

MIL-C-70478 (AR)
8 September 1986

MILITARY SPECIFICATION

CONTAINER, AMMUNITION, METAL, FOR CARTRIDGE, 120MM, TANK AMMUNITION

This Specification is approved for use within 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 covers the requirements, quality assurance provisions and packaging for one type of metal container used for 120MM tank ammunition.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specification and standards. The following specifications and standards form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

SPECIFICATIONS

FEDERAL

TT-C-490 - Cleaning and Preparation of Ferrous and Zinc Coated Surfaces for Organic Protective Coatings

MILITARY

MIL-W-12332 - Welding, Resistance, Spot, Seam and Production, for Fabricating Assemblies of Low-Carbon Steel
MIL-A-48078 - Ammunition, Standard Quality Assurance Provisions, General Specification For

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, U.S. Army Armament Research, Development and Engineering Center, Attn: AMSMC-QA, Dover, New Jersey 07801-5001 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

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STANDARDS

MILITARY

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-171 - Finishing of Metal and Wood Surfaces
- MIL-STD-1169 - Packaging, Packing and Marking For Shipment of Inert Ammunition Components
- MIL-STD-1261 - Welding Procedures for Constructional Steel

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. Unless otherwise specified, the issues shall be those in effect on the date of the solicitation.

DRAWINGS (see 6.4)

US ARMY ARMAMENT RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (ARDEC)

- 9386831 - Container, Ammunition, Metal

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

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted shall be those listed in the issue of the DoDISS specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS shall be the issue of the nongovernment documents which is current on the date of the solicitation.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- ASTM-D412 - Tension Testing of Vulcanized Rubber, Standard Method of
- ASTM-D2240 - Indentation Hardness of Rubber and Plastics by Means of a Durometer, Standard Method of Test for
- ASTM-D3951 - Commercial Packaging, Standard Practice For
- ASTM-E8 - Tension Testing of Metallic Materials, Standard Method of
- ASTM-E18 - Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials, Test for

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

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2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein (except for associated detail specifications, specification sheets or MS standards), the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

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

3.2 Components and assemblies. The components and assemblies shall comply with all requirements specified on drawing 9386831 and the drawings and specification referenced thereon.

3.3 Welding. The welding shall comply with the requirements of MIL-W-12332 or MIL-STD-1261.

3.3.1 Tensile strength (if applicable). The tensile strength of the longitudinal body weld shall be not less than 65 percent of the tensile strength of body material when tested as specified in 4.5.1.

3.3.1.1 Tensile strength of body material. The tensile strength of the body material shall be not less than 50,000 pounds per square inch (psi) as specified in 4.5.1.

3.4 Painted surface. The painted surfaces of the container shall comply with the requirements of TT-C-490. However, the film thickness and salt spray requirements of TT-C-490 will not apply to the interior surfaces, welded spots and sharp corners of the exterior surface of the container. Bare spots permissible on all bearing surfaces as per drawing 9386831.

3.5 Cover assembly. Upon assembly of the cover assembly to the body weldment, the cover assembly shall freely engage and rotate within the body weldment. As the cover assembly is rotated with the "Y" handle in the open position, the "Y" handle shaft ends shall freely engage into the respective bayonet slots of the rim. When the "Y" handle is in the closed position (rotated 180°), the spring clip shall engage and lock the handle in place. When the spring clip is disengaged and the handle rotated to the open position, the cover assembly shall disengage from the body weldment.

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.

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3.7 Workmanship.

3.7.1 Components and assemblies. The components and assemblies shall be regular, smooth, and free from wrinkles, pin holes, cracks, dirt, rough spots, burrs, sharp edges and any other defect that might affect the serviceability, durability, safety and appearance of the container.

3.7.2 Paint coating. The paint coating shall be in accordance with applicable drawings and comply with instructions in MIL-STD-171. The finish coat shall cover all required surfaces and be continuous with the possible exception of a few light scratches not exposing the base metal or the primer coat.

3.7.3 Parts. All parts shall be free of chips, dirt, grease, rust and foreign material. The cleaning method used shall not be injurious to any of the parts nor shall any of the parts be contaminated by the cleaning agents used.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements. 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.

4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

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 five (5) painted metal containers, five (5) painted cover assemblies, five (5) unpainted cover assemblies, and ten (10) each of every subassembly and component (unpainted).

4.3.2 Inspections to be performed. See MIL-A-48078 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	SHEET 1 OF 2			DRAWING NUMBER
	Assemblies and Components				See Below
					NEXT HIGHER ASSEMBLY
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
	<u>Metal Containers, painted -</u> (Drawing 9386831)				
	a. Examination for defects	5		3.2	4.4.2.20
	b. Air pressure	5		3.2	4.5.7.2
	<u>Body Weldment, unpainted -</u> (Drawing 9386830)				
	a. Examination for defects	10		3.2	4.4.2.19
	b. Air pressure	5		3.2	4.5.7.1
	c. Weld rim to body (see Note)	5		3.2	4.5.2
	<u>Cover Assembly, unpainted -</u> (Drawing 9386824)				
	a. Examination for defects	5		3.2	4.4.2.12
	b. Air pressure	5		3.2	4.5.7.1
	<u>Cover assembly, painted -</u> (Drawing 9386824)				
	Examination for defects	5		3.2	4.4.2.13
	<u>Body -</u> (Drawing 9386828)				
	a. Examination for defects	10		3.2	4.4.2.17
	b. Tensile strength (see Note)	5		3.2	4.5.1
NOTES:	The weld security inspections, body tensile strength, spring tests and gasket tensile stress test shall be performed after the other inspections have been performed on the applicable samples.				

TABLE I. First article inspection

CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH		TITLE			MIL-C-70478 (AR)	
		Assemblies and Components			DRAWING NUMBER	
					SHEET 2 OF 2	
					See Below	
					NEXT HIGHER ASSEMBLY	
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD	
	<u>Spring, unpainted</u> - (Drawing 9386818)					
	a. Examination for defects	10		3.2	4.4.2.2	
	b. Embrittlement (see Note)	3		3.2	4.5.3	
	c. Hardness (see Note)	3		3.2	4.5.4	
	<u>Gasket</u> - (Drawing 9386829)					
	a. Examination for defects	10		3.2	4.4.2.10	
	b. Hardness	3		3.2	4.5.6	
	c. Tensile stress (see Note)	3		3.2	4.5.5	
	<u>Yoke assembly, painted</u> - (Dwg. 12561227)	10		3.2	4.4.2.21	
	<u>Remaining subassemblies and components</u> Examination for defects	10		3.2	Applicable sub-paragraph of 4.4.2	

NOTE:

The weld security inspections, body tensile strength, spring tests and gasket tensile stress test shall be performed after the other inspections have been performed on the applicable samples.

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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 containers shall contain material from lots with the same interfix 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 and procedures for major and minor defects shall be in accordance with MIL-STD-105, Inspection Level II.

QUALITY CONFORMANCE INSPECTION**CLASSIFICATION OF DEFECTS & TESTS**

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PARAGRAPH	TITLE	SHEET 1 OF 1		DRAWING NUMBER 9386817	
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	NEXT HIGHER ASSEMBLY 9386820
					PARAGRAPH REFERENCE /INSPECTION METHOD
<u>Critical</u>	None defined				
<u>Major</u> 101	True position of holes	(a)	0.40%	3.2	Gage
<u>Minor</u> 201	Thickness				
202	Diameter of hole (two places)		0.65%	3.2	Gage
203	Location of holes		0.65%	3.2	Gage
204	Evidence of poor workmanship		0.65%	3.7	Visual
NOTES	(a) One sample per lot.				

QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF DEFECTS & TESTS

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PARAGRAPH	TITLE	SHEET 1 OF 1			DRAWING NUMBER 9386818
4.4.2.2	Spring				NEXT HIGHER ASSEMBLY 9386820
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE /INSPECTION METHOD
<u>Critical</u>	None defined				
<u>Major</u>					
101	Spring embrittlement	5		3.2	4.5.3
102	Hardness	5		3.2	4.5.4
103	True position of holes		0.40%	3.2	Gage
104	Radius of loop		0.40%	3.2	Gage
<u>Minor</u>					
201	Diameter of hole two places		0.65%	3.2	Gage
202	Location of holes		0.65%	3.2	Gage
203	Thickness		0.65%	3.2	Gage
204	Length from center of holes to lower edge of bend		0.65%	3.2	Gage
205	Evidence of poor workmanship		0.65%	3.7	Visual
NOTES:					

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CLASSIFICATION OF DEFECTS & TESTS

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PARAGRAPH	TITLE	SHEET 1 of 1			DRAWING NUMBER
4.4.2.3	Support, Shaft				9386819
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	NEXT HIGHER ASSEMBLY
					9386820
					PARAGRAPH REFERENCE / INSPECTION METHOD
<u>Critical</u>	None defined				
<u>Major</u>					
101	Diameter of large hole		0.40%	3.2	Gage
102	Diameter of small hole		0.40%	3.2	Gage
103	True position of large hole		0.40%	3.2	Gage
104	Location of large hole from		0.40%	3.2	Gage
105	rear surface				
	True position of small hole		0.40%	3.2	Gage
106	Distance between shaft support uprights		0.40%	3.2	Gage
107	True position of spring holes		0.40%	3.2	Gage
108	Location of spring holes		0.40%	3.2	Gage
109	Wall thickness		0.40%	3.2	Gage
110	Distance between center line of large hole and slot, and the tab used to assemble the spring and clamp		0.40%	3.2	Gage
<u>Minor</u>					
201	Diameter of spring holes		0.65%	3.2	Gage
202	Radius not present on edges of tab		0.65%	3.2	Visual
203	Evidence of poor workmanship		0.65%	3.7	Visual
NOTES:					

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CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH	TITLE	SHEET 1 OF 1			DRAWING NUMBER 9386820
4.4.2.4	Shaft Support Assembly				NEXT HIGHER ASSEMBLY 9386822
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE /INSPECTION METHOD
<u>Critical</u>	None defined				
<u>Major</u>	None defined				
<u>Minor</u>					
201	Component missing		0.65%	3.2	Visual
202	Rivet missing or improperly applied		0.65%	3.2	Visual
203	Evidence of poor workmanship		0.65%	3.7	Visual
NOTES:					

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CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH	TITLE				MIL-C-70478 (AR) DRAWING NUMBER
4.4.2.5	Handle				9386823
					NEXT HIGHER ASSEMBLY
					9386824
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE /INSPECTION METHOD
<u>Critical</u>	None defined				
<u>Major</u>					
101	True position of small hole		0.40%	3.2	Gage
102	Location of shaft hexhole, 2 places		0.40%	3.2	Gage
103	Distance from center of shaft hexholes to nearer edge of spring slot		0.40%	3.2	Gage
104	Width of spring slot		0.40%	3.2	Gage
<u>Minor</u>					
201	Diameter of small hole		0.65%	3.2	Gage
202	Overall length of tabs		0.65%	3.2	Gage
203	Width of tab		0.65%	3.2	Gage
204	Width of shaft hex hole (three readings 60° apart), 2 places		0.65%	3.2	Gage
205	Largest width of handle		0.65%	3.2	Gage
206	Wall thickness		0.65%	3.2	Gage
207	Evidence of poor workmanship		0.65%	3.7	Visual
NOTES:					

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QUALITY CONFORMANCE INSPECTION**CLASSIFICATION OF DEFECTS & TESTS**

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PARAGRAPH	TITLE	SHEET 1 OF 1			DRAWING NUMBER
4.4.2.6	Shaft				9386816
					NEXT HIGHER ASSEMBLY
					9386824
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
<u>Critical</u>	None defined				
<u>Major</u>					
101	Length of hexagon segment of shaft		0.40%	3.2	Gage
102	Large diameter (two places)		0.40%	3.2	Gage
103	Small diameter (two places)		0.40%	3.2	Gage
104	Total length of large diameters and hexagon segments		0.40%	3.2	Gage
105	Small diameter segment not tangent to large diameter segment and side of hexagon segment		0.40%	3.2	Visual
106	Length of large diameter segment (two places)		0.40%	3.2	Gage
<u>Minor</u>					
201	Width across flats of hexagon segment (three readings, 60° apart)		0.65%	3.2	Gage
202	Length of small diameter segment (two places)		0.65%	3.2	Gage
203	Evidence of poor workmanship		0.65%	3.7	Visual
NOTE:					

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PARAGRAPH	TITLE	SHEET 1 OF 1			DRAWING NUMBER
4.4.2.7	Washer				9386814
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	9386824
					PARAGRAPH REFERENCE /INSPECTION METHOD
<u>Critical</u>	None defined				
<u>Major</u>					
101	Inside diameter		0.40%	3.2	Gage
102	Height		0.40%	3.2	Gage
<u>Minor</u>					
201	Outside diameter		0.65%	3.2	Gage
202	Evidence of poor workmanship		0.65%	3.7	Visual
NOTES:					

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PARAGRAPH	TITLE	SHEET 1 OF 1			DRAWING NUMBER
4.4.2.8	Retainer, Washer				9386813
					NEXT HIGHER ASSEMBLY
					9386824
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
<u>Critical</u>	None defined				
<u>Major</u> 101	Material certification	(a)		3.2	Certification
<u>Minor</u> 201	Diameter of hole		0.65%	3.2	Gage
202	Inside diameter		0.65%	3.2	Gage
203	Height of retainer		0.65%	3.2	Gage
204	Evidence of poor workmanship		0.65%	3.7	Visual
NOTES:					

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PARAGRAPH	TITLE	SHEET <u>1</u> of <u>1</u>			DRAWING NUMBER
4.4.2.9	Cover				9386821
					NEXT HIGHER ASSEMBLY
					9386822
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
<u>Critical</u>	None defined				
<u>Major</u>					
101	Outside diameter		0.40%	3.2	Gage
102	Wall thickness		0.40%	3.2	Gage
103	Depth of groove		0.40%	3.2	Gage
104	Width of groove		0.40%	3.2	Gage
105	Depth from rim to inside of cover base		0.40%	3.2	Gage
106	Height of threads, minimum		0.40%	3.2	Gage
107	Location of air test hole with outside diameter		0.40%	3.2	Gage
108	Flatness of bottom surface inside annular ring and surrounding air test hole		0.40%	3.2	Gage
109	Height of annular ring around air test hole		0.40%	3.2	Gage
<u>Minor</u>					
201	Evidence of poor workmanship		0.65%	3.7	Visual
NOTES:					

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PARAGRAPH	TITLE	SHEET 1 OF 1		DRAWING NUMBER	
4.4.2.10	Gasket			9386829	
				NEXT HIGHER ASSEMBLY	
				9386824	
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
<u>Critical</u>	None defined				
<u>Major</u>					
101	Material certification			3.2	Certification
102	Tensile stress	5		3.2	4.5.5
103	Hardness	a		3.2	4.5.6/
104	Inside diameter, maximum		0.40%	3.2	Gage
105	Large width		0.40%	3.2	Gage
106	Middle width		0.40%	3.2	Gage
107	Height of rectangular cross section		0.40%	3.2	Gage
108	Misalignment of joint		0.40%	3.2	Gage
109	Diameter of hole in cross section	5		3.2	Gage
<u>Minor</u>					
201	Evidence of poor workmanship		0.65%	3.7	Visual

NOTE: (a) One plaque (4 specimens) at start and end of each shift.

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PARAGRAPH	TITLE	SHEET 1 of 1			DRAWING NUMBER
4.4.2.11	Cover Weldment				9386822
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	NEXT HIGHER ASSEMBLY
					9386824
					PARAGRAPH REFERENCE / INSPECTION METHOD
<u>Critical</u>	None defined				
<u>Major</u>	None defined				
<u>Minor</u>					
201	Weld missing, incomplete or visually inadequate		0.65%	3.2	Visual/Manual
202	Location of shaft support slot with respect to cover air hole		0.65%	3.2	Gage
203	Evidence of poor workmanship		0.65%	3.7	Visual
NOTE:					

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PARAGRAPH	TITLE	SHEET OF 1			DRAWING NUMBER
4.4.2.12	Cover Assembly, Prior to Painting				9386824
					NEXT HIGHER ASSEMBLY
					9386831
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE /INSPECTION METHOD
<u>Critical</u>	None defined				
<u>Major</u>					
101	Air pressure		100%	3.2	4.5.7.1/Dwg. 9386824
102	Rotating of shaft inadequate after crimping		0.40%	3.2	Manual
103	Distance from inside cover rim to top of shaft		0.40%	3.2	Gage
<u>Minor</u>					
201	Component missing or inadequately assembled		0.65%	3.2	Visual
202	Evidence of poor workmanship		0.65%	3.7	Visual
NOTES:					

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PARAGRAPH	TITLE	SHEET OF 1		DRAWING NUMBER	
4.4.2.13	Cover assembly, after painting			9386824	
				NEXT HIGHER ASSEMBLY	
				9386831	
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
<u>Critical</u>	None defined				
<u>Major</u>					
101	Gasket in properly bonded to cover.		0.40%	3.2	Visual
102	After painting, the shaft shall freely rotate		0.40%	3.2	Manual
103	Primer thickness		0.40%	3.2	Gage
104	Paint thickness		0.40%	3.2	Gage
<u>Minor</u>					
201	Evidence of poor workmanship		0.65%	3.7	Visual
NOTES:					

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PARAGRAPH	TITLE	SHEET 1 OF 1			DRAWING NUMBER 9386827
4.4.2.14	Rim				NEXT HIGHER ASSEMBLY 9386830
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE /INSPECTION METHOD
<u>Critical</u>	None defined				
<u>Major</u>					
101	Length of larger slot on side of rim		0.40%	3.2	Gage
102	Location of larger slot from inside flat		0.40%	3.2	Gage
103	Location of smaller slot from inside flat		0.40%	3.2	Gage
104	Location of bayonet slot, 4 places		0.40%	3.2	Gage
105	Inside dimension across flats, 2 places (Dim. A)		0.40%	3.2	Gage
106	Inside dimension across corner, 2 places (Dim. D)		0.40%	3.2	Gage
107	Width of larger slot		0.40%	3.2	Gage
108	Inside diameter of rim (Dim. E)		0.40%	3.2	Gage
109	Bayonet locking edge radius (two places)		0.40%	3.2	Gage
<u>Minor</u>					
201	Depth from edge of rim to inside flat		0.65%	3.2	Gage
202	Length of small slot on side of rim		0.65%	3.2	Gage
203	Width of smaller slot		0.65	3.2	Gage
204	Drainage hole missing		0.65%	3.2	Visual
205	Evidence of poor workmanship		0.65%	3.7	Visual
NOTES:					

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CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH	TITLE	SHEET 1 OF 1			MIL-C-70478 (AR)	
		DRAWING NUMBER 9386826		NEXT HIGHER ASSEMBLY 9386830		
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD	
<u>Critical</u>	None defined					
<u>Major</u>						
101	Length of larger slot on side of ring		0.40%	3.2	Gage	
102	Location of larger slot from inside flat		0.40%	3.2	Gage	
103	Location of smaller slot from inside flat		0.40%	3.2	Gage	
104	Inside dimensions across flats, 2 places (Dim. A)		0.40%	3.2	Gage	
105	Width of larger slot		0.40%	3.2	Gage	
106	Opening of container interlocking grip		0.40%	3.2	Gage	
107	Depth of container interlocking grip		0.40%	3.2	Gage	
<u>Minor</u>						
201	Distance from edge of ring to outside flat		0.65%	3.2	Gage	
202	Length of smaller slot on side of ring		0.65%	3.2	Gage	
203	Width of smaller slot		0.65%	3.2	Gage	
204	Location of container interlocking cutouts		0.65%	3.2	Gage	
205	Width of interlocking cutouts		0.65%	3.2	Gage	
206	Depth of interlocking cutouts		0.65%	3.2	Gage	
207	Drainage hole missing		0.65%	3.2	Visual	
208	Evidence of poor workmanship		0.65%	3.7	Visual	
NOTES:						

QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF DEFECTS & TESTS

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PARAGRAPH	TITLE	SHEET 1 of 1			DRAWING NUMBER
4.4.2.16	Bottom				9386825
					NEXT HIGHER ASSEMBLY
					9386830
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
<u>Critical</u>	None defined				
<u>Major</u>					
101	Material thickness		0.40%	3.2	Gage
102	Hole location		0.40%	3.2	Gage
103	Hole diameter		0.40%	3.2	Gage
<u>Minor</u>					
201	Height of lip, minimum		0.65%	3.2	Gage
202	Evidence of poor workmanship		0.65%	3.7	Visual
NOTES:					

QUALITY CONFORMANCE INSPECTION**CLASSIFICATION OF DEFECTS & TESTS**

PARAGRAPH	TITLE	SHEET 1 of 1			MTI-C-70478 (AR) DRAWING NUMBER 9386828
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	NEXT HIGHER ASSEMBLY 9386830 PARAGRAPH REFERENCE /INSPECTION METHOD
4.4.2.17	Body				
<u>Critical</u>	None defined				
<u>Major</u>		(a)			
101	Tensile strength of weld			3.3.1	4.5.1
102	Wall thickness		0.40%	3.2	Gage
103	Inside diameter, minimum		0.40%	3.2	Gage
104	Length, minimum		0.40%	3.2	Gage
105	Flatness of body		0.40%	3.2	Gage
<u>Minor</u>					
201	Evidence of poor workmanship		0.65%	3.7	Visual
NOTE: (a) Three coupons per shift.					

QUALITY CONFORMANCE INSPECTION**CLASSIFICATION OF DEFECTS & TESTS**

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PARAGRAPH	TITLE	SHEET 1 OF 1			DRAWING NUMBER
4.4.2.18	Plug, Stacking				9386837
					NEXT HIGHER ASSEMBLY
					9386830
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
<u>Critical</u>	None defined				
<u>Major</u>					
101	Length of plug		0.40%	3.2	Gage
102	Width of plug		0.40%	3.2	Gage
<u>Minor</u>					
201	Length of indexing projection		0.65%	3.2	Gage
202	Width of indexing projection		0.65%	3.2	Gage
203	Evidence of poor workmanship		0.65%	3.7	Visual
NOTES:					

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AMSMC Form 1570, 1 Feb 85

Replaces DRSMC-QA (D) Form 160, 1 Aug 83, which may not be used.

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CLASSIFICATION OF DEFECTS & TESTS

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PARAGRAPH	TITLE	SHEET 1 OF 1			DRAWING NUMBER 9386830
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	NEXT HIGHER ASSEMBLY 9386831 PARAGRAPH REFERENCE (INSPECTION METHOD)
4.4.2.19	Body Weldment, Prior to Painting				
<u>Critical</u>	None defined				
<u>Major</u>					
101	Air pressure	(a)	100%	3.2	4.5.7.1
102	Weld of rim to body			3.2	4.5.2
103	True position of holes of ring, rim and stacking plug		0.40%	3.2	Gage
104	Location of hole in rim relative to holes in inside rings and stacking plugs		0.40%	3.2	Gage
105	Location of hole in rim relative to hole in outside ring and stacking plug		0.40%	3.2	Gage
106	Perpendicularity of ring and rims with Datum-A		0.40%	3.2	Gage
107	Distance from end of body to top of rim bayonet slot (four places)		0.40%	3.2	Gage
108	Minimum shear load between stacking plug and body		0.40%	3.2	Gage
<u>Minor</u>					
201	Any weld of ring, rim or bottom to body missing, incomplete or visually inadequate		0.65%	3.2	Visual
202	Evidence of poor workmanship		0.65%	3.7	Visual
notes:					
(a) Three coupons per shift.					

QUALITY CONFORMANCE INSPECTION**CLASSIFICATION OF DEFECTS & TESTS**

MIL-C-70478 (AR)

PARAGRAPH	TITLE	SHEET 1 OF 1			DRAWING NUMBER 9386830
4.4.2.20	Body Weldment, after painting				NEXT HIGHER ASSEMBLY 9386831
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE /INSPECTION METHOD
<u>Critical</u>	None defined				
<u>Major</u>					
101	Primer thickness		0.40%	3.2	Gage
102	Paint thickness		0.40%	3.2	Gage
103	Marking		0.40%	3.2	5.3
<u>Minor</u>					
201	Evidence of poor workmanship		0.65%	3.7	Visual
NOTES:					

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QUALITY CONFORMANCE INSPECTION**CLASSIFICATION OF DEFECTS & TESTS**

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PARAGRAPH	TITLE	SHEET 1 OF 1			DRAWING NUMBER 9386831
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	NEXT HIGHER ASSEMBLY 9386832 or 9386833
					PARAGRAPH REFERENCE /INSPECTION METHOD
<u>Critical</u>	None defined				
<u>Major</u>					
101	Cover assembly test		0.40%	3.5	Visual/Manual/4.5.8
102	Air pressure test (with yoke assembly in place)		0.40%	3.2	4.5.7.2
103	Screw torque test (top and bottom)	(a)	0.40%	3.2	4.5.9
<u>Minor</u>					
201	Missing, loose or damaged components		0.65%	3.2	Visual
202	Protective finish damaged, bare spots exposing metal, etc.		0.65%	3.2	Visual
203	Evidence of poor workmanship		0.65%	3.7	Visual
NOTE:					
(a) The screw torque test shall be performed after the air pressure test has been performed and the screw has been reassembled.					

QUALITY CONFORMANCE INSPECTION**CLASSIFICATION OF DEFECTS & TESTS**

MIL-C-70478 (AR)

PARAGRAPH	TITLE	SHEET 1 OF 1			DRAWING NUMBER 12561227
4.4.2.22	Yoke assembly, after painting				NEXT HIGHER ASSEMBLY 9386831
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE /INSPECTION METHOD
<u>Critical</u>	None defined				
<u>Major</u>					
101	Location of the weldnut		0.40%	3.2	Gage
102	Yoke stops inside the maximum base diameter		0.40%	3.2	Gage
<u>Minor</u>					
201	Presence of spot welds on yoke stop		0.65%	3.2	Visual
202	Presence of spot weld on weldment		0.65%	3.2	Visual
203	Presence of improper threads in weldment		0.65	3.2	Gage/Visual
204	Evidence of poor workmanship		0.65%	3.7	Visual
NOTES:					

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4.4.3 Testing. Testing is described in the First article and Quality conformance inspection tables.

4.4.3.1 Tensile strength (see 3.3.1), Major Defect. Five (5) bodies shall be randomly selected for this test. Four specimens, approximately equally spaced along the axis, shall be taken from each body at right angles to the weld. If one specimen of a sample fails to comply with the requirement, that sample shall be classed defective. If two or more samples are classed defective, the lot shall be rejected.

4.4.3.2 Tensile strength of body material (see 3.3.1.1) Major defect. Five (5) bodies shall be randomly selected for this test. From each body, three specimens shall be selected at random for determination of body material tensile strength. If one specimen fails to comply with 3.3.1.1, that sample body shall be classed defective. If two or more sample bodies are classed defective, the lot shall be rejected.

4.4.3.3 Weld of rim to body (see 9386830), Major Defect. Five (5) body assemblies shall be selected for this test. If any sample fails to comply with the requirement, the lot shall be rejected.

4.4.3.4 Spring embrittlement (see dwg. 9386818), Major Defect. Five (5) springs shall be randomly selected from each heat treatment lot for this test. If any spring fails to meet the requirement, the heat treatment lot shall be rejected.

4.4.3.5 Hardness of spring (see dwg. 9386818), Major Defect. Five (5) springs shall be randomly selected from each heat treatment lot for this test. If any spring fails to meet the requirement, the heat treatment lot shall be rejected.

4.4.3.6 Tensile stress of gasket (see dwg. 9386829), Major Defect. Five (5) gaskets shall be randomly selected from each lot for this test. If any gasket fails to meet the requirement, the lot shall be rejected.

4.4.3.7 Hardness of gasket (see dwg. 9386829), Major Defect. Five (5) gaskets shall be randomly selected from each lot for this test. If any gasket fails to meet the requirement, the lot shall be rejected.

4.4.3.8 Air pressure.

4.4.3.8.1 Air pressure of unpainted cover assembly (see dwg. 9386824), Major Defect. The cover assemblies shall be checked 100 percent. If any cover assembly fails to comply with the requirement, the cover assembly shall be rejected.

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4.4.3.8.2 Air pressure of unpainted body weldment (see dwg. 9386830), Major Defect. The body weldments shall be checked 100 percent. If the body weldment fails to comply with the requirement, the body weldment shall be rejected.

4.4.3.8.3 Air pressure of painted metal container (see dwg. 9386831), Major Defect. The containers shall be sampled in accordance with MIL-STD-105, with an AQL of 0.40 percent.

4.4.3.9 Cover assembly test (see dwg. 9386831). The cover assemblies shall be sampled in accordance with MIL-STD-105, with an AQL of 0.40 percent.

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 and 6.5 herein.

4.5 Methods of inspection. (See 6.5).

4.5.1 Tensile strength. The tensile strength shall be determined in accordance with ASTM-E8.

4.5.2 Weld of rim to body. The test shall be performed in accordance with ASTM-E8.

4.5.3 Spring embrittlement. The spring shall be repeatedly stretched with increasing loads until it does not return to its original free height. That point shall indicate minimum distortion. Any unit which fractures prior to extension to minimum distortion shall be classed defective.

4.5.4 Hardness of spring. The hardness of the spring shall be determined in accordance with ASTM-E18.

4.5.5 Tensile stress of gasket. The tensile stress shall be determined in accordance with ASTM-D412.

4.5.6 Hardness of gasket. The hardness test shall be performed on the specimens. This test shall be performed in accordance with ASTM Method D-2240. Shore A hardness readings shall be taken on the ends of each specimen. Any specimen failing the applicable requirements shall be cause for rejection of that lot of material.

4.5.7 Air pressure test

4.5.7.1 Air pressure of unpainted cover assembly and unpainted body weldment. Subject the cover assembly and body weldment to the internal air pressure, specified in the applicable container assembly drawing, for one of the test times specified. For the cover assembly, apply the pressure when the cover assembly (equipped

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with a gasket) is assembled to a master body assembly (or its equivalent). For the body weldment, apply the pressure when the body weldment is assembled to a master cover (or equivalent) and gasket. The master cover and the master body assembly shall be provided with satisfactory means for applying and maintaining the pressure during the test and for showing evidence of leakage. Observation shall be made for a pressure drop exceeding the requirement for the corresponding test time (as specified in the applicable drawing). A cover assembly or body weldment which exceeds the requirement, shall be classed defective.

4.5.7.1.1 Alternate air pressure test for unpainted cover assembly and unpainted body assembly (Water Method). Subject the cover assembly and container body while under water, to the specified internal air pressure for the test time specified. For the cover assembly, apply the pressure when the cover assembly is assembled to a master body assembly (or its equivalent) equipped with a gasket. For the body assembly, apply the pressure when the body assembly is assembled to a master cover (or equivalent) and gasket. The master cover and master body assembly shall be provided with satisfactory means for applying and maintaining the pressure during the test and for showing evidence of leakage. No bubbles (other than surface bubbles) shall be permitted. A cover assembly or body assembly which does not meet the requirements shall be classed defective.

4.5.7.2 Air pressure of painted metal container. Subject the metal container to the internal air pressure, specified in the applicable metal container drawing, for one of the test times specified. Observation shall be made for a pressure drop exceeding the requirement for the corresponding test time (as specified in the applicable drawing). A metal container, which exceeds the requirement shall be classed defective.

4.5.8 Cover assembly test. Upon assembly of the body and cover, the cover shall freely engage and rotate within the body. The Y-handle shall engage into the respective bayonet slots of the rim without interference when in the clamping position. The Y-handle when disengaged and in the open position shall disengage the cover from the body.

4.5.9 Screw torque test. The minimum applicable torque shall be applied to the screw. Any evidence of motion of the screw before reaching the minimum acceptable torque shall be cause for rejection of the container assembly being tested.

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5. PACKAGING

5.1 Preservation and packaging. None required.

5.2 Packing.

5.2.1 Level A. The metal container shall be packed in accordance with Level A of MIL-STD-1169.

5.2.2 Level B. The metal container shall be packed in accordance with Level B of MIL-STD-1169.

5.2.3 Commercial. The metal container shall be packed in accordance with ASTM-D-3951.

5.3 Marking.

5.3.1 Level A. The metal container shall be marked in accordance with Level A of MIL-STD-1169.

5.3.2 Level B. The metal container shall be marked in accordance with Level B of MIL-STD-1169.

5.3.3 Commercial. The metal container shall be marked in accordance with ASTM-D-3951 and the following additional instructions. Commercial shipping tags attached with wire shall show: Item name and model number, part number and revision, contract number, lot number and data, name and address of manufacturer. If components and assemblies are bundled, boxed or palletized, the gross weight and quantity shall be included. The above information may be placed on pallets or boxes by labeling or stenciling.

5.4 Shipping. When containers from more than one lot are shipped at one time, each lot shall be kept separate and the division between lots clearly indicated to prevent mixing of lots in transit.

6. NOTES

6.1 Intended use. The metal container is intended for use as the outer tactical shipping and storage packaging for the 120MM Tank Cartridge.

6.2 Ordering data. See MIL-A-48078.

6.3 Definition of packaging and packing levels.

6.3.1 Level A. Full Military protection, for unrestricted (OCONUS) shipment and storage

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6.3.2 Level B. Limited Military protection for limited storage and (OCONUS) shipment.

6.3.3 Level C. For interplant (CONUS) shipment and very limited storage.

6.4 Drawings. Drawings listed in Section 2 of this specification under the heading US Army Armament Research, Development and Engineering Center (ARDEC) may also include drawings prepared by, and identified as US Army Armament Research and Development Command (ARRADCOM), US Army Armament Research and Development Center (ARDC), Edgewood Arsenal, Frankford Arsenal, Rock Island Arsenal or Picatinny Arsenal drawings. Technical data originally prepared by these activities is now under the cognizance of ARDEC.

6.5 Submission of inspection equipment for design approvals - See MIL-A-48078. Submit designs as required to: Commander, US Army Armament Research, Development and Engineering Center, ATTN: AMSMC-QAT-I(D), Dover, New Jersey 07801-5001.

6.6 Approval of equivalent test methods. 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, US Army Armament Research, Development and Engineering Center, ATTN: AMSMC-QAT-A(D), Dover, New Jersey 07801-5001. This description should include but not be limited to the accuracy and precision of the method, test data demonstrating the accuracy and precision and drawings of any special equipment required.

6.7 Subject term (key words) listings.

Ammunition
Body
Cannon
Cartridge
Container
Cover
Metal
Tank

Custodian:
Army-AR

Preparing activity:
Army-AR

(Project 8140-A639)

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