MIL-M-46696D (PA)
20 September 1974
SUPERSEDING
MIL-M-46696C (PA)
17 December 1971

MILITARY SPECIFICATION

MINE, ANTIPERSONNEL, M16A2 LOADING, ASSEMBLING AND PACKING

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 This specification covers the loading, assembling and packing for one type of mine designated as Mine, Antipersonnel, M16A2.

2. APPLICABLE DOCUMENTS

2.1 The following documents of the issue in effect on date of invitation for bids or request for proposal form a part of this specification to the extent specified herein.

SPECIFICATIONS

MILITARY

MIL-P-116	- Preservation - Packaging, Methods of
MIL-P-223	- Powder, Black
*MIL-A-48078	- Ammunition, Standard Quality Assurance Provisions, General Specification For

STANDARDS

MILITARY

MIL-STD-105	- Sampling Procedures and Tables for Inspection by Attributes (ABC-STD-105)
MIL-STD-1168-	Lot Numbering of Ammunition
MIL-STD-1235-	Single and Multilevel Continuous Sampling Procedures and Tables for Inspection by Attributes

FSC: 1345

*(For meaning of asterisk (*) see 6.5).

DRAWINGS

U.S. ARMY PICATINNY ARSENAL

7548179 - Box, Wirebound, Packing, Ammunition, for Mines, Antipersonnel, M16A1 or M16A2 with Fuze, Mine, Combination, M605
8864746 - Mine, Antipersonnel, M16A2 Assembly
8863609 - Box, Fiber, Packing, Ammunition, for Mines, Antipersonnel, M16A1, or M16A2 with Fuze, Mine, Combination, M605

(Copies of specifications, standards and drawings required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the Contracting Officer).

*3. REQUIREMENTS

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

3.2 Mine Assembly. - The mine assemblies shall comply with all requirements specified on Drawing (dwg.) 8864746 and with all requirements specified in applicable specifications.

3.3 Moisture Content of Lead Azide. The moisture content of the lead azide at the time of loading shall not exceed 0.50 percent (%).

3.4 Moisture Content of Black Powder. The moisture content of the black powder at the time of loading shall not exceed the percentage specified in Specification MIL-P-223.

3.5 Moisture Content of Normal Lead Styphnate. The moisture content of the normal lead styphnate at the time of loading shall not exceed 0.30 percent (%).

*3.6 Leakage. - The loaded mine assembly shall show no evidence of leakage.

3.7 Functioning. The mines shall function satisfactorily. Satisfactory functioning shall be defined as the bursting of the mine at a height of not less than one foot nor more than five

feet above the surface of the ground, and with an average height of burst for all mines tested of not less than two nor more than four feet.

3.8 Workmanship. All parts shall be fabricated and finished (or fabricated and loaded) in a thorough, workmanlike manner, and all manufacturing, processing and assembly operations shall be correctly performed. The parts 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, 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 and sharply defined.

*3.9 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.

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 inspections shall be conducted on this item:

a. First article inspection

b. Quality conformance inspection

*4.3 First Article Inspection

4.3.1 Submission. - The contractor shall submit a first article sample (see 6.2b) as designated by the Contracting

Officer. The first article sample shall consist of 50 complete mine assemblies. The first article sample shall be evaluated in accordance with the provisions of 4.3.2 and 4.3.3.

4.3.2 Inspections to be performed. - See MIL-A-48078, para. 4.4.2.5 and testing of the 50 mines per para. 4.5.7 herein.

4.3.3 Rejection. - See MIL-A-48078.

4.4 Quality Conformance Inspection

4.4.1 Inspection Lot Formation. - Inspection lots shall comply with the lot formation provisions of MIL-A-48078. Lot numbering, as required, shall be in accordance with MIL-STD-1168. In addition, inspection lots of Mine Assemblies shall contain:

a. Parts and parts assemblies of one interfix lot number from one manufacturer.

b. Fuzes of one interfix lot number from one manufacturer.

c. RDX of one interfix lot number from one manufacturer.

d. Lead Styphnate of one interfix lot number from one manufacturer.

e. Lead Azide of one interfix lot number from one manufacturer.

f. Black powder of one interfix lot number from one manufacturer.

g. TNT of one interfix lot number from one manufacturer.

*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. Equipment necessary for the performance of the inspections listed shall be in accordance with 4.4.4.

CLASSIFICATION OF DEFECTS & TESTS

MIL-M-46696D (PA)

PARAGRAPH	TITLE		SHEET 1 OF 1		DRAWING NUMBER 8796342
4.4.2.1	Detonator Assembly				NEXT HIGHER ASSEMBLY 8864746
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE /INSPECTION METHOD
Critical					
1	Charge escaping		100%	3.2	Visual
2	Disc damaged (punctured or deep cut)		100%	3.2	Visual
3	Cup cracked or punctured		100%	3.2	Visual
Major A					
101	Charge missing		0.40%	3.2	Gage
Major B					
131	Length to flange, maximum (max.)		0.40%	3.2	Gage
132	Outside diameter, max.		0.40%	3.2	Gage
Minor					
201	Disc seal inadequate (disc separating from cup)		0.65%	3.2	Visual
202	Evidence of poor workmanship		1.00%	3.8	Visual

NOTES

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CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH	TITLE	SHEET	DRAWING NUMBER
4.4.2.2	Propelling Charge Assembly	1 OF 1	8796343
			NEXT HIGHER ASSEMBLY 8864746

CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE /INSPECTION METHOD
Critical	None defined.				
Major B					
131	Color improper		0.40%	3.2	Visual
132	Bag damaged (hole, tear, weak spots or breaks)		0.40%	3.2	Visual
133	Marking misleading or unidentifiable		0.40%	3.2	Visual
134	Evidence of poor workmanship		0.40%	3.8	Visual
Minor					
201	Seam stitching inadequate (incomplete, opening, etc.)		0.65%	3.2	Visual

NOTES:

CLASSIFICATION OF DEFECTS & TESTS MIL-M-46696D (PA)

PARAGRAPH	TITLE		SHEET 1 OF 1		DRAWING NUMBER 8796352
4.4.2.3	Delay Assembly				NEXT HIGHER ASSEMBLY 8864746
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE /INSPECTION METHOD
Critical	None defined.				
Major A					
101	Delay charge missing		0.40%	3.2	Visual
102	Delay washer missing		0.40%	3.2	Visual
Major B	None defined.				
Minor					
201	Delay washer crimps less than 360 degrees		0.65%	3.2	Visual
202	Delay washer inverted		0.65%	3.2	Visual
203	Evidence of poor workmanship		0.65%	3.8	Visual

NOTES:

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CLASSIFICATION OF DEFECTS & TESTS MIL-M-46696D (PA)

PARAGRAPH	TITLE		SHEET 1 OF 1		DRAWING NUMBER 8864746
4.4.2.4	Loaded Body Assembly, prior to Inserting into Container				NEXT HIGHER ASSEMBLY
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE /INSPECTION METHOD
Critical	None defined.				
Major A					
101	TNT missing (prior to assembly of filler disc)		0.40%	3.2	Visual
102	Booster pellet missing (prior to assembly of delay-detonator assembly)		0.40%	3.2	Visual
103	Detonator or delay charge missing (prior to final assembly of delay assembly).		0.40%	3.2	Visual
104	Flash hole obstructed (prior to assembly of propelling charge)		0.40%	3.2	Visual
105	Propelling charge missing (prior to assembly of sealing disc)		0.40%	3.2	Visual
Major B					
131	Sealing disc not securely bonded to well face		0.40%	3.2	Visual
Minor					
201	Filler disc missing		0.65%	3.2	Visual
202	Evidence of poor workmanship		0.65%	3.2	Visual

NOTES:

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CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH	TITLE		SHEET 1 OF 1		DRAWING NUMBER 8864746
4.4.2.5	Body Loading Assembly				NEXT HIGHER ASSEMBLY 8796365
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE /INSPECTION METHOD
Critical	None defined.				
Major B					
131	Shipping plug missing or loose		0.40%	3.2	Visual/Manual
132	Top of container inadequately secured to its side		0.40%	3.2	Visual
133	Container assembly damaged (punctured or dented)		0.40%	3.2	Visual
134	Shipping gasket or bushing washer missing		0.40%	3.2	Visual
Minor					
201	Marking misleading or unidentifiable, including incorrect color code		0.65%	3.2	Visual
202	Protective coating damaged, other than slight scratches		0.65%	3.2	Visual
203	Burr, projection, raised metal, or sharp edge		0.65%	3.2	Visual
204	Evidence of poor workmanship		0.65%	3.8	Visual

NOTES:

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CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH	TITLE		SHEET 1 OF 1		DRAWING NUMBER 8863609
4.4.2.6	Box, Fiberboard, Packing, Unsealed				NEXT HIGHER ASSEMBLY
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE /INSPECTION METHOD
Critical	None defined				
Major A					
101	Mine, spool, wrench or container of fuzes missing		0.40%	3.2	Visual
Minor					
201	Evidence of poor workmanship		0.65%	3.8	Visual

NOTES:

CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH	TITLE		SHEET 1 OF 1		DRAWING NUMBER
4.4.2.7	Sealed Barrier Bag (prior to packing in wire-bound box)				8863609
					NEXT HIGHER ASSEMBLY
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE /INSPECTION METHOD
Critical	None defined.				
Major A	None defined.				
Major B					
131	Waterproofness of barrier bag destroyed by rupture, puncture, or separation of heat seal		0.40%	3.2	Visual
132	Evidence of crushed carton (see Note 1)		0.40%	3.2	Visual
Minor					
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 misleading or unidentifiable		0.65%	3.2	Visual
203	Evidence of poor workmanship		0.65%	3.8	Visual

NOTES:
NOTE 1: Package should be opened for inspection if there is evidence of crushing.

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CLASSIFICATION OF DEFECTS & TESTS

MIL-M-46696D (PA)

PARAGRAPH	TITLE		SHEET 1 OF 1		DRAWING NUMBER 7548179
4.4.2.8	Box, packing, wirebound (prior to sealing)				NEXT HIGHER ASSEMBLY
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE /INSPECTION METHOD
Critical	None defined.				
Major A	None defined.				
Major B					
131	Barrier bag missing or damaged		0.40%	3.2	Visual
132	Packing component (filler) missing or improperly positioned		0.40%	3.2	Visual
Minor					
201	Evidence of poor workmanship		0.65%	3.8	Visual

NOTES:

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CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH	TITLE	SHEET 1 OF 1	DRAWING NUMBER
4.4.2.9	Box, packing, wirebound (sealed)		7548179
			NEXT HIGHER ASSEMBLY

CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE /INSPECTION METHOD
Critical	None defined.				
Major A	None defined.				
Major B					
131	Box damaged to the extent that contents are exposed or liable to become exposed		0.40%	3.2	Visual
132	Wirebinding missing, broken or loose		0.40%	3.2	Visual
Minor					
201	Wirebinding mislocated or improperly engaged		0.65%	3.2	Visual
202	Contents loose		0.65%	3.2	Visual
203	Marking misleading or unidentifiable		0.65%	3.2	Visual
204	Metallic seal missing, unsealed or incorrectly positioned		0.65%	3.2	Visual
205	Cleats or battens split or broken		0.65%	3.2	Visual
206	Evidence of poor workmanship		0.65%	3.8	Visual

NOTES:

4.4.3 Testing

4.4.3.1 Moisture Content of Lead Azide (See 3.3) Major Defect A. The moisture content of the lead azide shall be determined at the time of loading not less than once for each eight hours of production, or portion thereof. The sample shall be selected just prior to loading and the moisture content determined as specified in 4.5.1. Composite samples shall not be used in this determination. If the moisture content exceeds the requirement specified, the lead azide shall be rejected. If this determination is made after loading, has begun, componentsloaded therewith shall be rejected.

4.4.3.2 Moisture Content of Black Powder. (See 3.4) Major Defect A. The moisture content of the black powder shall be determined at the time of loading not less than once for each eight hours of production, or portion thereof. Two grams of black powder shall be selected just prior to loading and the moisture content determined as specified in 4.5.2. Composite samples shall not be used in this determination. If the moisture content exceeds the requirement specified, the black powder shall be rejected. If this determination is made after loading has begun, components loaded therewith shall be rejected.

4.4.3.3 Moisture Content of Normal Lead Styphnate (See 3.5) Major Defect A. The moisture content of the normal lead styphnate shall be determined at the time of loading not less than once for each eight hours of production, or portion thereof. The sample shall be selected just prior to loading and the moisture content determined as specified in 4.5.3. Composite samples shall not be used in this determination. If the moisture content exceeds the requirement specified, the normal lead styphnate shall be rejected. If this determination is made after loading has begun, components loaded therewith shall be rejected.

4.4.3.4 Burning Time of Delay Assembly - Detonator Assembly (see 8796352) Major Defect A - Eighty (80) delay assembly-detonator assemblies shall be selected from each lot for test. The test shall be performed as specified in

4.5.5. If two or more delay assembly-detonator assemblies fail to comply with the applicable requirements, the lot shall be rejected. Any delay assembly-detonator assembly whose delay time is lost due to equipment failure or error in procedure, shall be replaced in order to determine if the lot complies with the delay time requirements.

4.4.3.5 Functioning (See 3.7) - Major Defect A.

4.4.3.5.1 Beginning with the first lot produced and continuing until three (3) consective lots have complied with the acteptance criteria specified, a sample of eighty (80) assemblies shall be selected from each lot for this test. The test shall be performed as specified in 4.5.6. The lot shall be rejected if:

a. Three (3) or more mines burst at a height of less than one (1) foot or more than five (5) feet.

b. The average height of burst is less than two (2) feet or more than four (4) feet.

c. Two (2) mines fail to burst.

4.4.3.5.2 After three (3) consecutive lots have met the criteria of 4.4.3.6.1, a sample of fifty (50) assemblies shall be selected from each lot for this test. The lot shall be rejected if:

a. Two (2) or more mines burst at a height of less than one (1) foot or more than five (5) feet.

b. The average height of burst is less than two (2) feet or more than four (4) feet.

c. Two (2) mines fail to burst.

4.4.3.6 Heat sealed seam test (see dwg. 8863609) Major Defect B. - Ten (10) fiberboard boxes in sealed barrier bags shall be selected from each lot for this test. If two or more packages show evidence of heat sealed seam separation, the lot shall be rejected.

*4.4.4 Inspection equipment. - The inspection equipment required to perform the examinations and tests prescribed herein is described in the 'Paragraph Reference/Inspection Method' column in the tables starting with paragraph 4.4.2.1. The contractor shall submit for approval inspection equipment designs in accordance with the terms of the contract. See Section 6 of MIL-A-48078.

*4.5 Test Methods and Procedures

*4.5.1 Materials, Components and Processes. Compliance with all requirements of Section 3 of this specification shall be ascertained by current and continuing examination of inspection and test data to determine that all components (parts, subassemblies and materials) have been inspected and tested and found to comply with their respective drawings and specification requirements, and that all specified manufacturing processes have been followed.

*4.5.1.1 Visual and Mechanical Inspections. The visual, manual and mechanical inspections and tests shall verify compliance with the requirements of Sections 3 and 5 of this specification in accordance with 4.4.2 herein.

4.5.2 Moisture Content of Lead Azide. A tared dried aluminum dish, 2 inches in diameter, shall be covered with a sheet of polytetrofluoroethylene, 2 1/2 inches square, and sufficiently flat to form a tight cover. An accurately weighed portion of approximately two grams of the sample shall be transferred to a moisture dish and the contents and the dish shall be transferred to an oven and dried at 95 degrees Centigrade (°C) plus or minus (±) 2°C, for 2 hours. The cover shall be placed in a sulfuric acid desiccator during the drying period. After drying, the dish shall be quickly transferred to the desiccator and allowed to cool to room temperature. The polytetrofluoroethylene cover shall be placed on the dish and the assembly weighed. The loss in weight shall be calculated to percentage of moisture content in the lead azide to determine compliance with 3.3 as follows:

$$\text{Percentage of moisture} = \frac{(A - B) \times 100}{A}$$

Where:

A = the weight of the sample before drying

B = the weight of the sample after drying

4.5.3 Moisture Content of Black Powder. The moisture content of the black powder shall be determined as specified in Specification MIL-P-223.

4.5.4 Moisture Content of Normal Lead Styphnate. The moisture content of the normal lead styphnate shall be determined as follows:

Transfer, quickly, approximatelytwo grams of normal lead styphnate to an uncovered tared pyrex dish, approximately 55mm in diameter and 30mm in height. Weigh the sample as quickly as possible to 0.0001 gram and place in an oven maintained at 70° ± 2°C and dry to constant weight. At the end of the drying period, remove the sample from the oven and immediately place it in a desiccator containing anhydrous calcium chloride. Allow the sample to cool in the desiccator for approximately 20 minutes and then, as quickly as possible, weigh to the nearest 0.0001 gram. Calculate the percentage of moisture in the sample from the loss in weight.

4.5.5 Burning Time of Delay Assembly - Detonator Assembly. The delay assembly-detonator assembly shall be tested for burning time using methods and equipment in accordance with 4.4.4 (See 6.4).

4.5.6 Functioning. The mines, less fuzes, shall be immersed in water to a depth of not less than six inches above the top of the mines, for not less than twenty-four nor more than thirty hours. The water shall contain a wetting agent such as naccatol. After removal of the mines from the water, assemble with M605 combination mine fuzes. The assemblies shall be placed in a hole in the ground to such a depth that the top of the mine will be covered, but the release spring of the fuze uncovered when the hole is refilled and the ground made level. The hole shall then be filled with firmly packed sand, fine gravel or dirt. The fuze shall be functioned and observation made for satisfactory functioning to determine compliance with 3.7.

4.5.7 Heat sealed seam test. - This test shall be performed as specified in MIL-P-116.

5. PREPARATION FOR DELIVERY

5.1 Packing

5.1.1 Level A. Packaging and packing for Mine, Apers, M16A1, shall be in accordance with dwgs. 7548179 and 8863609.

5.2 Marking. Marking shall be as specified on dwg. 7548179.

6. NOTES

6.1 Ordering Data. Procurement documents shall specify the following:

a. Title, number and date of this specification.
b. Provisions for submission of first article samples.
c. Provisions of MIL-A-48078.

6.2 Submission of Inspection Equipment Designs for Approval. - (see MIL-A-48078. Submit equipment designs as required to Commander Picatinny Arsenal, ATTN: SARPA-QA-T, Dover New Jersey 07801.

6.3 Distribution of ammunition data cards. -Distribution of data cards shall include the following: Commander, Picatinny Arsenal, ATTN: SARPA-QA-A-M, Dover, New Jersey, 07801

6.4 If the loading plant is responsible for the complete mine, that is, loading of the detonator and delay assemblies and the mine, requirements relating to burning time of delay assemblies may be omitted and testing shall be conducted in accordance with requirements of 3.7.

6.5 The margins of this specification are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

Custodian:
Army-PA

Preparing Activity:
Army-PA

Project Number: 1345-A-089

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

OMB Approval
No. 22-R255

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