

UNCLASSIFIED

APR 28 1959 4-28-59

| SANDIA SYSTEMATIC DECLASSIFICATION REVIEW | |
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| 1 st Review Date: 9-9-48 | Determination (Circle Numbers): |
| Authority: <input type="checkbox"/> ADC <input checked="" type="checkbox"/> AD <i>W. J. ...</i> | 1 Classification Retained |
| Name: <i>W. J. ...</i> | 2 Classification Changed to: <i>U</i> |
| 2 nd Review Date: 9/14/98 | 3 Contains No DOE Classified Information |
| Authority: <i>R. B. Craney</i> | 4 Coordinate With: <i>U</i> |
| Name: <i>R. B. Craney</i> | 5 Contains UCAST <i>U</i> |
| | 6 Comments: <i>OK for ...</i> |

XW
 TX-47, 3-2
 Project No. T-16116
 Case No. 804.25
 Date Completed: 3-24-59
 Ref. Sys: .1613(28)

TO: DISTRIBUTION:

Re: Salt, Rain, Sand and Dust Tests of the TX-47.

Summary of Results

Upon completion of salt spray, rain, and sand and dust tests on the TX-47, there was no evidence of salt, moisture, sand, or dust, within the warhead. There was no appreciable deterioration of the exterior of the warhead as a result of the tests. The hydrogen concentration and relative humidity within the warhead did not increase during any of the tests.

The warhead would not hold pressure before the climatic tests began. There was no appreciable change in pressure leak rate as a result of the climatic tests. All of the leaks were found to be through the threaded connection between the nose and the body of the warhead.

Object of Test

This test was conducted to evaluate the ability of the TX-47 to withstand the following storage environments:

1. Corrosion by salt spray per SCS-5, Section 7; MIL-E-5272A, Section 4.
2. Penetration effects of rain per SCS-5, Section 5.
3. Penetration of sand and dust per SCS-5, Section 6; MIL-E-5272A, Section 4.11.1.

Checks were to be made of corrosion, penetration of sand, dust, and moisture ability of the warhead to maintain internal pressure, evolution of hydrogen within the weapon and internal humidity.

Authorization for Test

This test was requested in a Work Order Authorization from C. S. Sisco, C122, to A. J. Reger, 1613, dated 3-12-59. D. C. MacMillan was the consultant.

Previous Tests

No previous test reports have been issued by Department 1610 on the TX-47.

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CENTRAL RECORD FILE

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| CENTRAL RECORD FILE | |
| FILE NO. <i>TX-47</i> | <i>3-2</i> |

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| PROGRAM | |
| CATEGORY | |
| ORG. | |
| DATE | 59 30 |

| SANDIA SYSTEMATIC DECLASSIFICATION REVIEW | |
|--|--------------------------------|
| DOWNGRADING OR DECLASSIFICATION STAMP | |
| CLASSIFICATION CHANGED TO: <i>U</i> | AUTHORITY: <i>R. B. Craney</i> |
| PERSON CHANGING MARKING & DATE: <i>Emilda Selch 9/28/98</i> | RECORD ID: <i>985N3910</i> |
| PERSON VERIFYING MARKING & DATE: <i>Emilda Selch 9/23/98</i> | DATED: <i>9/14/98</i> |

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Project No. T-16116
Ref. Sym: 1613(28)Setup For Tests

Item tested - TX-47 Warhead.

Test equipment used -

1. Salt spray chamber - rain chamber.
2. Dust chamber.
3. Brown Recorder, Model No. Y 153X17(VA)-X-9DG.

Instrumentation -

1. Hydrogen detector, monitor and battery charger (supplied with warhead).
2. Pressure transducer (supplied with warhead).
3. Humidity indicator cards.
4. Leak detector - "Leak Tec", American Gas and Chemicals, Inc.

Procedure

Before commencing the climatic tests, a pressure leak rate was determined, the hydrogen detector was calibrated and connected, and the hydrogen indication within the warhead was recorded.

After placing humidity indicator cards within the case, the warhead was placed within the salt spray-rain chamber in a horizontal position on chocks as shown in Figure 1. The warhead was subjected to salt spray for 50 hours with a chamber temperature of 75°F to 78°F. The hydrogen indicator was operated throughout the test.

Upon removal of the warhead from the chamber, a pressure leak rate check was made, and the hydrogen concentration was recorded. The cover plate was removed and the interior of the warhead was checked for evidence of salt or moisture. The humidity cards were read and replaced for the next test.

The warhead was then placed in the salt spray-rain chamber in a horizontal position on chocks. It was subjected to 4 ± 1 inches per hour of simulated rainfall for 2 hours with a chamber temperature of 68°F. The hydrogen indicator was operated throughout the test.

Upon removal from the chamber (Figure 2), the hydrogen indication was recorded, the cover plate was removed, and the warhead interior was checked for evidence of moisture by probing with humidity sensitive paper. The humidity cards were read and replaced for the next climatic

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test. The cover plate was replaced with a new O-ring and a pressure leak rate test was conducted. The warhead was then pressurized to 17 psia and checked for location of the pressure leaks.

The warhead was then placed in the dust chamber and subjected to blowing dust for 6 hours at 77°F and 6 hours at 160°F. Upon removal from the chamber (Figures 3 and 4) hydrogen indicator, humidity indicator card and leak rate readings were made and recorded.

The warhead interior was at ambient pressure throughout each of the climatic tests.

Results

Upon receipt of the warhead, the hydrogen indicator read 2.5% of an explosive concentration. Subsequent readings were 2.0% after the salt spray test, 1.0% after the rain test, and 1.0% after the dust test.

Upon receipt of the warhead, the pressure leak rate was 12 minutes from 13.8 psia to 12.8 psia. Subsequent rates for the same pressure interval were 9½ minutes after the salt spray test, 15 minutes after the rain test, and 6 minutes after the dust test.

The humidity indicator cards showed 10-20% relative humidity before and after each of the tests.

There was no evidence of moisture, salt, or dust within the weapon at any time.

There was no evidence of corrosion or other exterior deterioration of the warhead as a result of the salt spray and rain tests. After the dust test, the paint was eroded from a small area on the cover.

Conclusions and Recommendations

The TX-47 Warhead will withstand the climatic environments to which it was subjected during these tests.

Test Conducted by: *D. C. McFall*
D. C. McFALL, 1613-3

1613 Project Engineer: *D. J. Baudep*
D. J. BAUDEP, 1613-3

Approved by: *R. S. Hooper*
R. S. HOOPER, 1613-3

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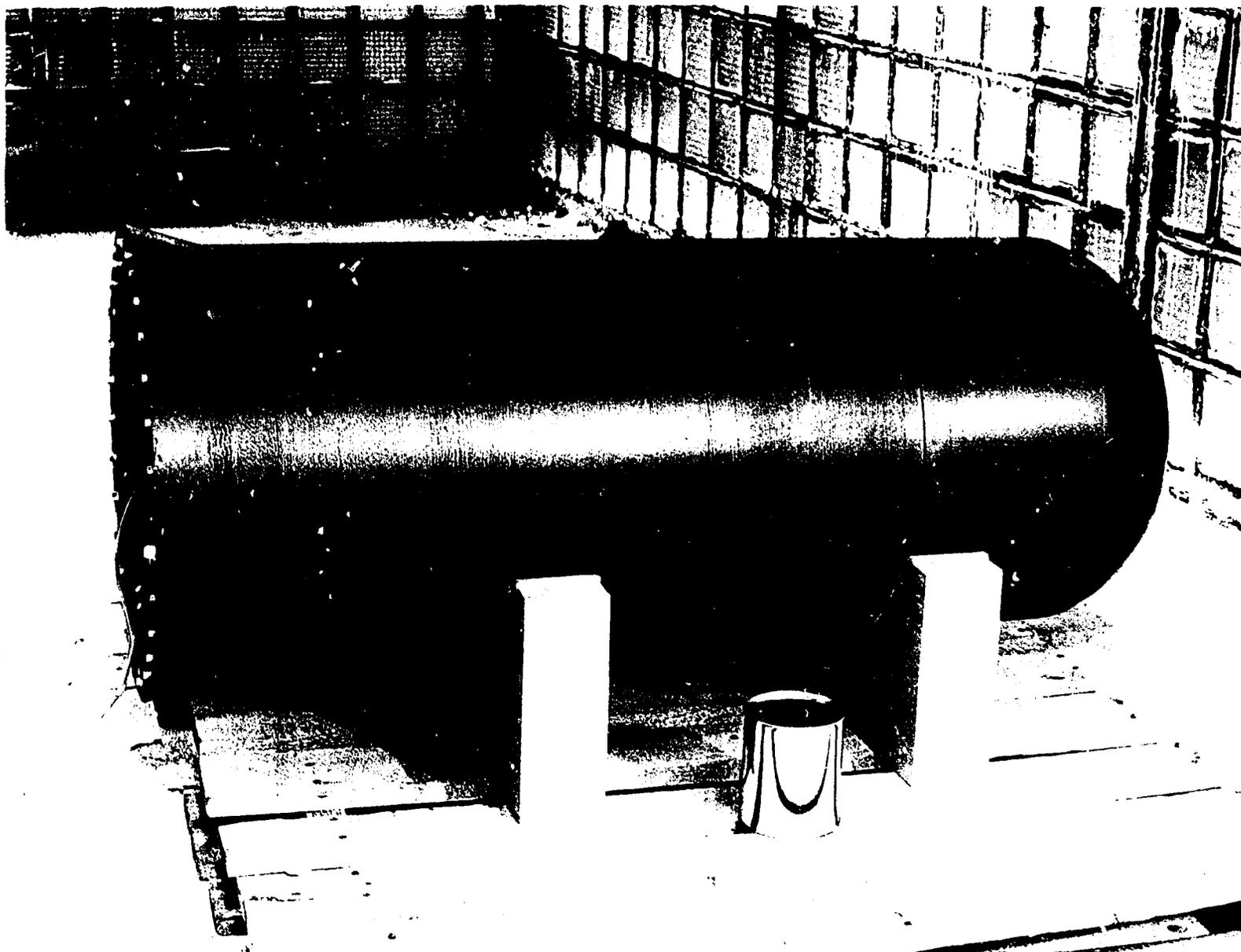
DISTRIBUTION:

- 1/5A - E. F. Ingledue, 8122
Attn: D. C. MacMillan
- 2/5A - W. A. Gardner, 1610
- 3/5A - J. W. Wiesen, 1592
- 4/5A - C. L. Gonal, 5523
- 5/5A - R. K. Smeltzer, Central Record File, 4721-3

C/R 280855 Disp.

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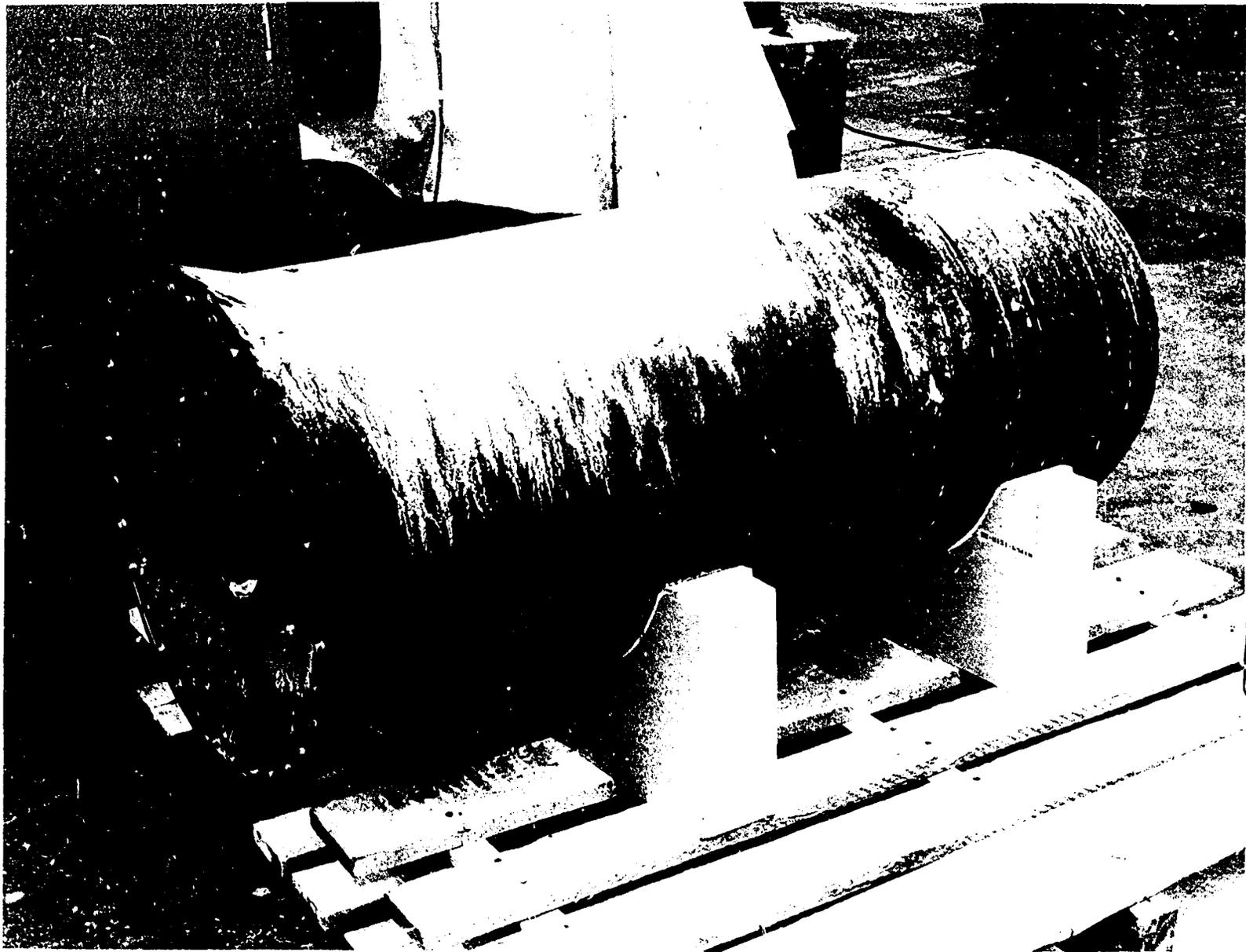
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FIGURE 1. TA-47 PLACED IN SALT SPRAY-RAIN CHAMBER PRIOR TO SALT SPRAY TEST.
SALT, RAIN, SAND AND DUST TESTS OF THE TA-47.

neg. no. 89-3426

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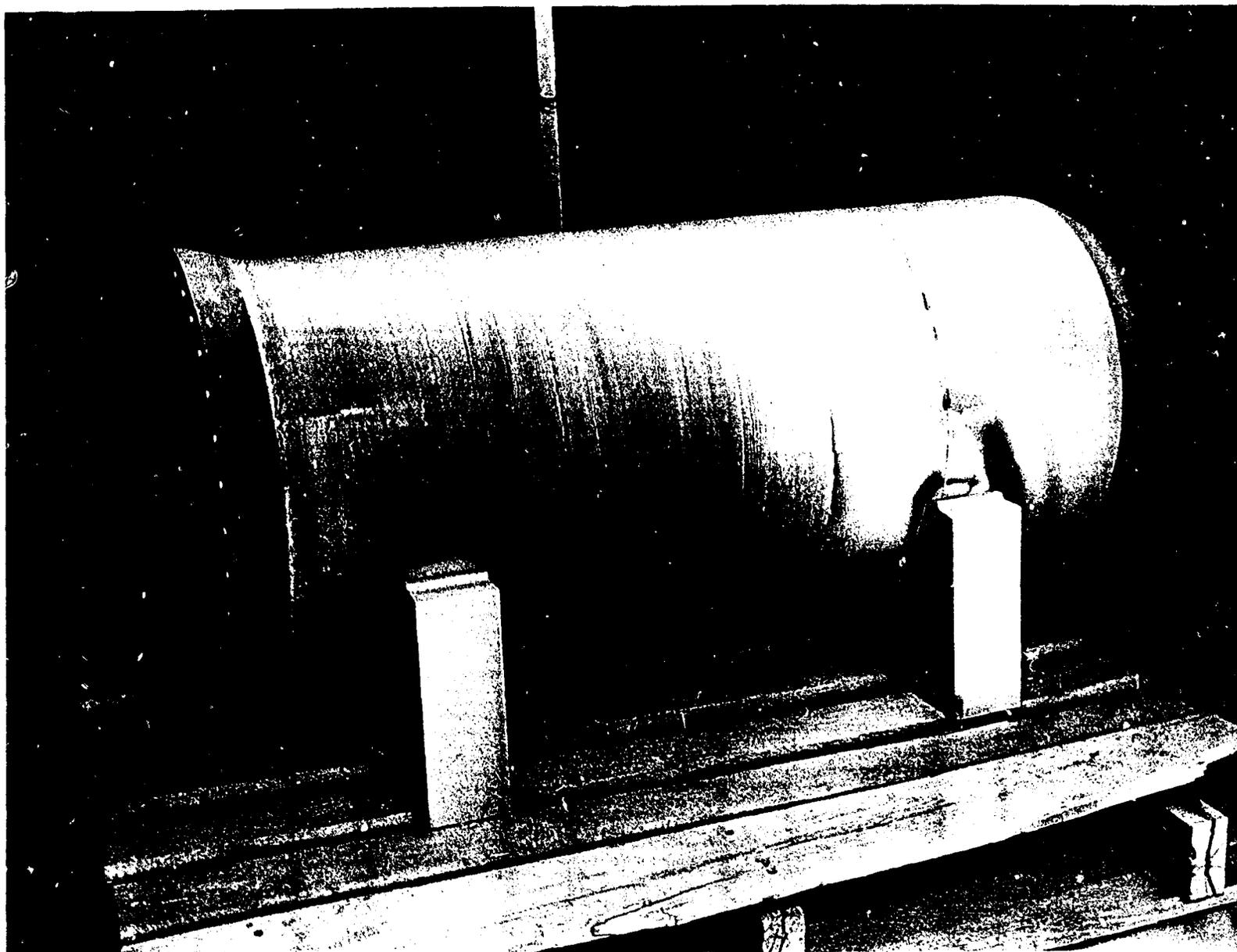
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FIGURE 2. T-47 UGMN ENGINE TEST. BELT, REIN, AND DUCT TEST OF THE TX-47.

neg. no. D-9-3680

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FIGURE 3. T-1627 BURN CHAMBER AND MOUNTING.
1/2 IN. DIA. AND MOUNT TEST OF THE T-1627.

neg. 76, D9-3882

17.

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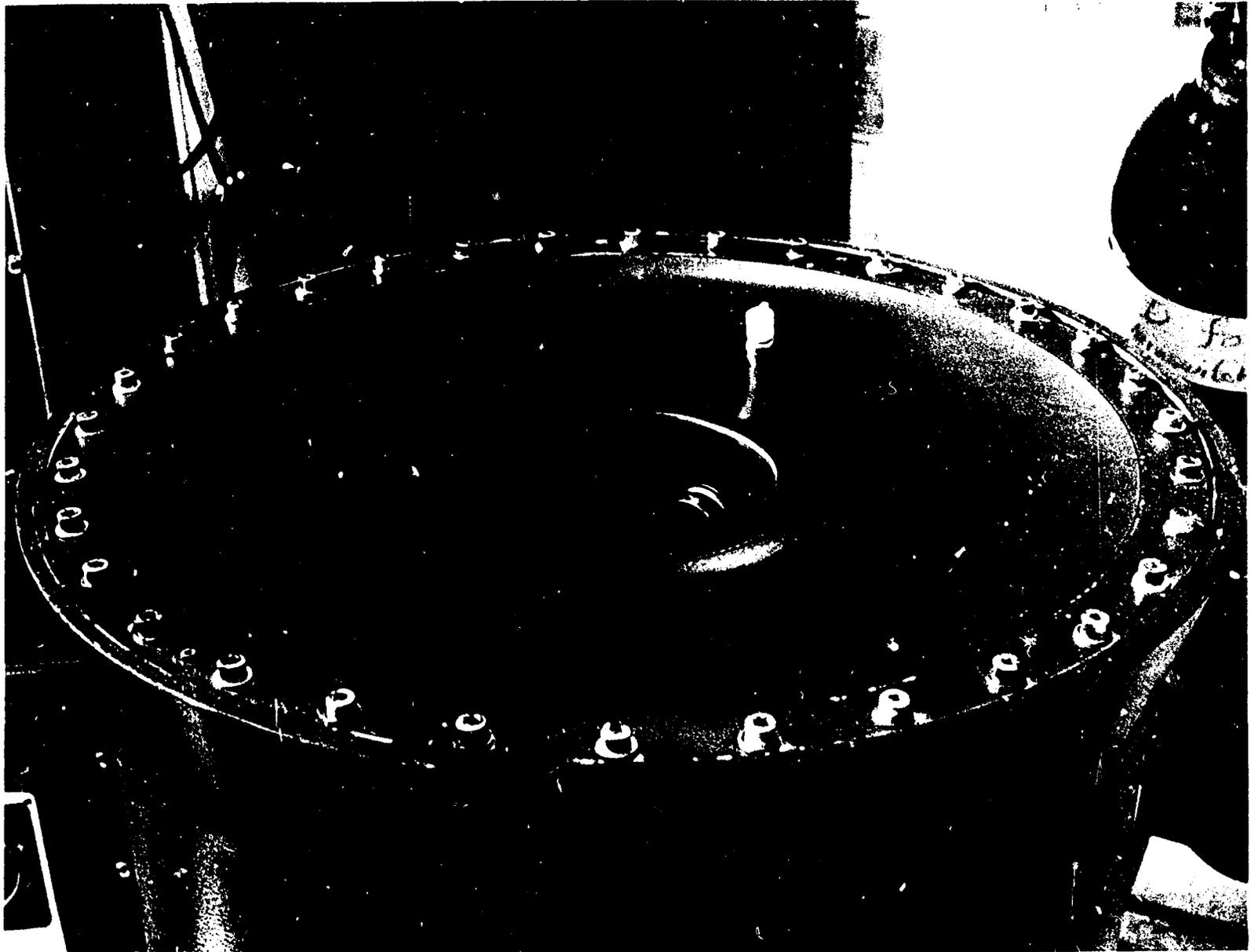


FIGURE A. T-47 U ON ROTOR MOUNTING UNIT.
WET, RAIN, SAND AND DIRT TO TOP OF THE T-47.

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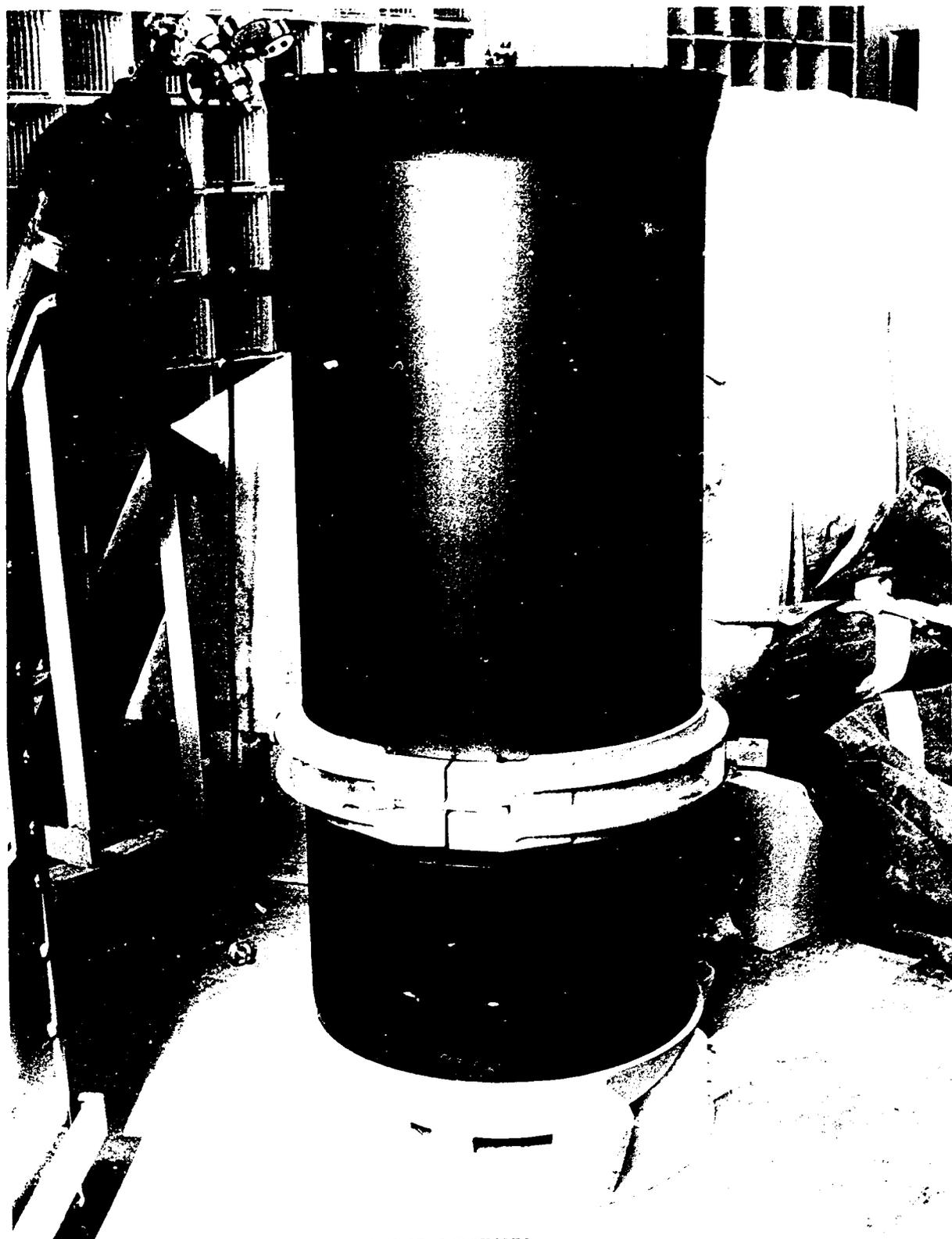


FIG. 5. TX-47 WITH HANDLING FEATURES.
 LEFT, OPEN, AND RIGHT TESTS OF THE TX-47.

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ref. no. D9-3428