[redacted]

0381

UNCLASSIFIED

SANDIA SYSTEMATIC DECLASSIFICATION REVIEW
1st Review Date: 7/07/98
Authority: ☐ ADC ☒ ADD
Name: W Layne
2nd Review Date: 7/13/98
Authority: RB
Name: R B Cranen
Determination (Circle Numbers):
1 Classification Retained
2 Classification Changed to: U
3 Contains No DOE Classified Information
4 Coordinate With:
5 Contains UCNI? NN
6 Comments:

3-2

FEB 2 8 1962

File No: TX-53, 3-2
T No. 18289
Date Completed: 12-1-61
RS 7321/9876

RECEIVED
MAR 1 1962
CENTRAL RECORD FILE

MR. E. I. BRUCE - 7117
Attn: L. F. Miller

Re: Drop Tower Test of TX-53 No. 85-L

Bomb No. 85-L was dropped on an 8 inch curb to investigate the energy absorption capability of the honeycomb nose assembly. The bomb was perpendicular to the target at impact and had a vertical velocity vector of 65 FPS. The center of the bomb was about 2½ inches from the edge of the curb at impact such that about 60% of the nose area was on the higher portion of the curb. Maximum faired longitudinal acceleration was 78g with a rise time of 17 milliseconds and a pulse duration of 49 milliseconds. The nose fairing deformed uniformly without shearing or tearing.

INVENTORIED
AUG 6 1964
3427.1

Reason for Test

This test was requested in an Environmental Test Order from E. I. Bruce, 7117 to E. H. Copeland, 7321 dated 11-28-61. The test was assigned to Division 7325 to be conducted on the 185 foot drop test tower.

Object of Test

The object of this test was to determine the response of a dummy TX-53 to an impact at 65 ft. per second (nose down) onto an 8" curb.

INVENTORIED
SEP 14 '65

Setup for Test

Figure 1 shows the bomb rigged to the tower carriage prior to the test. Explosive cable cutters were used to sever the support cable and drop the bomb. The 8" curb was formed by placing two concrete targets side by side with one elevated 8 inches above the other. Figure 2 shows the location of the accelerometer by station numbers and direction of positive acceleration. The data recording equipment used is listed in Table I. The specifications, orientations and station locations of the accelerometers used in the bomb are listed in Table II. An Ampex FM Model 114-A tape recorder with 625 cps filter was used to playback the tape recording of the test.

UNCLASSIFIED

[redacted]

SANDIA SYSTEMATIC DECLASSIFICATION REVIEW
DOWNGRADING OR DECLASSIFICATION STAMP
CLASSIFICATION CHANGED TO: U
AUTHORITY: R. B. Cranen
PERSON CHANGING MARKING & DATE: Emilda Seeh 7/21/98
RECORD ID: 98SN2824
PERSON VERIFYING MARKING & DATE: W Layne 7/22/98
DATED: 7/13/98

[redacted]

Sawdust filled bags were stacked around the target to preserve the side panels and parachute can of the bomb when it fell over.

Details, dimensions and other information about the bomb assembly can be found in Sandia Drawing No. DL-10706.

Procedure

After all systems were checked out and accelerometer calibrations made the area was cleared, the cable cutters armed, and the bomb hoisted into position and dropped. A transit was used to align the bomb over the target. The drop height was 65.7 ft. A more detailed description of test operating procedures can be found in the Drop Tower Operating Procedure Handbook.

Results

Table III is the tabulation of the acceleration data as read from the test record shown in Figure 3. The signatures were interpreted according to the procedure outlined in Sandia Corporation's SC-4452(M) Section D, paragraph 2.1.1 dated January 1961. The signatures from accelerometers A-21 and 22 are from the tape playback record which is filtered to 625 cps while the signatures from accelerometers A-24 and A-25 are from the oscillograph record made at the time of the test and are unfiltered.

Figure 4 and 5 show the bomb after the test.

The center of the bomb nose impacted about 2½ inches from the edge of the curb placing about 60 percent of the nose area on the higher target. No shearing or tearing of the nose fairing resulted from the test.

C. G. Coalson

C. G. COALSON - 7325-2

Dale Buchanan

7321 Project Engineer: DALE BUCHANAN - 7321-5

Approved By: R. S. HOOPER - 7321-5

CGC:7325-2:mw

DISTRIBUTION:
1/10A - E. I. Bruce, 7117
Attn: L. F. Miller
2/10A - J. M. Wiesen, 1442
3/10A - D. S. Bliss, 2344
4/10A - W. L. Stevens, 7162
5/10A - D. M. Bruce, 7182
6/10A - E. H. Copeland, 7321
7/10A - C. L. Johnson, 7523
8/10A - R. K. Smeltzer, 3421-3
9/10A - R. S. Gauler, GMX-3, LASL
Attn: D. F. Mitchell
10/10A - L. C. Horpedahl, W-1, LASL
Attn: S. D. Huffman

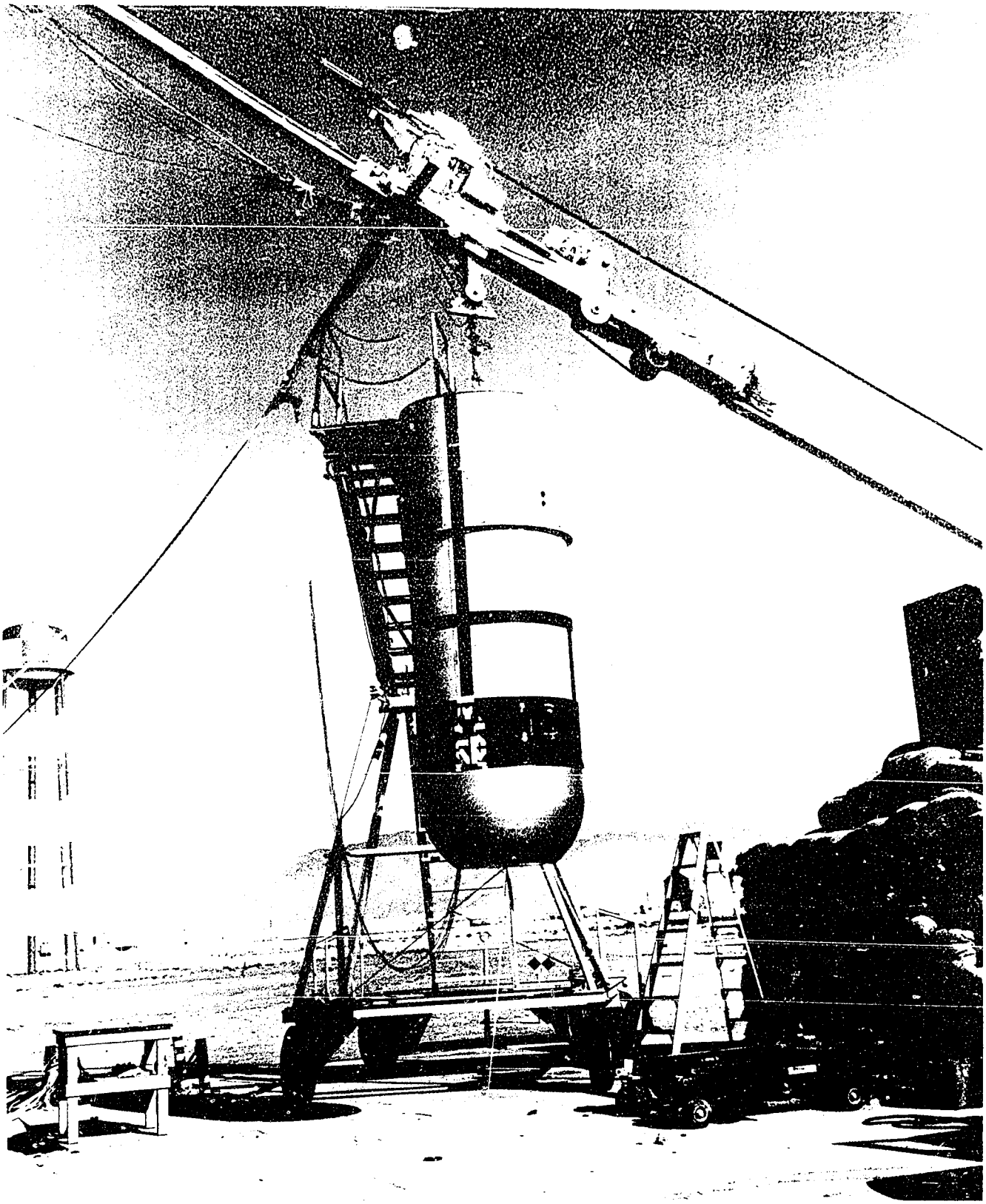


FIG. 1 BOMB NO. 85-L SUSPENDED TO TOWER CARRIAGE PRIOR TO TEST. DROP TOWER TEST OF TX-53.

PROJECT NO. T-18289
REF. SYM. 7321/9876

D#61-10487.

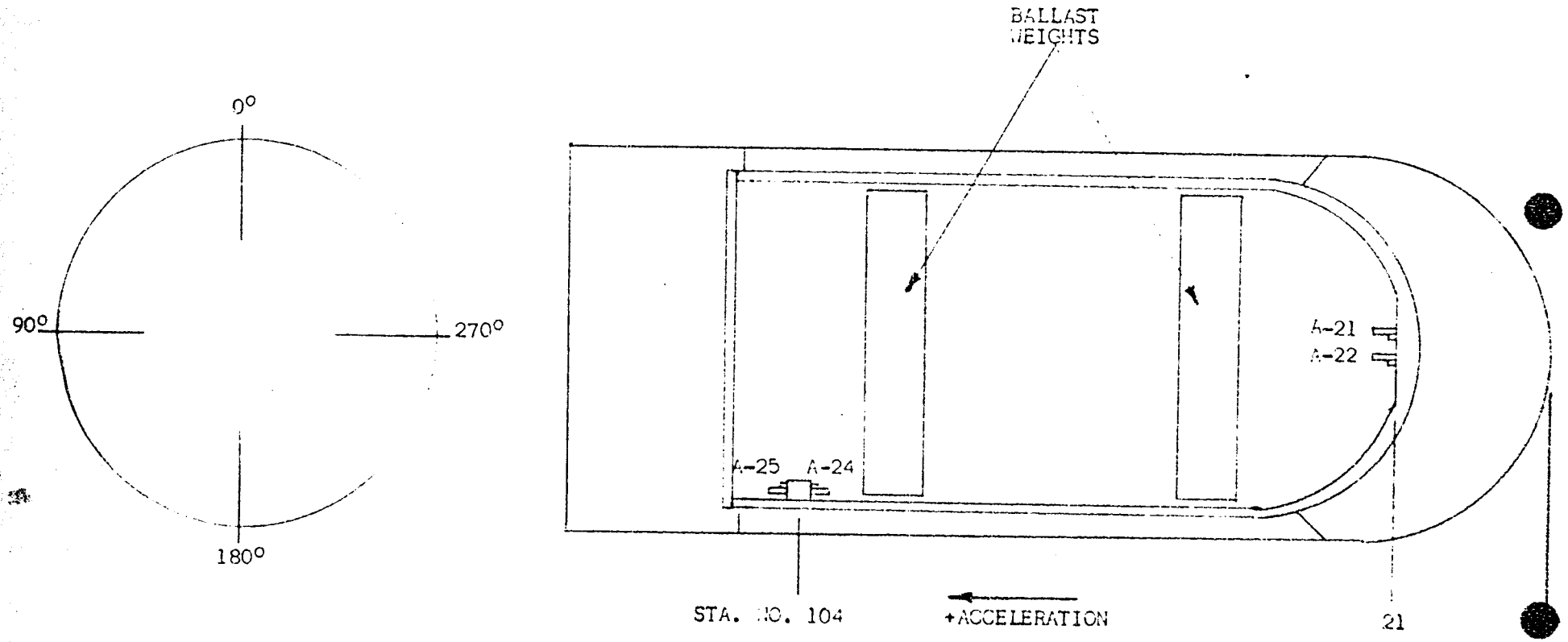


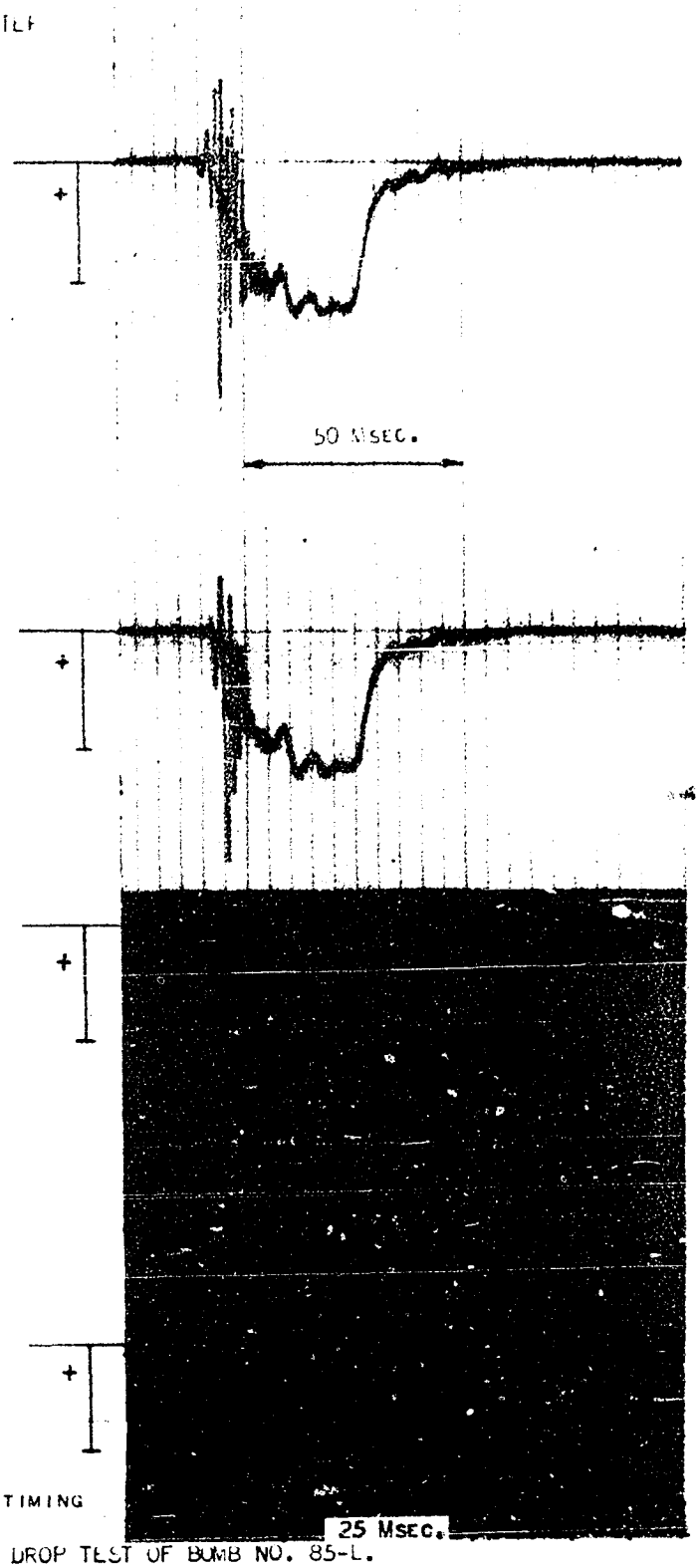
FIG. 2 LOCATION OF ACCELEROMETERS AND DIRECTION OF POSITIVE ACCELERATION ON BOMB NO. 85-L. DROP TOWER TEST OF TX-53.

PROJECT NO. T-18876
REF. SYM. 7321/9676

0384

[redacted]

GAGE NO.	LOCATION	SENSING DIRECTION	STATION NUMBER	CAL. STEP
A-21	FWD. CAP	LONG.	21.0	60g
A-22	FWD. CAP	LONG.	21.0	60g
A-24	CASE WALL	LONG.	104.0	60g
A-25	CASE WALL	LONG.	104.0	60 g



A = ACCELEROMETER

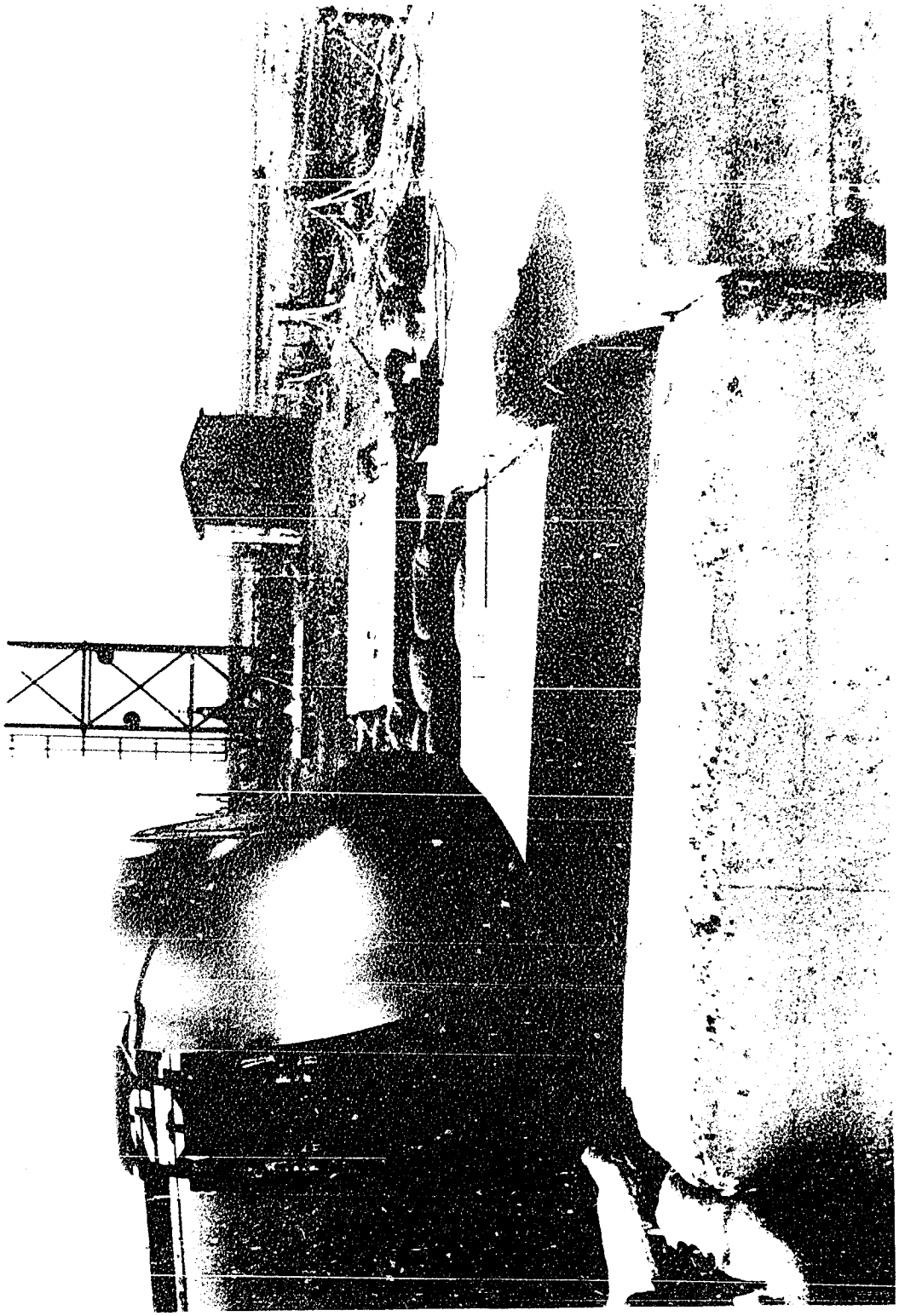
1,000 CYCLES TIMING

FIG. 3 ACCELERATION SIGNATURES FROM DROP TEST OF BOMB NO. 85-L. DROP TOWER TEST OF TX-53.

PROJECT NO. T-18289
REF. SYM. 7321/9876

[redacted]

UNCLASSIFIED [redacted] #386



D#62-4069

[redacted] UNCLASSIFIED

[redacted]

#384

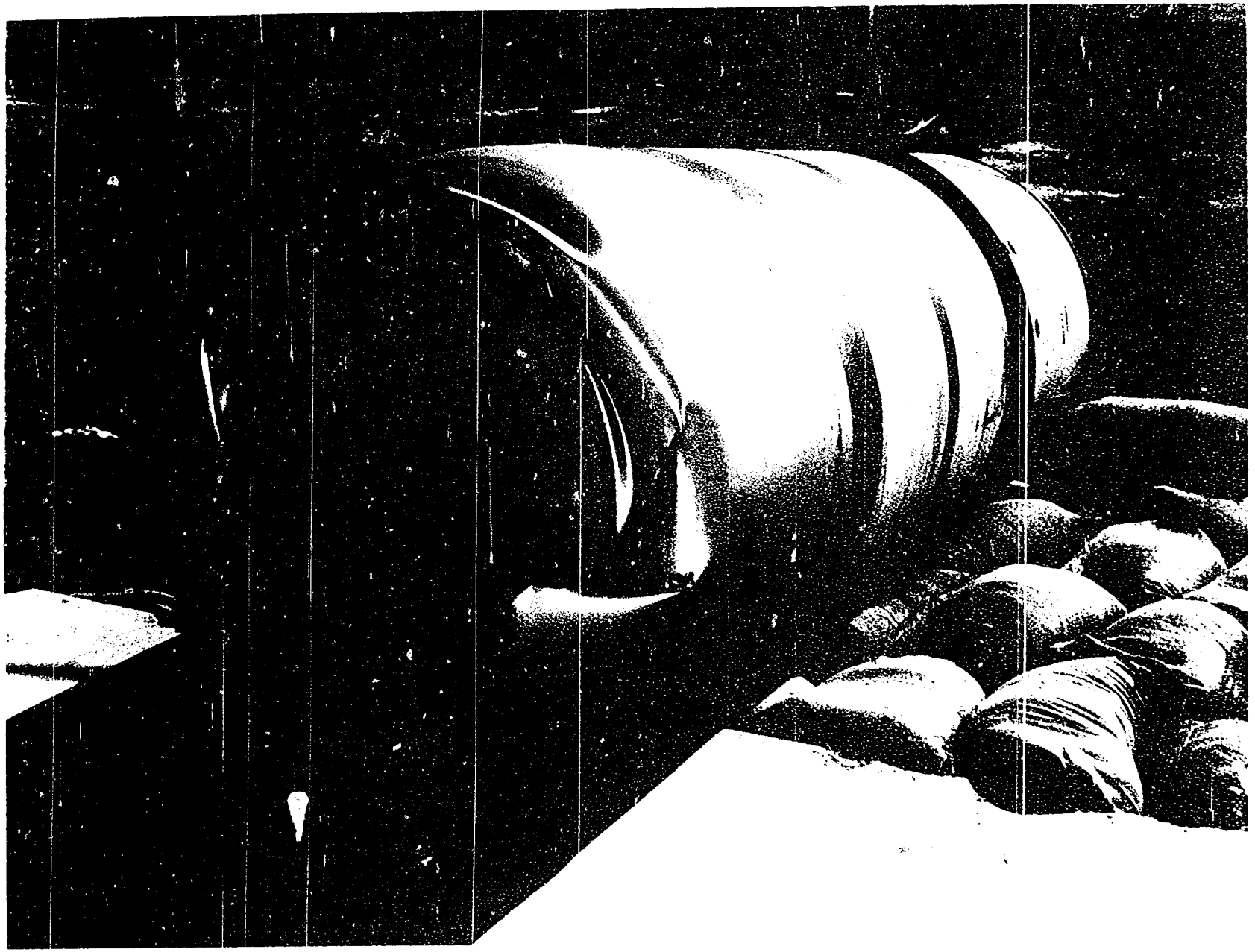


FIG. 5 BOMB NO. 85-L AFTER THE TEST. DROP TOWER TEST OF IX-53.
PROJECT NO. T-16289
REF. SYM. 7321/[illegible]

D#61-10486

[redacted]

TABLE I

Equipment Used
Drop-Tower Test of TX-53

Name	Type	Model No.	Serial No.	Sandia No.
CEC tape recorder		5-752-A	T-01469	
CEC oscillograph	5-119		9071	

UNCLASSIFIED

UNCLASSIFIED

TABLE II

Statham Accelerometers on Bomb 85-L
Drop-Tower Test of TX-53

Accel No.*	Location	Sta. No.	Sensing Direction	Model No.	Serial No.	Range (± g's)	Nat. Freq. (cps)	Figure Reference
A-21	Fwd cap	21.0	Long.	A5A-200-350	5534	200	1050	2
A-22	Fwd cap	21.0	Long.	A5A-100-350	1685	100	700	2
A-24	Case wall	104.0	Long.	A5A-200-350	6019	200	910	2
A-25	Case wall	104.0	Long.	A5A-100-350	10988	100	750	2

*Accelerometers were numbered to be consistent with previous tests.

UNCLASSIFIED

UNCLASSIFIED

TABLE III

Acceleration Data on Bomb No. 85-L
Drop-Tower Test of TX-53

Inst. No.*	Location	Sta. No.	Sensing Direction	Acceleration (g's) Max (+)	Max (-)	Faired	Time (ms) Rise	Pulse
A-21	Fwd cap	21.0	Long.	120	42	+76	17	46
A-22	Fwd cap	21.0	Long.	118	28	+73	16	44
A-24	Case wall	104.0	Long.	90	6	+76	17	48
A-25	Case wall	104.0	Long.	80	10	+78	17	49

*Accelerometers were numbered to be consistent with previous tests.

UNCLASSIFIED

UNCLASSIFIED