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NOV 14 1962

File: XW-50-X1, 3-2
XW-59, 3-2
T-18672
Completed 7-26-62
RS 7331/20

RECEIVED
NOV 15 1962
CENTRAL RECORD FILE

CENTRAL RECORD FILE
ACCOUNTABILITY CARD BB
FILE No. XW50X1 3-2

MR. J. W. MC KIERNAN - 7147

Attn: Mr. L. A. Hanchey
Mr. R. D. Myers

Re: High Temperature - Low Humidity Test of Various Components of the XW-50-X1 and XW-59 Warheads

Object of Test

The object of this test was to assist Division 7147 in determining if a Low Humidity Environment might be detrimental to the components of the XW-50-X1 and XW-59 Warheads.

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Authorization for Test

This test was requested by Division 7147 in an Environmental Test Order received April 17, 1962. Mr. L. A. Hanchey was the consultant. The material for test was received April 26, 1962.

Summary

The various Sandia-designed components of the XW-50-X1 and XW-59 Warheads were subjected to a High Temperature - Low Humidity Environment in accordance with an Environmental Test Order from Division 7147 and the consultant's instructions. The relative humidity of the atmosphere surrounding the components did not exceed 1% during the test. Functional test of the XMC-1364 Inertial Switch Pack after completion of the environment revealed that the MC-824 switches 7, 8, 9, and 10 were closed.

There was no apparent structural damage to the components resulting from the environment.

Functional Measurements and Methods

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The XMC-1364 and XMC-1535 Inertial Switch Packs and the XMC-1261 and XMC-1517 Firing Sets were functionally tested before and after completion of the environment.

The percent of internal relative humidity in the A.N. can containing the components was measured before, during and after the environment using a Division 2411 Alnor Dew Pointer (S-116611).

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SANDIA SYSTEMATIC DECLASSIFICATION REVIEW
DOWNGRADING OR DECLASSIFICATION STAMP

CLASSIFICATION CHANGED TO: U	AUTHORITY: W.C. Layne
Emelda Selph 6/18/98	RECORD ID: 98SN2347
PERSON CHANGING MARKING & DATE: WC Layne 6/18/98	DATED: 6/09/98
PERSON VERIFYING MARKING & DATE	

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Procedure and Results

The various components of the XW-50-X1 and XW-59 Warheads were subjected to a High Temperature - Low Humidity Environment in accordance with an Environmental Test Order from Division 7147 and the consultant's instructions.

Before the environment, the XMC-1517 and XMC-1261 Firing Sets and the XMC-1364 and XMC-1535 Inertial Switch Packs were functionally tested with satisfactory results. The A.N. can (AN-8026-11) in which the various components were placed for the environment was also dryed by placing it in Environmental Test Chamber No. 6 and subjecting it to +160°F for 16 hours. During the last five minutes of the 16-hour drying period the components were placed in the A.N. can and the can sealed. The sealed can containing the components was then removed from the chamber and the can pressurized to 4.0 psig using dry compressed air. The pressurized can was then placed in Environmental Test Chamber No. 9 and subjected to +160°F for 38 days. Because of a small leak in the A.N. can, the cylinder of dry compressed air was connected to the can during the environment in order to maintain the internal pressure of the can at 4.0 psig.

The internal relative humidity of the can was monitored initially at various intervals during the environment and after removing the can from the chamber. At no time did the internal relative humidity exceed 1%. Upon completion of the High Temperature - Low Humidity Environment, the components were visually inspected. There was no indication of structural damage to the components. The XMC-1261, XMC-1517, XMC-1364, and XMC-1535 were then functionally tested. These tests showed that MC-824 switches 7, 8, 9, and 10 of the XMC-1364 were closed.

Figure 1 shows the various components of the XW-50-X1 and XW-59 Warheads that were subjected to the High Temperature - Low Humidity Environment.

Figure 2 shows the A.N. can (A.N. 8026-11) which contained the various components for the High Temperature - Low Humidity Environment.

Table 1 lists the names and serial numbers of the various components subjected to the High Temperature - Low Humidity Environment.

Division 7147 Conclusions

The results of this test indicate that the XW-50-X1 and XW-59-0 components, which were tested, are capable of withstanding the anticipated low humidity environment.

Post-mortem of the MC-1364 ESD Pack gave indication that the four MC-824 switches, found to be actuated after the test, were actuated by application of voltage and not from effects of the environment. Also, the fact that these MC-824's were in parallel circuits suggests that a voltage was inadvertently applied at some stage of testing.

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J. M. CARMICHAEL - 7331-2

TEST PROJECT ENGINEER: R. A. MIKKELSEN - 7331-1

APPROVED BY: B. JOHNSON - 7331-2

APPROVED BY: O. M. FLIGNER - 7147-1

JMC:7331-2:cm

Distribution:
1/7A - J. W. McKiernan, 7147
2/7A - "
3/7A - J. M. Wiesen, 1442
4/7A - D. S. Bliss, 2344
5/7A - E. H. Copeland, 7331
6/7A - C. L. Johnson, 7523
7/7A - Central Record File, 3421-3

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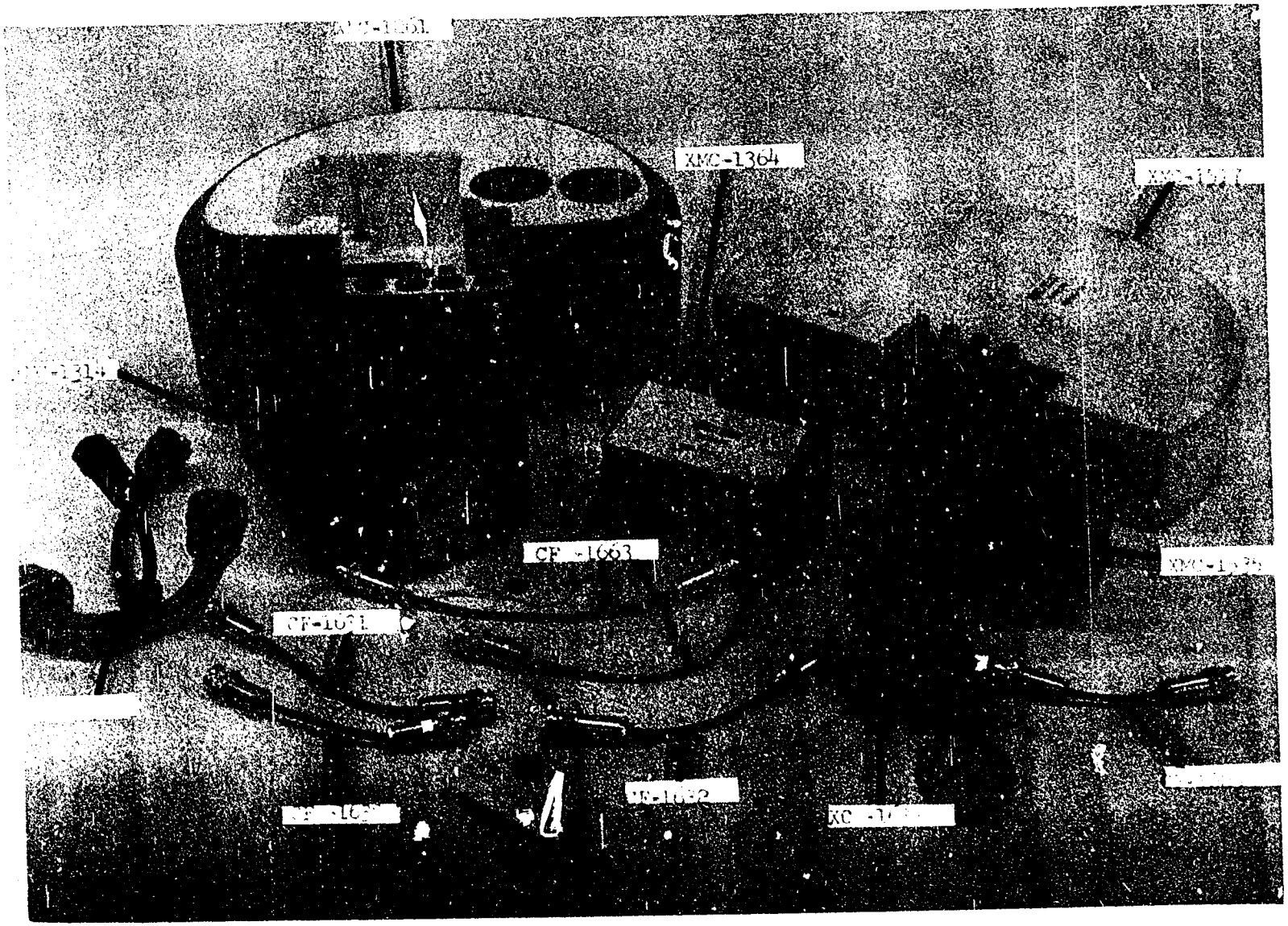

FIGURE 1

COMPONENTS OF XW-50-X1 and XW-59 WARHEADS THAT WERE SUBJECTED TO THE HIGH TEMPERATURE-LOW HUMIDITY ENVIRONMENT

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FIGURE 2

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A.N. CAN (AN 6026-11) IN WHICH THE COMPONENTS OF XW-50-X1 AND XW-39 WARHEADS WERE PLACED FOR THE HIGH TEMPERATURE-LOW HUMIDITY ENVIRONMENT

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TABLE 1

COMPONENTS OF THE

XW-50-X1 AND XW-59 WARHEADS

T-18672

		XW-50-X1	
XMC-1261	Firing Set		BBN-X062-B2
XMC-1364	Inertial Switch Pack		BBN-X090-L1
CF-1629	Cable		
CF-1630	Cable		
CF-1631	Cable		
CF-1632	Cable		
XCF-1633	Cable		
		XW-59	
XMC-1517	Firing Set		BBN-X054-C2
XMC-1535	Inertial Switch Pack		BBN-X096-K1
XMC-1334	Neutron Generator		CC-103414-L1
CF-1663 (2)	Cable		
CF-1658	Cable		

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