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ARMY AVIATION TEST BOARD FORT RUCKER ALA  
PRODUCT-IMPROVEMENT TEST OF RAM AIR DUCT FOR XM27E1 ARMAMENT SU--ETC(U)  
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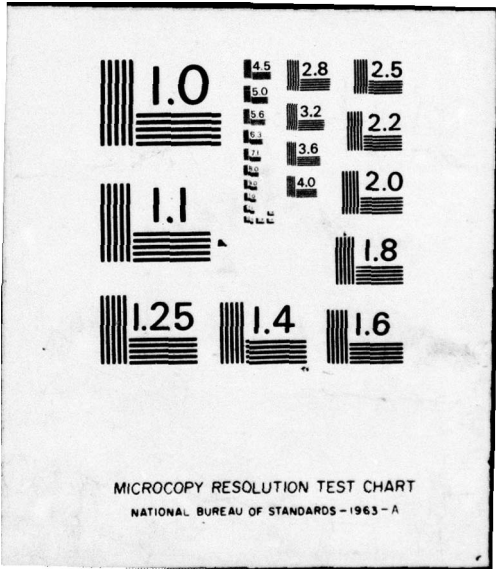
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DEPARTMENT OF THE ARMY  
UNITED STATES ARMY AVIATION TEST BOARD  
Fort Rucker, Alabama 36360

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SUBJECT: Final Report of Product-Improvement Test of Ram Air  
Duct for XM27E1 Armament Subsystem, RDT&E Project  
No. 1X1806D133.08, USATECOM Project No. 4-4-  
1601-19

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Commanding General  
US Army Test and Evaluation Command  
ATTN: AMSTE-BG  
Aberdeen Proving Ground, Maryland 21005

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1. REFERENCES

- a. Final Report, "Service Test of the XM27E1 Armament Subsystem," USATECOM Project No. 4-4-1601-12, US Army Aviation Test Board, 27 December 1967.
- b. Message RI 20784, Headquarters, US Army Weapons Command, 15 August 1968, subject: "RAM Air Duct, XM27E1 Armament Subsystem P/N 11697792."
- c. Message AMC 28134, Headquarters, US Army Materiel Command, 16 October 1968, subject: "XM27E1 RAM Air Duct."
- d. Letter, AMSTE-BG, Headquarters, US Army Test and Evaluation Command, 24 October 1968, subject: "Test Directive, Product Improvement Test XM27E1 Armament Subsystem (RAM Air Duct)."

2. BACKGROUND

A ram air duct has been developed to replace fairings presently being used on the XM27E1 armament subsystem. At the request of

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US Army Weapons Command, the US Army Test and Evaluation Command directed the US Army Aviation Test Board (USAAVNTBD) to conduct a product-improvement test of the ram air duct (reference 1d).

### 3. OBJECTIVE

*was conducted* To determine the suitability of the Ram Air Duct for use with the XM27E1 Armament Subsystem.

### 4. SCOPE AND METHOD

The USAAVNTBD conducted this Category II product-improvement test at the Tactical Test Site at Apalachicola, Florida. The test item was installed on OH-6A Helicopter, S/N 2921, on 19 November 1968. The helicopter was operated in accordance with profiles established for OH-6A reliability testing, which included gunnery runs with abrupt pull-up maneuvers. A total of 10,000 rounds of 7.62mm ammunition was fired from the XM27E1 armament subsystem with the ram air duct installed. Inspections were performed during test in accordance with procedures outlined in TM 55-1520-214-10.

### 5. SUMMARY OF RESULTS

a. After eight hours of operation and the firing of 10,000 rounds, no damage to the OH-6A or the XM27E1 armament subsystem was found.

b. With the ram air duct installed, the ejection pattern of brass and link debris was well clear of the helicopter fuselage and tail rotor assembly.

c. There were no stoppages, cookoffs, or malfunctions of any type during the test.

d. The ram air duct had no effect on the flight characteristics of the OH-6A. Flight characteristics, with the weapons firing and not firing, remained the same as previously reported in the service test of the XM27E1 armament subsystem (reference 1a).

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1601-19

e. No unusual or difficult maintenance procedures were encountered,  
during installation, service, or removal of the ram air duct.

6. CONCLUSION

The ram air duct is suitable for use on the XM27E1 armament  
subsystem.

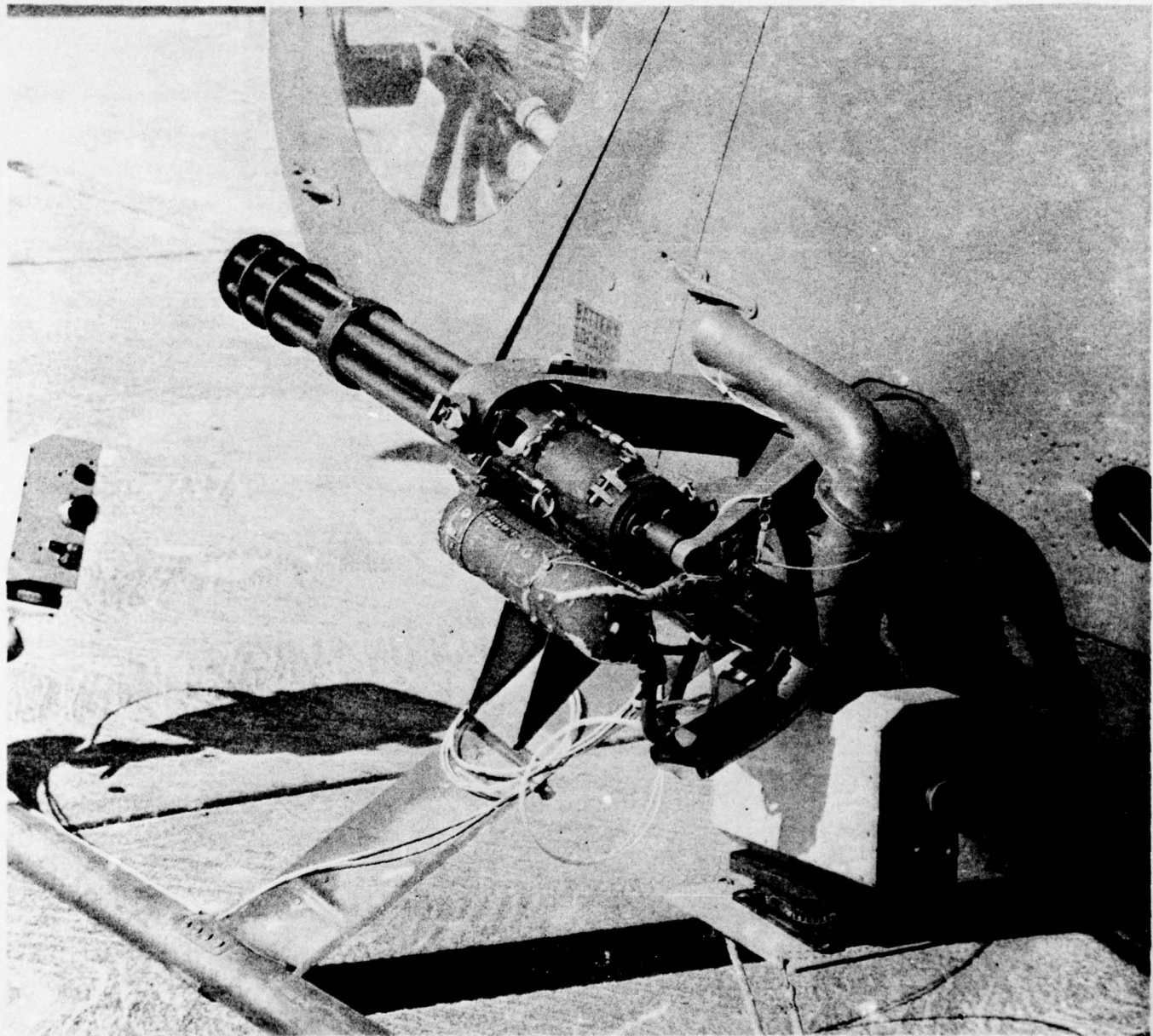
7. RECOMMENDATION

The ram air duct be approved for use on the XM27E1 armament  
subsystem.

FOR THE PRESIDENT:

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Photographs

*W. R. Little*  
W. R. LITTLE  
CW2, USA  
Acting Adjutant



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