

DEPARTMENT OF THE ARMY SUPPLY BULLETIN

GRENADE, HAND: FRAGMENTATION, IMPACT, M26A2, M33A1, M57, M59, and M68 W/FUZE AMMUNITION SURVEILLANCE PROCEDURE

Headquarters, Department of the Army, Washington, DC

7 December 1973

	Paragraph	Page
Purpose and scope	1	2
Reporting of Equipment Publication Improvement	2	2
Safety	3	2
Size of sample	4	2
Sample selection	5	2
Surveillance test equipment	6	2
Preparation for test	7	2
Test procedure	8	2
Observations	9	3
Classification of defects	10	3
Nonfunctioning defects	11	3
Functioning defects	12	4
Evaluation	13	4
Records and reports	14	4

(3) Attach a line from the recording scale to the safety pin and take cover in the bombproof shelter.

(4) From inside the bombproof shelter, unlock lock out box and pull on lanyard attached to the scale until the safety pin is withdrawn.

(5) Observe the grenade through the periscope to be sure the safety pin has been withdrawn.

(6) Launch the grenade by opening the quick-relcr se valve.

(7) Record by means of at least 3 stopwatches the flight time from launching to grenade detonation. Note whether detonation occurred prior to impact, upon impact, or after impact.

(8) Observe the order of detonation. When a dud occurs, wait 30 minutes before destroying the dud in place.

(9) Read the tension recording scale and reset the stop indicator to zero.

b. **Fuze Delay Functioning.** Ten sample grenades (numbers 31 through 40) will be tested statically to determine the ability of the fuze delay feature to detonate the grenade within the design intent of three to seven seconds. For fuze delay functioning only, each testing facility is required to fabricate its own grenade holding fixture in accordance with an approved AMC Ammunition Center drawing (APE drawing 1922M1-39002). Drawing is available on request from the Director, USAMC Ammunition Center, Savanna, IL 61074. A minimum distance of 40 feet is required between the grenade holding fixture and the personnel shelter.

(1) Secure lanyard in lock out box. Carry key at all times to prevent unauthorized opening of lock out box. Remove a grenade from the water and place it in the fixture so that the grenade will remain stationary when the safety pin is pulled.

(2) Attach a line from the bombproof shelter to the grenade safety pin.

(3) If the grenade is assembled with a safety clip, pull the clip by hand until it disengages. If the grenade is not assembled with a safety clip, proceed as in (4) below.

(4) From inside the bombproof shelter, unlock the lock out box and pull on the lanyard attached to the grenade safety pin until the safety pin is withdrawn.

(5) Observe the grenade through the periscope to be sure the safety pin has been withdrawn.

(6) Record by means of at least 3 stopwatches fuze delay time, i.e., the time (in tenths of a second) from withdrawal of the safety pin to grenade detonation.

(7) Observe the order of detonation. When a dud occurs, wait 30 minutes before destroying the dud in place.

9. Observations. All observations of nonstandard conditions and malfunctions, especially those not included among the defects listed in paragraphs 11 and 12, 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. If applicable, the tension at which the safety clip disengages (to the nearest one-half pound).

b. Tension required to extract the safety pin to the nearest one-half pound (fuze impact functioning only),

c. **Flight** time from launching to grenade detonation to the nearest tenth of a second (fuze impact functioning only). Note whether detonation occurred prior to impact, upon impact, or after impact.

d. Fuze delay time to the nearest tenth of a second (time from withdrawal of the safety pin to grenade detonation).

e. All instances of any of the following:

(1) Nonstandard marking. State whether 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 11 and 12 below.

(4) The occurrence of any nonstandard conditions or malfunctions not classified as defects in paragraphs 11 and 12 below but which in the opinion of responsible personnel merits consideration.

10. Classification of Defects. Defects observed during inspection and testing will be classified in accordance with paragraphs 11 and 12 below and SB 742-1. Any defects observed which are not listed in paragraphs 11 and 12 will be fully described and reported with the quality assurance specialist's (ammunition surveillance) recommendation as to classification.

11. Nonfunctioning Defects. a. Critical.

(1) Safety pin missing.

(2) Safety pin insecurely assembled to an extent that it endangers the user.

b. *Major.*

(1) Safety clip missing (if applicable).

(2) Pull ring missing.

(3) Major damage to safety clip (if applicable).

(4) Major damage to pull ring.

(5) Marking is misleading as to type of grenade.

(6) Major rust.

(7) Major corrosion.

c. *Minor.*

(1) Improper marking.

(2) Illegible marking.

- (3) Minor rust.
- (4) ~~Minor~~ corrosion.

12. Functioning defects. a. Critical.

(1) ~~Tension required~~ to remove the safety pin is less than 5 pounds.

- (2) Fuze delay time is less than 3 seconds.

b. Major.

(1) Explosive charge missing.

(2) Fuze failed to function.

(3) Fuze functioned but grenade did not ~~deto-~~
~~nate~~

(4) Low order detonation (as evidenced by incomplete breakage, large fragments, and pieces of unburned explosive).

(5) Tension of 1.5 pounds or less is applied when the safety clip disengages.

(6) More than 5 pounds of tension is required to disengage the safety clip.

(7) Tension required to remove the safety pin is less than 10 pounds but is not less than 5 pounds.

c. Minor.

(1) Tension required to remove the safety pin is greater than 37 pounds.

(2) Grenade failed to detonate on **impact** but did detonate after a delay (fuze impact functioning only).

(3) **Fuze** delay time is greater than 7 seconds.

13. Evaluation. Functional and nonfunctional codes will be recommended in accordance with the follow-
ing criteria and the interim condition code will be

assigned. A lot will be classified Condition Code 3 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 40 grenades by attributes:

(a) Not more than 2 major defectives.

(b) Not more than 3 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 40 grenades by attributes:

(a) Not more than 5 major defectives.

(b) Not more than 8 minor defectives.

(3) Code D. A lot not classified as Code J, 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 40 grenades:

(a) Not more than 1 major defective.

(b) Not more than 3 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 40 grenades:

(a) Not more than 4 major defectives.

(b) Not more than 8 minor defectives.

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

14. Records and reports. Function test results will be recorded and reported as outlined in SB 742-1.

By Order of the Secretary of the Army:

CREIGHTON W. ABRAMS
General, United States Army
Chief of Staff

Official:

VERNE L. BOWERS
Major General, United States **Army**
The Adjutant General

Distribution:

Active Army:

ACSFOR (2)
DCSLOG (3)
TSG (1)
AMC (10)
ARADCOM (5)
ARMCOM (25)
MICOM (25)
OS Major Comd (20)
LOGCOMD (5)
Armies (10)
Br Svc Sch (5)

AMC Ammo Cen (250)
USAMMCS (100)
PG (5)
Gen Dep (10)
Army Dep (20)
Dep (10)
Arsenals (5)
TRADOC (20)
FORSCOM (20)
USAMSAA (12)

NG: None.

USAR: None.

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