

MIL-S-20517H (AR)
4 January 1984

SUPERSEDING
MIL-S-20517G(PA)
16 June 1976

MILITARY SPECIFICATION

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

The specification is approved for use by the U.S. Army Armament, Munitions and Chemical Command, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 scope. This specification contains requirements not covered by the drawings and provides quality assurance provisions for the fabrication of parts, assembly and packing of one type of flash and sound simulator designated as Simulator, projectile, Air Burst, M74A1.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. Unless otherwise specified (see 6.2), the following specifications and standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation, form a part of this specification to the extent specified herein.

SPECIFICATIONS

MILITARY

MIL-A-48078 - Ammunition, Standard Quality Assurance Provisions, General Specification For

STANDARDS

FEDERAL

FED-STD-406 - Plastic, Method of Testing

FSC 1370

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, US Army Armament Research and Development Center, Attn. DRSMC-QA, Dover, New Jersey 07801 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-1234 - Pyrotechnics: Sampling Inspection and Testing

2.1.2 Other Government documents, drawings, and publications.
The following other Government documents, drawings, and publications form a part of this specification to the extent specified herein.

DRAWINGS

US ARMY ARMAMENT RESEARCH AND DEVELOPMENT CENTER (ARDC)

- 8848486 - Simulator, Projectile, Air-Burst, M74A1 Assembly
- 8836949 - Box, Fiberboard, Packing for Signals, Illum., Aircraft and Simulator Projectile, Air-Burst
- 8836950 - Box, Packing, Ammunition for Signals, Illum., Aircraft and Simulator, Projectile, Air Burst
- 3139703 - Package, Shipping and Storage (For 15 Simulator, Projectile, Air-Burst, M74/T50 or M74A1)
- 2128267 - Pack, Shipping and Storage For 30 Simulator, Projectile, Air-Burst M74/T50 or M74A1)

AMERICAN SOCIETY FOR TESTING AND MATERIALS

- ASTM Designation E300 - Industrial Chemicals, Recommended Practice for Sampling
- ASTM D2905 - Statement on Number of Specimens Required to Determine the Average Quality of a Textile Material

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Penn. 19103).

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(Copies of specifications, standards, handbooks, drawings, and publications required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

2.1.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

3. REQUIREMENTS

3.1 Material. Materials and parts shall be in accordance with applicable drawings and specifications.

3.2 Assembly. The assembly shall comply with all requirements specified on Drawing (dwg.) 8848486 and with all requirements specified in applicable specifications.

3.3 Moisture content.

3.3.1 Flash charge. The moisture content of the flash charge at the time of loading the simulator assemblies shall not exceed 0.3 percent.

3.3.2 Fuze powder. The moisture content of the fuze powder at the loading station at the time of loading the fuze assemblies shall not exceed 0.3 percent.

3.3.3 Delay composition. The moisture content of the delay composition at the loading station at the time of loading the fuze assemblies shall not exceed 0.12 percent.

3.3.4 Black powder. The moisture content of the black powder at the time of loading the simulator assemblies shall not exceed 0.3 percent.

3.3.5 Felt and chipboard. The moisture content of the felt and chipboard at the time of loading the simulator assemblies shall not exceed 6.0 percent.

3.4 Functioning. The simulator assembly shall function 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.

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

3.4.4 Horizontal distance and altitude. The charge case assembly shall not burst at a horizontal distance of less than 100 feet from the pistol or at an altitude of less than 50 feet.

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

3.5 Air leakage test. The simulator shall show no evidence of leakage.

3.6 First article inspection. This specification contains technical provisions for first article inspection. Requirements for the submission of first article samples by the contractor shall be as specified in the contract.

3.7 Workmanship. All parts shall be fabricated and finished in a thorough workmanlike manner, and 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, oil, corrosion products and other foreign matter. The cleaning method used shall not be injurious to any parts or assembly, nor shall the parts 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, legible and sharply defined. Required packing shall be dry.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection and standard quality assurance provisions. Unless otherwise specified herein or in the contract, the provisions of MIL-A-48078 shall apply and are hereby made a part of this detail specification.

4.2 Classification of inspections. The following types of inspection shall be conducted on this item:

- a. First Article Inspection
- b. Quality Conformance Inspection

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4.3 First article inspection,

4.3.1 Submission. The contractor shall submit a first article sample as designated by the Contracting Officer for evaluation in accordance with provisions of 4.3.2. The first article sample shall consist of the following items in sample quantities as indicated.

4.3.2 Inspections to be performed. See MIL-A-48078, 4.4.2.1 through 4.4.2.12 and Table I specified herein.

4.3.3 Rejection. See MIL-A-48078.

TABLE I. First article inspection

CLASSIFICATION OF DEFECTS & TESTS

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PARAGRAPH	TITLE	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	SHEET 1 OF 4		DRAWING NUMBER
				AQL OR 100%	REQUIREMENT PARAGRAPH	
CATEGORY						See Below NEXT HIGHER ASSEMBLY
						PARAGRAPH REFERENCE / INSPECTION METHOD
	Simulator, Projectile, Air Burst M74A1 Metal Parts and Assemblies					
	<u>Case Charge</u> (Dwg. 8848483) Examination for defects		20		3.2	4.4.2.1
	<u>Fuze Housing</u> (Dwg. 8848475) Examination for defects		20		3.2	4.4.2.2
	<u>Case, Signal</u> (Dwg. 8847475) Examination for defects		20		3.2	4.4.2.3
	<u>TOP</u> (Dwg. 8847473) Examination for defects		20		3.2	4.4.2.4
	<u>Fuze Assembly (Prior to Drilling Ignition Charge Hole)</u> (Dwg. 8848477) Examination for defects		20		3.2	4.4.2.5

NOTES:

DRSMC-0A (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

TABLE I. First article inspection

CLASSIFICATION OF DEFECTS & TESTS

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PARAGRAPH	TITLE	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	SHEET		DRAWING NUMBER
				2	4	
CATEGORY				AQL OR 100%	REQUIREMENT PARAGRAPH	See Below NEXT HIGHER ASSEMBLY
						PARAGRAPH REFERENCE / INSPECTION METHOD
	Simulator, Projectile, Air Burst M74A1 Metal Parts and Assemblies					
	<u>Fuze Assembly</u> (Dwg. 8848477) Examination for defects		20		3.2	4.4.2.6
	<u>Closing Disc</u> (Dwg. 8848482) Examination for defects		20		3.2	4.4.2.7
	<u>Charge Case Loading Assembly (Prior to Crimping Closing Disc)</u> (Dwg. 8848485) Examination for defects		20		3.2	4.4.2.8
	<u>Charge Case Loading Assembly (After Crimping Closing Disc)</u> (Dwg. 8848485) Examination for defects Functional test Flash powder		20 20 4.4.3.3.1		3.2 3.2 3.2	4.4.2.9 4.5.4 4.5.3.2

NOTE:

DRSMC-0A (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

TABLE I. First article inspection

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CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH	TITLE	SHEET		NO. OF SAMPLE UNITS	EXAMINATION OR TEST	AQL OR 100%	REQUIREMENT PARAGRAPH	DRAWING NUMBER
		3	4 OF					
	Simulator, Projectile, Air Burst M74A1 Metal Parts and Assemblies							See Below NEXT HIGHER ASSEMBLY
CATEGORY								PARAGRAPH REFERENCE /INSPECTION METHOD
	Assembly (Prior to Assembling Charge Case Loading Assembly) (Dwg. 8848486) Examination for defects		3.2	20				4.4.2.10
	Assembly (Dwg. 8848486) Examination for defects Air leakage test Functioning test		3.2 3.5 3.4	50 50 50a				4.4.2.11 4.5.7 4.5.5
	Box, Fiberboard (Prior to Sealing) (Dwg. 8836949) Examination for defects		3.2	20				4.4.2.12
	Sealed Box, Fiberboard (Dwg. 8836949) Examination for defects		3.2	20				4.4.2.13
	Sealed Packed Barrier Bag (Prior to Packing in Wood Box) (Dwg. 8836949) Examination for defects		3.2	20				4.4.2.14
NOTES	(a) Above units to be functioned.							

DRSMC-0A (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

TABLE I. First article inspection**CLASSIFICATION OF DEFECTS & TESTS**

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PARAGRAPH	TITLE	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	SHEET 4 OF 4		DRAWING NUMBER
				AQL OR 100%	REQUIREMENT PARAGRAPH	
	Simulator, Projectile, Air Burst M74A1 Metal Parts and Assemblies					See Below NEXT HIGHER ASSEMBLY
CATEGORY						PARAGRAPH REFERENCE / INSPECTION METHOD
	<u>Wood Packing Box (Prior to Sealing)</u> (Dwg. 8836950) Examination for defects		20		3.2	4.4.2.15
	<u>Sealed Wood Packing Box</u> (Dwg. 8836950) Examination for defects		20		3.2	4.4.2.16
	<u>Packing, Shipping and Storage (Prior to Closing)</u> (Dwg. 3139703) Examination for defects		20		3.2	4.4.2.17
	<u>Package, Shipping and Storage</u> (Dwg. 3139703) Examination for defects		20		3.2	4.4.2.18
	<u>Pack, Shipping and Storage (Prior to Closing)</u> (Dwg. 2128267) Examination for defects		20		3.2	4.4.2.19
	<u>Pack, Shipping and Storage</u> (Dwg. 2128267) Examination for defects		20		3.2	4.4.2.19

NOTE:

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4.4 Quality conformance inspection.

4.4.1 Inspection lot formation. Inspection lots shall comply with the lot formation provisions of MIL-A-48078. 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. Black powder from not more than one lot.
- d. Fuze 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.

4.4.2 Examination. (See MIL-A-48078). Unless otherwise specified in the classification of defects and test tables, sampling plans for major and minor defects shall be in accordance with MIL-STD-105, Inspection Level II.

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CLASSIFICATION OF DEFECTS & TESTS

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PARAGRAPH	TITLE	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	SHEET		DRAWING NUMBER	NEXT HIGHER ASSEMBLY
				1	OF		
CATEGORY				AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE	INSPECTION METHOD
4.4.2.1	Case, Charge					8848483	8848486
<u>Critical</u>	None defined			0.65%	3.2		Gage
<u>Major</u>	None defined			0.65%	3.2		Gage
<u>Minor</u>	Inside diameter, max.			0.65%	3.2		Gage
201	Thickness through bottom, min.			0.65%	3.2		Gage
202	Pitch diameter of thread, max.			0.65%	3.2		Gage
203	Minor diameter of thread, max.			1.00%	3.7		Visual
204	Evidence of poor workmanship						
205							

NOTES:

QUALITY CONFORMANCE INSPECTION

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CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH	TITLE	SHEET		NO. OF SAMPLE UNITS	EXAMINATION OR TEST	AQL OR 100%	REQUIREMENT PARAGRAPH	DRAWING NUMBER	NEXT HIGHER ASSEMBLY	PARAGRAPH REFERENCE / INSPECTION METHOD
		1	1							
4.4.2.2	Fuze Housing							8848475	8848486	
<u>Critical</u>	None defined									
<u>Major</u> 101	Flash hole missing or completely obstructed					0.40%	3.2			Visual
<u>Minor</u> 201 202 203 204	Pitch diameter of thread, min. Major diameter of thread, min. Diameter of flash hole Evidence of poor workmanship					0.65% 0.65% 0.65% 1.00%	3.2 3.2 3.2 3.7			Gage Gage Gage Visual
NOTE:										

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PARAGRAPH	TITLE	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	SHEET		DRAWING NUMBER	NEXT HIGHER ASSEMBLY	PARAGRAPH REFERENCE / INSPECTION METHOD
				1	1 OF			
CATEGORY				AQL OR 100%	REQUIREMENT PARAGRAPH			
4.4.2.3	Case, Signal					8847475	8848486	
<u>Critical</u>	None defined							
<u>Major</u>	Diameter of primer hole, max.			0.40%	3.2			Gage
101	Depth of primer counterbore, max.			0.40%	3.2			Gage
<u>Minor</u>	Inside diameter, max.			0.65%	3.2			Gage
201	Outside diameter, min.			0.65%	3.2			Gage
202	Diameter of flange			0.65%	3.2			Gage
203	Angle of flange			0.65%	3.2			Gage
204	Thickness of base at primer hole area			0.65%	3.2			Gage
205	Thickness of base in area of pro-			0.65%	3.2			Gage
206	PELLING charge cavity			0.65%	3.2			Gage
207	Radii missing			0.65%	3.2			Gage
208	Finish improper			0.65%	3.2			Visual
209	Evidence of poor workmanship			1.00%	3.7			Visual

NOTES:

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CLASSIFICATION OF DEFECTS & TESTS

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PARAGRAPH	TITLE	SHEET 1 of 1		NO. OF SAMPLE UNITS	EXAMINATION OR TEST	AQL OR 100%	REQUIREMENT PARAGRAPH	DRAWING NUMBER	PARAGRAPH REFERENCE / INSPECTION METHOD
4.4.2.4	Top							8847473 NEXT HIGHER ASSEMBLY	
CATEGORY								8848486	
<u>Critical</u>	None defined								
Major 101	Crack or split					0.40%	3.2		Visual
Minor 201	Thickness					0.65%	3.2		Gage
202	Outside diameter of datum height					0.65%	3.2		Gage
203	Protrusion of side above bottom					0.65%	3.2		Gage
204	Length of side					0.65%	3.2		Gage
205	Bare spot in protective coating or coating missing					0.65%	3.2		Visual
206	Evidence of poor workmanship					1.00%	3.7		Visual
NOTE:									

DRSMC-DA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

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PARAGRAPH	TITLE	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	SHEET		DRAWING NUMBER
				1 OF 1	1	
CATEGORY				AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
4.4.2.5	Fuze Assembly (Prior to Drilling Igniting Charge Hole)					8848477 NEXT HIGHER ASSEMBLY
<u>Critical</u> 1 <u>Major</u> 101 <u>Minor</u> 201	Delay charge more than .020 below upper fuze disc counterbore			100%	3.2	Gage
	Lower charge missing			0.40%	3.2	Visual
	Evidence of poor workmanship			1.00%	3.7	Visual
NOTES:						

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CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH	TITLE	SHEET		NO. OF SAMPLE UNITS	EXAMINATION OR TEST	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE	INSPECTION METHOD
		1	OF 1						
4.4.2.6	Fuze Assembly							8848477 NEXT HIGHER ASSEMBLY	
								8848486	
<u>Critical</u>	None defined								
<u>Major</u> 101	Igniting charge missing	0.40%	3.2						Visual
<u>Minor</u> 201	Ignition charge more than .006 below flush on short length (or side) of hole	0.65%	3.2						Gage
202	Upper fuze disc crimp not full 360 degrees	0.65%	3.2						Visual
203	Evidence of poor workmanship	1.00%	3.7						Visual
NOTES:									

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CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH	TITLE	SHEET		NO. OF SAMPLE UNITS	EXAMINATION OR TEST	AQL OR 100%	REQUIREMENT PARAGRAPH	DRAWING NUMBER	
		1	1					8848485	8848486
CATEGORY								PARAGRAPH REFERENCE	INSPECTION METHOD
4.4.2.8	Charge Case Loading Assembly (Prior to Climping Closing Disc)								
<u>Critical</u>	None defined								
<u>Major</u> 101 102	Any component missing Fuze assembly loose or not fully seated	0.40%	3.2					Visual	
<u>Minor</u> 201 202	Varnish missing from fuze thread Evidence of poor workmanship	0.40%	3.2					Manual	
		0.65% 1.00%	3.2 3.7					Visual Visual	
NOTES:									

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CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH	TITLE	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	SHEET		DRAWING NUMBER
				1	1 OF	
CATEGORY				AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
4.4.2.9	Charge Case Loading Assembly (After Crimping Closing Disc)					8848485 NEXT HIGHER ASSEMBLY 8846486
<u>Critical</u>	None defined					
Major <u>101</u>	Crimp of charge case not flat against closing disc at any point around disc			0.40%	3.2	Visual
102	Cement seal of crimp missing			0.40%	3.2	Visual
103	Air leakage test			100%	3.2	4.5.7
Minor <u>201</u>	Evidence of poor workmanship			1.00%	3.7	Visual
NOTE:						

DRSMC-0A (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

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PARAGRAPH	TITLE	SHEET		NO. OF SAMPLE UNITS	EXAMINATION OR TEST	AQL OR 100%	REQUIREMENT PARAGRAPH	DRAWING NUMBER
		1	OF 1					
4.4.2.10	Assembly, (Prior to Assembling Charge Case Loading Assembly)							8848486 NEXT HIGHER ASSEMBLY
CATEGORY								8848486
<u>Critical</u> 1	Propelling charge missing or under min. weight					100%	3.2	Balance
<u>Major</u> 101	Wad or gas check washer missing					0.40%	3.2	Visual
102	Any component missing					0.40%	3.2	Visual
103	Crack or split in any metal parts					0.40%	3.2	Visual
<u>Minor</u> 201	Charge case assembly bound					0.65%	3.2	Visual
202	Evidence of poor workmanship					1.00%	3.7	Visual
NOTES:								

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PARAGRAPH	TITLE	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	SHEET 1 OF 1		DRAWING NUMBER
				AQL OR 100%	REQUIREMENT PARAGRAPH	
4.4.2.11	Assembly					8848486
CATEGORY						NEXT HIGHER ASSEMBLY 8848486
<u>Critical</u>						PARAGRAPH REFERENCE / INSPECTION METHOD
Major 101 102 103 104	None defined	Top insecure or not fully seated Primer above flush or greater than max. below flush (See dwg. 8847468) Length, max. Protective coating missing or incomplete		0.40% 0.40% 0.40%	3.2 3.2 3.2	Manual Gage Gage
105 106		Sealing compound missing on top Functioning	4.4.3.5	0.40% 0.40%	3.2 3.2	Visual Visual 4.5.5
Minor 201 202		Marking misleading or unidentifiable Evidence of poor workmanship		0.65% 1.00%	3.2 3.7	Visual Visual

NOTES:

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PARAGRAPH	TITLE	SHEET 1 OF 1		NO. OF SAMPLE UNITS	EXAMINATION OR TEST	AGL OR 100%	REQUIREMENT PARAGRAPH	MIL-S-20517H (AR)	
		DRAWING NUMBER	8836949					PARAGRAPH REFERENCE / INSPECTION METHOD	8836950
4.4.2.12	Box, Fiberboard (Prior to Sealing)								
CATEGORY									
<u>Critical</u>	None defined								
<u>Major</u> 101	Number of assemblies in box incorrect	0.40%	3.2					Visual	
<u>Minor</u> 201	Assembly improperly packed in box (inverted or packing material missing)	0.65%	3.2					Visual	
202	Evidence of poor workmanship	1.00%	3.7					Visual	
NOTES:									

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PARAGRAPH	TITLE	SHEET		NO. OF SAMPLE UNITS	EXAMINATION OR TEST	AQL OR 100%	REQUIREMENT PARAGRAPH	DRAWING NUMBER	NEXT HIGHER ASSEMBLY	PARAGRAPH REFERENCE / INSPECTION METHOD
		1	1 OF							
4.4.2.13	Sealed Box, Fiberboard							8836949		
<u>Critical</u>	None defined							8836950		
<u>Major</u> 101 102	Sealing strip improperly applied Box damaged to the extent that contents are exposed or liable to become exposed	0.40%	3.2							Visual
<u>Minor</u> 201 202 203	Contents loose Marking missing, misleading or unidentifiable Evidence of poor workmanship	0.40%	3.2							Visual
		0.65%	3.2							Manual
		0.65%	3.2							Visual
		1.00%	3.7							Visual

NOTES:

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PARAGRAPH	TITLE	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	SHEET		DRAWING NUMBER
				1	OF 1	
CATEGORY				AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
4.4.2.14	Sealed Packed Barrier Bag, (Prior to Packing in Wood Box)					8836949 NEXT HIGHER ASSEMBLY 8836950
<u>Critical</u>	None defined					
<u>Major</u> 101	Waterproofness of barrier bag destroyed by rupture, puncture or separation of heat seal			0.40%	3.2	Visual
102	Evidence of crushed box			0.40%	3.2	Visual
103	Excess air not exhausted from bag prior to sealing			0.40%	3.2	Visual
NOTE:	Package should be opened if there is evidence of crushing.					
<u>Minor</u> 201	Heat seal of barrier bag located so that one or more subsequent seals cannot be applied			0.65%	3.2	Visual
202	Marking of bag missing, misleading or unidentifiable			0.65%	3.2	Visual
203	Evidence of poor workmanship			1.00%	3.7	Visual
NOTE:						

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PARAGRAPH	TITLE	SHEET 1 of 1		NO. OF SAMPLE UNITS	EXAMINATION OR TEST	AQL OR 100%	REQUIREMENT PARAGRAPH	DRAWING NUMBER	PARAGRAPH REFERENCE / INSPECTION METHOD
		NEXT HIGHER ASSEMBLY							
4.4.2.15	Wood Packing Box, (Prior to Sealing)							8836950	
<u>Critical</u>	None defined								
<u>Major</u> 101	Box, fiberboard inverted (primer end up)	0.40%	3.2						Visual
<u>Minor</u> 201 202	Incorrect number of boxes Fillers not positioned at ends or on top	0.65%	3.2						Visual
203	Evidence of poor workmanship	0.65% 1.00%	3.2 3.7						Visual Visual
NOTES:									

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PARAGRAPH	TITLE	SHEET		NO. OF SAMPLE UNITS	EXAMINATION OR TEST	AQL OR 100%	REQUIREMENT PARAGRAPH	DRAWING NUMBER
		1	1 OF					
4.4.2.16	Sealed Wood Packing Box							8836950 NEXT HIGHER ASSEMBLY
<u>Critical</u>	None defined							PARAGRAPH REFERENCE /INSPECTION METHOD
<u>Major</u> 101	Box damaged to extent that contents are exposed or liable to become exposed	0.40%	3.2		Visual			
102	Hardware or strapping missing, broken or loose	0.40%	3.2		Visual-Manual			
103	DOT marking missing, misleading, or unidentifiable	0.40%	3.2		Visual			
<u>Minor</u> 201	Hardware or strapping improperly engaged or assembled	0.65%	3.2		Visual-Manual			
202	Metallic seal missing, unsealed or improperly positioned	0.65%	3.2		Visual			
203	Contents loose	0.65%	3.2		Visual			
204	Handle missing or insecure	0.65%	3.2		Visual-Manual			
205	Marking missing, misleading or unidentifiable	0.65%	3.2		Visual			
206	Evidence of poor workmanship	1.00%	3.7		Visual			
NOTES:								

DRSMC-0A (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF DEFECTS & TESTS

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PARAGRAPH	TITLE	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	SHEET		DRAWING NUMBER
				1 OF	1	
CATEGORY				AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
4.4.2.17	Package, Shipping and Storage (Prior to Closing)					3139703 NEXT HIGHER ASSEMBLY 2128267
<u>Critical</u>	None defined					
<u>Major</u> 101	Any packing component missing or misassembled			0.40%	5.1.2	Visual
102	Ends of simulators not alternated			0.40%	5.1.2	Visual
103	Number of assemblies in box incorrect			0.40%	5.1.2	Visual
<u>Minor</u> 201	Number of desiccant units incorrect			0.65%	5.1.2	Visual-Manual
202	Desiccant bags not properly secured			0.65%	5.1.2	Visual
203	Indicator card missing			0.65%	5.1.2	Visual
204	Evidence of poor workmanship			1.00%	3.7	Visual
Notes:						

QUALITY CONFORMANCE INSPECTION

MIL-S-20517H (AR)

CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH	TITLE	SHEET		NO. OF SAMPLE UNITS	EXAMINATION OR TEST	AQL OR 100%	REQUIREMENT PARAGRAPH	DRAWING NUMBER
		1	1 OF					
CATEGORY								NEXT HIGHER ASSEMBLY
								2128267
								PARAGRAPH REFERENCE /INSPECTION METHOD
4.4.2.18	Package, Shipping and Storage							3139703
<u>Critical</u>	CFR (DOT) markings missing or unidentifiable	100%	5.1.2			100%	5.1.2	Visual
<u>Major</u> J01	Tray interferes with seal of lid	0.40%	5.1.2			0.40%	5.1.2	Visual-Manual
<u>Minor</u> 201	Descriptive marking missing, misleading or unidentifiable	0.65%	5.1.2			0.65%	5.1.2	Visual
202	Evidence of poor workmanship	1.00%	3.7			1.00%	3.7	Visual
NOTES:								

DPSSMC-0A (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION

MIL-S-20517H (AR)

CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH	TITLE	SHEET		NO. OF SAMPLE UNITS	EXAMINATION OR TEST	AQL OR 100%	REQUIREMENT PARAGRAPH	DRAWING NUMBER
		1	OF 1					
4.4.2.19	Pack, Shipping and Storage (Prior to Closing)							2128267 NEXT HIGHER ASSEMBLY
<u>CATEGORY</u>								PARAGRAPH REFERENCE / INSPECTION METHOD
<u>Critical</u>	None defined							
<u>Major</u> <u>101</u>	Packages missing or improperly positioned	0.40%	5.2.2					Visual
<u>Minor</u> <u>201</u>	Evidence of poor workmanship	1.00%	3.7					Visual
<u>NOTES:</u>								

QUALITY CONFORMANCE INSPECTION

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CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH	TITLE	SHEET		NO. OF SAMPLE UNITS	EXAMINATION OR TEST	AQL OR 100%	REQUIREMENT PARAGRAPH	DRAWING NUMBER
		1	1					
4.4.2.20	Pack, Shipping and Storage		OF					2128267 NEXT HIGHER ASSEMBLY
<u>Critical</u>	CFR (DOT) marking missing or unidentifiable					100%	5.2.2	Visual
Major 101	Wire binding not properly secured					0.40%	5.2.2	Visual
102	Car seal missing					0.40%	5.2.2	Visual
103	Box damaged to extent that contents are exposed or liable to become exposed					0.40%	5.2.2	Visual
<u>Minor</u> 201	Descriptive marking missing, misleading or unidentifiable					0.65%	5.2.2	Visual
202	Evidence of poor workmanship					1.00%	3.7	Visual
NOTES:								

DRSMC-0A (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

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4.4.3 Testing. See Note.

NOTE: Chemical Sampling. Representative samples of the components identified in 4.4.3.1 shall be obtained in accordance with ASTM procedure E300 for solids.

4.4.3.1 Moisture determination, Moisture determinations shall be performed on the components specified in Table II.

TABLE II. MOISTURE DETERMINATION

Components	Requirement Paragraph	Test Method Paragraph
Flash powder	3.3.1	4.5.1.1
Fuze powder	3.3.2	4.5.1.2
Delay composition	3.3.3	4.5.1.3
Black powder	3.3.4	4.5.1.4
Felt and chipboard	3.3.5	4.5.1.5

The contractor shall provide adequate controls to assure that the materials comply with the requirements. For verification, the contractor shall select and subject to test, one sample of each material from each eight (8) hours production. 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.

4.4.3.2 Compressive tube strength (see dwg. 8848484). Major defects.

4.4.3.2.1 Axial. Thirteen (13) tubes shall be selected 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 4.5.2.1 using equipment in accordance with 4.4.4. (Destructive test)

4.4.3.2.2 Diametrical. Thirteen (13) tubes shall be selected 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 4.5.2.2 using equipment in accordance with 4.4.4. (Destructive test)

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4.4.3.3 Determination of composition. Major defect.

4.4.3.3.1 Flash powder (see dwg. 8848485). A sample of not less than 5 g. shall be selected from each batch for test in accordance with 4.5.3.2, using the procedure given in ASTM E300 for solids. If the sample fails to comply with the requirement specified the batch shall be rejected.

4.4.3.4 Charge case assembly (see dwg. 8848485) - Failure to Fragment - Critical defect. Twenty (20) loaded charge case assemblies shall be selected from each lot and subjected to static functioning at the contractor's facility in accordance with the method specified in 4.5.4. The lot shall be rejected if any charge case assembly fails to comply with the drawing requirement. (Destructive test)

4.4.3.5 Functioning. See 3.4.

4.4.3.5.1 Beginning with the first lot produced and continuing until three numerically consecutive lots (see Note) have complied with the applicable requirements specified, two hundred (200) simulator assemblies shall be selected from each lot for test. The lot shall be rejected if, during the test, a critical defect occurs or if seven (7) or more assemblies exhibit any of the remaining major defects listed in Table III. The lot shall also be rejected if the total of minor and major defects equal eight (8) or more when tested in accordance with 4.5.5. (Destructive Test)

NOTE: Resubmitted lots shall not be used to meet the criteria of "numerically consecutive lots".

TABLE III. FUNCTIONING DEFECTS

<u>Defect</u>	<u>Classification</u>
Charge case assembly bursts in less than 1.8 seconds or more than 3.4 seconds (see Dwg. 8848477)	Critical
Horizontal distance less than 100 ft. or altitude less than 50 ft. (see 3.4.4)	Critical
Charge case assembly fails to expel within 150 milliseconds upon functioning of the primer (see 3.4.3)	Critical

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<u>Defect</u>	<u>Classification</u>
Charge case assembly bursts in less than 2.0 seconds but not less than 1.8 seconds, or bursts in more than 3.2 but not more than 3.4 seconds (see Dwg. 8848477)	Major
Charge case assembly fails to burst high order (see 3.4.2)	Major
Primer fails to function (see 3.4.5)	Major
Case failure (see 3.4.1)	Major
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	Minor

4.4.3.5.2 After three consecutive lots have complied with the criteria of 4.4.3.5.1, 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 four (4) or more assemblies exhibit any of the remaining major defect as listed in Table III. The lot shall also be rejected if the total of minor and major defects equal five (5) or more when tested in accordance with 4.5.5. (Destructive test)

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.

4.4.3.6 Chamber gaging (see dwg. 8848486) - Major defect. This test shall be performed 100 percent. Any assembly that fails to comply with the requirements shall be classed defective and removed from the lot. The test shall be performed as specified in 4.5.6. (Non-Destructive test)

4.4.3.7 Check test for possible deterioration of primers (see applicable primer specification). 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 specified in Section 6 of the applicable primer specification. The check test shall be performed by the contractor (see 6.5) prior to assembling the primers into the simulators.

4.4.3.8 Air leakage test (see 3.5) - Major defect. This test shall be performed 100 percent in accordance with the procedure specified in 4.5.7. All assemblies that fail to comply with the requirement shall be classed defective and removed from the lot.

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4.4.4 Inspection Equipment. The inspection equipment required to perform the inspections and tests prescribed in this specification is identified in the 'Paragraph Reference Inspection Method' column in the tables starting with paragraph 4.4.2.1, and the test method paragraphs (see 4.5). The contractor shall submit for approval, inspection equipment designs in accordance with the terms of the contract. See Section 6 of MIL-A-48078, and 6.2 herein.

4.5 Test methods and procedures.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.

4.5.1 Moisture content (See 6.6). The test given in this paragraph and in 4.5.3 shall be performed with prescribed procedures for replicate determinations given in standard analytical chemistry textbooks or ASTM D2905.

4.5.1.1 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 $70 \pm 2^\circ\text{C}$ shall be used.

4.5.1.2 Fuze powder. Determine the moisture content of the fuze powder using Method 102.1 given in MIL-STD-1234 except that a heating temperature of $70 \pm 2^\circ\text{C}$ shall be used.

4.5.1.3 Delay composition. Determine the moisture content of the delay composition using Method 102.1 given in MIL-STD-1234 except that a 5g. sample shall be used and the heating temperature shall be $70 \pm 2^\circ\text{C}$.

4.5.1.4 Black powder. Determine the moisture content of the black powder using Method 102.1 given in MIL-STD-1234 except that a heating temperature of $70 \pm 2^\circ\text{C}$ shall be used.

4.5.1.5 Felt and chipboard. Accurately weigh (to the nearest 0.001 g) approximately a 10 g 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 Tube strength.

4.5.2.1 Axial. The tubes shall be tested in accordance with Method 1021 of FED-STD-406 except that the tubes shall be approximately 2.37 inches long. The load shall be applied perpendicularly to the ends of the tube. Observation shall be made for compliance with the applicable drawing requirement.

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4.5.2.2 Diametrical. The test method and the length of the tubes shall be as specified in 4.5.2.1. 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 applicable drawing requirement.

4.5.3 Determination of ingredients. (See 4.5.1 for replicate determinations and 6.7 for equivalent test methods).

4.5.3.1 Delay composition. (Barium Chromate, Boron) - In lieu of making an analysis of each batch of delay compositions, as applicable, a batch record shall be prepared for each batch produced for production use. This batch record shall be used to demonstrate the actual amounts of each ingredient used to make the batch as specified on the applicable drawing. In addition to recording composition of the batch, the batch record shall also be used to record any control curing time for mixtures as necessary prior to loading. A batch of composition shall be the amount of composition used during a single work shift by a single employee or crew. The batch may contain one or more mixes. When more than one mix is used in a batch, the exact proportion of ingredients shall be measured into each mix.

4.5.3.2 Flash powder. (Black Powder, Aluminum Powder)

4.5.3.2.1 procedure. Transfer an accurately weighed portion of approximately 2 g. 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 milliliters (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:

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

where:

A = weight of crucible and contents after the carbon disulfide and water extraction, g.

B = weight of crucible and contents after the acid extraction, g.

w = weight of the sample, g.

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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.

4.5.4 Charge case assembly. The charge case assemblies shall be suspended by means of a cord or thread at least three (3) feet 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 both igniting holes in the fuze assembly and secured in place, leaving approximately two (2) inches of one end of the strand free. An electric match or squib shall be used to ignite the free end of the quickmatch which will in turn ignite the fuze as intended. If an assembly fails to ignite, a second trial with the quickmatch should be made after a safe waiting period. In the event the item fails to function after two (2) ignition trials, substitution of a second item will be permitted regardless of the ignition method used. In no case will more than one (1) substitution be permitted in any one test sample. 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 drawing requirement.

4.5.5 Functioning. The simulators shall be immersed in water at $70 \pm 10^{\circ}\text{F}$ hours to a depth of 6 to 9 inches. The simulators shall be removed from the water and the exterior surfaces wiped dry. Within 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. The simulators shall be observed for functioning to determine compliance with the requirements of 3.4.

4.5.6. Chamber gaging. The assembly shall be gaged with equipment specified in 4.4.4.

4.5.7 Air leakage test. 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 3 p.s.i.g. by means of a fixed volume of air. With the air supply shut off the pressure shall be maintained for 15 seconds min. An accurate measuring instrument shall be observed for evidence of simulator leakage.

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5. PACKAGING.

5.1 Preservation.

5.1.1 Level A. The simulator assemblies shall be packed in accordance with dwg. 8836949.

5.1.2 Level A. For Marine Corps use, packing shall be in accordance with dwg. 3139703.

5.2 Packing.

5.2.1 Level A. The unit packed simulators shall be packed in accordance with dwg. 8836950.

5.2.2 Level A. For Marine Corps use, packing shall be in accordance with dwg. 2128267.

5.3 Marking.

5.3.1 Marking. The boxes shall be marked as specified in dwgs. 8836949 and 8836950.

5.3.2 Marking. For Marine Corps use, marking shall be as specified on dwg. 2128267 and 3139703.

6. NOTES

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

6.2 Ordering data. See MIL-A-48078.

For Marine Corps packing, packaging and marking see 5.1.2, 5.2.2 and 5.3.2.

6.3 Submission of Inspection Equipment for Design Approval. See MIL-A-48078. Submit equipment designs as required, to Commander, U.S. Army Armament Research and Development Center, ATTN: DRSMC-QAT-I (D), Dover, NJ 07801.

6.4 Distribution of ammunition data cards. Distribution of data cards shall include the following: Commander, U.S. Army Armament Research and Development Center, ATTN: DRSMC-QAT-M (D), Dover, NJ 07801.

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6.5 Check test for possible deterioration. The following test is designed to prevent primers that have deteriorated from being assembled into major ammunition items. The test shall be performed on primers from each lot which have stored under normal conditions for more than two years or under adverse conditions for any period of time. If the specification for the ammunition item into which the primers are assembled does not require that the check test be performed, the Contracting Officer should insert in the contract a provision for the performance of the check test. The Contracting officer will arrange for the contractor to be reimbursed for expense incurred in his performance of the check test for possible deterioration. Primer assemblies shall be selected from each lot for this test.

6.5.1 Functioning. A sample of 315 primers shall be selected at random from each lot. If 4 or more primers fail to comply with the requirement specified, 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 5 or more defects are found the lot shall be rejected. The test shall be performed as specified in the applicable primer specification.

6.6 Functiong test summary.

Test	Production Lots			Requirements
	First Article	First three Consecutive Acceptable	Remaining	
Functioning	50	200	80	See 3.4 and Table III

NOTE: All simulators shall be immersed in water (see 4.4.5) prior to functioning.

6.7 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 equivalent test methods. A description of the proposed method should be submitted through the Contracting Officer to: Commander, AMCCOM, ATTN: DRSMC-QAR-R(D), Dover, NJ- 07801.

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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 (see MIL-I-45208).

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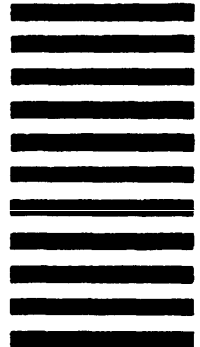
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