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0438

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OCT 2 1967

SANDIA SYSTEMATIC DECLASSIFICATION REVIEW
1st Review Date 7-7-98
Authority ☐ ADC ☒ ADD
Name W. Hayne
2nd Review Date 7/13/98
Authority
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 UCNI? no
6 Comments
OK for Release

File No: T-14
T-18382
Test Completed: 8-11-62

MR. T. J. EGRAN - 7212
Attn: R. D. Robinett

CENTRAL RECORD FILE

CENTRAL RECORD FILE
ACCOUNTABILITY
FILE No. XW53
3-21

Re: Mechanical Shock Tests of a XW-53 Telemetry Package

Object of Test

The object of this test was to prove the functionability of the XW-53 TM package after being subjected to a 100g sine shaped, 11 ms duration shock in each direction along each major axis. This test was part of the System Evaluation Test Series.

Authorization for Test

This test was authorized in an Environmental Test Request from Division 7253, dated April 1, 1962. Mr. P. Hernandez was the consultant.

Setup for Test

This test was performed at the beam drop facility near Bldg. 5505 in Area III. See Figures 1 and 2 showing test setup.

A Statham accelerometer, SN 6016, Model A5A ± 500g, having a natural frequency at 980 cps.

A Statham accelerometer, SN 1301, Model F ± 100g, having a natural frequency at 400 cps.

A C.E.C. oscillograph, type 5-119, SN 9088, using a type 7-362 galvanometer, with a flat frequency response to 2500 cps.

Procedure and Results

The TM Pack (telemetry package) contained in a special jig was subjected to 6 mechanical shock tests by dropping onto rubber pads. See Figures 1 and 2 for test setup. The resulting shock pulses ranged from approximately 80 to 105g. With durations ranging from 9.5 to 13.5 milliseconds, except for one test which had a 57g input with a duration of 20.3 milliseconds.

The shock pulses were applied in both directions along each principal axis, for a total of six tests.

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SANDIA SYSTEMATIC DECLASSIFICATION REVIEW
DOWNGRADING OR DECLASSIFICATION STAMP
CLASSIFICATION CHANGED TO: U
Emilda Segah 7/14/98
PERSON CHANGING MARKING & DATE
W. Hayne 7/22/98
PERSON VERIFYING MARKING & DATE
AUTHORITY: R.B. Craner
RECORD ID: 98SN2827
DATED: 7/13/98

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The 3 principal axes of the TM package correspond to the 3 principal axes of the MM-53.

The test records and data are presented in Table I, pages 1 and 2. Figure 1 shows a typical test setup for applying the input shock along to 0° - 180° axis and the 90° - 270° axis. Figure 2 shows the arrangement used for applying the input shock along the longitudinal axis. It was necessary for both test setups to use adapter blocks to adapt from the curved surfaces of the TM package to the flat surface of the rubber pads.

The results provided by the consultant, revealed the TM package had experienced a loss of modulation during these drop tests. The cause of the modulation loss was due to the following causes: the modulator mount sheared loose, which is attached with 6, 6-32 screws. Four of the screws broke and 2 had their threads stripped. The mixer amplifier pulled loose from the modulator mount. Because of the above situation, the modulator mount was suspended only by the coax cable, then the coax cable connector pulled apart.

C. G. Coalson

C. G. COALSON - 7325-2

A. K. Alberts

Test Project Engineer: A. K. ALBERTS - 7321-5

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

CGC:7325-2:mm

Encl: Figures 1, 2
Table I

Copy to:
J. M. Wiesen, 1442
D. S. Bliss, 2344
E. R. Copeland, 7321
C. L. Johnson, 7523
Central Record File, 3421-3

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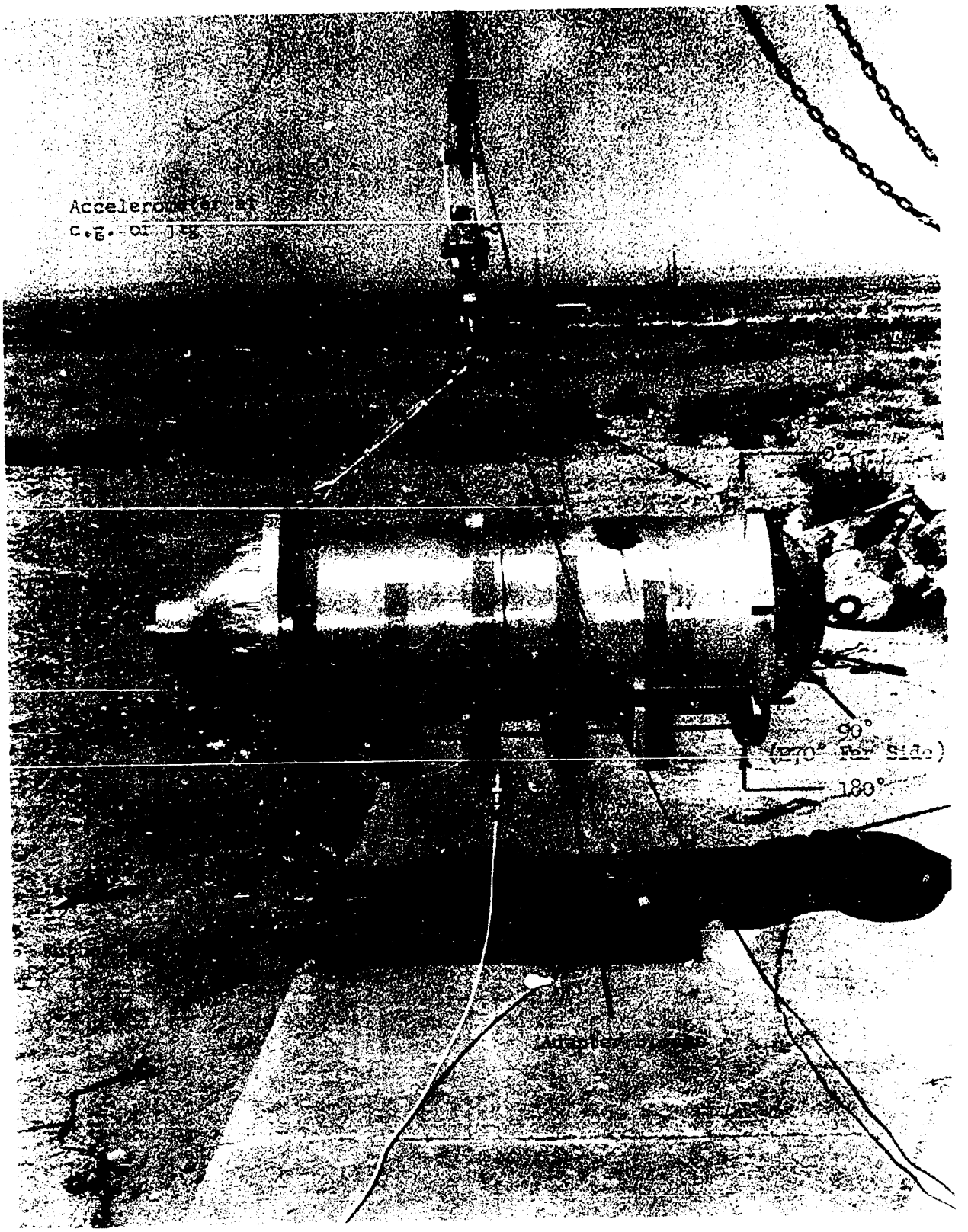

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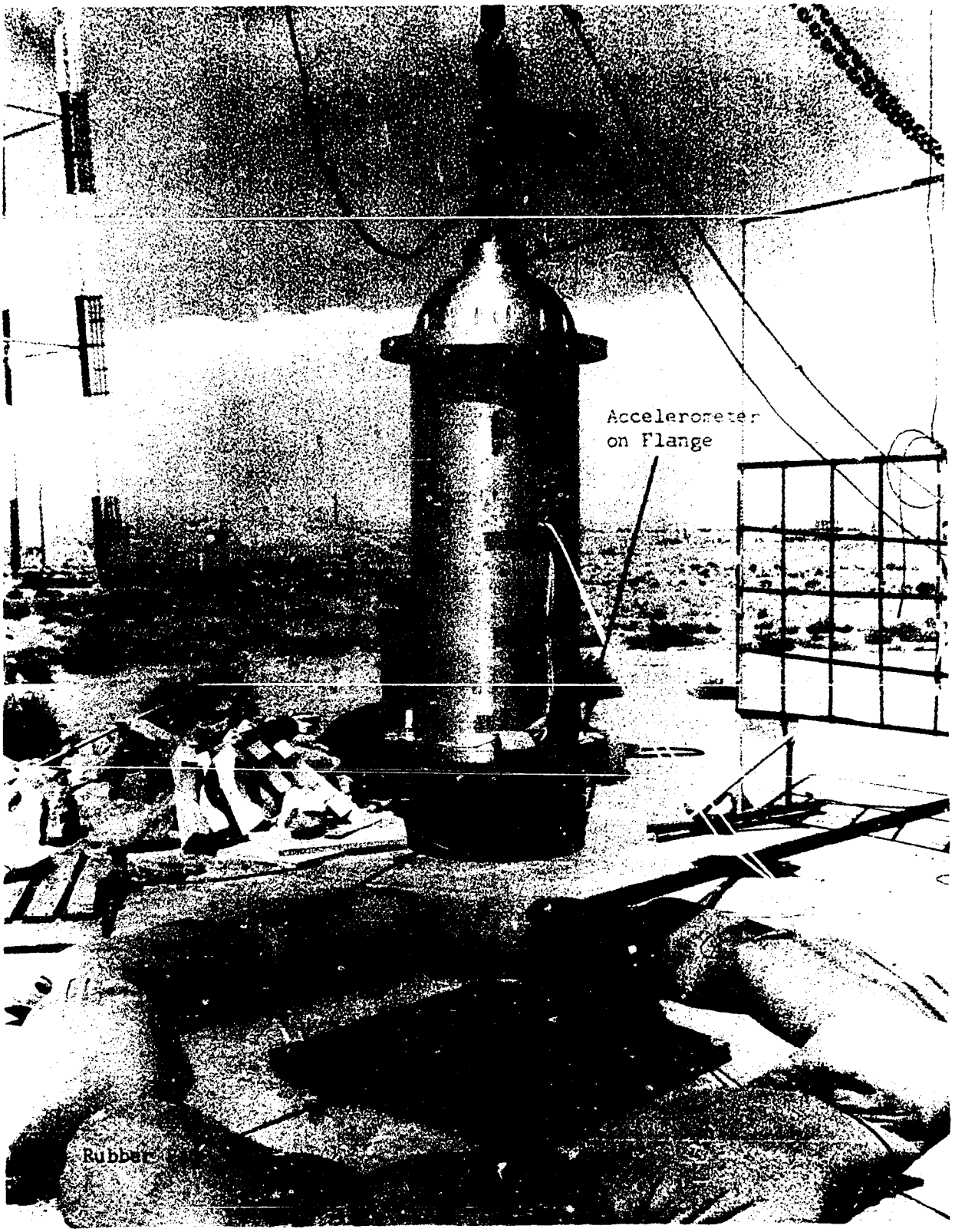

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TABLE I

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Page 2

ACCELERATION DATA
SHOCK TEST OF XW-53 TM PACKAGE

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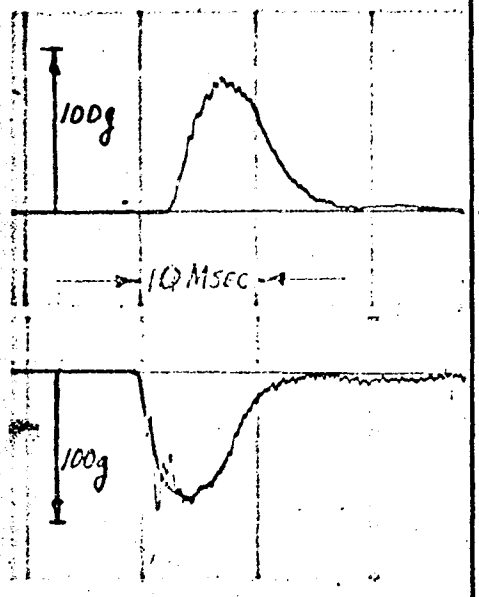

RECORDS READ ACCORDING TO SC 4452 A(M) SEC. D, PARA. 3.1 DATED FEB. 1962

IDENTIFICATION			ACCELERATION DATA					TEST CONDITIONS
GAGE NO.	SENSING DIRECTION *	LOCATION	MFP g	MAX +g	MAX -g	RISE MSEC	DURATION MSEC	
INPUT	LONG.	FLANGE OF END CAP	-81	—	81	3.3	11.2	TEST NO. 5, INPUT SHOCK FROM AFT TO FWD.
INPUT	LONG.	FLANGE OF END CAP	+83	90	—	2.3	11.7	TEST NO. 6, INPUT SHOCK FROM FWD. TO AFT.

* POSITIVE DIRECTIONS ARE: 0° TOWARD 180°, 90° TOWARD 270° & FWD. TO AFT. SEE FIG 2

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TABLE I

Page 1

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ACCELERATION DATA
SHOCK TEST OF XW-53 TM PACKAGE

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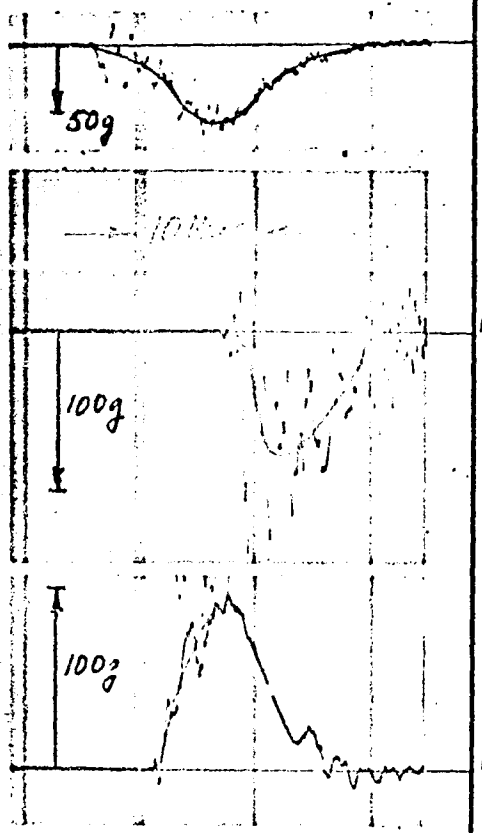
RECORD FROM TEST NO. 1
NOT REPRODUCIBLE



IDENTIFICATION			ACCELERATION DATA					TEST CONDITIONS
GAGE NO.	SENSING * DIRECTION	LOCATION	MFP g	MAX +g	MAX -g	RISE MSEC	DURATION MSEC	
INPUT	180°-0°	C.g. OF JIG	-105	19	185	1.4	9.5	TEST NO. 1, INPUT SHOCK FROM 180° TOWARD 0°
INPUT	90°-270°	C.g. OF JIG	+57	64	—	7.6	20.3	TEST NO. 2, INPUT SHOCK FROM 90° TOWARD 270°
INPUT	0°-180°	C.g. OF JIG	+78	139	86	2.1	10.7	TEST NO. 3, INPUT SHOCK FROM 0° TOWARD 180°
INPUT	270°-90°	C.g. OF JIG	-91	—	95	3.5	13.5	TEST NO. 4, INPUT SHOCK FROM 270° TOWARD 90°

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RECORDS READ ACCORDING TO SC 4-152 A(M) SEC. D, PARA. 3.1 DATED FEB 1962

* POSITIVE DIRECTIONS ARE: 0° TOWARD 180°, 90° TOWARD 270° & FWD TO AFT. SEE FIG. 1

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