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PROGRAM

CATEGORY

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DATE

DROP TEST OF LTU-3M
IN A H-1009 CONTAINER
(U)

RECEIVED
APR 13 1966
CENTRAL TECH. FILE

Organization 7300 Environmental Test Report

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Approved by: R J Butler
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CENTRAL TECHNICAL FILE
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DROP TEST OF LTU-3M IN A H-1009 CONTAINER (U)

Introduction

The object of this test was to demonstrate the ability of the mixed marble II MK 11 JTA to withstand a handling drop environment. The vehicle is carried out on Sandia Drawing K40843.

This test was requested by A. Wright, 8124, on February 3, 1966. The test was completed on February 21, 1966.

Summary

The LTU-3M and H-1009 container was subjected to three drops from a 12-inch height onto a horizontal concrete surface. The LTU-3M unit was dropped in the longitudinal axis, impacting flat on the container's mounting legs. Fifteen accelerometers were monitored during the test series. Drop No. 1 was for calibration purposes only. The maximum acceleration recorded during drops 2 and 3, in the longitudinal direction, was 15.9g.

The continuity of the J-1 pin connector remained unchanged throughout the test series.

No apparent damage was sustained by the LTU-3M or H-1009 containers during this test series.

Procedure and Results

The test assembly was hoisted to a height of 12 inches and dropped onto a horizontal concrete surface. The drop axis was along the longitudinal axis (+x) of the LTU, with the container impacting flat on its mounting legs. Prior to the two test drops, a calibration drop was conducted to determine the proper gain settings for the amplifiers. Figure 1 shows the general setup for all three tests.

The LTU-3M was instrumented with twelve piezoelectric accelerometers, whose locations, orientation, and specifications are presented in Tables I and II. In addition, three piezoelectric accelerometers were mounted on the outside of the container, 3 inches above the base, to measure the input acceleration. Since the container was dropped flat onto a concrete surface, the input was essentially a step velocity function and beyond the frequency response of the accelerometers.

The acceleration data were recorded on a 5-119 oscillograph. Shop-made emitter followers and Kintel amplifiers were used to condition and amplify the transducer signals. The overall frequency response of the system was flat from DC to 2.5 kHz. The serial numbers and S-numbers of the instrumentation used to conduct the test are on file at Building 6713. All acceleration data recorded during drops 2 and 3 and the test records are presented in Tables I and II. All axis designations were taken with respect to the warhead axis as shown in Figure 1.

The warhead unit did not rotate about the longitudinal axis with respect to the container during this test series.

No apparent damage was sustained by the LTU-3M or container during this test series.

A continuity check was made on the J-1 connector using a Model 260 Simpson meter prior to and after each drop. The continuity was read on the 100 ohm scale and no change was noted during any of the readings.

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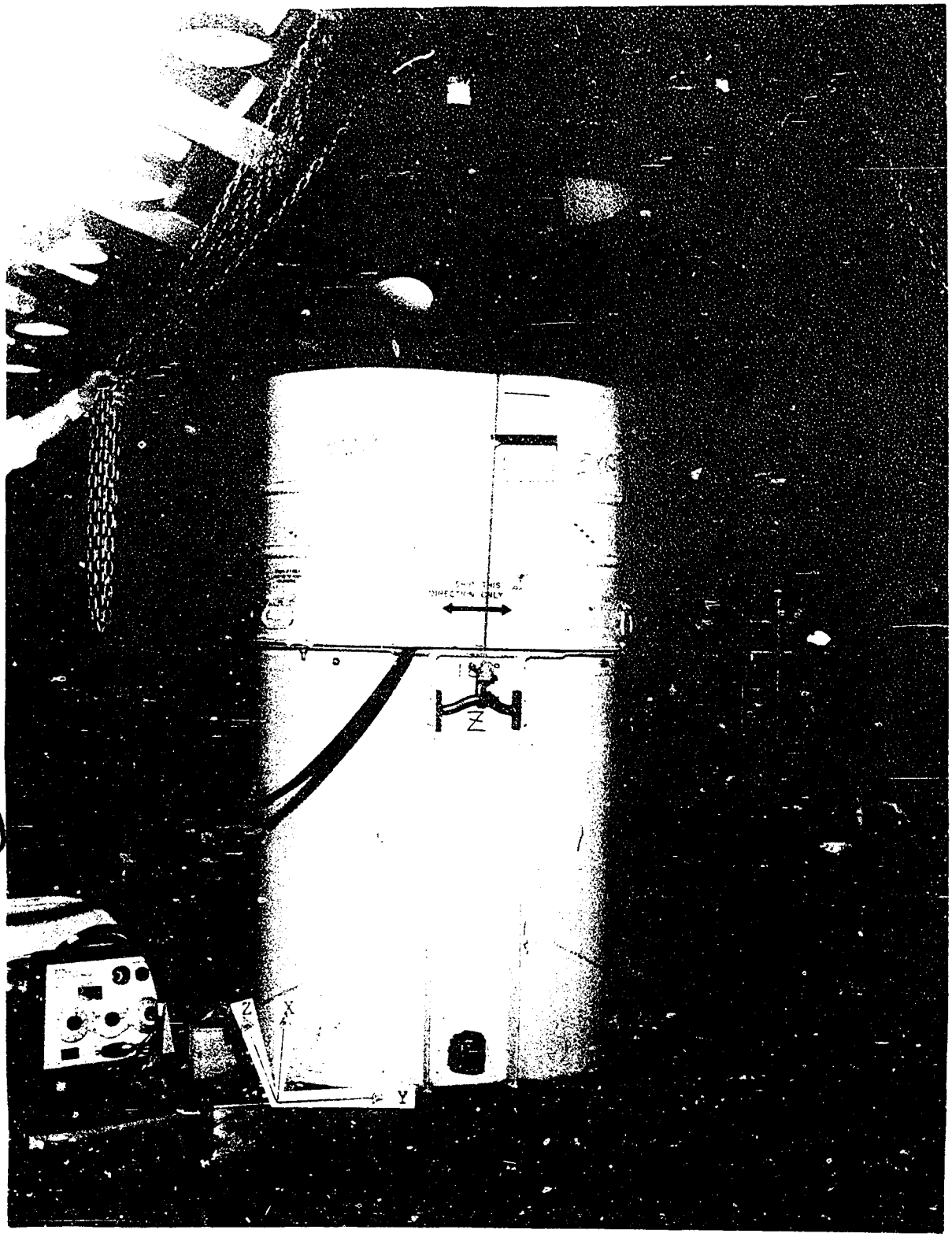

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TABLE I

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TEST CONDITIONS

Run No.	Drop No. 2
Impact Velocity	8 ft/sec (12" Drop Height)
Simulating	Handling Drop
Temp. Condition	Ambient
Orientation	Longitudinal Axis

LEGEND
PD - PULSE DURATION
RT - RISE TIME
MFP - MAXIMUM FAIRED PULSE
A - ACCELEROMETER

COMMENTS

Refer to Figure 1 for X, Y, and Z axes. Accelerometers VX19, VY20, and VZ21 were not read because the input was essentially a step velocity function and beyond the frequency response of the accelerometers.

TRANSDUCER INFORMATION						TEST DATA				
No.	Location & Orientation	Model	S/N	fn and Range	Fig. Ref.	MAX (+)	MAX (-)	MFP	RT (ms)	PD (ms)
VX 1	*Component Deck	2223 M5	KA-03	25kHz 2000g		10.88	0	10.88	21.5	65.0
VY 2	*Component Deck	2223 M5	KA-03	25kHz 2000g		1.41	1.00	0	0	0
VZ 3	*Component Deck	2223 M5	KA-03	25kHz 2000g		0	0	0	0	0
VX 4	Forward Housing 270° Aft end	2228 B	LB-01	25kHz 2000g		6.37	0	6.37	22.9	65.5
VY 5	Forward Housing 270° Aft end	2228 B	LB-01	25kHz 2000g		0	0	0	0	0
VZ 6	Forward Housing 270° Aft end	2228 B	LB-01	25kHz 2000g		0	0	0	0	0
VX 7	MC-1661 Outside Surface	2223 M5	KA-07	25kHz 2000g		10.60	0	10.60	20.0	63.0
VX10	F Unit	2223 M5	KA-34	25kHz 2000g		15.90	0	11.10	22.3	66.2
VY11	F Unit	2223 M5	KA-34	25kHz 2000g		0	0	0	0	0
VZ12	F Unit	2223 M5	KA-34	25kHz 2000g		6.90	3.40	0	0	0
VX13	MC-1659	2223 M5	KA-10	25kHz 2000g		14.12	0	10.13	23.5	62.5
VX16	Rear Inside Support 0°	2223 M5	KA-02	25kHz 2000g		13.96	0	10.30	22.0	70.0
VX19	Input (3 inches above base)	2223 M5	KA-13	25kHz 2000g						
VY20	Input (3 inches above base)	2223 M5	KA-13	25kHz 2000g						
VZ21	Input (3 inches above base)	2223 M5	KA-13	25kHz 2000g						

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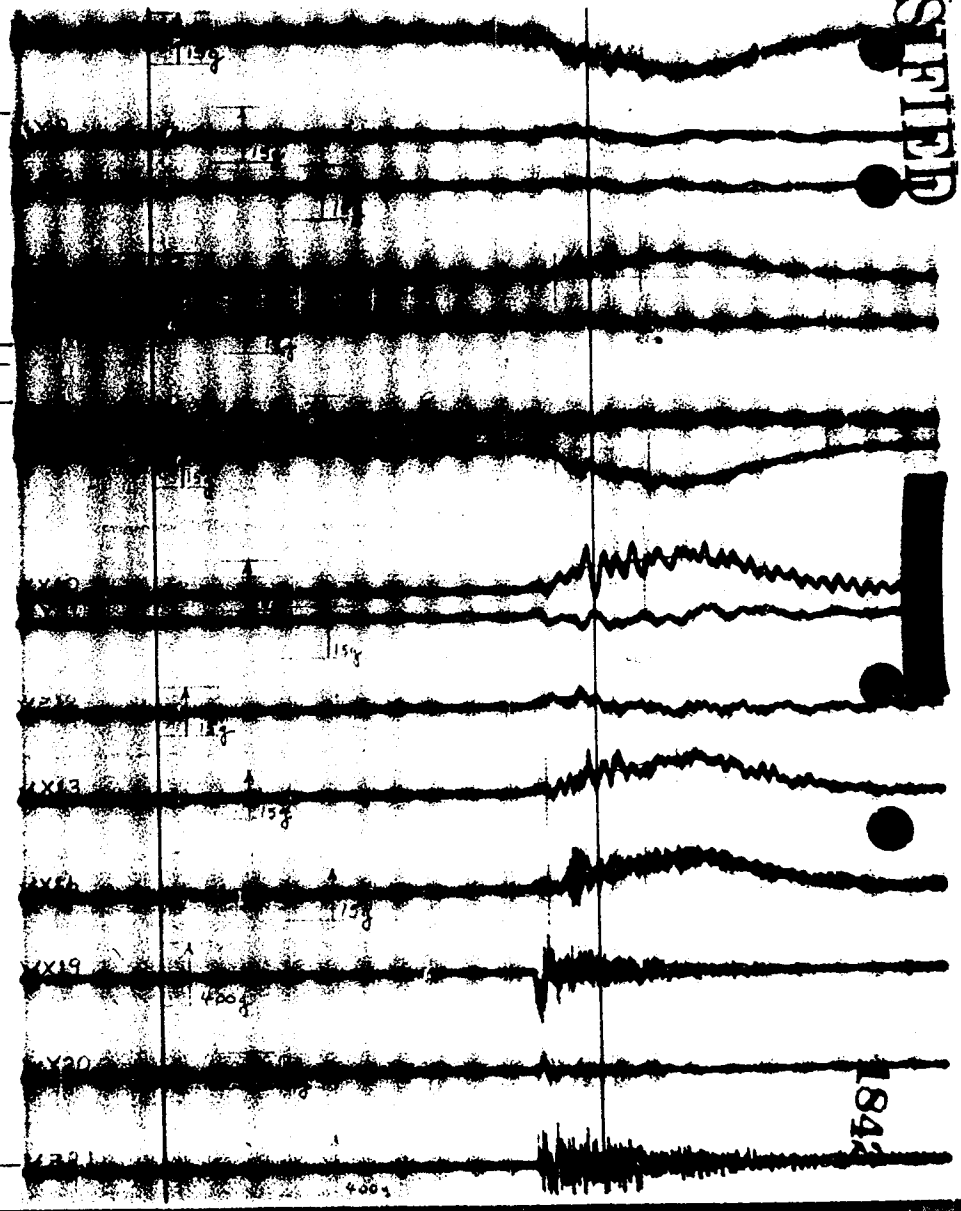
*Orientation given by Transducer No., i.e. VX 1 is oriented along X axis.



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PROJECT NO.	PAGE	OF
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TEST CONDITIONS

Run No.	Drop No. 3
Impact Velocity	8 ft/sec (12" Drop Height)
Simulating	Handling Drop
Temp. Condition	Ambient
Orientation	Longitudinal Axis

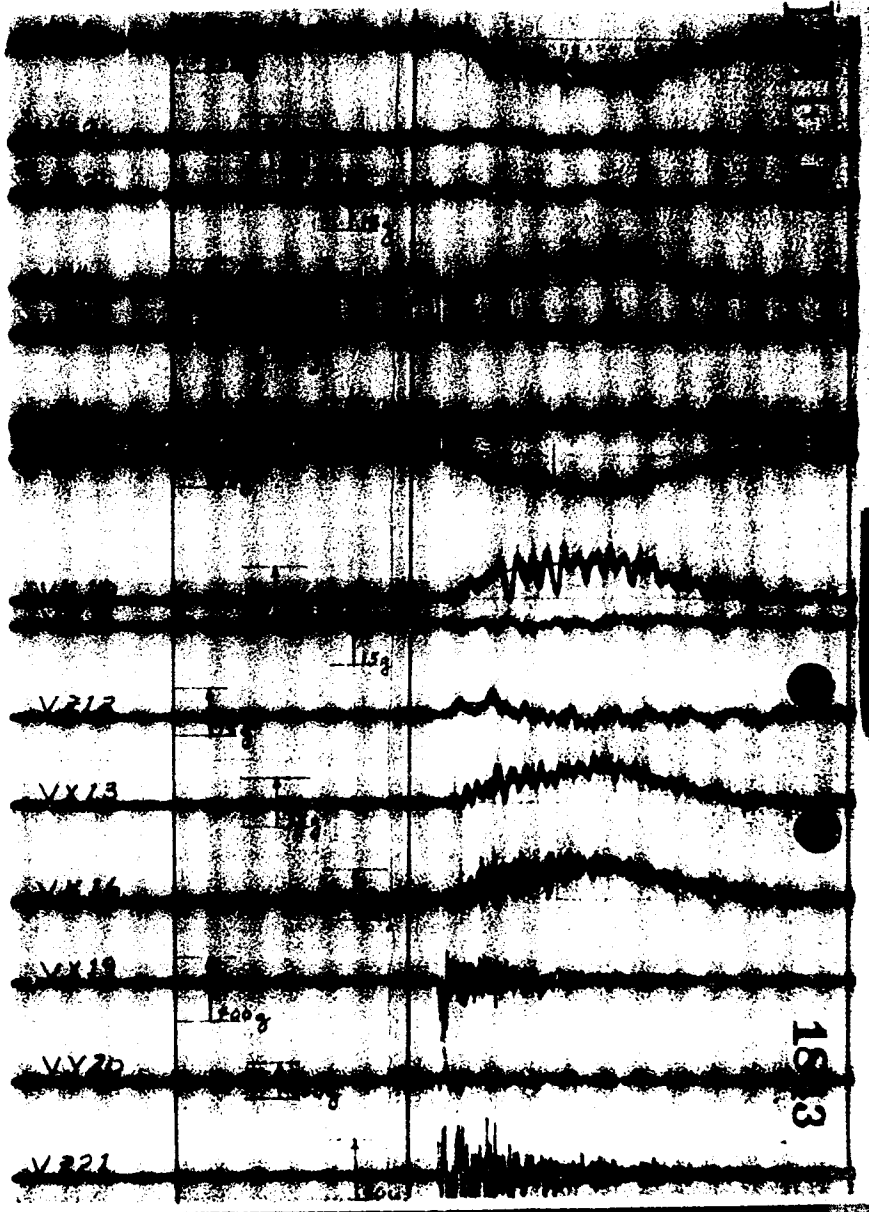
LEGEND
PD = [illegible]
RT = [illegible]
MFP = [illegible]
A = [illegible]

COMMENTS

Refer to Figure 1 for X, Y, and Z axes. Accelerometers VX19, VY20, and VZ21 were ignored because the input was essentially a step velocity function and beyond the frequency response of the accelerometer.

TRANSDUCER INFORMATION						TEST DATA				
No.	Location & Orientation	Model	S/N	fn and Range	Fig. Ref.	MAX (+)	MAX (-)	MFP	RT (ms)	PD (ms)
VX 1	*Component Deck	2223 M5	KA-03	25kHz 2000g		10.90	0	10.90	21.2	64.0
VY 2	*Component Deck	2223 M5	KA-03	25kHz 2000g		1.74	1.30	0	0	0
VZ 3	*Component Deck	2223 M5	KA-03	25kHz 2000g		0	0	0	0	0
VX 4	Forward Housing 270° Aft End	2228 B	LB-01	25kHz 2000g		6.2	0	6.2	19.7	64.7
VY 5	Forward Housing 270° Aft End	2228 B	LB-01	25kHz 2000g		0	0	0	0	0
VZ 6	Forward Housing 270° Aft End	2228 B	LB-01	25kHz 2000g		0	0	0	0	0
VX 7	MC-1661 Outside Surface	2223 M5	KA-07	25kHz 2000g		10.70	0	10.70	22.0	62.2
VX10	F Unit	2223 M5	KA-34	25kHz 2000g		14.20	0	10.25	22.0	60.5
VY11	F Unit	2223 M5	KA-34	25kHz 2000g		0	0	0	0	0
VZ12	F Unit	2223 M5	KA-34	25kHz 2000g		4.83	2.60	0	0	0
VX13	MC-1699	2223 M5	KA-10	25kHz 2000g		12.40	0	11.80	30.0	63.0
VX16	Rear Inside Support 0°	2223 M5	KA-02	25kHz 2000g		12.25	0	8.87	22.5	72.2
VX19	Input (3 inches above base)	2223 M5	KA-13	25kHz 2000g						
VY20	Input (3 inches above base)	2223 M5	KA-13	25kHz 2000g						
VZ21	Input (3 inches above base)	2223 M5	KA-13	25kHz 2000g		[redacted]				

*Orientation given by Transducer No., i.e. VX 1 is oriented along X axis.



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