

INCH-POUND

MIL-C-2440F (AR)
1 April 1992
SUPERSEDING
MIL-C-2440E (AR)
29 October 1979

MILITARY SPECIFICATION

CONTAINER, METAL, FOR PROPELLING CHARGE

This 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 covers the requirements, examinations and tests for one type of metal container for packing propelling charges (see 6.1).

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards and handbooks. The following specifications, standards and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

FEDERAL

TT-C-490 - Cleaning Methods for Ferrous Surfaces and Pretreatment for Organic Coatings

MILITARY

MIL-W-12332 - Welding Resistance, Spot, Seam and Projection for Fabricating Assemblies of Low-Carbon Steel

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 ARDEC, ATTN: SMCAR-BAC-S, Picatinny Arsenal, New Jersey 07806-5000 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

FSC 8140

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

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- MIL-A-48078 - Ammunition, Standard Quality Assurance Provisions, General Specification for
- MIL-A-70625 - Automated Acceptance Inspection Equipment for Non-Electronic Components Design, Testing and Approval of

STANDARDS

MILITARY

- MIL-STD-109 - Quality Assurance Terms and Definitions
- MIL-STD-171 - Finishing of Metal and Wood Surfaces
- MIL-STD-1261 - Arc Welding Procedures for Constructional Steel

(Unless otherwise indicated, copies of federal and military specifications, standards and handbooks are available from Standardization Documents Order Desk, Bldg. 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094).

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

DRAWINGS (see 6.3)

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

- 7548965 - Semi-Auto Test Machine
- 8880527 - Container, Metal, Propelling Charge, M13A2
- 8880528 - Container, Metal, Propelling Charge, M14A2
- 8880529 - Container, Metal, Propelling Charge, M16A3
- 8880530 - Container, Metal, Propelling Charge, M18A2
- 8880531 - Container, Metal, Propelling Charge, M19A2
- 8880532 - Container, Metal, Propelling Charge, M460A2
- 8880533 - Container, Metal, Propelling Charge, M10A4
- 8880534 - Container, Metal, Propelling Charge, M20A3
- 8880535 - Container, Metal, Propelling Charge, M349A1
- 8880536 - Container, Metal, Propelling Charge, M350A1
- 9234357 - Container, Metal, Propelling Charge, PA37A1

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| | | | |
|---------|---|-------------------------------|------|
| 9271646 | - | Container, Ammunition, Metal: | PA64 |
| 9275845 | - | Container, Metal Prop Charge: | PA66 |
| 9278205 | - | Container, Ammunition, Metal: | PA68 |
| 9293460 | - | Container, Metal Prop Charge: | PA75 |
| 9332423 | - | Container, Ammunition, Metal: | PA86 |

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

2.2 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (See 6.2).

AMERICAN SOCIETY FOR TESTING AND MATERIALS

| | | |
|------------|---|---|
| ASTM-E8 | - | Tension Testing of Metallic Materials, Standards Method of |
| ASTM-D3951 | - | Commercial Packaging, Practice for (DoD adopted) |

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

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

3. REQUIREMENTS

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

3.2 Containers. The containers shall comply with all requirements specified on drawings (dwgs) 8880527 through 8880536, 9234357, 9271646, 9275845, 9278205, 9293460 and 9332423 inclusive, all associated drawings and with all requirements specified in applicable specifications.

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

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3.4 Tensile strength (if applicable). This requirement is applicable if the body of the container is manufactured from steel sheets, that are longitudinally welded, instead of steel tubing.

3.4.1 Tensile strength of body weld. The tensile strength of the longitudinal body weld shall not be less than 65 percent of the tensile strength of the body material.

3.4.2 Tensile strength of body material. The tensile strength of the body materials shall not be less than 47,000 pounds per square inch (psi).

3.5 Cover assembly. Upon assembly of the body and cover, the arms of the completed clamping spider in the optimum clamping position shall freely engage in the slot. When a torque of 250 ± 25 inch pounds is applied to the cover, when assembled to the body, there shall be no damage to the cover assembly or rim.

3.6 Painted surface. The painted exterior surface of the container shall comply with the requirements of TT-C-490. However, the film thickness and salt spray test requirements of TT-C-490 shall not apply to the interior surfaces, exterior surface welded spots and exterior surface sharp corners of the container.

3.7 Air pressure. Each container body and each cover assembly, before painting, shall withstand the internal air pressure test without leakage.

3.7.1 Method one. The container body and cover assembly must withstand an internal air pressure of three psi for fifteen (15) seconds without leakage occurring.

3.7.2 Method two. The container body and cover assembly must withstand an internal air pressure of three psi for five (5) seconds, under water, without leakage occurring.

3.7.3 Method three. The container body and cover assembly must withstand an internal air pressure of three psi for five (5) seconds, in accordance with dwg. 7548965 without leakage occurring.

3.9 Workmanship.

3.9.1 Containers. The containers shall be regular, smooth, and free from wrinkles, pin holes, cracks, rough spots, sharp edges, and any other defect that might affect the serviceability, durability, safety and appearance of the container.

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3.9.2 Paint coating. The paint coating shall be in accordance with applicable drawings and comply with instructions in MIL-STD-171.

3.9.3 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 (examinations and tests) 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 this specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items shall meet all requirements of Section 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 ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.1.2 General provisions. Unless otherwise specified herein, the provisions of MIL-A-48078 apply and form a part of the assurance provisions of this specification. Reference shall be made to MIL-STD-109 to define quality assurance terms used herein.

4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:

- a. First article inspection (see 4.3).
- b. Quality conformance inspection (see 4.4).

4.3 First article inspection.

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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 assemblies, components and test specimens listed in Table I.

4.3.2 Inspection to be performed. See MIL-A-48078 and Table I.

4.3.3 Rejection. See MIL-A-48078.

TABLE I. First article inspection

CLASSIFICATION OF CHARACTERISTICS

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| PARAGRAPH | CONTAINER, Metal, for Propelling Charges and Components | SHEET 1 OF 5 | | DRAWING NUMBER |
|----------------|---|----------------------|-----------------------|-----------------------------|
| CLASSIFICATION | EXAMINATION OR TEST | CONFORMANCE CRITERIA | REQUIREMENT PARAGRAPH | NEXT HIGHER ASSEMBLY |
| | | | | INSPECTION METHOD REFERENCE |
| | <u>Plug (Dwg. 8880552)</u> Examination for defects | 5 | 3.2 | 4.4.2.1 |
| | <u>Stud (Dwg. 8880549)</u> Examination for defects | 5 | 3.2 | 4.4.2.2 |
| | <u>Gasket (Dwg. 8880558)</u> Examination for defects | 5 | 3.2 | 4.4.2.3 |
| | <u>Screw assembly (Dwg. 8880544, 8880545 or 9990547 as applicable)</u> a. Examination for defects b. Crimp of handle to sleeve test | 5 5 (Note 1) | 3.2 3.2 | 4.4.2.4 4.5.1 |
| | <u>Cover (Dwg. 8880550)</u> Examination for defects | 5 | 3.2 | 4.4.2.5 |
| | <u>Spider and nut assembly (Dwg. 8880554)</u> Crimp of nut to spider | 5 | 3.2 | 4.5.2 |
| | NOTES: 1. This test applies only to Dwg. 8880545. The same samples that were used for examination for defects may be used for this test. | | | |

TABLE I. First article inspection

CLASSIFICATION OF CHARACTERISTICS

MIL-C-2440F (AR)

| PARAGRAPH | CONTAINER, Metal, for Propelling Charges and Components | SHEET 2 OF 5 | DRAWING NUMBER SEE BELOW |
|--|---|----------------------|-----------------------------|
| | | | |
| CLASSIFICATION | EXAMINATION OR TEST | CONFORMANCE CRITERIA | REQUIREMENT PARAGRAPH |
| | Cover assembly, prior to painting (Dwg. 8880543) | | |
| | a. Air pressure test | 5 | 3.7 |
| | b. Weld strength of stud to cover test | 5 (Note 1) | 3.2 |
| | Cover assembly, painted (Dwg. 8880543) | | |
| | 1. Examination for defects | 5 | 3.2 |
| | 2. Painted surface | 3 | 3.6 |
| | Body (Dwg. 8880538 or 9333778, as applicable) | | |
| | a. Examination for defects | 5 | |
| | 1. Thickness | | Gage |
| | 2. Length | | Gage |
| | 3. Location of bead or crimps as applicable for rim. | | Gage |
| | b. Tensile strength of body weld and body (if applicable) | 5 (Note 2) | 4.5.4 |
| | Rim (Dwg. 8880541) | | |
| | Examination for defects | 5 | 3.2 |
| | | | 4.4.2.9 |
| NOTES: 1. These samples may be the same as the samples submitted for the air pressure test. 2. These samples may be the same as the samples used for the examination for defects. | | | |

TABLE I. First article inspection

CLASSIFICATION OF CHARACTERISTICS

| PARAGRAPH | | TITLE | | CONTAINER, METAL FOR PROPELLING CHARGES AND COMPONENTS | | SHEET 3 OF 5 | | DRAWING NUMBER | |
|--|--|--|--|--|-----|-----------------------|--|-----------------------------|----------|
| CLASSIFICATION | | EXAMINATION OR TEST | | CONFORMANCE CRITERIA | | REQUIREMENT PARAGRAPH | | INSPECTION METHOD REFERENCE | |
| | | Body assembly, prior to painting (Dwg. 8880537 or 9333779, as applicable) | | | | | | | |
| | | a. Examination for defects | | 5 | 3.2 | | | | 4.4.2.10 |
| | | b. Air pressure test | | 5 (Note 1) | 3.7 | | | | 4.5.8 |
| | | c. Weld strength of rim to body | | 5 (Note 2) | 3.2 | | | | 4.5.5 |
| | | Body assembly, painted | | | | | | | |
| | | Painted surface | | 3 | 3.6 | | | | 4.5.7 |
| | | Container assembly (Dwg. 8880527, 8880536, 9234357, 9271646, 9275845, 9278205, 9293460 and 9332423, as applicable) | | | | | | | |
| | | 1. Examination for defects | | 5 | 3.2 | | | | 4.4.2.11 |
| | | 2. Cover assembly test | | 5 (Note 1) | 3.4 | | | | 4.5.6 |
| | | Bottom (Dwg. 8880539 or 8880540 as applicable) | | | | | | | |
| NOTES: 1. These samples may be the same as the samples used for the examination for defects. 2. These samples may be the same as the samples used for the examination for defects or the air pressure test. | | | | | | | | | |

AMSMC Form 1570b, 1 Jul 89

Replaces 1570, 1 Feb 85, which may not be used.

TABLE I. First article inspection

CLASSIFICATION OF CHARACTERISTICS

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| PARAGRAPH | CONTAINER, Metal, for Propelling Charges and Components | EXAMINATION OR TEST | CONFORMANCE CRITERIA | SHEET 4 OF 5 | DRAWING NUMBER | |
|----------------|---|---------------------|----------------------|------------------------------|----------------------------------|--|
| | | | | | NEXT HIGHER ASSEMBLY | |
| | | | | | INSPECTION METHOD REFERENCE | |
| CLASSIFICATION | | | | REQUIREMENT PARAGRAPH | | |
| | Examination for defects 1. Material thickness 2. Height, minimum <u>Ring (Dwg. 8880542)</u> Examination for defects 1. Thickness <u>Nut (Dwg. 8880553, 9232378, 9282857, or 9311209, as applicable)</u> Examination for defects 1. Minor diameter of thread 2. Pitch diameter of thread <u>Spider (Dwg. 8880555)</u> Examination for defects | 5 | 5 | 3.2 3.2 3.2 3.2 | Gage Gage Gage Gage | |
| | 1. Diameter of hole 2. Location from center of hole to edge of wing (Dimension A). 3. Thickness | 5 | 5 | 3.2 3.2 3.2 | Gage Gage Gage | |
| NOTES: | | | | | | |

TABLE I. First article inspection**CLASSIFICATION OF CHARACTERISTICS**

MIL-C-2440F (AR)

| PARAGRAPH | CONTAINER, Metal for Propelling Charges and Components | SHEET 5 OF 5 | | DRAWING NUMBER <u>See below</u> |
|----------------|--|----------------------|-----------------------|---|
| CLASSIFICATION | EXAMINATION OR TEST | CONFORMANCE CRITERIA | REQUIREMENT PARAGRAPH | NEXT HIGHER ASSEMBLY INSPECTION METHOD REFERENCE |
| | <u>Base (Dwg. 8880556 or 8880557, as applicable).</u> Examination for defects 1. Height 2. Thickness 3. Diameter | 5 | 3.2 3.2 3.2 | Gage Gage Gage |
| NOTES: | | | | |

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4.4 Quality conformance inspection.

4.4.1 Inspection lot formation. The term "inspection lot" is defined as a homogeneous collection of units of product from which a representative sample is drawn or which is inspected 100 percent to determine conformance with applicable requirements. Units of product selected for inspection shall represent only the inspection lot from which they are drawn and shall not be construed to represent any prior or subsequent quantities presented for inspection. Homogeneity shall be considered to exist provided the inspection lot has been produced by one manufacturer in one unchanged process, using the same materials and methods, in accordance with the same drawings, same drawing revisions, same specifications and the same specification revisions. All material submitted for inspection in accordance with this specification shall comply with the homogeneity criteria specified herein, regardless of the type of inspection procedure which is being applied to determine conformance with requirements.

4.4.2 Examination and tests.

a. Classification of characteristics. Quality conformance examinations and tests are specified in the following Classification of Characteristics paragraphs. The contractor's quality program or detailed inspection system shall provide assurance of compliance of all characteristics with the applicable drawing and specification requirements utilizing as a minimum the conformance criteria specified. When cited herein, attributes sampling inspection shall be conducted in accordance with Table II below, using the inspection levels stated in the Classification of Characteristics paragraphs.

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TABLE II. Attributes sampling inspection

| Lot Size | <u>Inspection Levels</u> | | | | | |
|------------------|--------------------------|-----|-----|-----|----|----|
| | I | II | III | IV | V | VI |
| 2 to 8 | * | * | * | * | 5 | 3 |
| 9 to 15 | * | * | * | 13 | 5 | 3 |
| 16 to 25 | * | * | * | 13 | 5 | 3 |
| 26 to 50 | * | * | 32 | 13 | 5 | 3 |
| 51 to 90 | * | * | 32 | 13 | 13 | 5 |
| 91 to 150 | * | 125 | 32 | 13 | 13 | 5 |
| 151 to 280 | * | 125 | 32 | 32 | 20 | 8 |
| 281 to 500 | * | 125 | 32 | 32 | 20 | 8 |
| 501 to 1200 | * | 125 | 80 | 50 | 20 | 13 |
| 1201 to 3200 | 1250 | 125 | 80 | 50 | 32 | 13 |
| 3201 to 10000 | 1250 | 125 | 125 | 50 | 32 | 13 |
| 10001 to 35000 | 1250 | 315 | 125 | 80 | 50 | 13 |
| 35001 to 150000 | 1250 | 315 | 125 | 80 | 50 | 13 |
| 150001 to 500000 | 1250 | 500 | 200 | 125 | 50 | 13 |
| 500001 and over | 1250 | 500 | 200 | 125 | 50 | 13 |

Numbers under inspection levels indicate sample size; asterisks (*) indicates one hundred percent inspection. If sample size exceeds lot size, perform one hundred percent inspection. Accept on zero and reject on one or more for all inspection levels.

b. Alternative quality conformance provisions. Alternative quality conformance procedures, methods, or equipment, such as statistical process control, tool control, other types of sampling procedures, etc., may be used by the contractor when they provide, as a minimum, the level of quality assurance required by the provisions specified herein. Prior to applying such alternative procedures, methods, or equipment, the contractor shall describe them in a written proposal submitted to the Government for evaluation (See 6.4). When required, the contractor shall demonstrate that the effectiveness of each proposed alternative is equal to or better than the specified quality assurance provision(s) herein. In cases of dispute as to whether the contractor's proposed alternative(s) provide equivalent assurance, the provisions of this specification shall apply. All approved alternative provisions shall be specifically incorporated into the contractor's quality program or detailed inspection system, as applicable.

QUALITY CONFORMANCE INSPECTION

MIL-C-2440F (AR)

CLASSIFICATION OF CHARACTERISTICS

| PARAGRAPH | TITLE | SHEET | 1 OF 1 | DRAWING NUMBER |
|-----------------|---|----------------------|-----------------------|-----------------------------|
| 4.4.2.1 | Plug | | | 8880552 |
| | | | | NEXT HIGHER ASSEMBLY |
| | | | | 8880543 |
| CLASSIFICATION | EXAMINATION OR TEST | CONFORMANCE CRITERIA | REQUIREMENT PARAGRAPH | INSPECTION METHOD REFERENCE |
| <u>Critical</u> | None defined | | | |
| <u>Major</u> | | | | |
| 101. | Major diameter of thread | Level III | 3.2 | Gage |
| 102. | Pitch diameter of thread | Level III | 3.2 | Gage |
| <u>Minor</u> | | | | |
| 201. | Total length, minimum (min.) | Level V | 3.2 | Gage |
| 202. | Distance from slot end to shoulder | Level V | 3.2 | Gage |
| 203. | Distance from thread to shoulder | Level V | 3.2 | Gage |
| 204. | Width of slot | Level V | 3.2 | Gage |
| 205. | Depth of slot | Level V | 3.2 | Gage |
| 206. | Diameter of plug, min. | Level V | 3.2 | Gage |
| 207. | Diameter of knob of plug, min. | Level V | 3.2 | Gage |
| 208. | Protective finish missing or incomplete | Level V | 3.2 | Gage |
| 209. | Evidence of poor workmanship | Level V | 3.2 | Visual |
| | | Level V | 3.9 | Visual |
| NOTES: | | | | |

QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF CHARACTERISTICS

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| PARAGRAPH | TITLE | SHEET 1 OF 1 | | DRAWING NUMBER |
|-----------------|------------------------------|----------------------|-----------------------|-----------------------------|
| 4.4.2.2 | Stud | | | 8880549 |
| | | | | NEXT HIGHER ASSEMBLY |
| CLASSIFICATION | EXAMINATION OR TEST | CONFORMANCE CRITERIA | REQUIREMENT PARAGRAPH | INSPECTION METHOD REFERENCE |
| <u>Critical</u> | None defined | | | |
| <u>Major</u> | | | | |
| 101. | Pitch diameter of thread | Level III | 3.2 | Gage |
| 102. | Minor diameter of thread | Level III | 3.2 | Gage |
| 103. | Total length | Level IV | 3.2 | Gage |
| 104. | Small outside diameter, min. | Level IV | 3.2 | Gage |
| <u>Minor</u> | | | | |
| 201. | Length of thread, min. | Level V | 3.2 | Gage |
| 202. | Evidence of poor workmanship | Level V | 3.9 | Visual |
| NOTES: | | | | |

QUALITY CONFORMANCE INSPECTION

MIL-C-2440F (AR)

CLASSIFICATION OF CHARACTERISTICS

| PARAGRAPH | TITLE | SHEET 1 OF 1 | | DRAWING NUMBER |
|-----------------|---|----------------------|-----------------------|--|
| 4.4.2.3 | Gasket | | | 8880558 NEXT HIGHER ASSEMBLY |
| CLASSIFICATION | EXAMINATION OR TEST | CONFORMANCE CRITERIA | REQUIREMENT PARAGRAPH | 8880543 INSPECTION METHOD REFERENCE |
| <u>Critical</u> | None defined | | | |
| <u>Major</u> | | | | |
| 101. | Material certification | Level IV | 3.2 | Certification |
| 102. | Angularity, maximum (max.) | Level IV | 3.2 | Gage |
| 103. | Inside diameter, max. | Level IV | 3.2 | Gage |
| 104. | Height (11/16"), min. | Level IV | 3.2 | Gage |
| 105. | Large width 3/8" | Level IV | 3.2 | Gage |
| 106. | Height from base to edge of large width (3/16") | Level IV | 3.2 | Gage |
| <u>Minor</u> | | | | |
| 201. | Evidence of poor workmanship | Level V | 3.9 | Visual |
| NOTES: | | | | |

QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF CHARACTERISTICS

MIL-C-2440F (AR)

| PARAGRAPH | TITLE | SHEET 1 of 1 | | DRAWING NUMBER 8880544, 8880545 or 8880547, as appl. | NEXT HIGHER ASSEMBLY |
|--|--|----------------------|-----------------------|--|-----------------------------|
| CLASSIFICATION | EXAMINATION OR TEST | CONFORMANCE CRITERIA | REQUIREMENT PARAGRAPH | 8880543 | INSPECTION METHOD REFERENCE |
| 4.4.2.4 | Screw Assembly | | | | |
| <u>Critical</u> | None defined | | | | |
| <u>Major</u> | | | | | |
| 101. | Pitch diameter of thread (Note 1) | Level III | 3.2 | Gage | |
| 102. | Major diameter of thread (Note 1) | Level III | 3.2 | Gage | |
| 103. | Total length | Level IV | 3.2 | Gage | |
| 104. | Crimp of handle to sleeve test (Note 2). | 7, 0-1 | 3.2 | 4.5.1 | |
| <u>Minor</u> | | | | | |
| 201. | Evidence of poor workmanship | Level V | 3.9 | Visual | |
| NOTES: 1. If Dwg. 8880545 applies, see Dwg. 8880548 (sleeve) for inspection. 2. This test only applies to Dwg. 8880545. It will be performed after the other inspections. The samples for this test may be the same samples that are used in weld of stud to cover test (see 4.5.3). | | | | | |

QUALITY CONFORMANCE INSPECTION

MIL-C-2440F (AR)

CLASSIFICATION OF CHARACTERISTICS

| PARAGRAPH | TITLE | SHEET 1 OF 1 | | DRAWING NUMBER |
|-----------------|------------------------------|----------------------|-----------------------|---------------------------------|
| 4.4.2.5 | Cover | | | 8880550 NEXT HIGHER ASSEMBLY |
| CLASSIFICATION | EXAMINATION OR TEST | CONFORMANCE CRITERIA | REQUIREMENT PARAGRAPH | INSPECTION METHOD REFERENCE |
| <u>Critical</u> | None defined | | | |
| <u>Major</u> | | | | |
| 101. | Overall height | Level III | 3.2 | Gage |
| 102. | Width of gasket groove | Level III | 3.2 | Gage |
| 103. | Height of lip | Level III | 3.2 | Gage |
| <u>Minor</u> | | | | |
| 201. | Evidence of poor workmanship | Level V | 3.9 | Visual |
| NOTES: | | | | |

QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF CHARACTERISTICS

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| PARAGRAPH | TITLE | SHEET 1 OF 1 | | DRAWING NUMBER |
|-----------------|------------------------------|----------------------|-----------------------|-----------------------------|
| 4.4.2.6 | Spider and Nut Assembly | | | 8880554 |
| CLASSIFICATION | EXAMINATION OR TEST | CONFORMANCE CRITERIA | REQUIREMENT PARAGRAPH | NEXT HIGHER ASSEMBLY |
| | | | | 8880543 |
| | | | | INSPECTION METHOD REFERENCE |
| <u>Critical</u> | None defined | | | |
| <u>Major</u> | | | | |
| 101. | Crimp of nut to spider test. | 7, 0-1 | 3.2 | 4.5.2 |
| <u>Minor</u> | | | | |
| 201. | Evidence of poor workmanship | Level V | 3.9 | Visual |
| NOTES: | | | | |

QUALITY CONFORMANCE INSPECTION

MIL-C-2440F (AR)

CLASSIFICATION OF CHARACTERISTICS

| PARAGRAPH | TITLE | SHEET 1 OF 1 | | DRAWING NUMBER |
|-----------------|--|----------------------|-----------------------|-----------------------------|
| 4.4.2.7 | Cover Assembly, prior to painting | | | 8880543 |
| | | CONFORMANCE CRITERIA | REQUIREMENT PARAGRAPH | NEXT HIGHER ASSEMBLY |
| CLASSIFICATION | EXAMINATION OR TEST | | | see 2.1.2 |
| | | | | INSPECTION METHOD REFERENCE |
| <u>Critical</u> | None defined | | | |
| <u>Major</u> | | | | |
| 101. | Air pressure test | 100% | 3.7 | 4.5.8 |
| 102. | Weld of stud to cover test | 7, 0-1 | 3.2 | 4.5.3 |
| 103. | Component missing or inadequately assembled. | Level III | 3.2 | Visual/Manual |
| <u>Minor</u> | | | | |
| 201. | Evidence of poor workmanship | Level V | 3.9.1 3.9.3 | Visual |
| NOTES: | | | | |

QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF CHARACTERISTICS

MIL-C-2440F (AR)

| PARAGRAPH | TITLE | SHEET 1 OF 1 | | DRAWING NUMBER |
|-----------------|---|----------------------|-----------------------|--|
| CLASSIFICATION | EXAMINATION OR TEST | CONFORMANCE CRITERIA | REQUIREMENT PARAGRAPH | NEXT HIGHER ASSEMBLY see 2.1.2 INSPECTION METHOD REFERENCE |
| 4.4.2.8 | Cover Assembly | | | 8880543 |
| <u>Critical</u> | None defined | | | |
| <u>Major</u> | | | | |
| 101. | Gasket not secure or secured improperly to cover. | Level III | 3.2 | Visual/Manual |
| <u>Minor</u> | | | | |
| 201. | Protective finish damaged or bare spots exposing metal. | Level IV | 3.2 | Visual |
| 202. | Evidence of poor workmanship | Level V | 3.9 | Visual |
| NOTES: | | | | |

AMSMC Form 1570b-E, 1 Jul 89

Replaces AMSMC Form 1570, 1 Feb 85, which may not be used.

QUALITY CONFORMANCE INSPECTION
CLASSIFICATION OF CHARACTERISTICS

MIL-C-2440F-(AR)

| PARAGRAPH | TITLE | SHEET 1 OF 1 | | DRAWING NUMBER |
|-----------------|---|----------------------|-----------------------|---------------------------------|
| 4.4.2.9 | Rim | | | 8880541 NEXT HIGHER ASSEMBLY |
| CLASSIFICATION | EXAMINATION OR TEST | CONFORMANCE CRITERIA | REQUIREMENT PARAGRAPH | INSPECTION METHOD REFERENCE |
| <u>Critical</u> | None defined | | | |
| <u>Major</u> | Inside diameter of bayonet circle, max. | Level III | 3.2 | Gage |
| 101. | Location of bayonet recesses (slots) | Level III | 3.2 | Gage |
| 102. | Height of recess (3 places) | Level III | 3.2 | Gage |
| 103. | Width of recess (3 places) | Level III | 3.2 | Gage |
| 104. | | | | |
| <u>Minor</u> | Evidence of poor workmanship | Level V | 3.9 | Visual |
| 201. | | | | |
| NOTES: | | | | |

QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF CHARACTERISTICS

MIL-C-2440F (AR)

| PARAGRAPH | TITLE | SHEET 1 OF 1 | | DRAWING NUMBER 8880537 or 9333779, as appl. NEXT HIGHER ASSEMBLY |
|-----------------|--|-----------------------------------|-----------------------|--|
| CLASSIFICATION | EXAMINATION OR TEST | CONFORMANCE CRITERIA | REQUIREMENT PARAGRAPH | see 2.1.2 INSPECTION METHOD REFERENCE |
| 4.4.2.10 | Body Assembly, prior to painting | | | |
| <u>Critical</u> | None defined | | | |
| <u>Major</u> | | | | |
| 101. | Air pressure test | 100% | 3.7 | 4.5.8 |
| 102. | Body (seam) weld (if applicable) or weld of rim, ring(s) or bottom to missing, incomplete or inadequate. Large outside diameter, max. Location of ring(s). | Level III Level IV Level IV | 3.2 3.2 3.2 | Visual Gage Gage |
| 103. | | | | |
| 104. | | | | |
| <u>Minor</u> | | | | |
| 201. | Drain hole in rim or ring missing | Level V | 3.2 | Visual |
| 202. | Evidence of poor workmanship | Level V | 3.9 | Visual |
| NOTES: | | | | |

QUALITY CONFORMANCE INSPECTION

MIL-C-2440F (AR)

CLASSIFICATION OF CHARACTERISTICS

| PARAGRAPH | TITLE | SHEET 1 OF 1 | CONFORMANCE CRITERIA | REQUIREMENT PARAGRAPH | DRAWING NUMBER see 2.1.2 NEXT HIGHER ASSEMBLY |
|-----------------|--|--------------|----------------------|-----------------------|---|
| 4.4.2.11 | Container Assembly | | | | |
| CLASSIFICATION | EXAMINATION OR TEST | | | | INSPECTION METHOD REFERENCE |
| <u>Critical</u> | None defined | | | | |
| <u>Major</u> | | | | | |
| 101. | Cover assembly test | | 30, 0-1 | 3.2 | 4.5.6 |
| 102. | Inside diameter of body assembly, min. | | Level III | 3.2 | Gage |
| 103. | Total length, max. | | Level III | 3.2 | Gage |
| <u>Minor</u> | | | | | |
| 201. | Protective coating damaged, bare spots exposing bare metal | | Level IV | 3.2 | Visual |
| 202. | Marking missing, incomplete or illegible. | | Level IV | 3.2 | Visual |
| 203. | Evidence of poor workmanship | | Level V | 3.9 | Visual |
| NOTES: | | | | | |

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4.4.3 Testing

4.4.3.1 Tensile strength of body weld and body material (see 3.4), Major defect. During the first half of a production shift and during the last half of a production shift, a body shall be selected for this test. From each body, three (3) specimens shall be selected at random for determination of body material tensile strength. Also, from each body (4) specimens, approximately equally spaced along the axis, shall be taken at right angles to the weld and the tensile strength of their welds shall be determined. Each of these values shall be compared with the lowest determined value of the body material tensile strength for compliance with the requirement of 3.4.1. If one or more specimens (longitudinal body weld or body material) fail to comply with 3.4.1 or 3.4.2, the quantity of bodies that were welded between this portion of the shift and the earlier strength test (if applicable) shall be rejected. A weld strength test shall also be performed whenever an electrode is changed or dressed. The test shall be performed as specified in 4.5.4.

4.4.3.2 Weld strength of rim to body (see 8880537 or 9333779, as applicable), Major defect. During the first half of a production shift and during the last half of a production shift, two (2) body assemblies shall be selected at random for this test. From each body assembly, two (2) specimens of welded rim to body segments shall be taken at random. If any specimen fails to meet the requirement when tested in accordance with 4.5.5, the quantity of body assemblies that were welded between this portion of the shift and the earlier weld strength test (if applicable) shall be rejected. A weld strength test shall also be performed whenever an electrode is changed or dressed.

4.4.3.7 Painted surface (see 3.6), Major defect. Sampling shall be in accordance with TT-C-490 and testing shall be in accordance with 4.5.7.

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 and in 4.5. When Automated Acceptance Inspection Equipment is to be used, the provisions of MIL-A-70625 shall apply. The contractor shall submit for approval inspection equipment designs in accordance with the terms of the contract. Designs which provide variable measurements instead of attributes data are preferred in order to facilitate the use of statistical process control. See section 6 of MIL-A-48078 and 6.5 herein.

4.5 Methods of inspection. (see 6.6)

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4.5.1 Crimp of handle to sleeve. The test shall be determined on a testing machine complying with ASTM-E8. A load of 2,000 pounds min. shall be applied.

4.5.2 Crimp of nut to spider. The test shall be determined on a testing machine complying with ASTM-E8.

4.5.3 Weld strength of stud to cover. The test shall be determined on a testing machine complying with ASTM-E8. A load of 2,000 pounds min. shall be applied.

4.5.4 Tensile strength of rim body. The test shall be determined on a testing machine complying with ASTM-E8.

4.5.5 Weld strength of rim to body. The test shall be determined on a testing machine complying with ASTM-E8.

4.5.6 Cover assembly. Assemble the body and cover in the optimum clamping position and determine if the arms of the completed clamping spider freely engage. Then, apply the required torque and determine compliance with the stated requirement.

4.5.7 Painted surface. The painted cover assembly and body assembly shall be tested in accordance with TT-C-490. The items shall be exposed to a salt spray resistance inspection for a period of 48 hours.

4.5.8 Air pressure test. Subject the cover assembly and container body, before painting, to the required internal air pressure for the test time specified. Test the container body by applying pressure to the container body after assembling it to a master cover and gasket or equivalent. Test the cover assembly by applying pressure to the cover assembly without a gasket after assembling it to a master container equipped with a gasket or equivalent. The master cover or equivalent and the master container or equivalent shall be provided with satisfactory means for applying and maintaining the pressure during the test and for showing evidence of leakage.

5. PACKAGING

5.1 Packaging requirements. None required.

5.2 Packing. Unit packing is not required. Packing shall be commercial. Propelling charge containers shall be prepared in accordance with ASTM-D3951.

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5.3 Marking. Shipping marking shall comply with ASTM-D3951 and the following additional instructions. No shipping marking shall be placed directly on the containers. Commercial shipping tags attached with wire shall be used unless otherwise specified. The following information shall be shown: item name and model number, part number and revision, contract number, lot number and date, name and address of manufacturer. If containers 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.

6. NOTES

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

6.1 Intended use. This metal ammunition container is used for packing 155MM and 8 inch propelling charges for separate loaded artillery ammunition.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number and date of this specification.
- b. Applicable stock number.
- c. First article sample requirements.
- d. Packaging requirements, if other than specified in section 5.
- e. Serialization requirements, if applicable.
- f. Certificate of conformance for each lot or shipment of product.
- g. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.2).

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

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6.4 Submission of alternative quality conformance provisions. Unless otherwise specified in the contract, proposed alternative quality conformance provisions will be submitted by the contractor for evaluation by the technical activity responsible for the preparation of this specification.

6.5 Submission of contractor inspection equipment designs for approval. Submit two copies of designs as required to: Commander, U.S. Army ARDEC, Attn: SMCAR-QAR-I, Picatinny Arsenal, New Jersey 07806-5000. This address will be specified on the Contract Data Requirements List, DD Form 1423 in the contract.

6.6 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, U.S. Armament Research, Development and Engineering Center, ATTN: SMCAR-QAR-Q, Picatinny Arsenal, New Jersey 07806-5000. 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 Superseded container designs. Containers and their components, whose designs have been superseded, are not acceptable for renovation (see Appendix) without prior approval of the procuring activity.

6.8 Subject term (key word) listing.

Artillery
Packing
Pallet

6.9 Changes from previous issue. Asterisks (or vertical lines) are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodian:
Army - AR

Preparing activity:
Army - AR

(Project 8140 - A846)

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APPENDIX

QUALITY ASSURANCE PROVISIONS FOR RENOVATION

10. SCOPE

10.1 Scope. This appendix provides the Quality Assurance Provisions for the renovation of Containers, Metal, for Propelling Charge.

20. APPLICABLE DOCUMENTS

This section is not applicable to this appendix.

30. RENOVATION

30.1 Dents. Dents shall be removed as required to allow compliance with 40.1.

30.2 Cleaning. All paint and rust shall be removed.

30.3 Rims and rings. Rims and rings shall be straightened and welded by fillet welding where required.

30.4 Seams. Seams shall be welded where required.

30.5 Refinish. The parts shall be finished in accordance with the applicable body or cover drawing.

30.6 Gaskets. The gaskets on the cover and in the test plug shall be replaced with new gaskets.

40. REQUIREMENTS

40.1 Dents. Dents which do not preclude good stenciling and dents which do not affect the function of the container or hinder proper packing of the charge shall be acceptable.

40.2 Protective coating. The protective coating shall not be damaged or contain bare spots exposing base metal.

40.3 Welds. Welds shall be in conformance with good commercial practices.

40.4 Air pressure test of body and cover. (see 3.7)

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40.5 Workmanship. All parts shall be free of chips, burrs, 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.

50. INSPECTION

50.1 Examination. All defects shall be classified as major defects and inspected on an individual basis using Inspection Level III (except for the air pressure test, as specified below) as specified in Table II (see 4.4.2).

50.1.1 Body prior to painting

- | | |
|---------------------------------|--------|
| 1. Workmanship (see 40.5) | Visual |
| 2. Dents (see 40.1) | Visual |
| 3. Rim or rings weld (see 40.3) | Visual |

50.1.2 Body after painting

- | | |
|--|-------------------|
| 1. Primer (see 40.2) | Visual |
| 2. Paint (see 40.2) | Visual |
| 3. Air pressure (see Note 1 below and 40.4). | Test, 100 percent |

50.1.3 Cover prior to painting

- | | |
|---------------------------|--------|
| 1. Workmanship (see 40.1) | Visual |
| 2. Dents (see 40.1) | Visual |

50.1.4 Cover after painting

- | | |
|---|------------------|
| 1. Primer (see 40.2) | Visual |
| 2. Paint (see 40.2) | Visual |
| 3. Cover gasket missing or improper | Visual |
| 4. Plug washer missing or improper | Visual |
| 5. Air pressure (see Note 1 below and 40.4) | Test 100 percent |

1. The air pressure test may be conducted 100 percent on the assembled container (cover and body), after painting, in lieu of the individual body and cover.

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:

1. DOCUMENT NUMBER
MIL-C-2440F (AR)

2. DOCUMENT DATE (YYMMDD)
1 April 1992

3. DOCUMENT TITLE

CONTAINER, METAL, FOR PROPELLING CHARGE

4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets if needed.)

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (Last, First, Middle Initial)

b. ORGANIZATION

c. ADDRESS (Include Zip Code)

d. TELEPHONE (Include Area Code)

(1) Commercial

(2) AUTOVON
(if applicable)

7. DATE SUBMITTED
(YYMMDD)

8. PREPARING ACTIVITY

a. NAME
US ARMY ARDEC
STANDARDIZATION OFFICE

b. TELEPHONE (Include Area Code)

(1) Commercial
(201) 724-6675

(2) AUTOVON
880-6675

c. ADDRESS (Include Zip Code)

ATTN: SMCAR-BAC-S
PICATINNY ARSENAL,NJ 07806-5000

IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:
Defense Quality and Standardization Office
5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466
Telephone (703) 756-2340 AUTOVON 289-2340