

SB 742-1375-94-880

DEPARTMENT OF THE ARMY SUPPLY BULLETIN

Ammunition Surveillance Procedures BLASTING MACHINE: 10 CAP, M32 OR 50 CAP, M34

Headquarters, Department of the Army, Washington, DC
22 September 1981

	Paragraph	Page
Purpose and scope.....	1	1
Errors, omissions and recommended changes.....	2	1
Safety.....	3	1
Personnel.....	4	2
Size of sample.....	5	2
Sample selection.....	6	2
Surveillance test equipment.....	7	2
Preparation for test.....	8	2
Test Procedure.....	9	2
Observations.....	10	4
Classification of defects.....	11	5
Nonfunctioning defects.....	12	5
Functioning defects.....	13	5
Evaluation.....	14	5
Records and Reports.....	15	5

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:

Nomenclature	NSN/DODIC
Blasting Machine, 50-cap, M34	1375-00-567-0223-M779
Blasting Machine, 10-cap, M32	1375-00-935-9173-M782

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 assessment of the serviceability of individual lots of blasting machines only. The provisions of this bulletin are mandatory for use by all Department of the Army organizations within CONUS and OCONUS with a 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 by the individual user 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 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. Inspection and function testing will be conducted under the supervision of a Quality Assurance Specialist (Ammunition Surveillance) herein after referred to as QASAS.

5. Size of Sample. Unless otherwise directed, a sample size of 25 blasting machines is required to make up a representative sample from a lot for a surveillance function test.

6. Sample Selection. Sample blasting machines will be selected in accordance with the provisions of SB 742-1 with the exception that not more than 13 blasting machines may be selected from any one box.

7. Surveillance Test Equipment. The following equipment is to be used in testing the M32 or M34 blasting machines in accordance with the procedures described herein.

a. Ammunition Peculiar Equipment (APE).

APE 1901 Tank, Immersion.

APE 1916 Oven, Preconditioning.

APE 1920 Shield, Operational.

APE 1937 Shelter, Personnel Protection.

APE 1938 Chamber, Low Temperature.

b. Additional Test Equipment.

(1) A standard commercial oscilloscope capable of recording a single trace.

(2) A 150 ohm (M34) or 48 ohm (M32) 5 watt resistor.

(3) NSN 6625-00-539-8444 Blasting Galvanometer.

(4) NSN 4925-00-099-3454 Test Set M51.

c. Other Materiel.

(1) DODAC 1375-N130 M6 Electric Blasting Caps of known good quality (sufficient quantity to conduct the test).

(2) 500 ft. of No. 18 AWG firing cable.

8. Preparation for Test.

a. Number the blasting machines 1 through 25 and identify them as to the box from which they were drawn.

b. Exercise each blasting machine by actuating several times without a load attached to the terminals. The indicator lamp in the area between the terminals should glow after the handle is rapidly and vigorously squeezed two to five times.

c. Completely submerge each blasting machine under six inches of water at $21^{\circ} \pm 3^{\circ}\text{C}$. ($70^{\circ} \pm 5^{\circ}\text{F}$.) for 60 minutes. APE 1901 should be used for this part of the test. Observe whether or not the blasting machine emits bubbles at any time during the

60 minutes. Wipe the blasting machine dry and temperature condition as directed below.

d. Temperature condition blasting machines 1 through 5 for 24 hours at $52^{\circ} \pm 5^{\circ}\text{C}$. ($125.6 \pm 9^{\circ}\text{F}$.) immediately prior to firing.

e. Blasting machines 6 through 20 will not require any special temperature conditioning.

f. Temperature condition blasting machines 21 through 25 for 24 hours at $-45^{\circ} \pm 5^{\circ}\text{C}$. ($-49^{\circ} \pm 9^{\circ}\text{F}$.) immediately prior to firing.

9. Test Procedure. Each blasting machine shall be tested using an oscilloscope and a 150 ohm (M34) or 48 ohm (M32) resistor. Temperature conditioned blasting machines shall be tested within 15 minutes after their removal from the temperature chamber.

a. Output (Voltage) Capacity Test.

(1) Connect the appropriate resistor (150 ohm for the M34 or 48 ohm for the M32) across the machine terminals.

(2) Connect the oscilloscope in parallel with the resistor; i.e., connect the oscilloscope input (+) to the blasting machine terminal nearest the blasting machine handle. Refer to Figure 1 for an illustration of the connections.

(3) Set the vertical deflection on the oscilloscope for a maximum of 350 volts (M34) or 150 volts (M32). Set the horizontal scale to 0.5 milliseconds per division.

(4) Set the oscilloscope to trigger the sweep when the blasting machine fires.

(5) Operate the blasting machine with two hands by rapidly squeezing the handle a sufficient number of times to cause an output to occur. Gloves may be worn for cushioning during this part of the test.

NOTE

The area between the blasting machine terminals must be observed during this test to insure that a pulse was generated as noted by the flash of the indicator.

(6) Repeat this test three times for each blasting machine. Successive firing cycles shall start as soon as possible after the data have been recorded for the previous cycle.

b. Functioning Test (For Information Only). One blasting machine from each of the three conditioning phases (hot, ambient, cold) shall be selected for the functioning test phase. These blasting machines shall be the ones with the lowest voltage output average (the average of the three voltage outputs recorded during the capacity test) for each conditioning phase. Each machine will be connected to a 50 (M34) or 10

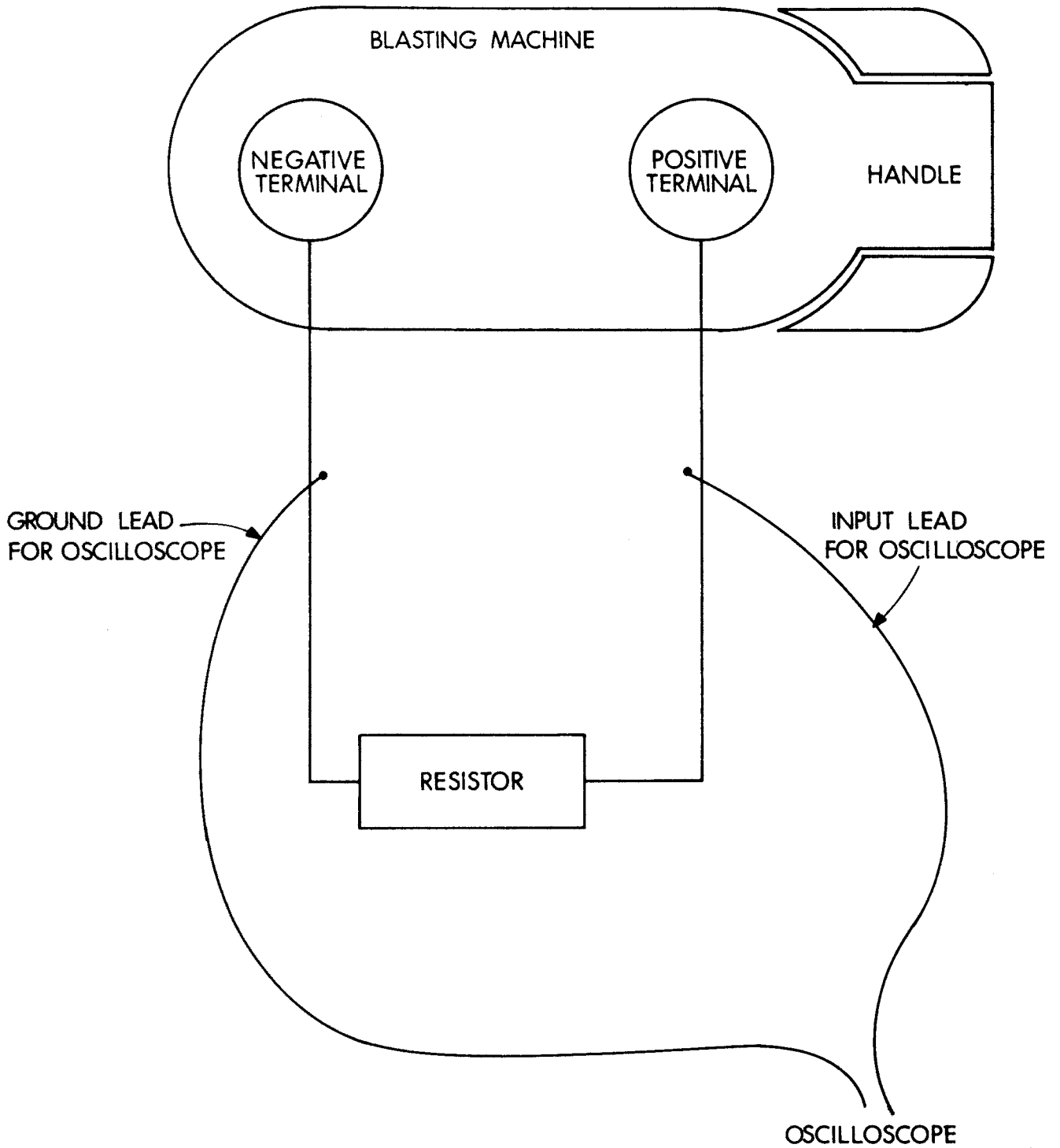


Figure 1. Electrical connections for output capacity.

(M32) blasting cap series circuit and initiated to verify proper performance.

NOTE

Handling, connecting and firing of blasting caps shall be accomplished in accordance with one of the following references as appropriate: DARCOM R 385-100, Para 27-17.b; TM 9-1375-213-12, Para 2-4 through 2-9; or FM 5-25 Para 2-4 through 2-9.

(1) Connect 50 (when testing the M34 blasting machine) or 10 (when testing the M32 blasting machine) M6 electric blasting caps in series with a maximum of 24 feet of lead wire between each blasting cap and attach the series circuit to the appropriate firing cable.

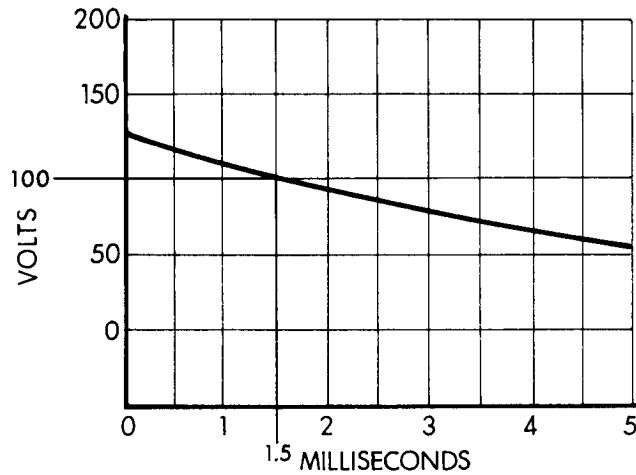
(2) Using the blasting galvanometers or an M51 test set, test the continuity of the series circuit. Correct any deficiencies found and retest prior to continuing.

(3) Connect the blasting machine to the test circuit and operate the blasting machine by rapidly squeezing the handle until an output occurs.

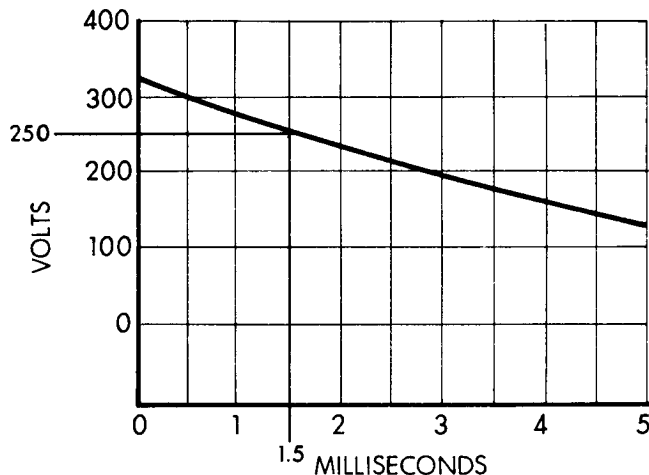
(4) If any of the blasting caps fail to function, replace the fired caps in the circuit with new caps and attempt to fire again.

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. The observations to be reported are as follows:

a. Output voltage to the nearest five volts at 1.5 milliseconds measured on the vertical scale on the oscilloscope trace. One measurement shall be recorded each time a blasting machine is functioned for a total of three (3) measurements per blasting machine. Sample traces are presented in figure 2.



A. M32-10 CAP BLASTING MACHINE



B. M34-50 CAP BLASTING MACHINE

Figure 2. Sample oscilloscope traces.

b. The number of squeezes required to cause an output during the output capacity test.

c. The number of blasting caps which function during an individual trial of the function test.

d. 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 not classified as defects in paragraphs 12 and 13, 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, 13, and SB 742-1. Any defects observed which are not listed in paragraphs 12 and 13 will be fully described and reported with the recommendations of the QASAS as to classification.

12. Nonfunctioning Defects.

a. *Major.*

(1) Any of the following missing or damaged to an extent which precludes the use of the blasting machine:

(a) Squeeze handle,

(b) Output terminals.

(c) Hinge pin.

(d) Housing assembly.

(2) Marking incorrect as to model of blasting machine.

(3) Major rust.

(4) Major corrosion,

(5) Bubbles are emitted from the blasting machine during the waterproof phase.

b. *Mirror.*

(1) D=ring missing.

(2) D = ring not secure in folded position.

(3) Minor rust.

(4) Minor corrosion.

(5) Marking partially illegible but is not misleading as to model of blasting machine.

13. Functioning Defects.

a. *Major.*

(1) Less than 225 (M34) or 72 (M32) volts of output at 1.5 milliseconds on any attempt.

(2) More than 14 squeezes are required to function the machine.

b. *Minor.* More than nine squeezes but less than 15 squeezes are required to function the machine.

14. Evaluation. Functional and nonfunctional codes will be recommended in accordance with the following criteria and the interim condition code will be assigned. A lot will be classified as Condition Code J and reported if one critical defect is 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 25 blasting machines by attributes.

(a) Not more than one (1) major defective.

(b) Not more than two (2) minor defective.

(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 25 blasting machines by attributes:

(a) Not more than three (3) major defective.

(b) Not more than five (5) minor defective.

(3) *Unserviceable.* A lot not classified as Condition Code J, 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 25 blasting machines.

(a) Not more than one (1) major defective.

(b) Not more than two (2) minor defective.

(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 25 blasting machines.

(a) Not more than three (3) major defective.

(b) Not more than five (5) minor defective.

(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:

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Distribution:

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☆ U.S. GOVERNMENT PRINTING OFFICE: 1981-756 016/17