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JUN 4 1957
Case No. 681.00
Ref. Sym: 1612 (529)
Project No. TM-587
File: XW-34, 3-2

MR. J. W. JONES - 1225
Attn: Mr. F. F. McEwin - 1225-3
Re: Pressure Test of XW-34 Pressure Cover

SANDIA SYSTEMATIC DECLASSIFICATION REVIEW	
1 st Review Date: 8/25/98	Determination (Circle Number): U
Authority: W.C. Layne	1. Classification Retained
2 nd Review Date: 8/28/98	2. Classification Changed to:
Authority: ADD	3. Contains No DCE Classified Information
Name: W.C. Layne	4. Contains W/IB
	5. Contains UCAF
	6. Comments: Declass

Summary of Results

The XW-34 pressure cover was subjected to a differential pressure of 16.1 psi, between the interior which was a partial vacuum and the outside which was under pressure, without producing failure or damage to the cover.

Object of Test

The test was performed to determine the structural adequacy of the XW-34 cover to withstand a vacuum and if possible to determine the negative pressure required to produce failure.

Reason for Test

The test was performed as a result of the Work Order Authorization from Division 1225 to Division 1611. (The Work Order Authorization was referred to Division 1612 for performing the test.)

Function of Object Tested

The item tested is a MC-869 which is a cover for a portion of the XW-34 warhead.

Summary of Past Tests

No previous static tests have been performed on the XW-34 cover.

Setup for Test

Figures 1 and 2 show the setup for performing the test.

The drawing number for the XW-34 cover is 310553. The cover is known as MC-869.

The following equipment was used during the test:

- 2 - manometers, graduated in centimeters and tenths of centimeters of mercury.

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SANDIA SYSTEMATIC DECLASSIFICATION REVIEW DOWNGRADING OR DECLASSIFICATION STAMP	
CLASSIFICATION CHANGED TO: U	AUTHORITY: W.C. Layne
PERSON CHANGING MARKING & DATE: Emelda Selph 9/18/98	RECORD ID: 98SN13852
PERSON VERIFYING MARKING & DATE: W. Layne 9/19/97	DATED: 8/16/98

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ACCOUNTABILITY CARD	Sm
FILE No.	XW-34
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Mr. J. W. Jones - 1225

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1 - combination vacuum and pressure pump, 1/4 horse-power motor.
Altitude chamber, hose, pipe, and pressure fittings.

Procedure

The XW-34 cover was put into the large altitude chamber and was connected to the vacuum pump as shown in Figs. 1 and 2. One manometer was connected to the XW-34 cover to measure the pressure on the inside of the cover and the other manometer was connected to the altitude chamber to measure the pressure in the chamber.

Beginning with atmospheric pressure on the inside of the cover equivalent to 626 mm of mercury, the vacuum pump reduced this pressure to 40 mm of mercury. The altitude chamber was then pressurized to a pressure equivalent to 875 mm of mercury while the interior of the cover was at a pressure of 40 mm of mercury.

The pressure in the altitude chamber was then released to atmospheric pressure of 626 mm of mercury after which the pressure in the cover was returned to atmospheric.

Results

The maximum pressure in the altitude chamber was 16.9 psi corresponding to a manometer reading of 875 mm of mercury. The pressure on the inside of the cover was 0.8 psi corresponding to a manometer reading of 40 mm of mercury. The resulting differential pressure was 16.1 psi. From altitude vs. pressure relationship, an atmospheric pressure of 16.1 psi would be obtained at an elevation of about 2500 feet below sea level.

No damage resulted from the test. At the suggestion of the consultant, further testing to failure was omitted.

Conclusions

It is concluded that the XW-34 cover can withstand an external atmospheric pressure with an internal vacuum at any altitudes that might be encountered.

H. P. Wheeler
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HPW:1612-2:as

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FIG. 1--TEST SETUP IN INTERIOR OF ALTITUDE CHAMBER FOR PRESSURE TEST OF XW-34 PRESSURE COVER

D# 89772

REF. SMO: 1612 (52)
TM-5-7

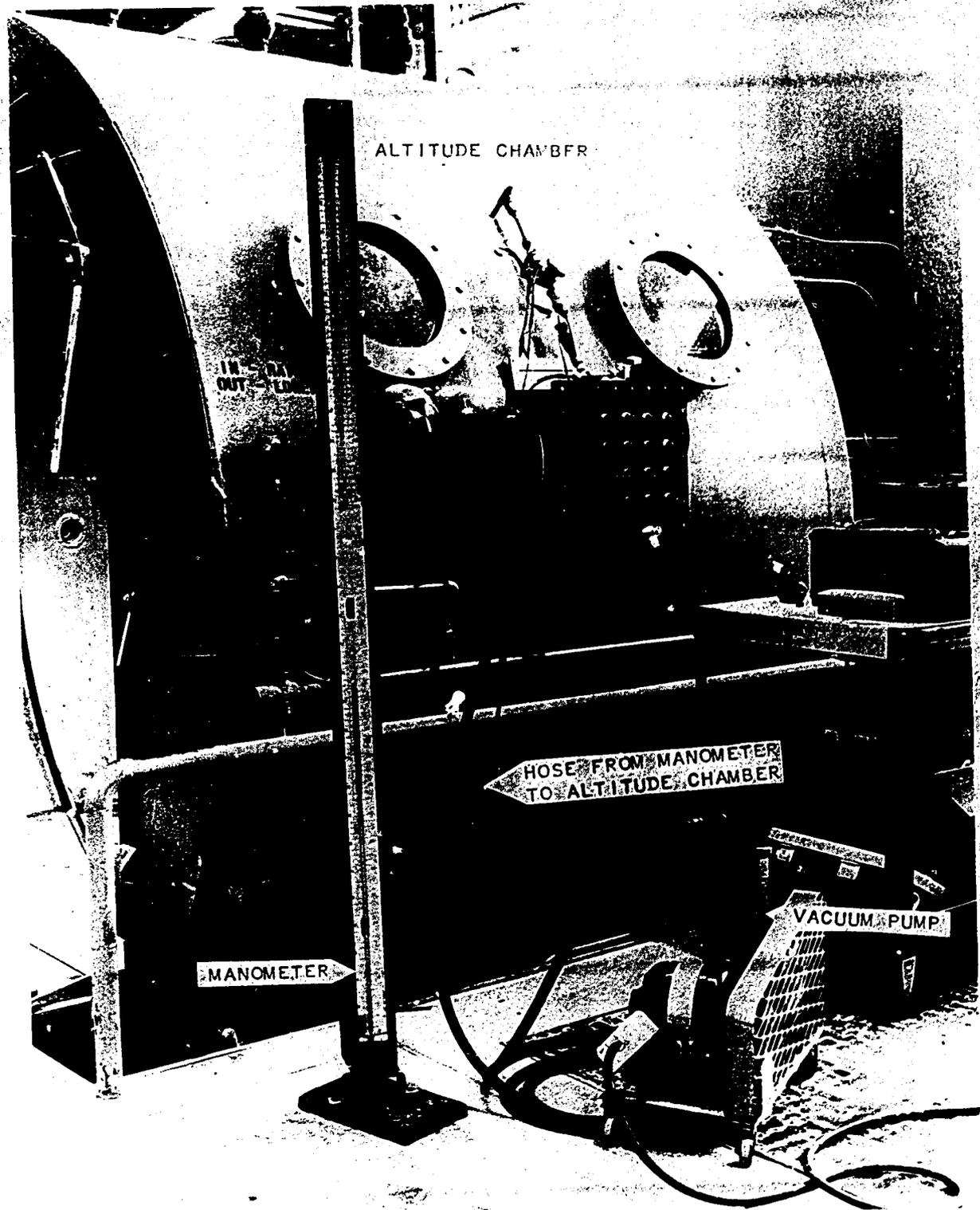


FIG. 2--TEST SETUP AT EXTERIOR OF ALTITUDE CHAMBER FOR PRESSURE TEST OF XW-34 PRESSURE COVER

REF. SYM: 1612 (529)
TM-597

D# 89773