DEPARTMENT OF THE ARMY SUPPLY BULLETIN

GRENADES, HAND: RIOT CONTROL, CS, ABC-M7A3, (1330-G963) AMMUNITION SURVEILLANCE PROCEDURES

Headquarters, Department of The Army, Washington DC
15 December 1988

The proponent agency of this supply bulletin is the U.S. Army Armament, Munitions and Chemical Command (AMCCOM). Direct reporting of errors, omissions, and recommendations for improving this bulletin is authorized and encouraged. Comments should pertain to suggested procedural changes, functioning characteristics, defects, cause of failures, remedial action, etc. A DA Form 2028 (Recommended Changes to Publications and Blank Forms) should be completed and forwarded to the Commander, AMCCOM, ATTN: AMSMC-QAS-P, Rock Island, IL 61299-6000.

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Section I. INTRODUCTION

1. Purpose and scope. This bulletin, when used in connection with SB 742-1, provides a method for determining serviceability of Grenade, Hand, Riot Control, CS, ABC-M7A3, with Fuze, M201A1 (1330-G963).

a. Visual inspection and function testing in this procedure will be accomplished under a centralized control program managed by U.S. Army Armament, Munitions, and Chemical Command (AMCCOM), AMSMC-QAS-P, Rock Island, IL 61299-6000. This bulletin is to be used in serviceability assessment of specified grenade lots based on an inspection and test of individual grenades.

b. Provisions of this bulletin are mandatory for use by all Department of the Army (DA) organizations within the continental U.S. (CONUS) and outside the continental U.S. (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.

This bulletin supersedes SB 742-1330-94-12, dated 30 April 1973.

2. Item description. The M7A3 is a CS filled, burning-type grenade. The grenade body is a cylinder of thin sheet metal. The filler is compressed into body with a starter mix. The grenade contains a pyrotechnic delay-igniting fuze, M201A1. Functioning of the fuze ignites the grenade starter mixture and filler. Pressure sensitive tape is blown off emission holes and CS agent is emitted for 15 to 35 seconds.

3. References. a. The following publications will provide more information on surveillance of subject item. 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 43-0001-29, Army Ammunition Data Sheets for Grenades.

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

Manual is titled with APE number and nomenclature of item.

4. Safety. a Visual examinations and surveillance function testing in this bulletin must be conducted according to provisions set forth in appropriate safety regulations and implementing instructions. Special attention must be devoted to technical manuals describing the item. These grenades are filled with an irritant agent. All personnel must have a field protective mask immediately available when conducting an inspection or function test. A standing operating procedure (SOP) which specifies safety requirements will be posted at the inspection and test site. 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 and in an area that is clear of flammable materials such as dry grass, weeds, etc.

Testing will not be conducted during electrical, rain, or snow storms or during any other conditions that might create a hazardous situation or would adversely affect test results. The test site should be situated so that prevailing wind blows away from the personnel shelter and the CS cloud dissipates before it reaches occupied areas.

c. CS is an irritant and can cause dermatitis or skin burns. Protective measures should be taken to prevent CS contamination during inspection or test. Work clothing made from closely woven smooth finish fabric such as standard fatigues or coveralls will provide adequate protection. Gloves should be worn. Personnel should stay in the shelter while the grenade is emitting CS.

d. Testing must be conducted according to any other applicable regulations, i.e., the U.S Environmental Protection Agency (EPA), local regulations, etc. Grenades will not be fired when wind velocity exceeds 15 mi/h.

e. Any concentration of smoke is potentially hazardous when inhaled. If conditions require personnel to be in concentrations of smoke, protective mask must be worn. Visible evidence of smoke will require personnel to mask.

(1) Personnel experiencing breathing difficulties or discomfort will also serve as a signal for all similarly exposed personnel to mask. If smoke enters shelter, personnel must remain masked until smoke is removed.

(2) Precautions should be taken to ensure that concentrations of smoke in personnel shelter do not exceed capability of protective mask. If smoke enters shelter, personnel should mask and evacuate shelter as soon as possible. Doors and windows should remain open until smoke is dissipated.

(3) Assistance should be sought from local medical authority's industrial hygienist to determine potential in-house concentrations. Bathing and laundering of clothing following function test operations will eliminate risk of skin irritation following exposure to smoke.

d. Dud grenades will be recovered and destroyed 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. A waiting time of 15 minutes minimum will be observed before approaching dud grenades.

5. Personnel. All visual inspections and function tests described herein will be conducted under the direct control of a Quality Assurance Specialist (Ammunition Surveillance) (QASAS).

]Section II. SURVEILLANCE

6. Sample size. Unless otherwise directed, a sample size of 30 grenades is required to make a representative sample from each lot for an inspection and surveillance function test. To satisfy requirements of a periodic inspection prescribed in conjunction with the function test,additional sampling and inspection of inner and outer packing may be required according to SB 742-1.

7. Sample selection. Sample grenades will be selected according to provisions of SB 742-1 except that not more than five grenades may be selected from one box. If the samples are to be function

tested at an installation other than that at which the parent lot is stored, packing boxes and containers which are not shipped will be inspected and the appropriate part of DA Form 984 (Munition Surveillance Report) completed prior to shipment. Samples being shipped must be packed and marked according to SB 742-1. During sample selection number samples 1 through 30.

8. Surveillance test equipment. Following equipment is to be used in testing grenades according to this procedure:

a Tank, immersion, APE 1901.

b. Thermometer.

c. Launcher, pneumatic, APE 1922M1.

d. Accessory kit, test, chemical grenades, 1922-E004.

e. Shelter, personnel protection.

f Protective mask, M9 or M17, for crew member or observer.

g. Stopwatches, two each, accurate to one tenth of a second.

9. Preparation for test. a Temperature condition the sample grenades at 70 degrees +/10 degrees F (21 degrees +/5 degrees C) for at least 12 hours.

b. Submerge grenades 1-15 upright in water for 30 minutes to a depth of 1 to 2 inches (2.5 to 5 centimeters) measured from top of grenade fuzes. Temperature of water will be equal to but no greater than 10 degrees F (5 degrees C) above the temperature of the grenades at time of submersion. Grenades with such defects as leaking filler, uncovered emission holes, or loose fuzes should have these defects corrected, if possible, before water conditioning. Be sure that all such defects have been properly recorded, then tighten fuzes and cover emission holes as necessary with pressure sensitive tape prior to immersing the samples in water.

c. Remove sample grenades from water and wipe them dry. Function grenades within 1 hour after removal from water.

d. Grenades 16-30 will receive no special treatment prior to functioning.

10. Test procedure. This test determines the amount of tension required to extract safety pin, lag (delay) time, and ability of filler to ignite and emit CS agent effectively and continuously under pressure for the required period of time.

a Set up pneumatic grenade launcher as instructed in APE 1922M1 Operational Manual and regulate air pressure to obtain desired trajectory of grenade. Lock firing lanyard in lanyard control box of personnel protection shelter, APE 1937. Person assigned to install grenade in launcher will carry key to control box at all times to prevent unauthorized access to lanyard.

b. Place sample grenade in launcher and attach tension gage to safety in pull ring. Be sure indicator is set at zero. Position arm of support bracket along side of fuze body, and attach lanyards to launcher as shown in APE 1922M1 Operational Manual.

c. From inside shelter, unlock lanyard control box and pull on lanyard attached to pull gage until safety pin is withdrawn. Observe grenade from shelter to assure that safety pin has been withdrawn. Continue pulling on lanyard to open quick-release valve and launch grenade (then relock the control box). Record functioning time (para 12d).

d. After burning has ceased, record tension measurement of gage on launcher and reset indicator to zero.

e. Function test remaining sample grenades as instructed above, and record appropriate observations for each sample as instructed in paragraph 11, below.

f In the event of a misfire or dud, personnel will remain inside protective shelter for 15 minutes. After waiting period has lapsed, the dud will be carefully examined to ascertain probable cause of malfunction.

(1) All pertinent information must be recorded, such as fuze lot number, whether primer has been struck, and starter mix ignited.

(2) If primer has been struck and starter mix did not ignite, grenade should be refuzed and retested using a fuze lot of known good quality.

(3) Report of retest will provide lot number of fuze used for retest as well as that of fuze that failed. Refuzing and retesting will be done to determine the feasibility of reworking this lot, not for determining serviceability.

11. Observations. All observations of nonstandard conditions and malfunctions, especially those not included among defects listed in paragraphs 15 and 16 (below), or in SB 742-1, must be described in full detail. Pictorial evidence of nonstable conditions should be included whenever pertinent and practical. Report will provide following information as a minimum:

a, Note any instance of marking that is misleading, incomplete, or illegible.

b. Give location and extent of rust or corrosion and describe any damage.

c. Note any explosion or deflagration that is a sudden and violent increase in rate of burning that causes grenade to rupture or separate or that causes violent ’explusion of body or contents of grenade.

d. Note and record functioning time of each grenade to nearest half second.

e. Record pull tension to nearest half pound required to extract safety pin.

f Report instances of seam separation at either side (body) or end seams after item has functioned.

g. Note and report occurrence of any nonstandard conditions and malfunctions classified as defects in paragraphs 14 and 15 (below), or in SB 742-1.

12. Definitions. a The lag time is interval between the release of the fuze and start of agent emission under pressure and includes fuze delay time.

b. The agent emission time is period or periods of time during burning when CS is emitted under pressure. Residual burning and flame time are not considered as emission under pressure.

c. Flame time is the period or periods of time during burning when agent under pressure is interrupted by the presence of flame or black smoke at either end of the grenade with substantial reduction of agent emission.

d. A dud is a grenade in which agent mixture fails to ignite for any reason.

13. Classification of defects. Defects observed during inspection and testing will be classified according to paragraphs 14 and 15 (below), and with SB 742-1. Any defect or nonstandard condition observed that is not mentioned herein (or in SB 742-1) must be described fully and reported with QASAS's recommendation as to classification.

14. Nonfunctioning defects. a. Critical

(1) An unauthorized fuze is installed (other than the M201A1 or E7R6 fuze).

(2) Safety pin is missing.

(3) Safety pin is broken or insecurely assembled to extent that it endangers user.

b. Major

(1) Tape is loose or does not completely cover one or more emission holes.

(2) Grenade body seams are split.

(3) Marking is incorrect.

c. Minor

(1) Marking is missing or illegible.

(2) Grenade body is swollen.

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

a. Critical. An explosion or deflagration occurs (CF001).

b. Major

(1) Lag time is greater than 9 seconds (CF025).

(2) Time of agent emission under pressure is less than 12 seconds (CF030).

(3) Sample grenade flames at one or both ends (flaming time) for more than 30 percent of total time of agent emission under pressure (CF020).

(4) Grenade moves more than 25 feet (7.6 meters) in any one direction from point of rest after impact, which is described as excessive movement (report this distance) (CF022).

(5) Dud (BC021).

(6) Pull tension required to remove safety pin is less than 5 lb (2.25 kilograms) (CB020).

(7) Grenade seam separates during functioning at either side or end) (CF023).

c. Minor

(1) Time of agent emission under pressure is less than 15 seconds (but not less than 12 seconds) (CR050).

(2) Agent emission time is greater than 40 seconds (CR051).

(3) Pull required to remove safety pin is greater than 35 lb (16 kilograms) (AA054).

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

a. Nonfunctional characteristics.

(1) Serviceable for unrestricted issue and use.

A lot not classified as condition J will qualify as serviceable for unrestricted issue and use if following requirements are met on inspection of 30 grenades by attributes: (a) Not more than 1 major defective.

(b) Not more than 2 minor defectives.

(2) Serviceable for priority of issue. A lot not classified as condition code J or serviceable for unrestricted issue and use will qualify as serviceable for priority of issue if following requirements are met on inspection of 30 grenades by attributes:

(a) Not more than 4 major defectives.

(b) Not more than 6 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 quality for functional code A if following requirements are met in test of 30 grenades.

(a) Not more than 1 major defective.

(b) Not more than 2 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 30 grenades:

(a) Not more than 4 major defectives.

(b) Not more than 6 minor defectives.

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

will be function code D.

17. Records and reports. Surveillance visual examination and function test results will be recorded on the DA Form 984, and other appropriate forms as outlined in SB 742-1.

By Order of the Secretary of the Army:

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