

INCH-POUND

MIL-S-44022B  
19 January 1990  
SUPERSEDING  
MIL-S-44022A  
29 May 1980

## MILITARY SPECIFICATION

### STRAP, RETENTION, PARACHUTISTS HELMET

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

#### 1. SCOPE

1.2 Scope. This specification covers a parachutists helmet retention strap of one type and class.

#### 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

QQ-P-416	- Plating, Cadmium (Electrodeposited)
PPP-B-636	- Boxes, Shipping, Fiberboard

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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.

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AMSC N/A

FSC 8470

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

MIL-S-44022B

MILITARY

- MIL-L-35078 - Loads, Unit: Preparation of Semiperishable Subsistence Items; Clothing, Personal Equipment and Equipage; General Specification For
- MIL-P-44081 - Pad, Parachutist's Helmet
- MIL-H-44099 - Helmet, Ground Troops and Parachutists

STANDARDS

MILITARY

- 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
- MIL-STD-731 - Quality of Wood Members for Containers and Pallets

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the 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.

DRAWING

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

- 8-2-663 - Strap, Retention, Parachutists Helmet

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

2.2 Non-Government publications. The following document forms 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)

- 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 the 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). Variations from this specification may appear in the sample in which case this specification shall govern:

3.3 Materials and components. Materials and components shall be as specified on Drawing 8-2-663. It is encouraged that recycled material be used when practical as long as it meets the requirements of this specification.

3.3.1 Replacement screw for parachutists helmet. To install the foam impact pad (MIL-P-44081) and the retention strap into the ground troops' - parachutists' helmet (MIL-H-44099) the following screw is required:

8-32, 5/8 inch long, slotted, truss head, steel machine screw, finish: class 3, Type II, OD dull luster per QQ-P-416. Continental Scew Co. Part No. 015470B or equal.

This screw plus a printed paper label (see 3.3.2.1 and 3.3.2.2) shall be placed in a polyethylene bag (see 5.1.1).

3.3.2 Labels. The label paper shall be made of white commercial quality writing or printing paper having a minimum basis weight of 20 pounds (17 by 22/500).

3.3.2.1 Instruction label. The paper label with legible and durable black marking (approximately 1/8-inch) shall read as follows:

#### REPLACEMENT SCREW FOR PARACHUTISTS' HELMET

##### INSTRUCTIONS

REPLACEMENT SCREW FOR PARACHUTISTS' HELMET TO INSTALL THE FOAM IMPACT PAD AND THE RETENTION STRAP INTO THE GROUND TROOP'S PARACHUTIST HELMET. THE ENCLOSED 5/8-INCH LONG SCREW IS REQUIRED.

3.3.2.2 Identification marking for the retention strap. The paper label with legible and durable black marking (approximately 1/4-inch) shall contain the following information:

Item Description  
Contract Number  
Stock Number  
Supplier's Name

3.3.2.3 Combined instruction and identification paper label. A combined instruction and identification paper label may be substituted with the information specified in 3.3.2.1 and 3.3.2.2.

3.4 Construction. The construction shall conform in all respects to Drawing 8-2-663 and as specified herein.

3.4.1 Stitching. All stitching shall be as specified on Drawing 8-2-663 and as specified herein.

3.4.2 Thread tension. Thread tension shall be maintained so that there will be no loose stitching resulting in loose bobbin or top thread, or excessively tight stitching resulting in puckering of the materials sewn. The lock shall be embedded in the materials sewn.

3.4.3 Repairs of type 301 stitching. Repairs of type 301 stitching shall be as follows:

a. When thread breaks or bobbin run-outs occur during sewing, the stitching shall be repaired by restarting the stitching a minimum of 1 inch behind the end of the stitching. 1/

b. Thread breaks or two or more consecutive skipped or run-off stitches noted during inspection of the item (in-process or end item) shall be repaired by overstitching. The stitching shall start a minimum of 1 inch before the defective area and continue a minimum of 1 inch beyond the defective area onto the existing stitching. Loose or excessively tight stitching shall be repaired by removing the defective stitching, without damaging the materials, and restitching in the required manner. 1/

1/ When making the above repairs, the end of the stitching is not required to be backstitched.

3.4.4 Automatic stitching. Automatic stitching machines may be used to perform any of the required stitch patterns provided the requirements for the stitch pattern, stitches per inch, size, and type of thread are met, and at least three or more tying, overlapping, or back stitches are used to secure the ends of stitching.

MIL-S-44022B

3.4.5 Thread ends. All threads ends shall be trimmed to a length of not more than 1/4 inch.

3.4.6 Lubrication of thread. The addition of any lubricant to the polyester sewing thread prior to or during the sewing operation is prohibited.

3.4.7 Fusing of ends of synthetic webbing. All ends of synthetic webbing shall be fused as specified on Drawing 8-2-663. The apparatus used to fuse the webbing ends shall be capable of providing sufficient heat to provide a smooth edge. The cut ends of the webbing yarns shall be fused together. Fusing of the ends shall be accomplished prior to being assembled for stitching.

3.4.8 Setting of grommet. The hole for setting the grommet in the synthetic webbing shall be prepunched and shall be smaller than the outside diameter of the grommet barrel so that the barrel must be forced through the hole. The grommet shall be securely clinched without cutting the adjacent material. There shall be no more than two splits in the grommet barrel.

3.4.9 Replacement of defective components. During the spreading, cutting, and manufacturing process, components having material defects or damages that are classified as defect in 4.4.2 shall be removed from production and replaced with non-defective and properly matched components.

3.5 Workmanship. The finished retention strap 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.

4.2 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 4.4.2 and 4.4.3.

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 In-process inspection. Inspection shall be made of the following operations or assemblies to establish conformance with specific requirements. Whenever nonconformance is noted, correction shall be made to the items affected and to the operation. Items which cannot be corrected shall be removed from production.

- a. There shall be no lubrication of polyester thread prior to or during sewing operations (see 3.4.6).
- b. Holes punched to receive grommets are in compliance with 3.4.8.

4.4.3 End item visual examination. The end items shall be examined for the defects listed in table I. The lot size shall be expressed in units of retention straps. The sample unit shall be one retention strap. The inspection level shall be II and the acceptable quality level (AQL), expressed in terms of defects per hundred units shall be 1.5 for major defects and 6.5 for total (major and minor combined) defects.

TABLE I. End item visual defects

Examine	Defect	Classification	
		Major	Minor
Webbing	Any hole, cut, or tear	101	
	Not firmly or tightly woven: edge frayed or scalloped		201

## MIL-S-44022B

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

Examine	Defect	Classification	
		Major	Minor
Webbing (cont'd)	Any end of nylon webbing not fused or not fused as specified		202
Fastener tape	Any hole, cut, or tear	102	
	Hooks flattened, broken or missing impairing function	103	
Grommet	Clinched loosely, permitting either component to rotate freely	104	
	Clinched excessively tight, cutting adjacent material	105	
	Washer omitted	106	
	More than two splits in grommet barrel		203
	Incorrect size	107	
Seams and stitchings:			
Open seams	Up to and including 1/2 inch		204
	More than 1/2 inch	108	
	NOTE: A seam shall be classified as an open seam when one or more stitches joining a seam are broken, or when two or more consecutive skipped or runoff stitches occur.		
Stitch type	Incorrect stitch type	109	
Stitch tension	Loose tension, resulting in a loose top or bobbin thread		205
	Excessively tight tension, resulting in puckering of material		206
Stitches per inch	One stitch less than minimum specified		207
	Two or more stitches less than minimum specified	110	
	One or more stitches in excess of maximum specified		208

## MIL-S-44022B

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

Examine	Defect	Classification	
		Major	Minor
Stitching ends	Not secured as specified		209
Thread breaks, skipped stitches or runoffs	Thread breaks, or two or more consecutive skipped or runoff stitches overstitched less than 1 inch in each direction beyond the defective stitching are		210
	NOTE: Thread breaks, or two or more consecutive skipped or runoff stitches not overstitched shall be classified as open seams.		
Rows of stitching	Any row omitted	111	
Component and assembly	Any required component or operation omitted (unless otherwise classified herein)	112	
	Any component misplaced or not assembled as specified (unless otherwise classified herein)	113	
	Needle chews	114	
	Any unauthorized repair	115	
Cleanness	Dirt or stain clearly noticeable, thread ends not trimmed throughout as specified		211
Identification marking	Omitted, incorrect, or illegible		212

4.4.4 End item dimensional examination. The end items shall be examined for conformance to the dimensions specified on Drawing 8-2-663. 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 retention straps. The sample unit shall be one retention strap. The inspection level shall be S-3 and the acceptable quality level (AQL), expressed in terms of defects per hundred units shall be 4.0.



MIL-S-44022B

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
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

4.4.6 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 requirement
Palletization	Pallet pattern not as specified Interlocking of loads not as specified Load not bonded as specified
Weight	Exceeds maximum load limits
Marking	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application

5. PACKAGING

5.1 Preservation. Preservation shall be level A (see 6.2).

MIL-S-44022B

5.1.1 Level A preservation. One strap along with the paper label (see 3.3.2) (with the marking facing the outside of the bag) and the screw specified in 3.3.1 shall be inserted in a close-fitting flat or square style clear polyethylene film bag of 0.0015-inch thickness (+ 20 percent tolerance). The polyethylene bag shall be formed with heat sealed seams that are straight and continuous and parallel to each other and the formed edges of the bag. The bag may be fabricated from polyethylene film tubing or sheeting. The final closure of the bag shall be heat sealed with seal as close as possible to the open end or by means of a wire twist tie closure. Excess air shall be removed from each bag before the final closure. Twenty-five bagged straps shall be neatly stacked to form a bundle. The bundle shall be securely tied with twine or tape.

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

5.2.1 Level A packing. One thousand straps, preserved as specified in 5.1, shall be packed in a snug-fitting fiberboard shipping container conforming to style RSC-L, grade V2s of PPP-B-636. The inside of each shipping container shall be fitted with a box liner conforming to type CF, class weather-resistant, variety DW, grade V15c of PPP-B-636. Each shipping container shall be closed in accordance with method III, waterproofed in accordance with method V and reinforced in accordance with the appendix of PPP-B-636, except that the inspection shall be in accordance with 4.4.5. 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 straps, preserved as specified in 5.1, shall be packed in a snug-fitting fiberboard shipping container conforming to style RSC-L, type CF (variety SW) or SF, class domestic, grade 275 of PPP-B-636. The inside of each shipping container shall be fitted with a box liner conforming to type CF, class domestic, variety DW, grade 275 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 4.4.5.

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 the box specification, except that the inspection shall be in accordance with 4.4.5.

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

5.3 Palletization. When specified (see 6.2), straps 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. Pallets will be fabricated from wood groups I, II, III, or IV of MIL-STD-731. 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.

5.4 Marking. In addition to any special marking required by the contract or purchase order, interior packages, 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 retention strap is used by parachutists with the Ground Troops'-Parachutists' Helmet (PASGT).

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 a 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 required (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).

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

6.5 Subject term (key word) listing.

Armor, personal

MIL-S-44022B

6.6 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  
Air Force - 99

Preparing activity:

Army - GL  
(Project 8470-0134)

Review activities:

Army - MD  
Air Force - 82  
DLA - CT

User activities:

Navy - MC  
Air Force - 45