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13. ABSTRACT

The report describes a method for evaluation of mine fuze and mine ignition system operational and functional performance characteristics. It identifies supporting test, facilities, and equipment required. It provides procedures for functional performance tests.

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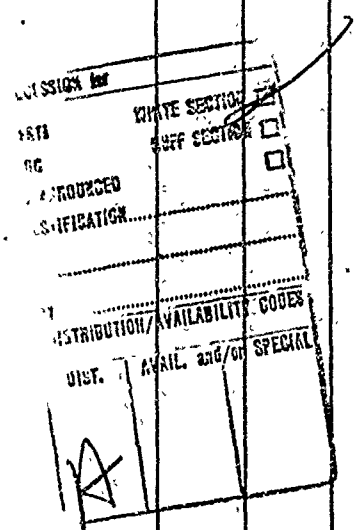

U. S. ARMY TEST AND EVALUATION COMMAND
SYSTEM SERVICE TEST OPERATIONS PROCEDURES

AMSTE-RP-702-103
*Test Operations Procedure 4-3-150 16 February 1972

MINE FUZES AND IGNITION SYSTEMS

SECTION I
GENERAL

1. Purpose and Scope. This TOP describes test procedures for evaluating the operational and performance characteristics of mine fuzes and mine ignition systems. Equipment and test phases include activation and subsequent functioning of pull type, pressure type, pull release, pressure, and delay devices.

2. Background. The US Army has established a requirement for mine fuzes and ignition systems to be used in military mine emplacement operations. Fuzes are named according to their initiating action or how they work, or a combination thereof. The land mine fuze, when set off by a initiating action, causes a flame or concussion by either mechanical, chemical, electrical, or friction-type action. Firing devices are fuzes that are not issued with mines, and are generally a supplemental means of detonation. Ignition systems describe fuzes, firing devices, and other methods used to cause mine detonation.

3. Equipment and Facilities. The specific requirements are described in the publications listed in Section II below.

*This TOP supercedes MTP 4-3-083 dated 1 July 1971.

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SECTION II
TEST PROCEDURE

4. Supporting Tests. Common Service TOP's, the tests defined in Section III, and other published documents to be considered in formulating a service test plan are as follows:

	TEST SUBJECT TITLE	PUBLICATION NO.
a.	Operator Training and Familiarization	10-3-501
b.	Safety Hazards	2-3-501
c.	Physical Characteristics	9-3-500
d.	Technical Inspection	9-3-508
e.	Human Factors Engineering	2-3-516
f.	Maintenance Evaluation - Tools and Test Equipment	2-3-527
g.	Maintenance Evaluation - Technical Manuscripts and Manuals	2-3-528
h.	Functional Suitability (refer to para 5)	
i.	Reliability	2-3-507
j.	Landmine Warfare	FM 20-32
k.	Demolition Materials	TM 9-1375-200

SECTION III
SUPPLEMENTARY INSTRUCTIONS

5. Functional Suitability.

a. Objective. To determine that the test item has the functional capability and suitability to detonate mines and similar demolition charges.

b. Method. The performance capabilities of the test item are examined by employing it in its functional role defined in FM 20-32 or TM 9-1375-200, or applicable requirement documents. Ease of installation and arming and possible methods of disarming are noted. (Live mines are not required, except when questioning the test item's ability to detonate an explosive charge under specified conditions; e.g., underwater.) The force and/or movement required to initiate fuze detonation (i.e., pounds weight or pull, degree tilt, etc.) is measured. This is accomplished using different types of mines (live

or inert) and evaluating the test item compatibility. The degree of camouflage necessary to avoid detection and the possible camouflage interference with the ignition system actuation is noted. A specified percentage of test operations are conducted during the hours of darkness with and without artificial illumination. The effects of aerial implanting (if applicable) by dropping mines with the test items installed and armed from various altitudes and forward airspeeds are noted. Failures are investigated for cause and effect. Observations of the climatic conditions prevailing during field tests at the test site are made to provide a record for future evaluation.

c. Data Required.

(1) Nomenclature of the test item.

(2) Time required for installation and arming.

(3) Difficulties encountered during the tests.

(4) Climatic conditions (temperature, humidity, etc.).

(5) Deficiencies and shortcomings observed.

(6) Remarks concerning overall functioning of the test item.

d. Analytical Plan. At the completion of the data collection phases, test results are evaluated to determine whether or not the test item meets the stated suitability requirements.

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