

MIL-S-44091

30 November 1982

SUPERSEDING

(See 6.5)

MILITARY SPECIFICATION

STRAP, CHIN, GROUND TROOPS' - PARACHUTISTS' HELMET

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

1. SCOPE

1.1 Scope. This document covers requirements for a chin strap.

2. APPLICABLE DOCUMENTS

2.1 Government documents. Unless otherwise specified, the following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this document to the extent specified herein.

SPECIFICATIONS

FEDERAL

UU-P-268 - Paper, Kraft, Wrapping
PPP-B-636 - Boxes, Shipping, Fiberboard

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-1188 - Commercial Packaging of Supplies and Equipment

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: US Army Natick Research and Development Laboratories, Natick, MA 01760 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

FSC 8470

DRAWING

US ARMY NATICK RESEARCH AND DEVELOPMENT LABORATORIES

2-1-1400 - Strap, Chin, Ground Troops' - Parachutists' Helmet

(Copies of documents required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

2.2 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 shall take precedence.

3 REQUIREMENTS

3.1 Guide sample. Guide samples, when furnished, are solely for guidance and information to the contractor (see 6.3). Variations from this document may appear in the sample in which case this document shall govern.

3.2 First article. When specified, a sample shall be subjected to first article inspection (see 4.3, 6.2 and 6.4).

3.3 Materials and components. Materials and components shall be as specified on Drawing 2-1-1400.

3.4 Construction. The construction shall conform in all respects to Drawing 2-1-1400 and as specified herein.

3.4.1 Stitching. All stitching shall be as specified on Drawing 2-1-1400 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 1/2 inch back of the end of the stitching.

b. Thread breaks, two or more consecutive skipped or runoff stitches noted during inspection of the item (in-process or end item) shall be repaired by over stitching. The stitching shall start a minimum of 1/2 inch in back of the defective area, continue over the defective area and continue a minimum of 1/2 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 ends of the stitching are not required to be backstitched.

3.4.4 Automatic stitching. Automatic 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 the stitching.

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

3.4.6 Fusing of ends of nylon webbing. All ends of nylon webbing shall be fused as specified on Drawing 2-1-1400. 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.

3.4.7 Setting of eyelets. Holes for setting eyelets in nylon webbing shall be prepunched and shall be smaller than the outside diameter of the eyelet barrel so that the barrel must be forced through the hole. The eyelets shall be securely clinched without cutting the adjacent material. There shall be no more than two splits in the eyelet or washer barrels.

3.4.8 Setting of snap fasteners. A hole shall be prepunched to receive the button and eyelet components of the snap fasteners. The hole shall be smaller than the outside diameter of the button and eyelet barrels so that the barrel must be forced through the hole. The hole shall not be punched in the setting operation with the button or eyelet barrel. The fasteners shall be securely clinched without cutting the adjacent materials and no more than two splits shall occur in the button or eyelet barrels.

3.4.9 Repairs. Except as otherwise specified herein, repairs are not allowed to be made to the chin strap.

3.4.10 Replacement of defective components. During the spreading, cutting and manufacturing process, components having material defects or damages that are classified in 4.4.3 shall be removed from production and replaced with non-defective and properly matched components.

3.5 Workmanship. The finished chin strap shall conform to the quality of product established by this document. The occurrence of defects shall not exceed the applicable acceptable quality levels.

4. QUALITY ASSURANCE PROVISIONS

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

4.2 Classification of inspection. 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 4.4.3 and 4.4.4. The presence of any defect shall be cause for rejection of the first article.

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 requirements of referenced documents unless otherwise excluded, amended, modified or qualified in this document or applicable purchase document.

4.4.2 In-process inspection. Inspection shall be made at any point or during any phase of manufacturing operation to determine whether operations or sub-assemblies are accomplished as specified. Whenever nonconformance is noted, corrections shall be made to the parts affected and lot in-process. Parts which cannot be corrected shall be removed from production.

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4.4.3 End item visual examination. The end item shall be examined for defects listed below. The lot size shall be expressed in units of one chin strap. The sample unit shall be one complete chin strap. 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 10.0 for total (major and minor combined) defects.

Examine	Defect	Classification	
		Major	Minor
Webbing	Any hole, cut, or tear	X	
	Not firmly or tightly woven; edge frayed or scalloped		X
	Any end of nylon webbing not fused		X
Strap, left lower support (Part no. 2-1-1400-6)	Any bartack omitted	X	
	One of the bartacks not catching all four layers of nylon webbing	X	
	Webbing not looped in buckle as specified on Drawing 2-1-1400	X	
Hardware:			
General	Broken, cracked, or malformed; corroded area; burr or sharp edge	X	
	Finish omitted or not as specified, where required	X	
Snap fastener	Button or socket component not installed in orientation specified	X	
	Clinched excessively tight, cutting adjacent materials	X	
	Clinched loosely, permitting any component to rotate freely but not to the degree that any component can be expected to become detached during use		X

Examine	Defect	Classification	
		Major	Minor
Hardware: (cont'd)			
Snap fastener (cont'd)	Clinched loosely to the degree that components can be expected to become detached during use	X	
	More than two splits in button or eyelet barrel		X
	Fastener not functioning properly, i.e., fails to be snapped closed, provide a secure closure or to open freely	X	
	NOTE: The fastener shall be snapped and unsnapped twice to determine whether parts of fastener separate freely and also effect a secure closure.		
Eyelets	Clinched loosely, permitting either component to rotate freely	X	
	Clinched excessively tight, cutting adjacent material	X	
	Washer omitted	X	
	More than two splits in eyelet or washer barrel		X
End clips	Insecurely clinched or clinched excessively tight, cutting webbing	X	
Seams and stitchings:			
Open seams	Up to and including 1/2 inch		X
	More than 1/2 inch	X	
	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.		

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Examine	Defect	Classification	
		Major	Minor
Seams and stitchings: (cont'd)			
Stitch type	Incorrect stitch type	X	
Stitch tension	Loose tension, resulting in a loose top or bobbin thread		X
	Excessively tight tension, resulting in puckering of material		X
Stitches per inch	One stitch less than minimum specified		X
	Two or more stitches less than minimum specified	X	
	One or more stitches in excess of maximum specified		X
Stitching ends	Not secured as specified		X
Thread breaks, skipped stitches or runoffs	Thread breaks, or two or more consecutive skipped or runoff stitches, overstitched less than 1/2 inch in each direction beyond the defective stitching area		X
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	X	
Component and assembly	Any required component or operation omitted (unless otherwise classified herein)	X	
	Any component misplaced or not assembled as specified (unless otherwise classified herein)	X	
	Needle chews	X	
	Any unauthorized repair	X	
	Webbing components not routed through buckles as specified	X	

Examine	Defect	Classification	
		Major	Minor
Cleanness	Dirt or stain clearly noticeable, thread ends not trimmed throughout as specified		X

4.4.4 End item dimensional examination. The end item shall be examined for conformance to all dimensions including stitch margins, shown on Drawing 2-1-1400. Any dimension not within the specified tolerance shall be classified as a defect. The lot shall be expressed in units of one chin strap. The sample unit shall be one complete chin strap. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 4.0.

4.4.5 Packaging inspection. An examination shall be made to determine that the preservation, packing, and marking comply with the section 5 requirements. Defects shall be scored in accordance with the list below. The sample unit shall be one shipping container fully packaged with the exception that it need not be closed. Examination of closure defects listed below shall be made on shipping containers fully packaged. The lot size shall be the number of shipping containers in the end item lot. 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 closure of container flap, improper taping, loose strapping, inadequate stapling. Bulged or distorted container.
Content	Number of bundles per shipping container is more or less than specified. Number of chin straps per bundle is more or less than required. <u>1/</u>

1/ For this defect, one bundle from each shipping container in the sample shall be examined.

4.4.6 Examination for palletization. An examination shall be made to determine that the palletization complies with the section 5 requirements. Defects shall be scored in accordance with the list below. The sample unit shall be one palletized

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unit load fully packaged. The lot size shall be the number of palletized unit loads in the end item inspection lot. 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 dimension	Length, width, or height exceeds specified maximum requirement.
Palletization	Pallet pattern not as specified. Interlocking of loads not as specified. Load not bonded with required straps 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 or Commercial as specified (see 6.2).

5.1.1 Level A. Twenty-five chin straps shall be neatly stacked to form a bundle and then securely tied at each end with tape or twine.

5.1.2 Commercial. Chin straps shall be preserved in accordance with MIL-STD-1188.

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

5.2.1 Level A packing. Five hundred chin 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 container shall have the contents completely covered on the top and bottom with a sheet of 30-pound minimum basis weight kraft paper conforming to type I, grade B of UU-P-268. 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.

5.2.2 Level B packing. Five hundred chin 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 container shall

have the contents completely covered on the top and bottom with a sheet of 30-pound minimum basis weight kraft paper conforming to type I, grade B of UU-P-268. 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 PPP-B-636, except that the inspection shall be in accordance with 4.4.5.

5.2.3 Commercial packing. Chin straps, preserved as specified in 5.1, shall be packed in accordance with MIL-STD-1188.

5.3 Palletization. When specified (see 6.2), chin straps, packed as specified in 5.2, shall be palletized in accordance with load type I of MIL-STD-147. Each prepared load shall be bonded with primary and secondary straps in accordance with bonding means K and L. 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 pallet patterns specified in MIL-STD-147, the pallet pattern used shall first be approved by the contracting officer.

5.4 Marking. In addition to any special marking required by the contract or purchase order, shipping containers and palletized unit loads shall be marked in accordance with MIL-STD-129 or MIL-STD-1188 as applicable.

6. NOTES

6.1 Intended use. The chin strap is intended for use with the Ground Troops' - Parachutists' Helmet which is fabricated from aramid material.

6.2 Ordering data. Acquisition documents should specify the following:

- (a) Title, number and date of this document.
- (b) When a first article sample is required (see 3.2).
- (c) Selection of applicable levels of preservation and packing (see 5.1 and 5.2).
- (d) Whether weather-resistant grade fiberboard shipping containers are required for level B packing (see 5.2.2.1).
- (e) When palletization is required (see 5.3).

6.3 Samples. For access to standard samples address the contracting activity issuing the invitation for bids.

6.4 First article. When a first article is required, it shall be inspected and approved under the appropriate provisions of DAR 7-104.55. The first article should be a preproduction sample consisting of one finished chin strap. The contracting officer should include specific instructions in all procurement documents, regarding arrangements for inspection and approval of the first article.

6.5 Supersession. This document includes the requirements of LP/P. DES 8-78 dated 30 May 1978 for Strap, Chin, Ground Troops' - Parachutists' Helmet.

Custodians:

Army - GL
Navy - NU
Air Force - 99

Preparing activity:

Army - GL
Project No. 8470-0085

Review activities:

Army - MD
Navy - MC
Air Force - 82
DLA - CT

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

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DOCUMENT IDENTIFIER (Number) AND TITLE

MIL-S-44091 Strap, Chin, Ground Troops' - Parachutists' Helmet

NAME OF ORGANIZATION AND ADDRESS OF SUBMITTER

☐ **VENDOR** ☐ **USER** ☐ **MANUFACTURER**

1. ☐ **HAS ANY PART OF THE DOCUMENT CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?** ☐ **IS ANY PART OF IT TOO RIGID, RESTRICTIVE, LOOSE OR AMBIGUOUS? PLEASE EXPLAIN BELOW.**

A. GIVE PARAGRAPH NUMBER AND WORDING

B. RECOMMENDED WORDING CHANGE

C. REASON FOR RECOMMENDED CHANGE(S)

2. REMARKS

SUBMITTED BY (Printed or typed name and address — Optional)

TELEPHONE NO.

DATE

DD FORM 1426
1 OCT 76

EDITION OF 1 JAN 72 WILL BE USED UNTIL EXHAUSTED.