

DEPARTMENT OF THE ARMY SUPPLY BULLETIN

AMMUNITION SURVEILLANCE PROCEDURES LAUNCHER AND GRENADES, SMOKE: HC AND WP, MI76 AND LAUNCHER AND GRENADES, SMOKE: HC, M226

Headquarters, Department Of The Army, Washington, DC
5 August 1982

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*This bulletin supersedes SB 742-1330-94-10, 24 July 1974.

1. Purpose and Scope. This bulletin, when used in conjunction with SB 742-1, provides a method for determining the serviceability of the following items:

<i>Nomenclature</i>	<i>DODAC</i>
Launcher and Grenades, Smoke: HC and WP, M176	1330-H050
Launcher and Grenades, Smoke: HC, M226	1330-H051

The function testing in this procedure will be accomplished under a centralized control program managed by the US Army Armament Materiel Readiness Command (ARRCOM), DRSAR-QAS, Rock Island, IL 61299. This bulletin is to be used in the serviceability assessment of individual lots of Grenade Launchers only. The provisions of this bulletin are mandatory for use by all Department of the Army organizations within CONUS and OCONUS with an ammunition 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.

Direct reporting of errors, omissions, and recommendations for improving this bulletin is authorized and encouraged. DA Form 2028 (Recommended Changes to Publications and Blank Forms) will be completed and forwarded to Commander, ARRCOM, ATTN: DRSAR-QAS, Rock Island, IL 61299.

3. Safety. The visual examination and function testing must be conducted in accordance with the provisions set forth in appropriate safety regulations and Standing Operating Procedures (SOP) with special attention devoted to technical manuals describing the item. The SOPs are required and will delineate specific safety requirements for the visual examination and function test.

WARNING

The M176 Grenade Launcher contains one armed HC-filled, Smoke Grenade and one armed WP-filled, explosive, Smoke Grenade. The M226 Grenade Launcher contains two armed HC-filled, Smoke Grenades. DEATH or severe injury may result if personnel fail to observe the warnings given in this Supply Bulletin and applicable SOPs or technical manuals.

4. Personnel. Visual examination and function testing will be conducted under the control of a Quality Assurance Specialist (Ammunition Surveillance) hereinafter referred to as QASAS.

5. Size of Sample. Unless otherwise directed, a sample size of 30 Grenade Launchers is required to make up a representative sample from a lot for the visual examination in conjunction with the surveillance function test.

6. Sample Selection. Sample Launchers will be selected in accordance with the provisions of SB 742-1 with the exception that not more than two launchers may be selected from any one box.

7. Surveillance Test Equipment. The following equipment is to be used in testing launchers in accordance with this procedure:

a. Ammunition Peculiar Equipment (APE)

APE 1912 Thermometer,-Cup-cased
APE 1914 Anemometer

or

APE 1915 Indicator, Wind Speed
APE 1920 Shield, Operational
APE 1937 Shelter, Personnel Protection
APE Test Equipment, M176 and M226
1951M1 Grenade Launcher
APE 1963 Unit, Electronic Control

b. Additional Test Equipment.

Torque Wrench, 3/8 inch Drive, 0 to 100 pound-inch range.
Protective Mask, M9 or M17
Gage, Depth, Vernier, or equivalent
Flame Resistant Protective Clothing
Stopwatches, two each, accurate to one-tenth of a second
115 Volt, 50/60 Hertz, single phase, AC, power source

8. Preparation for Test.

WARNING

Always handle the Launcher as an armed, high explosive incendiary munition.

WARNING

Never place any part of the body in front of either end of the Launcher.

WARNING

Do not drop the Launcher. Striking the cartridge primer may cause the munition to function.

WARNING

Never attempt to disassemble the Launcher or sabot assembly. The safety pins have been removed from the grenades during assembly of the Launcher.

WARNING

The M34 Grenade contains WP and constitutes a fragmentation, fire, and health hazard to personnel.

a. Number the Launchers 1 through 30 and identify them as to the box from which they were drawn.

b. Tests will be performed in the sequence given below.

9. Test Procedure. The Launcher will be checked for retainer torque, when applicable. Items will be tested to determine the ability of the Launcher to function at the required range. Testing will not be conducted when the

wind velocity exceeds 15 miles per hour; during an electrical, rain, or snow-storm; or during any other conditions that might adversely affect the test results. Testing also will be in accordance with any other applicable regulations; i.e., US Environmental Protection Agency (EPA), etc.

WARNING

Personnel conducting test must wear flame resistant protective clothing.

WARNING

In high concentrations or on prolonged exposures, HC smoke irritates the nose and throat and may be quite dangerous when inhaled. Personnel shall remain upwind from the impact area. A protective mask must be worn both in the open and in the shelter if it becomes necessary for personnel to be in the smoke cloud. Personnel must remain masked until the smoke clears. Heavy metal poisoning is possible with prolonged exposure. Personnel are reminded that the mask filters particles and certain gases and does not generate oxygen.

WARNING

The warnings contained in Paragraph 8 above are also applicable.

a. Retainer Torque.

NOTE

All lots of M176 Launcher with lot **interfix** No. 4 or lower, and M226 Launcher lots with lot **interfix** No. 1 shall be tested for improper retainer torque. Higher **interfix** numbered launchers have RTV installed in retainer threads and torque test is not required.

- (1) Prepare torque test fixture as instructed in APE 195 1 M 1 Operational Manual.
- (2) Secure Launcher in test fixture.
- (3) Attach spanner wrench to the torque wrench.
- (4) Fit Spanner Wrench into the grooves of the Retainer.
- (5) Apply force to Torque Wrench in a clockwise direction.
- (6) Observe Retainer for initial movement and read Torque Wrench for pound-inches indicated.

b. Function Test.

NOTE

Function Test fixture must be positioned a minimum of 40 feet down range from APE 1937, Shelter, Personnel Protection.

- (1) Prepare Function Test fixture and electronic control unit as instructed in APE 1951 MI and APE 1963 Operational Manuals and perform preoperation check.
- (2) Assure that DC power switch and main power switch on APE 1963, electronic control unit, are in the OFF position and remove key.

(3) The person assigned to fire the Grenade Launcher will carry the key to the main power switch at all times to prevent unauthorized access.

(4) The test fixture angle of elevation for the Launcher, M176, shall be 33 ± 0.5 degrees above the horizontal; and the test fixture angle of elevation for the launcher, M226, shall be $62 \pm .5$ degrees above the horizontal. The front underside of the Launcher shall be adjusted to be 77 ± 1 inches above the ground level of the down-range impact area. Unless the entire test range is perfectly flat and level, the Launcher may or may not be the same height above the ground at the Launcher emplacement site.

(5) The average impact area will be 90 to 180 feet down range from the Launcher, M176, and 70 to 160 feet down range from the Launcher, M226. This distance is measured from the aft end of the Launcher.

(6) Load Launcher into the launch tube. Launcher must be fully seated in the rear of the tube before closing the toggle clamp.

(7) Assure that all other personnel are inside shelter; then, push the cocking lever forward on test fixture to cock the firing pin hammer and return to the personnel shelter.

(8) Insert key and turn APE 1963 main power switch to ON. Allow one minute from warmup.

(9) Turn the DC power switch to ON and observe for functioning of the Launcher, range of grenades, separation of sabot, smoke emission time, flaming, time, and dud grenades. Record observations as instructed in paragraph 10.

WARNING

After M34 Grenades have functioned, personnel will allow sufficient time for fragments to fall to earth prior to leaving shelter.

WARNING

In the event of a misfire or a dud, do not leave the shelter for 30 minutes.

- (10) If Launcher does not fire, wait 10 seconds; then, make a second attempt to fire by jogging the DC power switch again. The Launcher shall be considered a misfire after two attempts to fire have failed.
- (11) In the event of a misfire, proceed as instructed in APE 195 1 M 1 Operational Manual and make one more attempt to fire launcher.
- (12) Repeat steps (2) through (11) above for remaining Launchers.
- (13) Misfires (after second attempt) and dud grenades will be disposed of in accordance with established local demil procedures.

10. Observations. All observations on nonstandard conditions and malfunctions, especially those not included among the defects listed in paragraphs 12 and 13 below, should be described in full detail. Pictorial evidence of nonstandard conditions should be included whenever pertinent and practical. The observations to

be reported are as follows:

a. *Retainer Torque to the Nearest Pound-Inch.* ~~Applicable~~ (see NOTE, paragraph 9a). The force required to cause initial movement of the retainer shall be 34 pound-inches minimum.

b. *Impact Distance to the Nearest Foot.* The average impact area shall be 90 to 180 feet down range for Launcher, MI76 and 70 to 160 feet down range for Launcher, M226. The range shall be measured from the aft end of the Launcher. Stakes or similar markers should be placed in the impact area at ten foot intervals to assist in these observations.

c. *Short Range.* No grenade shall impact at a distance of less than 80 feet down range for Grenade WP, M34 or less than 70 feet down range for Grenade: HC, M8.

d. *Sabot Separation.* Sabot (holder and cover) shall separate on or before impact and allow grenades to function.

e. *Smoke Emission Time to the Nearest Second (HS Grenade).* This is the period, or periods, of time during the burning of the smoke mixture when smoke is emitted under pressure. Smoke emission time is determined by subtracting total flaming time from total burning time and shall be not less than 90 nor more than 145 seconds.

f. *Total Flaming Time to the Nearest Second (HC Grenade).* This is the total time in which the smoke emission of the grenade is interrupted by the presence of flame, black smoke, or other gross reduction of desired HC smoke. Total flaming time shall not exceed 20 percent of total burning time.

g. *Misfire.* Launcher does not eject grenades when functioned.

h. *Dud.* Grenade malfunction due to a mechanical or pyrotechnic failure.

i. All instances of the following:

- (1) Marking misleading, incomplete or illegible.
- (2) Corrosion; give location and extent.
- (3) The occurrence of any nonstandard conditions or malfunctions classified as defects in paragraphs 12 and 13 below, or SB 742-1.
- (4) The occurrence of any nonstandard conditions or malfunctions not classified as defects in paragraphs 12 and 13 below, or SB 742-1; but which, in the opinion of responsible personnel, merits consideration.

11. Classification of Defects. Defects observed during inspection and testing will be classified in accordance with paragraphs 12 and 13, and SB 742-1. Any defects observed which are not listed in paragraph 12 and 13 or SB 742-1, will be described fully and reported with the recommendations of the QASAS as to classification.

12. Nonfunctioning Defects.

a. *Critical.* Excessive damage which could result in armed grenade being released from launcher.

b. Major.

- (1) Crack or split in tube or retainer.
- (2) Crack in cap.
- (3) Dent(s) in Band A (Figure 1) cap area of MI76 Launcher.
- (4) Dent(s) over ~~3/16~~ inch deep in Band B (Figure 1) cap area of MI76 Launcher.
- (5) Dent(s) in Band C (Figure 1) cap area of MI76 Launcher.
- (6) Dent(s) over ~~.010~~ inch deep in Band B (Figure 2) cap area of M226 Launcher.
- (7) Dent(s) ~~3/16~~ inch deep or over in Band D (Figure 2) cap area of M226 Launcher.
- (8) Major corrosion.

c. Minor.

- (1) Marking incorrect, missing, or illegible.
- (2) Minor corrosion.

13. Functioning Defects.

a. *Critical.* Short range, Grenade, WP, M34, impacted less than 80 feet from MI76 Launcher.

b. Major.

- (1) Improper retainer torque, when applicable (see NOTE paragraph 9a).
- (2) Short range, Grenade, HC, M8, impacted less than 70 feet from Launcher.
- (3) Average range incorrect.
- (4) Launcher misfire (does not eject grenades when functioned).
- (5) Sabot fails to separate.
- (6) Dud grenade.
- (7) Smoke emission time less than 90 seconds (HC Grenade).
- (8) Total flaming time exceeds 20 percent of total burning time (HC Grenade).

c. *Minor.* Smoke emission time is greater than 145 seconds (HC Grenade).

14. Evaluation. Using the following criteria, and considering functional codes and nonfunctional characteristics separately, an interim condition code will be assigned in accordance with SB 742-1. A lot will be classified Condition Code J and reported in accordance with SB 742-1, if one or more critical defects are observed.

a. Nonfunctional Characteristics.

(I) Serviceable for unrestricted issue and use. A lot not classified as Condition Code J shall qualify as serviceable for unrestricted issue and use if it meets the following requirements on inspection of 30 launchers by attributes:

- (a) Not more than 1 major defectives.
- (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 shall qualify as serviceable for priority of issue if it meets the following requirements on inspection of 30 launchers by attributes:

(a) Not more than 4 major defectives.

(b) Not more than 6 minor defectives.

(3) Unserviceable. A lot not classified for unrestricted issue and use or priority of issue shall be classified as unserviceable.

b. Functional Codes.

(1) Code A. A lot not classified as Condition Code J shall qualify for Functional Code A if it meets the following requirements in the test of 30 launchers:

(a) Not more than 1 major defectives.

(b) Not more than 2 minor defectives.

(2) Code B. A lot not classified as Condition Code J or Functional Code A shall qualify for Func-

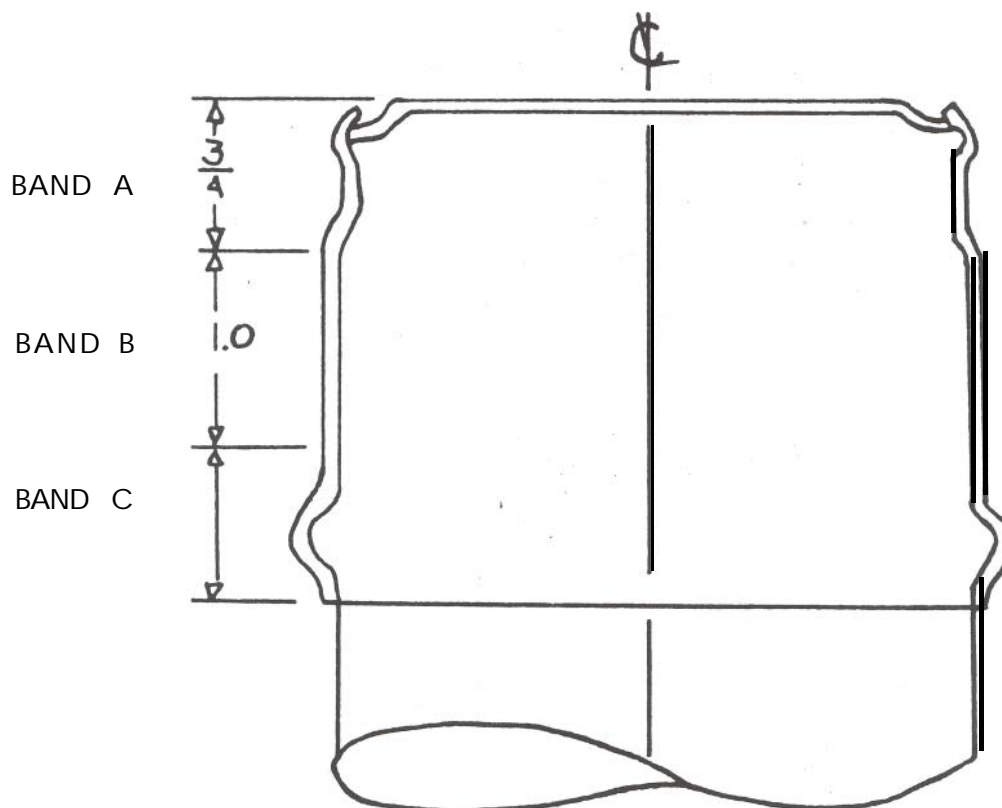
tional Code B if it meets the following requirements in the test of 30 launchers:

(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 shall be Functional Code D.

15. Records and Reports. Visual examination and Function test results will be recorded and reported on DA Form 984 as outlined in SB 742-1.

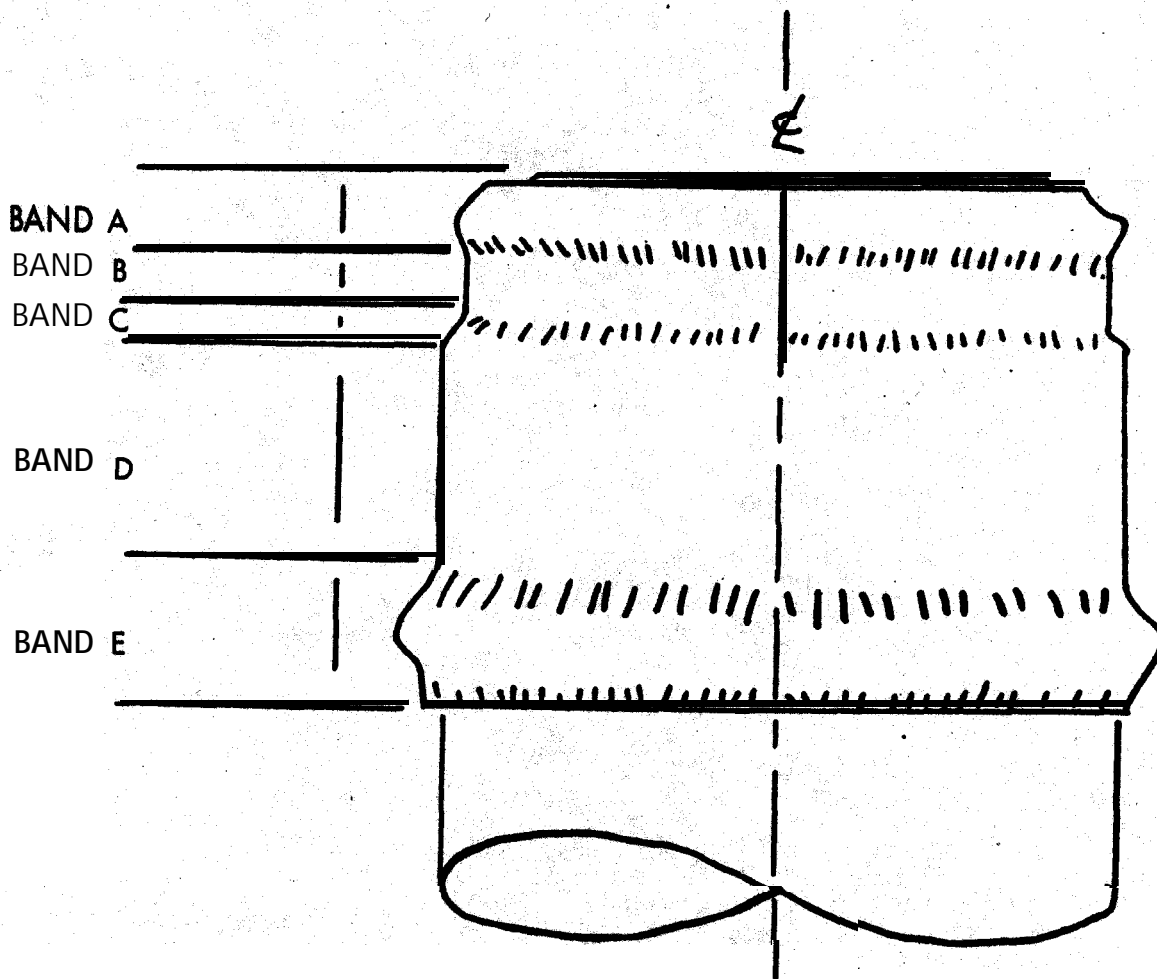


BAND A: NO DENTS ALLOWED

BAND B: DENTS ALLOWED $\frac{3}{16}$ INCH DEEP MAX.
MEASURED FROM STRAIGHT EDGE HELD PARALLEL TO CENTER
LINE (C) OF CAP. NO LIMIT ON LENGTH OR WIDTH OF DENT.

BAND C: NO DENTS ALLOWED

Figure 1. Description of the Allowable Dents on the MI 76 Launcher.



BAND A, C, & E: DENTS ARE NOT CONSIDERED DEFECTIVES.

BAND B: DENTS **.010** OR LESS DEEP ARE NOT CONSIDERED **DEFECTIVES.**

BAND D: DENTS LESS THAN **3/16 INCH** DEEP ARE NOT CONSIDERED DEFECTIVES.

DEPTH OF DENTS IS MEASURED **FROM STRAIGHT EDGE HELD PARALLEL TO CENTER LINE (C) OF CAP.** **NO LIMIT ON LENGTH OR WIDTH OF DENT.**

Figure 2. Description of the Allowable Dents on the M226 Launcher,

By Order of the Secretary of the Army:

Official:

E. C. MEYER
General, United States Army
Chief of Staff

ROBERT M. JOYCE
Brigadier General, United States Army
*The Adjutant **General***

Distribution:

To be distributed in accordance with DA Form 12-34, Requirements for SB **740** Series: **Storage Serviceability** Standards.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1982-564-016/292

PIN: 051307-000