[redacted] 1607 [redacted]

UNCLASSIFIED

SANDIA SYSTEMATIC DECLASSIFICATION REVIEW
1st Review Date: 7/06/98
Authority: ☐ ADC ☒ ADD
Name: W. Layne
2nd Review Date: 7/13/98
Authority: ADD
Name: R B Craner
Determination (Circle Numbers):
1. Classification Retained
2. Classification Changed to: U
3. Contains No DOE Classified Information
4. Coordinate With:
5. Contains UCAI? no
6. Comments: OK for Ed Pemet

DEC 13 1962

File No: TX-53, 3-2
T-19117
Test Completed: 11-8-62

RECEIVED
DEC 14 1962
CENTRAL RECORD FILE

MR. E. I. BRUCE - 7144
Attn: A. E. Sensel

Re: Drop Tower Test of a Dummy TX-53 on a Compacted Earth Target (U)

Summary of Test

A dummy TX-53 was dropped with velocity components of 55FPS vertical and 51 FPS horizontal onto a target of compacted earth. Attitude of the dummy TX-53 at impact was approximately 1° off vertical with the tail leading the nose. Object of the test was to determine the effect of a simulated TX-53 laydown on an aluminum honeycomb nose with substandard bonding. Post mortem inspection of the nose after the test by Division 7144 indicated a nose with approximately 10% bonding held together but that it was marginal.

The faired longitudinal acceleration measured at impact was 60g with a rise time of 18.7 milliseconds and a duration of 44.0 milliseconds. The faired transverse acceleration (i.e. the acceleration collinear with horizontal velocity component) at impact was 53g with a rise time of 2.3 millisecond and a duration of 35.9 milliseconds.

Reason for Test

This test was requested by Division 7144. The test was assigned to Division 7325 to be conducted on the 185 foot drop test tower. Dale Buchanan was the 7321 TPE and L. F. Miller was the 7144 consultant.

Object of Test

Object of test was to determine the effect of a simulated TX-53 laydown on an aluminum honeycomb nose with substandard bonding. Bomb to be 10° off vertical at impact with nose leading the tail.

Setup for Test

The bomb is shown rigged to the tower carriage in Figure 1 (it was rigged 10° off vertical with the nose leading the tail). A three foot layer of compacted earth was placed over existing concrete for a target.

SANDIA SYSTEMATIC DECLASSIFICATION REVIEW
DOWNGRADING OR DECLASSIFICATION STAMP

CLASSIFICATION CHANGED TO: U	AUTHORITY: R.B. Craner
Emelda Selph 7/20/98	
PERSON CHANGING MARKING & DATE	RECORD ID: 98SN2813
W C Layne 7/22/98	
PERSON VERIFYING MARKING & DATE	DATED: 7/13/98

CENTRAL RECORD FILE
ACCOUNTABILITY
FILE NO. TX 53
3-2

[redacted] UNCLASSIFIED

Figure 2 is a diagram showing the location of the accelerometers and the directions chosen for positive acceleration.

A C.E.C. Data Tape Recorder Type 5-752A (S.N T-01465) and a C.E.C. Type 5-119 oscillograph (S.N 9071) with Type 362 galvanometers were used to record the test data. The tape record was played back through an Ampex F.M. Model 114-A tape recorder using 625 cps filters.

Test procedures, safety precautions and systems check-outs were performed according to the Drop Tower Procedures Handbook on file in Bldg. 6505.

Test Results

The tape playback test record (filtered to 625 cps) and tabulated acceleration data are presented in Table I. Acceleration signatures were read according to the procedure outlined in S.C. 4452A(M) Section D, Para 3.1 dated February 1962 with the exception that for the trailing side of the pulse the 10% height was measured from the new reference induced by the centrifugal acceleration. Only the longitudinal accelerometers were effected by the centrifugal acceleration since the sensitive axes of the other accelerometers are at right angles to the acceleration. Accelerometer A-3 exhibited a slight reference shift which cannot be satisfactorily explained. It appears that a change in internal accelerometer resistance or a change in contact resistance at the cable connector may have caused this.

It was requested the bomb strike the target ten degrees off vertical with the nose leading the tail and the bomb was rigged to the tower carriage in this attitude. The high speed movies of the drop test showed the bomb carriage assembly executed a good slide and apparently a clean separation of the bomb from the carriage. The attitude of the bomb at separation from the carriage was about 10° off vertical but the bomb evidently had a slight angular velocity during free flight which altered the attitude at impact.

Figures 3 and 4 show the bomb after the test.

C. G. Coalson

C. G. COALSON - 7325-2

Dale Buchanan

Test Project Engineer: DALE BUCHANAN - 7331-1

Approved By: R. S. HOOPER - 7331-1

CGC:7325-2:mw

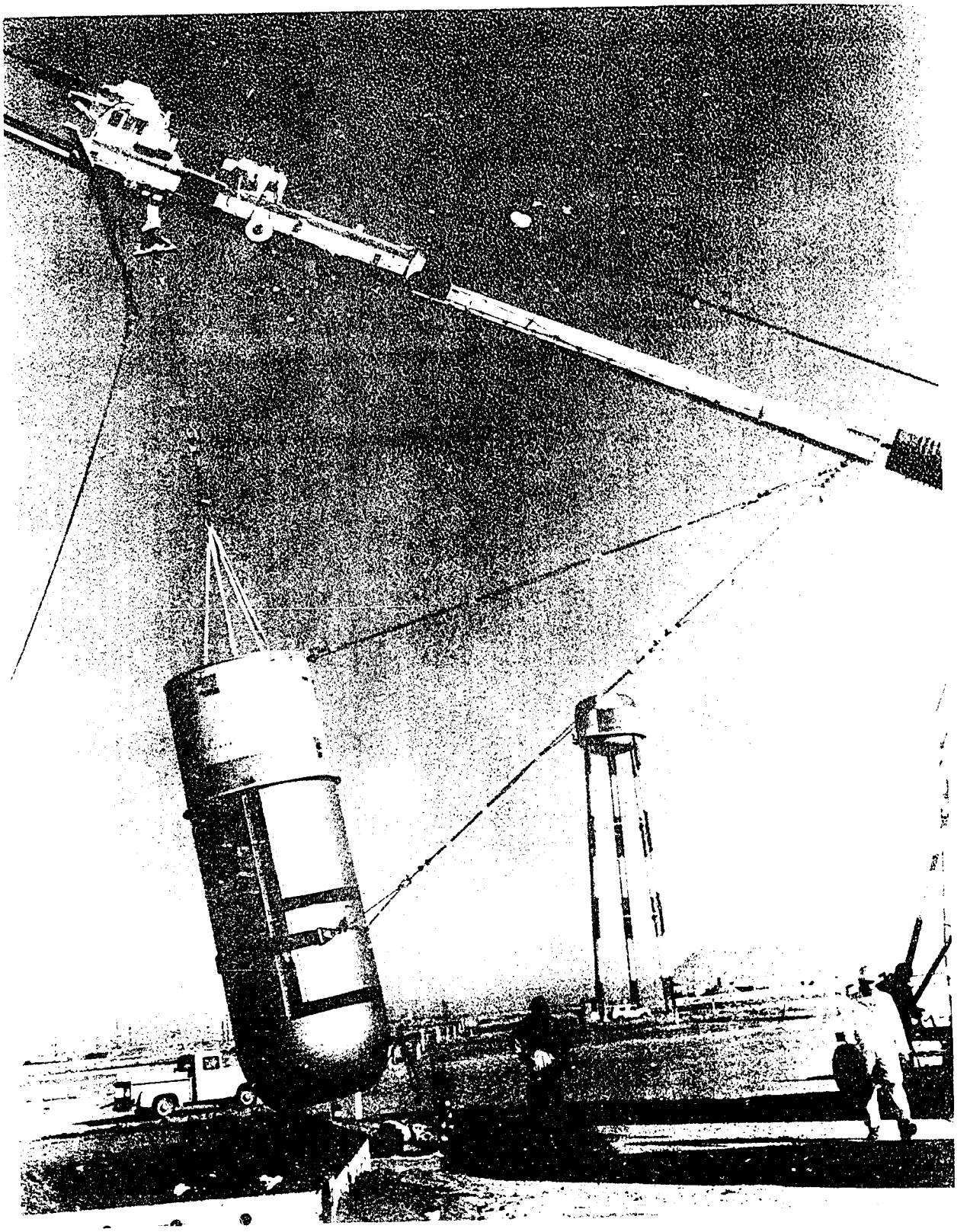
Encl: Figures 1 - 4
Table I

Copy to:
J. M. Wiesen, 1442
D. S. Bliss, 2344
E. H. Copeland, 7331
C. L. Johnson, 7523
Central Record File, 3421-3

UNCLASSIFIED [redacted]

1610.

[redacted]



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D#62-18184 [redacted]

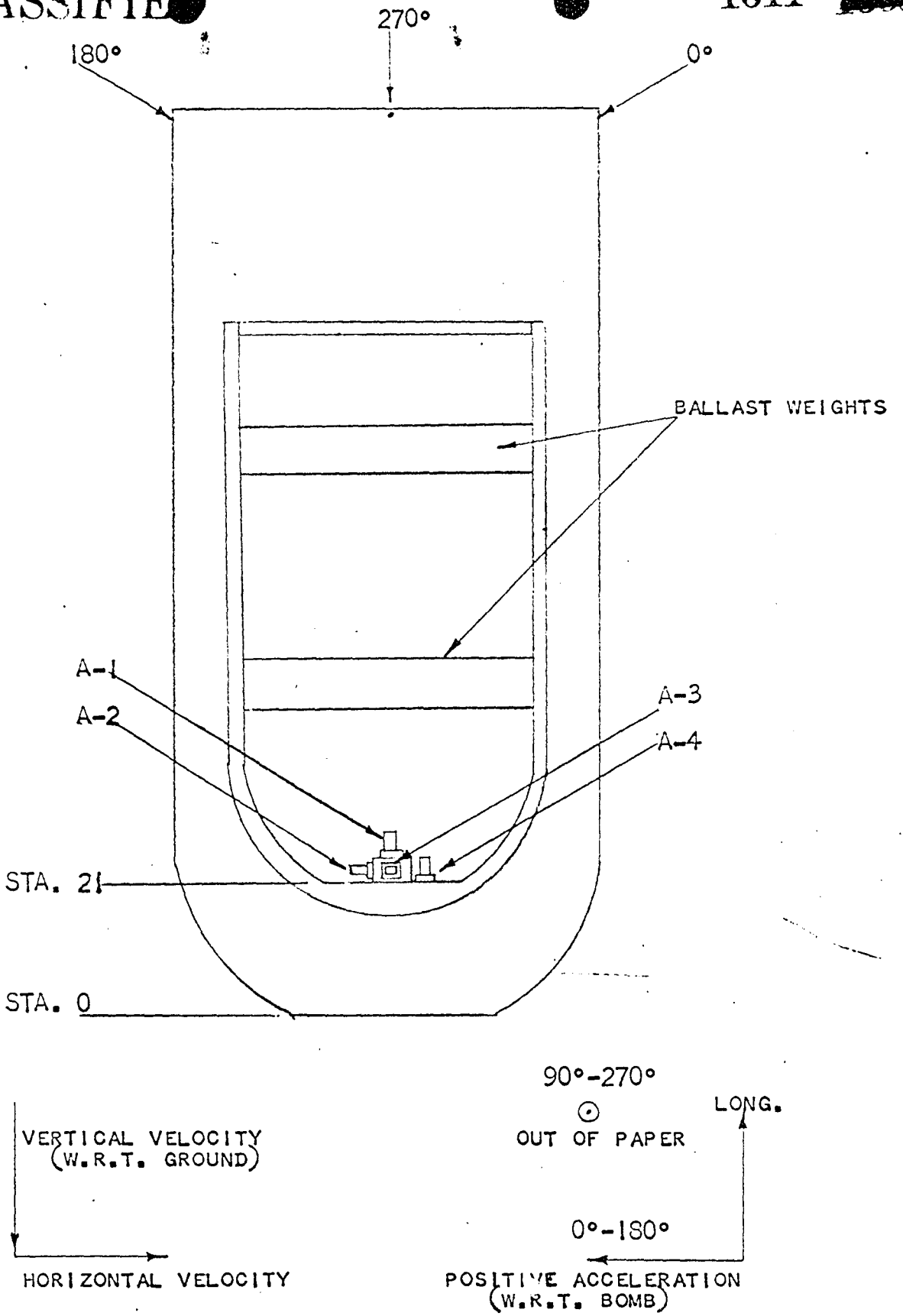

FIG. 2 DIAGRAM SHOWING DIRECTION OF POSITIVE ACCELERATION AND LOCATION OF ACCELEROMETERS.
DROP TOWER TEST OF DUMMY TX-53

T-19117

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1612 [redacted]

D#62-18159

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1613 [redacted]

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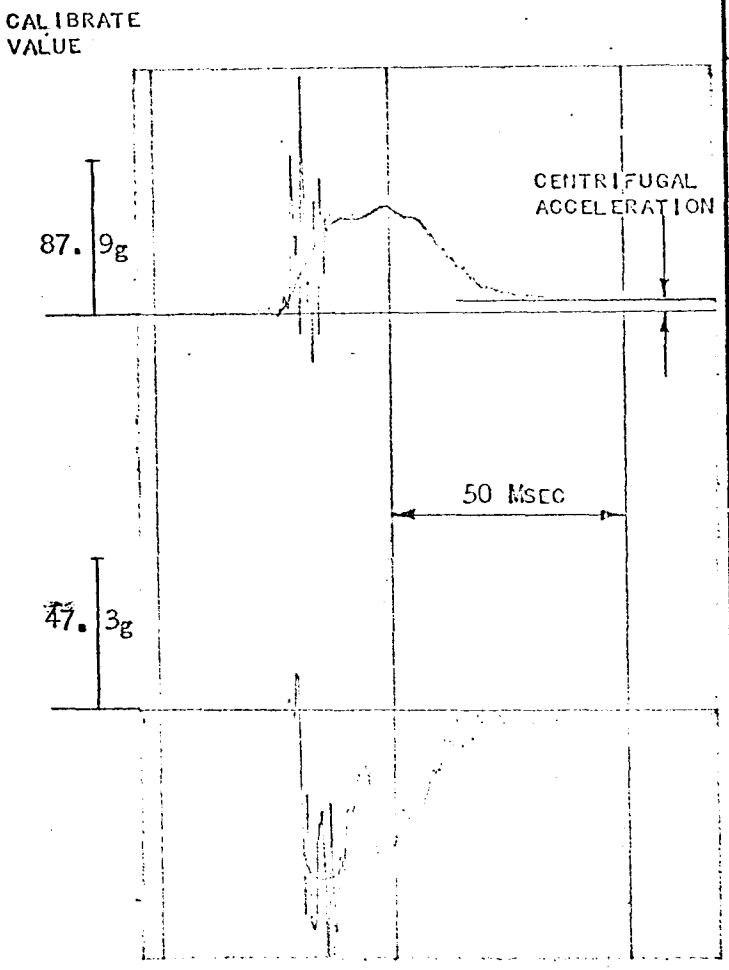
TABLE I TEST NO. T-19117

ACCELERATION DATA
DROP TOWER TEST OF DUMMY TX-53

[redacted]

1614



TRANSDUCER INFORMATION								TEST CONDITIONS
Gage No.	Model	Location and Orientation	Max. (+) g	Max. (-) g	MFP g	Rise Time (ms)	Pulse Duration (ms)	
A-1	STATHAM ASA-200-350 $F_N = 900$ CPS ± 200g	LONGITUDINAL FWD. CAP. STA. 21.0	133	25	60	18.7	44.0	$V_V = 55$ FPS $V_H = 51$ FPS COMPACTED EARTH TARGET. AT IMPACT LONGITUDINAL AXIS OF BOMB WAS APPROXIMATELY ONE DEGREE OFF VERTICAL WITH TAIL LEADING THE NOSE.
A-2	STATHAM ASA-100-350 $F_N = 700$ CPS ± 100g	0° - 180° FWD. CAP. STA. 21.0	76	11	53	2.3	35.9	

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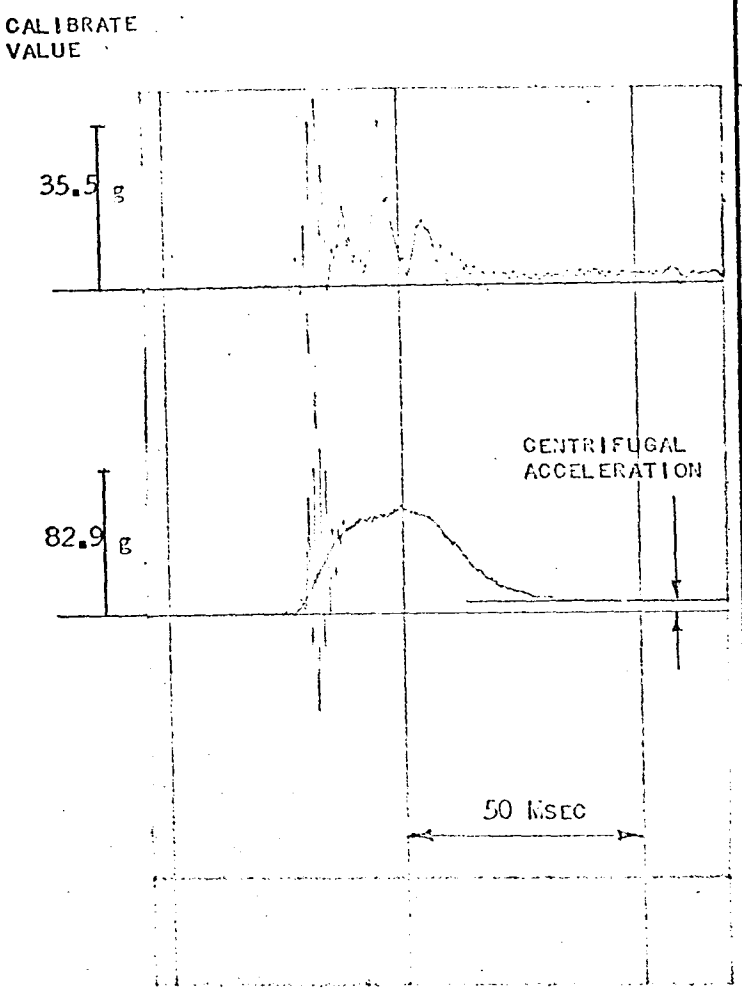

TABLE I
ACCELERATION DATA
DROP TOWER TEST OF DUMMY TX-53

TEST NO. T-19117

#[redacted] 1615

TRANSDUCER INFORMATION								TEST CONDITIONS
Gage No.	Model	Location and Orientation	Max. (+) g	Max. (-) g	MFP g	Rise Time (ms)	Pulse Duration (ms)	
A-3	STATHAM ASA-100-350 $F_N = 700$ CPS ± 100g	90°-270° FWD. CAP STA. 21.0	40	31	-	-	-	$V_V = 55$ FPS $V_H = 51$ FPS COMPACTED EARTH TARGET. AT IMPACT LONGITUDINAL AXIS OF BOMB WAS APPROXIMATELY ONE DEGREE OFF VERTICAL WITH TAIL LEADING THE NOSE.
A-4	STATHAM ASA-200-350 $F_N = 900$ CPS ± 200g	LONGITUDINAL FWD. CAP. STA. 21.0	93	55	60	18.7	44.0	

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