

MIL-O-20582E

24 March 1988

SUPERSEDING

MIL-O-20582D

30 September 1970

## MILITARY SPECIFICATION

### OPENERS, CAN, HAND, FOLDING

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

#### 1. SCOPE

1.1 Scope. This document covers lightweight, folding, hand-operated can openers for severing tops of rimmed metal cans.

1.2 Classification. The can openers shall be of the following types as specified (see 6.2):

Type I - Small, for opening individual portion-sized cans in the field

Type II - Large, for opening group portion-sized cans in the field

#### 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 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.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: U.S. Army Natick Research, Development, and Engineering Center, Natick, MA 01760-5014 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 7330

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SPECIFICATIONS

FEDERAL

- QQ-S-700 - Steel Sheet and Strip, Medium and High Carbon
- PPP-B-601 - Boxes, Wood Cleated-Plywood
- PPP-B-636 - Boxes, Shipping, Fiberboard

MILITARY

- MIL-T-10727 - Tin Plating; Electrodeposited or Hot-Dipped, For Ferrous or Nonferrous Metals

STANDARDS

FEDERAL

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-129 - Marking for Shipment and Storage
- MIL-STD-147 - Palletized Unit Loads

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

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

U.S. ARMY NATICK RESEARCH, DEVELOPMENT, AND ENGINEERING CENTER

- 2-9-148 - Opener, Can, Hand, Folding, Type I; Can Opener and Directions for Use
- 5-13-4260 - Opener, Can, Hand, Folding Type II

(Copies of drawings, publications, and other Government documents 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 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 issues of the nongovernment documents which are current on the date of the solicitation.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D 3951 - Standard Practice for Commercial Packaging  
E 18 - Rockwell Hardness and Rockwell Superficial  
Hardness of Metallic Materials

(Copies should be obtained from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

(Nongovernment standards and other publications are normally available from the organizations which prepare or which distribute the documents. These documents also may be available in or through libraries or other informational services.)

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

3. REQUIREMENTS

3.1 First article. When specified in the contract or purchase order, a sample shall be subjected to first article inspection (see 4.3, 6.2 and 6.3).

3.2 Materials (see 6.4) and components. Materials and components shall be as specified herein. Materials and components not definitely specified shall be of the quality normally used by the manufacturer for his standard commercial can openers provided the completed item complies with all provisions of this specification.

3.2.1 Carbon steel, sheet and strip. The material for the can openers shall be carbon steel sheet and strip conforming to numbers 1050, 1055, or 1065 of QQ-S-700.

3.3 Design and construction. The can openers shall be designed and constructed as specified herein and as shown on the applicable drawing. The openers shall completely sever the tops of circular, rectangular, or tray pack cans, as applicable, when tested as specified in 4.4.4.2. The openers shall be assembled so the knife blade offers resistance to changing from the closed position to the open position and from the open position to the closed position. Opening of the blade shall be accomplished by use of the hand without the use of an auxiliary instrument. It is not required that the blade be retained firmly in the open position.

3.3.1 Heat treatment (hardness). The body and the blade of the can openers shall be heat treated to a Rockwell "C" hardness of not less than 47 nor more than 55 and shall be verified by the test specified in 4.4.4.1.

3.3.2 Knife blade. The knife blade shall have a sharp, tapered, cutting edge formed by grinding, milling, shearing, or coining.

3.3.3 Finish (plating). All burrs and rough edges shall be removed. The opener shall be tin plated in accordance with type I of MIL-T-10727. The thickness of plating on all surfaces shall be not less than 0.0001 inch when tested as specified in 4.4.4.1.

3.4 Identification marking. Each type I and type II can opener shall be permanently and distinctly stamped with the letters "U.S." and the manufacturer's name or trademark. Markings shall be of the size and in the locations shown on the applicable drawing. Markings shall be applied so there is no distortion or unevenness opposite the markings or penetration through the metal.

3.5 Workmanship. The finished can openers shall be clean and free of rust, slivers, die marks, deformities and fractures. All sharp edges and corners, except the cutting edge, shall be removed. The knife blade cutting edge shall be free of burrs and slivers.

#### 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 this document where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this document shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirement in the document 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.

4.1.2 Responsibility for dimensional requirements. Unless otherwise specified in the contract or purchase order, the contractor is responsible for assuring that all specified dimensions have been met. When dimensions cannot be examined on the end item, inspection shall be made at any point or at all points in the manufacturing process necessary to assure compliance with all dimensional requirements.

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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. When a first article is required (see 6.2), it shall be examined for the defects specified in table I and the dimensions specified in the applicable drawing, and shall be tested for the characteristics specified in 4.5.1, 4.5.2, and 4.5.3. The presence of any defect or failure to pass any test shall be cause for rejection of the first article.

4.3.1 Process approval. When a first article is not required, or each time a new production setup is made, or a new die is introduced into the production system, the measurements specified in 4.3 shall be made on the first units produced under the revised production conditions.

4.4 Quality conformance inspection. Unless otherwise specified, sampling for inspection shall be performed in accordance with MIL-STD-105.

4.4.1 Component and material inspection. In accordance with 4.1, components and materials shall be inspected in accordance with all the requirements of referenced documents unless otherwise excluded, amended, modified, or qualified in this specification or applicable purchase document.

4.4.2 End item visual examination. The end item shall be examined for the defects listed in table I. The lot size shall be expressed in units of can openers of one type only. The sample unit shall be one can opener. The inspection level shall be II and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 2.5 for major defects and 6.5 for total (major and minor combined) defects.

TABLE I. End item visual defects

Examine	Defect	Classification	
		Major	Minor
Finish	Any burr or rough edge	X	
	Tin plating omitted, area of no coating, or rust	X	
	Base metal shows through plating	X	
	Plating not adherent (flaky, peeling, or blistered)	X	
	Plating scratched, stained, or discolored		X

TABLE I. End item visual defects (cont'd)

Examine	Defect	Classification	
		Major	Minor
Knife blade and body (general)	Design not as shown on applicable drawing	X	
	Opener not assembled as specified	X	
	Any component missing, broken, cracked, malformed, or bent out of shape	X	
	Sharp edges or corners (except cutting edge)	X	
	Die marks, burrs or slivers	X	
Knife blade	No cutting edge or not sharp	X	
	Cutting edge not tapered level or not uniform		X
	Cannot be opened to the operating position by hand without the use of an auxiliary instrument	X	
	Offers no resistance to changing from closed to open or from open to closed		X
Body	Hole missing	X	
	Body not embossed (reinforcing ribs)		X
Identification marking	Missing, illegible, incomplete, incorrect, or not in proper location		X
	Penetration on opposite surface	X	

4.4.3 End item dimensional examination. The end items shall be examined for conformance to the exterior body length dimension specified on the applicable drawing. Any dimension not within the specified tolerance shall be classified as a defect. The lot size shall be expressed in units of can openers. The sample unit shall be one can opener. The inspection level shall be S-2 and the AQL, expressed in terms of defects per hundred units, shall be 1.0.

4.4.4 End item testing.

4.4.4.1 Plating and hardness testing. The end items shall be tested as specified in 4.5.1 and 4.5.2. The lot size shall be expressed in units of can openers. The sample unit shall be one can opener. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 2.5.

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4.4.4.2 Cutting testing. The end items shall be tested as specified in 4.5.3. The lot size shall be expressed in units of can openers. The sample unit shall be one can opener. The inspection level shall be S-2 and the AQL, expressed in terms of defects per hundred units, shall be 1.0

4.4.5 Packaging examination. The fully packaged end items shall be examined for the defects listed below. The lot size shall be expressed in units of shipping containers. The sample unit shall be one shipping container fully packaged. The inspection level shall be S-2 and the AQL, expressed in terms of defects per hundred units, shall be 2.5.

<u>Examine</u>	<u>Defect</u>
Marking (exterior and interior)	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application
Materials	Any component missing, damaged, or not as specified
Content	Number of intermediate containers is more or less than specified Number of can openers per intermediate container is less than specified <u>1/</u>

1/ For this defect one intermediate container shall be examined.

4.4.6 Palletization examination. The fully packaged and palletized end items shall be examined for the defects listed below. The lot size shall be expressed in units of palletized unit loads. The sample unit shall be one palletized unit load, fully packaged. The inspection level shall be S-1 and the AQL, expressed in terms of defects per hundred units, shall be 6.5.

<u>Examine</u>	<u>Defect</u>
Finished dimensions	Length, width, or height exceeds specified maximum requirements.
Palletization	Load not bonded as specified.
Weight	Exceeds maximum load limits.
Marking	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application.

4.5 Method of inspection.

4.5.1 Plating thickness. Plating thickness shall be tested by the non-destructive method as specified in MIL-T-10727 to determine conformance with 3.3.3. Any nonconformance with the specified requirements shall constitute failure of this test.

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4.5.2 Hardness. Hardness shall be tested in accordance with ASTM E 18 to determine conformance with 3.3.1. Any nonconformance with the specified requirement shall constitute failure of this test.

4.5.3 Cutting. Each sample can opener shall be tested to determine that it completely severs the tops of both circular and rectangular cans as required by 3.3. The test for the type I can opener shall be performed on one commercial No. 2 circular can and one rectangular can measuring approximately 6-5/8 inches long by 4-1/8 inches wide by a minimum of 1-5/8 inches high. The test for the type II can opener shall be performed on one rectangular 1001 by 1206 by 200 size tray pack can, and on one commercial No. 10 circular can. Any nonconformance with the specified requirements shall constitute failure of this test.

5. PACKAGING

5.1 Preservation. Packaging shall be level A or Commercial, as specified (see 6.2).

5.1.1 Level A.

5.1.1.1 Unit packing. Each can opener, with the blade folded flat, shall be packaged in an envelope made from material comprised of not less than 0.0005-inch thick polyethylene coated on not less than 25 pounds basis weight (24 by 36-500) unbleached kraft paper and the seams shall be formed by heat sealing. The envelope containing one can opener shall be closed by heat sealing. The maximum dimensions of the envelope shall be 1-11/16 inches by 2-3/4 inches for the type I can opener, and 2 inches by 3-1/4 inches for the type II can opener.

5.1.1.2 Intermediate packing. One thousand can openers, unit packed as specified in 5.1.1.1, shall be intermediate packed in a snug-fitting fiberboard box conforming to style RSC, type CF, variety SW, or type SF, class domestic, grade 200 of PPP-B-636. The box shall be fabricated and closed in accordance with method II as specified in the appendix of the box specification.

5.1.2 Commercial. One thousand can openers, unit packed as specified in 5.1.1.1, shall be intermediate packed in accordance with ASTM D 3951.

5.2 Packing. Packing shall be level A, B, or Commercial as specified (see 6.2).

5.2.1 Level A packing. Four thousand can openers intermediate packed as specified in 5.1, shall be packed in a snug-fitting cleated-plywood shipping container conforming to type domestic, style A or J, grade B of PPP-B-601. The shipping container shall be closed and reinforced in accordance with the appendix of the box specification.

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5.2.2 Level B packing. Four thousand can openers, intermediate packed as specified in 5.1, shall be packed in a snug-fitting fiberboard shipping container conforming to style RSC, type CF, variety SW, or type SF, class domestic, grade 275 of PPP-B-636. Closure shall be in accordance with method II of the appendix of PPP-B-636.

5.2.2.1 Weather-resistant fiberboard container. When specified (see 6.2), the shipping container shall be a grade V3c, V3s, or V4s fiberboard box fabricated in accordance with PPP-B-636 and closed in accordance with method III as specified in the appendix of PPP-B-636.

5.2.3 Commercial. Four thousand can openers, intermediate packed as specified in 5.1, shall be packed in accordance with ASTM D 3951.

5.3 Palletization. When specified (see 6.2), can openers packed as specified in 5.2, shall be palletized on a 4-way entry pallet in accordance with load type I or Ia of MIL-STD-147. Pallet types shall be type I (4-way entry), type IV or type V in accordance with MIL-STD-147. Each prepared load shall be bonded with primary and secondary straps in accordance with bonding means K and L or film bonding means O or P. Pallet patterns shall be in accordance with MIL-STD-147.

5.4 Marking. In addition to any special marking required by the contract or purchase order, unit packs, intermediate packs, shipping containers and unit loads shall be marked in accordance with MIL-STD-129 or ASTM D 3951, as applicable.

5.4.1 Special marking. Each unit pack shall have printed thereon a diagram and directions for use as shown on the applicable drawing.

6. NOTES

6.1 Intended use. The type I can opener is intended for use by military personnel in the field to open combat-type rations, in-flight rations, and emergency rations. The type II can opener is intended for use by military personnel in the field to open military tray pack and round can components of the 36-soldier Tray Pack Meal Modules.

6.2 Ordering data. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. Type required (see 1.2).
- c. When a first article is required (see 3.1, 4.3, and 6.3).
- d. Selection of applicable levels of preservation and packing (see 5.1 and 5.2).
- e. When weather-resistant grade fiberboard shipping containers are required for level B packing (see 5.2.2.1).
- f. When palletization is required (see 5.3).

6.3 First article. When a first article is required, it shall be inspected and approved under the appropriate provisions of FAR 52.209. The first article should be a preproduction sample. The contracting officer should specify the appropriate type of first article and the number of units to be furnished. The contracting officer should include specific instructions in all procurement instruments regarding arrangements for inspection and approval of the first article.

6.4 Recycled material. It is encouraged that recycled material be used when practical as long as it meets the requirements of this specification (see 3.2).

6.5 Subject term (key word) listing.

Can  
Can opener  
Meal module  
T-ration  
Tray pack

6.6 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians:

Army - GL  
Navy - SA  
Air Force - 99

Preparing activity:

Army - GL  
Project No. 7330-0587

Review activities:

Army - MD  
Navy - MC  
Air Force - 84  
DLA - GS

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**NOTE:** This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification 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.

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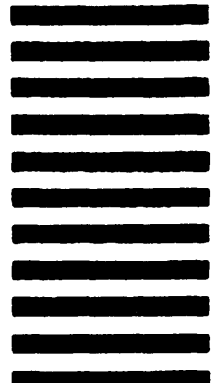
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# STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER  
MIL-O-20582E

2. DOCUMENT TITLE  
Openers, Can, Hand, Folding

3a. NAME OF SUBMITTING ORGANIZATION

4. TYPE OF ORGANIZATION (Mark one)

VENDOR

USER

MANUFACTURER

OTHER (Specify): \_\_\_\_\_

b. ADDRESS (Street, City, State, ZIP Code)

## 5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording:

c. Reason/Rationale for Recommendation:

## 6. REMARKS

7a. NAME OF SUBMITTER (Last, First, MI) - Optional

b. WORK TELEPHONE NUMBER (Include Area Code) - Optional

c. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional

8. DATE OF SUBMISSION (YYMMDD)

DD FORM 1426  
82 MAR

PREVIOUS EDITION IS OBSOLETE.  
NATICK OP-1, Feb 86