

INCH-POUND

MIL-C-44217A  
15 November 1989  
SUPERSEDING  
MIL-C-44217(GL)  
28 January 1986

MILITARY SPECIFICATION

CAP, WATER CANTEEN, 5-QUART, COLLAPSIBLE

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

1. SCOPE

1.1 Scope. This specification covers one type and size of canteen cap.

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).

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 8465

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## SPECIFICATIONS

## FEDERAL

- RR-C-271 - Chains and Attachements, Welded and Weldless
- PPP-B-566 - Boxes, Folding, Paperboard
- PPP-B-636 - Boxes, Shipping, Fiberboard
- PPP-B-676 - Boxes, Setup

## MILITARY

- MIL-M-14 - Molding Plastics and Molded Plastic Parts, Thermo-setting
- MIL-R-3065 - Rubber, Fabricated Products
- MIL-C-5040 - Cord, Nylon
- MIL-L-35078 - Loads, Unit: Preparation of Semiperishable Subsistence Items; Clothing, Personal Equipment and Equipage; General Specification For

## STANDARDS

## MILITARY

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-129 - Marking for Shipment and Storage
- MIL-STD-130 - Identification Marking of U.S. Military Property
- MIL-STD-147 - Palletized Unit Loads
- MIL-STD-417 - Classification System and Tests for Solid Elastomeric Materials

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Naval Publications and Forms Center, (ATTN: NPODS), 5801 Tabor Avenue, Philadelphia, PA 19120-5099.)

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

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

- 2-9-73 - Cap Water Canteen, Chain and Gasket, Assembled
- 2-9-74 - Cap Water Canteen, Chain and Gasket Assembled; Testing Block

(Copies of drawings are available from the U.S. Army Natick Research, Development, and Engineering Center, ATTN: STRNC-EMSS, Natick, MA 01760-5014.)

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- \* 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).

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Federal Food, Drug, and Cosmetic Act and Regulations Promulgated Thereunder  
(21 CFR Parts 177 and 182)

(The Code of Federal Regulations (CFR) and the Federal Register (FR) are for sale on a subscription basis by the Superintendent of Documents, US Government Printing Office, Washington, DC 20402. When indicated, reprints of certain regulations may be obtained from the Federal agency responsible for issuance thereof.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D 3951 - Standard Practice for Commercial Packaging

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103-1187.)

(Non-Government standards and other publications are normally available from organizations that prepare or 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 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 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 6.3), in accordance with 4.3.

3.2 Samples. Samples, when furnished, are solely for guidance and information to the contractor (see 6.4). Variation from this specification may appear in the sample, in which case this specification shall govern.

3.3 Materials. Materials specified shall conform to applicable documents and requirements specified herein. Where materials are not definitely specified, the materials shall be of the quality normally used in commercial

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practice. It is encouraged that recycled material be used when practical as long as it meets the requirements of this specification.

3.3.1 Molding, plastic. The molding plastic shall conform to type CFI-10 of MIL-M-14, shall be black in color, and shall meet the toxicity requirements of 3.5.5.

3.3.2 Cord, nylon. The nylon cord shall be type 1 or 1A, OD-7 conforming to MIL-C-5040.

3.4 Construction. The assembled water canteen cap and chain shall be constructed as shown on Drawing 2-9-73 and as specified herein.

3.5 Details of components.

3.5.1 Cap. The body of the cap shall be molded of plastic specified in 3.3.1 and shall show no evidence of unsatisfactory molding such as chalking, blistering, or distortion. When tested as specified in 4.4.5, the cap shall not crack, split, break, or sustain thread damage or other impairment. When tested as specified in 4.4.2, the water absorption shall not be greater than 4.0 percent by weight and the swelling shall not be more than 1.75 percent in any one direction.

3.5.2 Gasket. The gasket shall conform to type, class, grade and suffix letters RN420A or RS420A1 of MIL-R-3065 and MIL-STD-417, and shall meet the toxicity requirements of 3.5.5. The thickness and diameter shall be as specified on Drawing 2-9-73. The gasket shall be a tight pressed fit into the cap and shall show no sign of looseness or turning.

3.5.3 Chain. The chain shall conform to type II, class 6, Trade No. 0 of RR-C-271.

3.5.4 Rivet. The rivet shall be formed from Steel Series 300 corrosion-resistant steel and shall be firmly set into the cap. When tested as specified in 4.4.5, the rivet shall remain firmly set.

3.5.5 Toxicity. The canteen cap and gasket shall conform in every respect to the provisions of the Federal Food, Drug and Cosmetic Act, Food Additive Amendment, 21 CFR Part 177 (except Sections 177.1020, 177.1030, 177.1040, 177.1050 and 177.1480) and/or 177.2600 (e).

3.6 Finish.

3.6.1 Cap. The entire surface of the top of the cap, extending down as far as the serrations, shall have a lusterless matte finish, and the other surfaces shall have a natural finish. The matte finish and the natural finish shall be the result of the molding procedure.

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3.6.2 Chain and rivet. The chain and rivet shall be given a lusterless black oxidized coating.

3.7 Marking for identification. The canteen cap shall be permanently and distinctly marked on the outside top surface during the molding process, with the letters "U.S.," the manufacturer's identification mark, and the year of manufacture in accordance with MIL-STD-130.

3.8 Workmanship. The cap shall conform to the quality of product established by this specification.

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 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 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 accept defective material.

4.1.2 Responsibility for dimensional requirements. Unless otherwise specified in the contract or purchase order, the contractor is responsible for ensuring 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 ensure compliance with all dimensional requirements.

4.1.3 Certificates of compliance. When certificates of compliance are submitted, the Government reserves the right to inspect such items to determine the validity of the certification.

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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 3.1 and 6.2), it shall be examined for the defects specified in 4.4.3 and 4.4.4 and tested for the characteristics specified in 4.4.5.

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.

4.4.1.1 Component and material certification. A certificate of compliance may be acceptable as evidence that the identity, color, and toxicity of the cap conforms to the requirements specified in 3.3.1 and 3.5.2.

4.4.2 In-process testing. The caps, prior to attachment of the gaskets, rivets, and chains, shall be tested for the characteristics shown in table I. The lot size shall be expressed in units of caps. The sample unit shall be one cap. The inspection level shall be S-1 (see 6.5).

TABLE I. In-process test

Characteristic	Requirement paragraph	Test procedure
Water absorption	3.5.1	4.5.2

4.4.3 End item visual examination. The end items shall be examined for the defects listed in table II. The lot size shall be expressed in units of caps. The sample unit shall be one cap. The inspection level shall be S-2 (see 6.5).

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Table II. End item visual defects

Examine	Defect	Classification	
		Major	Minor
Finish	Cap not finished as specified		201
	Cap top not lusterless matte finish		202
	Chain and rivet not black oxidized coated		203
	Construction and workmanship	Cap split or cracked	101
	Unsatisfactory molding e.g., chalking, blistering, or distortion	102	
	Rivet loose or not set as specified	103	
	Gasket not tight pressed fit	104	
	Gasket not cylindrical in shape, too small	105	
	Gasket split, torn, mutilated, or distorted	106	
	Cap or gasket not clean e.g., evidence of oil, grease, or other foreign matter		204
	Has objectionable odor		205
	Less than 66 serrations		206
	Serrations not equally spaced		207
	Component missing	107	
	Chain not two links		208
	Chain does not turn freely on rivet		209
Threads per inch	More or less than eight	108	
	Thread stripped		210
Identification markings	Not molded in, illegible, incorrect, incomplete, or wrong location		211

4.4.4 End item dimensional examination. The end items shall be examined for conformance to the dimensions specified on the drawings. Only those dimensions that can be evaluated without damaging or disassembling the end items shall be examined. Any dimension not within the specified tolerance shall be classified as a defect. The lot size shall be expressed in units of caps. The sample unit shall be one cap. The inspection level shall be S-2 (see 6.5).

4.4.5 End item testing. The end items shall be tested for the characteristics listed in table III. The lot size shall be expressed in units of caps. The sample unit shall be one complete cap assembly. The inspection level shall be S-1.

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TABLE III. End item test

Characteristic	Requirement paragraph	Test procedure
Set of rivet	3.5.4	4.5.3
Cap strength	3.5.1	4.5.1

4.4.6 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 (see 6.5).

<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
Workmanship	Inadequate application of components, such as: incomplete sealing or closure of flap, improper taping, loose strapping, or inadequate stapling Bulged or distorted container
Content	Number per container is more or less than required

4.4.7 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 (see 6.5).

<u>Examine</u>	<u>Defect</u>
Finished dimensions	Length, width, or height exceeds specified maximum requirement
Palletization	Pallet pattern not as specified Interlocking of loads not as specified Load not bonded as specified



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<u>Examine</u>	<u>Defect</u>
Weight	Exceeds maximum load limits
Marking	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application

4.5 Methods of inspection.

4.5.1 Cap strength test. At room temperature, the cap assembly shall be tightly screwed down onto the metal neck of the test block conforming to Drawing 2-9-74. The test block assembly with cap attached shall be suspended as shown on the drawing and dropped onto a flat 1/4 inch steel plate that has been set on a level concrete floor. The first drop shall be made with the top edge of cap 16 inches from the plate and four successive drops shall be made at 1 inch increments until a height of 20 inches is reached. The cap shall be retightened after every drop. The test block shall be dropped freely each time in such a manner that impact shall take place at the top edge of cap. Upon completion of the test, the cap shall be examined to determine compliance with 3.5.1.

4.5.2 Water absorption test. Before assembling the gasket, chain, and rivet to the cap, the cap shall be weighed and measured in height and diameter and immediately immersed in boiling water for a period of 3 hours. After this 3 hour period, the cap shall be removed from the boiling water, rinsed in clear water, wiped dry with a soft cloth, and immediately weighed and measured. The percent of water absorption and swelling shall be computed and compared with the requirements specified in 3.5.1.

4.5.3 Set of rivet test. At room temperature, the test block assembly conforming to Drawing 2-9-74 shall be firmly clamped by attaching the free end of the chain to the edge of a table. The test block shall then be raised so that the chain is vertical and the block is horizontal. Drop the block freely subjecting the chain to a sharp jerk, so that the full force of the drop is exerted on the rivet. This process shall be repeated 10 times and on completion of test the rivet shall be examined to determine compliance with 3.5.4.

## 5. PACKAGING

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

5.1.1 Level A preservation. Fifty caps shall be bulk packed in the most compact manner in a snug-fitting intermediate folding or setup paperboard box

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conforming to variety I, style III or VIII, type G, class I of PPP-B-566; type I, or variety I, class A of PPP-B-676, respectively. Closure of the box shall be in accordance with the appendix of the applicable box document.

5.1.2 Commercial preservation. Caps shall be preserved 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. One thousand caps, preserved as specified in 5.1, shall be packed in a snug-fitting fiberboard shipping container conforming to style RSC, grade V2s of PPP-B-636. Each shipping container shall be closed in accordance with method III, waterproofed in accordance with method V, and reinforced as specified in the appendix of PPP-B-636, except that the inspection shall be in accordance with 4.4.6. Shipping containers shall be arranged in unit loads in accordance with MIL-L-35078 for the type and class of load specified (see 6.2). Strapping shall be limited to nonmetallic strapping, except for type II, class F loads.

5.2.2 Level B packing. One thousand caps, preserved as specified in 5.1, shall be packed in a snug-fitting fiberboard shipping container conforming to style RSC, type CF (variety SW) or SF, class domestic of PPP-B-636. Each shipping container shall be closed in accordance with method II as specified in the appendix of PPP-B-636, except that the inspection shall be in accordance with 4.4.6.

5.2.2.1 Weather-resistant fiberboard containers. 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, except that the inspection shall be in accordance with 4.4.6.

5.2.3 Commercial packing. The canteen caps, preserved as specified in 5.1, shall be packed in accordance with ASTM D 3951.

5.3 Palletization. When specified (see 6.2), canteen caps, packed as specified in 5.2.1 and 5.2.2, shall be palletized on a 4-way entry pallet in accordance with load type 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 the bonding means C and D or film bonding F or G. Pallet patterns shall be in accordance with the appendix of MIL-STD-147. Interlocking of loads shall be effected by reversing the pattern of each course. If the container is of a size which does not conform to any of the patterns specified in MIL-STD-147, the pallet pattern shall first be approved by the contracting officer.

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

## 6. NOTES

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

6.1 Intended use. The assembled canteen cap is used as a component of the 5-quart collapsible canteen.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification.
- b. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2).
- c. When first article is required (see 3.1, 4.3, and 6.3).
- d. Levels of preservation and packing (see 5.1 and 5.2).
- e. Type and class of unit load (see 5.2.1).
- f. When weather-resistant grade fiberboard shipping containers are required for level B packing (see 5.2.2.1).
- g. When palletization is required (see 5.3).
- h. Acceptance criteria required (see 6.5).

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 also include specific instructions in acquisition documents regarding arrangements for selection, inspection, and approval of the first article.

6.4 Sample. For access to samples, address the contracting activity issuing the invitation for bids or request for proposal.

6.5 Acceptance criteria. The acceptance criteria below are recommended for use. The acceptance criteria as specified in the contract or purchase order shall be binding. Unless otherwise specified, the following acceptance criteria are in accordance with MIL-STD-105.

6.5.1 For in-process inspection. An acceptance quality level (AQL), expressed in terms of defects per hundred units, of 4.0 is recommended.

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6.5.2 For end item visual examination. An AQL, expressed in terms of defects per hundred units, of 2.5 for major defects and 10.0 for total (major and minor combined) defects is recommended.

6.5.3 For end item dimensional examination. An AQL, expressed in terms of defects per hundred units, of 4.0 is recommended.

6.5.4 For end item testing. An AQL, expressed in terms of defects per hundred units, of 4.0 is recommended.

6.5.5 For packaging examination. An AQL, expressed in terms of defects per hundred units, of 4.0 is recommended.

6.5.6 For palletization examination. An AQL, expressed in terms of defects per hundred units, of 6.5 is recommended.

6.6 Subject term (key word) listing.

Individual equipment

6.7 Changes from previous issue. Marginal notations 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 - NU

Preparing activity:

Army - GL  
(Project 8465-A025)

Review activities:

Army - MD

User activities:

Navy - YD, MC

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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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US ARMY NATICK RESEARCH  
and DEVELOPMENT CENTER  
ATTN: STRNC-ES  
Natick, MA 01760-5014



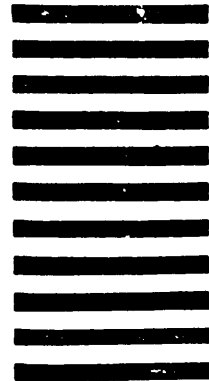
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## STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER MIL-C-44217A		2. DOCUMENT TITLE CAP, WATER CANTEEN, 5-QUART, COLLAPSIBLE	
3a. NAME OF SUBMITTING ORGANIZATION		4. TYPE OF ORGANIZATION (Mark one)	
b. ADDRESS (Street, City, State, ZIP Code)		<input type="checkbox"/> VENDOR	
		<input type="checkbox"/> USER	
		<input type="checkbox"/> MANUFACTURER	
		<input type="checkbox"/> OTHER (Specify): _____	
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)	