DEPARTMENT OF THE ARMY SUPPLY BULLETIN

CAP, BLASTING: SPECIAL NONELECTRIC AMMUNITION SURVEILLANCE PROCEDURES

HEADQUARTERS, DEPARTMENT OF THE ARMY, WASHINGTON, D.C.

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12 DECEMBER 1988

Section I. INTRODUCTION

1. Purpose and scope. This bulletin, when used in conjunction with SB 742-1, provides a method for determining serviceability of subject items.

a. The visual inspection and function testing criteria in this procedure will be accomplished under a centralized control program managed by U.S. Army Armament, Munitions and Chemical Command (AMCCOM), AMSMC-QAS, Rock Island, IL 61299-000. This procedure is to be used in serviceability assessment of specified lots based on inspection and testing of individual items.

b. Provisions of this bulletin are mandatory for all Department of Army organizations within the continental United States (CONUS) and outside the continental United States (OCONUS) with an ammunition receipt, storage, and distribution mission. This bulletin is not intended for use by organizations with stocks in basic loads.

c. SB 742-1 contains additional information pertaining to frequency of test, sample selection, defect standards, and records and reports.

2. Item Description. a M7 and J1 nonelectric blasting caps consist of a tube-shaped aluminum alloy cap containing an ignition charge of lead styphnate, an intermediate charge of lead azide, and a base charge of RDX. J1 caps may contain a base charge of RDX or PETN. M7 caps are flared at mating end; J1 caps are not.

b. On initiation by time blasting fuze, primer, or detonating cord, ignition charge detonates intermediate

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charge which detonates base charge. Detonation of base charge initiates explosive charge.

3. References. *a.* The following publications will provide more information of surveillance of subject items. This list is not to be considered all inclusive.

(1) AR 75-1, Malfunctions Involving Ammunition and Explosives.

(2) SB 742-1, Ammunition Surveillance Procedures.

(3) TM 43-0001-38, Army Ammunition Data Sheets for Demolition Materials

(4) TM 9-1375-203-12, Demolition Materials.

b. Each item of ammunition peculiar equipment (APE) has an operational manual that should be consulted prior to and during use of that item. Each manual is titled with APE number and nomenclature of APE item.

4. Safety *a.* Inspection and surveillance function testing must be conducted according to provisions set forth in appropriate safety regulations and implementing instructions, with special attention given to technical manuals describing the item. A standing operating procedure (SOP) for this operation is required and will delineate specific safety requirements. Absence of a safety requirement in this or any other publication is not to be construed as meaning that precaution is unnecessary.

b. Function testing will only be conducted during daylight hours only and only in an area that is clear of flammable material such as grass, weeds, etc. Testing will not be conducted during electrical, rain, or snow storms or during any other conditions that might create a hazardous condition or adversely affect test results. Testing must be conducted according to any other applicable regulations; i.e. U.S. Environmental Protection Agency (EPA), local regulations.

c. Blasting caps are a unique hazard. Caps are easier to initiate than other demolition materials. Both electric and nonelectric caps can be initiated by impact. The open end of nonelectric caps contains an especially sensitive material. Alone, a detonating cap is a dangerous personnel hazard. If a cap detonates while being held, a single cap can destroy a person's hand. Exposed personnel are considered safe from blast effects of a single cap at 50 feet but approved eye protection must be worn at this distance and far beyond because of fragments and other material propelled by cap's detonation.

d. Personnel should wear hearing protection when testing blasting caps.

e. No specific barricade is required for testing of these blasting caps; however, personnel must not remain in the vicinity of the testing table when caps function. Personnel protective shelter APE 1937 or other locally approved shelter is suitable. If caps are tested in a surveillance building, personnel should leave bay before caps function.

f. In event of a dud or misfire, personnel will not approach blasting cap for 15 minutes. Recovery and/or destruction of duds will be accomplished according to all applicable safety regulations and an approved SOP including protective equipment such as heat-resistant gloves, full face-shield, flame-resistant clothing, etc.

5. Personnel Visual examination and function testing will be conducted under direct control of a Quality Assurance Specialist (Ammunition Surveillance) (QASAS).

Section II. SURVEILLANCE

6. Sample size. Unless otherwise directed, a representative sample size of 60 items is required for surveillance function test. To satisfy requirements of a periodic inspection prescribed in conjunction with surveillance function test, additional sampling of item, inner and outer packing may be required according to SB 742-1.

7. Sample selection. Sample items will be selected according to provisions of SB 742-1, except that no more than 10 items may be selected from any one box

a. samples are to be function tested at an installation other than one at which parent lot is stored, packing boxes and containers that are not shipped will also be inspected. The appropriate part of DA Form 984 (Munitions Surveillance Report) will be completed prior to shipment.

b. Samples that are shipped must be packed and marked according to SB 742-1. During selection, samples must be numbered 1-60.

Note

For safety reasons, do not mark numbers on caps. Use tape or numbered tags.

8. Surveillance test equipment. The following equipment is to be used in testing items in accordance with this procedure

a. , preconditioning, APE 1916M1.

b. , low-temperature, APE 1938/1904.

c. , 2 each.

d. , function testing, nonelectric blasting caps APE 1903-E005.

e. disks.

Note

Testing facilities must procure lead diskas required-Ref OSM 2-50A,

appendix NO-43, 7 Nov 56. MIL SPEC QQ-L-201, grade B, fabricated from 8 lb sheet lead; each disk 1/8-inch thick by 1-inch square or diameter.

f. time cap crimper M2.

g. igniter M60 or other means of fuse ignition.

h. crimper M2.

9. Preparation for test *a.* Crimp a blasting cap to each end of a freshly cut length of safety fuse. Length of fuse to be used depends on local safety requirements, but must be at least 12 inches long; of known good quality; dry and have clean, square ends.

b. blasting caps as follows:

(1) Low-temperature. Blasting caps 1-20 will be conditioned at -40 +/5 degrees F (-40 +/2 degrees C) for 2 hours.

(2) High-temperature. Blasting caps 21-40 will be conditioned at 120 +/5 degrees F (49 +/2 degrees C) for 24 hours.

(3) Ambient temperature. Blasting caps 41-60 do not require temperature conditioning.

(4) Caps should be tested within 15 minutes after temperature conditioning.

10. Test procedures. a. Center lead disk over a 15/16-inch hole in a metal block.

b. Cut length of fuse midway between blasting caps and fix a cap in an upright position so that cap base is in contact with lead disk.

c. Fire blasting cap by igniting safety fuse. Use a fuse igniter or any other means meeting local safety requirements.

d. After igniting safety fuse personnel will move behind a suitable barricade (see para 4e).

11. Observations. All observations of nonstandard conditions and malfunctions, especially those not included among defects listed in paragraphs 14 and 15 below or in SB 742-1, should be reported in full detail. Pictorial evidence of nonstandard conditions should be included whenever pertinent and practical. The following observations, as a minimum, must be reported:

a. any markings that are incorrect, misleading, incomplete, or unidentifiable.

b. location and extent of any rust, corrosion, damage, or deterioration.

12. Definitions. *Spalling.* This condition occurs when lead disk is not perforated by blasting cap; however, back side of lead disk is cracked, chipped, or otherwise missing particles of lead, due to force of impact.

13. Classification of defects. Defects observed during inspection and testing will be classifieds and reported according to paragraphs 14 and 15 below and with SB 742-1. Any defects or nonstandard conditions observed, that are not listed below or in SB 742-1, will be described fully and reported with recommendations of the QASAS as to classification.

14. Nonfunctioning defects. a. Critical-

(1) Blasting caps split, cracked, or otherwise exposing charge.

(2) Corrosion (to such an extent that damage is caused to blasting cap shell).

b. Major-Blasting cap bent at open end so that proper use is precluded.

c. Minor-

(1) Marking missing, incorrect, or illegible.

(2) Corrosion (blasting cap shell is not damaged).

15. Functioning defects. *a. Critical*-None defined.

b. Minor-

(1) (not attributable to fuse igniter or test set up). (HK020)

(2) -order detonation; back of lead disk is not cracked. This defect applies whenever no spalling whatsoever occurs on back of a lead disk that has not been perforated (DC021).

c. Minor-Low-order detonation; back of lead disk is cracked. This defect applies when spalling occurs but does not result in a perforation larger than a pin-hole.

NOTE

The code following each functioning defect is for use by testing facility personnel only.

16. Evaluation. Using following criteria, and considering nonfunctional and functional characteristics separately, an interim condition code will be assigned according to SB 742-1. A lot will be classified condition code J and reported according to SB 742-1 if any critical defect is observed.

a. Nonfunctional characteristics.

(1) for unrestricted issue and use. A lot not classified as condition code J will qualify as serviceable for unrestricted issue and use if the following requirements are met on inspection of 60 items:

(a) Not more than 3 major defectives.

(b) Not more than 5 minor defectives.

(2) Priority of issue. A lot not classified as condition code J or as serviceable for unrestricted issue and use will qualify as serviceable for priority of issue if following requirements are met on inspection of 60 items: (a) Not more than 8 major defectives.

(b) Not more than 13 minor defectives.

(3) Unserviceable. A lot not classified as condition code J or as serviceable for unrestricted issue and use or for priority of issue will be classified as unserviceable.

b. Functional codes.

(1) Code A. A lot not classified as condition code J will qualify for functional code A if following requirements are met in test of 60 items:

(a) Not more than 3 major defectives.

(b) Not more than 5 minor defectives.

(2) Code B. A lot not classified as condition code J or functional code A will qualify for functional code B if following requirements are met in test of 60 items:

(a) Not more than 8 major defectives.

(b) Not more than 13 minor defectives.

(3) Code D. A lot not classified as condition code J, functional code A, or functional code B will be classified functional code D.

17. Records and reports. Inspection and function test results will be recorded and reported on DA Form 984 and other appropriate forms as outlined in SB 742-1.

SB 742-1375-94-821

By Order of the Secretary of the Army:

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