
DEPARTMENT OF THE ARMY SUPPLY BULLETIN

AMMUNITION SURVEILLANCE PROCEDURES
FUZE, IGNITING, HAND GRENADE, M201A1, M201A1E1
FUZE, FLOATING SMOKE POT, M207A1
FUZE, FLOATING SMOKE POT, M208
FUZE, FLOATING SMOKE POT, ELECTRIC, M209
FUZE, CRYPTOGRAPHIC EQUIPMENT DESTROYER,
INCENDIARY, M210

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

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*This bulletin supersedes SB 3-30-165, 16 April 1957.

1. Purpose and Scope. This supply 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>
Fuze, Hand Grenade, M201A1, M201A1E1,	1330-G874
Fuze, Floating Smoke Pot, M207A1,	1365-K887
Fuze, Floating Smoke Pot, M208,	1365-K885
Fuze, Floating Smoke Pot, Electric, M209,	1365-K886
Fuze, Cryptographic Equipment Destroyer, Incendiary, M210	1375-M975

The visual inspection and function testing in this bulletin 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 procedure is to be used in the serviceability assessment of fuze lots (of fuzes not assembled to an end item) based on inspection and testing of individual fuzes only. The provisions of this bulletin are mandatory for 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 examination and test, sample selection, defect standards, reports and records is provided by SB 742-1.

2. Errors, Omissions, and Recommended Changes.

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

3. Safety. This surveillance visual examination and 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. A Standing Operating Procedure (SOP) for this operation is required and will delineate specific safety requirements for these visual examinations and tests.

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

5. Size of Sample. Unless otherwise directed, a sample size of thirty (30) fuzes is required to make a representative sample from a lot for a surveillance visual examination and function test. To satisfy the requirements of the periodic inspection prescribed in conjunction with the surveillance function test, additional sampling and inspection of inner and outer packing is required in accordance with SB 742-1.

6. Sample Selection. Sample fuzes will be selected in accordance with the provisions of SB 742-1 except that

2 not more than six fuzes may be selected from any one box.

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

- a. *Ammunition Peculiar Equipment (APE):*
APE 1901, Tank, Immersion,
APE 1906, Tester, Fuze, Grenade, Igniting,
with APE 1906 E002, Tube, Flash, Horizontal.
- b. *Additional test equipment is:*
Fuze Testing Fixture for the M209 fuze (MIL-F 11673, Dwg A18-60-976), Appendix A,
Blotting paper, UU-P-63F, grade A, or equivalent,
Alinco Tester No. 101-5BF, or equivalent,
Power source of at least 1.5 volts.

8. Preparation of Test. Number the fuzes I through 30 and identify them as to the box from which they were drawn. Immerse fuzes I through 15 (without containers) in water at $77^{\circ} \pm 9^{\circ}\text{F}$ ($25^{\circ} + 5^{\circ}\text{C}$) for 15 to 20 minutes. Position the fuzes horizontally about 6 inches (15 centimeters) below the water surface. APE 1901, Tank, Immersion, should be used for this purpose. The fuzes will be tested as outlined in paragraph 9 below within one hour after removal from the water. Fuzes 16 through 30 will receive no conditioning prior to testing.

9. Test Procedure. The procedure described below is designed to determine safety pin tension, fuze delay time, and flash ejection distance. Testing will not be conducted during an electrical storm, a rain or snow storm, or during any other conditions that might adversely affect the test results.

a. *Fuzes M201A 1, M201A IEI, M207A 1, M208, and M210 Will Be Tested As Follows:*

(1) Insert a piece of clean blotting paper (Grade A, UU-P-63F or equivalent) into the slot located in the bottom of the horizontal flash tube, APE 1906 E002 (see the APE 1906 Operational Manual). This blotting paper test card is used to indicate that the burning particles of ignition mix slag are sufficient to ignite a chemical grenade or smoke pot (see appendix B). It also assures that the flash ejection distance is at least 6 inches (15 centimeters).

(2) These fuzes will be tested in the horizontal position only. Insert the fuze into the fuze tester as indicated in figure 6 of APE 1906 Operational Manual. Prepare the tester to function the fuze.

(3) Apply a gradual pull to the pull handle of the gage until the safety pin is removed and the fuze is functioned.

(4) Record the reading indicated on the dial of the pull gage.

(5) Record the reading indicated on the dial of the electric timer to the nearest hundredth of a second.

(6) Compare the blotting paper test card with the illustration in Appendix B, and record the results.

b. *Fuze M209 Will Be Tested As Follows:*

(1) Insert the fuze into the fuze testing fixture for this fuze; see Appendix A. The fixture shall be oriented so that when the fuze is fired the flash is directed downward.

(2) Check the electrical resistance of the fuze. The resistance shall be 0.85 ± 0.25 Ohms.

(3) Attach fuze lead wires to a power source of at least 1.5 volts and function the fuze.

(4) Observe the flash ejected from the opening at the bottom end of the testing fixture tube.

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

a. *Pull, to the Nearest Half Pound* (quarter kilogram), required to withdraw the safety pin.

b. *Delay Time in Seconds to the Nearest Tenth of a Second.* This is the amount of time between withdrawal of the safety pin and functioning of the fuze ignition charge.

c. *Flash Ejection Distance and Ignition Characteristics.* All fuzes shall ignite and eject the flash of the igniting charge for a minimum distance of 6 inches (15 centimeters).

(1) Fuze M209 shall eject a flash which is visible for at least half an inch (one centimeter) below the opening at the bottom of the fixture tube shown in Appendix A.

(2) All the other fuzes shall produce the results on the blotting paper test card shown in appendix B.

d. *Electrical Resistance of the Fuze, M209.*

e. *All Instances of the Following:*

(1) Marking nonstandard, misleading, incomplete, or unidentifiable;

(2) Rust or corrosion, give exact location and extent;

(3) Anything classified as a defect in paragraph 12 or 13 or in SB 742-1;

(4) The occurrence of any nonstandard condition or malfunction not specifically classified as a defect but which, in the opinion of responsible personnel, merits consideration.

NOTE

Observations and defects should be noted and reported only for those fuzes for which they apply. For example, fuze, M209, has no safety pin or delay; the other fuzes have no electric wires.

11. Classification of Defects. Defects observed during this inspection and testing will be classified in accordance with paragraphs 12 and 13 and with SB 742-1. Any defects observed which are not listed in paragraphs

12 or 13 or in 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 pin missing;

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

(3) Lead wires not shunted.

b. *Major.*

(1) Any of the following components missing or incorrect:

(a) Pull ring

(b) Threads

(2) Major damage to the following components:

(a) Pull ring

(b) Threads

(3) Protective coating (waterproofing) missing, damaged, or deteriorated;

(4) Fuze damaged or deteriorated to the extent that functionability is affected;

(5) Marking misleading as to type of fuze;

(6) Electrical resistance incorrect (below 0.60 or above 1.10 Ohms);

(7) Aluminum foil ignition seal damaged or punctured (Fuzes M201A1, M201A1E1, M207A1, and M210);

(8) Major rust or corrosion.

c. *Minor.*

(1) Fuze marking is missing, inaccurate (other than type of fuze), or illegible;

(2) Minor rust or corrosion;

(3) Minor damage to the following:

(a) Fuze M207AI chain

(b) Pull ring

(c) Threads

13. Functioning Defects.

a. *Critical.*

(1) Pull required to remove the safety pin is less than 5 pounds (2.25 kilograms);

(2) Fuze delay time of Fuze M201AI/A1E1 or M210 is less than 0.3 seconds;

(3) Fuze detonates high order.

b. *Major.*

(1) Pull required to remove the safety pin is less than 10 pounds (4.5 kilograms) but not less than 5 pounds (2.25 kilograms);

(2) Fuze delay time of Fuze M201A1/A1E1, M207AI, and M210 is less than 0.5 seconds (but for Fuze M201A1/A1E1 or M210 not less than 0.3 seconds) and of Fuze M208 is less than 6 seconds;

(3) Fuze fails to function at all (is a dud), striker or primer fails;

(4) Fuze ignition characteristics are unsatisfactory (see paragraph 10c and appendix B);

(5) Fuze explodes low order.

c. *Minor.*

(1) Fuze delay time of Fuze M201A1/A1E1, M207A1, and M210 is less than 0.7 seconds (but not less than 0.5 seconds) or is greater than 3.5 seconds; and delay of Fuze M208 is less than 8 seconds (but not less than 3 seconds) or is greater than 30 seconds;

(2) Pull required to remove the safety pin is greater than 35 pounds (16 kilograms).

14. Evaluation. Nonfunctional and functional characteristics will be recommended in accordance with the following criteria. Based on the nonfunctional characteristics and functional code, and 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 any critical defects are observed.

a. *Nonfunctional Characteristics.*

(1) *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 of inspection of 30 fuzes by attribute:

- (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 as serviceable for unrestricted issue and use shall qualify as serviceable for priority of issue if it meets the following requirements on inspection of 30 fuzes by attribute:

(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 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 fuzes:

- (a) Not more than 1 major defective,
- (b) Not more than 2 minor defectives.

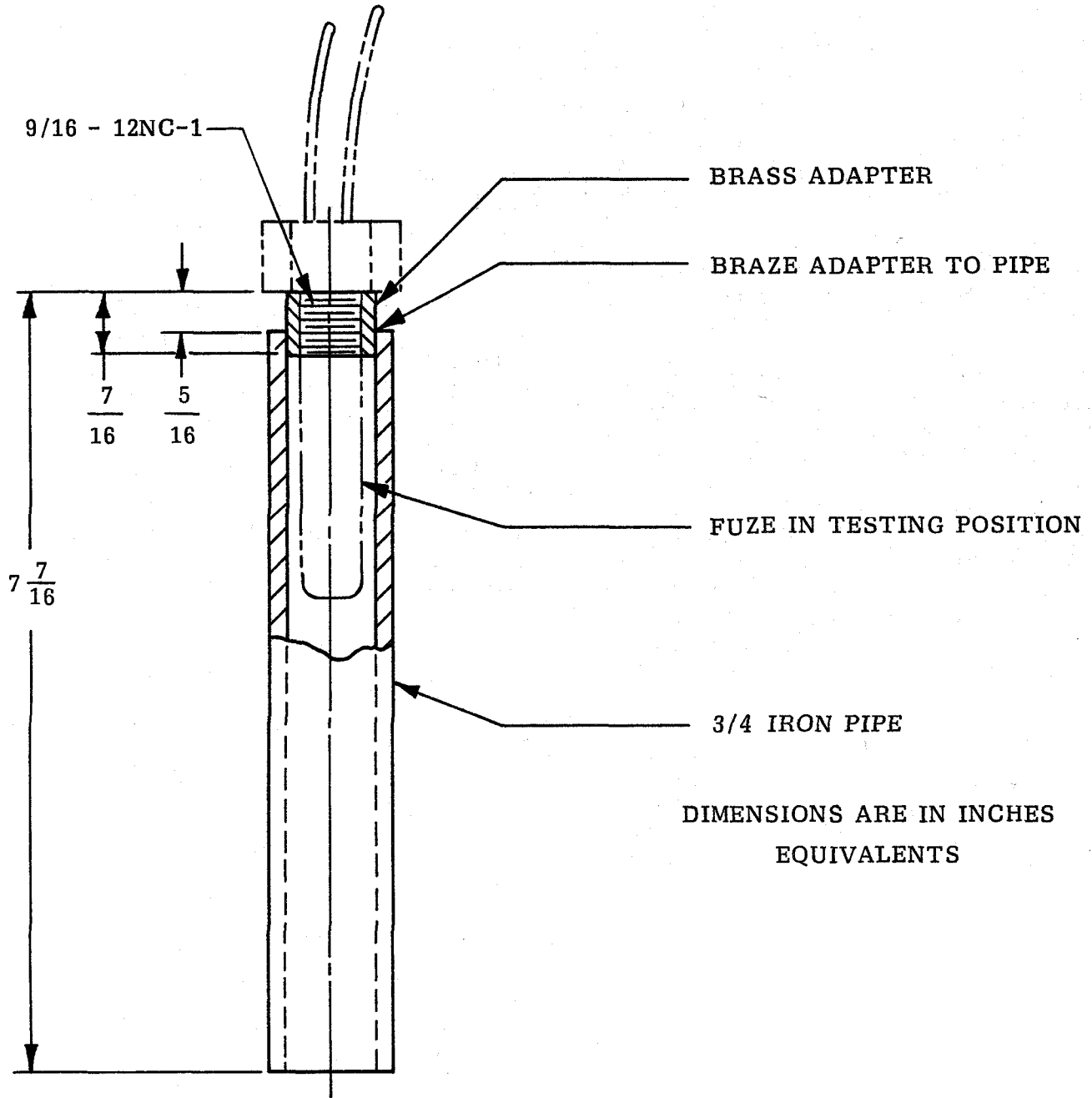
(2) *Code B.* A lot not classified as Condition Code J or Functional Code A shall qualify for Functional Code B if it meets the following requirements in the test of 30 fuzes:

- (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. The visual examination and function test results will be recorded and reported on DA Form 984 and other appropriate forms as prescribed by SB 742-1.

APPENDIX A

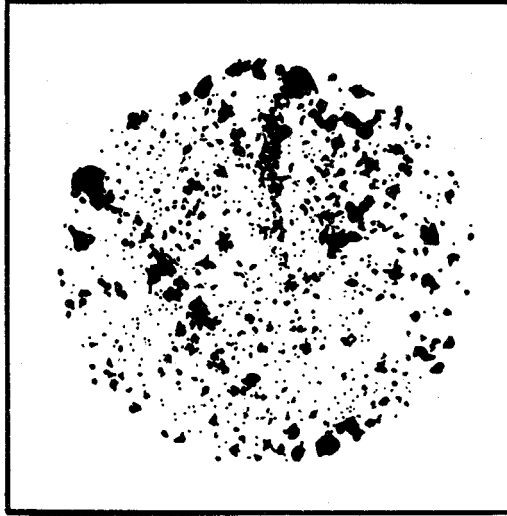


M209 FUZE TESTING FIXTURE

INCH	MILLIMETER
5/16	7.9375
7/16	11.1125
9/16	14.2875
3/4	19.0500
7 7/16	188.9125

MIL-F-11673E (MU)

APPENDIX B



IGNITION CHARACTERISTICS
A 18-60-680

The picture represents a test card showing a typical flash ejection pattern caused by expelling an ignition charge from an M201A1 fuze. On the actual card the overall gray discoloration results from smudging by the flash. Evidence of reddish spots indicate unburned mix. Neither of these surface conditions are indicative of ignition characteristics.

The dark spots or areas caused by burning particles of ignition mix shall show evidence of penetration to distinguish them from smudge and surface marks. Evidence of penetration shall be determined as follows: A soft eraser and/or the point of a sharp instrument shall be lightly rubbed or scraped across suspect areas to remove smudge or surface markings. Evidence of penetration is ascertained when the removal of the top surface of the card reveals dark spots or obvious indentations in the card.

MIL-F-10915F

By Order of the Secretary of the Army:

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PREVIOUS EDITIONS ARE OBSOLETE.

P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
 1 decimeter = 10 centimeters = 3.94 inches
 1 meter = 10 decimeters = 39.37 inches
 1 dekameter = 10 meters = 32.8 feet
 1 hectometer = 10 dekameters = 328.08 feet
 1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
 1 decigram = 10 centigrams = 1.54 grains
 1 gram = 10 decigrams = .035 ounce
 1 decagram = 10 grams = .35 ounce
 1 hectogram = 10 decagrams = 3.52 ounces
 1 kilogram = 10 hectograms = 2.2 pounds
 1 quintal = 100 kilograms = 220.46 pounds
 1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
 1 deciliter = 10 centiliters = 3.38 fl. ounces
 1 liter = 10 deciliters = 33.81 fl. ounces
 1 dekaliter = 10 liters = 2.64 gallons
 1 hectoliter = 10 dekaliters = 26.42 gallons
 1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
 1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
 1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
 1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
 1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
 1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
 1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
 1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

<i>To change</i>	<i>To</i>	<i>Multiply by</i>	<i>To change</i>	<i>To</i>	<i>Multiply by</i>
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29.573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C
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