

SANDIA SYSTEMATIC DECLASSIFICATION REVIEW	
1 <sup>st</sup> Review Date: 7/21/98	Determination (Circle Numbers)
Authority: <input type="checkbox"/> ADC <input checked="" type="checkbox"/> ADP W. Layne	1 Classification Retained
Name: _____	2 Classification Changed to UNCL
2 <sup>nd</sup> Review Date: _____	3 Contain No DOE Classified Information
Authority: ADD (NOT REQUIRED)	4 Coordinate With: _____
Name: _____	5 Contain UCAIT
	6 Comments: _____

JAN 29 1952  
 Ref. Symbol: 1531  
 Project No. ET-431

MR. C. F. ROBINSON - 1243

Re: Operational Test of TX-7 Dive Brake

Object of Test

The object of this test was to determine whether the dive brakes on the TX-7, using as a power source a telemetering battery contained in the unit, would function properly at extreme cold temperatures.

Function of Object Tested

The object tested is a dive brake used on the TX-7.

Authorization for Test

This test was requested by Division 1243 in a Work Order Authorization dated October 27, 1951. Mr. K. G. Roebuck was the consultant.

Summary of Results

The dive-brake assembly operated satisfactorily at all temperatures except -80°F, at which point the pull-out switch failed. The equipment operated, however, when the pull-out switch was by-passed and an external switch was used to operate the mechanism.

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FILE NO.	TX-7
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Procedure

A. Test Conditions:

The TX-7 tail assembly was placed in the temperature chamber. A battery, with heater, furnished by the telemetering organization, was placed inside the tail assembly. The battery voltage, the voltage supplied to the time delay through the pull-out switch, and the voltage on the solenoid were monitored throughout the tests. This was done to give an indication of the condition of each component so that any failure could be located. The chamber was lowered to temperatures of 0°, -40°, and -80°F, and the operation of the assembly was checked after stabilization at each temperature.

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SANDIA SYSTEMATIC DECLASSIFICATION REVIEW DOWNGRADING OR DECLASSIFICATION STAMP	
CLASSIFICATION CHANGED TO: U	AUTHORITY: W. C. Layne
PERSON CHANGING MARKING & DATE: Emerald Selph 7/21/98	RECORD ID: 98SN3081
PERSON VERIFYING MARKING & DATE: W. C. Layne 7/21/98	DATED: 7/21/98

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B. Equipment Used:

Hiatt temperature chamber No. 2  
D-C power supply, Model RS-DC-28-30, Serial No. 163  
Brown potentiometer pyrometer, Model No. 156X63FA8, Serial No. 344397  
Two Esterline-Angus d-c voltmeters, Model AN, Serial Nos. 79797 and 79796  
Esterline-Angus d-c ammeter (used as a voltmeter), Model AN, Serial No. 79793  
Simpson multimeter, Model 260, Serial No. 52905

Results

When the assembly temperature was stabilized at 0°F, the open-circuit voltage of the battery was 39.5 volts. The temperature of the battery was +52°F, maintained by heaters on the battery box; the heaters were operated by an external power supply. When the unit was operated, the battery voltage dropped to 36 volts. Operation was normal.

When the assembly temperature was stabilized at -40°F, the pull-out switch failed to operate. It was found that the switch had been crushed by the operation of the cocking lever. The unit was returned to ambient temperature and the switch was replaced and the new one was located in a position out of range of the lever.

The assembly was stabilized at -60°F and the assembly failed. The assembly was warmed up and a check revealed a cold solder joint. This was repaired.

The assembly was again stabilized at -40°F. The operation of the assembly was normal. The battery voltage, which was 37 volts before the test, dropped to 31.5 volts when the assembly was operated. The battery temperature was +29°F.

A stabilized temperature of -60°F was obtained and the pull-out switch failed to close. An alternate operating switch, which was previously added outside the chamber and connected in parallel with the pull-out switch, was then used, and the other components of the assembly functioned properly. The battery temperature was -10°F. The voltage of the battery, which was 35 volts before the test, dropped to 31 volts when the assembly was operated.

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Conclusions and Recommendations

The pull-out switch should be replaced by one that will function at -80°F if the assembly is expected to operate at this temperature.

*C. F. Sanders*

Test Conducted by C. F. SANDERS - 1531

Original Signed By  
R. L. WAGAR

Approved by R. L. WAGAR - 1531

CF3:inj

Copy to:

- L. J. Paddison - 1500 ←
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- G. H. Roth - 1520
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