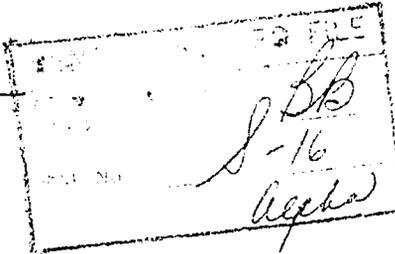


JUL 31 1962

T-15  
T-18473  
Completed 3-14-62  
RS 7321/9996

10/13/98  
x Wayne  
10/21/98  
R. B. Craner  
OK for all personnel



TCG - NNT-1

MR. J. W. McKIERMAN - 7147

ATTN: G. WHITING

Re: Shock Test of Two Metal Dye Containers (Units Numbered 1 and 2) (Unc)

Object of Test

The object of this test was to assist Division 7147 in determining if the Metal Dye Container would break when subjected to a shock, simulating a 50-pound HE Explosion.

INVENTORIED

AUG 6 1962

3427-1

RECEIVED

AUG 1 1962

CENTRAL RECORD FH

Authorization for Test

This test was requested by Division 7147 in a Work Order Authorization received February 9, 1962. Mr. G. H. Whiting was the consultant. The material for test was received March 6, 1962.

Summary

The two metal dye containers (Units numbered 1 & 2) were subjected to a Mechanical Shock Environment in accordance with an Environmental Test Order from Division 7147 and the consultants' instructions.

Unit Number 1, with approximately 0.017 inch thickness at the fracture area, was subjected to a Mechanical Shock pulse with a velocity change ( $\Delta V$ ) of approximately 25 fps. The unit did not break at the fracture area.

The thickness at the fracture area of the two units was then reduced to 0.004  $\pm$  0.000 of an inch. The two metal dye containers (Units 1 & 2) were then subjected to a Mechanical Shock pulse with a velocity change ( $\Delta V$ ) of approximately 25 fps. Both units broke at the fracture area as expected.

INVENTORIED

SEP 14 1965

3428-3

Functional Measurements and Methods

The input accelerations to the Mechanical Shock Machine and the output accelerations experienced by the metal dye containers were monitored during the Mechanical Shock Environment.

NATIONAL SECURITY INFORMATION DECLASSIFICATION REVIEW EXECUTED BY THE DECLASSIFICATION STAMP	
ASSIGNMENT CHANGED TO: <u>W</u> <i>Carmela Ballygo 10/27/98</i>	AUTHORITY: <u>R. B. Craner</u>
REASON FOR CHANGING DATE: <u>WC Depe 10/28/98</u>	RECORD ID: <u>99SN 0101</u>
PERSON VERIFYING MARKING & DATE:	DATED: <u>10/21/98</u>

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# UNCLASSIFIED

Mr. J. W. McKiernan, 7147

-2-

T-18473  
RS 7321/99996Acceleration

The input accelerations to the shock machine table and the output accelerations experienced by the metal dye containers were monitored using two Endevco Accelerators (Type 2225).

Figure 1 shows the location of the input accelerometer on the Mechanical Shock Machine Table.

Figure 2 shows the location of the output accelerometer on the metal dye container.

Procedure and Results

The two metal dye containers (Units numbered 1 and 2) were subjected to a Mechanical Shock Environment in accordance with an Environmental Test Order from Division 7147 and the consultant's instructions as follows:

The two metal dye containers (Units numbered 1 & 2) were subjected to a Mechanical Shock Environment at laboratory ambient temperature and pressure. This environment consisted of subjecting the units to a mechanical shock along the longitudinal axis so that the inertial force on the unit was in a top-to-bottom direction. Unit No. 1 with approximately 0.017 of an inch of metal at the fracture area did not break when subjected to the following mechanical shock pulse:

Maximum Faired Amplitude	-	1000g
Rise Time		0.1 millisecond
Duration		1.3 millisecond
Velocity Change ( $\Delta v$ )		25 fps

Following this test, the metal at the fracture area of both units was reduced to  $0.004 \pm \frac{0.004}{0.000}$  of an inch.

The metal dye containers were then subjected to the following mechanical shock pulse:

<u>Unit No. 1</u>	Maximum Faired Amplitude	-	1000g
	Rise Time		0.1 millisecond
	Duration		1.3 millisecond
	Velocity Change ( $\Delta v$ )		25 fps

<u>Unit No. 2</u>	Maximum Faired Amplitude	-	1000g
	Rise Time		0.2 millisecond
	Duration		1.3 millisecond
	Velocity Change ( $\Delta v$ )		25 fps

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Mr. J. W. McKiernan, 7147

-3-

T-18473  
RS 7321/9996

Both of the metal dye containers (Units numbered 1 & 2) broke at the fracture area as expected.

Figure 1 shows the metal dye container (Unit No. 1) mounted on Shock Machine No. 6.

Figure 2 shows the fractured metal dye container (Unit No. 1) after completion of the Mechanical Shock Environment.

Division 7147 Conclusions

The container with a fracture area thickness of  $0.004 \pm \frac{0.004}{1,000}$  of an inch gave the desired results.

*J. M. Carmichael*  
J. M. CARMICHAEL - 7321-3

TEST PROJECT ENGINEER:

*R. A. Mikkelsen*  
R. A. MIKKELSEN - 7321-5

APPROVED BY:

*Bill Johnson*  
B. JOHNSON - 7321-3

APPROVED BY:

*RR Moore*  
R. R. MOORE - 7147-2

JMC:7521-3:cm

## Distribution:

1/6A - J. W. McKiernan, 7147  
Attn: G. Whiting  
2/6A - J. M. Wiesen, 1442  
3/6A - D. S. Bliss, 2344  
4/6A - E. H. Copeland, 7321  
5/6A - C. L. Johnson, 7523  
6/6A - M. Randie, 3421-3 

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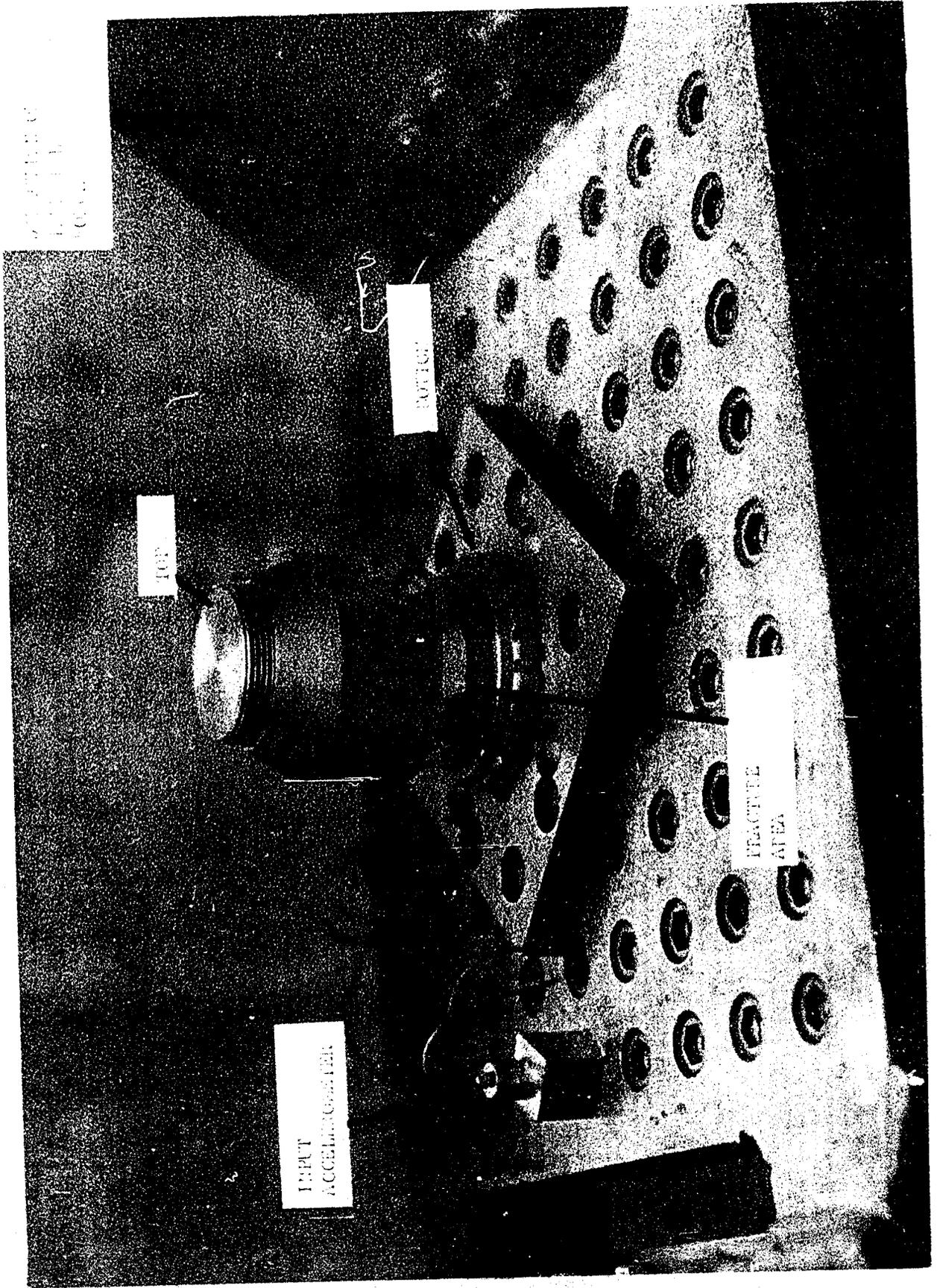


FIGURE 1. TEST FIXTURE FOR CORE TANK (UNIT NO. 1) ACCIDENT INVESTIGATION

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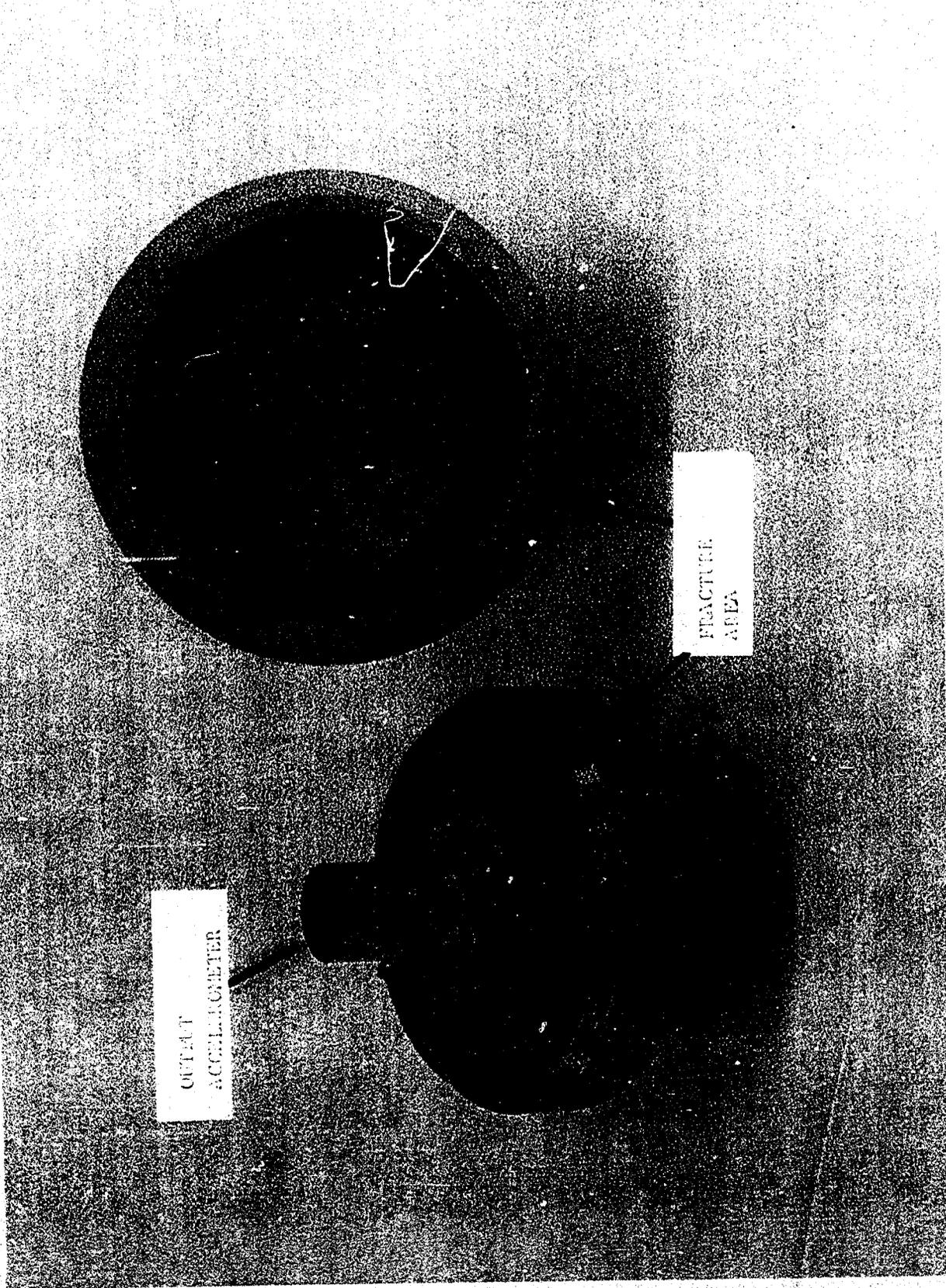


FIGURE 2 METAL DYE CONTAINER (UNIT NO. 1) AFTER COMPLETION OF THE MECHANICAL SHOCK TEST  
 ENVIRONMENT

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