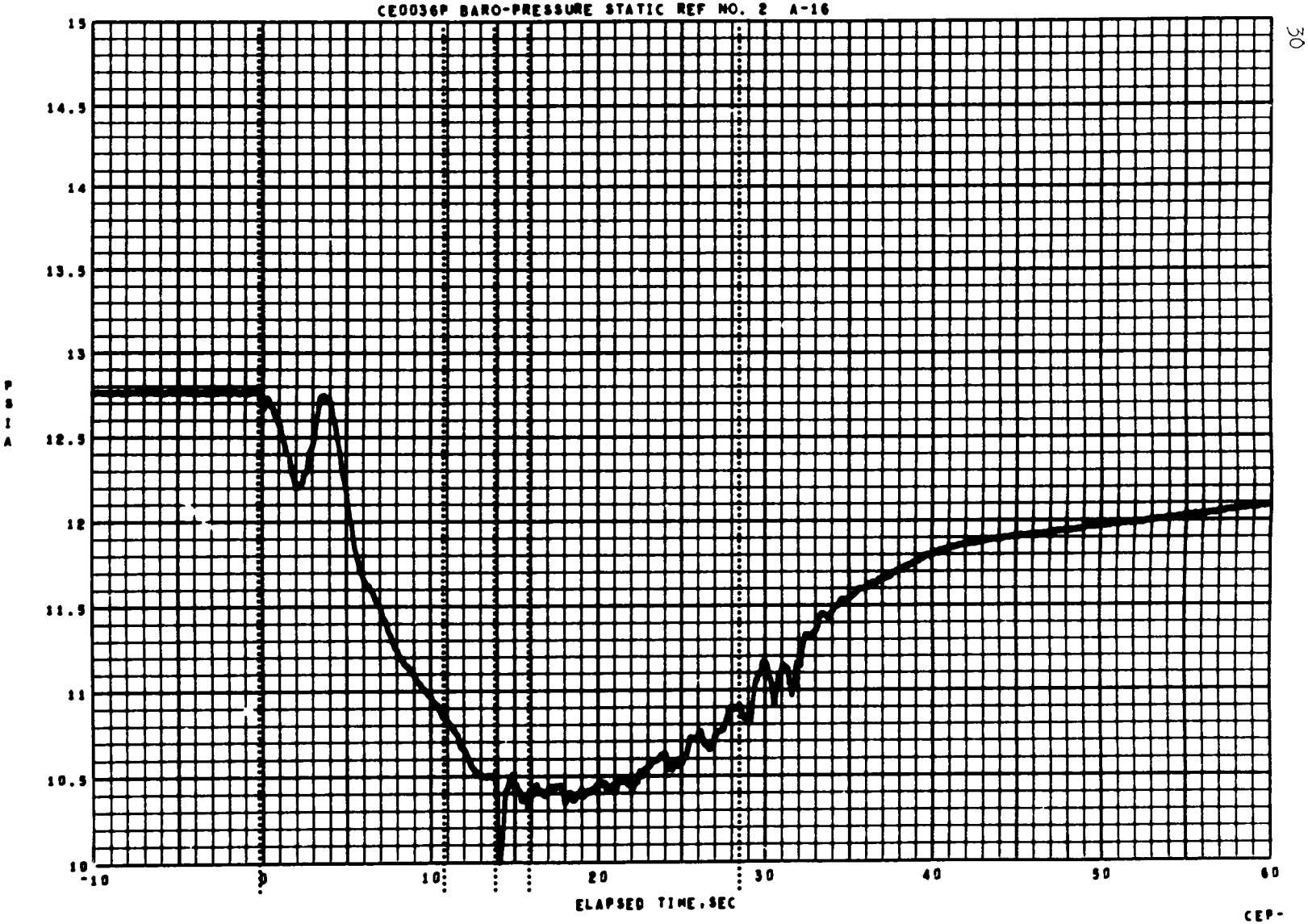
APOLLO BP-23A SC 29 JUNE 65 REVISION NO. 1

CE0036P BARO-PRESSURE STATIC REF NO. 2 A-16

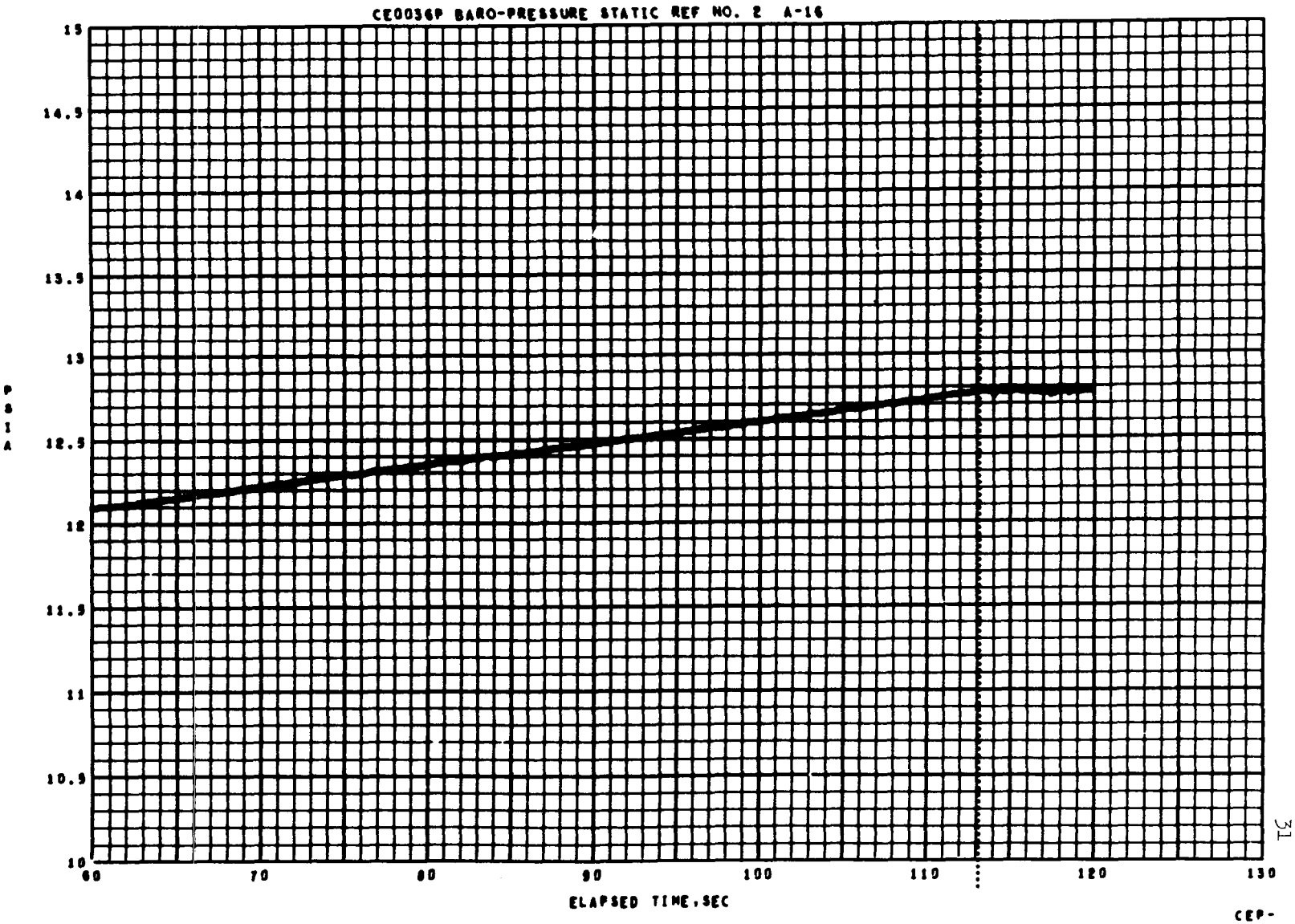


CEP- 9

30

113.20 SEC LANDING

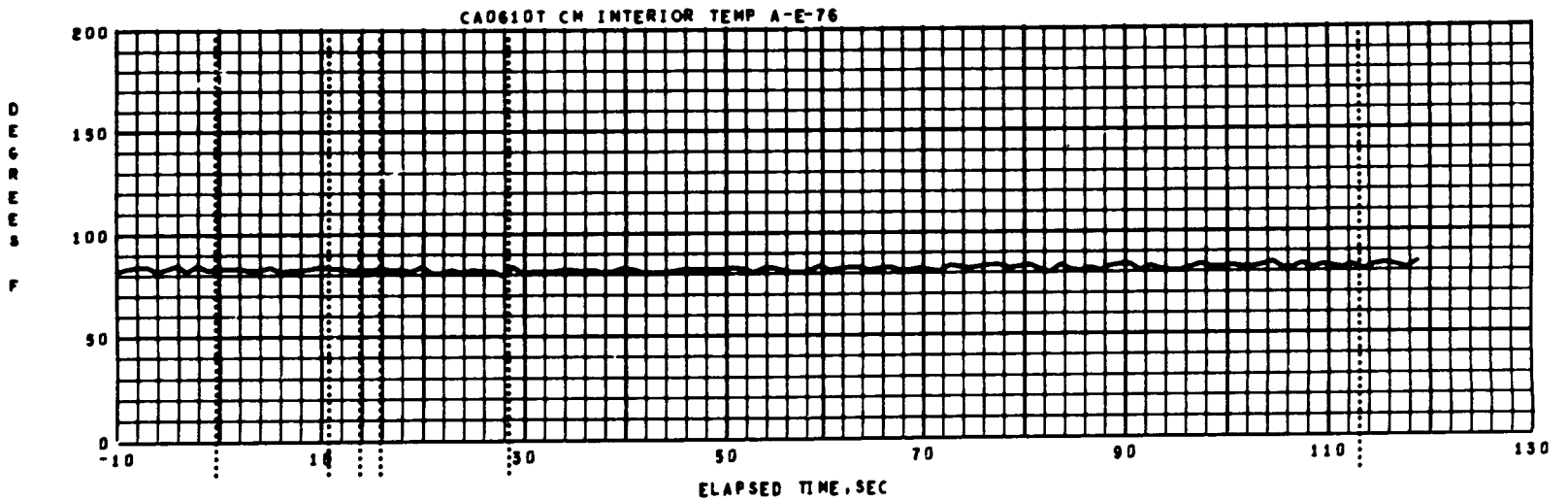
APOLLO BP-23A SC 29 JUNE 65 REVISION NO. 1



CEP- 10

-0.15 SEC SEQUENCER START
10.85 SEC CANARD DEPLOY
13.95 SEC TOWER JETTISON
15.95 SEC DROGUE DEPLOY
28.55 SEC CHUTE DEPLOY
113.20 SEC LANDING

APOLLO BP-23A SC 29 JUNE 65



CAT- 1

-0.15 SEC SEQUENCER START
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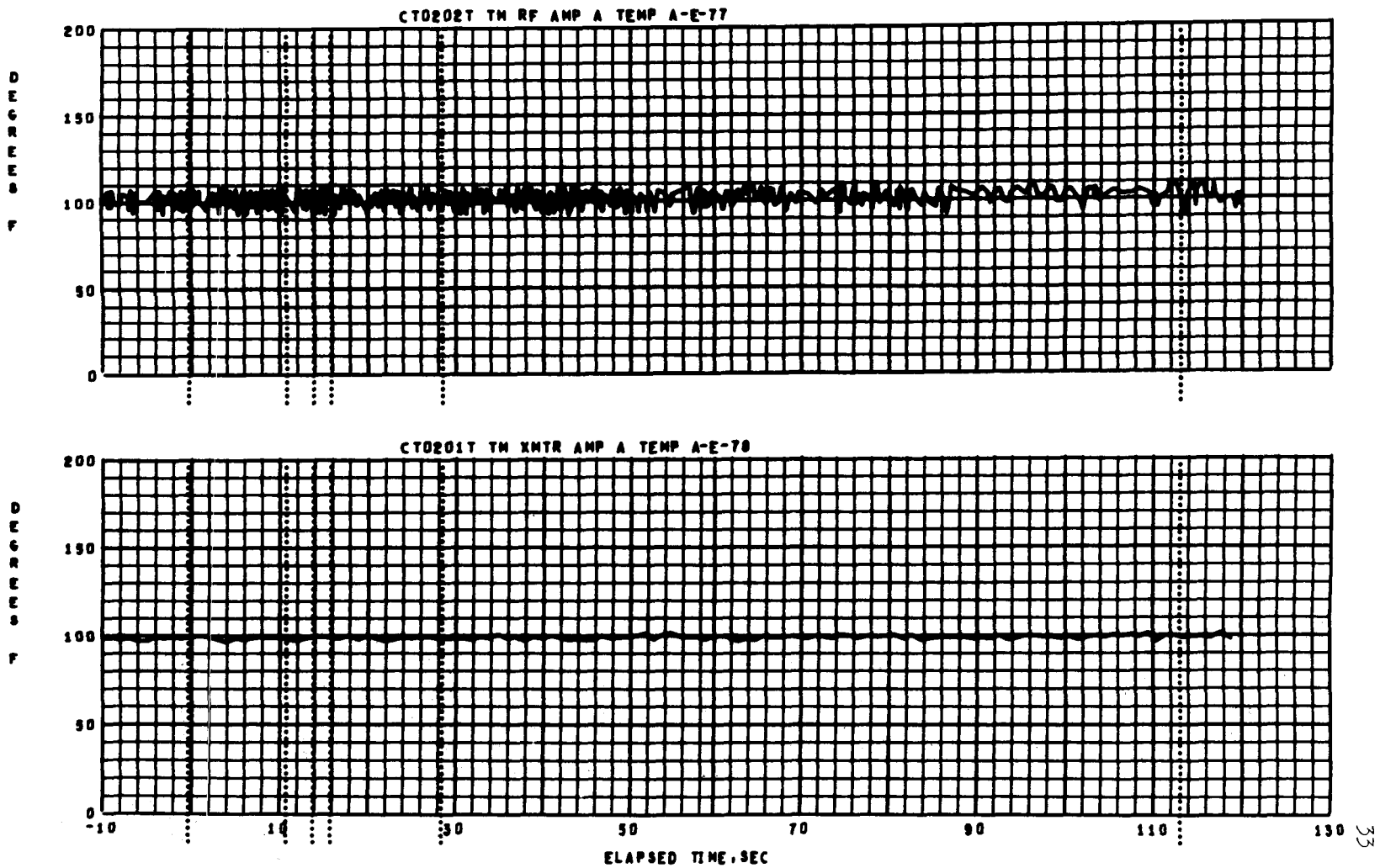
15.95 SEC DROGUE DEPLOY
28.55 SEC CHUTE DEPLOY
113.20 SEC LANDING

APOLLO BP-23A SC 29 JUNE 65



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CTT- 1

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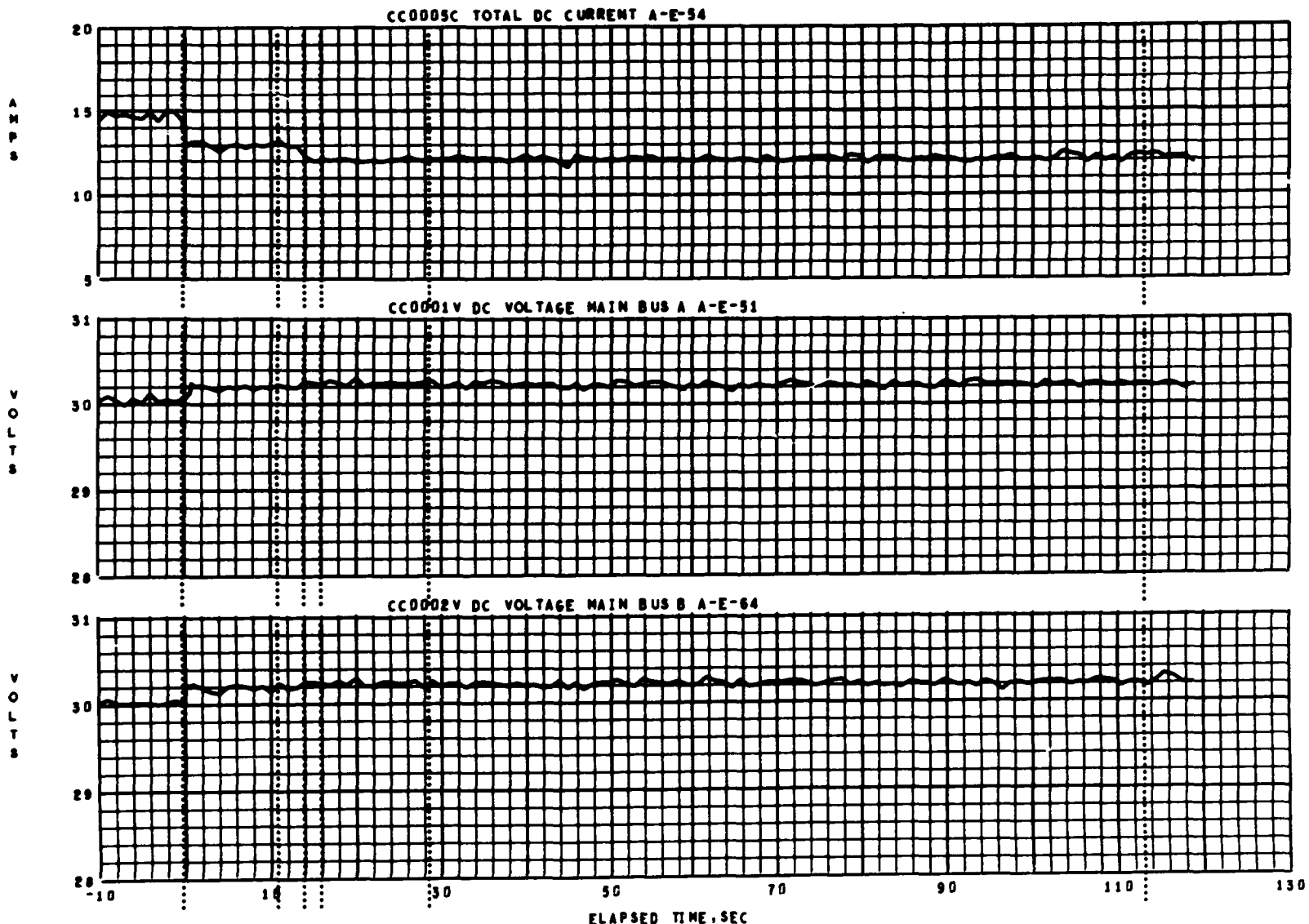
15.95 SEC DROGUE DEPLOY
28.55 SEC CHUTE DEPLOY
113.20 SEC LANDING

APOLLO BP-23A SC 29 JUNE 65



CCC-V- 1

34

-0.15 SEC SEQUENCER START
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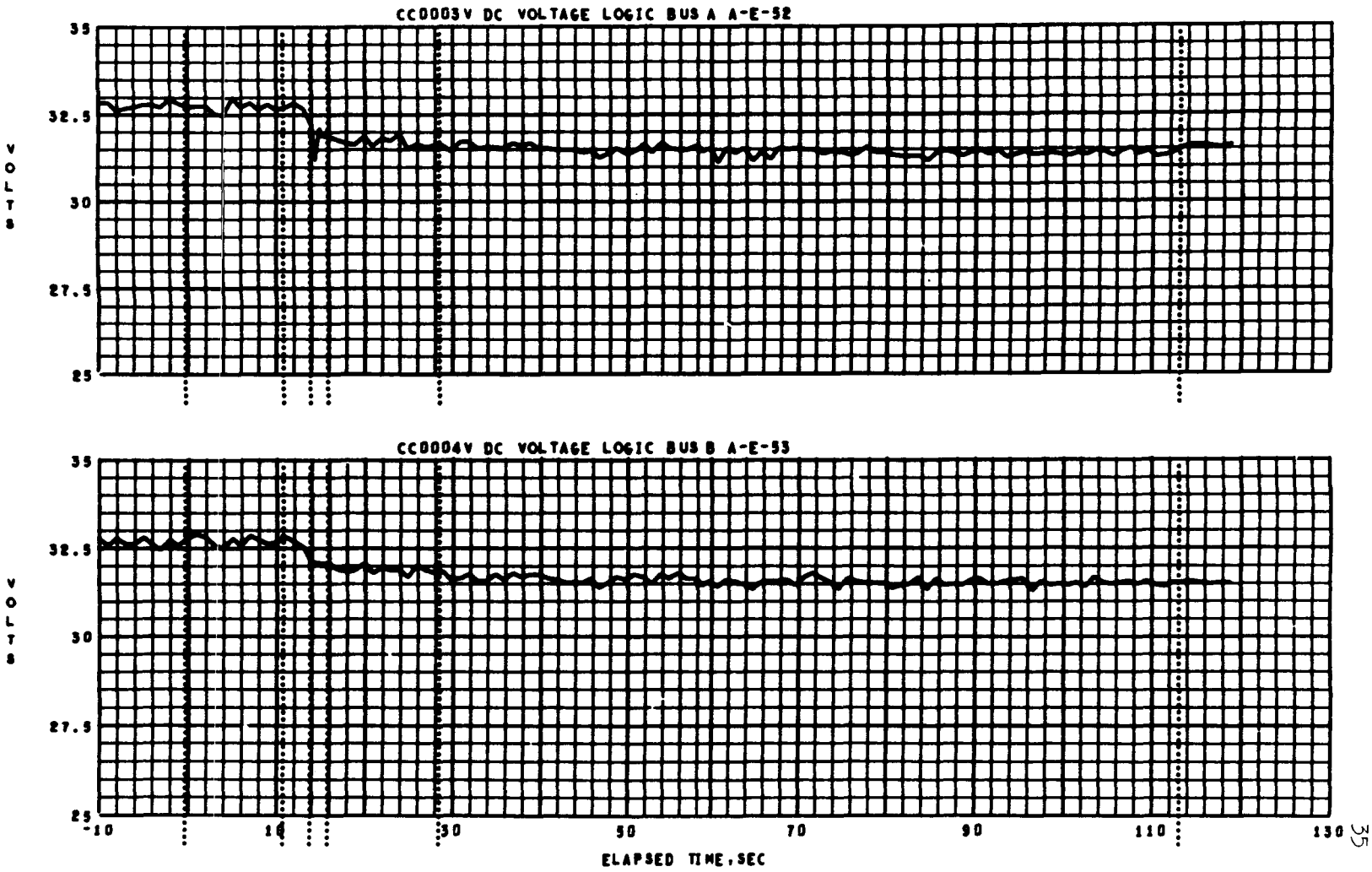
15.95 SEC DROGUE DEPLOY
26.55 SEC CHUTE DEPLOY
113.20 SEC LANDING

APOLLO BP-23A SC 29 JUNE 65



CCV- 1

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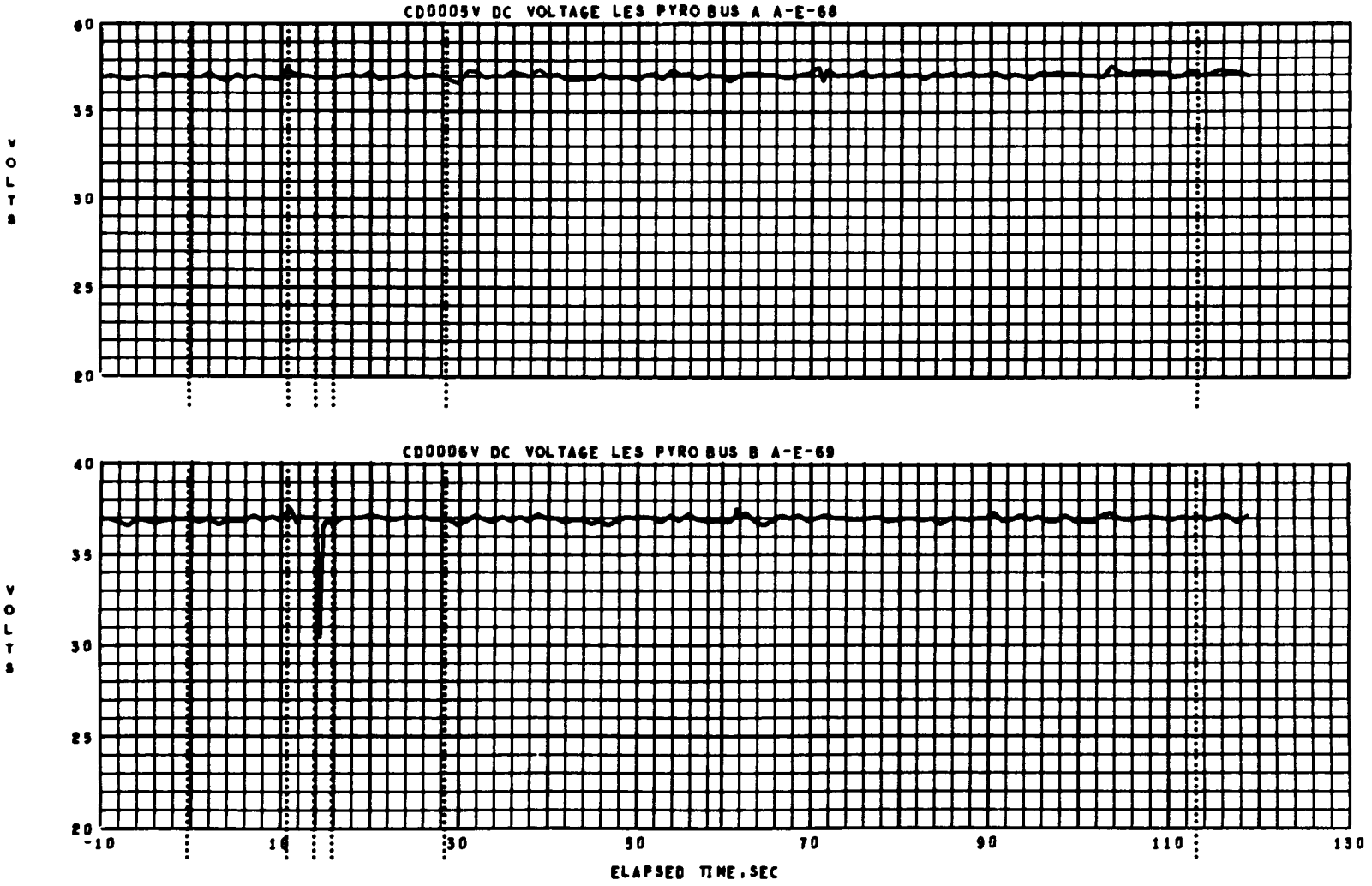
28.55 SEC CHUTE DEPLOY
113.20 SEC LANDING

APOLLO BP-23A SC 29 JUNE 65



CDV- 1

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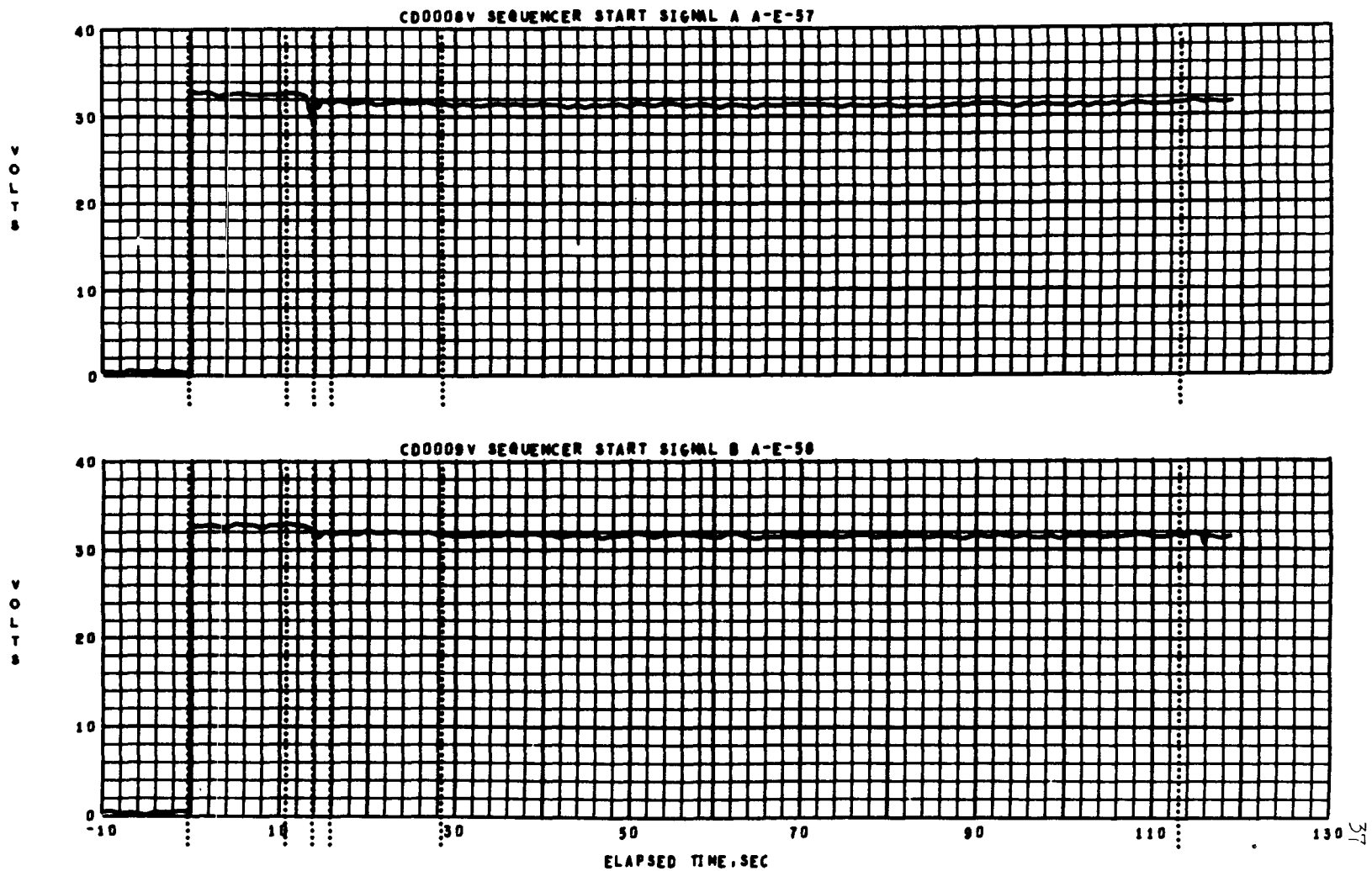
113.20 SEC LANDING

APOLLO BP-23A SC 29 JUNE 65



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CDV- 2

-0.15 SEC SEQUENCER START
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15.95 SEC DROGUE DEPLOY
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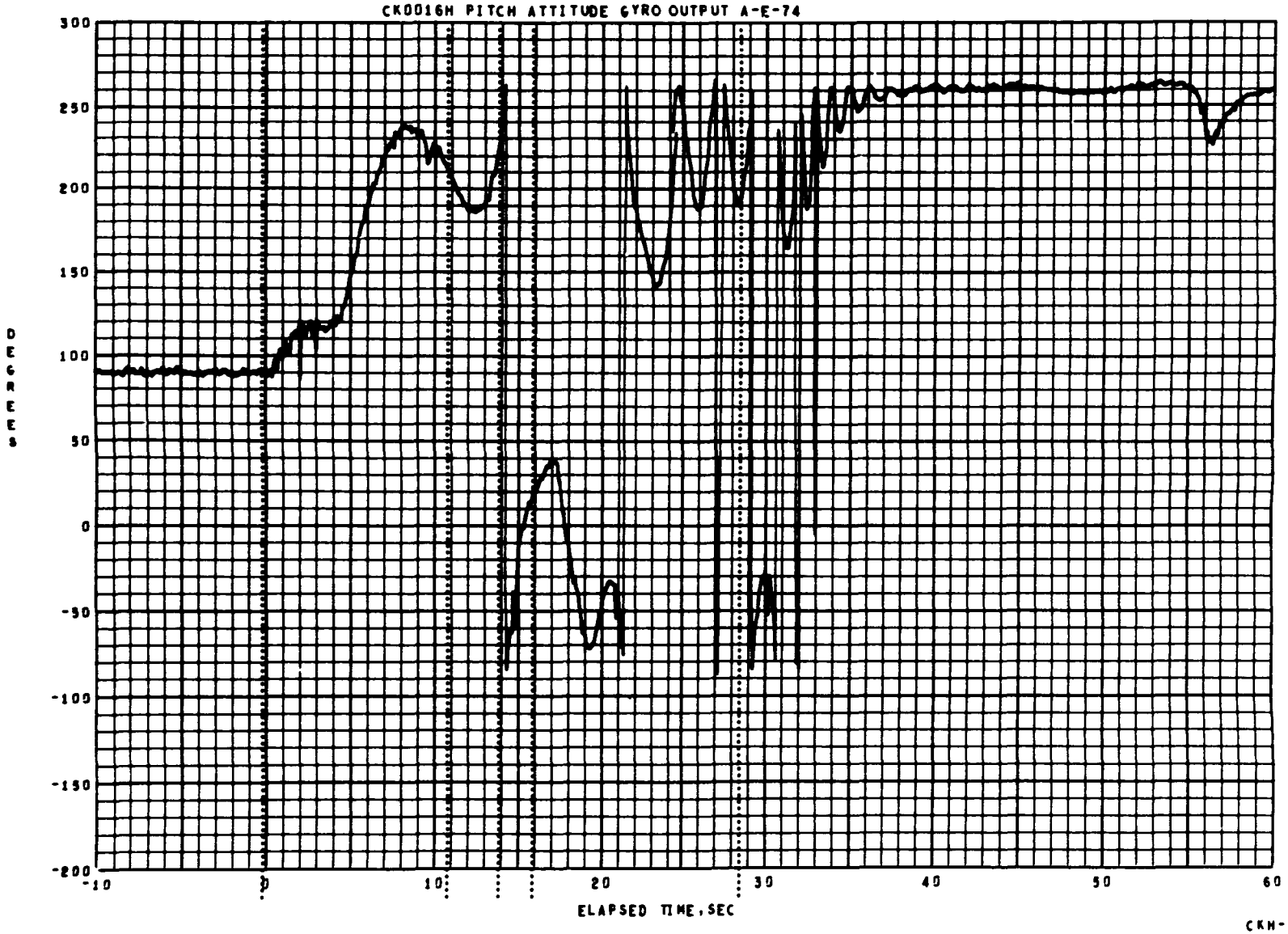
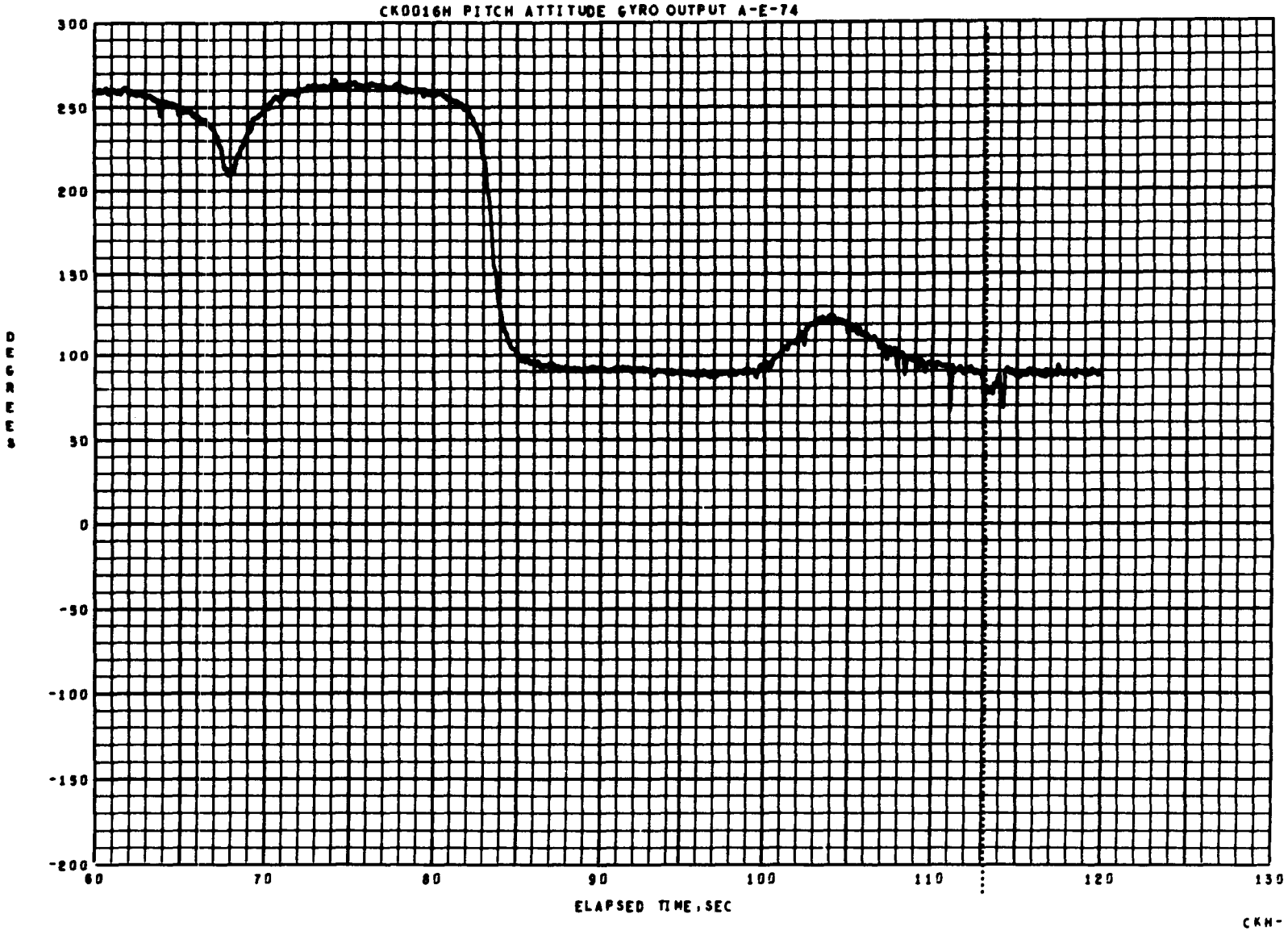
APOLLO BP- 23A SC 29 JUNE 65



CKH- 1

113.20 SEC LANDING

APOLLO BP- 23A SC 29 JUNE 65



39

CKH- 2

-0.15 SEC SEQUENCER START
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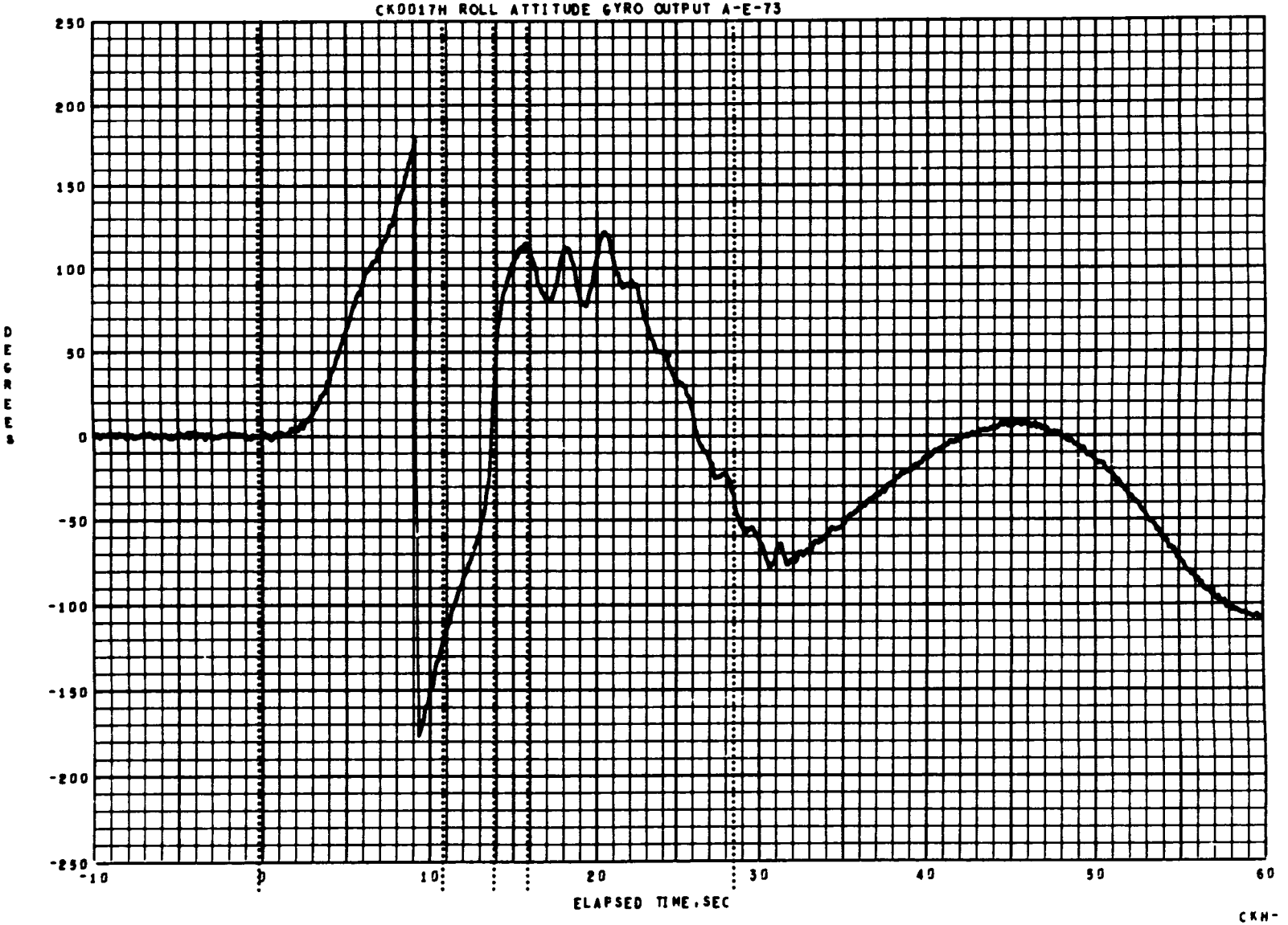
13.95 SEC TOWER JETTISON
15.95 SEC DROGUE DEPLOY
28.55 SEC CHUTE DEPLOY

APOLLO BP- 23A SC 29 JUNE 65

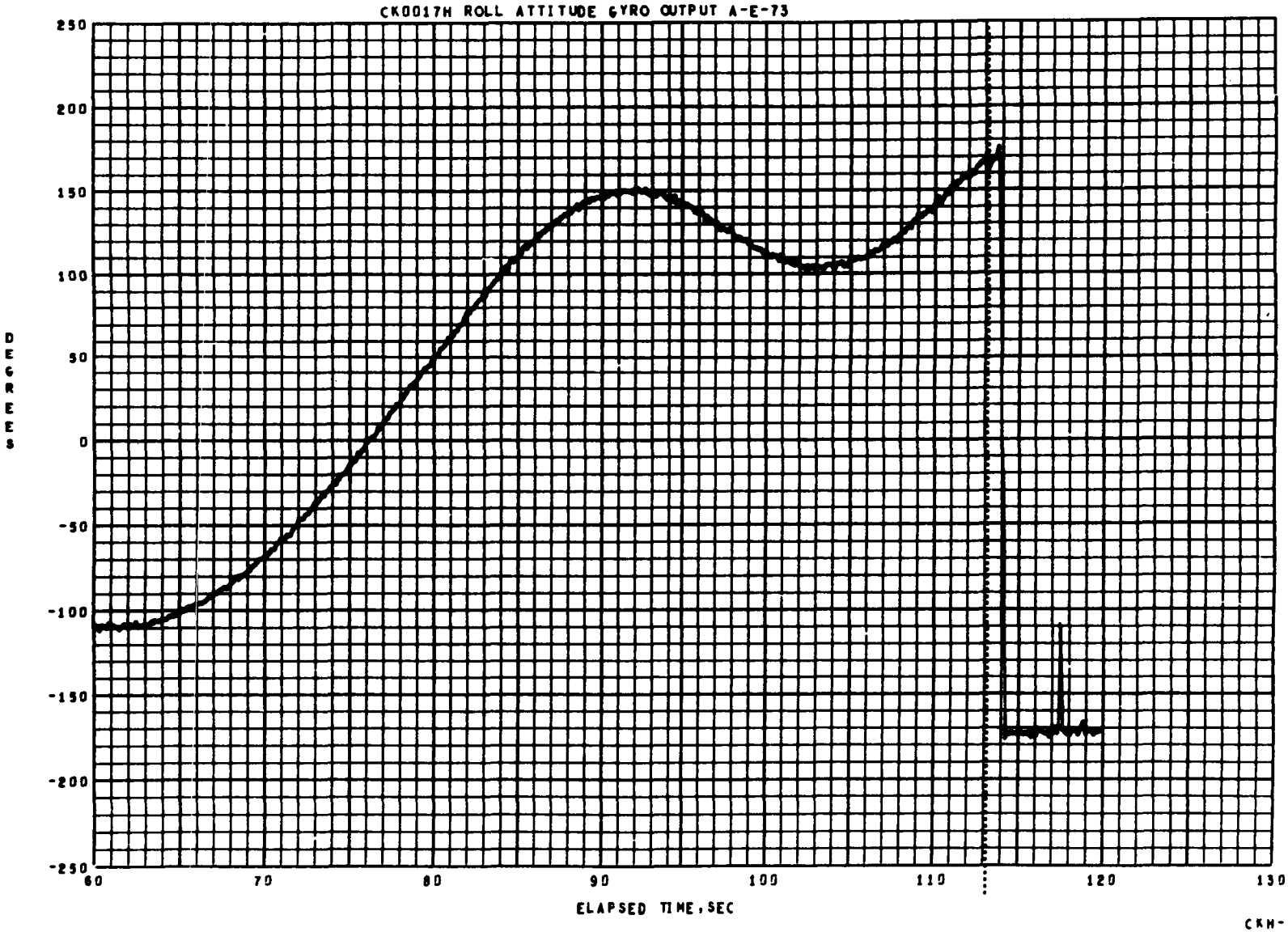
CK0017H ROLL ATTITUDE GYRO OUTPUT A-E-73



CKH- 3

113.20 SEC LANDING

APOLLO BP- 23A SC 29 JUNE 65



CKH- 4

41

-0.15 SEC SEQUENCER START
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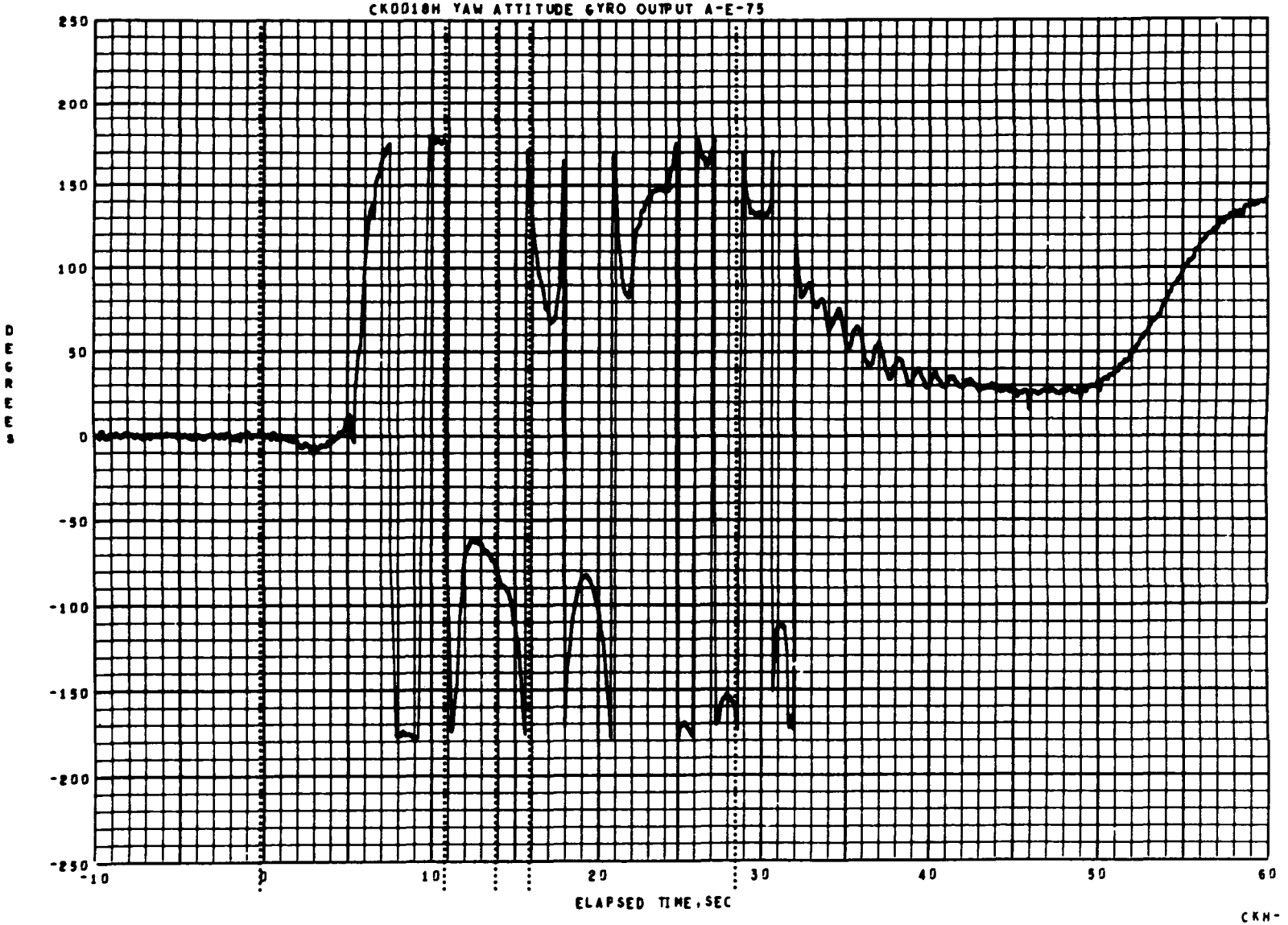
15.95 SEC DROGUE DEPLOY
28.55 SEC CHUTE DEPLOY

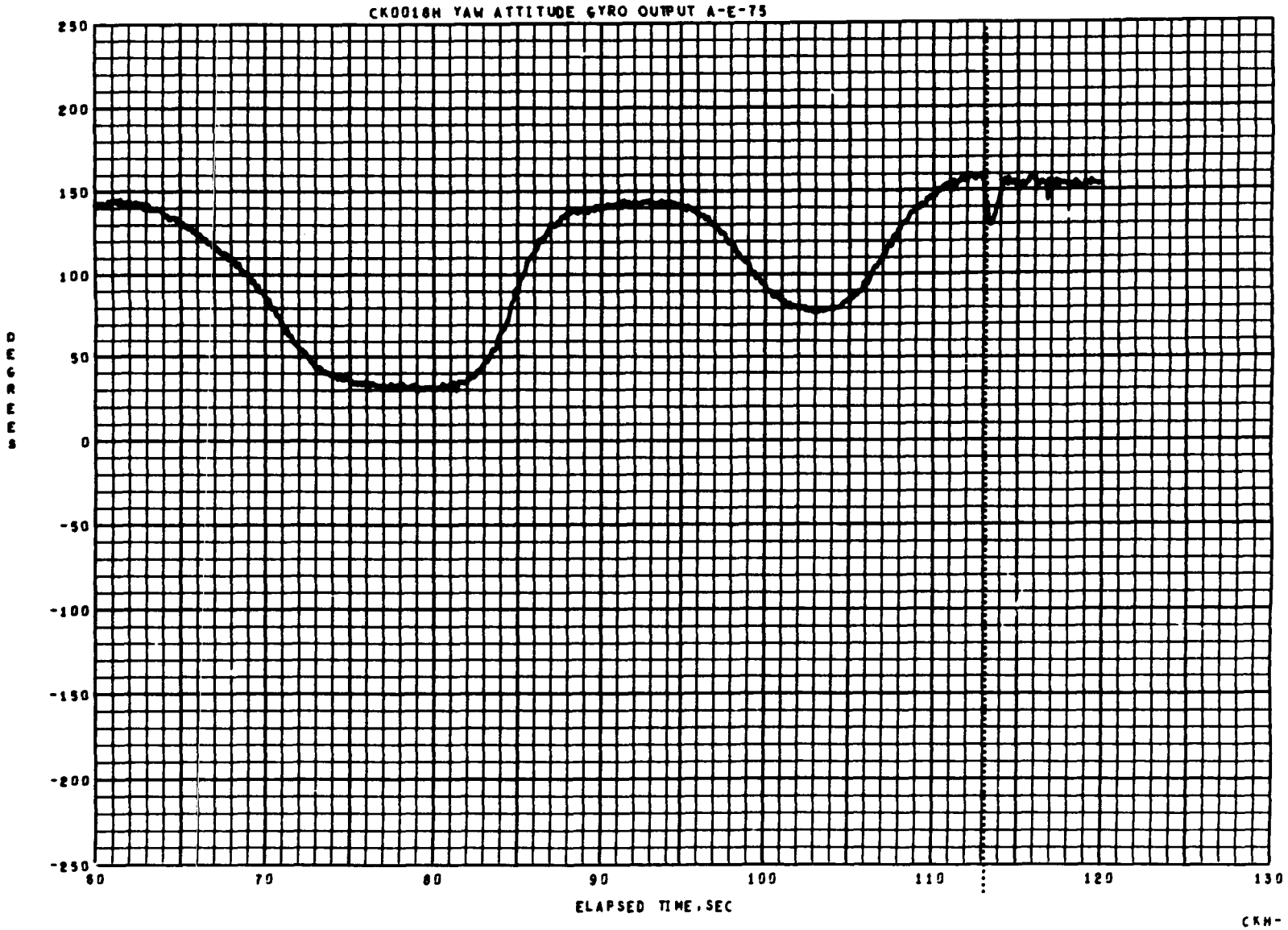
APOLLO BP- 23A SC 29 JUNE 65



CKH- 5

113.20 SEC LANDING

APOLLO BP- 23A SC 29 JUNE 65



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CKH- 6

-0.15 SEC SEQUENCER START
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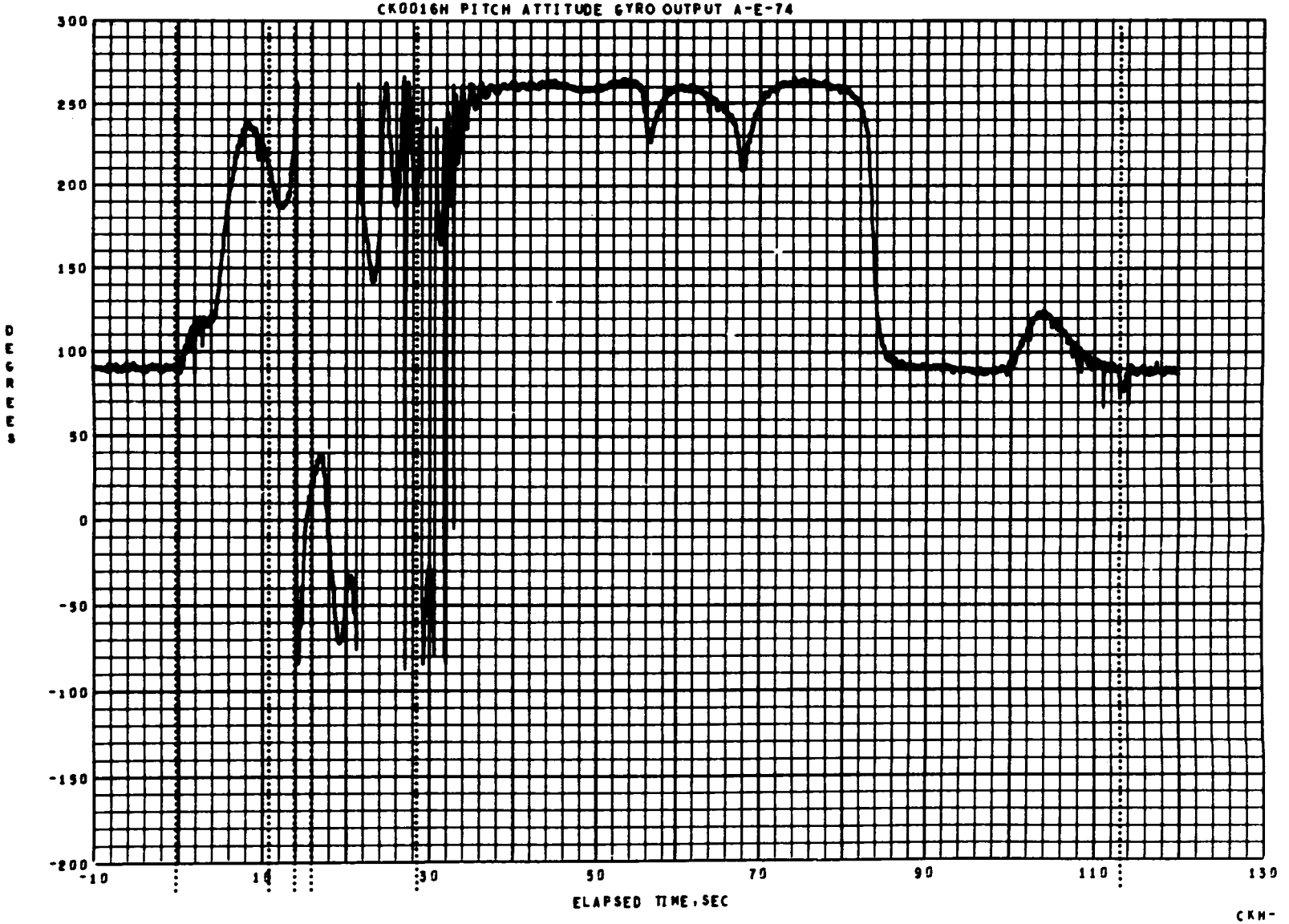
15.95 SEC DROGUE DEPLOY
28.55 SEC CHUTE DEPLOY
113.20 SEC LANDING

APOLLO BP- 23A SC 29 JUNE 65

CK0016H PITCH ATTITUDE GYRO OUTPUT A-E-74



CKH- 7

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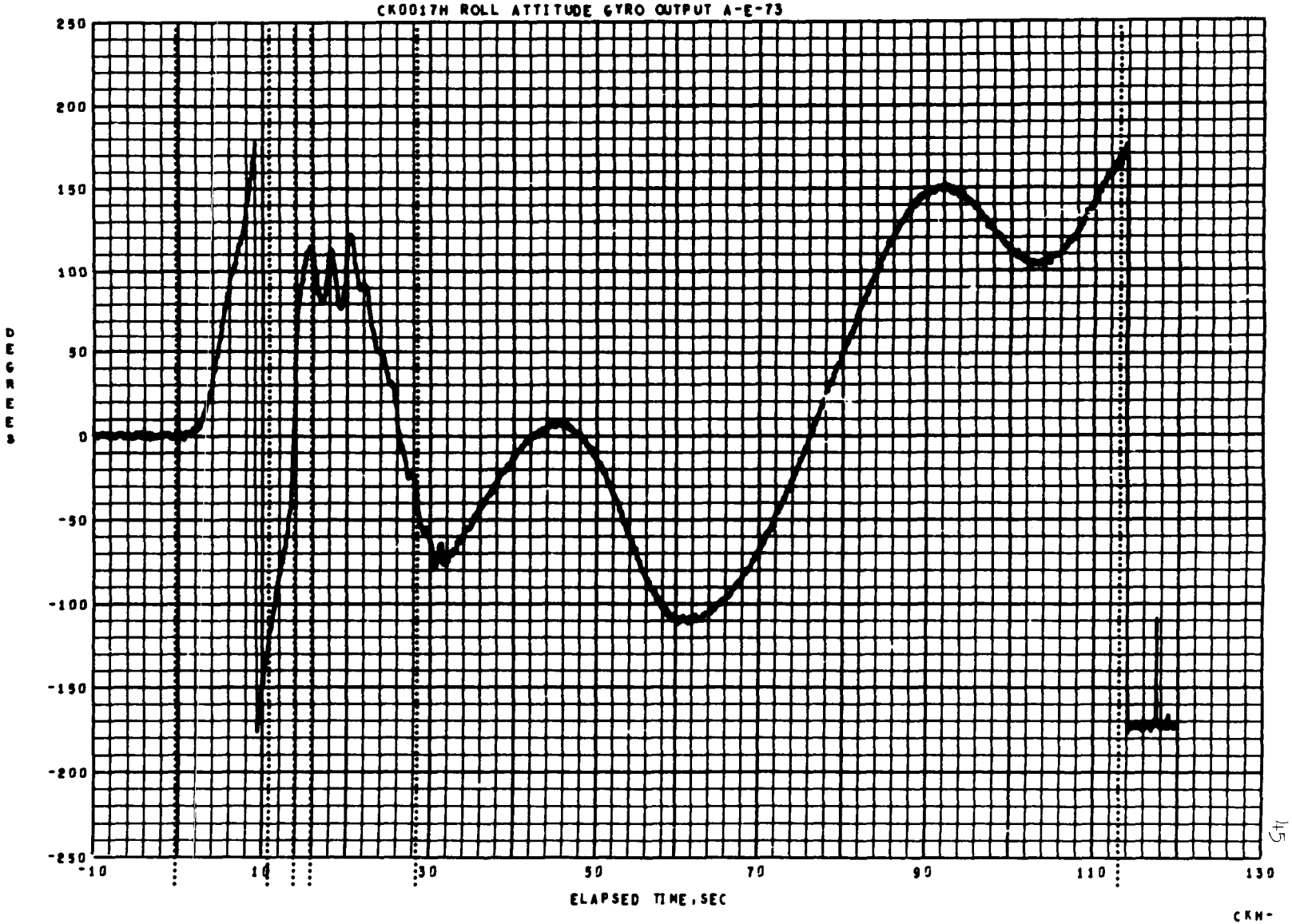
13.95 SEC TOWER JETTISON
15.95 SEC DROGUE DEPLOY
28.55 SEC CHUTE DEPLOY
113.20 SEC LANDING

APOLLO BP- 23A SC 29 JUNE 65

CK0017H ROLL ATTITUDE GYRO OUTPUT A-E-73



CKH- 8

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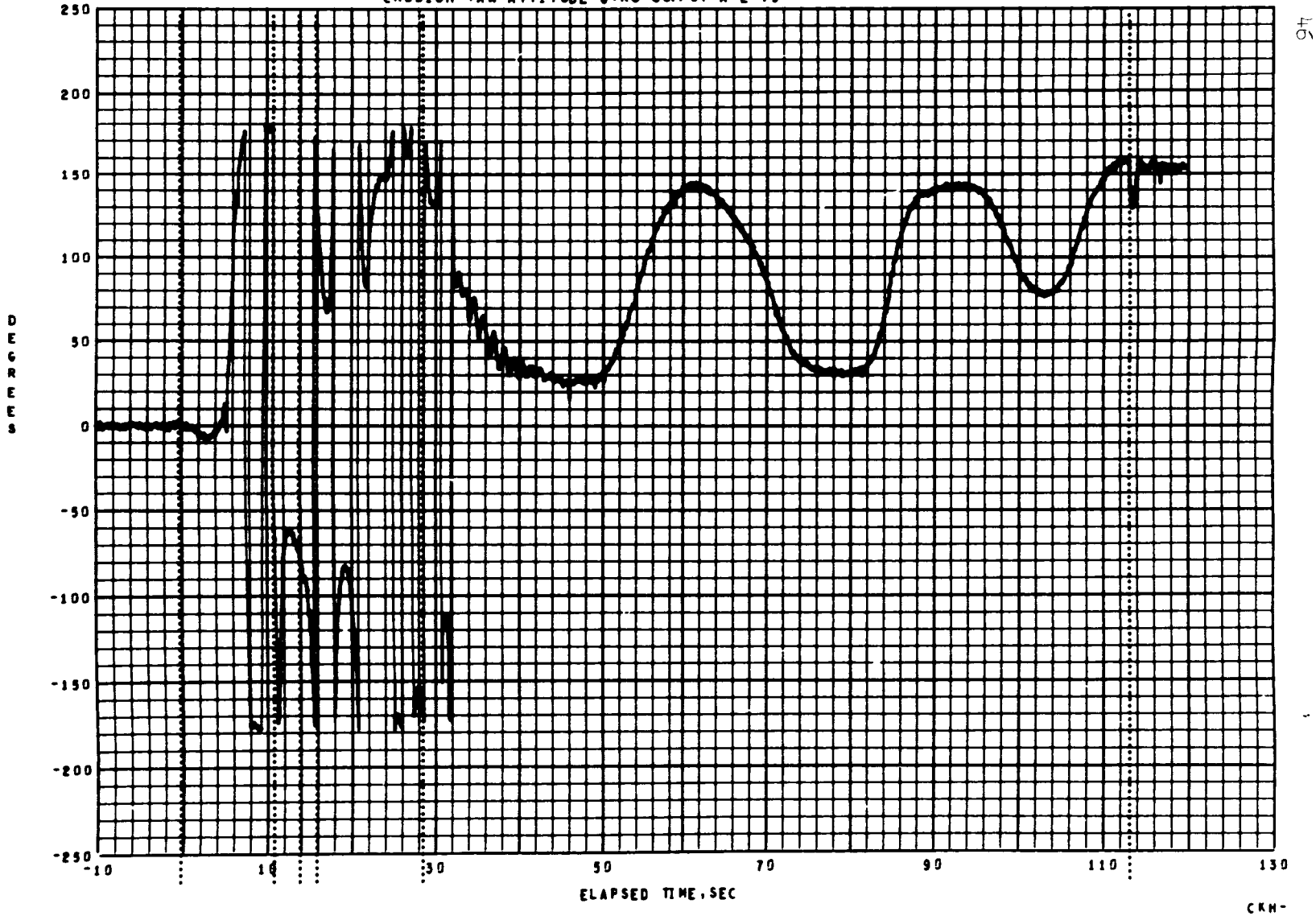
13.95 SEC TOWER JETTISON
15.95 SEC DROGUE DEPLOY
28.55 SEC CHUTE DEPLOY
113.20 SEC LANDING

APOLLO BP- 23A SC 29 JUNE 65

CK0018H YAW ATTITUDE GYRO OUTPUT A-E-75



CKH- 9

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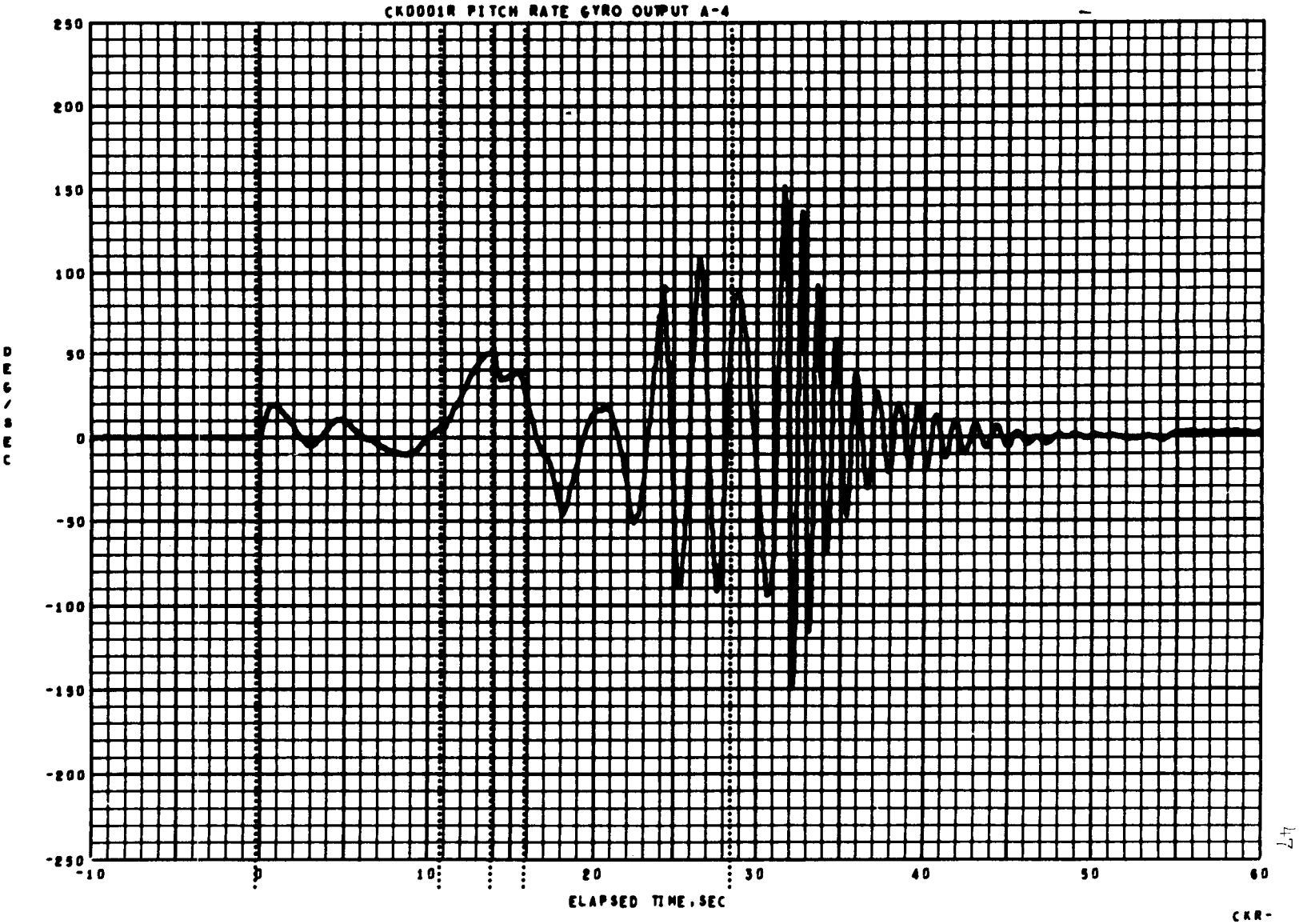
15.95 SEC DROGUE DEPLOY
28.55 SEC CHUTE DEPLOY

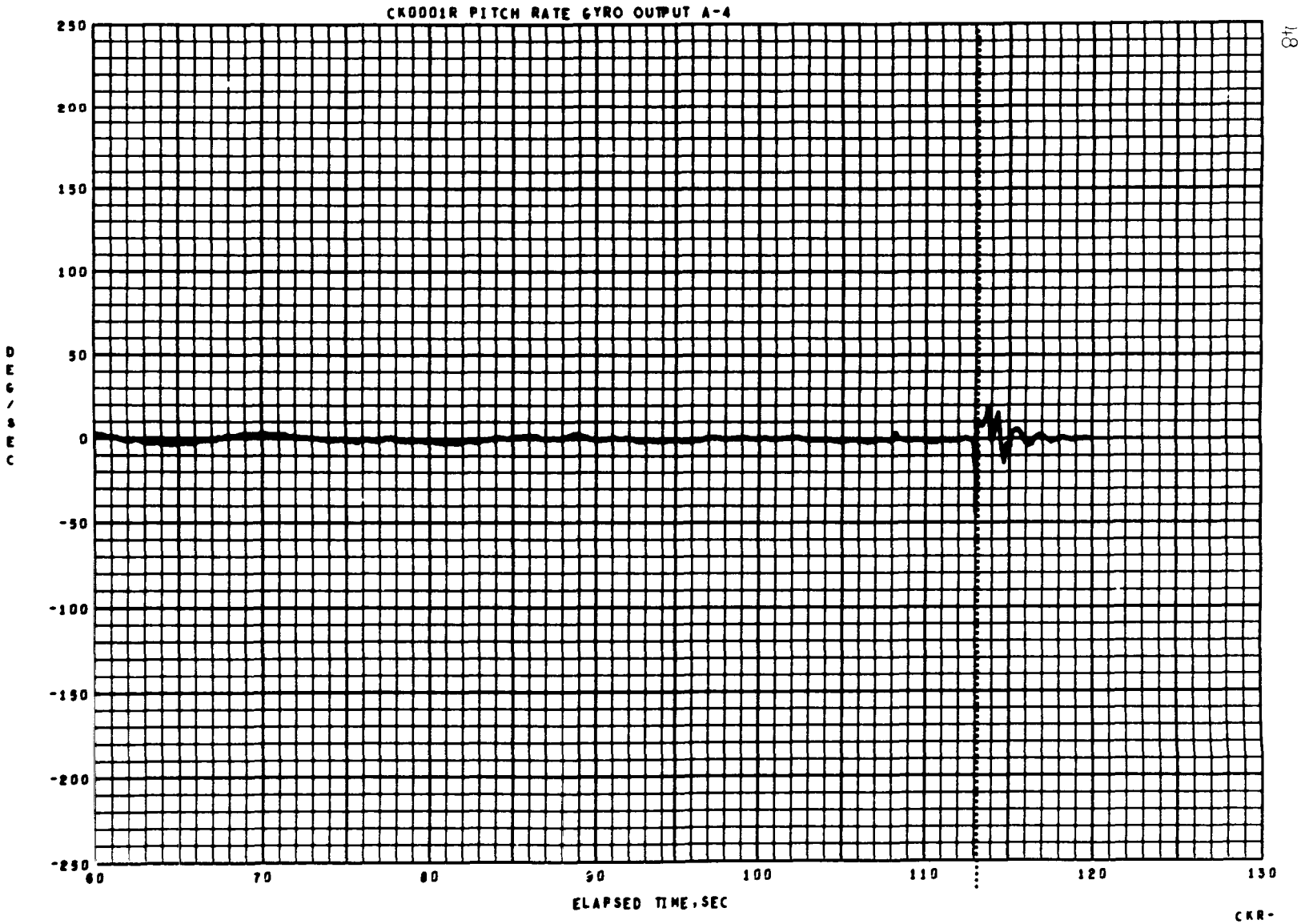
APOLLO BP-23A SC 29 JUNE 65



CKR- 1

113.20 SEC LANDING

APOLLO BP-23A SC 29 JUNE 65



CKR- 2

-0.15 SEC SEQUENCER START
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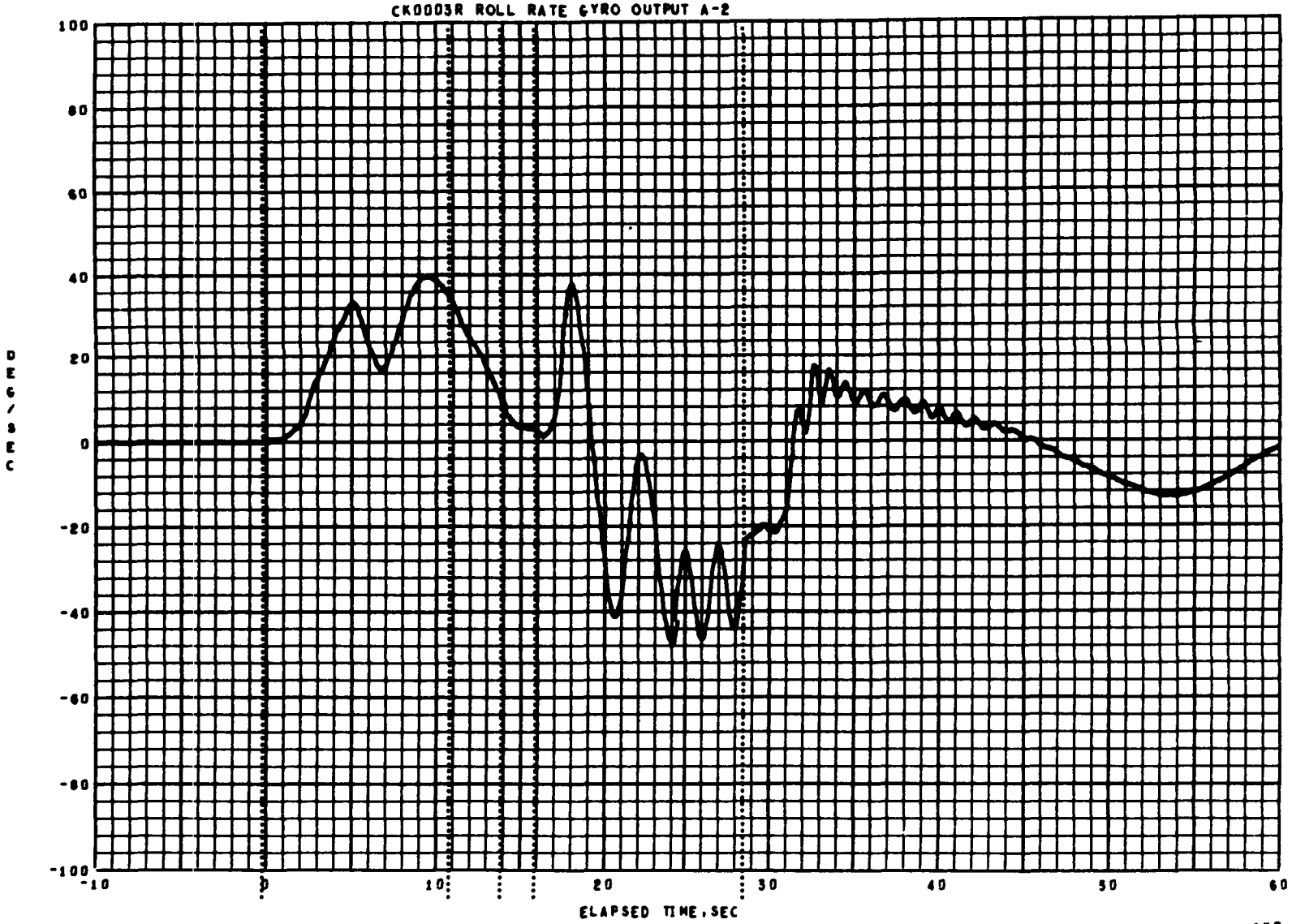
15.95 SEC DROGUE DEPLOY
28.55 SEC CHUTE DEPLOY

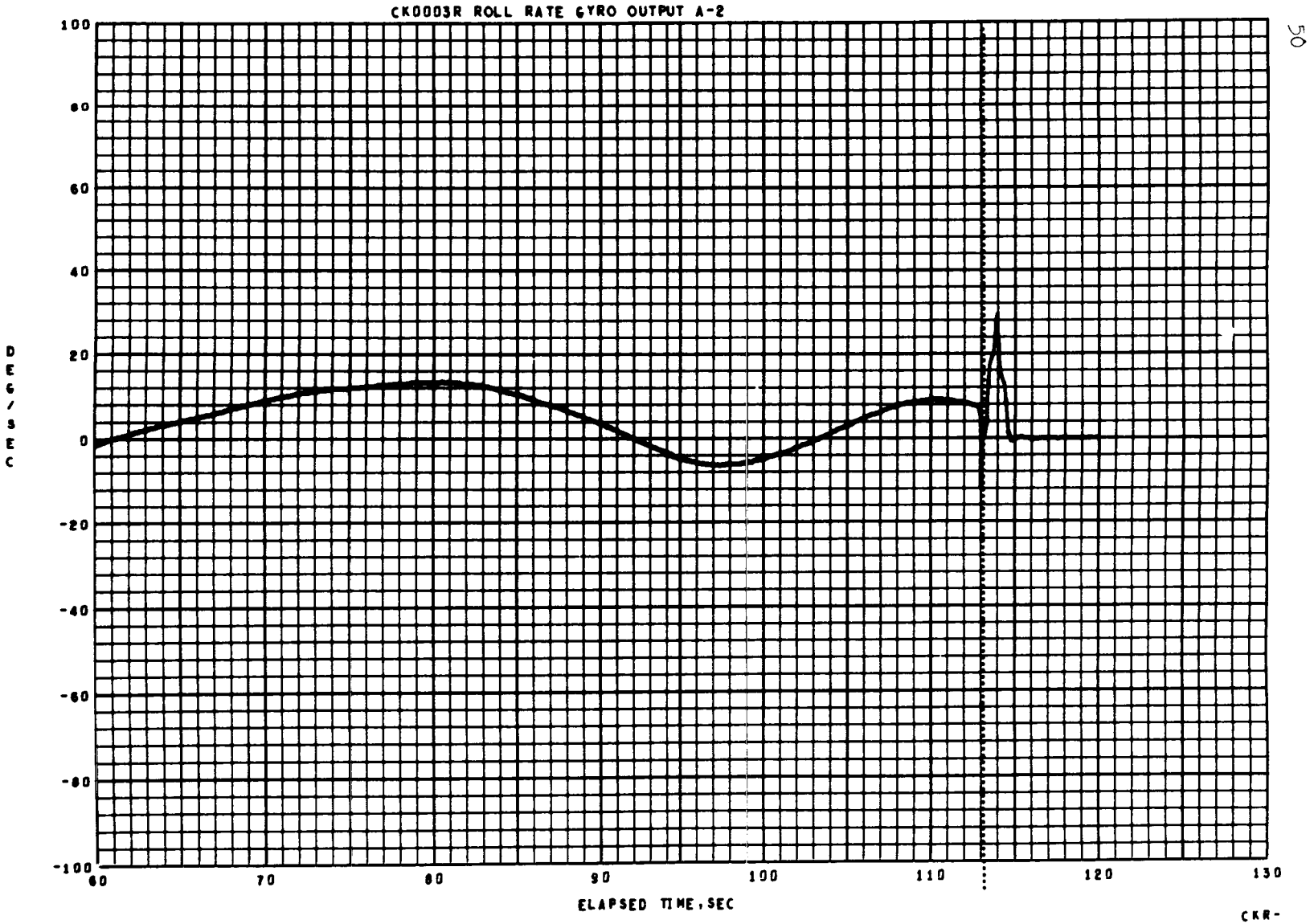
APOLLO BP-23A SC 29 JUNE 65

CK0003R ROLL RATE GYRO OUTPUT A-2



CKR- 5

APOLLO BP-23A SC 29 JUNE 65



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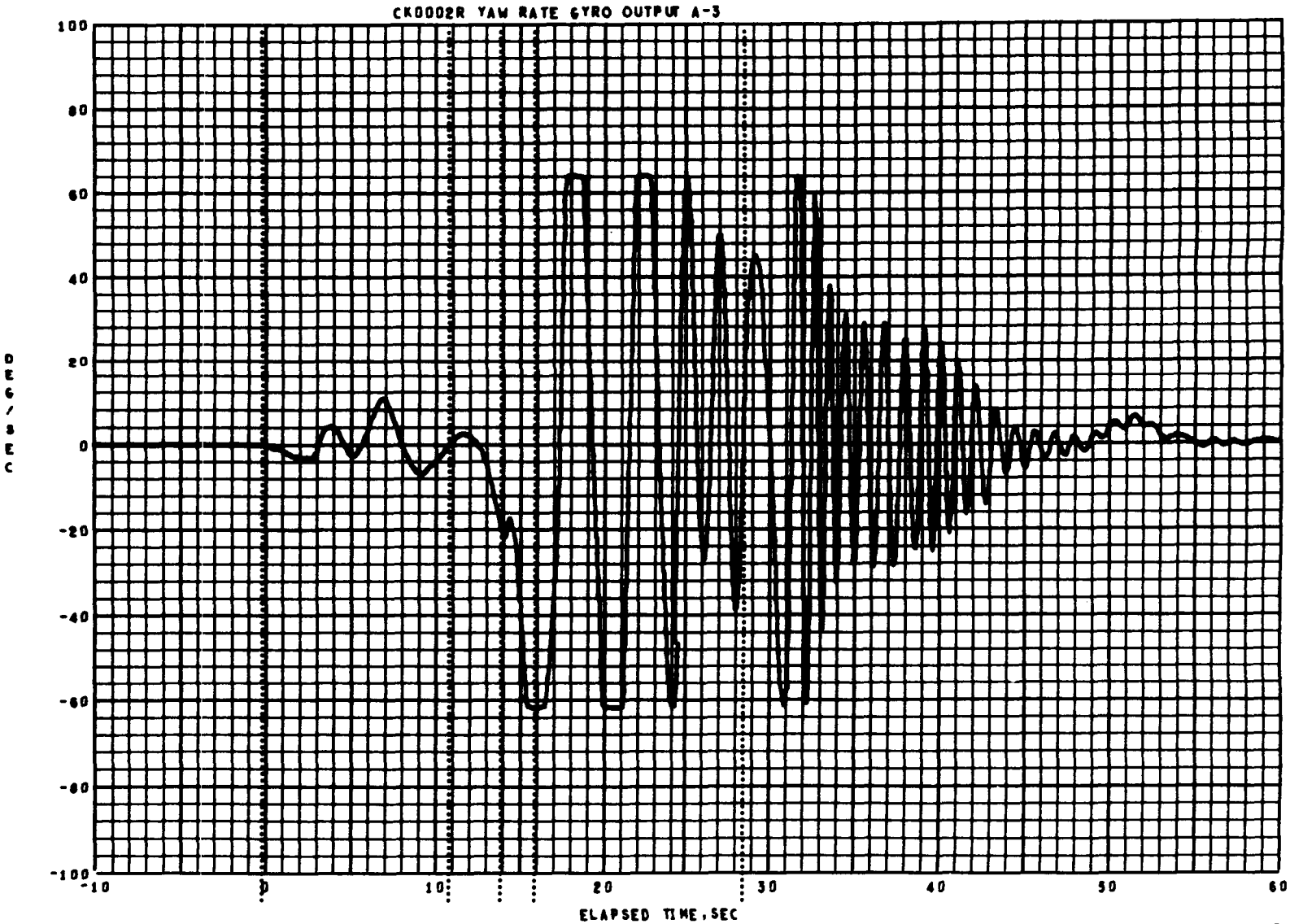
13.95 SEC TOWER JETTISON
15.95 SEC DROGUE DEPLOY
28.55 SEC CHUTE DEPLOY

APOLLO BP-23A SC 29 JUNE 65



CKR- 3

APOLLO BP-23A SC 29 JUNE 65

CKR- 4

-0.15 SEC SEQUENCER START
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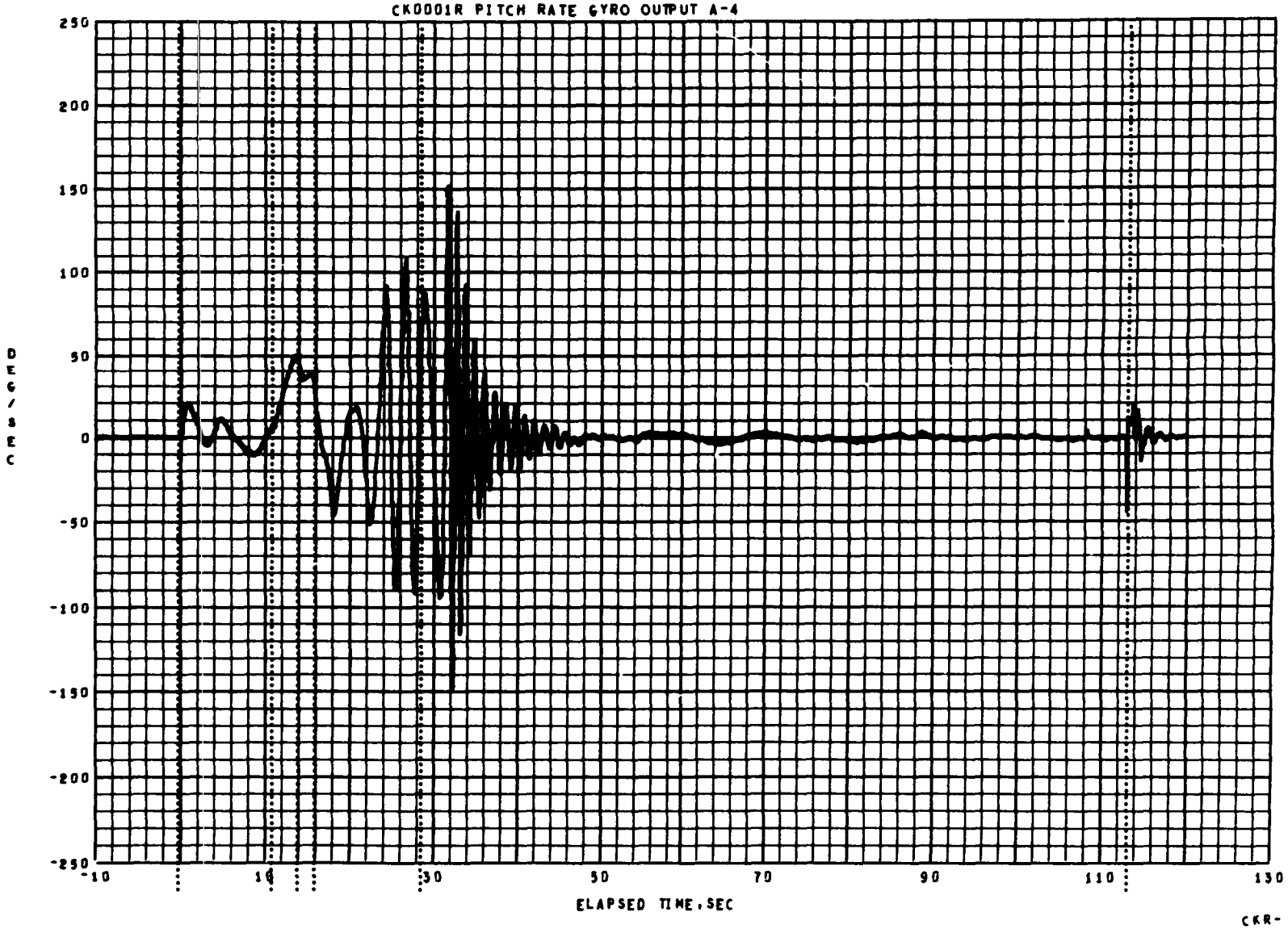
13.95 SEC TOWER JETTISON
15.95 SEC DROGUE DEPLOY
28.55 SEC CHUTE DEPLOY
113.20 SEC LANDING

APOLLO BP-23A SC 29 JUNE 65

CK0001R PITCH RATE GYRO OUTPUT A-4



CKR- 7

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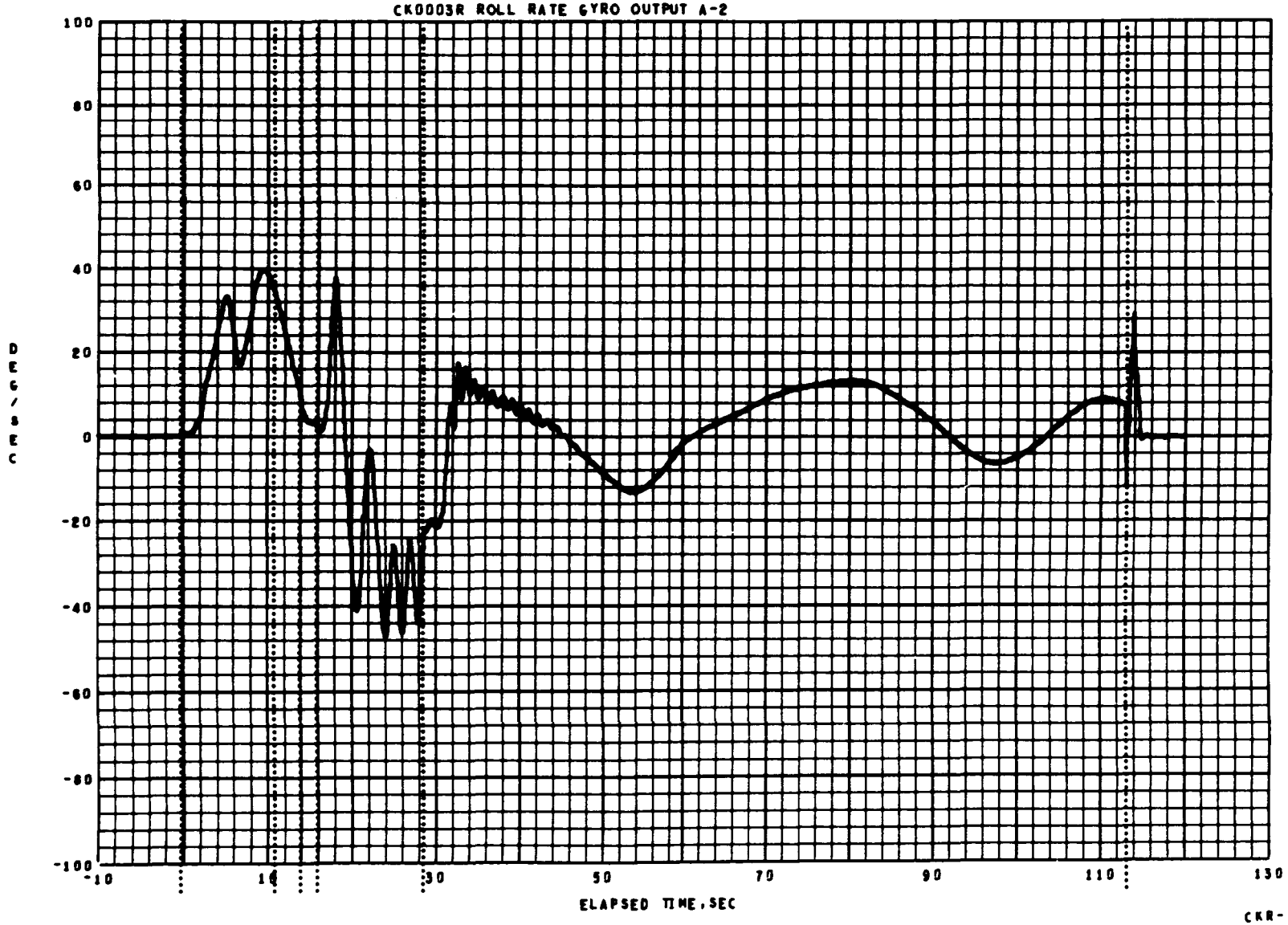
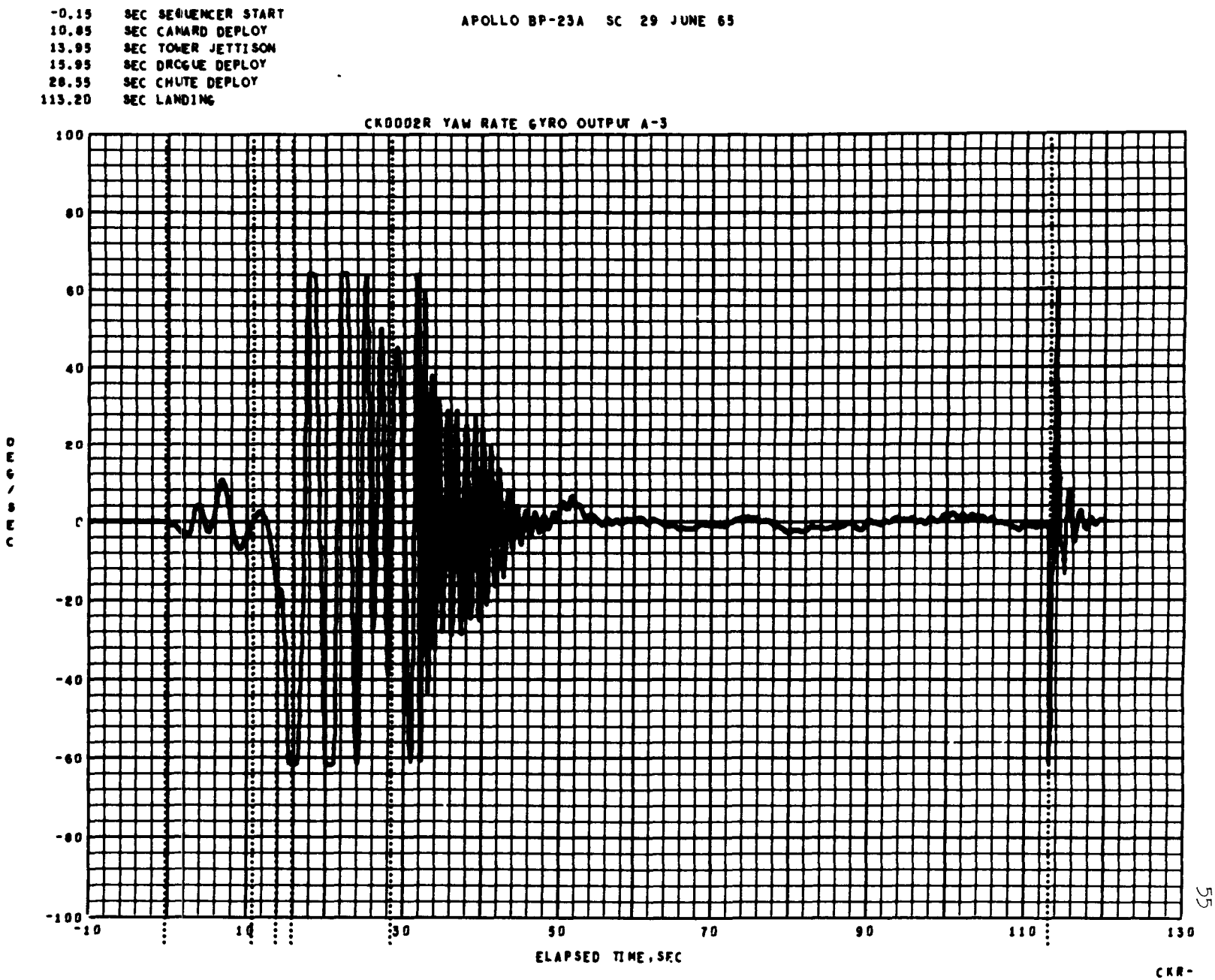
15.95 SEC DROGUE DEPLOY
28.55 SEC CHUTE DEPLOY
113.20 SEC LANDING

APOLLO BP-23A SC 29 JUNE 65

CK0003R ROLL RATE GYRO OUTPUT A-2

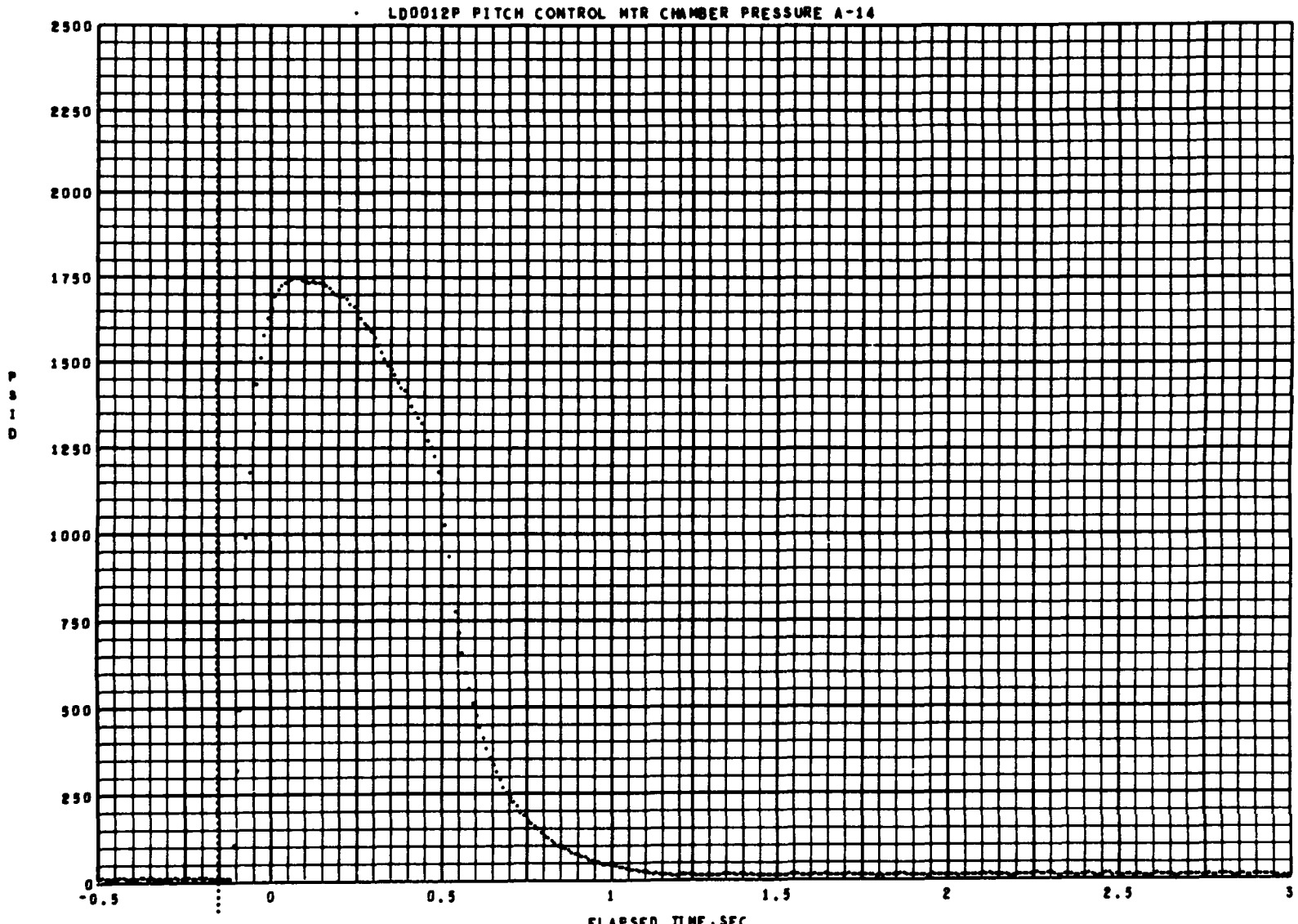


CKR- 9


-0.15 SEC SEQUENCER START
10.85 SEC CANARD DEPLOY
13.95 SEC TOWER JETTISON
15.95 SEC DROGUE DEPLOY
28.55 SEC CHUTE DEPLOY
113.20 SEC LANDING
APOLLO BP-23A SC 29 JUNE 65
CK0002R YAW RATE GYRO OUTPUT A-3
DEG/SEC
100
80
60
40
20
0
-20
-40
-60
-80
-100
-10
10
30
50
70
90
110
130
ELAPSED TIME, SEC
CKR- 8

-0.15 SEC SEQUENCER START

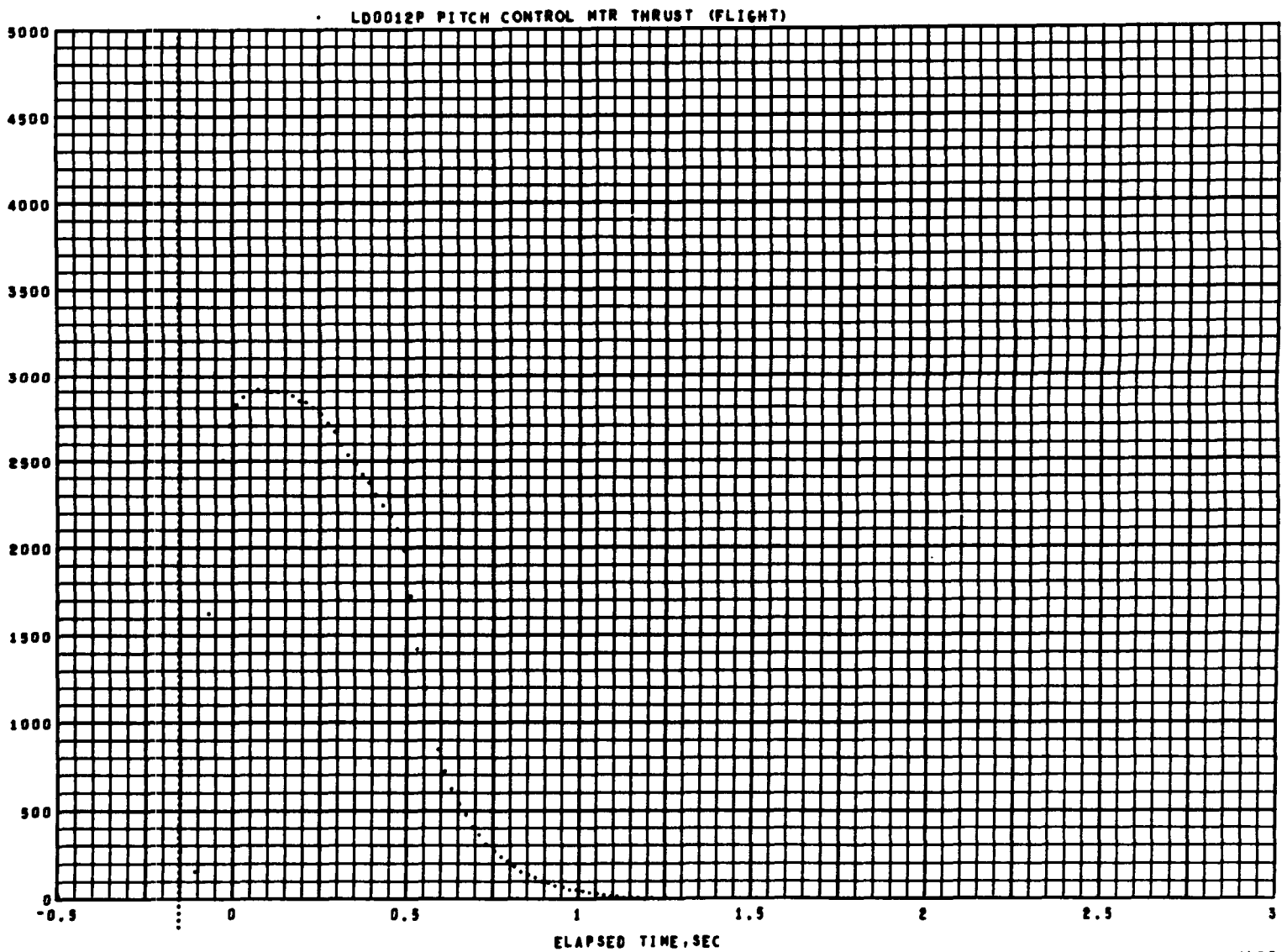
APOLLO BP-23A SC 29 JUNE 65



LDP- 1

-0.15 SEC LES IGNITION

APOLLO BP-23A SC 29 JUNE 65



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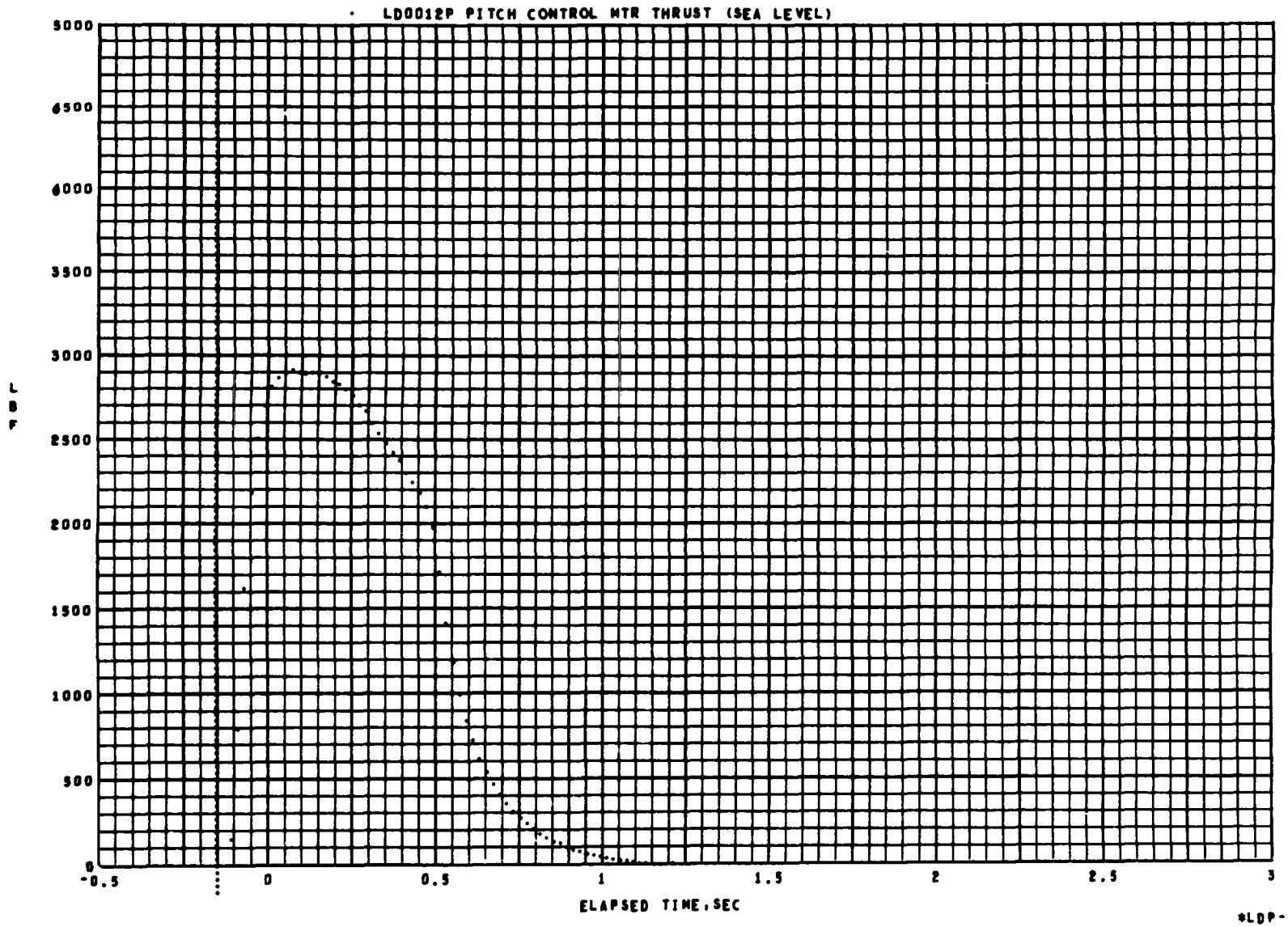

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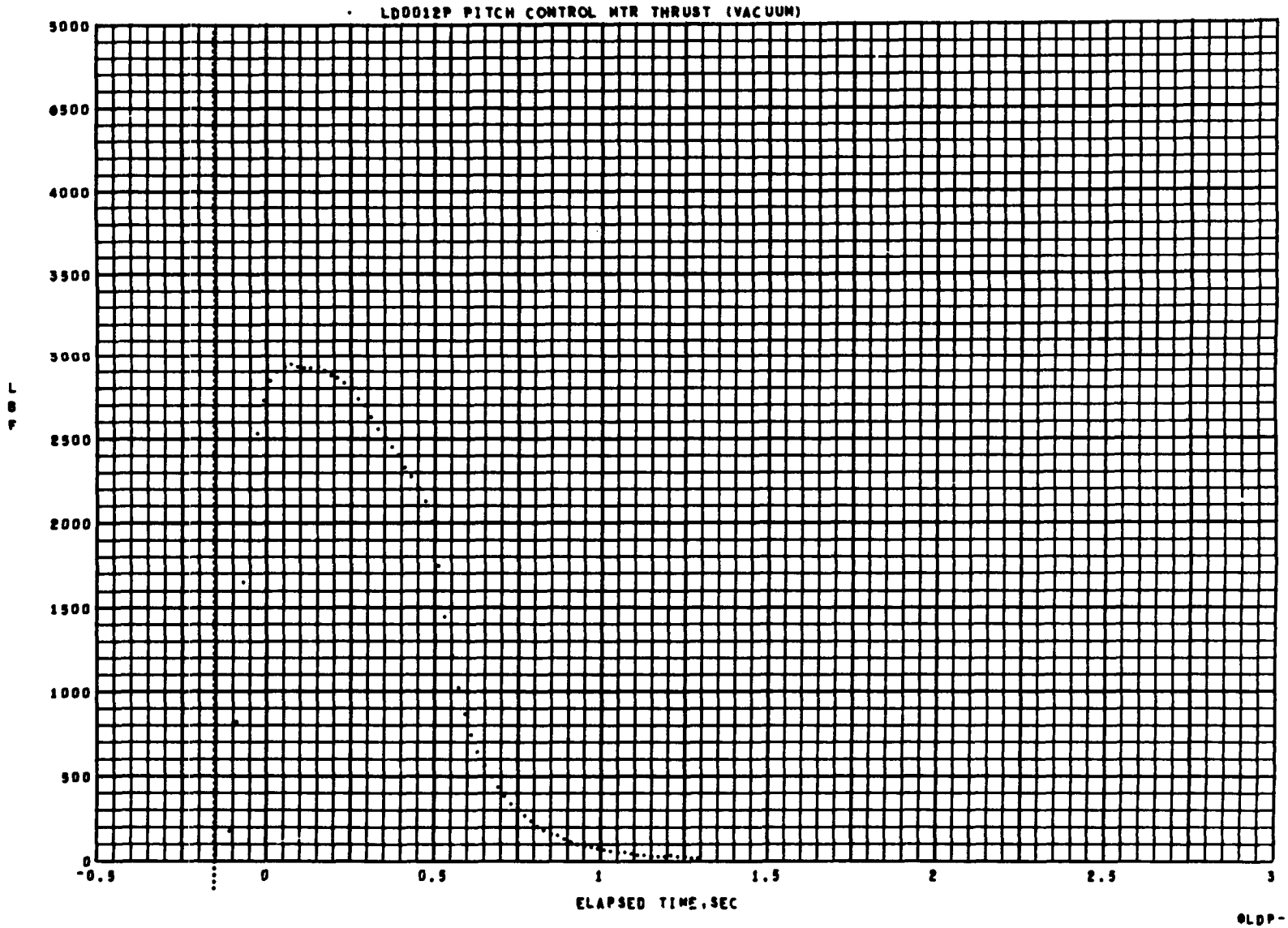
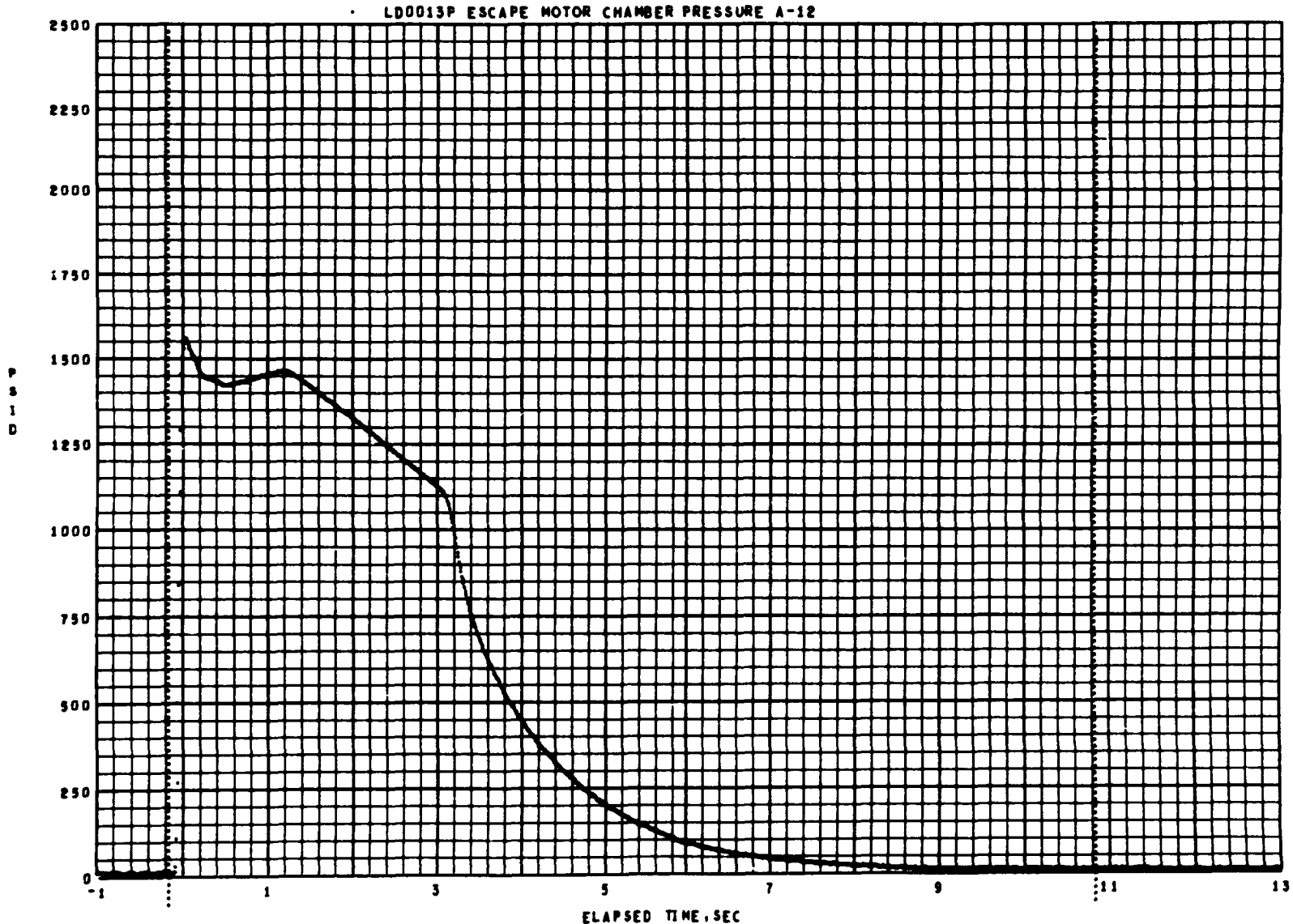
APOLLO BP-23A SC 29 JUNE 65



OLDP- 4

-0.15 SEC SEQUENCER START
10.85 SEC CANARD DEPLOY

APOLLO BP-23A SC 29 JUNE 65



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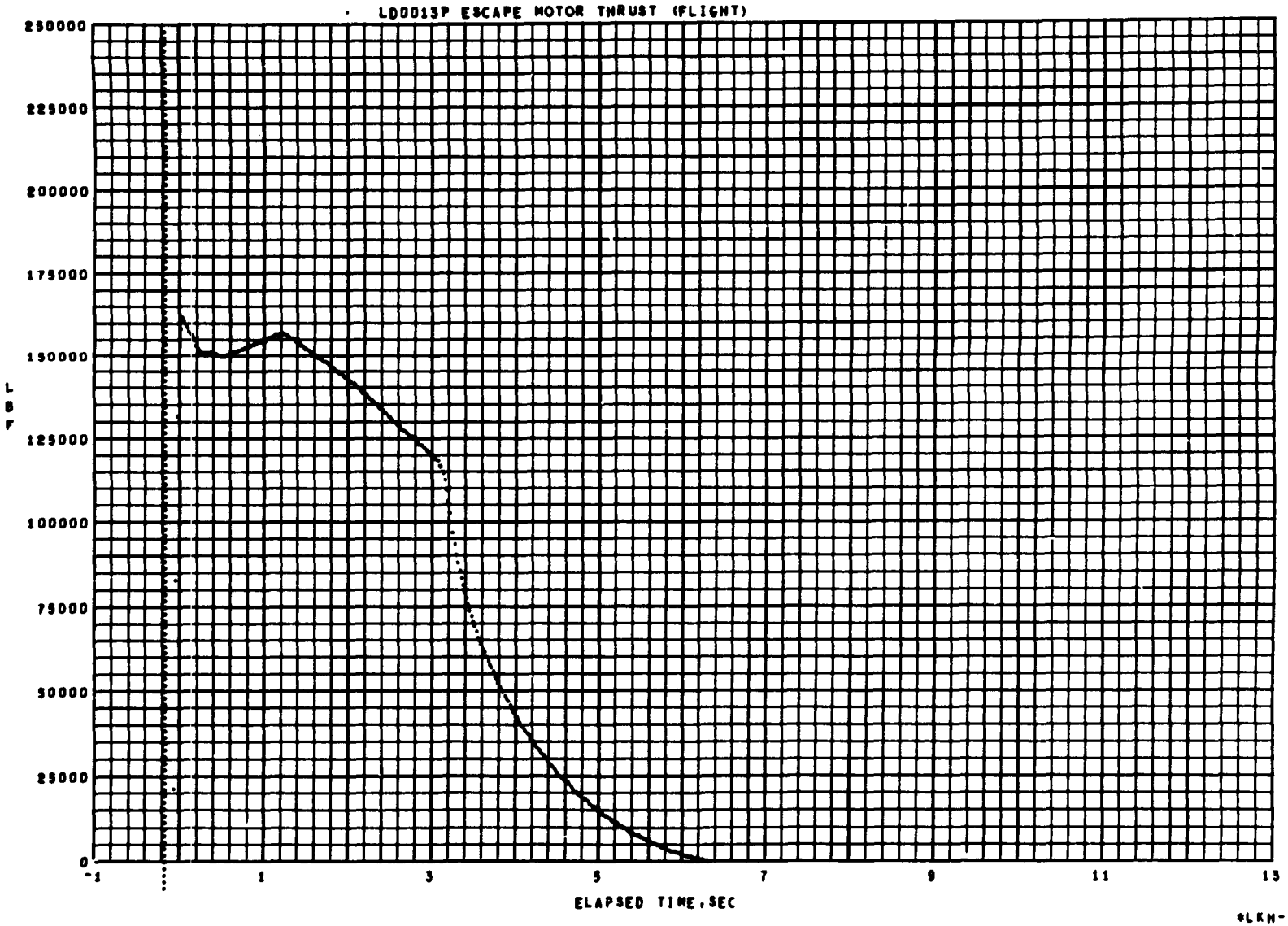
APOLLO BP-23A SC 29 JUNE 65



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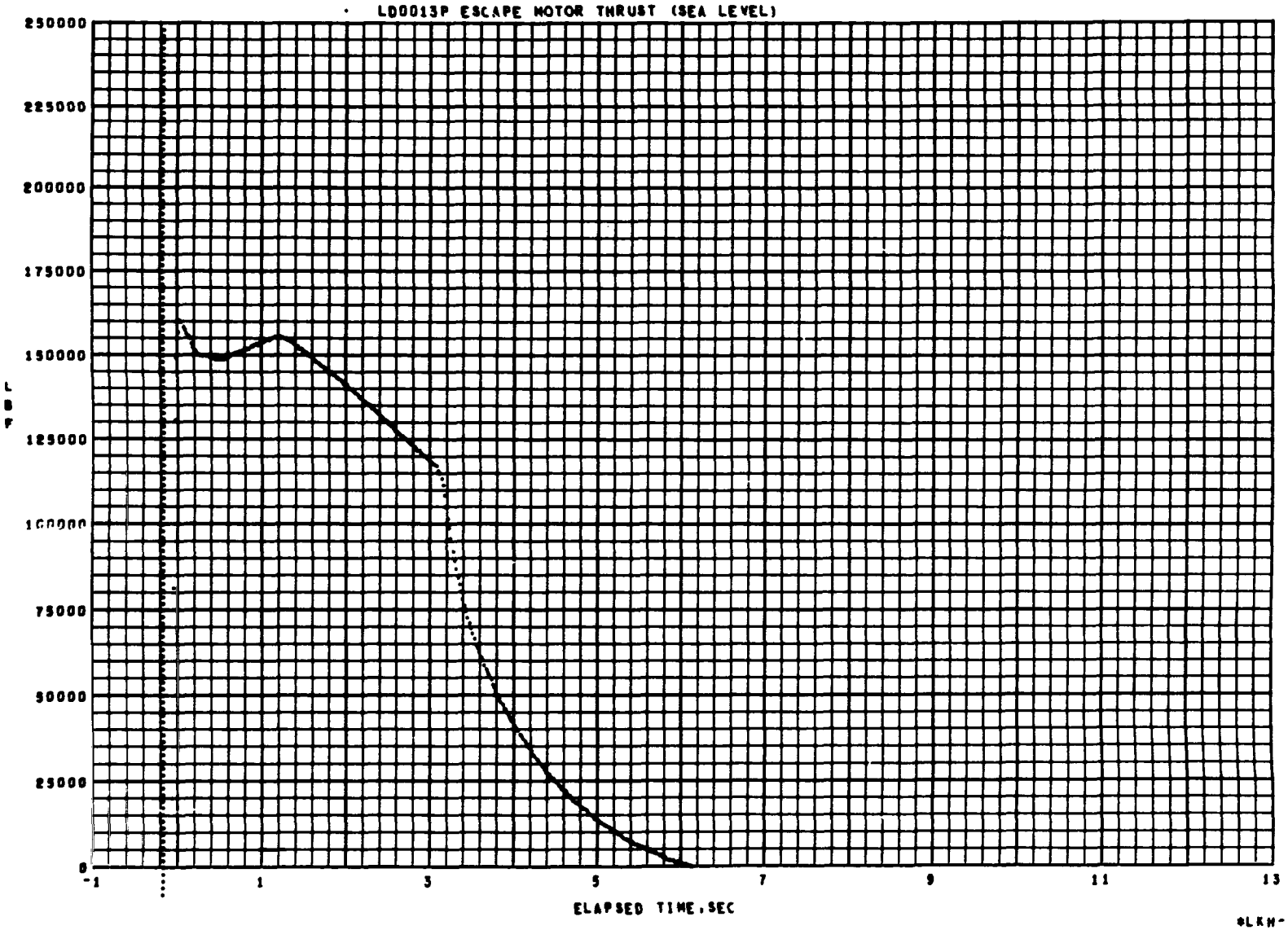
APOLLO BP-23A SC 29 JUNE 65



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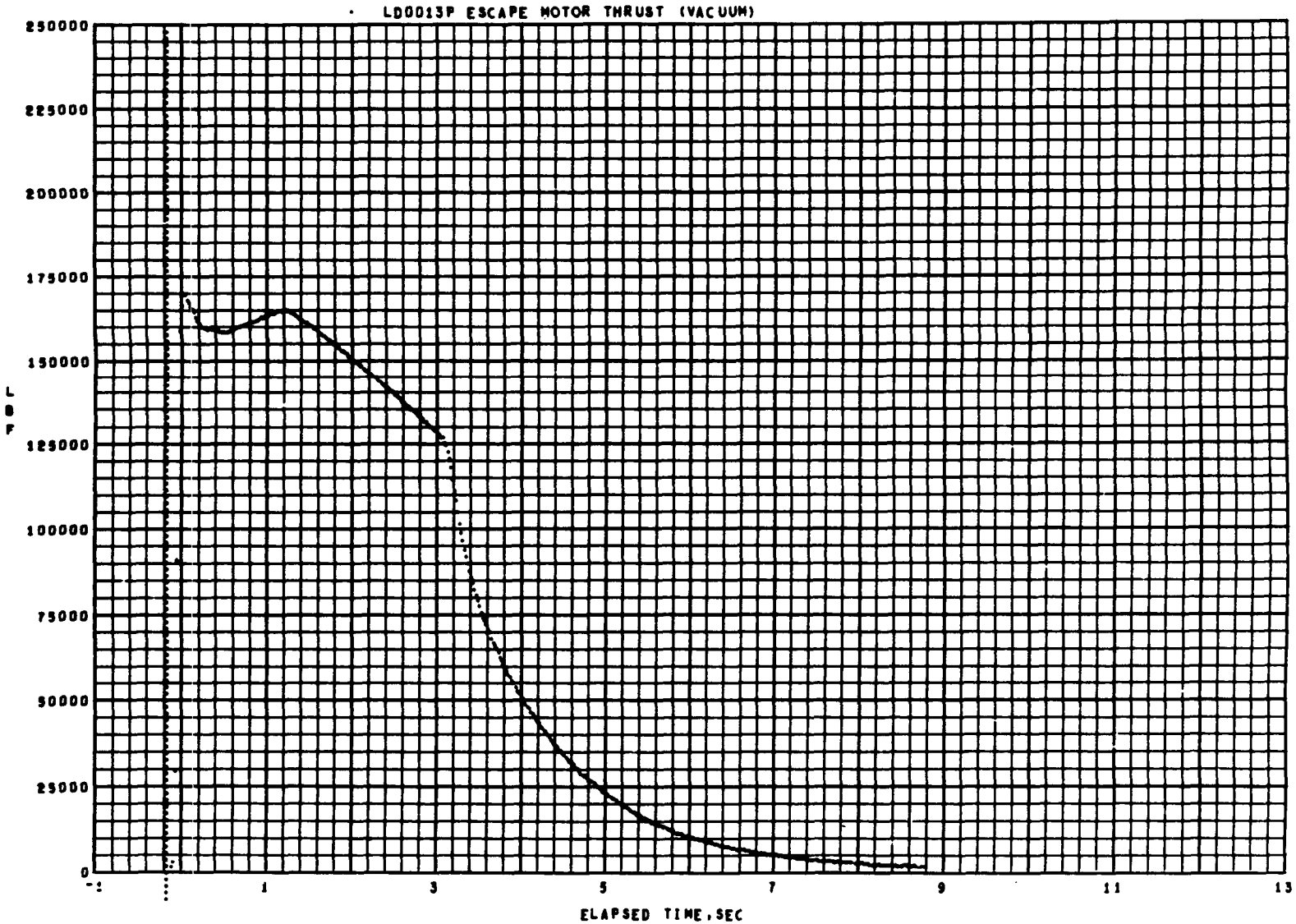
APOLLO BP-23A SC 29 JUNE 65



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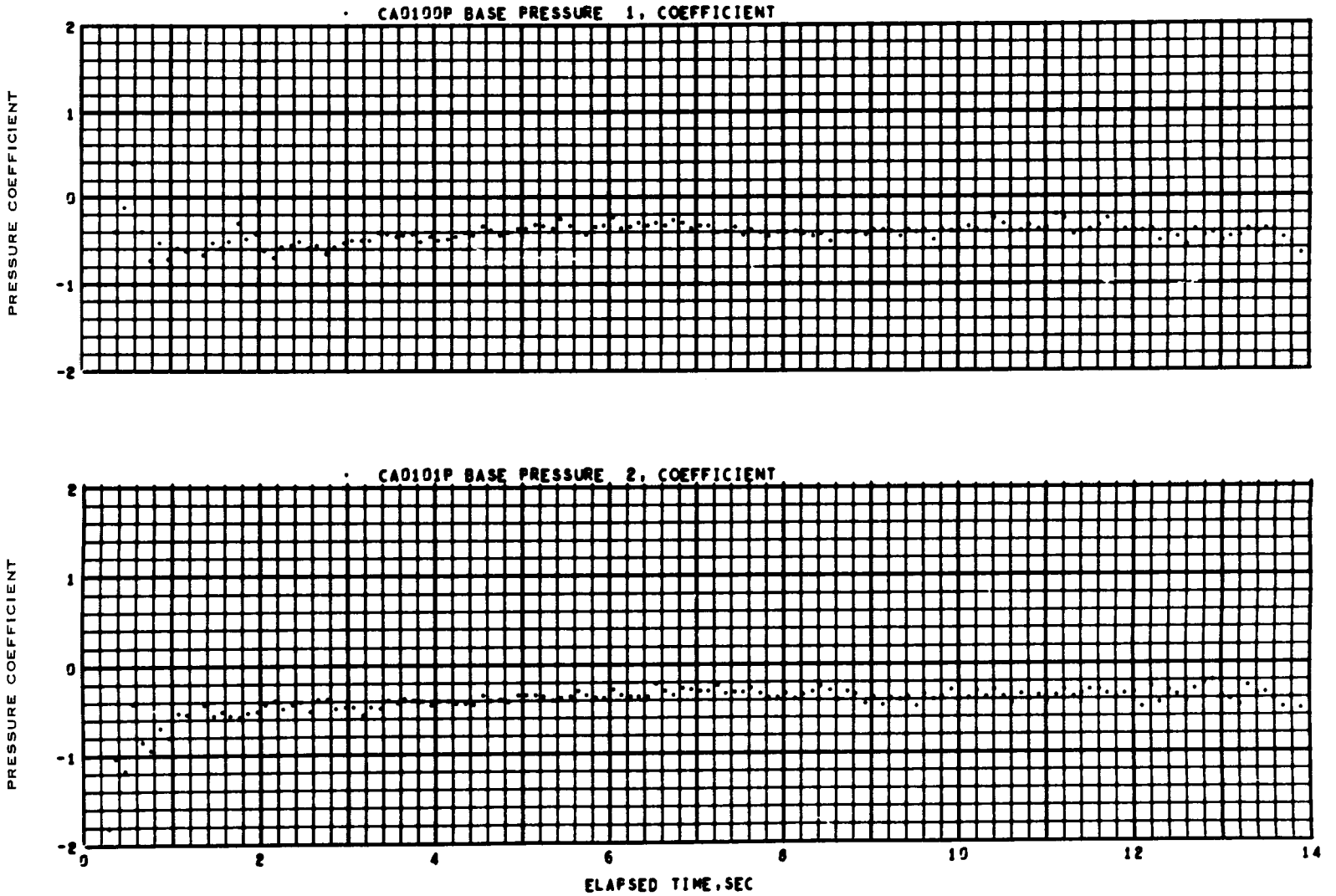
APOLLO BF-23A SC 29 JUNE 65



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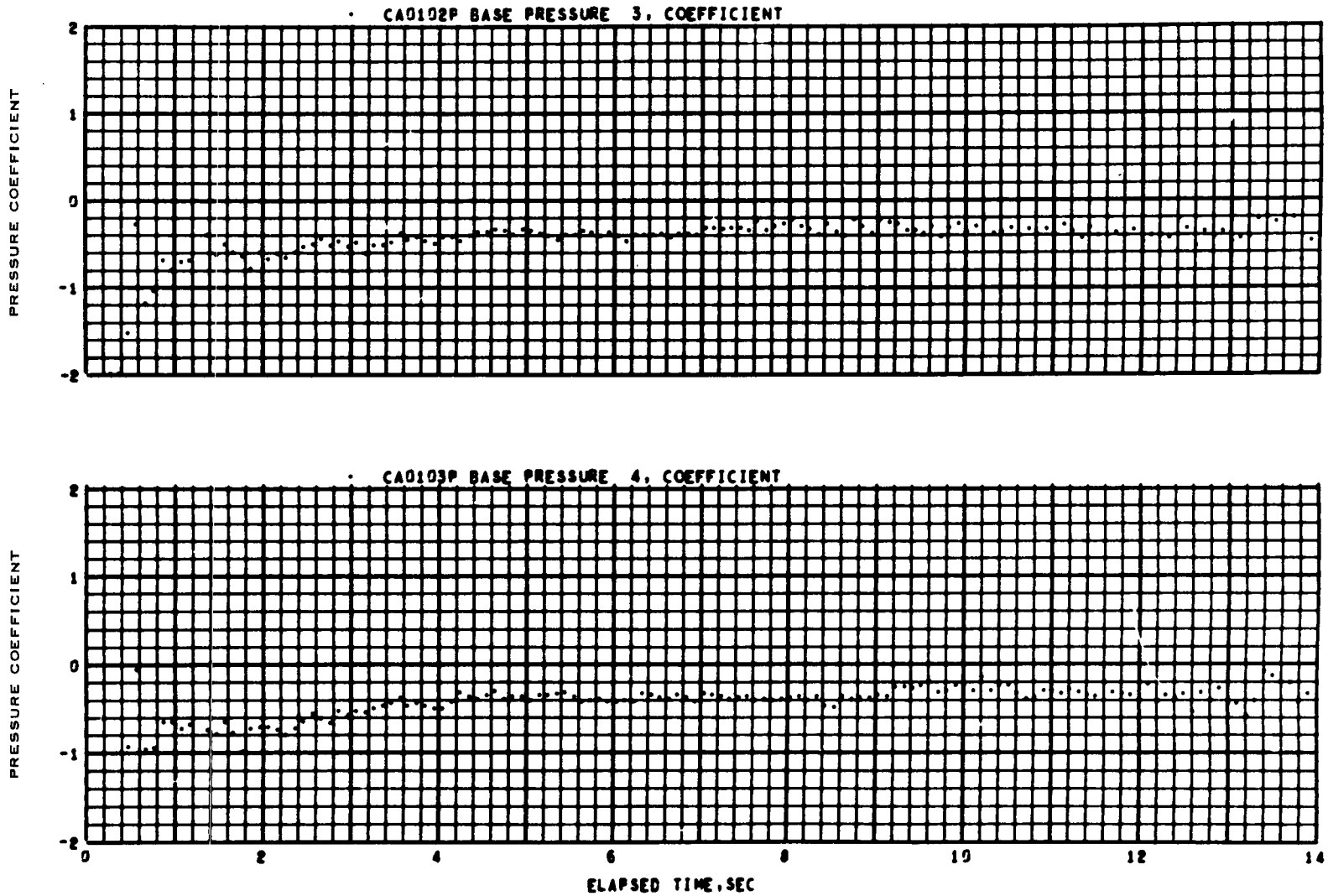
APOLLO BP-23A SC 29 JUNE 65



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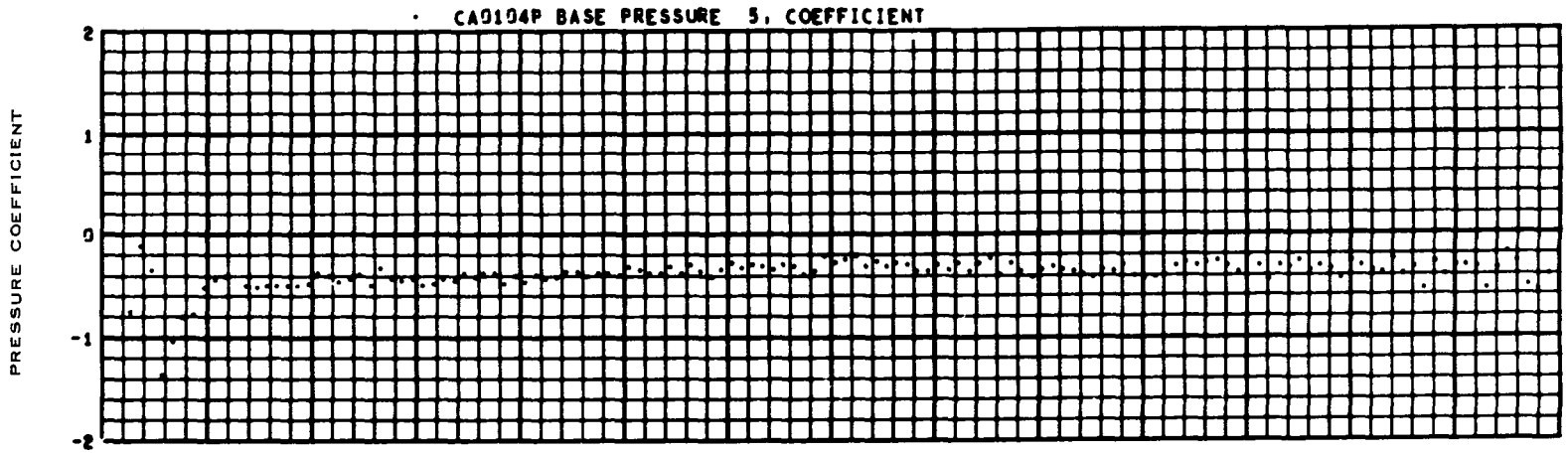
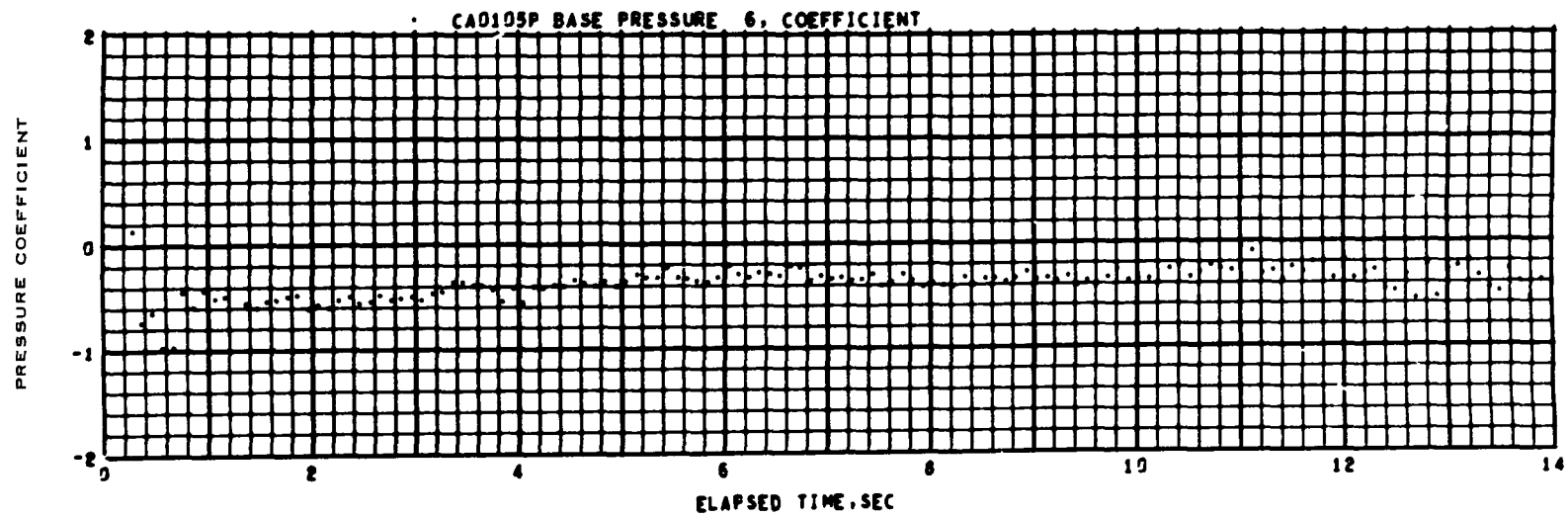
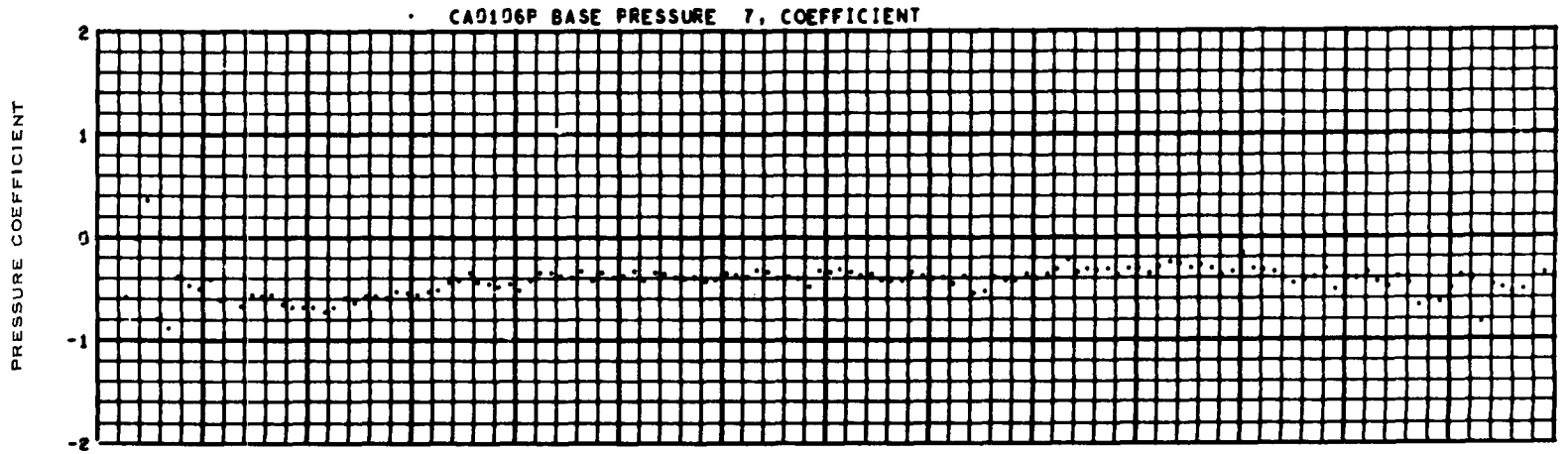
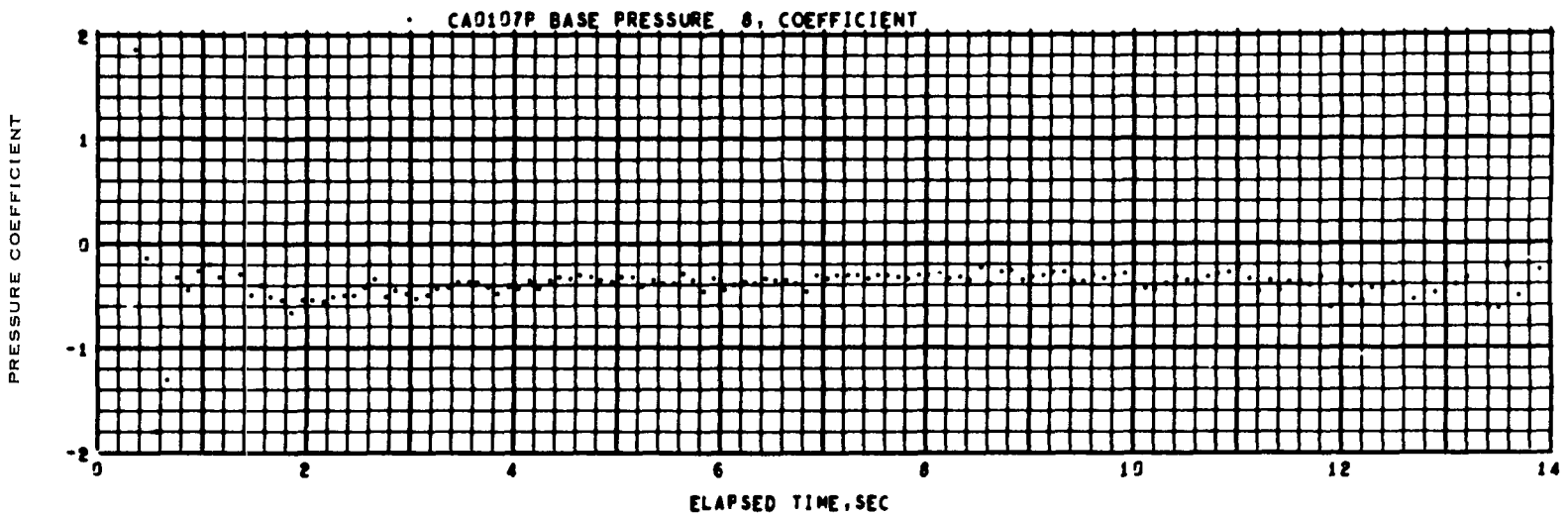

CA0104P BASE PRESSURE 5, COEFFICIENT
PRESSURE COEFFICIENT
2
1
0
-1
-2


CA0105P BASE PRESSURE 6, COEFFICIENT
PRESSURE COEFFICIENT
2
1
0
-1
-2
0
2
4
6
8
10
12
14
ELAPSED TIME,SEC

APOLLO BF-23A SC 29 JUNE 65





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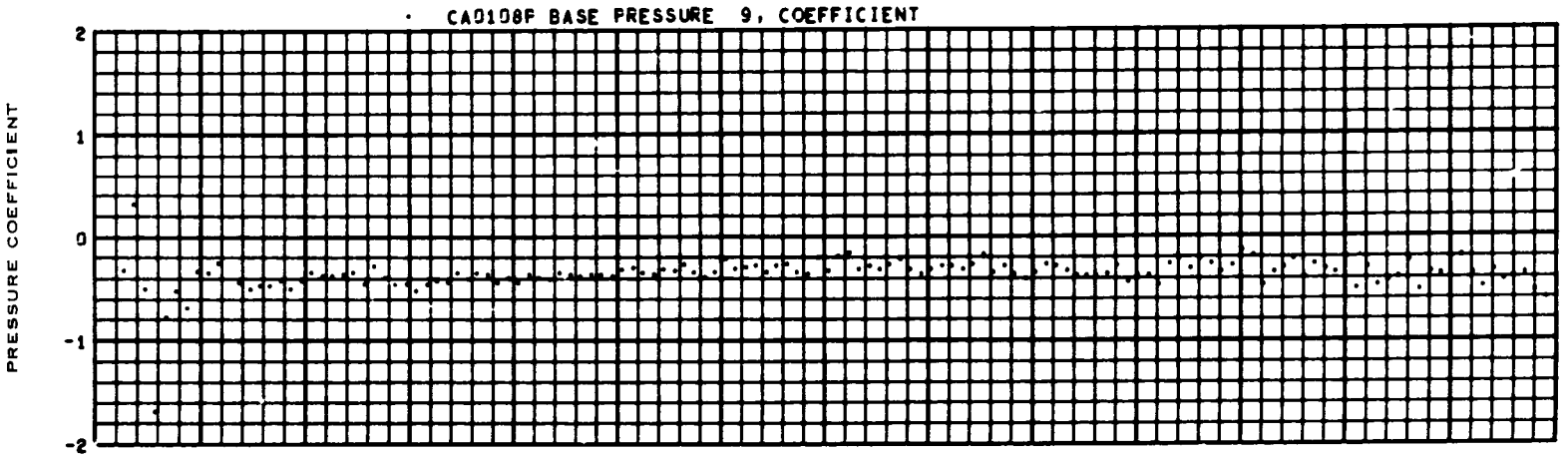
CA0108F BASE PRESSURE 9, COEFFICIENT
PRESSURE COEFFICIENT
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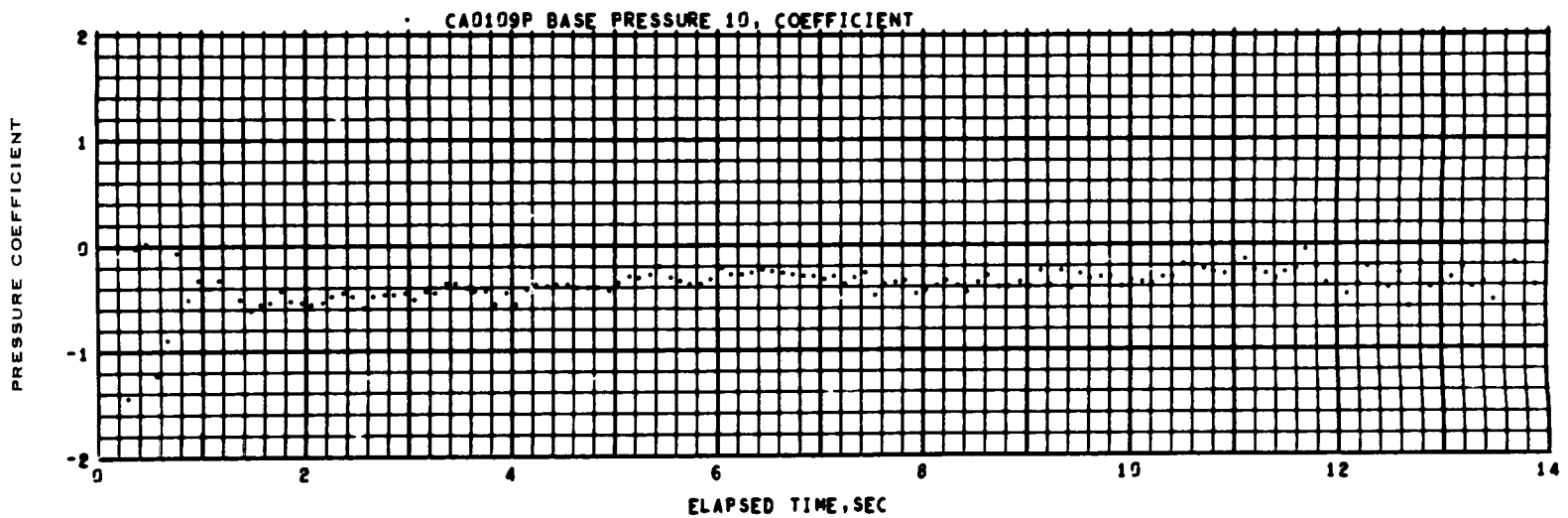
0
-1
-2


CA0109P BASE PRESSURE 10, COEFFICIENT
PRESSURE COEFFICIENT
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0
2
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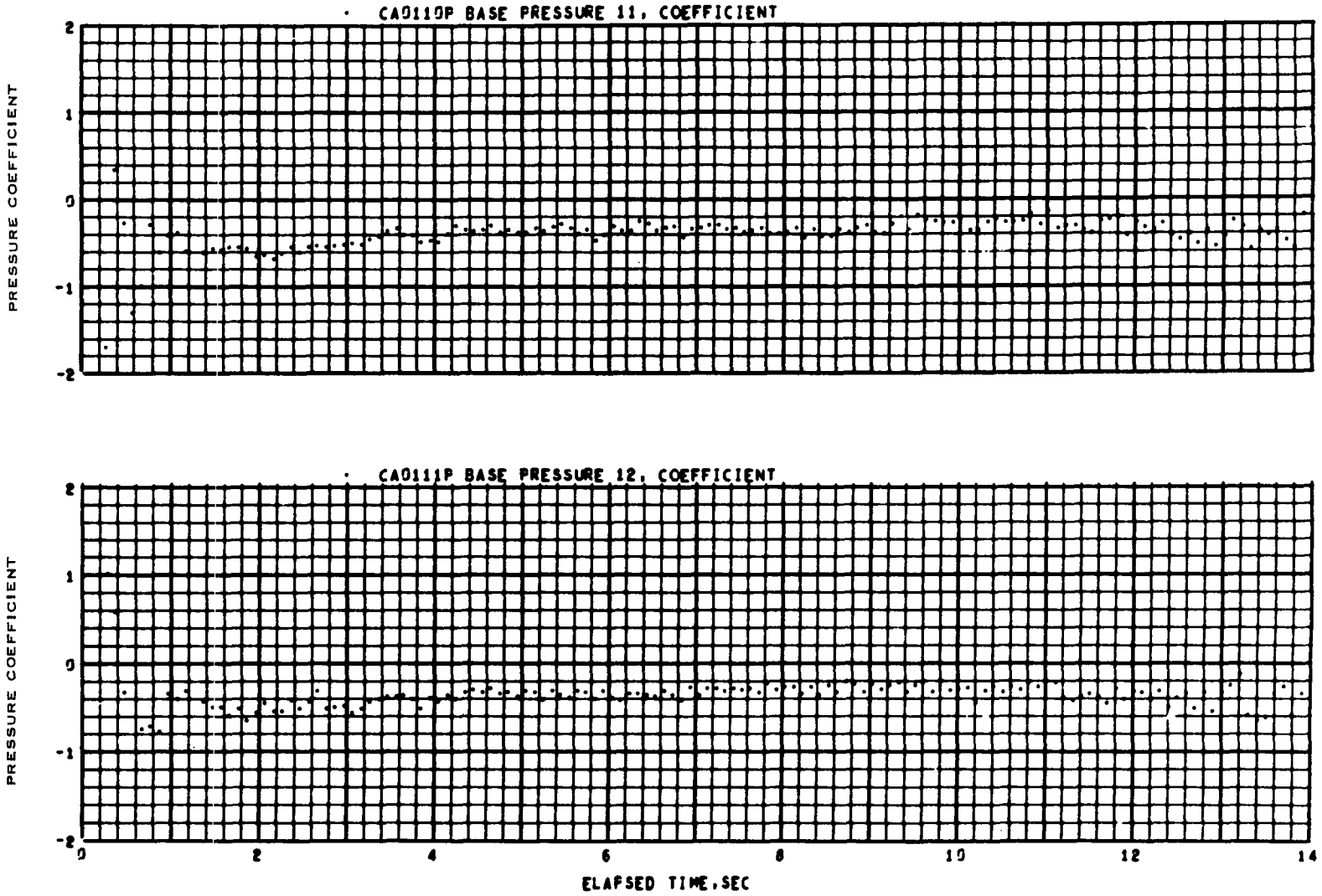
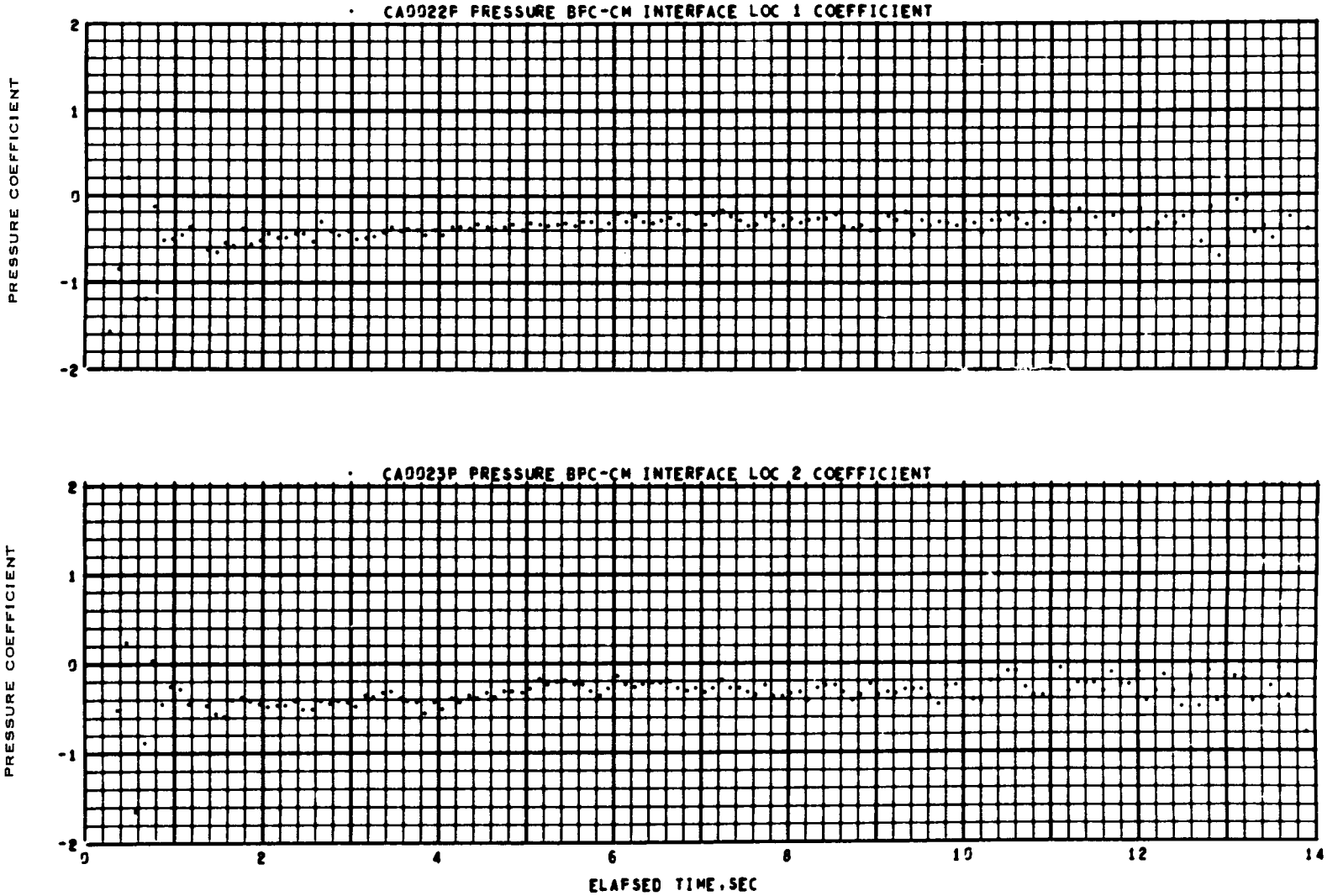
6
8
10
12
14
ELAPSED TIME,SEC

APOLLO BP-23A SC 29 JUNE 65

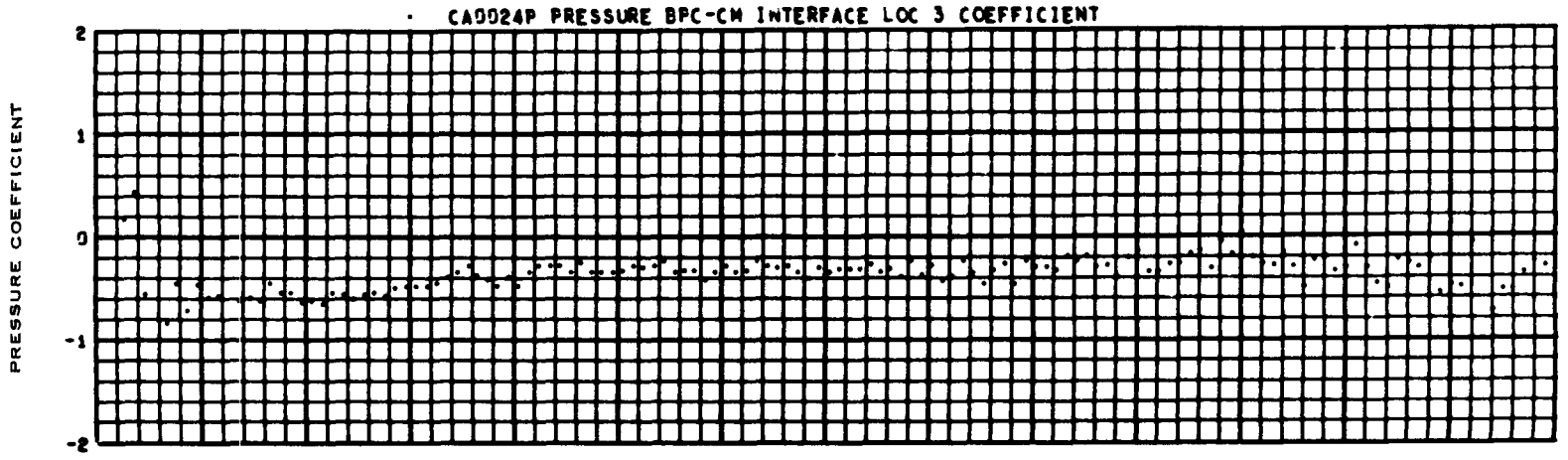


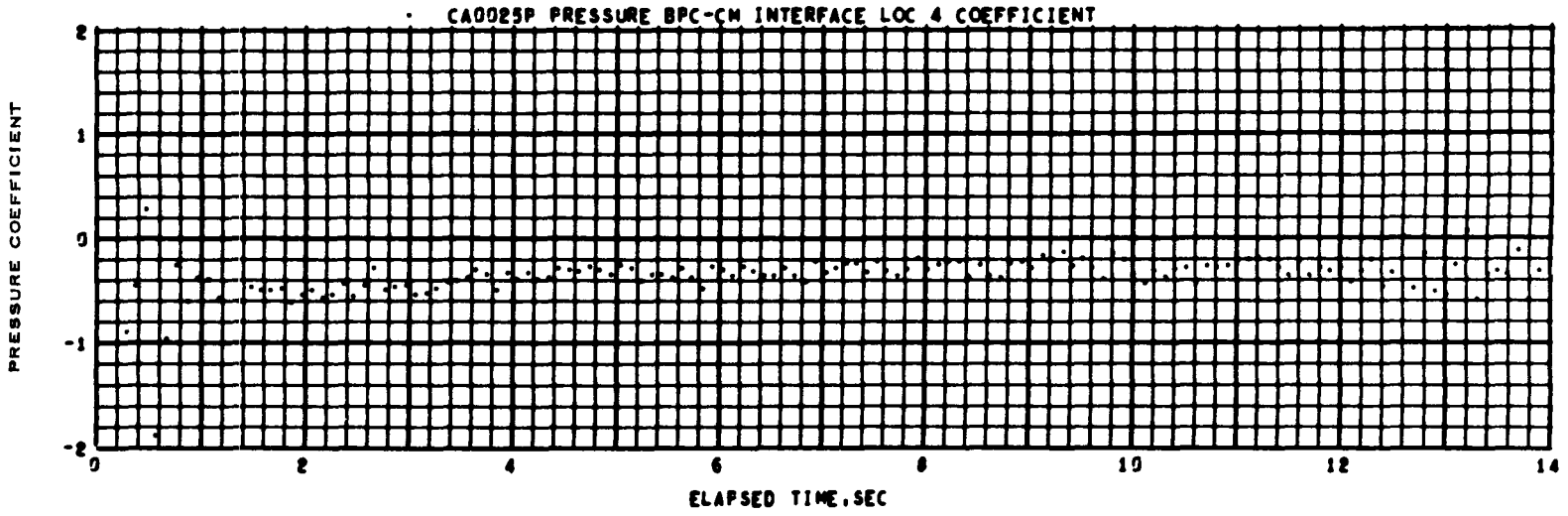
APOLLO BF-23A SC 29 JUNE 65



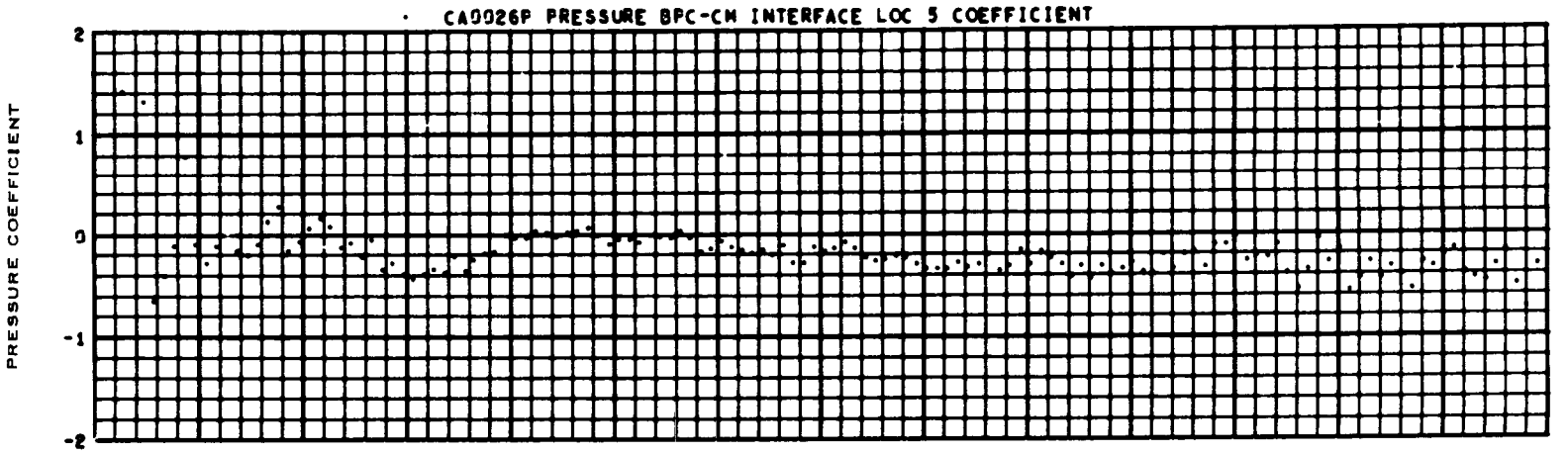
*CAP- 7

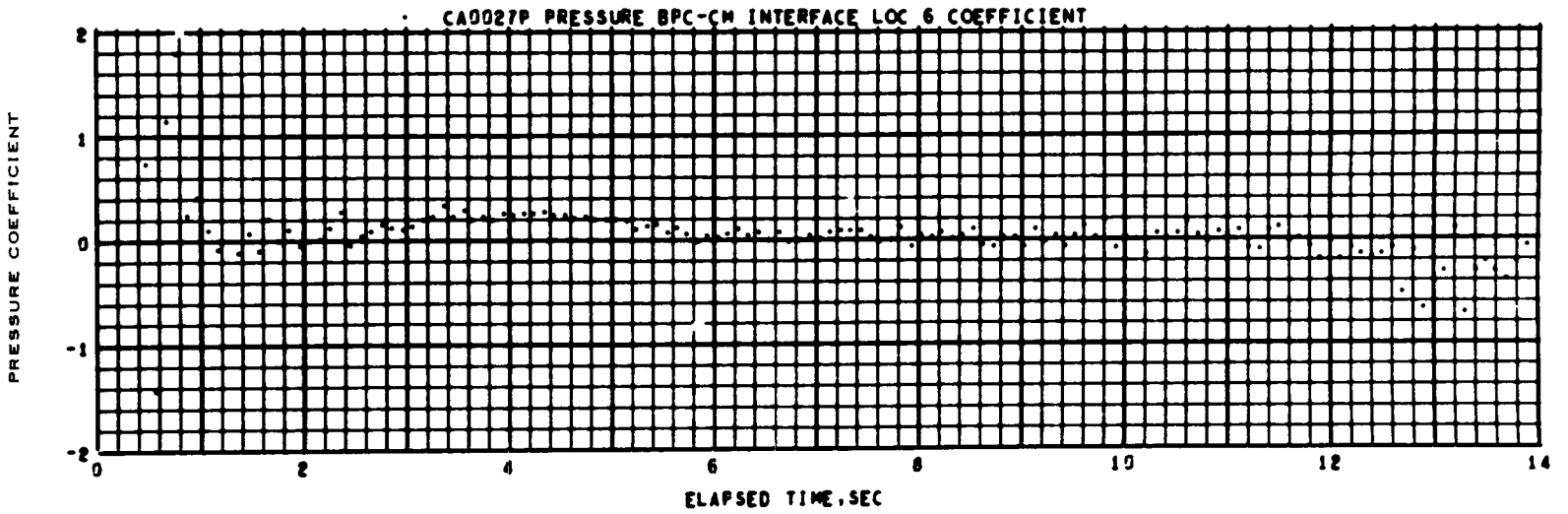
APOLLO BP-23A SC 29 JUNE 65





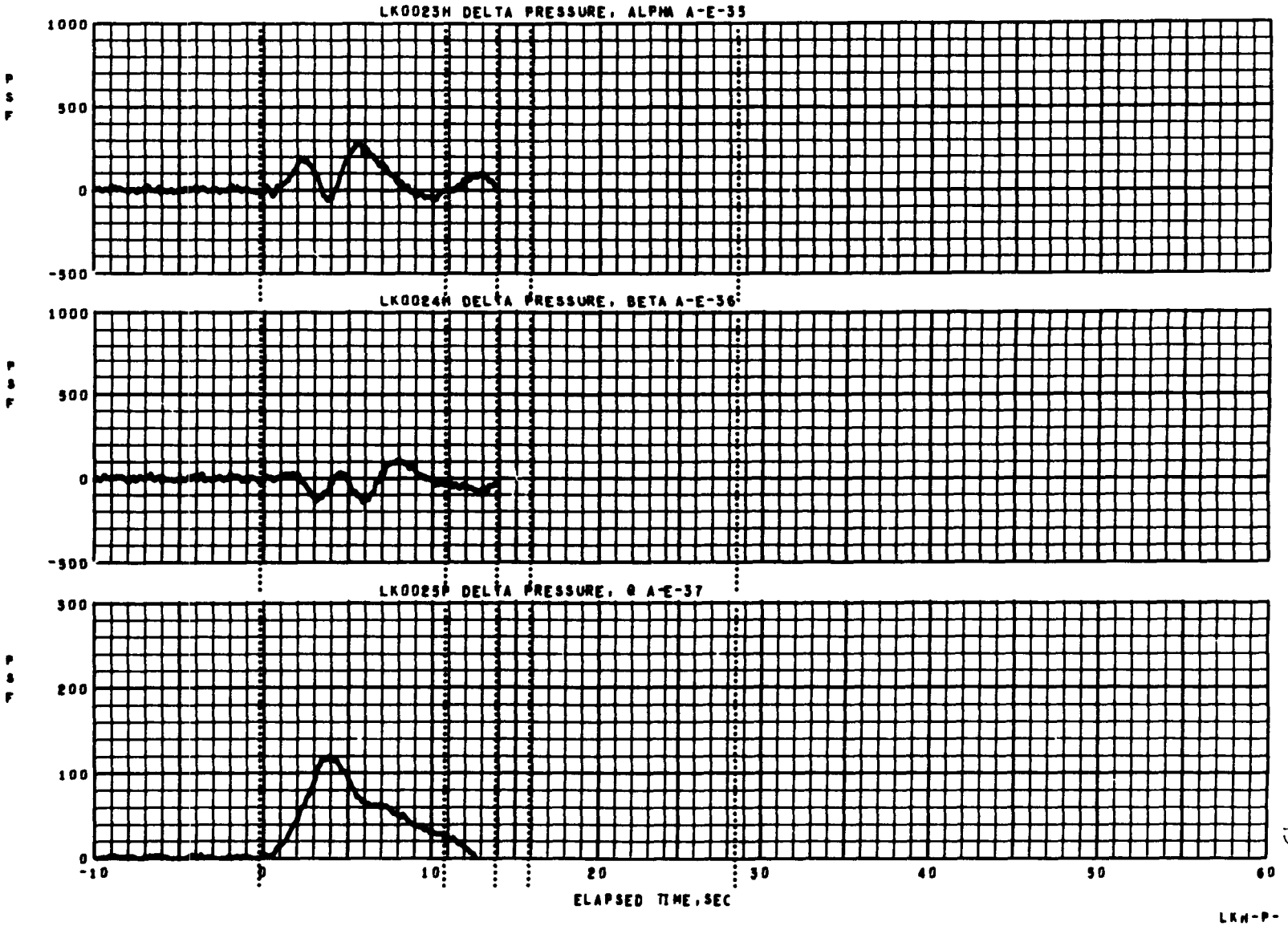
*CAP- 8


CA0026P PRESSURE BPC-CM INTERFACE LOC 5 COEFFICIENT
PRESSURE COEFFICIENT
2
1
0
-1
-2


CA0027P PRESSURE BPC-CM INTERFACE LOC 6 COEFFICIENT
PRESSURE COEFFICIENT
2
1
0
-1
-2
0
2
4
6
8
10
12
14
ELAPSED TIME,SEC

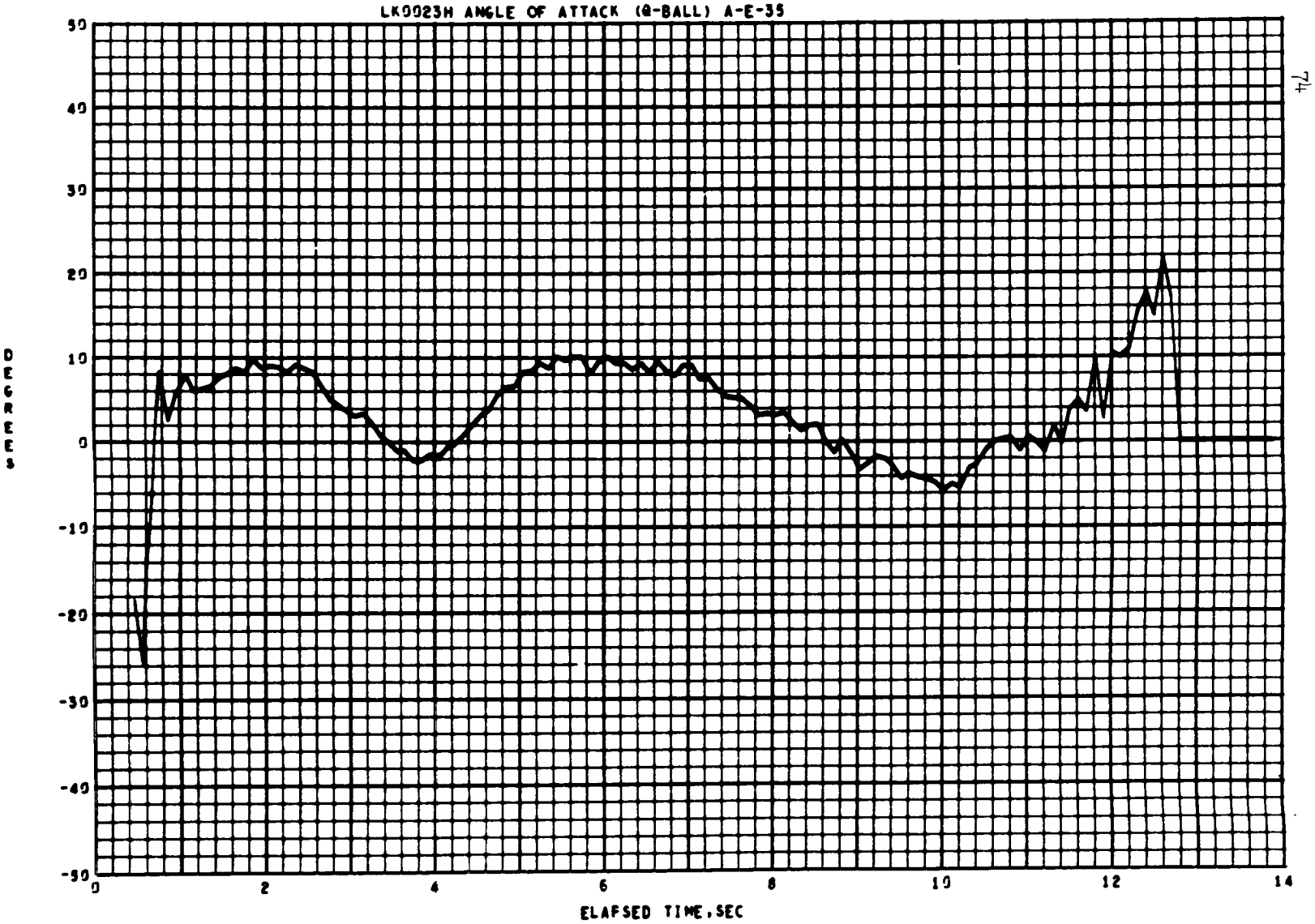
-0.15 SEC SEQUENCER START
10.85 SEC CANARD DEPLOY
13.95 SEC TOWER JETTISON
15.95 SEC DROGUE DEPLOY
28.55 SEC CHUTE DEPLOY

APOLLO BP- 23A SC 29 JUNE 65



LKH-P- 1

APOLLO BF-23A SC 29 JUNE 65



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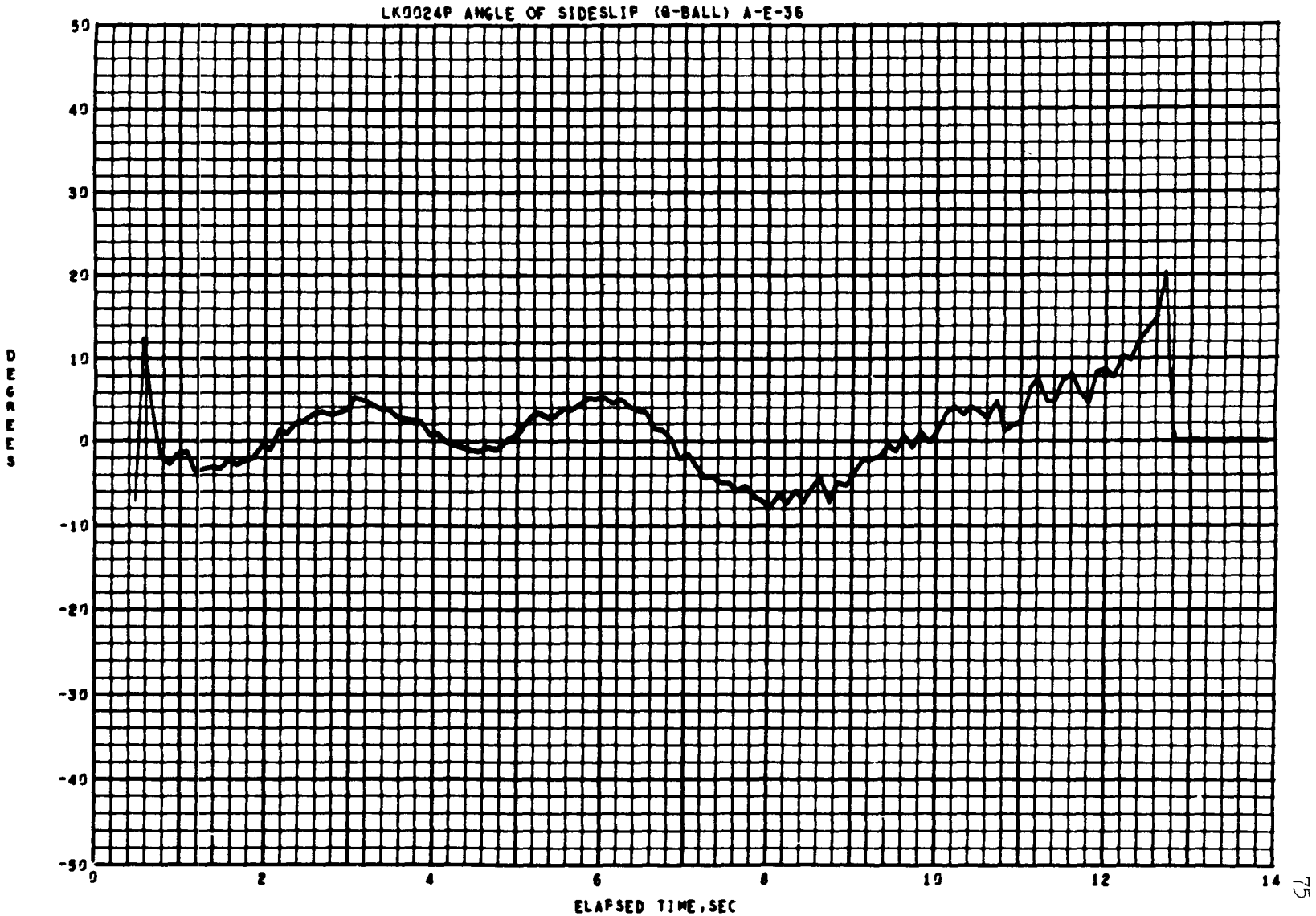
*LKH- 11

APOLLO BP-23A SC 29 JUNE 65



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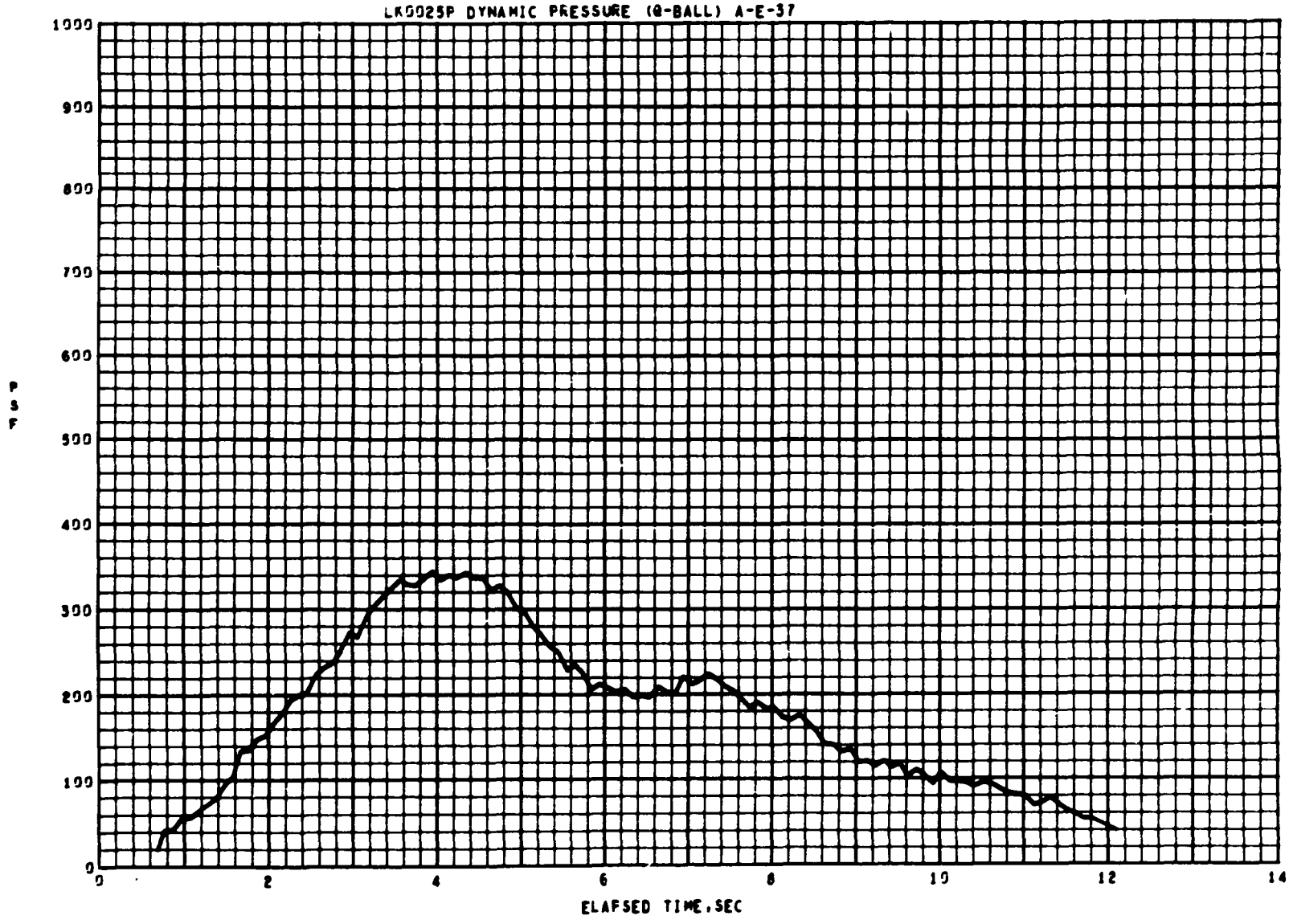
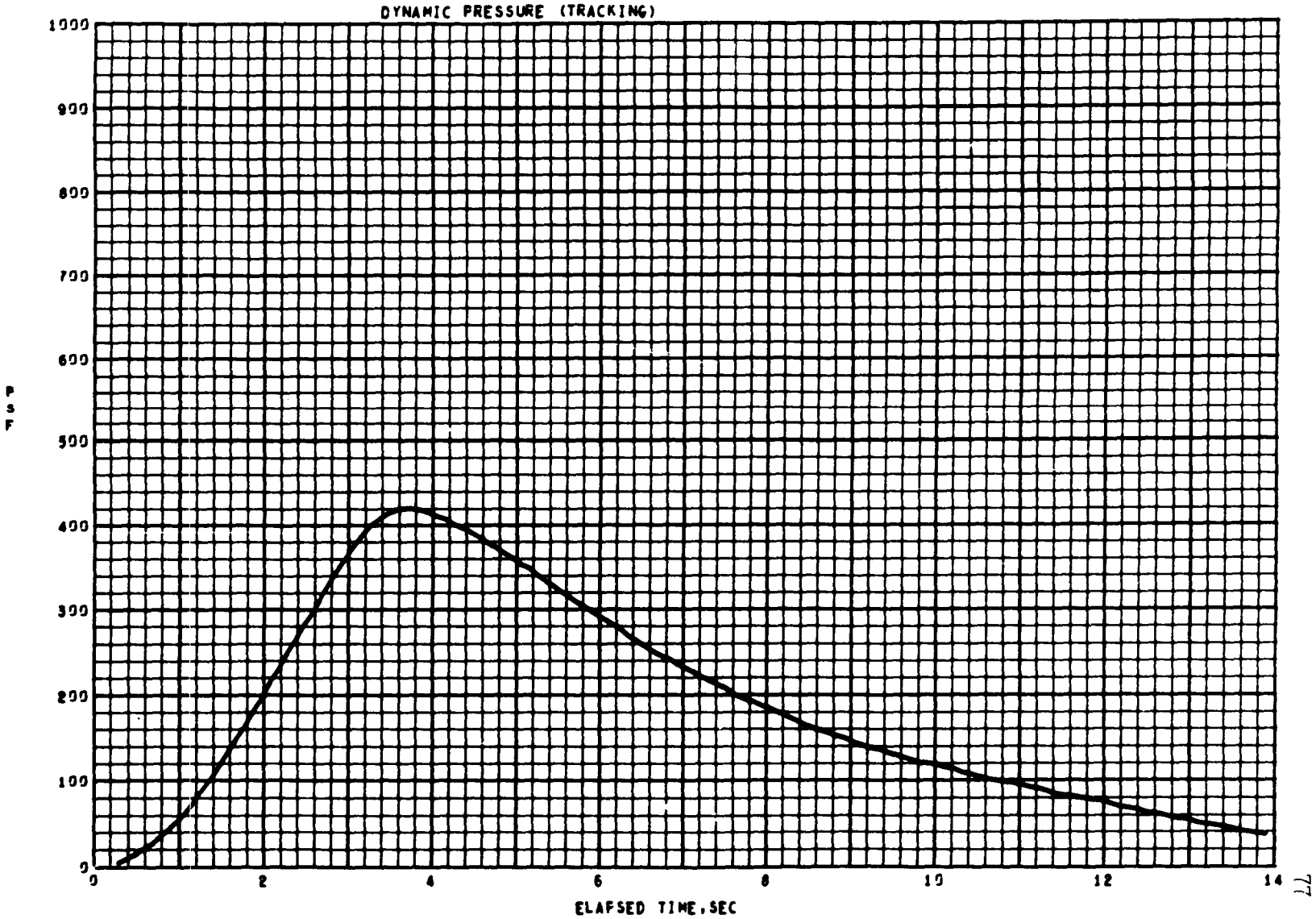
*LKH- 19

APOLLO BF-23A SC 29 JUNE 65



*LKH- 21

APOLLO BP-23A SC 29 JUNE 65

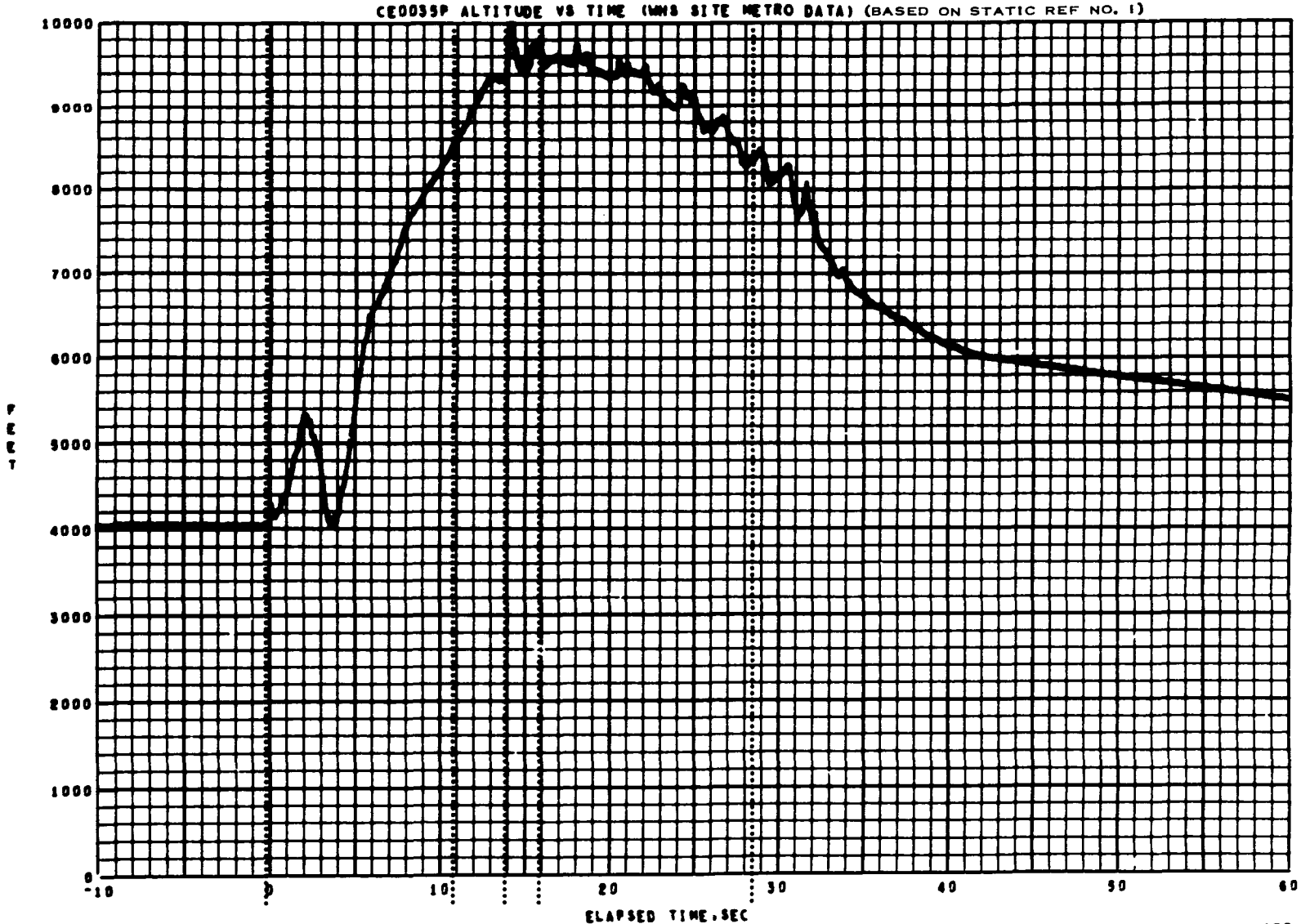


77

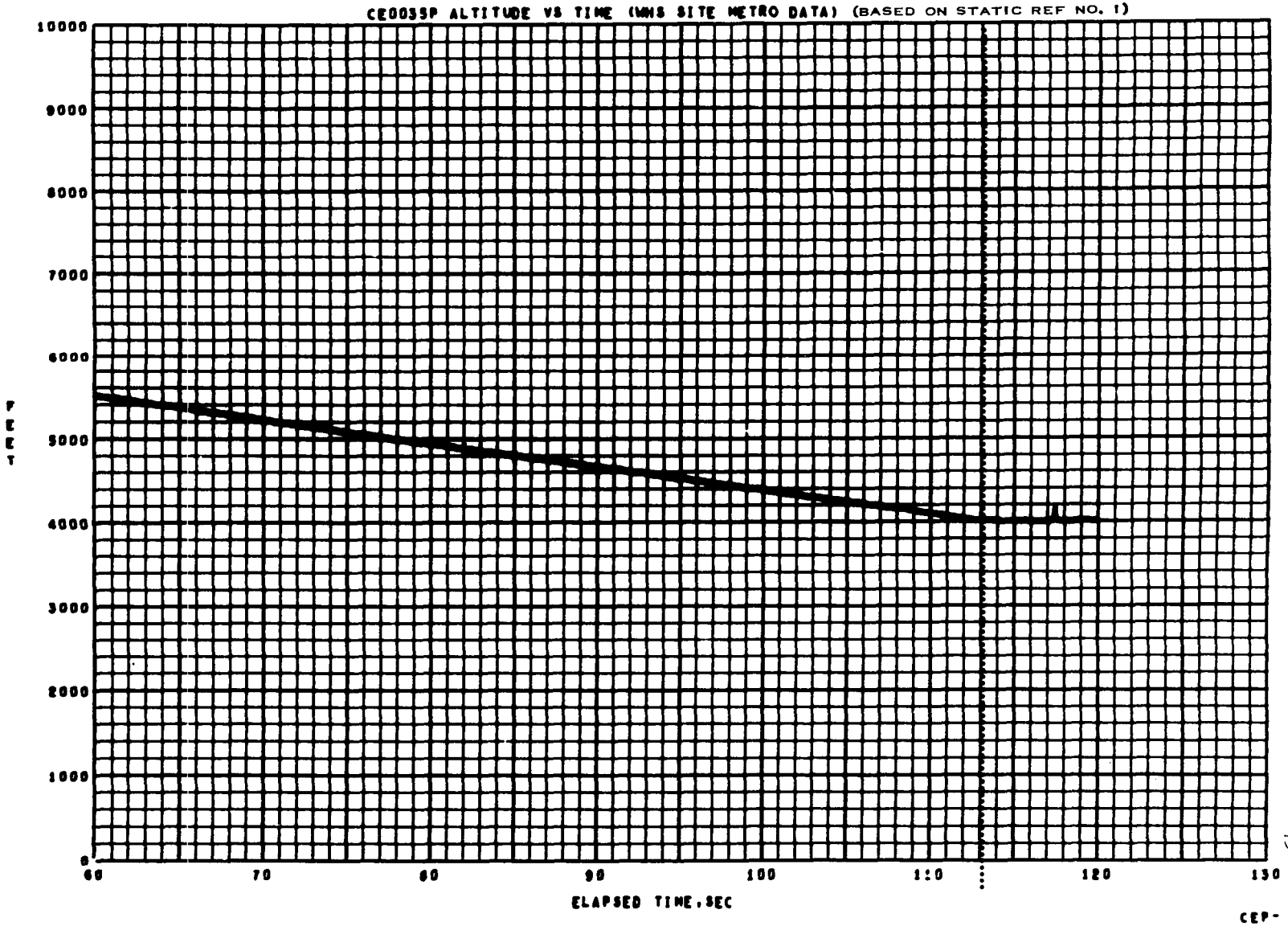
-0.15 SEC SEQUENCER START
10.85 SEC CANARD DEPLOY
13.95 SEC TOWER JETTISON
15.95 SEC DROGUE DEPLOY
28.55 SEC MAIN CHUTE DEPLOY

APOLLO BP-23A SC 29 JUNE 65 REVISION NO. 1

CE0035P ALTITUDE VS TIME (WNS SITE METRO DATA) (BASED ON STATIC REF NO. 1)



CEP- 7

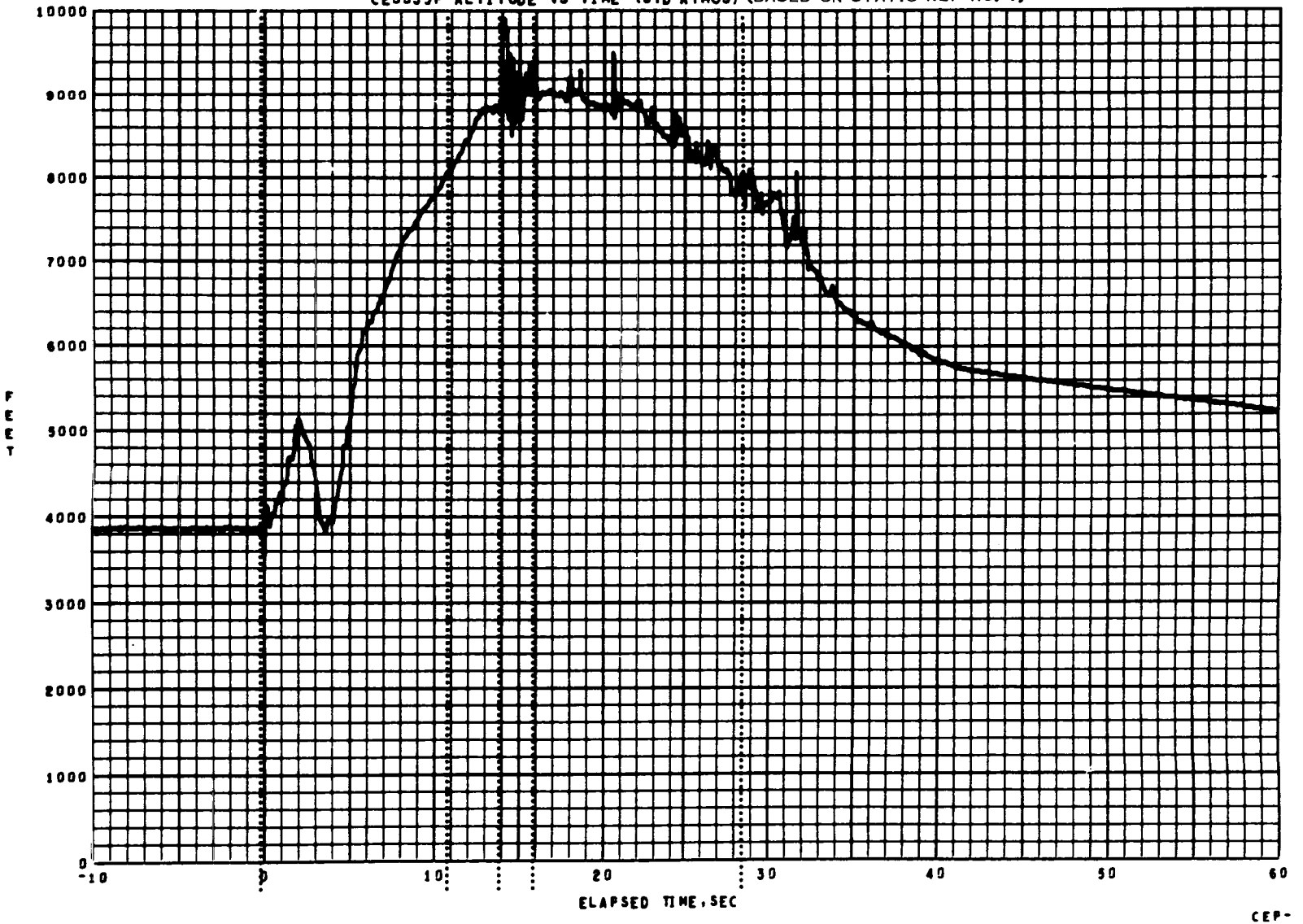

CE0035P ALTITUDE VS TIME (WNS SITE METRO DATA) (BASED ON STATIC REF NO. 1)
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
FEET
60
70
80
90
100
110
120
130
ELAPSED TIME,SEC

CEP- 8

-0.15 SEC SEQUENCER START
10.85 SEC CANARD DEPLOY
13.95 SEC TOWER JETTISON
15.95 SEC DROGUE DEPLOY
28.55 SEC CHUTE DEPLOY

APOLLO BP-23A SC 29 JUNE 65

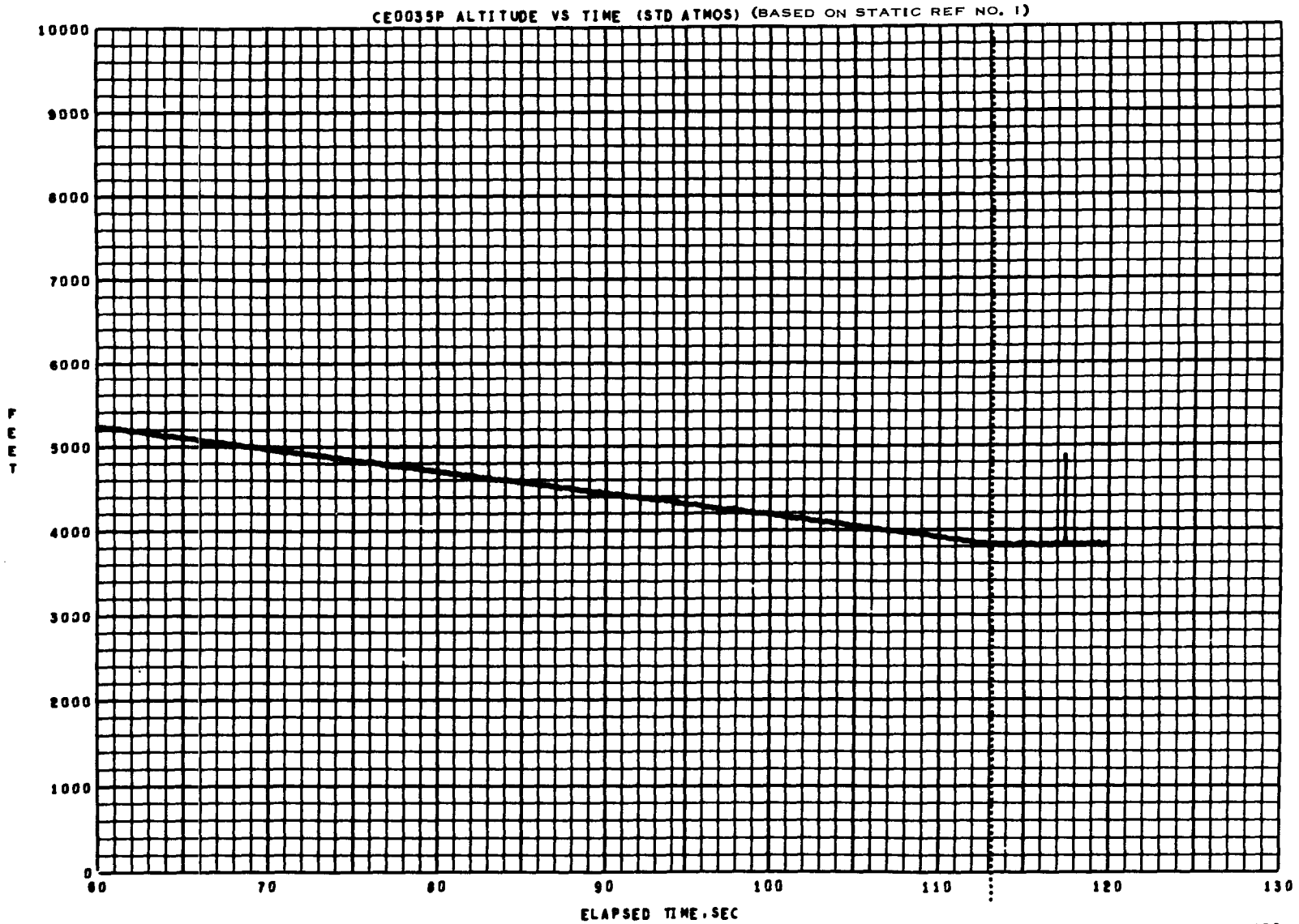
CE0035P ALTITUDE VS TIME (STD ATMOS) (BASED ON STATIC REF NO. 1)



CEP- 7

113.20 SEC LANDING

APOLLO BP-23A SC 29 JUNE 65

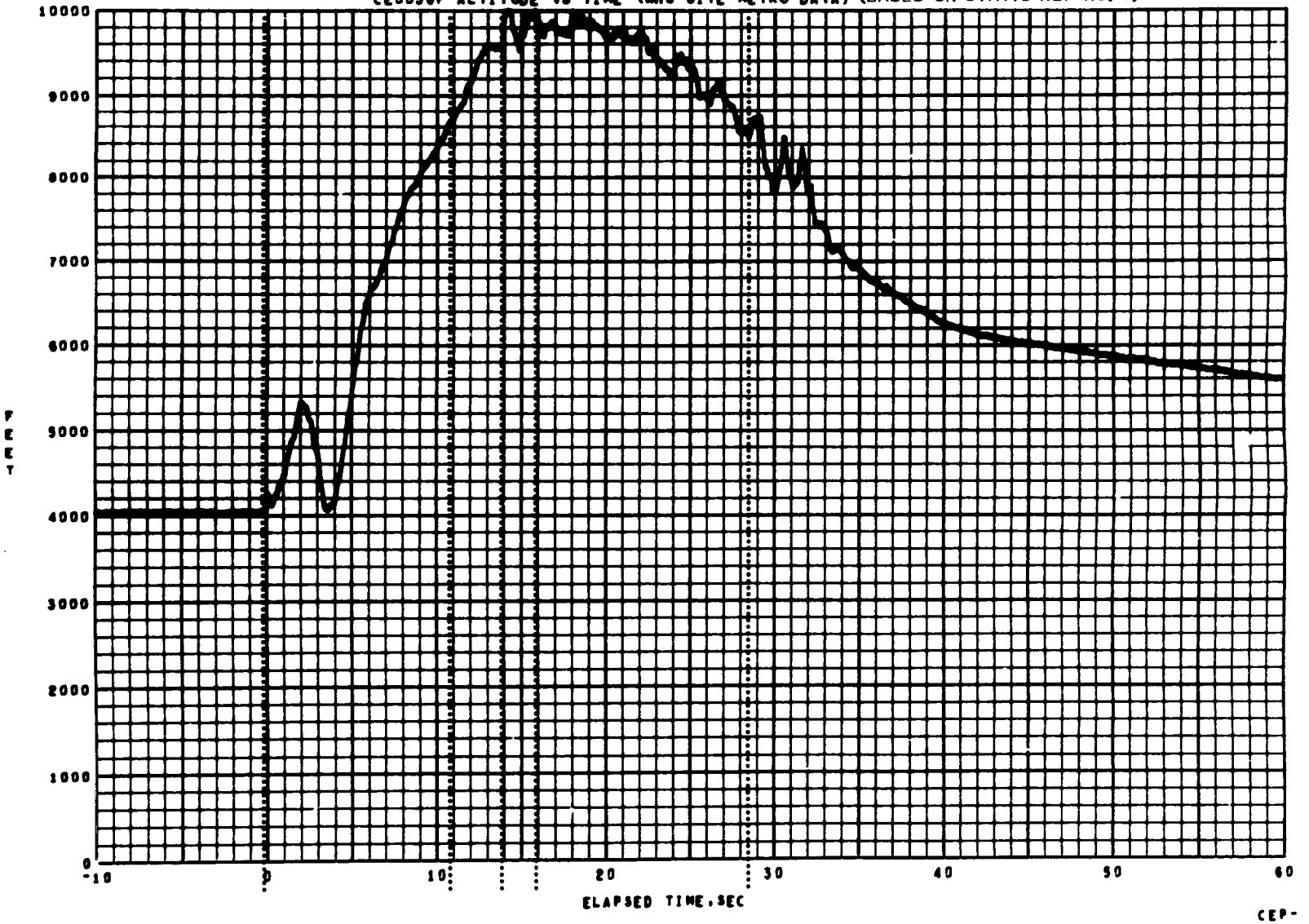


CEP- 8

-0.15 SEC SEQUENCER START
10.85 SEC CANARD DEPLOY
13.95 SEC TOWER JETTISON
15.95 SEC DROGUE DEPLOY
20.55 SEC MAIN CHUTE DEPLOY

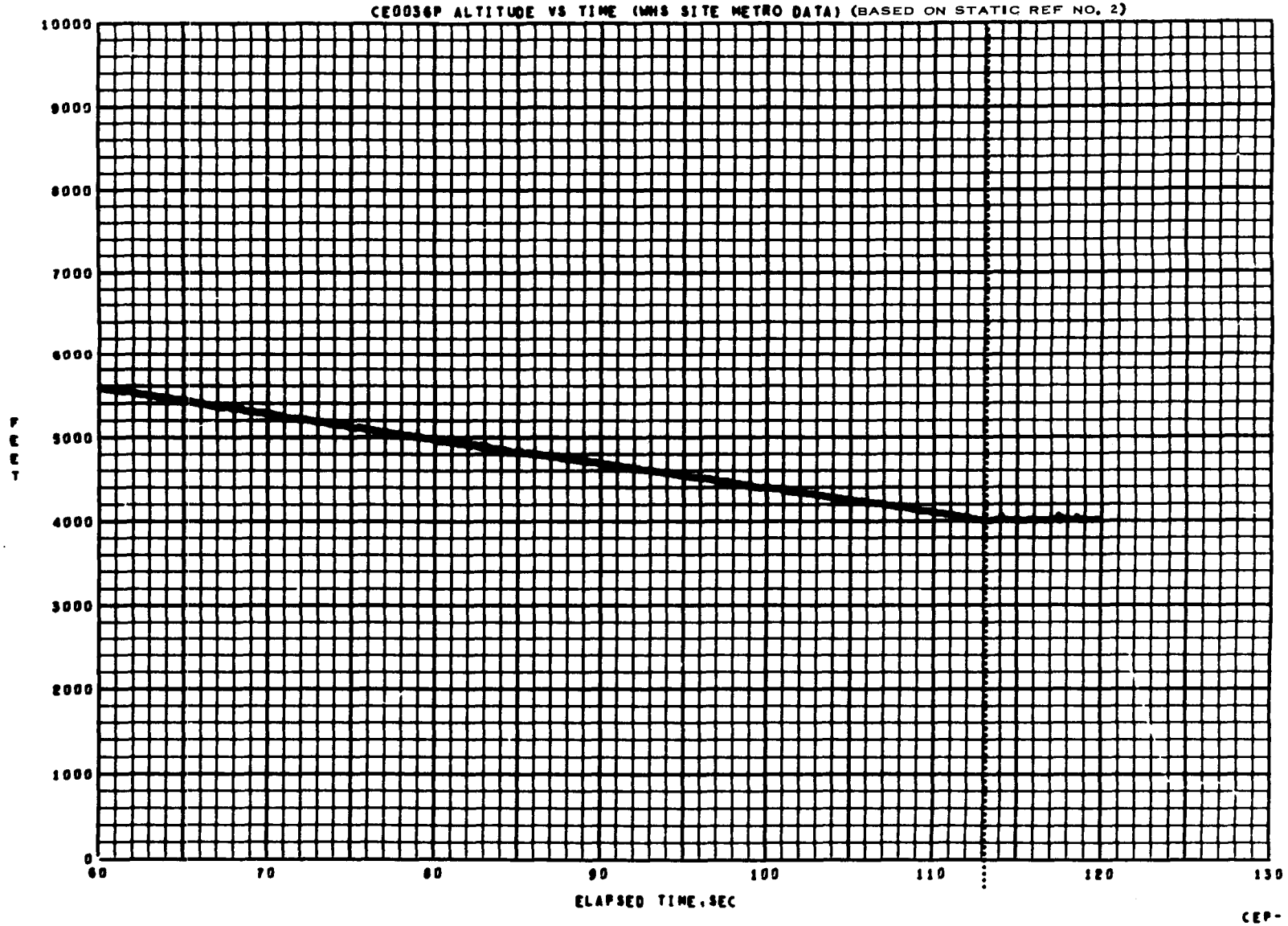
APOLLO BP-23A SC 29 JUNE 65 REVISION NO. 1

CE0036P ALTITUDE VS TIME (WHS SITE METRO DATA) (BASED ON STATIC REF NO. 2)



CEP- 11

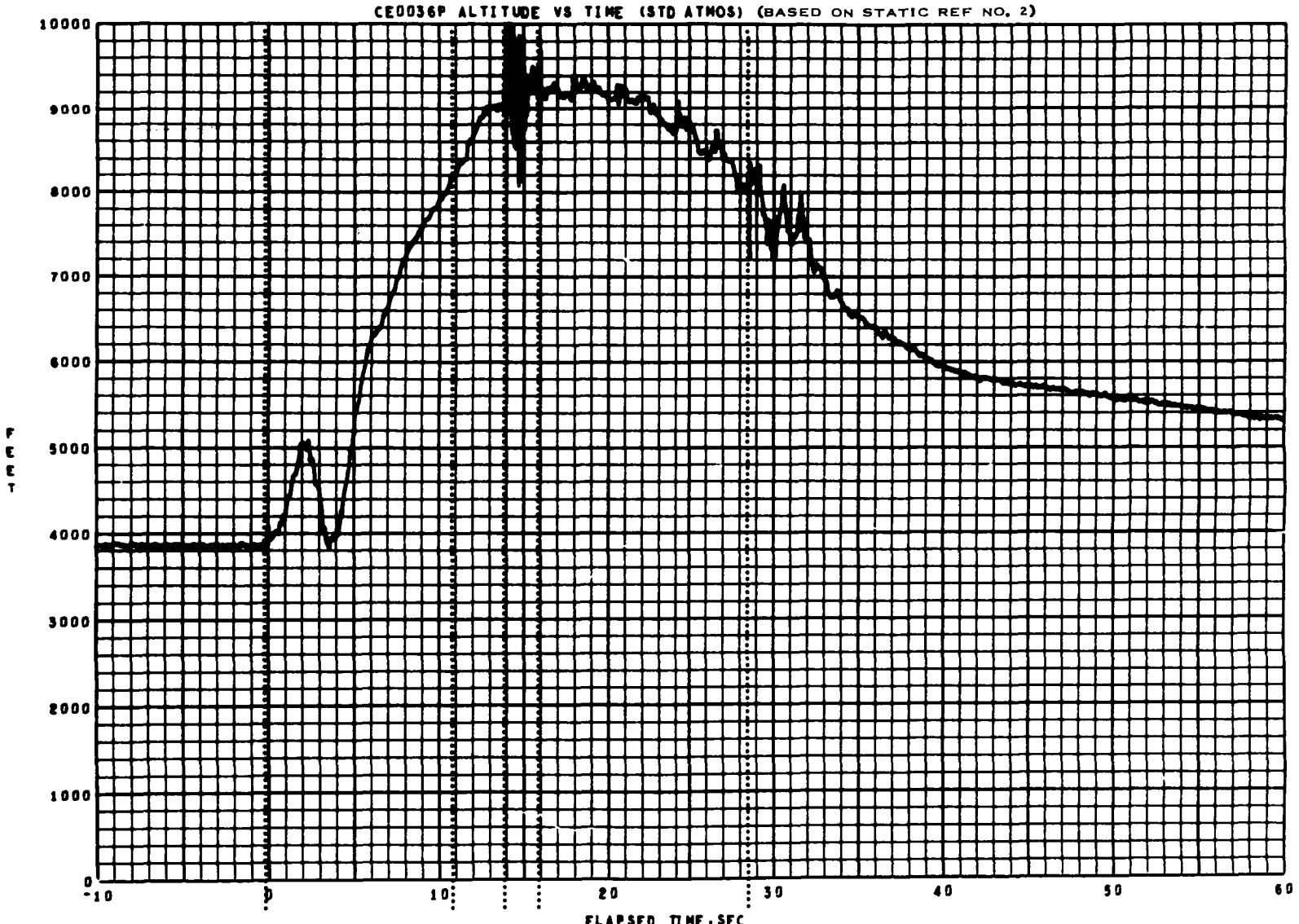
CE0036P ALTITUDE VS TIME (WHS SITE METRO DATA) (BASED ON STATIC REF NO. 2)



-0.15 SEC SEQUENCER START
10.85 SEC CANARD DEPLOY
13.85 SEC TOWER JETTISON
15.85 SEC DROGUE DEPLOY
28.55 SEC CHUTE DEPLOY

APOLLO BP-23A SC 29 JUNE 65

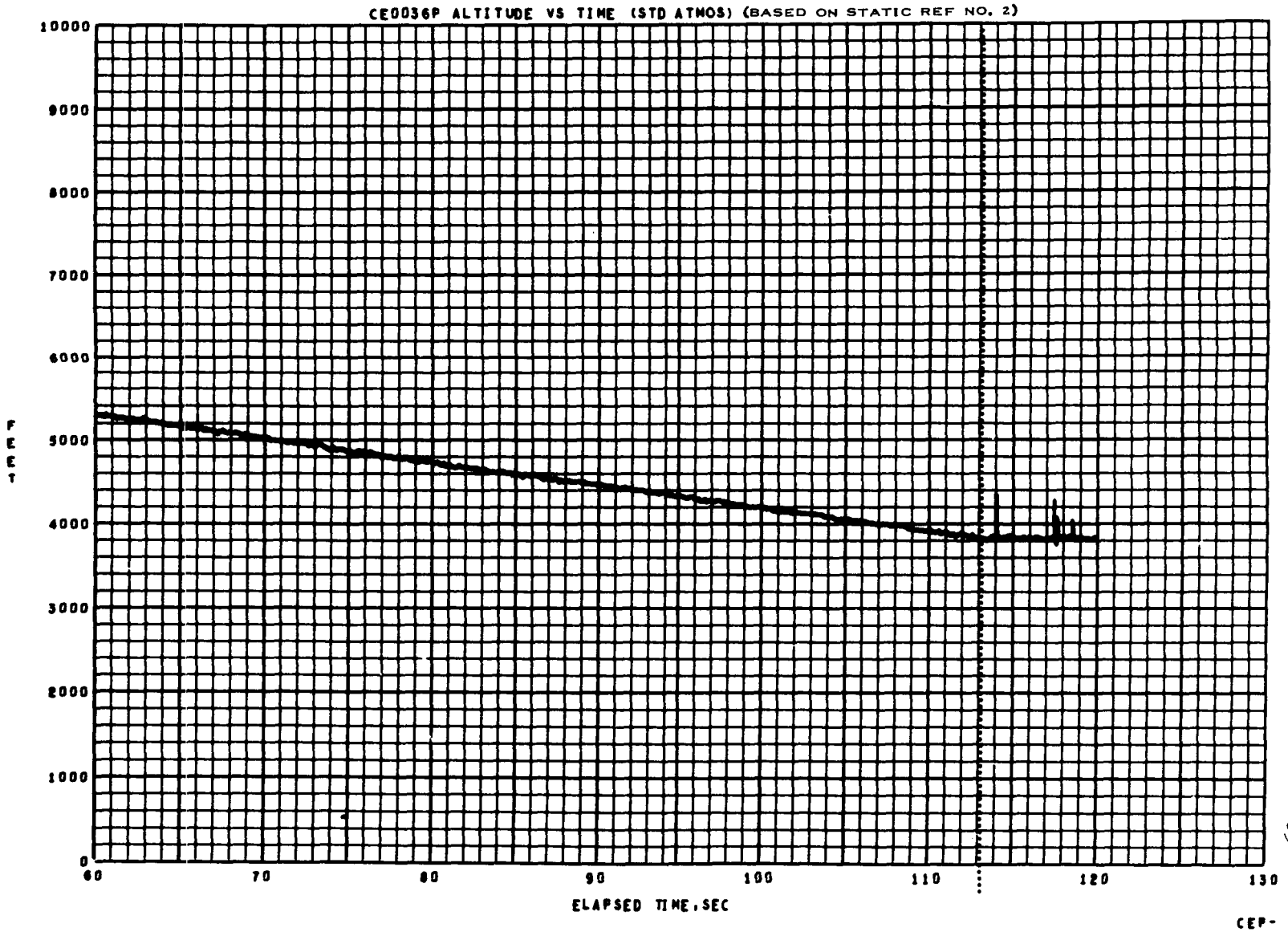
CE0036P ALTITUDE VS TIME (STD ATMOS) (BASED ON STATIC REF NO. 2)



CEP- 11

113.20 SEC LANDING

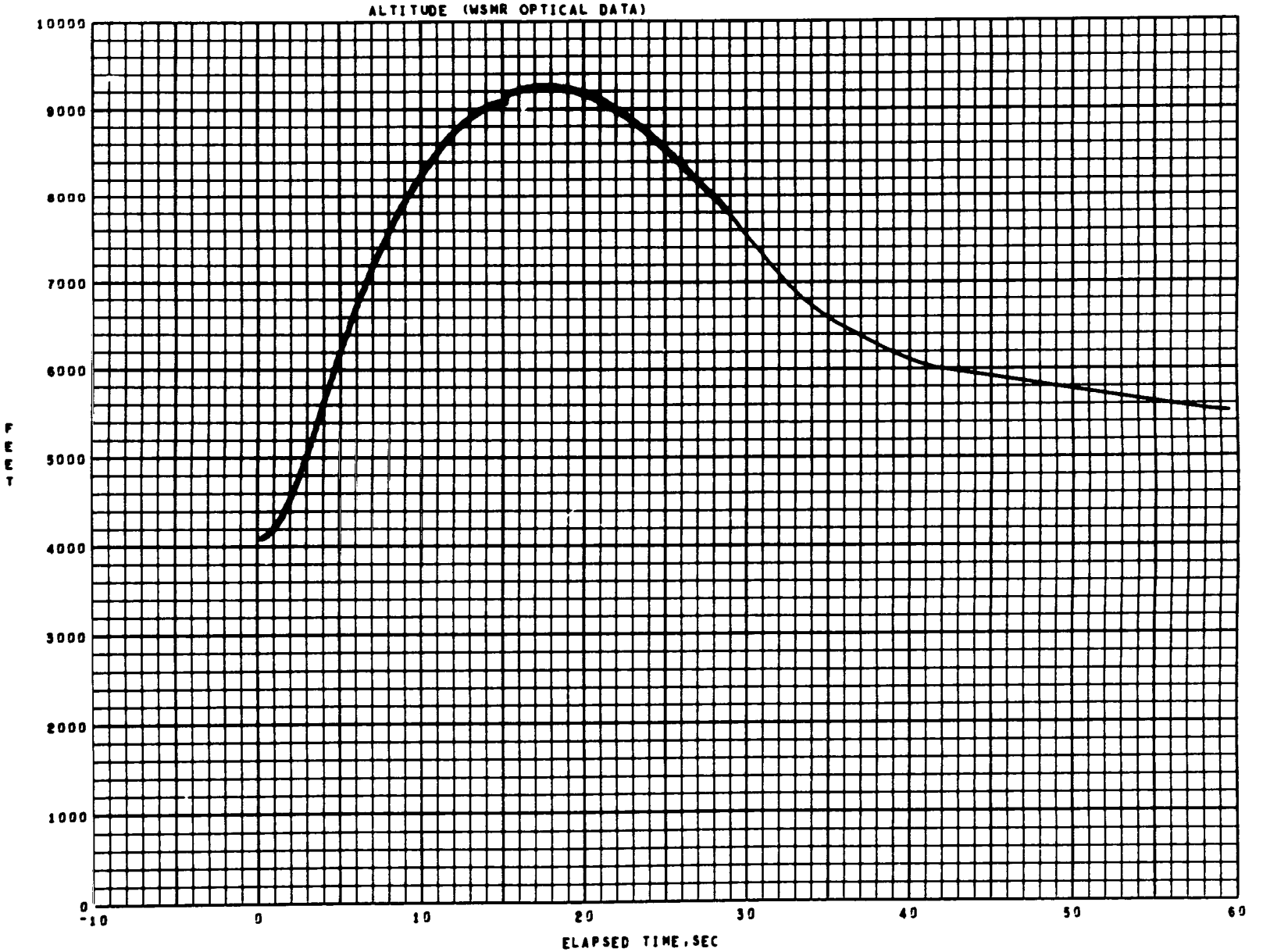
APOLLO BP-23A SC 29 JUNE 65



CEP- 12

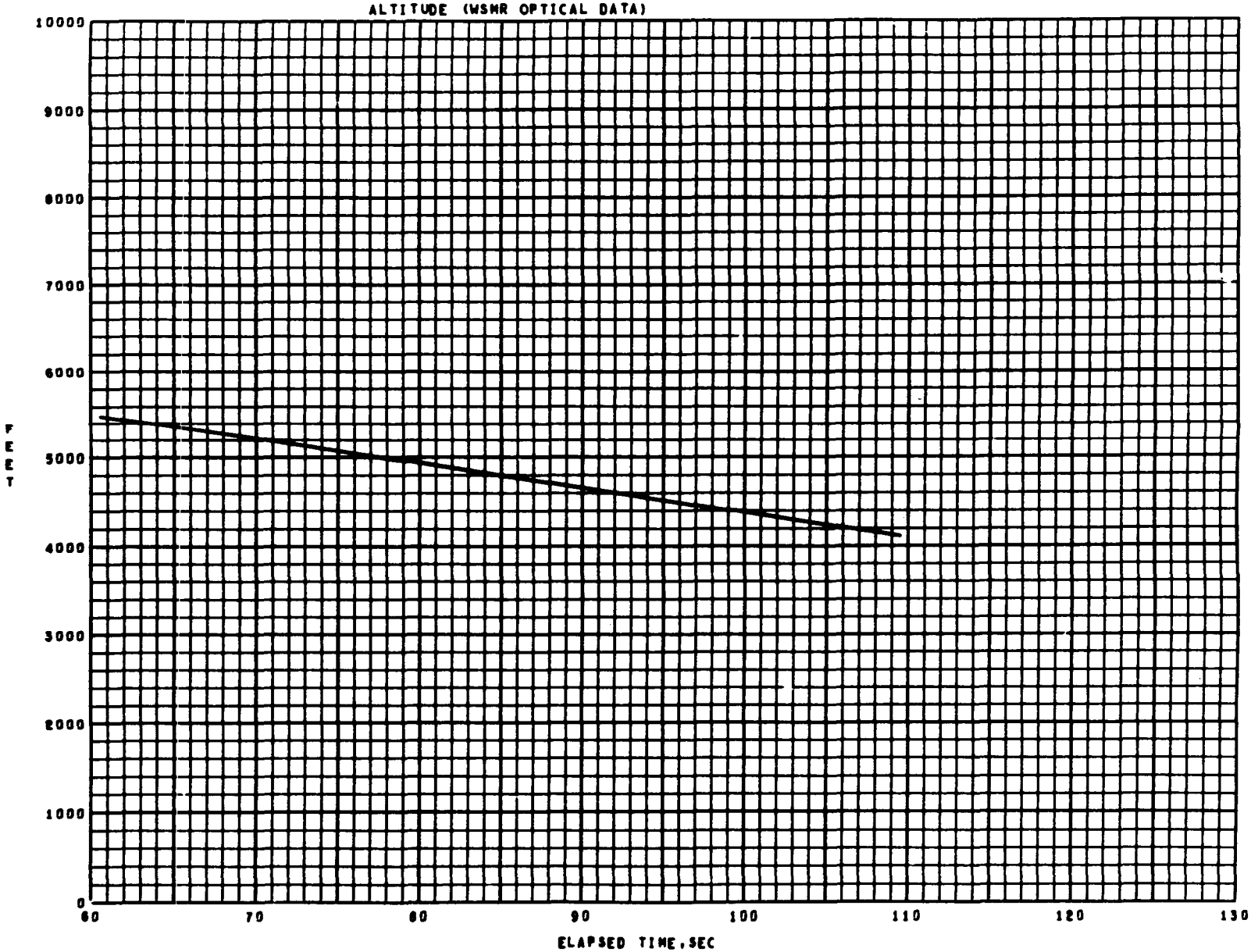
APOLLO BP-23A SC 29 JUNE 65

ALTITUDE (WSMR OPTICAL DATA)



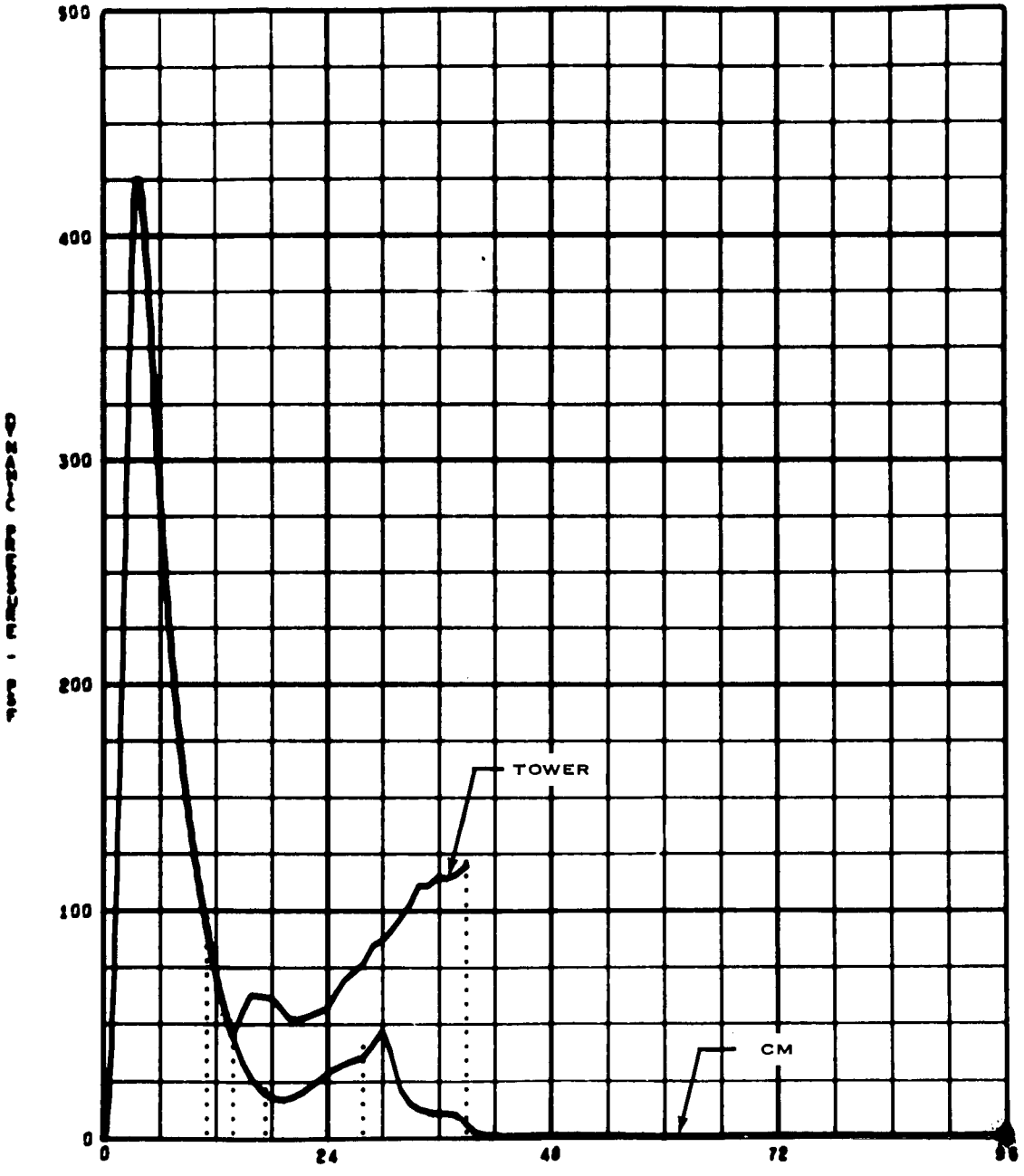
APOLLO BP-23A SC 29 JUNE 65

ALTITUDE (WSMR OPTICAL DATA)



MISSION PA-2 POSTFLIGHT TRAJECTORY SIMULATION

TIME = 11.00 SEC. CANARD DEPLOYMENT
TIME = 14.00 SEC. TOWER JETTISON
TIME = 17.44 SEC. CSM MOD AT APOGEE
TIME = 26.00 SEC. MAIN CHUTES DEPLOY
TIME = 117.15 SEC. CSM. MOD. LANDING
TIME = 39.07 SEC. TOWER AT APOGEE



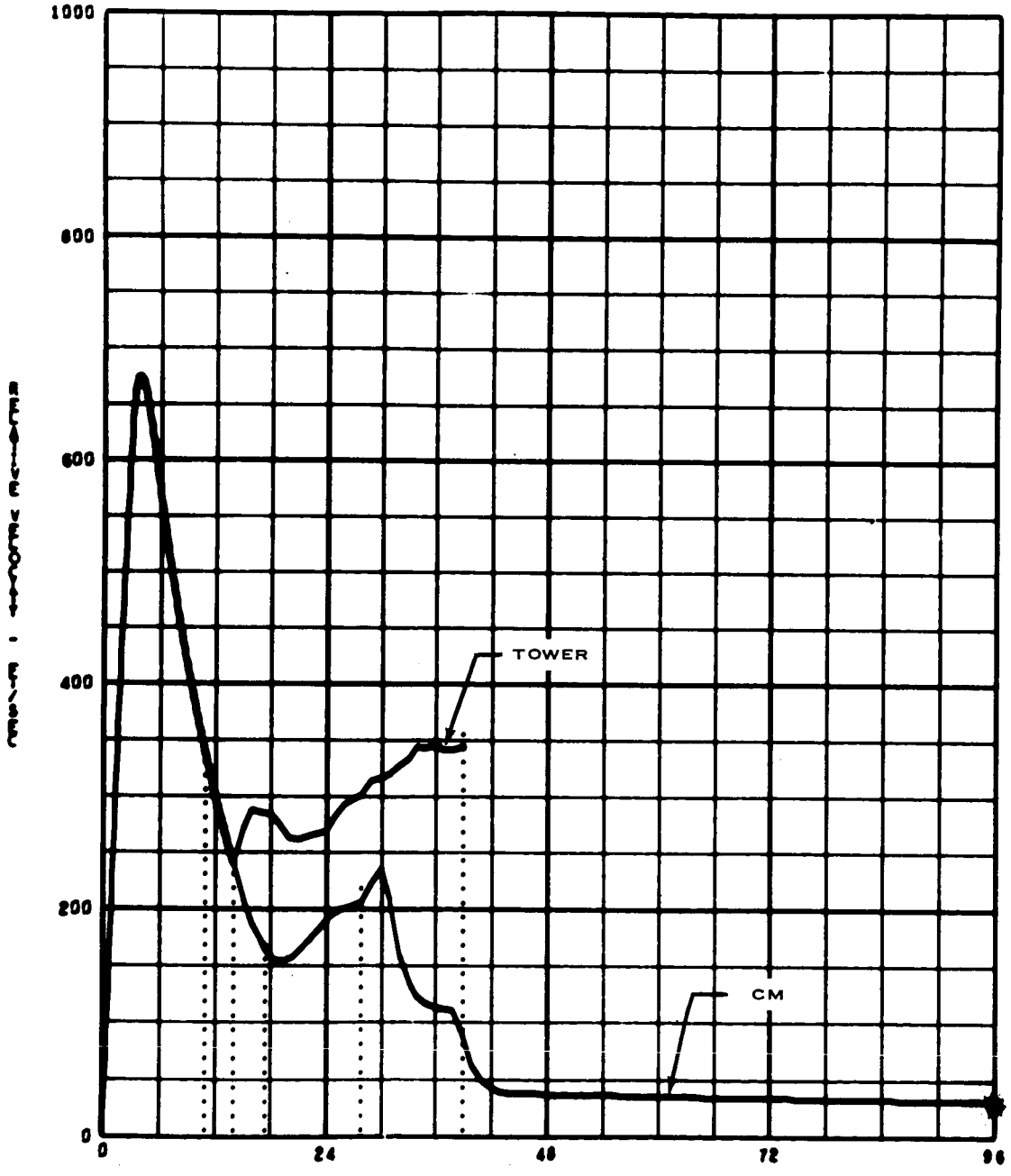
TIME FROM LAUNCH, SEC.

DYNAMIC PRESSURE VS TIME FROM LAUNCH

FULL FLIGHT RATES AND INPUTS

MISSION PA-2 POSTFLIGHT TRAJECTORY SIMULATION

TIME = 11.00 SEC. CANARD DEPLOYMENT
TIME = 14.00 SEC. TOWER JETTISON
TIME = 17.44 SEC. CON MOD AT APOGEE
TIME = 28.00 SEC. MAIN CHUTES DEPLOY
TIME = 117.15 SEC. CON. MOD. LANDING
TIME = 39.07 SEC. TOWER AT APOGEE

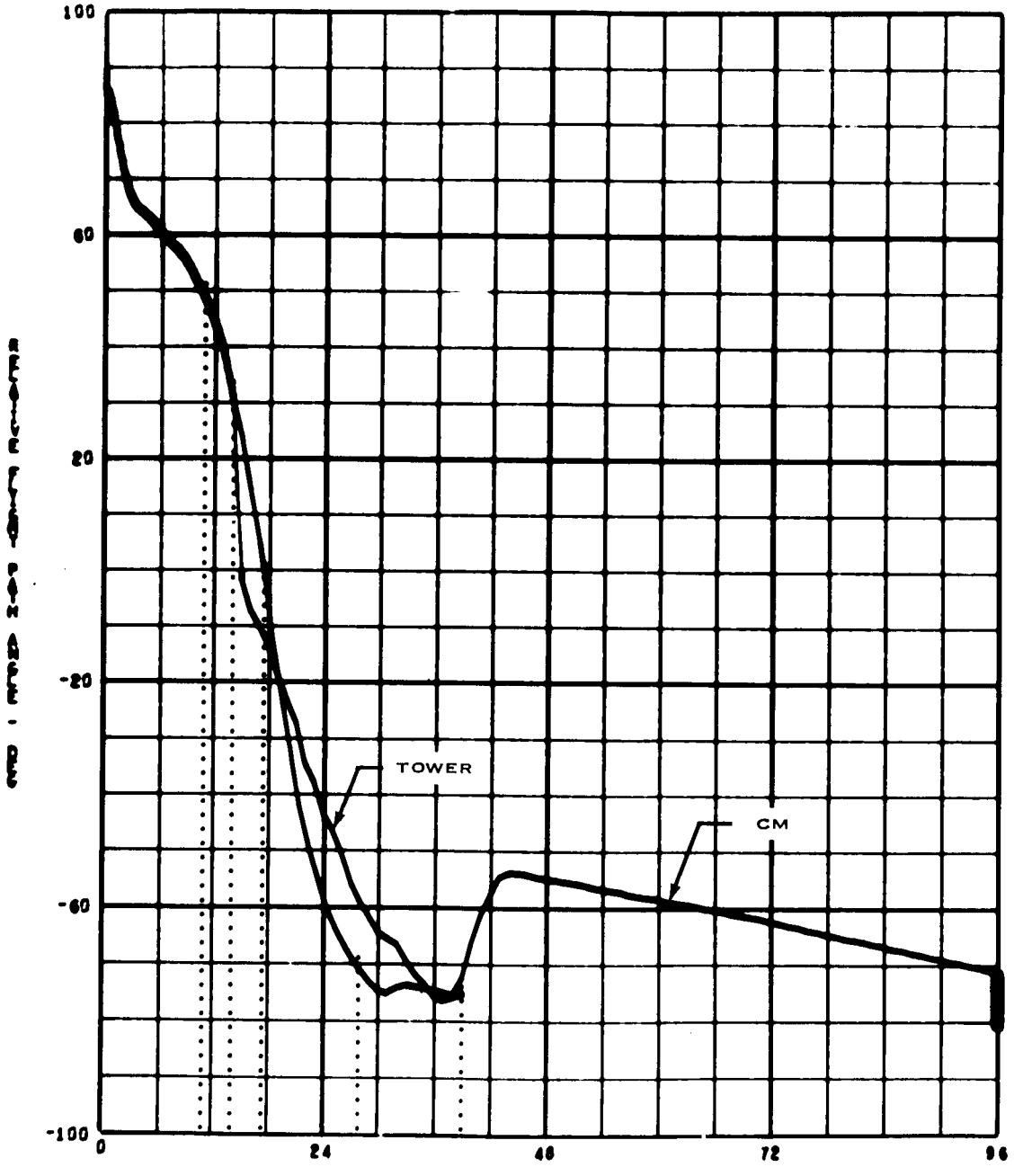


TOTAL RELATIVE VELOCITY VS TIME FROM LAUNCH

FULL FLIGHT RATES AND INPUTS

MISSION PA-2 POSTFLIGHT TRAJECTORY SIMULATION

TIME = 11.00 SEC. CANARD DEPLOYMENT
TIME = 14.00 SEC. TOWER JETTISON
TIME = 17.44 SEC. COM MOD AT APOGEE
TIME = 28.00 SEC. MAIN CHUTES DEPLOY
TIME = 117.15 SEC. COM. MOD. LANDING
TIME = 39.07 SEC. TOWER AT APOGEE

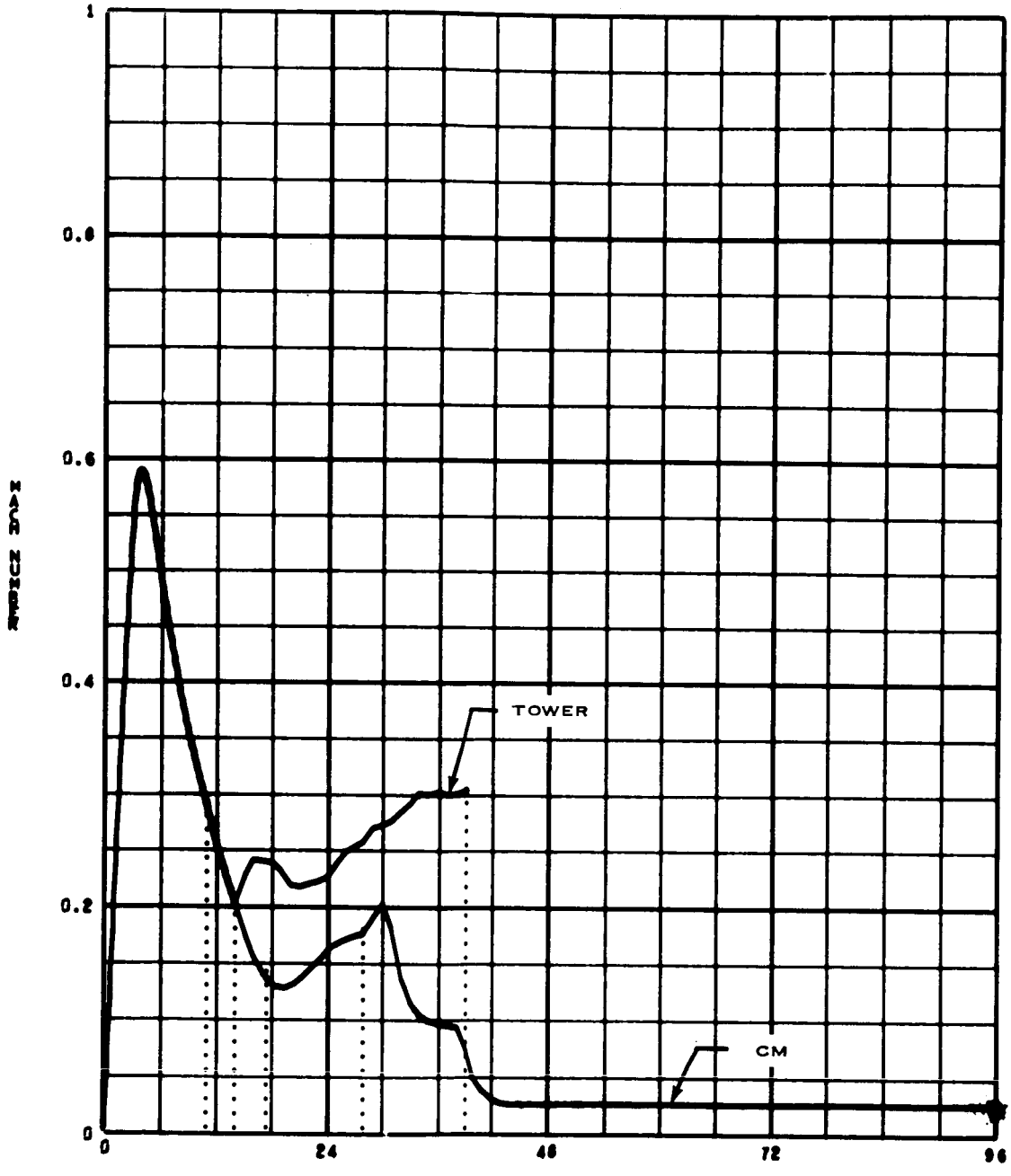


RELATIVE FLIGHT PATH ANGLE VS TIME FROM LAUNCH

FULL FLIGHT RATES AND INPUTS

MISSION PA-2 POSTFLIGHT TRAJECTORY SIMULATION

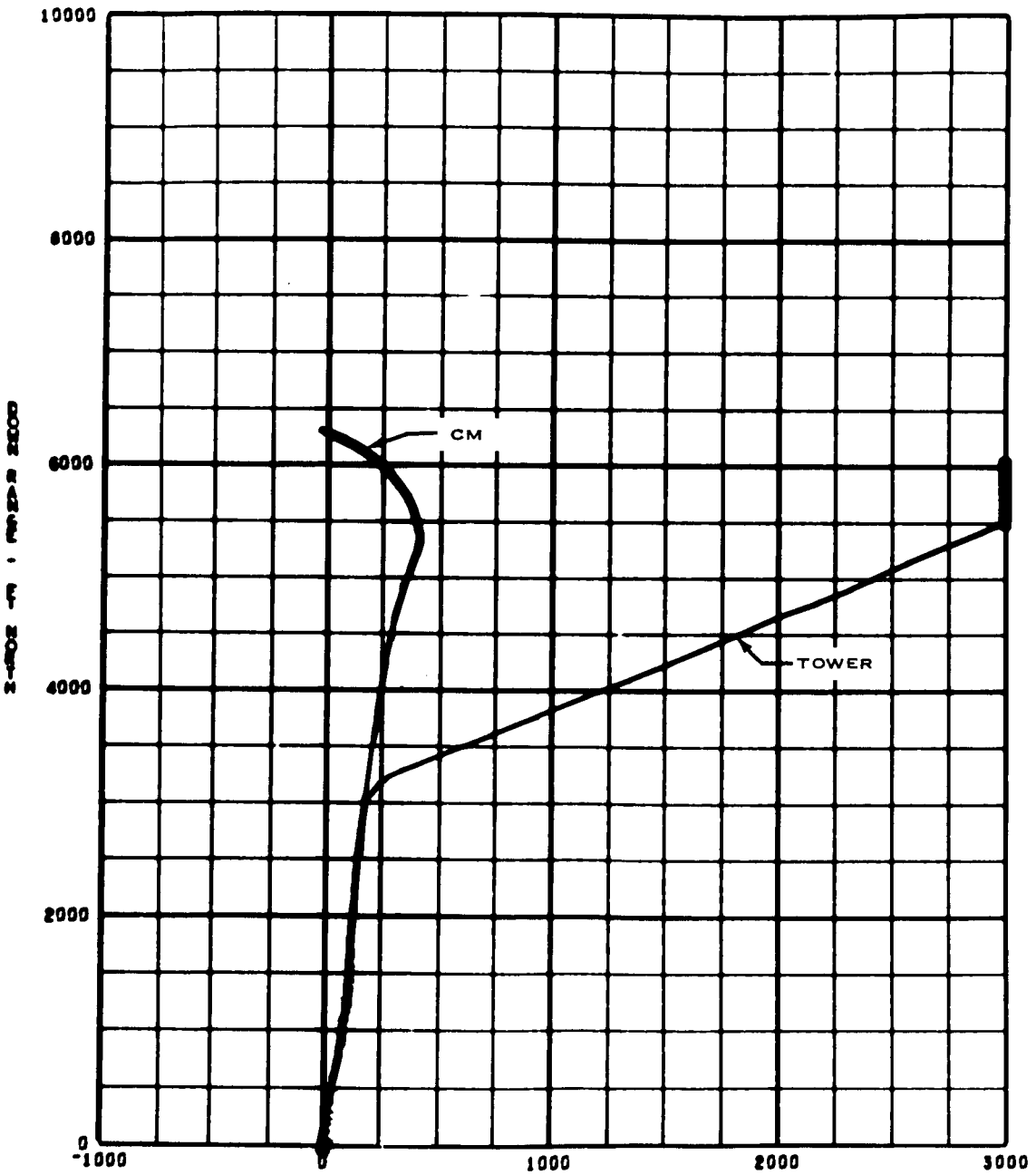
TIME = 11.00 SEC. CANARD DEPLOYMENT
TIME = 14.00 SEC. TOWER JETTISON
TIME = 17.44 SEC. COM MOD AT APOGEE
TIME = 28.00 SEC. MAIN CHUTES DEPLOY
TIME = 117.15 SEC. COM. MOD. LANDING
TIME = 39.07 SEC. TOWER AT APOGEE



MACH NUMBER VS TIME FROM LAUNCH

FULL FLIGHT RATES AND INPUTS

MISSION PA-2 POSTFLIGHT TRAJECTORY SIMULATION

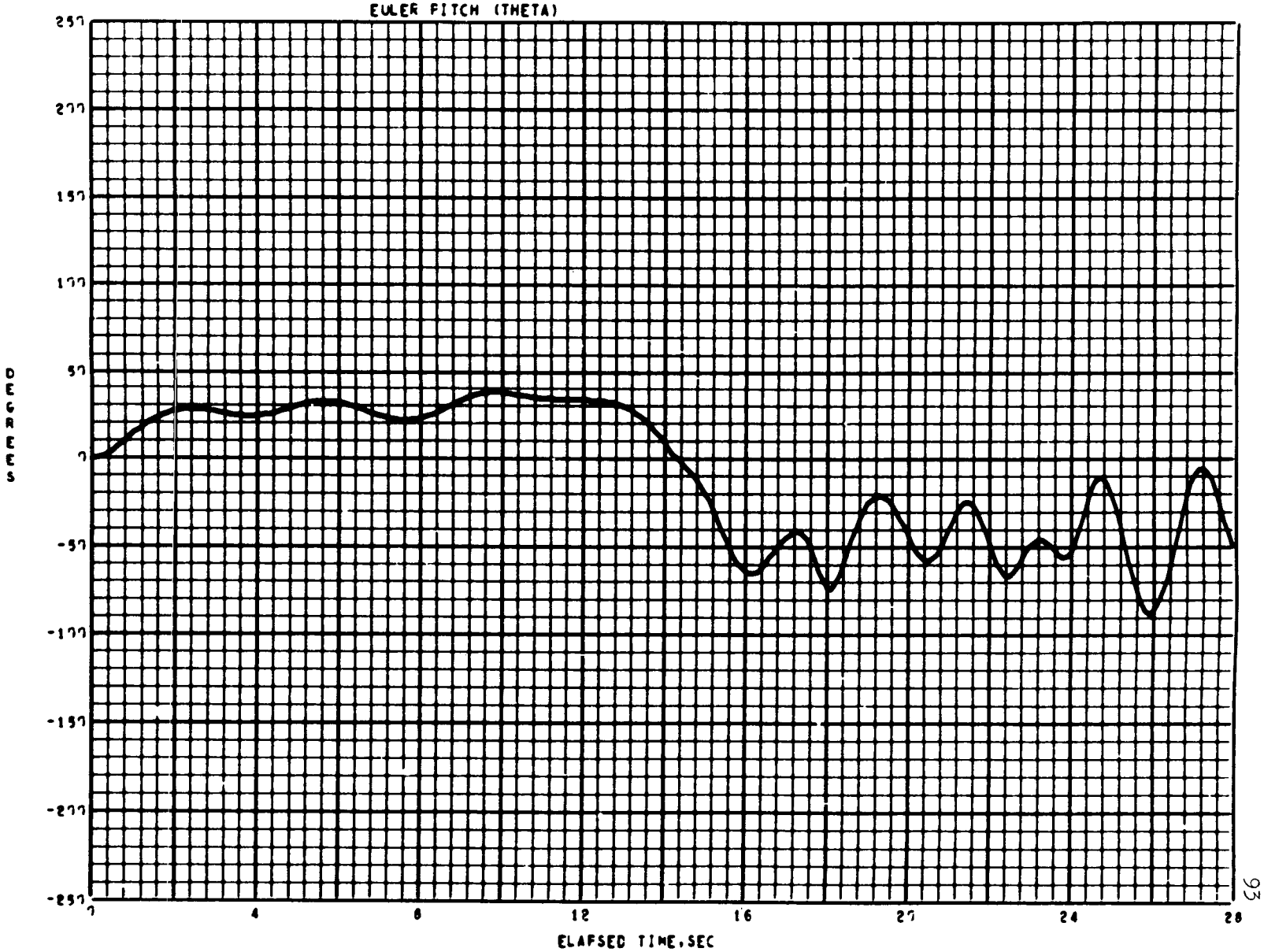


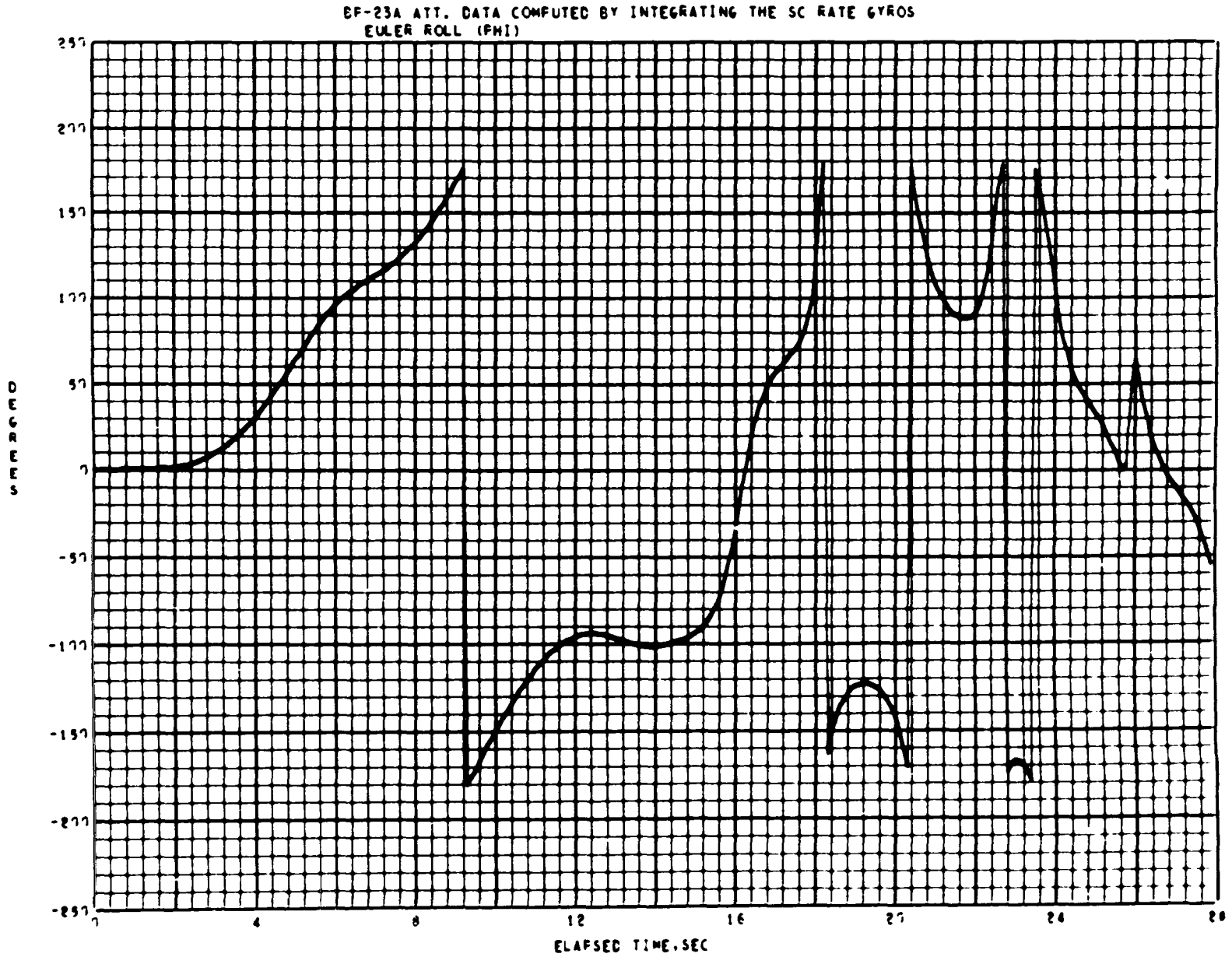
GROUND TRACK OF MISSION PA-2

FULL FLIGHT RATES AND INPUTS

EF-23A ATT. DATA COMPUTED BY INTEGRATING THE SC RATE GYROS

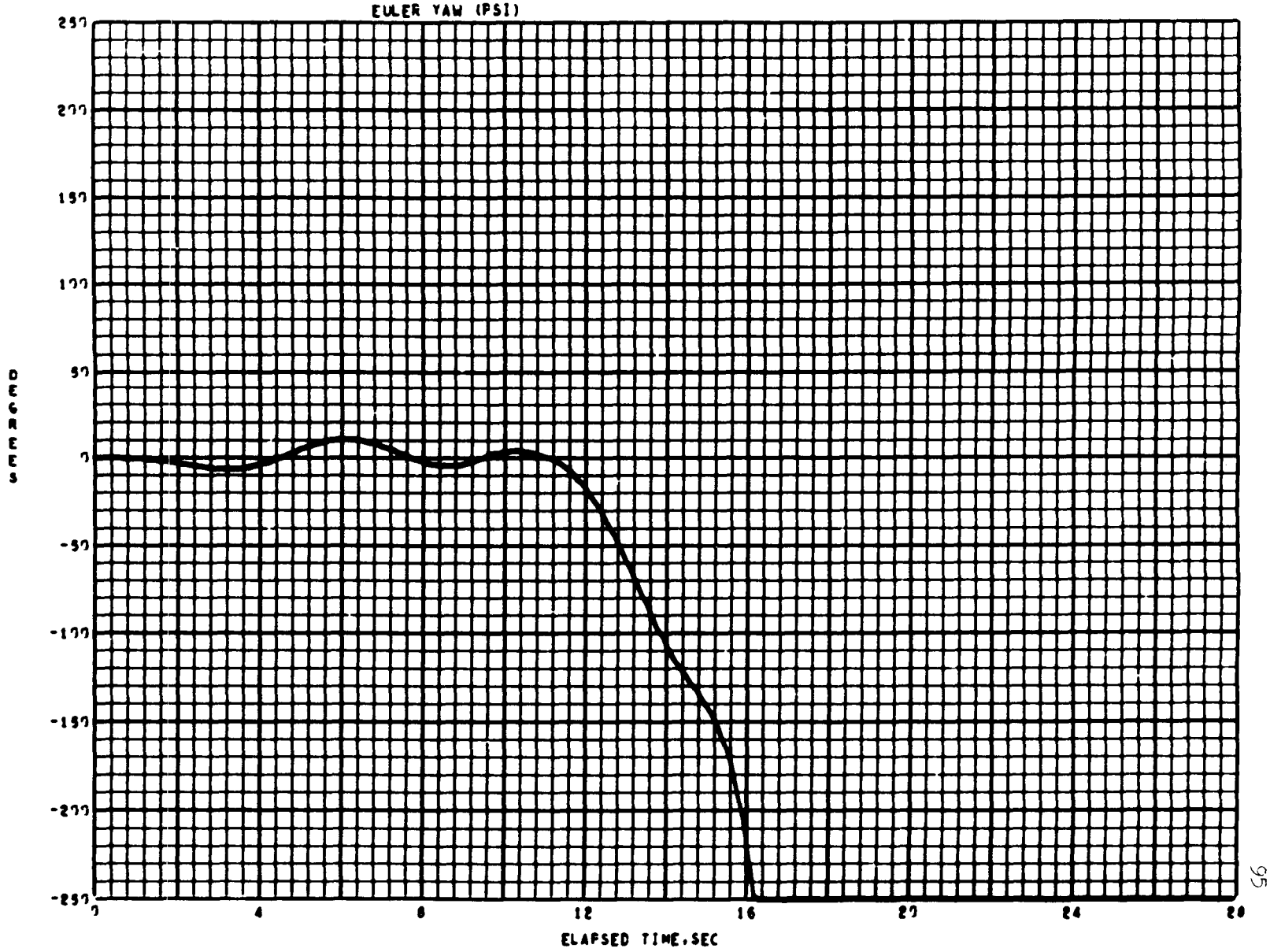
EULER PITCH (THETA)

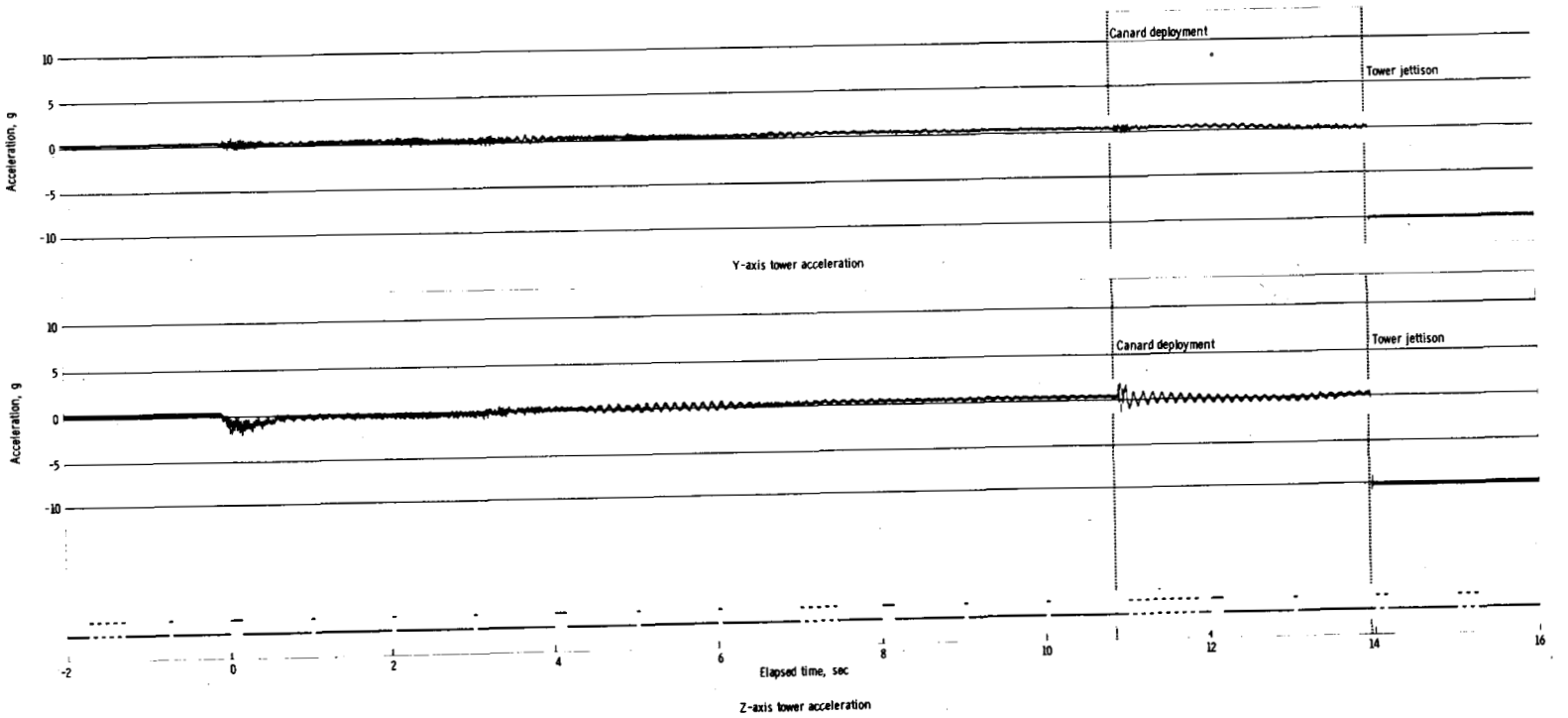


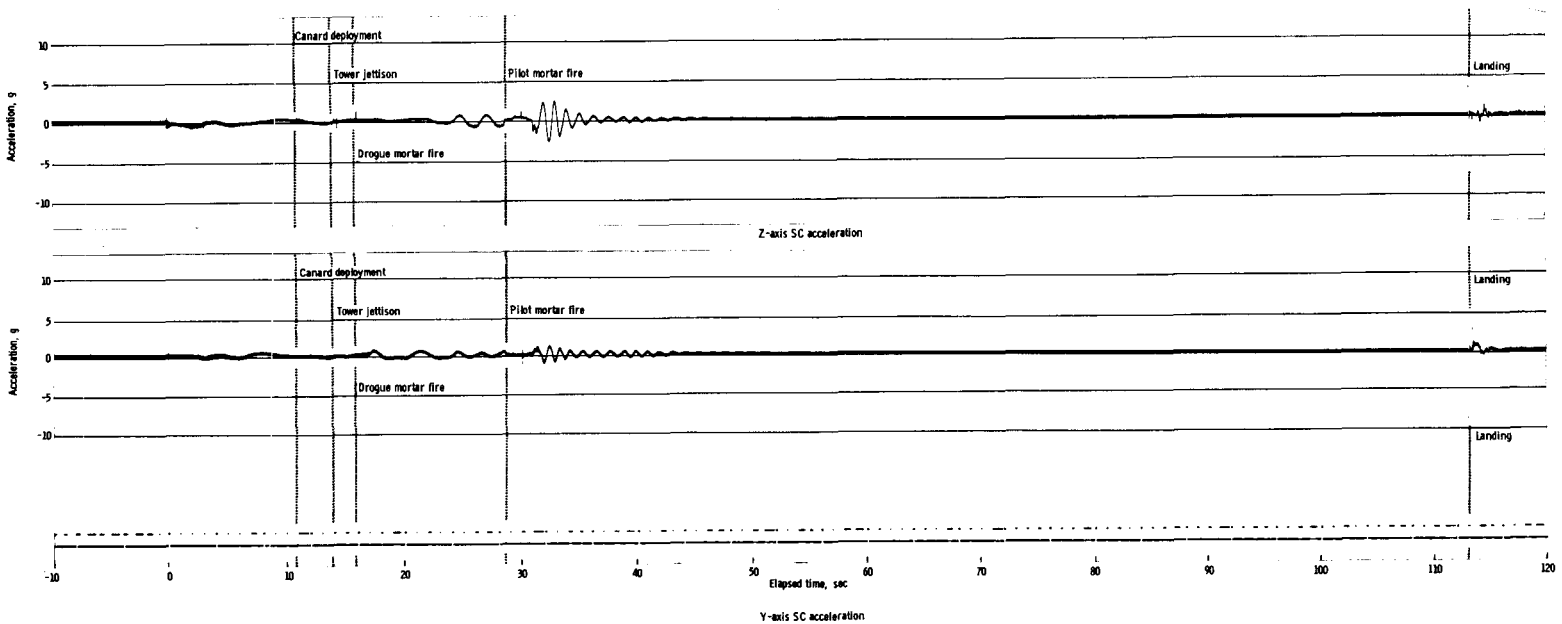

BF-23A ATT. DATA COMPUTED BY INTEGRATING THE SC RATE GYROS
EULER ROLL (PHI)
250
200
150
100
50
0
-50
-100
-150
-200
-250
DEGREES
0
4
8
12
16
20
24
28
ELAPSED TIME,SEC

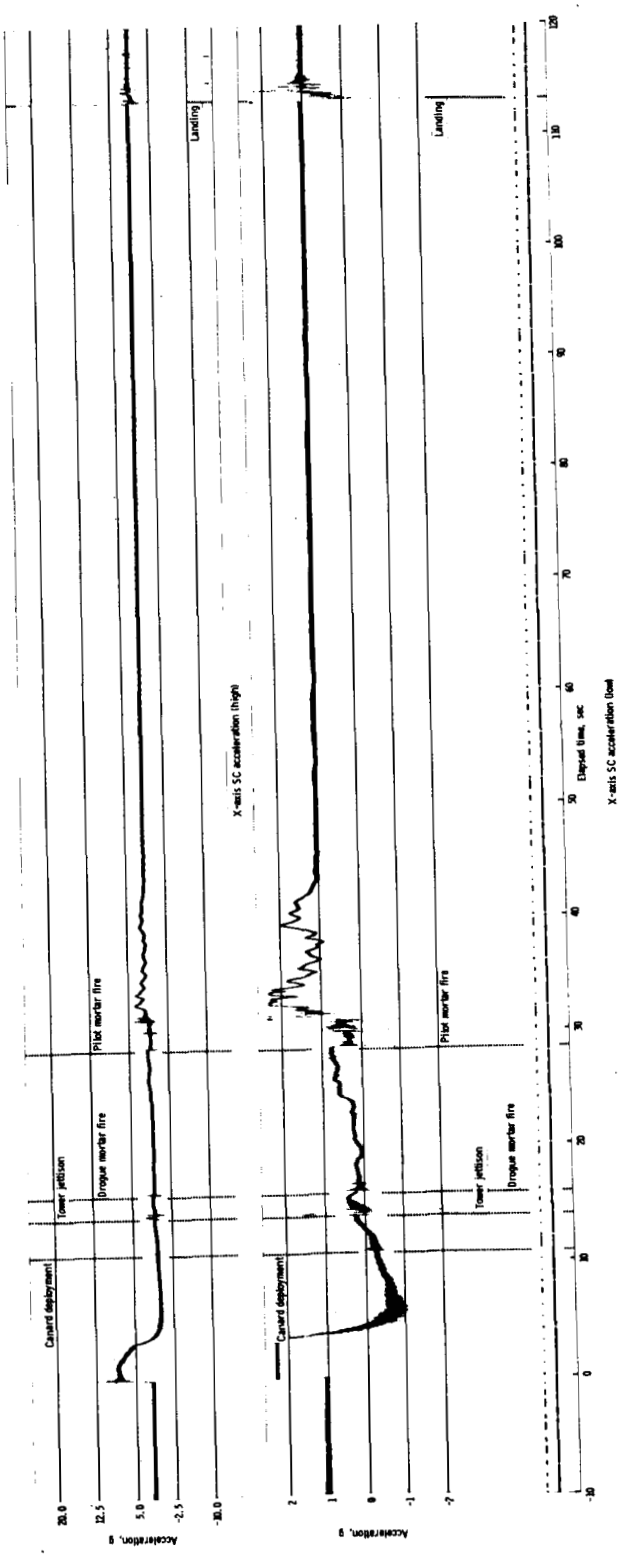
BF-23A ATT. DATA COMPUTED BY INTEGRATING THE SC RATE GYROS

EULER YAW (PSI)

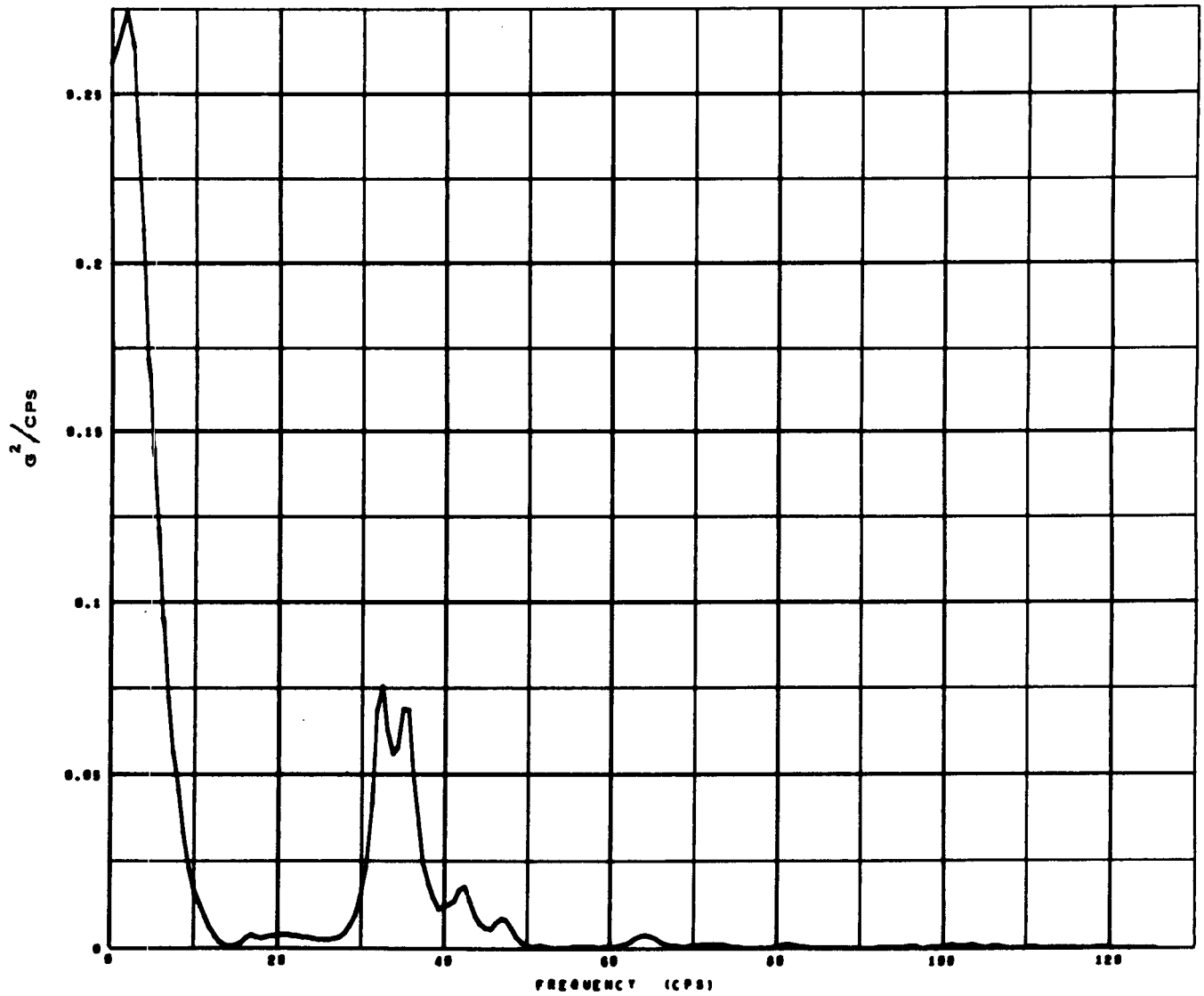



Canard deployment
Tower jettison
Acceleration, g
10
5
0
-5
-10
Y-axis tower acceleration
Canard deployment
Tower jettison
Acceleration, g
10
5
0
-5
-10
-2
0
2
4
6
8
10
12
14
16
Elapsed time, sec
Z-axis tower acceleration

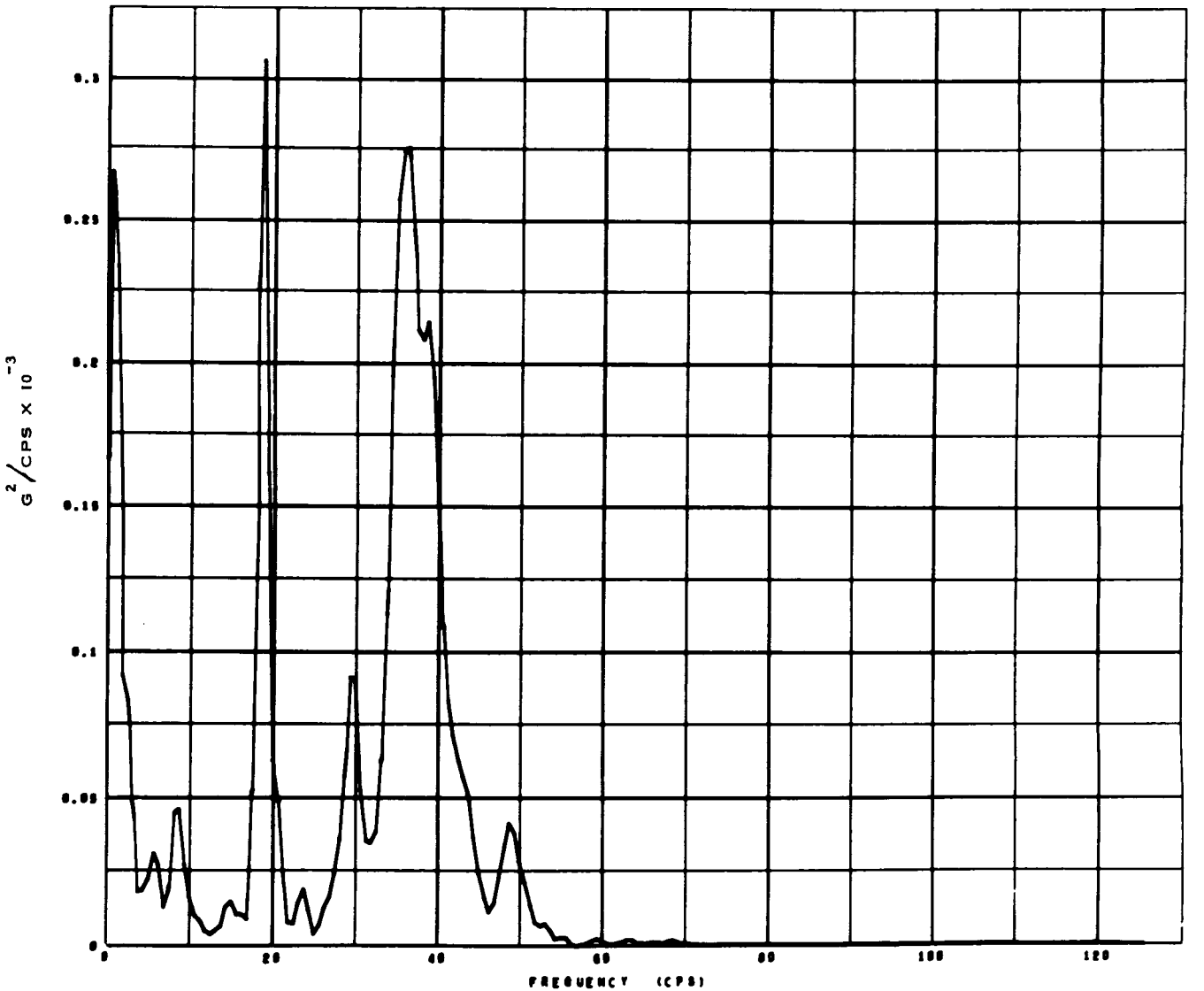

Canard deployment
Tower jettison
Pilot mortar fire
Landing
Drogue mortar fire
Acceleration, g
10
5
0
-5
-10
Z-axis SC acceleration
Canard deployment
Tower jettison
Pilot mortar fire
Landing
Drogue mortar fire
Landing
Acceleration, g
10
5
0
-5
-10
-10
0
10
20
30
40
50
60
70
80
90
100
110
120
Elapsed time, sec
Y-axis SC acceleration


Canard deployment
Tower jettison
Drogue mortar fire
Pilot mortar fire
Landing
X-axis SC acceleration (high)
20.0
12.5
5.0
-2.5
-10.0
Acceleration, g
2
1
0
-1
-2
Elapsed time, sec
-10
0
10
20
30
40
50
60
70
80
90
100
110
120
X-axis SC acceleration (low)

SENSOR CA0001A
TIME SLICE .012 TO 2.052 SEC.
LOW-PASS FILTER 45. CPS
FILTER BW 1.2500 CPS
SLICE RMS VALUE 1.472



SENSOR CA0005A
TIME SLICE .012 TO 2.052 SEC.
LOW-PASS FILTER 25. CPS
FILTER BW 1.2500 CPS
SLICE RMS VALUE .060



SENSOR CA00087A
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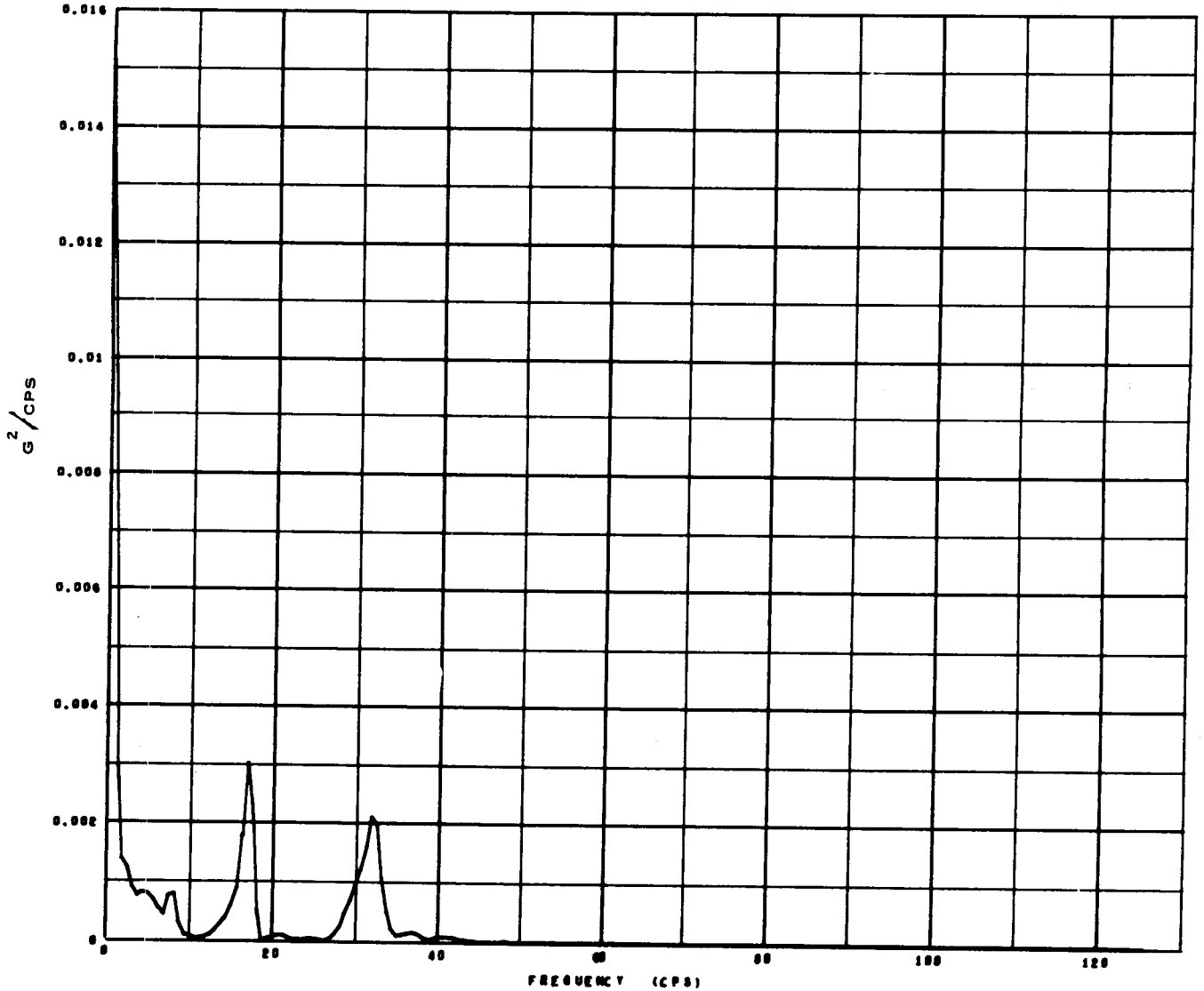
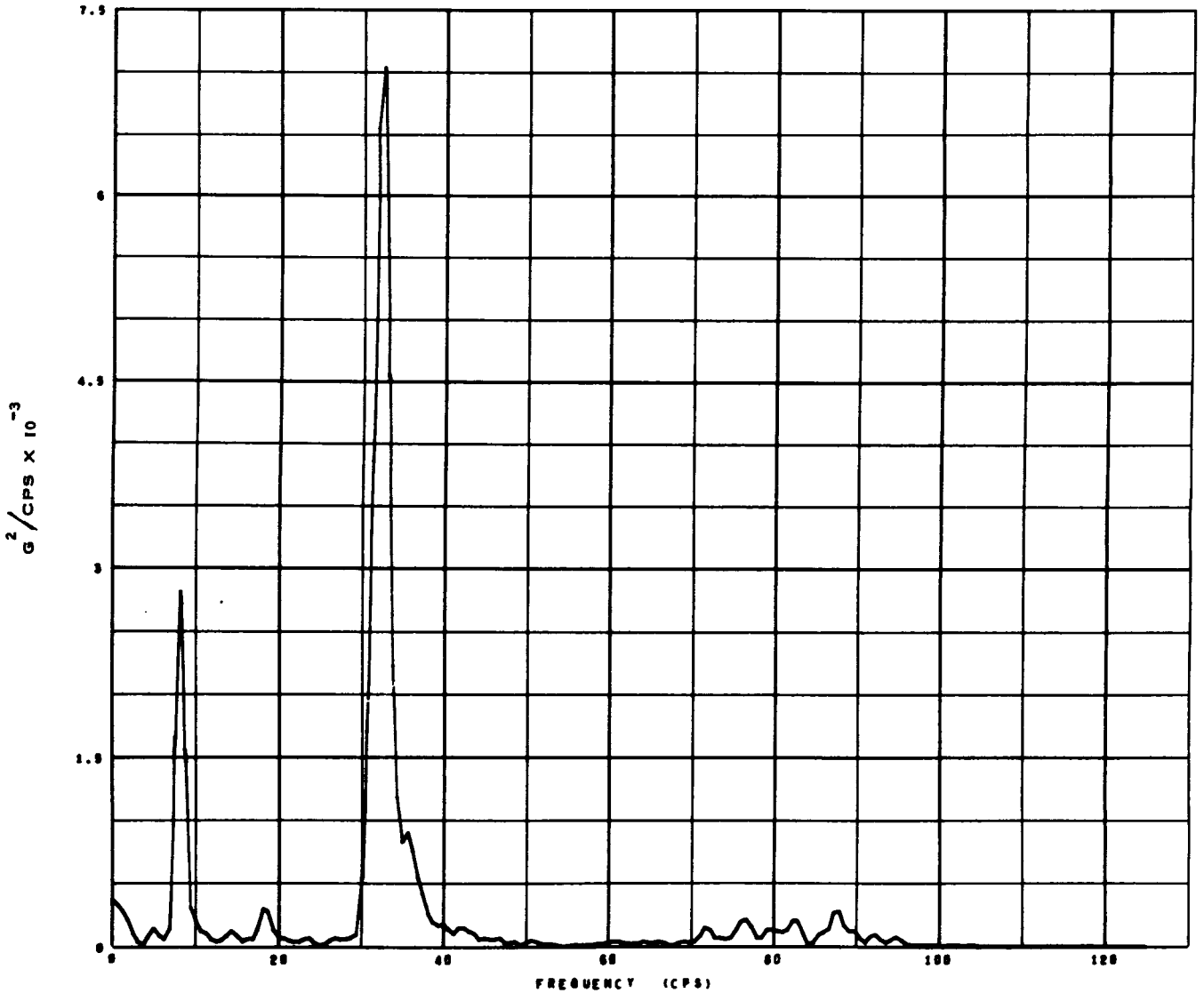
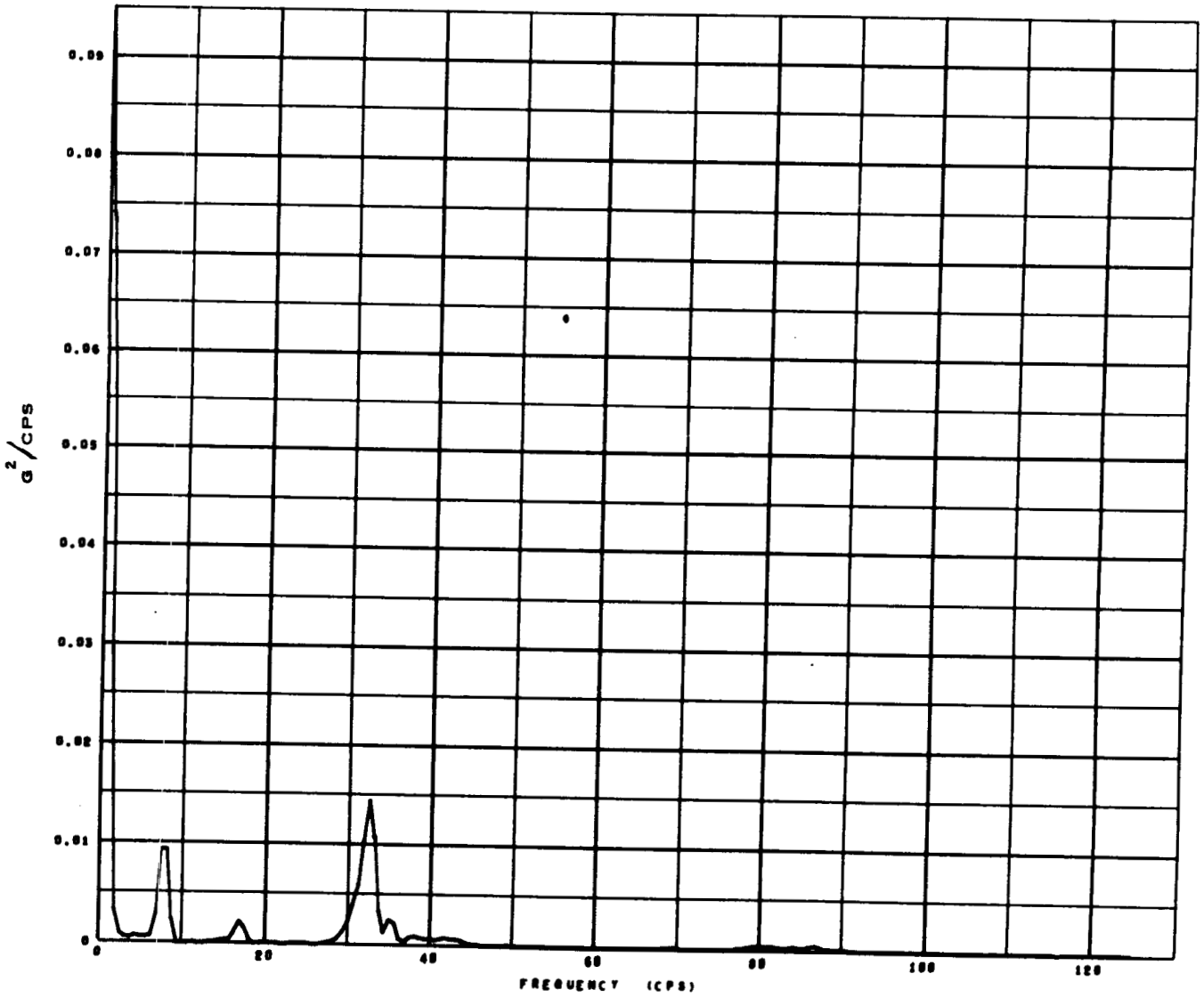
LOW-PASS FILTER 20. CPS
FILTER BW 1.2500 CPS
SLICE RMS VALUE .184



SENSOR LA8011A
TIME SLICE .852 TO 2.102 SEC.
LOW-PASS FILTER 60. CPS
FILTER BW 1.2500 CPS
SLICE RMS VALUE .176



SENSOR LA8612A
TIME SLICE .052 TO 2.102 SEC.
LOW-PASS FILTER 80. CPS
FILTER BW 1.2500 CPS
SLICE RMS VALUE .409