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UNITED STATES ARMY AVIATION BOARD
Fort Rucker, Alabama

AVN 560/62

ATBG-SEC-AVN-5660/62

23 JUL 1962

SUBJECT: Confirmatory Test of the Irritant Gas Dispenser,
Helicopter- or Vehicle-Mounted, M5.

124p.

TO: Commanding General
United States Army Test and Evaluation Command
ATTN: Directorate of Aviation Materiel Testing
Aberdeen Proving Ground, Maryland

1. AUTHORITY.

a. Directive. Paragraph 7d, USCONARC Pamphlet
No. 705-1, June 1962.

b. Purpose. To conduct a confirmatory test of the Irritant
Gas Dispenser, Helicopter- or Vehicle-Mounted, M5, to determine:

- (1) The extent to which deficiencies previously reported
have been corrected.
- (2) Any changes in performance characteristics.
- (3) Suitability of modifications.

2. BACKGROUND.

a. The Aviation Board conducted a test of the helicopter-
mounted irritant gas dispenser, E16R1, in August 1960. The purpose
of the test was to determine the compatibility of the dispenser,
E-16R1, with other Army helicopters after having been classified
Standard A for the H-19 helicopter.

b. USCONARC concurred in the conclusions of the report
as stated and recommended that the irritant gas dispenser, E-16R1,

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ATBG-SEC AVN 5060/62

SUBJECT: Confirmatory Test of the Irritant Gas Disperser,
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be considered suitable for use in Army utility and cargo helicopters when the Technical Instruction 319-12 was revised as indicated in the report of test. Subsequently, the production model has been designated as the M5. The equipment was received for confirmatory test, 5 June 1962.

3. DESCRIPTION OF MATERIEL.

a. The production-engineered M5 disperser consists of four major assemblies: An agent-container assembly, a pressure-group assembly, a support assembly, and a throat assembly.

(1) The agent-container assembly consists of a modified steel propane tank with an adapter flange and three support legs welded to one end of the tank to form a base.

(2) The pressure-group assembly consists of two steel high-pressure tanks, secured by steel band clamps to the pressure-group support assembly. The upper ends of these tanks contain fittings and tubing that manifold the high-pressure tanks to the regulator system.

(3) The support assembly is aluminum alloy tubing welded together to provide a support for the agent-container assembly and the pressure-group assembly. Each of these separate assemblies can be readily installed or removed by means of quick-release locking clamps.

(4) The throat assembly consists of a check valve, ball control valve, and a throat casting that is attached to the agent container by a quick-disconnect clamp.

b. The complete disperser unit, which is 46 1/2 inches high, is encompassed in a circular base 24 inches in diameter. Weight when empty is 160 pounds and 310 pounds when filled with powdered talc used to simulate irritant gas.

4. TESTS. The US Army Aviation Board conducted the confirmatory test at Fort Rucker, Alabama, in conjunction with personnel of the US Army Chemical Corps Engineering Command, Directorate Chemicals and Weapons Engineering, Weapons Division. The helicopter-mounted



ATBG-SEC AVN 5060/62

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irritant gas dispenser, M5, was installed in H-19, H-21, H-34, and HU-1B helicopters, and was operated in the H-19 helicopter. No difficulties were encountered during installations or operation.

a. No changes in performance characteristics of the dispenser or in-flight characteristics of the helicopter were noted.

b. The modifications incorporated were satisfactory and resulted in the following advantages:

(1) The agent hopper and component throat assembly were easily removed from, or installed on, the tubular frame, thereby facilitating installation in, or removal from, the helicopters.

(2) The charging fittings of the high-pressure air supply bottles as assembled on the dispenser support frame were readily accessible for operation when installed in the helicopters.

(3) Only two men were required to install a loaded dispenser in any of the helicopters.

(4) No special precautions to prevent damage or contamination had to be taken while loading the dispenser in the helicopter.

c. No deficiencies were noted in the dispenser in the service test (reference a). The following shortcomings were noted:

**SHORTCOMINGS
PREVIOUSLY REPORTED**

(1) The pilot was not afforded a mechanical or electrical means of opening and closing the agent-control valve. This is desirable, but not mandatory.

(2) The pressure tank is not placarded to preclude the use of oxygen in this system.

FINDINGS THIS TEST

Condition still exists. No further action is recommended.

Condition still exists. Recommend appropriate placard be installed.

ATBG-SEC AVN 5060/62

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d. Deficiencies that existed in Technical Instruction 319-12 have been corrected, and the corrected manual has been designated TM 3-1040-215-12 (reference b). However, this manual does not describe the M5 dispenser. Necessary photographs of dispenser installation have been provided to the US Army Chemical Corps Engineering Command.

5. CONCLUSIONS.

a. The Helicopter- or Vehicle-Mounted Irritant Gas Dispenser, M5, is suitable for use in Army utility and cargo helicopters.

b. TM 3-1040-215-12 is inadequate.

6. RECOMMENDATION. It is recommended that TM 3-1040-215-12 be revised to be applicable to the Helicopter- or Vehicle-Mounted Irritant Gas Dispenser, M5.

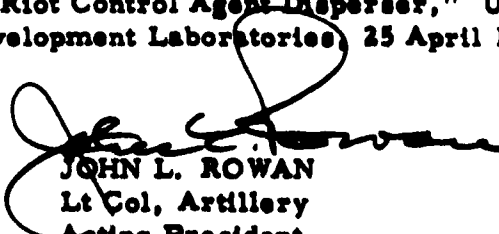
7. REFERENCES.

a. Letter, ATBG-DT Project No. AVN 5060, US Army Aviation Board, 31 August 1960, subject: "Project No. AVN 5060, 'Abbreviated Service Test of the Helicopter-Mounted Irritant Gas Dispenser, E16R1.'"

b. TM 3-1040-215-12, "Operator and Organizational Maintenance Manual," April 1961.

c. Aircraft Armaments, Inc. Final Report, "Production Engineering of M4 Irritant Gas Dispenser," 28 February 1962.

d. Special Test Report No. 62-7, "Engineering Check Test of the Production-Engineered M4 Riot Control Agent Dispenser," US Army Chemical Research and Development Laboratories, 25 April 1962.


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