

This copy is a reprint which includes current pages from Changes 1.

DEPARTMENT OF THE ARMY SUPPLY BULLETIN

**SIMULATOR, PROJECTILE AIRBURST,
LIQUID (SPAL): M9
AMMUNITION SURVEILLANCE PROCEDURES**

**Headquarters, Department of the Army, Washington, DC
18 December 1978**

	Paragraph	Page
Purpose and Scope.....	1	1
References.....	2	1
Safety.....	3	1
Surveillance.....	4	1
Inspection.....	5	2
Functional Test.....	6	3
Evaluation.....	7	4
Records, Reports and Reporting.....	8	4
Errors, Omissions and Recommended Changes.....	9	4

1. Purpose and Scope. a. Purpose. This bulletin, when used in conjunction with SB 742-1, provides the method of determining the serviceability of the Simulator, Projectile Airburst, Liquid (SPAL): M9 (DODAC 1370-L595).

b. Scope. When conducting surveillance inspection, 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 issue mission. The requirements, procedures, and programs established in SB 742-1, as applicable to chemical ammunition, form a part of this bulletin except where otherwise stated in this bulletin. This bulletin is not intended for use by organizations with stocks in basic loads.

2. References. The following publications form a part of this bulletin to the extent specified.
AR 725-50-Requisitioning, Receipt and Issue System

SB 742-1-Ammunition Surveillance Procedures
TM 9-1300-206-Ammunition and Explosive Standards
TM 3-1370-100-12-Operators' Manual, Simulator, Projectile Airburst, Liquid, M9 (SPAL). (To be published)

3. Safety. The surveillance inspection and function testing required by this bulletin must be conducted in accordance with the safety provisions and warnings set forth in TM 9-1300-206, and appropriate safety regulations and implementing instructions in TM 3-1370-100-12 (to be published).

4. Surveillance. a. Surveillance interval.
(1) Initial Receipt Inspection (IRI) and Receipt Inspection (RI). Initial receipt and receipt inspection will be conducted within the intervals established in SB 742-1.

(2) Periodic Inspection (PI). Periodic inspection will be conducted at the interval specified in

SB 742-1 for category Z ammunition.

(3) Preissue Inspection (PII). Preissue inspection will be conducted within the intervals established in SB 742-1.

(4) Surveillance Function Test (SFT). Functional test intervals will be as determined under the Centralized Control Program managed by the US Army Armament Materiel Readiness Command, DRSAR-QAS, Rock Island, IL 61299.

b. Basis of surveillance. Surveillance for the subject item will be conducted on the basis of manufacturer's and/or miscellaneous lots.

c. Formation of surveillance lots.

(1) Manufacturer's lots. A manufacturer's lot consists of those items manufactured or assembled by one manufacturing or reconditioning activity and bearing the same manufacturing or reconditioning agency's lot identification number. The manufacturer's lot must meet the following criteria.

(a) Packing. All items must have the same type packing and identification marking.

(b) Serviceability lot status. All items must possess the same serviceability lot status; i.e., serviceability known (based upon prior surveillance) or serviceability unknown. However, when new procurement is involved, serviceability will be based upon acceptance inspection in lieu of prior surveillance.

(2) Miscellaneous lot. A miscellaneous lot, containing not more than 140 simulator projectiles, will be created by combining small manufacturer's lots or lot fragments possessing the same technical history, i.e., manufactured by the same technical procedure (indicated by the same lot interfix number). The miscellaneous lot must meet the following criteria.

(a) Kind, type and model. All items must be of the same kind, type and model.

(b) Manufacturer. Each small lot or lot fragment must be the product of the same manufacturer or reconditioning agency.

(c) Packing. All items must have the same type packing and identification marking.

(d) Serviceability lot status. All items must

possess the same serviceability lot status; i.e., serviceability known (based upon prior surveillance) or serviceability unknown. However, when new procurement is involved, serviceability will be based upon acceptance inspection in lieu of prior surveillance.

d. Sampling.

(1) Selection and disposition. Sample selection and disposition shall be in accordance with the provisions of SB 742-1 and this bulletin.

(2) Sample size.

(a) Visual examination. The sample size of simulator projectiles for visual examination shall be as indicated in Table 1 of this bulletin. The same of 20 simulator projectiles shall be taken from one sample container.

Table 1. Sampling Plan for Nonfunctional Characteristics.

Sample Size	Critical		Major		Minor	
	AC	RE	AC	RE	AC	RE
20	0	1	2	3	3	4

(b) Functional test. The sample size for functional test shall be 20 simulator projectiles or as directed by US Army Armament Materiel Readiness Command, DRSAR-QAS, Rock Island, IL 61299. The 20 projectiles used for visual examination shall be used for functional tests provided no defectives were encountered. If defectives were encountered in the visual examination, additional samples will be drawn from a second container.

NOTE

Samples should always be pulled in multiples of one over-pack (20 test items). Formation of miscellaneous lots is detailed in this bulletin.

5. Inspection. a. Visual examination.

(1) Packing, packaging and marking. Visual examination for packing, packaging and marking shall be conducted in accordance with SB 742-1.

(2) Simulator, projectile. The sample shall be examined for defects listed in the classification of visual defects (Table 2) of this bulletin and the defects identified in SB 742-1.

Table 2. Visual Defects; Simulator, Projectile Airburst, Liquid (SPAL): M9

Categories	Defects	Inspection Methods
Critical:	As defined in SB 742-1.	Visual
Major:		
101	Component missing or incorrect (refer to TM 3-1370-100-12, to be published)	Visual
102	Cracked, broken or damaged bottle to the extent that bottle leaks.	Visual
103	Damaged threads on bottle to the extent that screw cap will not seal.	Visual
104	Cracked or broken bottle screw cap.	Visual
105	Damaged threads on screw cap to extent that cap will not seal on bottle.	Visual
106	Dry rot of the rubber "O" sealing ring.	Visual

Dry rot may appear as stiff, dry areas which crumble when rubbed with the fingers and exhibit cracks which expand in length or depth when the 'O' ring is stretched. Dry rot may also appear as sticky or spongy areas that can easily be pierced with finger pressure.

Table 2. Visual Defects; Simulator, Projectile Airburst, Liquid (SPAL): M9-Continued

Categories	Defects	Inspection Methods
107	Cracked, broken or damaged actuating charge body.	Visual
108	Broken or damaged actuating charge leads. Frayed or broken wire insulation.	Visual
109	Leads not secure or sealed into body.	Visual
110	Wire leads not twisted and wrapped around actuating charge body.	Visual
111	Bare ends of wire not separated and taped to actuating charge body.	Visual
112	Broken, cracked or punctured barrel.	Visual
113	Broken or crumbled obturator to extent that it will not hold the filled bottle.	Visual
Other	As defined in SB 742-1.	Visual
Minor:		
201	Marking missing or illegible.	Visual
202	Damaged threads on spike.	Visual
203	Damaged threads in barrel cover.	Visual

b. Functional testing. Functional testing will be accomplished under the Centralized Control Program managed by the US Army Armament Materiel Readiness Command, DRSAR-QAS, Rock Island, IL 61299 in accordance with SB 742-1 and this bulletin.

(1) Classification of defects. Refer to Table 3 for classification of defects for functional testing.

(2) Testing. Testing shall be conducted in accordance with paragraph 6 of this bulletin.

Table 3. Test Defects; Simulator, Projectile Airburst, Liquid (SPAL): M9

Inspection Categories	Defects	Methods
Critical:	None defined.	
Major:		
101	Failure to fire.	Paragraph 6
102	Failure to burst.	Paragraph 6
103	Height of burst less than 12 meters.	Paragraph 6
Minor:	None defined.	

6. Functional Test. a. Requirements.

(1) The upper chamber of the actuating charge for the simulator must fire.

(2) The lower chamber of the actuating charge must burst the simulator bottle of liquid.

(3) The height of the simulator at time of burst must be 12 meters minimum.

b. Equipment required.

(1) Measuring Device, Altitude and Drift APE 1908.

(2) Firing source (battery 12 volt minimum or blasting machine) with minimum 25 meter long twisted wire leads.

c. Procedure.

(1) The test site should be relatively flat terrain and free of Radio Frequency signals.

WARNING

The actuating charge is susceptible to initiation by Radio Frequency (RF) signals. Refer to Table 4 for minimum safe distance restrictor for RF signals. Do not remove the actuating charge from the aluminum container until just prior to loading into the launching barrel.

(2) Remove the lid and empty bottle from the barrel of the projector assembly.

(3) Screw the spike into the bushing in the base of the barrel and push the spike into the ground.

NOTE

The simulator must be fired in an upright position, i.e., muzzle upward no greater than 5° angle.

(4) Remove the "O" sealing ring from the bottom of the bottle and remove the screw cap from the top.

(5) Remove the bung from the lid of the simulant agent container and install the 3/4 inch faucet.

Table 4. Safe Distance Restrictions in Feet for HERO Unsafe Ordnance*

FREQUENCY (MHz)	TRANSMITTER OUTPUT POWER IN KW (AVERAGE)**								
	.005	.005-.1	.1-3.	.3-1	1-5	10	20	100	200
.250 to 1.....	5	250	400	750	1600	2300	3200	7150	10000
1 to 2.....	5	450	800	1400	3200	4500	6400	14300	20000
2 to 32.....	5	1100	2000	3600	8000	11300	16000	36000	50000
32 to 70.....	5	470	800	1500	3300	4700	6700	15000	26000
70 to 100.....	5	200	350	650	1450	2100	2900	6500	9200
100 to 200.....	5	150	260	500	1100	1500	2100	4800	6700
200 to 400.....	5	80	130	250	540	760	1100	2400	3300

*Source: HAVORD OP 3565/NAVAIR 16-1-529, Radio Frequency Hazards to Ordnance, Personnel and Fuel.

**If transmitter is amplitude modulated, multiply all distance values by 2.

(6) Fill the bottle with one liter of simulant agent. The fill level is indicated by a small shoulder on the bottle.

WARNING

The actuating charge must not be inserted into the bottle until just prior to loading the bottle into the launching barrel. No radar/ radio transmitter is to be closer than the minimum safe distances specified in Table 4 to any part of the SPAL firing circuit during setting up or dismantling of the firing circuit.

(7) Remove the actuating charge from the aluminum container. Slide the "O" sealing ring down over the end of the actuating charge.

(8) Press the actuating charge down through the neck of the bottle so that the sealing ring is between the shoulder on the top of the actuating charge and the rim of the bottle neck.

(9) Thread the firing leads of the actuating charge through the hole in the bottle screw cap.

(10) Screw the cap firmly on the top of the bottle to form a seal between the actuating charge and the bottle.

(11) Check that the obturator is in the bottom of the barrel with the bevelled end facing up.

(12) Invert the filled bottle and slide it into the barrel so that it seats firmly against the bevelled end of the obturator. Be sure that the firing leads are led up the side of the bottle so that they hang clear from the muzzle. Do not replace the lid.

(13) Check that the main firing source (battery or blasting machine) is not connected.

(14) Connect the actuator lead to the extension leads for the main firing source by twisting the bare ends of the wires together.

(15) The battery or blasting machine and the Altitude and Drift Measuring Device APE 1908 must be located a minimum of 25 meters upwind from the simulator projectile.

WARNING

The simulator is not to be fired until all personnel are clear of the area for 25 meters minimum. Refer to TM 3-1370-100-12 (to be published) for protected and unprotected safety distances during functioning.

(16) Connect the extension leads to the battery or blasting machine and fire the actuator.

(17) Observe that the actuating charge fired.

(18) Observe that the bottle burst.

(19) Measure and record the height of burst of the bottle using the Altitude and Drift Measuring Device APE 1908.

7. Evaluation. a. Nonfunctional Characteristics.

Lots shall be evaluated for nonfunctional characteristics (visual defectives) in accordance with Table 1 of this bulletin.

b. Functional Codes.

(1) FC-A. Functional quality which performs essentially according to design intent for service use.

(2) FC-B. Functionally serviceable and completely satisfactory for service use. Although somewhat below FC-A in overall performance, the item lot is not sufficiently impaired to warrant reconditioning or demilitarization.

NOTE

Lots tested and evaluated as FC-A or B, based on functional performance characteristics, are functionally serviceable for unrestricted Army and Single Manager (SM) issue and use unless there is a specific stipulation qualifying its use in the assignment of FC-B, e.g., restricted to training use only, etc.

(3) FC-D. Markedly inferior to FC-B in functional performance. Issue would be justified only in an emergency and should, as determined by the NICP, be demilitarized or renovated.

(4) FC-J. Lot(s) considered to be hazardous for use due to critical functional defect and malfunction encountered during testing, practice firing or combat.

c. Criteria for assignment of Functional Codes.

(1) FC-A. Not more than 1 (one) major defective in the required test sample.

(2) FC-B. Not more than 2 (two) major defectives in the required test sample.

(3) FC-D. Not more than 3 (three) major defectives in the required test sample.

d. Assignment of Condition Codes. Assignment of condition codes will be made based upon results of visual examination and functional performance during testing and in accordance with the guidance provided in AR 725-50.

8. Records, Reports and Reporting. Visual examination and function test results will be recorded and reported in accordance with SB 742-1. Observations of defects not listed in the classification of defects or SB 742-1 shall be reported and described in detail. If possible, pictorial evidence of the unlisted defect should be included with the report.

9. 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, US Army Armament Materiel Readiness Command, ATTN: DRSAR-QAS, Rock Island, IL 61299.

By Order of the Secretary of the Army:

Official:

J. C. PENNINGTON
Brigadier General, United States Army
The Adjutant General

BERNARD W. ROGERS
General, United States Army
Chief of Staff

DISTRIBUTION:

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

DEPARTMENT OF THE ARMY SUPPLY BULLETIN

SIMULATOR, PROJECTILE AIRBURST,
LIQUID (SPAL): M9
AMMUNITION SURVEILLANCE PROCEDURES

HEADQUARTERS, DEPARTMENT OF THE ARMY, WASHINGTON, DC
21 June 1988

SB 7421370944, 18 December 1978, is changed as follows:

Page 2, paragraph 5a(2), add following sentence to end of paragraph:

"NOTE: If bare wire ends of actuating charge leads are separated, twist ends of wire together."

Page 3, Table 2, Category 111 is changed to read:

"Bare ends of wire not taped to actuating charge body (wire ends are acceptable when shunted or unshunted)."

By Order of the Secretary of the Army:

CARL E. VUONO
General, United States Army
Chief of Staff

Official:

R. L. DILWORTH
Brigadier General, United States Army
The Adjutant General

DISTRIBUTION:

To be distributed in accordance with DA Form 1234, Requirements for Surveillance Procedure Simulators, Projectile.

*U.S. GOVERNMENT PRINTING OFFICE: 1996 0 - 406-421/60037

PIN: 037678-001