

DEPARTMENT OF THE ARMY SUPPLY BULLETIN

DETONATOR, PERCUSSION: M1A2, 15-SECOND DELAY
AND M2A1, 8-SECOND DELAY
SURVEILLANCE FUNCTION TEST

Headquarters, Department of the Army, Washington, D.C.
19 October 1971

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1. Purpose and Scope. This bulletin when used in conjunction with SB 742-1 provides a method for determining the serviceability of the subject item. The bulletin is to be used in the assessment of the serviceability of individual detonators only. The provisions of this bulletin are mandatory for use by all Department of the Army organizations within CONUS and overseas with a receipt, storage and distribution mission. This bulletin is not intended for use by organizations with stocks in basic loads. Additional information pertaining to frequency of test, sample selection, defect standards, reports and records are contained in SB 742-1.

2. Errors, Omissions, and Recommended Changes. Reporting of errors, omissions, and recommendations for improving this bulletin by individual user is encouraged. Reports should be submitted on DA

Form 2028 (Recommended Changes to Publications) and forwarded direct to Director, US Army Materiel Systems Analysis Agency, ATITN: AMXSU-RM-WM, Aberdeen Proving Ground, MD. 21005.

3. Safety. The surveillance function testing must be conducted in accordance with the provisions set forth in appropriate safety regulations and implementing instructions, with special attention devoted to technical manuals describing the item.

4. Size of Sample. The number of detonators required to make up a representative sample from a lot for a surveillance function test is as follows:
For check investigation as directed
For classification investigation 50
For confirmation investigation as directed

5. Sample Selection. Sample detonators will be selected in accordance with the provisions of SB 742-1 with the exception that not more than 10 detonators may be selected from any one box.

6. Preparation for test.

a. Number the detonators 1 through 50 and identify them as to the box from which they were drawn.

b. Immerse all of the detonators in water at 700 - 10: F. to a minimum depth of 3 feet for not less than 6 hours.

c. The time from removal of the detonators from the water until firing should be kept to a minimum.

d. Temperature at the test site must be above 32° F.

7. Test Procedure.

a. Remove the cap protector and screw the percussion detonator to hand tightness into a test fixture.

b. Place a lead disk, made of 8-pound sheet lead, (approximately 1/8 inch thick and 1 inch square or in diameter) over a 15/16-inch hole in a metal block. Position the lead disk so that its center is in contact with the cap base.

c. Withdraw the safety pin by pulling on the safety pin cord by means of a tension recording scale in the direction of withdrawal of the safety pin and record the tension required to do so. If the cord breaks or comes apart before the safety pin is withdrawn, record the tension at which this occurred, attach the scale directly to the eye of the safety pin, continue to pull until the safety pin is withdrawn, and record the tension required to do so.

d. Function the detonator remotely by pulling on a tension recording scale attached to a short loop of cloth or leather in turn attached to the pull ring. To reduce the likelihood of pull ring separation prior to cotter pin withdrawal, place the loop of cloth or leather around the doubled portion of the pull ring. If the pull ring breaks or comes apart before the release pin is withdrawn, record the tension at which this occurred, attach the scale directly to the eye of the release pin, continue to pull until the release pin is withdrawn, and record the tension required to do so.

8. Observations. All observations of nonstandard conditions and malfunctions, especially those not included among the defects listed in paragraphs 10 and 11, should be described in full detail. Pictorial evidence of nonstandard conditions, whenever pertinent and practical, should be included. The observations to be reported are as follows:

a. Tension (to the nearest half pound) required to withdraw the safety pin.

b. Tension (to the nearest half pound) required to function the detonator.

c. Detonator delay time (to the nearest tenth of a second) from pulling of the pull ring to detonation.

d. All instances of any of the following:

(1) In nonstandard marking state whether misleading, incomplete, or unidentifiable.

(2) Where rust or corrosion appear give location and extent.

(3) The occurrence of any of the nonstandard conditions or malfunctions classified as defects in paragraphs 10 and 11.

(4) The occurrence of any nonstandard conditions or malfunctions not classified as defects in paragraphs 10 and 11, but which in the opinion of responsible personnel merits consideration.

9. Classification of Defects. Defects observed during inspection and testing will be classified in accordance with paragraphs 10 and 11 and SB 742-1. Any defects observed which are not listed in paragraphs 10 and 11 will be fully described and reported with the ammunition inspector's recommendation as to classification.

10. Nonfunctioning Defects.

a. Critical. Blasting cap is split or cracked exposing its charge.

b. Major.

(1) Safety pin missing.

(2) Pull ring incorrect.

(3) Component missing and detonator cannot be functioned properly without it. Specify component.

(4) Major damage. Specify component.

(5) Major rust.

(6) Major corrosion.

(7) Marking incorrect or misleading as to type of detonator.

c. Minor.

(1) Minor rust.

(2) Minor corrosion.

(3) Marking unidentifiable as to type of detonator.

11. Functioning Defects.

a. Critical

(1) Tension required to release the firing pin is less than 3 pounds and the detonator functions.

(2) Delay is less than Time A of table 1 below.

(3) Detonator functions after delaying more than Time D of table 1 below.

b. Major.

(1) Tension required to release the firing pin is less than 3 pounds but the detonator fails to function.

(2) Tension required to remove the safety pin is less than 3 pounds.

(3) Delay is less than Time B but not less than Time A of table 1 below.

(4) Delay is greater than Time C but not greater than Time D of table 1 below.

(5) Pull ring pulls apart or separates from release pin without releasing firing pin.

(6) Firing pin fails to function.

(7) Firing pin functions but primer fails to fire.

(8) Low order detonation-back of lead disc is not cracked.

c. Minor.

(1) Tension required to remove the safety pin exceeds 35 pounds.

(2) Tension required to release the firing pin exceeds 35 pounds.

Table 1.

Model	Delay	Delay time in seconds			
		A	B	C	D
M2A1	8-sec.	4.0	7.5	125	25.0
M1A2	15-sec.	7.0	13.0	18.0	36.0

12. Evaluation. Functional and nonfunctional codes will be recommended in accordance with the following criteria and the interim condition code will be assigned in accordance with SB 700-1300-1. A lot will be classified condition code J and reported if one critical defect is observed.

a. Nonfunctional Codes.

(1) Code A. A lot not classified as Code J shall qualify for Code A if it meets the following requirements on inspection of 50 detonators by attributes.

(a) Not more than 2 major defectives.

(b) Not more than 4 minor defectives.

(2) Code B. A lot not classified as Code J or Code A shall qualify for Code B if it meets the following requirements on inspection of 50 detonators by attributes.

(a) Not more than 7 major defectives.

(b) Not more than 10 minor defectives.

(3) Code D. A lot not classified as Code J, Code A, or Code B shall be Code D.

b. Functional Codes.

(1) Code A. A lot not classified as Code J shall qualify for Code A if it meets the following requirements in the test of 50 detonators.

(a) Not more than 2 major defectives.

(b) Not more than 4 minor defectives.

(2) Code B. A lot not classified as Code J or Code A shall qualify for Code B if it meets the following requirements in the test of 50 detonators.

(a) Not more than 7 major defectives..

(b) Not more than 10 minor defectives.

(3) Code D. A lot not classified as Code J, Code A, or Code B shall be Code D.

13. Records and Reports. Function test results will be recorded and reported as outlines in SB 742-1.

By Order of the Secretary of the Army:

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NG: None

USAR: None

For explanation of abbreviations used, see AR 310-50.

*U.S GOVERNMENT PRINTING OFFICE: 1994-300-421/82032

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