METRIC

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DETAIL SPECIFICATION

SIMULATOR, PROJECTILE, AIR BURST, M74A1
PARTS FOR AND LOADING, ASSEMBLING AND PACKING

This specification is approved for use by the U.S. Army Armaments Research, Development and Engineering Center (ARDEC), and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 This specification is for the fabrication of parts and assembly of one type of flash and sound simulator designated as Simulator, Projectile, Air Burst, M74A1.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in section 3 or 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3 or 4 of this specification, whether or not they are listed.

Comments, suggestions, or questions on this document should be addressed to the Commander, U.S. Army ARDEC, ATTN: RDAR-QES-E, Picatinny, NJ 07806-5000 or emailed to ardecstdzn@conus.army.mil Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at https://assist.daps.dla.mil.

AMSC N/A FSC 1370

2.2 Government documents.

2.2.1 Specifications, standards and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-A-70625	-	Automated Acceptance Inspection Equipment Design, Testing and Approval, of
MIL-P-00223	-	Powder, Black

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-1234	-	Pyrotechnics- Sampling, Inspection and Testing
MIL-STD-1916	-	DOD Preferred Methods for Acceptance of Product

(Copies of these documents are available online at https://assist.daps.dla.mil/quicksearch/ or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.2.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

U.S. ARMY ARMAMENT RESEARCH, DEVELOPMENT, AND ENGINEERING CENTER (ARDEC) DRAWINGS

8848486	-	Simulator, Projectile, Air-Burst, M74A1 Assembly
12977377	-	Fuze Assembly
12991624	-	Cartridge, Impulse
12991625	-	Body
12991626	-	Disc, Closure
12991627	-	Washer, Closure
12991623	-	Case
12977376	-	Housing, Fuze
8848485	-	Charge Case Loading Assembly
8848484	-	Tube
8848480	-	Wad
8848478	-	Washer, Gas Check
8848479	-	Filler
8848482	-	Disc, Closing
8848483	-	Case, Charge
8848473	-	Top

(Copies of these drawings are available online from Drawing-Request@pica.army.mil or from US Army ARDEC, ATTN:RDAR-EIS-PE, Picatinny, NJ 07806-5000).

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

ASTM INTERNATIONAL

ASTM D 695	-	Standard Test Method for Compressive Properties of Rigid Plastics
ASTM E 1742	-	Standard Practice for Radiographic Examination
ASTM E 300	-	Standard Practice for Sampling Industrial Chemicals

(Copies of this document are available from www.astm.org or ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959)

NATIONAL AEROSPACE STANDARD

NAS 410	-	NAS Certification & Qualification of Nondestructive Test Personnel

(Application for copies should be addressed to the Aerospace Industries Association of America, 1000 Wilson Boulevard, Suite 1700 Arlington, VA 22209)

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a first article sample be subjected to first article inspection in accordance with 4.2.

3.2 Components and assemblies.

3.2.1 Black powder. The black powder shall be produced in accordance with MIL-P-00223 and moisture content at time of loading shall be in accordance with drawing 12977377.

3.2.2 Flash powder. The flash powder composition and moisture content at time of loading shall be in accordance with drawing 8848485.

3.2.3 Tube. The tube shall have dimensions and compressive strength in accordance with drawing 8848484.

3.2.4 Wad. The wad shall have moisture content at time of loading in accordance with drawing 8848486.

3.2.5 Gas check washer. The gas check washer shall have moisture content at time of loading in accordance with drawing 8848486.

3.2.6 Filler. The filler shall have moisture content at time of loading in accordance with drawing 8848486.

3.2.7 Impulse cartridge. The impulse cartridge shall be fully crimped (see 6.7), complete and having all dimensions in accordance with drawing 12991624.

3.2.7.1 Propellant charge. The propellant charge in the impulse cartridge shall be no less than 0.500 grams and in accordance with drawing 12991624.

3.2.7.2 Primer. The primer shall be below flush, but no greater than the maximum in accordance with drawing 12991624. The primer shall not be deteriorated (see 3.5) upon assembly into the simulator assembly.

3.2.8 Body. The body shall have dimensions in accordance with drawing 12991625

3.2.9 Closure disc. The closure disc shall have dimensions in accordance with drawing 12991626

3.2.10 Closure washer. The closure washer shall have dimensions in accordance with drawing 12991627,

3.2.11 Fuze housing. The fuze housing shall have an unobstructed fuze hole and dimensions in accordance with drawing 12977376.

3.2.12 Fuze assembly. The fuze assembly shall have undamaged threads and no cracks. The fuze assembly shall be in accordance with drawing 12977377.

3.2.12.1 Charge. The charge making up the fuze shall be flush or below flush at either end of the fuze in accordance with drawing 12977377.

3.2.12.2 Fuze delay composition. The fuze delay composition shall be consolidated in the fuze housing and in accordance with drawing 12977377.

3.2.13 Fuze assembly complete. The fuze assembly shall not be empty or improperly loaded including voids, missing increments and inconsistent densities. The fuze assembly shall have a cone at the end of the fuze assembly in accordance with drawing 12977377.

3.2.14 Closing disc. The closing disc shall have dimensions in accordance with drawing 8848482.

3.2.15 Charge case. The charge case shall have dimensions in accordance with drawing 8848483.

3.2.16 Charge case loading assembly prior to crimping closing disc. The charge case loading assembly shall be in full compliance with drawing 8848485. It shall not be missing any components, and before crimping the closing disc it shall have a fully seated fuze assembly with pettman cement surrounding the fuze threads 360 degrees.

3.2.17 Charge case loading assembly after crimping closing disc. After crimping the closing disc in accordance with drawing 8848485, the charge case loading assembly shall have a crimp that seals the disc with cement and is flat against the closing disc at all points.

3.2.18 Signal case. The case shall have no radii missing with dimensions and finish in accordance with 12991623.

3.2.19 Top. The top shall not have any cracks or splits and have dimensions in accordance with drawing 8847473. The surface of the top shall not have any bare spots in the protective coating or be missing coating.

3.2.20 Simulator assembly prior to installing top. The simulator assembly shall have all components, no cracks or splits in metal parts and a sealed charge case assembly in accordance with drawing 8848486.

3.2.21 Simulator assembly complete. The simulator assembly shall not have a fuze assembly obviously deviated from normal or cracked, shall have not have any component missing, shall not contain the presence of foreign material, shall not have propellant height lower than minimum and be in accordance with drawing 8848486.

3.3 Fragmentation. The completed charge case assembly shall explode high order as evidenced by the fragmentation of the cylindrical portion (see 6.8) of the charge case, drawing 8848483, into two (2) or more pieces. Fragmentation must occur due to the initial explosion rather than to any secondary impact.

3.4 Dynamic functioning. The simulator assembly shall function dynamically in accordance with the following requirements.

3.4.1 Case failure. The signal case shall not split, rupture, or bulge to the extent that it sticks in the barrel of the pistol.

3.4.2 Burst. The charge case assembly shall not fail to burst, or fail to burst “high order” as evidenced by a ball of smoke, a brilliant flash and loud report.

3.4.3 Burst time. The charge case assembly shall burst in no less than 2.2 seconds and no greater than 3.2 seconds.

3.4.4 Expelling time. The charge case assembly shall not fail to expel within 150 milliseconds on functioning of the primer.

3.4.5 Horizontal distance and altitude. The charge case assembly shall not burst at a horizontal distance of less than 30.5 meters from the pistol or at an altitude of less than 15.25 meters.

3.4.6 Primer functioning. The primer shall not fail to function.

3.5 Primer deterioration. If the total elapsed time between original acceptance of any primer lot and the assembly of that lot into the simulator assemblies exceeds two years, or if the primers have been subjected to adverse conditions, however brief, at any time since previous tests, the primer lots shall be subjected to and must satisfactorily pass the check test in accordance with 4.4.7. The check test shall be performed prior to assembling the primers into the simulators.

3.6 Air leakage. The simulator shall show no evidence of leakage.

3.7 Workmanship. All manufacturing, processing, and assembly operations shall be correctly performed. They shall be clean and free of burrs, sharp edges, unblended radii, surface defects, chips, dirt, grease and oil (except where specifically required), corrosion products and other foreign matter. The cleaning method used shall not be injurious to any part or assembly nor shall they be contaminated by the cleaning agent. Exterior surface coatings shall be continuous except for a few light scratches not exposing base material. All required markings shall be neat and sharply defined.

4. VERIFICATION

TABLE I. Requirements/Verification Cross Reference Matrix

Methods of Verification		Classes of Verification								
1 - Analysis 2 - Demonstration 3 - Examination 4 - Test		A - First Article								
		B – Conformance								
Section 3 Requirements	Description	Section 4	Verification Methods					Verification Class		
			N/A	1	2	3	4	A	B	
3.1	First article	4.2		X	X	X	X	X		
3.2	Components and assemblies	4.3			X	X	X	X	X	
3.2.1	Black Powder	4.3.2.1;4.4.1;4.4.2		X			X	X	X	
3.2.2	Flash Powder	4.3.2.2;4.4.1; 4.4.2; 4.4.3		X			X	X	X	
3.2.3	Tube	4.3.2.3; 4.4.4.1; 4.4.4.2				X	X	X	X	
3.2.4	Wad	4.3.2.4; 4.4.2					X	X	X	
3.2.5	Gas Check Washer	4.3.2.5; 4.4.2					X	X	X	
3.2.6	Filler	4.3.2.6;4.4.2					X	X	X	
3.2.7	Impulse cartridge	4.3.2.7				X	X	X	X	
3.2.7.1	Propellant charge	4.3.2.7				X	X	X	X	
3.2.7.2	Primer	4.3.2.7				X	X	X	X	
3.2.8	Body	4.3.2.8				X	X	X	X	
3.2.9	Closure disc	4.3.2.9				X	X	X	X	
3.2.10	Closure washer	4.3.2.10				X	X	X	X	
3.2.11	Fuze housing	4.3.2.11				X	X	X	X	
3.2.12	Fuze assembly	4.3.2.12				X	X	X	X	
3.2.12.1	Charge	4.3.2.12				X	X	X	X	
3.2.12.2	Fuze delay composition	4.3.2.12				X	X	X	X	
3.2.13	Fuze assembly complete	4.3.2.13; 4.5.7				X	X	X	X	
3.2.14	Closing disc	4.3.2.14				X	X	X	X	
3.2.15	Charge case	4.3.2.15				X	X	X	X	
3.2.16	Charge case loading assembly prior to crimping closing disc	4.3.2.16				X	X	X	X	
3.2.17	Charge case loading assembly after crimping closing disc	4.3.2.17				X	X	X	X	
3.2.18	Signal case	4.3.2.18				X	X	X	X	
3.2.19	Top	4.3.2.19				X	X	X	X	
3.2.20	Simulator assembly prior to installing top	4.3.2.20				X	X	X	X	
3.2.21	Simulator assembly complete	4.3.2.21; 4.5.6; 4.5.7; 4.5.8				X	X	X	X	

TABLE I. Requirements/Verification Cross Reference Matrix - Continued

METHODS OF VERIFICATION		CLASSES OF VERIFICATION							
1 - Analysis 2 - Demonstration 3 - Examination 4 - Test		A - First Article							
		B – Conformance							
Section 3 Requirements	Description	Section 4	Verification Methods					Verification Class	
			N/A	1	2	3	4	A	B
3.3	Fragmentation	4.3.2.17; 4.4.5; 4.5.4					X	X	
3.4	Dynamic functioning	4.3.2.21; 4.4.6; 4.5.5					X	X	X
3.4.1	Case failure	4.3.2.21; 4.4.6; 4.5.5					X	X	X
3.4.2	Burst	4.3.2.21; 4.4.6; 4.5.5					X	X	X
3.4.3	Burst time	4.3.2.21; 4.4.6; 4.5.5		X		X	X	X	X
3.4.4	Expelling time	4.3.2.21; 4.4.6; 4.5.5				X	X	X	X
3.4.5	Horizontal distance and altitude	4.3.2.21; 4.4.6; 4.5.5				X	X	X	X
3.4.6	Primer functioning	4.3.2.21; 4.4.6					X	X	X
3.5	Primer deterioration	4.4.7					X	X	X
3.6	Air leakage test	4.3.2.21; 4.4.8; 4.5.6					X	X	X
3.7	Workmanship	4.3.2.1 to 4.3.2.21				X		X	X

4.1 Classification of inspections. The following types of inspection shall be conducted for this item:

a. First article inspection

b. Conformance inspection

4.2 First article inspection. When specified a sample of the M74A1 and its components and sub assemblies shall be subjected to first article inspection in accordance with Table II.

4.2.1 Inspections to be performed. The first article inspection shall be 100% examination of all drawing characteristics (listed and unlisted) including workmanship requirements for the parts and assemblies listed and the tests specified in Table II herein. (See 6.11.1)

4.2.2 Rejection. The first article sample shall be rejected if any of the inspections/tests in Table II are not acceptable. (See 6.11.2)

TABLE II. First Article Inspection.

Examination or Test	No. of Sample Units	Requirement Paragraph	Paragraph Reference/ Inspection Method
Black powder MIL-P-00223 Examination for defects	4.4.1	3.2.1	4.3.2.1
Flash powder (Dwg. 8848485) Examination for defects	4.4.3	3.2.2	4.3.2.2
Tube (Dwg. 8848484) Examination for defects	20	3.2.3	4.3.2.3
Wad (Dwg. 8848480) Examination for defects	20	3.2.4	4.3.2.4
Gas check washer (Dwg. 8848478) Examination for defects	20	3.2.5	4.3.2.5
Filler (Dwg. 8848479) Examination for defects	20	3.2.6	4.3.2.6
Impulse cartridge (Dwg. 12991624) Examination for defects	50	3.2.7	4.3.2.7
Body (Dwg. 12991625) Examination for defects	50	3.2.8	4.3.2.8
Closure disc (Dwg. 12991626) Examination for defects	50	3.2.9	4.3.2.9
Closure washer (Dwg. 12991627) Examination for defects	50	3.2.10	4.3.2.10
Fuze housing (Dwg 12977376) Examination for defects	50	3.2.11	4.3.2.11
Fuze assembly (Dwg. 12977377) Examination for defects	50	3.2.12	4.3.2.12

TABLE II. First Article Inspection - Continued

Examination or Test	NO. of Sample Units	Requirement Paragraph	Paragraph Reference/ Inspection
Fuze assembly complete (Dwg. 12977377) Examination for defects	50	3.2.13	4.3.2.13
Closing disc (Dwg. 8848482) Examination for defects	20	3.2.14	4.3.2.14
Charge case (Dwg. 8848483) Examination for defects	20	3.2.15	4.3.2.15
Charge case loading assembly prior to crimping closing disc (Dwg. 8848485) Examination for defects	50	3.2.16	4.3.2.16
Charge case loading assembly after crimping closing disc (Dwg. 8848485) Examination for defects Fragmentation test Flash powder	50 20 4.4.3	3.2.17 3.3 3.2.2	4.3.2.17 4.3.2.17 4.3.2.2
Signal Case (Dwg. 12991623) Examination for defects	20	3.2.18	4.3.2.18
Top (Dwg. 8847473) Examination for defects	20	3.2.19	4.3.2.19
Simulator assembly prior to installing top (Dwg. 8848486) Examination for defects	50	3.2.20	4.3.2.20
Simulator assembly complete (Dwg. 8848486) Examination for defects Air leakage test Dynamic functioning test	50 50 50 (note 1)	3.2.21 3.6 3.4	4.3.2.21 4.3.2.21 4.3.2.21
Note 1: Above units must be functioned			

4.3 Conformance Inspection.

4.3.1 Inspection lot formation. Inspection lots shall comply with the lot formation provisions of MIL-STD-1916, Acceptance by tables. In addition, inspection lots of simulators shall contain:

a. Parts of one interfix number from one supplier.

b. Composition ingredients from not more than one lot from one supplier

c. Class V black powder from not more than one lot.

d. Class VII black powder from not more than one lot.

e. Percussion primers from one lot interfix number from one supplier

f. Flash composition and delay composition of one or more batches produced under continuous set of operating conditions, with each batch of the composition having been subjected to the same physical mixing process intended to make the batch homogeneous.

4.3.2 Classification of Characteristics.

a. Sampling Requirements. Where identified herein, conformance inspections shall be by classification of characteristics. Characteristics are classified in accordance with MIL-STD-1916. (See 6.10)

b. Conformance inspection. Conformance inspection shall be performed in accordance with paragraph 4.3.2.1 through 4.3.2.21.

c. Acceptance Criteria. The Inspection Quantities accept/reject criteria for sampling inspection shall be as specified in MIL-STD-1916 for the applicable level.

PARAGRAPH	TITLE				DRAWING NUMBER
4.3.2.1	Black Powder				12977377
					NEXT HIGHER ASSEMBLY
					8848485
Category	Examination or Test	No. of Sample Units	VL or 100%	Requirement Paragraph	Paragraph Reference/ Inspection Method
Critical	None defined				
Major					
101	Chemical composition incorrect	4.4.1		3.2.1	4.4.1
102	Moisture content too high or low	4.4.2		3.2.1	4.4.2
Minor	None defined				
Notes:					

PARAGRAPH	TITLE				DRAWING NUMBER
4.3.2.2	Flash Powder				8848485
					NEXT HIGHER ASSEMBLY
					8848486
Category	Examination or Test	No. of Sample Units	VL or 100%	Requirement Paragraph	Paragraph Reference/ Inspection Method
Critical	None defined				
Major					
101	Chemical composition incorrect	4.4.1		3.2.2	4.4.1
102	Moisture content too high or low	4.4.2		3.2.2	4.4.2
103	Composition not in accordance with drawing	4.4.3		3.2.2	4.4.3
Minor	None defined				
Notes:					

PARAGRAPH	TITLE				DRAWING NUMBER
4.3.2.3	Tube				8848484
					NEXT HIGHER ASSEMBLY 8848485
Category	Examination or Test	No. of Sample Units	VL or 100%	Requirement Paragraph	Paragraph Reference/ Inspection Method
Critical	None defined				
Major					
101	Failure of tube in axial compression	13 (note 1)		3.2.3	4.4.4.1
102	Failure of tube in diametrical compression	13 (note 1)		3.2.3	4.4.4.2
Minor	None Defined				
Notes: Note 1: Destructive Test					

PARAGRAPH	TITLE				DRAWING NUMBER
4.3.2.4	Wad				8848480
					NEXT HIGHER ASSEMBLY 8848486
Category	Examination or Test	No. of Sample Units	VL or 100%	Requirement Paragraph	Paragraph Reference/ Inspection Method
Critical	None defined				
Major					
101	Moisture content too high or low	4.4.2		3.2.4	4.4.2
Minor	None defined				
Notes:					

PARAGRAPH	TITLE				DRAWING NUMBER
4.3.2.5	Gas Check Washer				8848478
					NEXT HIGHER ASSEMBLY 8848486
Category	Examination or Test	No. of Sample Units	VL or 100%	Requirement Paragraph	Paragraph Reference/ Inspection Method
Critical	None defined				
Major					
101	Moisture too high or low	4.4.2		3.2.5	4.4.2
Minor	None defined				
Notes:					

PARAGRAPH	TITLE				DRAWING NUMBER
4.3.2.6	Filler				8848479
					NEXT HIGHER ASSEMBLY 8848486
Category	Examination or Test	No. of Sample Units	VL or 100%	Requirement Paragraph	Paragraph Reference/ Inspection Method
Critical	None defined				
Major					
101	Moisture content too high or low	4.4.2		3.2.6	4.4.2
Minor	None defined				
Notes:					

PARAGRAPH	TITLE				DRAWING NUMBER
					12991624
4.3.2.7	Impulse Cartridge				NEXT HIGHER ASSEMBLY
					8848486
Category	Examination or Test	No. of Sample Units	VL or 100%	Requirement Paragraph	Paragraph Reference/ Inspection Method
Critical					
1	Weight of propelling charge less than 0.500 grams		100% & VII	3.2.7.1	Balance (Note 1)
2	Primer above flush		100% & VII	3.2.7.2	Gage (Note 1)
Major					
101	Any part missing, insecure, or incorrectly assembled		IV	3.2.7	Visual/Manual
102	Crimp incomplete		IV	3.2.7	Visual
103	Height after crimp		IV	3.2.7	Gage
104	Weight of propelling charge greater than maximum or less than minimum		100%	3.2.7	Balance
105	Primer greater than max below flush		IV	3.2.7	Gage
106	Outer diameter greater than maximum after crimp		IV	3.2.7	Gage
Minor					
201	Evidence of poor workmanship		II	3.7	Visual
202	Marking misleading, illegible, or incorrect		II	3.7	Visual

Notes: Note 1: Gage shall be automated in accordance with MIL-A-70625

PARAGRAPH	TITLE				DRAWING NUMBER
4.3.2.8	Body				12991625
					NEXT HIGHER ASSEMBLY 12991624
Category	Examination or Test	No. of Sample Units	VL or 100%	Requirement Paragraph	Paragraph Reference/ Inspection Method
Critical	None Defined				
Major					
101	Diameter of flange		IV	3.2.8	Gage
102	Thickness of flange		IV	3.2.8	Gage
103	Overall length		IV	3.2.8	Gage
104	Distance from base to bottom of propellant chamber		IV	3.2.8	Gage
105	Length of crimping lip		IV	3.2.8	Gage
106	Length of angled portion of crimping lip		IV	3.2.8	Gage
107	Angle of crimping lip		IV	3.2.8	Gage
108	Outside diameter		IV	3.2.8	Gage
109	Inside diameter of propellant chamber		IV	3.2.8	Gage
110	Inside diameter of crimping lip		IV	3.2.8	Gage
111	Diameter of primer hole		IV	3.2.8	Gage
112	Depth of primer counterbore		IV	3.2.8	Gage
113	Diameter of primer counterbore		IV	3.2.8	Gage
114	Radius at bottom of primer counterbore		IV	3.2.8	Gage
Minor					
201	Evidence of poor workmanship		II	3.7	Visual
Notes:					

PARAGRAPH	TITLE				DRAWING NUMBER
4.3.2.9	Closure Disc				12991626 NEXT HIGHER ASSEMBLY 12991624
Category	Examination or Test	No. of Sample Units	VL or 100%	Requirement Paragraph	Paragraph Reference/ Inspection Method
Critical	None defined				
Major					
101	Diameter		IV	3.2.9	Gage
102	Thickness of disc		IV	3.2.9	Gage
103	Thickness of disc from bottom of groove to opposite face of disc		IV	3.2.9	Gage
Minor					
201	Evidence of poor workmanship		II	3.7	Visual
Notes:					

PARAGRAPH	TITLE				DRAWING NUMBER
4.3.2.10	Closure Washer				12991627 NEXT HIGHER ASSEMBLY 12991624
Category	Examination or Test	No. of Sample Units	VL or100%	Requirement Paragraph	Paragraph Reference/ Inspection Method
Critical	None defined				
Major					
101	Outer Diameter		IV	3.2.10	Gage
102	Inner Diameter		IV	3.2.10	Gage
103	Thickness		IV	3.2.10	Gage
104	Washer not free of burrs		IV	3.2.10	Manual
Minor					
201	Evidence of poor workmanship		II	3.7	Visual
Notes:					

PARAGRAPH 4.3.2.11	TITLE Fuze Housing				DRAWING NUMBER 12977376 / NEXT HIGHER ASSEMBLY 12977377
Category	Examination or Test	No. of Sample Units	VL or 100%	Requirement Paragraph	Paragraph Reference/ Inspection Method
Critical	None defined				
Major					
101	Flash hole missing or completely obstructed		IV	3.2.11	Visual
102	Pitch diameter of thread, min		IV	3.2.11	Gage
103	Major diameter of thread, min		IV	3.2.11	Gage
104	Diameter of flash hole		IV	3.2.11	Gage
Minor					
201	Evidence of poor workmanship		II	3.7	Visual
Notes:					

PARAGRAPH 4.3.2.12	TITLE Fuze Assembly				DRAWING NUMBER 12977377 / NEXT HIGHER ASSEMBLY 8848485
Category	Examination or Test	No. of Sample Units	VL or 100%	Requirement Paragraph	Paragraph Reference/ Inspection Method
Critical					
1	Charge above flush at either end		100% & VII	3.2.12.1	Visual
2	Fuze delay composition below 300 mg		100% & VII	3.2.12.2	Gage (NOTE 1)
3	Cracks on fuze assembly housing		100% & VII	3.2.12	Visual
Major					
101	Threads damaged		VI	3.2.12	Visual/Manual

PARAGRAPH	TITLE				DRAWING NUMBER
4.3.2.12	Fuze Assembly - Continued				12977377
					NEXT HIGHER ASSEMBLY 8848485
Category	Examination or Test	No. of Sample Units	VL or 100%	Requirement Paragraph	Paragraph Reference/ Inspection Method
	but not below 300 mg		100%	3.2.12.2	Gage
Minor 201	Evidence of poor workmanship		II	3.7	Visual
Note: Note 1: Gage shall be automated in accordance with MIL-A-70625					

PARAGRAPH	TITLE				DRAWING NUMBER
4.3.2.13	Fuze Assembly Complete				12977377
					NEXT HIGHER ASSEMBLY 8848485
Category	Examination or Test	No. of Sample Units	VL or 100%	Requirement Paragraph	Paragraph Reference/ Inspection Method
Critical 1	Fuze assembly empty or improperly loaded (voids, missing increments, inconsistent densities)		100% & VII	3.2.13	4.5.7
2	Cracks on fuze assembly housing		100% & VII	3.2.12.2	4.5.7
Major 101	No indication of cone at end of fuze assembly		100%	3.2.13	4.5.7
Minor 201	Evidence of poor workmanship		II	3.7	4.5.7
Notes:					

PARAGRAPH	TITLE				DRAWING NUMBER
4.3.2.14	Closing Disc				8848482 NEXT HIGHER ASSEMBLY 8848485
Category	Examination or Test	No. of Sample Units	VL or 100%	Requirement Paragraph	Paragraph Reference/ Inspection Method
Critical	None defined				
Major	None defined				
Minor					
201	Outside diameter		II	3.2.14	Gage
202	Length		II	3.2.14	Gage
203	Thickness		II	3.2.14	Gage
204	Evidence of poor workmanship		II	3.7	Visual
Notes:					

PARAGRAPH	TITLE				DRAWING NUMBER
4.3.2.15	Charge Case				8848483 NEXT HIGHER ASSEMBLY 8848485
Category	Examination or Test	No. of Sample Units	VL or 100%	Requirement Paragraph	Paragraph Reference/ Inspection Method
Critical	None defined				
Major					
101	Outside diameter, max		IV	3.2.15	Gage
102	Pitch diameter of thread, max		IV	3.2.15	Gage
103	Minor diameter of thread, max		IV	3.2.15	Gage

PARAGRAPH	TITLE				DRAWING NUMBER
4.3.2.15	Charge Case - Continued				8848483
					NEXT HIGHER ASSEMBLY 8848485
Category	Examination or Test	No. of Sample Units	VL or 100%	Requirement Paragraph	Paragraph Reference/ Inspection Method
Minor					
201	Inside diameter, max.		II	3.2.15	Gage
202	Thickness through bottom, min.		II	3.2.15	Gage
203	Evidence of poor workmanship		II	3.7	Visual
Notes:					

PARAGRAPH	TITLE				DRAWING NUMBER
4.3.2.16	Charge Case Loading Assembly Prior to Crimping Closing Disc				8848485
					NEXT HIGHER ASSEMBLY 8848486
Category	Examination or Test	No. of Sample Units	VL or 100%	Requirement Paragraph	Paragraph Reference/ Inspection Method
Critical	None defined				
Major					
101	Any component missing		IV	3.2.16	Visual
102	Fuze assembly loose or not fully seated		IV	3.2.16	Manual
103	Petman Cement missing from fuze thread (not 360 degrees)	note (a)		3.2.16	Visual
Minor					
201	Evidence of poor workmanship		II	3.7	Visual
Notes: Note 1: For every hour of production, randomly select a sample of 15 units for inspection. Any evidence of noncompliance with the applicable requirement shall cause that hour's production to be 100% inspected and defective units shall be removed from the lot.					

PARAGRAPH	TITLE				DRAWING NUMBER
					8848485
4.3.2.17	Charge Case Loading Assembly After Crimping Closing Disc				NEXT HIGHER ASSEMBLY
					8848486
Category	Examination or Test	No. of Sample Units	VL or 100%	Requirement Paragraph	Paragraph Reference/ Inspection Method
Critical					
1	Fragmentation	20		3.3	4.4.5
Major					
101	Crimp of charge case not flat against closing disc at any point around disc		IV	3.2.17	Visual
102	Cement seal of crimp missing		IV	3.2.17	Visual
Minor					
201	Evidence of poor workmanship		II	3.7	Visual
Notes:					

PARAGRAPH	TITLE				DRAWING NUMBER
					12991623
4.3.2.18	Signal Case				NEXT HIGHER ASSEMBLY
					8848486
Category	Examination or Test	No. of Sample Units	VL or 100%	Requirement Paragraph	Paragraph Reference/ Inspection Method
Critical	None defined				
Major					
101	Diameter of impulse cartridge hole, max		IV	3.2.18	Gage
102	Depth of impulse cartridge counterbore, max		IV	3.2.18	Gage
103	Inside diameter, max		IV	3.2.18	Gage
104	Outside diameter, min		IV	3.2.18	Gage

PARAGRAPH 4.3.2.18	TITLE Signal Case- Continued				DRAWING NUMBER 12991623 / NEXT HIGHER ASSEMBLY 8848486
Category	Examination or Test	No. of Sample Units	VL or 100%	Requirement Paragraph	Paragraph Reference/ Inspection Method
Minor					
201	Diameter of flange		II	3.2.18	Gage
202	Angle of flange		II	3.2.18	Gage
203	Thickness of Base		II	3.2.18	Gage
204	Radii missing		II	3.2.18	Visual
205	Finish improper		II	3.2.18	Visual
206	Evidence of poor workmanship		II	3.7	Visual
Notes:					

PARAGRAPH 4.3.2.19	TITLE Top				DRAWING NUMBER 8847473 / NEXT HIGHER ASSEMBLY 8848486
Category	Examination or Test	No. of Sample Units	VL or 100%	Requirement Paragraph	Paragraph Reference/ Inspection Method
Critical	None defined				
Major					
101	Crack or split		IV	3.2.19	Visual
Minor					
201	Thickness		II	3.2.19	Gage
202	Outside diameter of datum height		II	3.2.19	Gage
203	Protrusion of side above bottom		II	3.2.19	Gage
204	Length of side		II	3.2.19	Gage
205	Bare spot in protective coating or coating missing		II	3.2.19	Visual
206	Evidence of poor workmanship		II	3.7	Visual
Notes:					

PARAGRAPH	TITLE				DRAWING NUMBER
4.3.2.20	Simulator Assembly Prior to Installing Top				8848486 NEXT HIGHER ASSEMBLY ---
Category	Examination or Test	No. of Sample Units	VL or 100%	Requirement Paragraph	Paragraph Reference/Inspection Method
Critical	None defined				
Major					
101	Wad or gas check washer missing		IV	3.2.20	Visual
102	Any component missing		IV	3.2.20	Visual
103	Crack or split in any metal parts		IV	3.2.20	Visual
Minor					
201	Charge case assembly bound		II	3.2.20	Visual
202	Evidence of poor workmanship		II	3.7	Visual
Notes:					

PARAGRAPH	TITLE				DRAWING NUMBER
4.3.2.21	Simulator Assembly Complete				8848486 NEXT HIGHER ASSEMBLY ---
Category	Examination or Test	No. of Sample Units	VL or 100%	Requirement Paragraph	Paragraph Reference/ Inspection Method
Critical					
1	Fuze assembly missing or not completed seated		100% & VII	3.2.21	4.5.7
2	Charge in impulse cartridge missing or below minimum		100% & VII	3.2.21	4.5.7
3, 4 & 5	Functioning (note 1)		4.4.6	3.4	4.5.5
Major					
101	Fuze assembly obviously deviated from normal		100%	3.2.21	4.5.7
102	Wad or gas check washer missing		100%	3.2.21	4.5.7
103	Evidence of foreign material or any obvious workmanship defects		100%	3.2.21	4.5.7
104	Charge case empty		100%	3.2.21	4.5.7
105	Top insecure or not fully seated		IV	3.2.21	Manual
106	Impulse cartridge above flush or greater than max below flush		IV	3.2.21	Gage
107	Length, max		IV	3.2.21	Gage
108	Protective coating missing or incomplete		IV	3.2.21	Visual
109	Sealing compound missing on top		IV	3.2.21	Visual
110	Marking misleading, illegible or incorrect		IV	3.2.21	Visual
111, 112 & 113	Functioning (note 1)		4.4.6	3.4	4.5.5
114	Chamber Gage		100%	3.2.21	4.5.8
115	Air leakage test		100%	3.6	4.5.6
Minor					
201	Functioning (note 1)		4.4.6	3.4	4.5.5
202	Evidence of poor workmanship		II	3.7	Visual
Notes: Note 1: See table IV for details on functioning defects					

4.4 Examination.

4.4.1 Chemical Sampling. Representative samples shall be tested in accordance with ASTM E 300 procedure for solids.

4.4.2 Moisture determination. Moisture determinations shall be performed on the components specified in Table III. Adequate controls shall be provided to assure that the requirements are met. For verification, one sample of each material from each eight (8) hours of production shall be selected, and subjected to test. A composite sample shall not be used. If the moisture content of the sample exceeds the requirement, that quantity or sub-lot of material represented by the sample shall not be used in production. If the quantity of material or sub-lot with excessive moisture has been used in loading and packing, the remaining unloaded and unpacked material shall not be used in production, and the loaded and packed simulators shall be rejected. Test shall be performed as specified in 4.5.1.

TABLE III. Moisture Determination.

Components	Requirement Paragraph	Test Method Paragraph
Black powder	3.2.1	4.5.1.2
Flash powder	3.2.2	4.5.1.1
Felt and Chipboard	3.2.4 - 3.2.6	4.5.1.3

4.4.3 Determination of flash powder composition. A sample of flash powder, drawing 8848485, of not less than 5 grams shall be selected from each batch for test in accordance with 4.5.2, using the procedure given in ASTM E300 for solids. If the sample fails to comply with the requirement specified, the batch shall be rejected. Failure of a batch shall be considered a major defect.

4.4.4 Compressive tube strength. Twenty six (26) tubes total from each lot shall be tested in axial and diametrical directions to ensure the tube shall not interfere with the rupture of the charge case assembly in functioning. Failure to comply with requirements on drawing 8848484 shall be considered a major defect.

4.4.4.1 Axial. Thirteen (13) tubes shall be selected randomly from each lot for test. If one or more tubes fail to comply with the requirement, the lot shall be rejected. The test shall be performed as specified in 4.5.3.1. (Destructive test)

4.4.4.2 Diametrical. Thirteen (13) Tubes shall be selected randomly from each lot for test. If one or more tubes fail to comply with the requirement, the lot shall be rejected. The test shall be performed as specified in 4.5.3.2. (Destructive test)

4.4.5 Fragmentation. Twenty (20) loaded charge case assemblies shall be selected from each lot and subjected to static functioning in accordance with the method specified

in 4.5.4. If any charge case assembly fails to comply with drawing 8848485, it shall be considered a critical defect and the lot shall be rejected. (Destructive test)

4.4.6 Dynamic functioning.

4.4.6.1 Normal sampling. Beginning with the first lot produced and continuing until three numerically consecutive lots have been complied with the applicable requirements specified, two hundred (200) simulator assemblies shall be selected from each lot for testing. The lot shall be rejected if, during the test, a critical defect occurs or if five (5) or more assemblies exhibit any of the remaining major defects listed in Table IV. The lot shall also be rejected if the total of minor and major defects equal six (6) or more when tested in accordance with 4.5.5. (Destructive test) Resubmitted lots shall not be used to meet the criteria of "numerically consecutive lots".

TABLE IV. Functioning Defects

Requirement	Classification	Defect
3.4.1	Major	Case Failure
3.4.2	Major	Charge case assembly fails to burst high order
3.4.3	Critical	Charge Case Assembly bursts in less than 1.8 seconds or more than 3.4 seconds
3.4.3	Major	Charge case assembly bursts in less than 2.0 seconds but not less than 1.8 seconds, or bursts in more than 3.2 seconds but not more than 3.4 seconds
3.4.3	Minor	Charge case assembly bursts in less than 2.2 seconds but not less than 2.0 seconds, or bursts in more than 3.0 seconds but not more than 3.2 seconds
3.4.4	Critical	Charge case assembly fails to expel within 150 milliseconds upon functioning of the primer
3.4.5	Critical	Horizontal Distance less than 100 feet or altitude less than 50 feet
3.4.6	Major	Primer fails to function
NOTE: If sound is used in the measurement of functioning time, the time required for the sound to travel from the source to the measuring device must be considered.		

4.4.6.2 Reduced sampling plan. After three successful, numerically consecutive lots have been complied with the criteria of 4.4.6.1, eighty (80) assemblies shall be selected from each lot for test. The lot shall be rejected if, during the test, a critical defect occurs or if three (3) or more assemblies exhibit any of the remaining major defects as listed in Table IV. The lot shall also be rejected if the total of minor and major defects equal four (4) or more when tested in accordance with 4.5.5. (Destructive test) Resubmitted lots shall not be used to meet the criteria of "numerically consecutive lots".

4.4.6.3 Reduced to normal sampling plan. When one lot has been rejected or withheld after being compiled in accordance with 4.4.6.2, the sample size shall be

increased to two hundred (200) simulator assemblies and tested in accordance with 4.4.6.1.

4.4.6.4 Normal to reduced sampling plan. When normal sampling is in effect (see 4.4.6.3), reduced sampling may be resumed when the root cause of the nonconformance requiring normal sampling has been corrected and three (3) numerically consecutive lots have been accepted. Resubmitted lots shall not be used to meet the criteria of "numerically consecutive lots".

4.4.7 Primer deterioration. A sample of 315 primers shall be selected at random from each lot. If four (4) or more primers fail to function, the lot shall be rejected. If more than one defect is found, a second sample of 315 shall be selected at random and tested. If in the combined first and second sample a total of five (5) or more defects are found the lot shall be rejected. The test shall be performed as specified in the applicable primer specification.

4.4.8 Air leakage. This test shall be performed 100 percent in accordance with the procedure specified in 4.5.6. All assemblies that fail to comply with the requirement shall be classed as a major defect and removed from the lot. (Non-destructive test)

4.4.9 Radiographic examination. This test shall be performed 100 percent and at level VII verification in accordance with the procedures specified in 4.5.7. (Non-destructive test) Radiographic equipment procedures and evaluation shall be in accordance with ASTM E 1742. Radiographic personnel shall be qualified in accordance with NAS 410. Automated radiographic equipment and procedures shall be used to the maximum extent possible.

4.5 Methods of inspection.

4.5.1 Moisture content. The test given in this paragraph and in 4.5.2 shall be performed with prescribed procedures for replicate determinations given in standard analytical chemistry textbooks.

4.5.1.1 Black powder. Determine the moisture content of the black powder using Method 102.2 given in MIL-STD-1234 except that a heating temperature of 70 ± 2°C shall be used.

4.5.1.2 Flash powder. Determine the moisture content of the flash powder using Method 102.1 given in MIL-STD-1234 except that a heating temperature of 70 ± 2°C shall be used.

4.5.1.3 Felt and chipboard. Accurately weigh (to the nearest 0.001 gram) approximately a 10 gram portion of the sample and quantitatively transfer to a tared weighing dish. Determine the moisture content of the felt and chipboard in accordance with Method 102.1 given in MIL-STD-1234.

4.5.2 Determination of flash powder ingredients. (Black Powder, Aluminum Powder) (see 4.5.1 for replicate determinations and 6.6 for equivalent test methods) Transfer an accurately weighed portion of approximately 2 grams of the flash powder that was dried for the moisture determination to a tared crucible. Wash the sample between 10 and 15 times with 5 milliliter (mL) portions of cold carbon disulfide and rinse with ether. Continue washing the sample with fifteen, 20 mL portions of cold distilled water, allowing each wash of the water to remain in contact with the sample approximately 1 minute before applying suction. Aspirate the crucible and contents thoroughly, and dry in an oven maintained at a temperature of 100 + 5°C. The crucible and contents shall be cooled in a desiccator and weighed. To the contents remaining in the crucible add several portions of hot, dilute hydrochloric acid until the reaction subsides. After all reaction has ceased, wash the residue with several portions of hot water. Dry the crucible and contents in the 100 + 5°C oven and then cool in a desiccator and weigh. Calculate the percent of aluminum as follows:

$$\text{Percent aluminum} = \frac{(A - B) \quad 100}{W}$$

where:

A = weight of crucible and contents after the carbon disulfide and water extraction, in grams.
B = weight of crucible and contents after the acid extraction, in grams.
W = Weight of the sample, in grams.

Determine the percentage of black powder by subtracting the percentage of aluminum from 100.0 percent.

When blending is accomplished in individual charge cases, the adequacy of the composition may be determined by emptying one or more of the partially mixed charges from the charge cases before they have been closed, blending the ingredients and performing an analysis on the sample of the mixture.

4.5.3 Tube strength.

4.5.3.1. Axial. The tubes shall be tested in accordance with ASTM D 695 except that the length of the tubes shall be in accordance with the length dimension on Drawing 8848484. The load shall be applied perpendicularly to the ends of the tube. Observation shall be made for compliance with the requirement on drawing 8848484.

4.5.3.2 Diametrical. The test method and the length of the tubes shall be as specified in 4.5.3.1. The load shall be applied by parallel flat plates in a direction perpendicular to the axis of the tubes. Spherical seats are not required. Observation shall be made for compliance with the requirement on drawing 8848484.

4.5.4 Fragmentation. The charge case assemblies shall be suspended by means of a cord or thread at least one (1) meter from any solid object. They shall be functioned

through the fuze assembly by means of an electric match or squib. An alternate method of initiating the charge may be used as follows: A strand of quickmatch shall be wrapped around the igniting hole in the fuze assembly and secured in place, leaving approximately five (5) centimeters of one end of the strand free. An electric match or squib shall be used to ignite the free end of the quickmatch which shall in turn ignite the fuze as intended. With either ignition method, if an assembly fails to ignite, wait for a safe period of time and attempt ignition a second time. In the event that the item fails to function after the second ignition trial, substitution of that item shall be permitted. The substituted item is permitted two attempts at ignition before it is deemed a failure. Therefore, a total of four attempts at ignition on two charge cases are permitted before the data point is considered a failure. In no case shall more than one (1) substitution be permitted for any one item. Testing must be done in an enclosure designed to permit the escape of the blast pressure yet retain most of the metal or tube pieces. Observation shall be made to determine compliance with the requirement on drawing 8848483. Damaged enclosure that may pass non-fragmented parts of the charge case must be repaired prior to testing.

4.5.5 Dynamic functioning. The simulators shall be immersed in water at 21 ± 5°C for a minimum of two (2) hours to a depth of fifteen (15) to twenty three (23) centimeters. The simulators shall be removed from the water and the exterior surfaces wiped dry. Within one (1) hour after removal from the water, the simulators shall be fired at an approximate 45 degree angle of elevation from an M8 pyrotechnic pistol that has been mounted in a suitable fixture set up on the ground. Any simulator not fired within one (1) hour shall be reconditioned in the two (2) hour water immersion.

4.5.6 Air leakage. The simulator assembly shall be placed in a cylindrical, air tight chamber with the free space minimized. The air pressure within the chamber shall be raised to a minimum of 155 mmHg by means of a fixed volume of air. With the air supply shut off the pressure shall be maintained for a minimum of 15 seconds. An accurate measuring instrument shall be observed for evidence of simulator leakage.

4.5.7 Radiographic examination. For the end items, one (1) exposure shall be made of each simulator oriented in the vertical position (primer end down) using a horizontal X-ray beam. The beam shall be aligned with the inner shoulders of the signal case. For the fuze assemblies, one (1) exposure shall be made of each assembly. The units (end items and fuze assemblies) shall be radiographically inspected and compared to radiographic standards for detection of defects in accordance with 4.4.9. Any end item or fuze assembly deemed unacceptable shall be removed from the lot.

4.5.7.1 Radiographic standards. Radiographic standards shall be made out of live materials and show the following conditions: (see 6.3)

For end items:

a. One (1) acceptable simulator (showing full amount of propellant, full delay column and correct overall assembly).

b. One (1) unacceptable simulator showing no propellant.

c. One (1) unacceptable simulator showing an empty charge case.

d. One (1) unacceptable simulator showing damaged threads.

e. One (1) unacceptable simulator showing no wad.

f. One (1) unacceptable simulator showing no gas check washer.

g. One (1) unacceptable simulator showing no wad and no gas check washer.

h. One (1) unacceptable simulator showing the minimum amount of propellant required. The contractor shall prepare a gage of the height of that minimum amount of propellant and shall use it to inspect for compliance with applicable requirement.

For the fuze assemblies:

a. One (1) acceptable fuze assembly correctly assembled (full delay column with cone and showing no missing increments as evidenced by voids or X ray density changes).

b. One (1) unacceptable empty fuze assembly.

c. One (1) unacceptable partially loaded fuze assembly (i.e. missing increments as evidenced by voids or X-ray density
changes).

d. One (1) unacceptable fuze assembly showing damaged threads.

4.5.7.2 Radiographic sensitivity. For the end items, the radiographs shall show as a minimum the entire outline of both the fuze threads and the internal diameter of the fuze tube. For the fuze assemblies, the radiographs shall show as a minimum the entire outline of: the fuze threads, the internal diameters of the fuze tube and the ignition hole. The minimum optical density of the radiograph in the areas being inspected shall not be less than 1.25 and shall be within a density range that shall permit proper identification of defects.

4.5.8 Chamber gaging. The completed assembly shall be inspected using a chamber gage having the dimensions as listed in drawing 8848486. It shall freely enter the chamber gage and, when fully seated on the 45 degree rim of the case, all surfaces on the rear face, except for the impulse cartridge, shall extend only within the range noted on drawing 8848486.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the military service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The components covered by this specification are intended for use on the M74A1 Projectile Simulator. This is military unique.

6.2 Ordering data. Procurement documents should specify the following:

a. Title, number and date of this specification
b. Provisions for submission of first article samples
c. Provisions of MIL-STD-1916
d. Provisions should be made establishing a system to effectively trace unacceptable units for removal from the lot in regards to 4.5.7 Radiographic examination.
e. For packaging, packing and marking see drawings 8836949, 3139703, 8836950, 2128267 and 13019195.
f. See 6.11

6.3 Submission of Inspection Equipment for Design Approval. (see MIL-STD-1916). Submit equipment designs as required to Commander, ARDEC, ATTN: AMSRD-AAR-QEM-B, Picatinny, NJ 07806.

6.4 Distribution of ammunition data cards. Distribution of data cards will include the following: Commander ARDEC, U.S. Army, ATTN: AMSRD-AAR-QEM-B, Picatinny, NJ 07806-5000.

6.5 Dynamic Functioning test summary.

Test	Production Lots			Requirements
	First Article	Normal	Reduced	
Functioning	50	200	80	See 3.4 and Table IV

6.6 Equivalent test methods. The test methods given in this specification are the official methods to be used. The contractor may request using other methods providing that the proposed method is equivalent (accuracy and precision) to the method given in this specification. Prior approval of the Contracting Officer is required for use of the equivalent test methods. A description of the proposed method should be submitted through the Contracting Officer. This description should include, but not be limited to, the procedures used, the accuracy and precision of the method, test data to demonstrate the accuracy and precision and drawings of any special equipment required.

6.7 Definition of full crimp. A full crimp is defined as 360 degrees of intimate contact by metal deformation of the impulse cartridge around the outside circumference of the closure washer, overlapping to the top surface. Additionally, the closure washer and closure disc should sit securely due to the crimp.

6.8 Cylindrical portion. The cylindrical portion of the charge case is defined as the charge case without the fuze or top pieces of the charge case assembly.

6.9 Precaution. This specification involves sampling and testing of toxic and hazardous materials. Accordingly, it is emphasized that all applicable safety rules, regulations and safe procedures must be followed in handling and processing the materials.

6.10 Justification of critical defects.

6.10.1 Propelling charge weight. (Paragraph 4.3.2.7, Critical 1) If the propelling charge weight is insufficient, the charge case will not eject from the flare gun, or will not eject sufficiently far enough to preclude the operator from severe injury, including the loss of a hand.

6.10.2 Primer above flush in impulse cartridge. (Paragraph 4.3.2.7, Critical 2) If the primer is above flush in the impulse cartridge, accidental ignition could occur in handling, potentially providing a hazard to operators or nearby personnel.

6.10.3 Charge above flush in fuze assembly. (Paragraph 4.3.2.12, Critical 1) If the charge is above flush in the fuze assembly, the weight of the charge in inspection will be greater than that which is truly functioning. This could lead to short fuze times which may not burn for a sufficient amount of time to have the projectile launched a safe distance away from the user.

6.10.4 Fuze delay composition weight. (Paragraph 4.3.2.12, Critical 2) If the Fuze delay composition weight is insufficient, it is an indicator that the fuze will not burn for a sufficient amount of time to have the projectile launched a safe distance away from the user.

6.10.5 Cracks on fuze assembly housing. (Paragraph 4.3.2.12, Critical 3 and Paragraph 4.3.2.13, Critical 2) If the fuze assembly housing is cracked, the flame has an

opportunity to propagate to the composition in the charge case, resulting in pre-mature initiation, potentially in the barrel causing damage to the pistol and the operator.

6.10.6 Fuze assembly empty or improperly loaded. (Paragraph 4.3.2.13, Critical 1) If the fuze assembly is empty or improperly loaded, the charge case has the capability of igniting while still in the barrel of the AN-M8 causing damage to both the pistol and the operator.

6.10.7 Fragmentation. (Paragraph 4.3.2.17, Critical 1) If the charge case does not fragment into multiple pieces, and only one end of the cylinder blows off at time of burst, the cylindrical portion can become a “rocket” with a much higher velocity behind a heavier object, causing the safety danger zone to increase and cause potential danger to nearby personnel.

6.10.8 Fuze assembly missing or not seated. (Paragraph 4.3.2.21, Critical 1) If the fuze assembly is missing or not seated, immediate ignition of the charge case can occur, which would result in the burst occurring while still in the barrel of the AN-M8 causing damage to both the pistol and the operator.

6.10.9 Charge in impulse cartridge. (Paragraph 4.3.2.21, Critical 2) If the charge in the impulse cartridge is missing or insufficient, the charge case may not be expelled from the barrel of the AN-M8 causing damage to both the pistol and the operator.

6.10.10 Charge case assembly burst time. (Paragraph 4.3.2.21, Critical 3 explained in Table IV, Requirement 3.4.3) If the charge case assembly burst time is insufficient or excessive, the height of the charge case at time of burst may be within a dangerous proximity of the soldiers training beneath it. This could also cause hazard to the personnel using the simulator.

6.10.11 Charge case expulsion time. (Paragraph 4.3.2.21, Critical 4 explained in Table IV, Requirement 3.4.4) If the charge case expulsion time is insufficient, it indicates that the charge case may be lodged or hooked on to something and the charge case may either burst inside the barrel of the AN-M8 causing damage to both the pistol and the operator or burst within a dangerous proximity of the soldiers training beneath it causing hazard to the personnel.

6.10.12 Charge case distance and altitude. (Paragraph 4.3.2.21, Critical 5 explained in Table IV, Requirement 3.4.5) If the charge case trajectory does not result in the burst occurring a sufficient distance away from the operator and a sufficient altitude above the ground, the burst will be within a dangerous proximity of the soldiers training beneath it causing hazard to the personnel.

6.11 First Article Inspection.

6.11.1 Inspections to be performed. First article assemblies, components and test specimens may be subjected by the Government to any or all of the examinations and

tests specified in the item detail specification and to any or all requirements of the applicable drawings.

6.11.2 Rejection. If any assembly, component or test specimen fails to comply with any of the applicable requirements, the first article sample may be rejected. The Government reserves the right to terminate its inspection upon any failure of an assembly, component, or test specimen in the sample to comply with any of the stated requirements.

6.12 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

6.13 Keywords.
Black powder
Fragmentation
Fuze

Custodian:
Army – AR

Preparing activity:
Army – AR
(Project 1370-2010-004)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at https://assist.daps.dla.mil.