D E P A R T M E N T O F T H E A R M Y S U P P L Y B U L L E T I N

A M M U N I T I O N S U R V E I L L A N C E P R O C E D U R E
F L A R E , S U R F A C E : T R I P , M 4 9 A 1
(1 3 7 0 - L 4 9 5)

Headquarters, Department of the Army, Washington, DC
10 July 1981

1. Purpose and Scope. This bulletin, when used in conjunction with SB 742-1, provides a method for determining the serviceability of Flare, Surface: Trip, M49A1. 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. The bulletin is to be used in the serviceability assessment of individual lots of flares 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 A DA Form 2028 (Recommended Changes to Publications and Blank Forms) will be completed and forwarded to Commander, ARCOM, ATTN-DRSAR-QAS, Rock Island, IL 61299.

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

5. **Size of Sample.** Unless otherwise directed, a sample size of 40 flares is required to make up a representative sample from a lot for visual examination and Surveillance Function Test.

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

***This bulletin supersedes SB 742-1370-94-442, 16 February 1972**

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

a. Ammunition Peculiar Equipment (APE)

APE 1901	Tank, Immersion
APE 1903	Table, Testing Function
APE 1903 E001	Kit, Function Test, M49 and M49A1 Trip Flares
APE 1903 E003	Kit, Remove Cap from M49 and M49A1 Trip Flares
APE 1907	Accessory Part No 53, Gage, Push-Pull, 0 to 40 lbs. or equivalent
APE 1912	Thermometer, Cup-Cased
APE 1916	Oven, Preconditioning
APE 1937	Shelter, Personnel Protection
APE 1938	Chamber, Low Temperature

b. Additional Test Equipment

(1) Stopwatches (2 each) accurate to a tenth (1/10) of a second.

(2) Insulated container(s)

8. Preparation for Test.

a. Number the flares 1 through 40 and identify them as to the box from which they were drawn.

b. Immerse the 40 flares m water at 70° + 10°F. (21 1° ± 5 6° C) for 15 to 20 minutes. Position the flares horizontally 6 to 9 inches below the water surface. The APE 1901, Immersion Tank should be used for this purpose. Wipe the flares dry and temperature condition them as indicated below.

c Temperature condition flares 1 through 20 for 24 hours at 70° ± 10°F., (21 1° + 5 6° C).

d. Temperature condition flares 21 through 40 for 24 hours at -30° ± 10°F (—34 4° ± 5.6°C).

e. Flares will be tested as soon as possible after temperature conditioning. Insulated containers will be used to maintain conditioned temperature until flares can be tested.

9. Test Procedure. This test is to determine pull pin tension, trigger tension, ignition delay time, flare burning time, and extent of illumination. Testing will not be conducted during an electrical, rain, or snow storm or during any other conditions that might adversely affect the test results. Testing should also be in accordance with any other applicable regulations, i.e., Environmental Protection Agency (EPA), etc. One-half of the flares (numbers 1 through 10 and 21 through 30) will be functioned by a trip wire connected to the pull pin and the other half (numbers 11 through 20 and 31 through 40) will be functioned by a trip wire connected to the trigger.

a. Pull Pin Tension (Samples 1-10 and 21-30)

(1) Insert each sample flare into 1903 E001 Kit, Function Test, M49 and M49A1 Alp Flares, which is designed to hold the flare securely and to prevent the lever from being disengaged when the safety clip assembly is removed.

(2) Press the lever down, remove the safety clip assembly, and insert the pull pin (attached to the safety clip assembly) through the two safety clip holes in the cover loading assembly.

(3) Raise the flare in its bracket until the lever is aligned with the trigger pivot and the base of the flare is slightly above the slot or down to the slot, but not below it.

(4) Attach a trip wire to the flare pull pin loop. The other end of the trip wire should be secured in APE 1937, Shelter, Personnel Protection.

(5) Secure the tension recording scale to the trip wire and hold it in the shelter.

(6) Function the flare by pulling on the tension recording scale until the lever is released and record the tension required.

b. Trigger Assembly Functioning (Samples 11-20 and 31-40). Rotate the trigger approximately 85 degrees in a counterclockwise direction. It should turn sufficiently under load to a position corresponding with pull release by trip wire and should return to normal (as issued) position when released.

(1) Perform operations in paragraphs 9a(1) through (4) above.

(2) Attach a trip wire to the loop end of Part No 78, Figure 7, APE 1903-7 (Kit 1903 E001) as shown in APE 1903 Operational Manual. Place the hook end of Part No 78 into the trip wire hole on the trigger of the flare. The other end of the trip wire should be secured in the shelter.

(3) Rotate the trigger in a counterclockwise direction until the tongue is centered over the tip of the safety lever. Hold the opposite end of the trip wire in the shelter sufficiently taut to retain the trigger in the vertical position.

(4) Secure the tension recording scale on the trip wire attached to the trigger and hold it in the shelter.

(5) Remove the pull pin by gradually pulling on the trip wire attached to it.

(6) Function the flare by pulling on the tension recording scale until the lever is released and record the tension required.

c. Misfire. Establish the cause of a failure to function (by disassembly if necessary) for a flare that requires more than one functioning attempt. All necessary safety precautions must be observed when disassembling a flare.

10. Observations. All observations of 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. Tension (to the nearest tenth of a pound) required to function the flare by withdrawing the pull pin.

b. Tension (to the nearest tenth of a pound) required to function the flare by pulling on the trigger.

c. Delay time (to the nearest tenth of a second) of flare functioning, i.e., the time from the actuation of the flare by pulling on a trip wire to the beginning of flare functioning (visible flame).

d. Flare burning time to the nearest tenth of a second

e. Illumination satisfactory or unsatisfactory with regard to illuminating an area of approximately 300 yards radius If unsatisfactory, give explanation; e.g., low intensity, incorrect color, candle breakup, excessive smoke, etc.

f. Any of the following instances:

(1) Marking misleading, incomplete, or unidentifiable

(2) Rust or corrosion, give location and extent.

(3) The occurrence of any nonstandard conditions or malfunctions classified as defects in paragraphs 12 and 13 or SB 742-1

(4) The occurrence of any nonstandard conditions or malfunctions not classified as defects in paragraphs 12 and 13 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 paragraphs 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

(1) Safety clip incorrectly attached.

(2) Safety clip broken.

(3) Safety clip missing

(4) Striker assembly not held in cocked position by lever, but resting on sealing disc which covers primer.

(5) Top separated from body during normal handling.

b. Major

(1) Any of the following components missing

(a) Trigger

(b) Trigger pivot

(c) Trigger spring

(d) Trigger tongue.

(e) Trip wire.

() Mounting bracket.

(g) Pull pin.

(h) Any other (specify).

(2) Major damage to components such as:

(a) Trigger r

(b) Trigger pivot

(c) Trigger spring

(d) Trigger tongue

(e) Trip wire

() Mounting bracket

(g) Pull pin

(h) Any other (specify)

(3) Trigger binds.

(4) Major rust.

(5) Major corrosion.

c. Minor

(1) Nail holes in bracket missing.

(2) Trip wire broken.

(3) Marking missing, misleading, or illegible

(4) Minor rust.

(5) Minor corrosion.

13. Functioning Defects.

a. Critical

(1) Premature functioning attributable to defective flare or fuze.

(2) Top separated from body while attempting to remove the safety pin.

(3) Flare explodes.

b. Major

(1) Less than 1.5 pounds is applied to the pull pin when it is withdrawn

(2) Less than 1.5 pounds is applied to turn the trigger when the lever is released

(3) More than 12 pounds required to withdraw the pull pin

(4) More than 12 pounds required to turn the trigger to release the lever.

(5) Lever is not released when trigger is turned sufficiently to release it.

(6) Flare fails to ignite.

(7) Delay in ignition exceeds 6.8 seconds.

(8) Burning time of flare is less than 45 seconds.

(9) Poor illumination to the extent that the original purpose of the flare is considerably negated

(10) Flare falls to function due to frozen striker assembly

(11) Bracket separates from flare when tension on trip wire is 12 pounds or less

c. Minor

(1) Tension required to withdraw the pull pin exceeds 9 pounds but does not exceed 12 pounds

(2) Tension required to turn the trigger until the lever is released exceeds 9 pounds but does not exceed 12 pounds.

(3) Burning time of flare is less than 55 seconds, but is not less than 45 seconds.

(4) Delay m ignition exceeds 5.2 seconds but does not exceed 6.8 seconds

14. Evaluation. Using the following criteria, and considering functional codes and nonfunctional characteristics separately, an interim condition code will be assigned m 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.

(1) Serviceable. A lot not classified as Condition Code J shall qualify as serviceable if it meets the following requirements on inspection of 40 flares by attributes.

(a) Not more than 2 major defectives.

(b) Not more than 3 minor defectives.

(2) *Priority of issue A* lot not classified as Condition Code J or serviceable shall qualify for priority of issue if it meets the following requirements on Inspection of 40 flares by attributes.

(a) Not more than 5 major defectives.

(b) Not more than 8 minor defectives.

(3) *Unserviceable* A lot not classified as serviceable or priority of issue shall be classified 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 40 flares.

(a) Not more than 2 major defectives.

(b) Not more than 3 minor defectives.

(2) *Code B* A lot not classified as Condition Code J or Functional Code A shall qualify for Functional Code B if it meets the following requirements in the test of 40 flares.

(a) Not more than 5 major defectives.

(b) Not more than 8 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. Function test results will be recorded and reported on DA Form 984 as outlined in SB 742-1.

By Order of the Secretary of the Army

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

Official:

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

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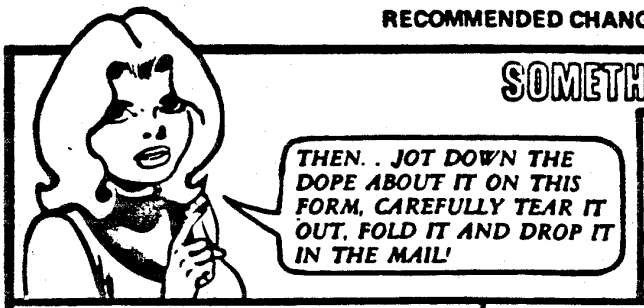

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