[redacted] 7, 1959 5-7-59

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XW-49, 3-2
Project No. T-16256
Case No. 784.00
Completed 5-15-59

TO: DISTRIBUTION

Re: Leak Tests on Valve Covers for Schrader Valves

Object of Test

The object of this test was to determine the leak rate of development type valve covers to be used on the Schrader pressurizing valve of the MC-1039 warhead case pressure covers. It was requested by Organization 1245. Mr. Harold Gregory, 1245, was the consultant.

Summary of Results

Leak rates ranged from 1.0×10^{-7} cc/sec to greater than 1×10^{-3} cc/sec. Threads were apparently bad on one cap. The "O" rings used seemed to be ragged in construction.

Procedure and Results

Six valve covers were tested for leak rate by means of helium leak rate detection apparatus set up as shown in Figure 1. Each valve cover was arbitrarily numbered for identification purposes during the test.

Cover number 1 was screwed on the valve with no valve core installed. It was tightened finger tight and a differential pressure of two atmospheres was applied across the assembly with an environment of helium on the open valve side. The leak rate of this assembly was 1.1×10^{-6} cc/sec.

This cover was tested in the same way again except that the cover was tightened to a torque of 5 lb-in. The leak rate of this assembly was 7.3×10^{-7} cc/sec. After the cover was removed it was discovered that the "O" ring had torn in half.

Cover number 2 was tested in the same fashion except that it was only finger tight. Leak rate of this assembly was 1.0×10^{-6} cc/sec. This was repeated with the cover tightened to a torque of 15 in-lbs. The leak rate was then 1.0×10^{-7} cc/sec. After removal of the cover, it was found that the "O" ring had torn in half.

Cover number 3 was tested in the same manner and was tightened finger tight. Leak rate was 1.0×10^{-6} cc/sec.

SANDIA SYSTEMATIC DECLASSIFICATION REVIEW
1st Review Date: 5/19/98
Authority: ADD
Name: Chrisner
2nd Review Date: 5-26-98
Authority: ADD
Name: WC Layne
Determination (Circle Number):
1. Classification Retained
2. Classification Changed to: UNC
3. Contains No DOE Classified Information
4. Coordinate With:
5. Contains UCNI?
6. Comments: Declassify

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DATED: 5/26/98

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On cover number 4, the "O" ring did not appear to be good. When the leak test was run, the leak rate was too large to read on the leak rate tester. It was in excess of 1×10^{-5} cc/sec.

Cover number 5 would not tighten down on the "O" ring. It appeared to bottom out on threads before good contact was made with the "O" ring. Leak rate with two atmospheres of differential pressure was in excess of 1×10^{-5} cc/sec.

Cover number 6 was tested after being installed finger tight with a differential pressure of two atmospheres. The leak rate was 1.1×10^{-5} cc/sec.

D. G. AHLSTROM - 1612-3

1613 Project Engineer: BILL JOHNSON - 1613-3

Approved by: R. S. HOOPER - 1613-3

BJ:1613-3:ec
Enc: Figure 1
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Attn: H. Gregory
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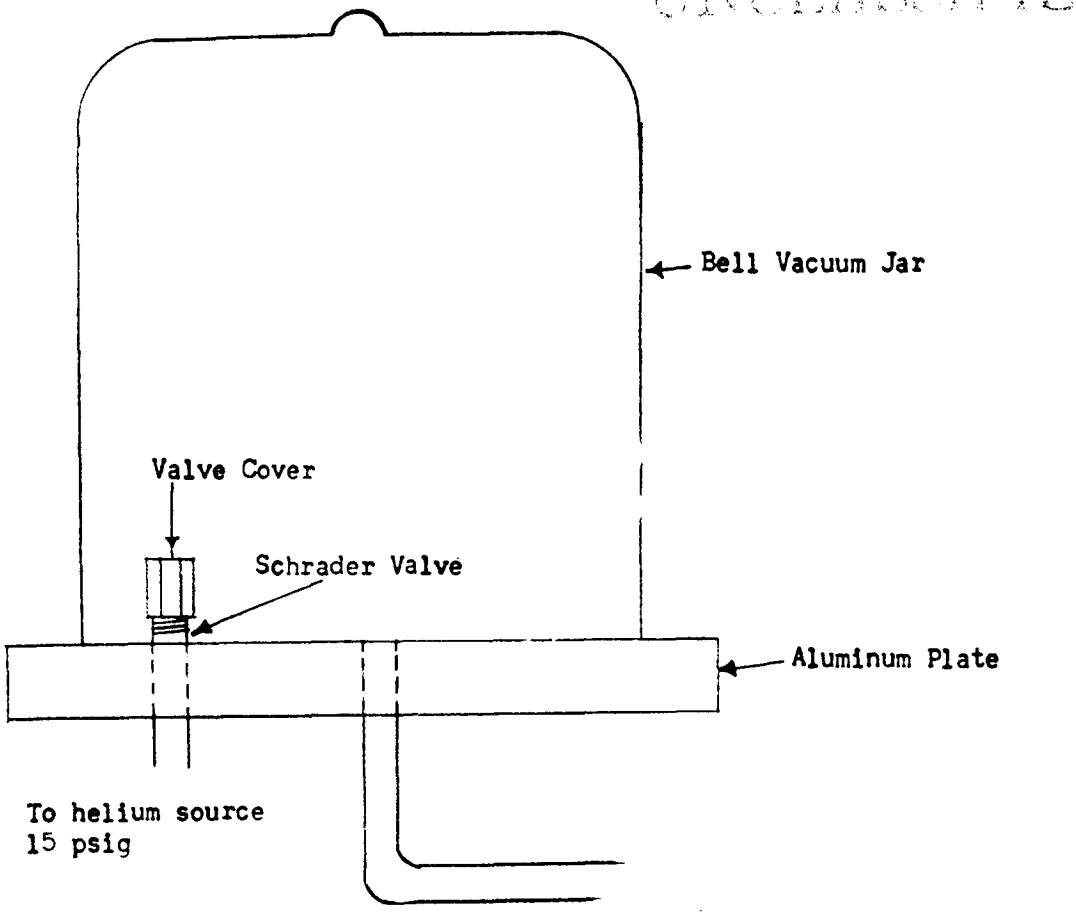

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Figure 1

Test Equipment for Helium Leak Rate Detection

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