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INCH-POUND

MIL-H-44105B
4 March 1992
SUPERSEDING
MIL-H-44105A
30 March 1991 and
MIL-H-43577E
16 October 1989
(see 6.7)

MILITARY SPECIFICATION

HATS, SUN, HOT WEATHER

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

1. SCOPE

1.1 Scope. This specification covers hot weather sun hats.

1.2 Classification. The hats shall be of the following types, classes and sizes as specified (see 6.2).

Type I - Olive Green 107, water repellent
Type II - Desert Camouflage Pattern
Type III - Woodland Camouflage Pattern, water repellent

Schedule of sizes

6-3/8	6-7/8	7-3/8
6-1/2	7	7-1/2
6-5/8	7-1/8	7-5/8
6-3/4	7-1/4	7-3/4
		7-7/8

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be used in improving this document should be addressed to: U.S. Army Natick Research, Development, and Engineering Center, Natick, MA 01760-5019, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A FSC 8415

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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 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

A-A-203	-	Paper, Kraft, Untreated
A-A-50128	-	Cloth, Interlining, Nonwoven
A-A-50199	-	Thread, Polyester Core: Cotton- or Polyester-Covered
A-A-52094	-	Thread, Cotton
V-L-61	-	Laces, Nylon
KK-L-271	-	Leather, Cattlehide, Strap, Vegetable Tanned
DDD-L-20	-	Label: For Clothing, Equipage, and Tentage, (General Use)
PPP-B-636	-	Boxes, Shipping, Fiberboard

MILITARY

MIL-C-342	-	Cloth, Wind Resistant Poplin, Cotton
MIL-T-3530	-	Thread and Twine: Mildew Resistant or Water Repellent Treated
MIL-L-35078	-	Loads, Unit: Preparation of Semiperishable Subsistence Items; Clothing, Personal Equipment and Equipage, General Specification For
MIL-C-43468	-	Cloth, Camouflage Pattern, Wind Resistant Poplin, Cotton
MIL-W-43668	-	Webbing, Textile, Bulked Nylon
MIL-C-44034	-	Cloth, Twill, Camouflage Pattern, Cotton and Nylon for Desert Uniform

STANDARDS

FEDERAL

FED-STD-751	-	Stitches, Seams, and Stitchings

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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, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

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 D 3951 - Standard Practice for Commercial Packaging

(Copies should be obtained from 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 Materials. It is encouraged that recycled material be used when practical as long as it meets the requirements of this specification.

3.2.1 Basic material.

3.2.1.1 Type I. The basic material shall be cotton rip stop poplin cloth, quarpel treated, dyed Olive Green 107 conforming to class B of MIL-C-342.

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3.2.1.2 Type II. The basic material shall be a blended cotton/nylon twill cloth conforming to class 3 of MIL-C-44034.

3.2.1.3 Type III. The basic material shall be cotton rip stop poplin cloth conforming to type IV of MIL-C-43468.

3.2.1.4 Side lining. For type II hats, the side lining shall be basic material or printed seconds cloth. For type III hats, the side lining may be cut from ground shade cloth. Printed seconds cloth shall be a cloth rejected only for defects pertaining to color, infrared reflectance, or camouflage print pattern.

3.2.2 Brim binding. The brim binding shall be bias-cut from the basic material (see 3.2.1).

3.2.3 Brim interlining and headband stay piece. The brim interlining and headband stay piece shall be a white or charcoal grey, nonwoven, continuous filament polyester cloth conforming to type II of A-A-50128.

3.2.4 Webbing, nylon. The nylon webbing for the camouflage band for types I and III hats shall be bulked nylon, type IV, 3/4 inch wide conforming to MIL-W-43668. The webbing shall be dyed Olive Green 106. The dyed webbing shall show fastness to laundering and light equal to or better than the standard sample. When no standard sample is available, the dyed webbing shall show "good" fastness to laundering and light.

3.2.5 Laces, nylon. The nylon lace for the chin strap shall conform to type II, class 2 of V-L-61. The color for types I and III shall be Olive Green 106 and for type II shall be Tan 380. The requirements for length and tipping shall not apply.

3.2.6 Keeper. The leather for the chin strap keeper shall be 6/64 to 8/64 inch thick and natural in color. The leather for types I and III shall conform to types I, II, III or IV, class 2 of KK-L-271, except that the requirements for colorfastness, breaking force, elongation, total ash and degree of tannage shall not apply. The leather for type II shall conform to types I, II, III or IV, class 1 of KK-L-271, except that the requirements for the treatment for fungicide paranitrophenol, crocking, cracking, breaking force, elongation, chloroform extract, water-soluble material, total ash and degree of tannage shall not apply. The finish shall be smooth and have a natural gloss appearance. A plastic fixlock keeper may be substituted for the leather keeper.

3.2.7 Thread. The thread for seaming and stitching the hat shall be polyester core, cotton- or polyester-covered, ticket Nos. 50, 2 ply and 70, 2 ply conforming to A-A-50199 or cotton, ticket Nos. 50, 3 ply and 70, 2 ply conforming to type I of A-A-52094. The thread color for types I and III hats

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shall be Shade S-1, C.A. 66022 and the thread color for the type II hat shall be Khaki, P-1, C.A. 66019. The thread for types I and III hats shall be water repellent treated to conform to type II, class 3 of MIL-T-3530.

3.2.7.1 Colorfastness. The dyed thread shall show fastness to laundering and light equal to or better than the standard sample. When no standard sample is available, the dyed thread shall show "good" fastness to laundering.

3.2.8 Labels. Each hat shall have a combination identification- size label and an instruction label. The labels shall show fastness to laundering.

3.2.8.1 Combination identification-size label. The combination identification-size label shall conform to type IV, class 4 of DDD-L-20.

3.2.8.2 Instruction label. The instruction label shall conform to type IV, class 3 of DDD-L-20. The instruction label shall measure not more than 2 inches by 2 inches.

3.2.8.2.1 For types I and III. The instruction label for types I and III shall include the following information:

CAUTION

Initial loose fit required
for continued comfort.

LAUNDERING

Spot wash badly soiled areas.
Wash in hot water (140°F)
using soap or detergent.
Rinse at least 3 times to restore
water repellency.
Machine spin or squeeze by hand.
Machine dry at moderate heat or
hang to dry.

DO NOT STARCH

DO NOT REMOVE THIS LABEL

3.2.8.2.2 For type II. The instruction label for type II shall include the following information:

CAUTION

Initial loose fit required
for continued comfort.

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LAUNDERING

Spot wash badly soiled areas.
Wash in hot water (140°F)
using soap or detergent.
Machine spin or squeeze by hand.
Machine dry at moderate heat or
hang to dry.

DO NOT STARCH

Suspend headnet from top of brim, drape
headnet over shoulders and attach front
loops to breast pocket buttons.

DO NOT REMOVE THIS LABEL

3.2.8.3 Combination identification-size-instruction label. As an alternate, a combination identification-size-instruction label may be used. The label shall conform to type IV, class 14 of DDD-L-20, and shall contain the information specified in 3.2.8.2.1 or 3.2.8.2.2, as applicable.

3.2.9 Ventilators, with washers. The screen type ventilators with washers shall be brass, have a black chemical finish for the types I and III hats and tan for the type II hat, a 9/16 inch outside rim diameter, and a 7/16 inch outside diameter screening conforming to Stimpson Company, No. 53 or equal (see 6.5).

3.2.10 Adhesive (when applicable). The adhesive for the optional method of holding the top and bottom brim and brim interlining prior to performing the quilting stitching of the brim shall be a synthetic resin emulsion type adhesive with good machining properties. The adhesive shall have a viscosity of 2000 to 2500 C.P.S. when evaluated on a Brookfield RVF viscosimeter (see 6.6) at 77°F using a number 3 spindle at 20 rpms, a solids content of 57 ± 2 percent, a pH of 4.0 to 6.0 and shall weigh 9.2 ± 0.2 pounds per gallon. The adhesive shall be white when wet and colorless when dry.

3.3 Design. The hat is a lightweight, soft crowned model with a quilt stitched brim and chin strap. The hat is lined with self material. Types I and III hats have a camouflage band and are water repellent. (See figures 1 and 2).

3.4 Patterns. Patterns, which provide a 3/16 inch allowance for seaming side lining to crown, 3/8 inch allowance for seaming brim to sides, and 1/4 allowance for all other seams, will be furnished by the Government to the contractor for cutting working patterns. The Government patterns shall not be altered in any way and are to be used only as a guide for cutting the contractor's working patterns. The working patterns shall be identical to the Government patterns.

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3.4.1 List of pattern parts. The components of the hat shall be cut from the materials specified and according to the number of parts listed in table I.

TABLE I. Pattern parts

Material	Pattern Nomenclature	Cut parts
Basic material	Top crown	1
	Top side	1
	Bottom side	1
	Top and bottom side crown (alternate construction)	1
	Side lining 1/	1
	Top brim 2/	1
	Bottom brim 2/	1
Nonwoven material	Brim interlining	1
	Headband stay	1

1/ Type III may be cut from ground shade fabric.

2/ The top brim and bottom brim are the same pattern part.

3.5 Construction.

3.5.1 Stitches, seams, and stitching. Stitches, seams and stitching types specified in table II shall conform to FED-STD-751. Where two or more seam or stitch types are given for the same part of an operation, any one of them may be used. When stitch type 401 is used, the looper (underthread) shall be on the inside of the hat. Seam allowance shall be maintained with seams sewn so that no raw edges, open seams, run-offs, twists, pleats or puckers will result. All seams shall start and finish evenly.

3.5.1.1 Type 301 stitching. Ends of all stitching shall be backstitched or overstitched not less than 1/4 inch except where ends are turned under or caught in other seams or stitching. Ends of a continuous line of stitching shall overlap not less than 1/2 inch. 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.

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

a. When thread breaks or bobbin run-outs occur during stitching, except prestitching, the stitching shall be repaired by restarting the stitching a minimum of 1/2 inch back of the end of the stitching. 1/

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b. Except for prestitching, thread breaks or two or more consecutive skipped or run-off stitches noted during inspection of the item shall be repaired by overstitching. 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 sttiching are not required to be backstitched.

3.5.1.2 Type 101, 401 and 701 stitching. Thread tension shall be maintained so that there will be no loose or excessively tight stitching resulting in puckering of the materials sewn. All repairs shall be in accordance with 3.5.1.1.1.a and 3.5.1.1.1.b. Repairs to stitch type 401 may be accomplished by use of stitch type 301.

3.5.2 Stitches per inch. The minimum and maximum number of stitches per inch shall be as specified in table II.

3.5.3 Bartacks. Bartacks shall be as specified in table II. Bartacks shall be free from thread breaks and loose stitching.

3.5.4 Repairs. Repairs such as mends, darns, patches, or splices are not permitted on the hats.

3.6 Use of automated apparel equipment. Automated apparel equipment may be used to perform any of the operations specified in table II, provided that the seam and stitch types are as specified and the finished component conforms to the required configuration. When a Government furnished shaper pattern is forwarded, the component shall conform to that pattern.

3.7 Manufacturing operations requirements. The hat shall be manufactured in accordance with all operations specified in table II. The contractor is not required to follow the exact sequence of operations listed, unless otherwise specified. Seam allowances required to be turned and seam turn-up of side and lining may be precreased. Any additional basting or holding stitches used to facilitate manufacture are permissible provided the thread does not show on the finished hat.

3.8 Figures. Figures 1 and 2 are furnished for guidance and information purposes only. If there are any inconsistencies between the written specification and the figures, the written specification shall govern.

NO.	TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
1.	Cutting. a. Cut all parts in strict accordance with patterns furnished, which show size, directional lines (warp or filling direction) and notches for proper assembly of parts. b. Cut all parts of basic material from one piece of material except side lining and brim binding, which may be cut from ends. The side lining and brim binding, when cut from ends, shall approximate the shade of the respective basic material. c. Cut the brim binding on the bias, not less than 1-1/8 inches wide. The brim binding may be placed on rolls. d. Cut the lace for the chin strap with a heated blade to fuse ends of straps. The cut lengths shall finish 25 ± 1 inches.						
2.	Replacement of damaged parts. Care shall be exercised during spreading, cutting and manufacturing operations to assure that material defects and damages, as specified in 4.4.2, are excluded and replaced with non-defective and properly matched material.						
3.	Marking and bundling. a. Mark, ticket, or bundle all cut parts to ensure a uniform shade, color pattern and size throughout the hat.						

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
3.	Marking and bundling. (cont'd) b. Any method of marking may be used except: a. Corrosive metal fastening devices. b. Sew-on tickets. c. Adhesive type tickets which leave an impression or traces of paper or adhesive on the material after removal of the ticket.						
4.	Make chin strap keeper and chin strap. a. Cut leather piece for chin strap keeper, 3/4 ± 1/8 inch long by 1/2 ± 1/8 inch wide. b. Punch two holes, equally spaced, in keeper to accommodate chin strap. The holes shall be of sufficient length and width to ensure proper function of the keeper, i.e., keeper shall not move without exertion of a slight pressure. c. Thread chin strap through holes in keeper.						
5.	Make brim. a. Finished appearance. The brim shall be made of two plies of basic material interlined with one ply of non-woven material and shall finish without twists or puckers. The brim shall be quilted with parallel lines of stitching and shall finish 2-3/8 ± 1/8 inches (see table III) and finish with an upward curl. The contractor has the option to use adhesive to join the top and bottom brim and brim interlining prior to performing the quilting stitch operation of the brim.						

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
5.	Make brim. (cont'd)						
	b. Superimpose outside edges of bottom brim and brim interlining with notches matching, and stitch together 1/16 to 1/8 inch from outside edges.	101 or 301 or 401	SSa-1	6-14	50 50 50	 50 70	
	c. Superimpose outside edges of top brim and brim interlining with notches matching and stitch 1/16 to 1/8 inch from outside edges through all plies.	101 or 301 or 401	SSa-1	6-14	50 50 50	 50 70	
	or						
	d. Superimpose outside edges of bottom brim, brim interlining, and top brim with notches matching and stitch together 1/16 to 1/8 inch from outside edges in one operation.	101 or 301 or 401	SSa-1	6-14	50 50 50	 50 70	
	e. Stitch bottom brim to top brim along inner edge adjacent to brim interlining.	301	SSa-1	8-10	50	50	
	f. Single or double stitch brim plies together with the row of stitches starting from outside edge of brim and continue stitching for the entire brim width. The rows of stitching shall be spaced 3/16 to 1/4 inch apart. The needle thread shall finish on top brim in the finished hat.	301		8-10	50	50	
	g. Turn under one end of binding 1/4 inch and superimpose edges of binding on underside of brim and stitch binding to outside edge of brim 3/16 to 1/4 inch from edge, holding binding tight. The binding shall start and finish at center back (± 1/2 inch tolerance) with the turned end of binding lapped not less than 1/2 inch on the opposite end of binding.	301 or 401	BSg-2(a)	10-14	50 50	50 70	

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TABLE II. (cont'd)

NO.	MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD NEEDLE	THREAD BOBBIN/ LOOPER	THREAD COVER
5.	Make brim. (cont'd)						
	h. Turn binding over edge of brim, turn in raw edge and stitch 1/16 to 3/32 inch from edge through binding and brim. Binding shall finish not more than 3/8 inch wide on top side of brim, and shall be attached so that the brim will curve upward 3/4 to 1 inch.	301	BSg-2(b)	10-14	50	50	
	or						
	i. As an alternate the binding may be attached to the brim in one operation, using a folder.						
6.	Join sides and camouflage band.						
	a. Join top side to bottom side with front notches matching.	301 or 401	LSq-2(a)	10-14	50 50	50 70	
	b. Turn down bottom side and raise stitch bottom side, 1/16 to 3/32 inch from outside edge.	301	LSq-2(b)	10-14	50	50	
	or						
	c. Finished appearance. The finished mock seam shall be uniform in width, without distortion, and be accomplished only by the use of a folder.						
	d. Position side piece in folder, pass piece through folder in accordance with marks on pattern. The outside folded edge of the mock seam shall face the top of the crown with stitching 1/16 to 3/32 inch from folded edge.	301 or 401	OSe-1	10-14	50 50	50 70	

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
6.	Join sides and camouflage band. (cont'd)						
	e. For types I and III only cut nylon webbing for the camouflage band of sufficient length to meet the following requirements:						
	(1) Bartack the webbing around the circumference of the hat and centered (1/8 inch tolerance) on the bottom side piece. Bartacks shall be positioned 1-1/4 ± 1/8 inches apart with one bartack located at center front. The webbing shall be attached to the side piece with 1/8 inch fullness (-0, +1/8 inch tolerance) between bartacks forming loops. No bartack shall finish closer than 1/2 inch from back seam. The bartacks shall extend widthwise across the webbing and measure 1/2 to 5/8 inch in length and the width shall not exceed 3/32 inch. Bartacks shall not extend off edges of webbing.	Bartack or 701	--	28 per bartack 28 per tack	50	50	
	(2) Prestitch ends of webbing to back seam allowance to finish with 1/8 inch fullness (-0, +1/8 inch tolerance) of the back loop after joining center back seam.	101 or 301 or 401	--	---	50 50 50	 50 70	
	f. Join center back seam of top and bottom sides catching ends of webbing in the stitching. Open seam allowances and stitch through the turned edges 1/16 to 3/32 inch from each side of joining seam line.	301 or 401 and 301	SSa-1 SSz-3(b) shows finished seam	10-14 10-14	50 50 50	50 70 50	

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
6.	Join sides and camouflage band. (cont'd)						
	g. Stitch the instruction label on the inside of hat to the side lining on left side of hat, positioned 3/4 to 1 inch from back raw edge. Stitch label on all four sides. The stitching shall not be through the printing.	301	LSbj-1	10-14	50	50	
	h. Join center back seam of side lining and open seam allowances.	301 or 401	SSa-1	10-14	50 50	50 70	
	or						
	i. As an alternate, stitch the combination identification-size-instruction label vertically on the inside of the hat to the side lining on left side of hat, positioned 3/4 inch to 1 inch from raw edge. Stitch label on three sides. Join center back seam of side lining and label and open seam allowance.						
7.	Join sides to crown.						
	a. Finished appearance. The top side piece shall finish on top of crown and shall be free of twists, puckers, pleats, or raw edges.						
	b. Join side lining to inside of crown, matching front notches and placing back seam in line with back notch on crown. Stitching shall not show on outside.	101 or 301 or 401	SSa-1	10-14	50 50 50	 50 70	
	c. Join top side to outside of crown, matching front notches and placing back seam in line with back notch on crown.	301 or 401	LSbp-2(a)	10-14	50 50	50 70	

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TABLE II. (cont'd)

NO.	MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD NEEDLE	THREAD BOBBIN/ LOOPER	THREAD COVER
7.	Join sides to crown. (cont'd)						
	d. Turn down top side and raise stitch 1/16 to 3/32 inch from edge.	301	LSbp-2(b)	10-14	50	50	
	NOTE: The stitching specified in operations b and c shall not show on inside of hat.						
8.	Join sides to brim.						
	a. Position ends of the chin strap to underside of brim at each side notch and tack in position.	301 or 401 or bartack		6-14	50 50	50 70	
	b. Position bottom side piece to top of brim matching front notches and placing back seam in line with back notch of brim and raw edges even and stitch side piece to brim, not through brim interlining.	301 or 401	LSq-2(a)	10-14	50 50	50 70	
	c. Turn up bottom side piece and edge stitch 1/16 to 3/32 inch from edge.	301 or 401	LSq-2(b)	10-14	50 50	50 70	
	d. Position headband stay piece to inside of side lining with bottom edge of stay piece 1/2 inch from bottom edge of lining and even with back seam of lining. Stitch top edge of stay piece to lining 1/16 to 1/8 inch from edge of stay piece.	301 or 401	LSq-2(b)	10-14	50 50	50 70	
	e. Turn up bottom raw edge of lining over bottom edge of stay piece.						
	f. Position side lining to bottom of brim matching front notches and back seam in line with back notch of brim and stitch side lining to brim, 1/16 to 3/32	301	LSq-2(b)	10-14	50	50	

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
8.	Join sides to brim. (cont'd) inch from turned edge, catching bottom edge of size label in the stitching. The label shall extend upward into the crown and be positioned to right side of center back seam. NOTE: The lining shall not be full or twisted on the finished hat nor shall it twist or cause fullness to the outside of the finished hat. The lining shall not extend below the brim.						
9.	Blocking. As an option for forming the hat, the following blocking procedure may be utilized: Block crown on proper sized heated blocks and flange brims with metal dies on hydraulic press with heat and pressure to properly set brims.						
10.	Attach ventilators. Pre-punch holes through side and lining, as indicated by marks on pattern, and attach a ventilator at each hole with washer on inside of hat.						
11.	Clean hats. a. Trim all thread ends. b. Remove all loose threads, spots, stains, and shade, color and size markings.						

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3.9 Measurements. The finished hats shall conform to measurements for each respective size as shown in table III.

TABLE III. Finished measurements (inches)

Size	Inside hat (head measurements 1/	Crown height at center front 2/	Crown height at center back 3/	Brim width 4/
6-3/8	20-1/2	2-3/4	3-1/2	2-3/8
6-1/2	20-7/8	2-3/4	3-1/2	2-3/8
6-5/8	21-1/4	2-3/4	3-1/2	2-3/8
6-3/4	21-5/8	2-3/4	3-1/2	2-3/8
6-7/8	22	2-3/4	3-1/2	2-3/8
7	22-3/8	2-3/4	3-1/2	2-3/8
7-1/8	22-3/4	2-3/4	3-1/2	2-3/8
7-1/4	23-1/8	2-3/4	3-1/2	2-3/8
7-3/8	23-1/2	2-3/4	3-1/2	2-3/8
7-1/2	23-7/8	2-3/4	3-1/2	2-3/8
7-5/8	24-1/4	2-3/4	3-1/2	2-3/8
7-3/4	24-5/8	2-3/4	3-1/2	2-3/8
7-7/8	25	2-3/4	3-1/2	2-3/8
Tolerance	± 1/4	± 1/4	± 1/4	± 1/8

1/ Measure along bottom edge of side lining.

2/ Measure from base of side to crown seam on outside of center front.

3/ Measure from base of side to crown seam on outside of center back.

4/ Measure from base of side to outer bound edge of brim.

3.10 Workmanship. The finished hat shall conform to the quality of product established by this specification. 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 (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.

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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 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.

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

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.

4.4.1.1 Component and material certification. Certificates of compliance may be acceptable as evidence that the seconds cloth in 3.2.1.4, the ventilators in 3.2.9, and the adhesive in 3.2.10 conform to the specified requirements.

4.4.2 End item visual examination. The end items shall be examined for the defects listed in table IV. The lot size shall be expressed in units of hats. The sample unit shall be one hat. The inspection level shall be II

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and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 2.5 for major defects, 10.0 for major and minor A combined defects, and 15.0 for total (major, minor A, and minor B combined) defects.

TABLE IV. End item visual defects

Examine	Defect	Classification Major	Minor A	Minor B
Blocking (when this option is utilized)	Omitted	101		
	Poorly blocked, causing distortion on crown or brim; hat not symmetrical, affecting appearance		201	
Cleanness	Any spot or stain on outside			301
	Thread ends not trimmed, loose threads, or one or more shade or size marking not removed			302
Component and assembly	Any component part or required operation omitted (unless otherwise classified herein)	102		
	Any operation not performed as specified (unless otherwise classified herein)			303
Cutting	Any component part not cut in strict accordance with directional lines indicated on pattern or not cut in accordance with document requirements	103		
Ventilators	One or more omitted or added	104		
	Broken or bent	105		
	One or more improperly clinched, i.e., loose or raw edges exposed around edges of ventilator			
	- on outside	106		
	- on inside		202	
	Side puckered, pleated or full in clinching one or more ventilators		203	
	One or more ventilators with washer on outside of hat	107		
	Ventilator or washer splits:			
	- more than three splits		204	
	- three splits or less			304

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

Examine	Defect	Classification Major	Minor A	Minor B
Label (identification, size, or instruction)	Missing, incorrect, or illegible	108		
	Not securely attached		205	
Material defects and workmanship damages	Any hole or shade bar	109		
	Any defect such as a smash, multiple float, or slub	110		
	Cut, tear, rip, mend, or burn	111		
	Needle chew	112		
Seams and stitching, general	Seam or component part twisted, puckered, or pleated		206	
	Part of material caught in any unrelated operation or stitching	113		
	Ends of stitching not secured as specified		207	
	Thread break (all stitch types) stitched less than 1/2 inch beyond each end of break			305
Gage of stitching and seam allowances	Irregular, i.e., unevenly gaged, or corresponding stitchings not uniformly gaged (to be scored only when condition exists along major portion of seam)		208	
	Width not as specified or not within range of gage specified or varies more than 1/16 inch when no range is specified			306
	Edge or raised stitching sewn too close to edge resulting in damage to cloth	114		
NOTE:	The above defects are to be scored only when the condition exists on major portion (i.e., over one half or more) of seam.			
Open seams	Any seam open on outside:			
	- up to 1/4 inch inclusive			307
	- more than 1/4 inch	115		

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

Examine	Defect	Classification Major	Minor A	Minor B
Open seams (cont'd)	Any seam open on inside of hat:			
	- up to 1/4 inch inclusive			308
	- more than 1/4 inch to 1 inch inclusive		209	
	- more than 1 inch	116		
	NOTE: One or more broken or two or more consecutive skipped or runoff stitches constitute an open seam.			
Raw edges	Any raw edge on outside of hat:			
	- 1/4 to 1/2 inch inclusive		210	
	- more than 1/2 inch	117		
	Any raw edge on inside of hat more than 1/4 inch			309
	NOTE: Raw edges not securely caught in stitching shall be classified as an open seam.			
Runoffs	On joining seams, when resulting in an open seam, score as "open seam"			
	On binding stitching:			
	- 1/4 to 1/2 inch inclusive			310
	- over 1/2 inch		211	
Seam and stitch types	Not specified seam or stitch type		212	
	Looper thread on outside (when 401 stitch is used)	118		
	Chain of 101 stitch type exposed on outside of hat	119		
Stitch tension	Loose tension resulting in a loose seam		213	
	Loose tension on top quilting stitches or edge stitching, resulting in loosely exposed lower thread on top thread		214	
	Tight tension (stitches break when strain is applied to the direction of seam)	120		

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

Examine	Defect	Classification Major	Minor A	Minor B
Stitches per inch	Less than minimum specified		215	
	More than maximum specified			311
NOTE:	This defect is to be scored only when the condition exists on major portion of seam or stitching.			
Shaded parts	Badly shaded parts (except those cut from ends)	121		
	Parts permitted to be cut from ends, badly shaded			312
Brim	Twisted, stretched, or poorly shaped	122		
	Rows of quilting stitches less than 3/16 inch or more than 1/4 inch apart		216	
	Needle thread of quilting stitching finished on underside of brim			313
	Fullness between rows of quilting stitches		217	
	Binding twisted, puckered, or pleated	123		
	Outside end of binding not turned under or not within 1/2 inch of center back of brim			314
	Binding finished more than 3/8 inch wide on top of brim for a distance of 2 inches or more		218	
	Irregular in width by more than 1/2 inch inclusive		219	
	Ends of binding lapped less than 1/2 inch		220	
	Brim curving upward less than 3/4 inch or more than 1 inch		221	
Crown and sides	Crown twisted or distorted		222	
	Side twisted or distorted	124		
	Side lining twisted or distorted			315
	Lining extending below edge of brim			316

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

Examine	Defect	Classification Major	Minor A	Minor B
Crown and sides (cont'd)	Side back seam and side lining back seam, not seam on seam, by more than 1/8 inch		223	
	Stitches joining top side to crown exposed on inside of hat		224	
	Stitches joining side lining to crown exposed on outside of hat		225	
	Joining seams of top side to bottom side out of alignment by more than 1/16 inch at back seam		226	
	Camouflage band bartacks positioned less than 1-1/8 or more than 1-3/8 inches apart 1/			317
	Camouflage band attached to side with less than 1/8 inch or more than 1/4 inch fullness 1/		227	
	Ends of camouflage band not caught in back seam stitching 1/	125		
	Camouflage band bartacks insecure 1/			318
	Camouflage band bartacks not positioned across width of band 1/		228	
	Camouflage band bartack measuring less than 1/2 inch or more than 5/8 inch 1/			319
	Camouflage band bartack measuring more then 3/32 inch wide 1/			320
	Camouflage band bartack extending beyond edge of webbing 1/			321
	Camouflage band off center of bottom side piece by more than 1/8 inch 1/			322
Chin strap and keeper	Chin strap missing	126		
	End of chin strap not fused		229	
	Keeper missing	127		
	Keeper less than 5/8 inch or more than 7/8 inch long; or less than 3/8 inch or more than 5/8 inch wide			323

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

Examine	Defect	Classification Major	Minor A	Minor B
Chin strap and keeper (cont'd)	Holes in keeper too small or too large not permitting chin strap to function properly, i.e., falls freely from set position or keeper immovable	128		
	Chin strap measuring less than 24 inches or more than 26 inches long			324
	Chin strap twisted			325

1/ This defect pertains to types I and III hats only.

4.4.3 End item dimensional examination. The end items shall be examined for the dimensions listed in table III. Any dimension not within the specified tolerance shall be scored as a defect. The lot size shall be expressed in units of hats. The sample unit shall be one hat. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 4.0.

4.4.4 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.

Examine	Defect
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

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4.4.5 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.

Examine	Defect
Finished dimensions	Length, width, or height exceeds specified maximum requirement
Palletization	Pallet pattern 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 or Commercial, as specified (see 6.2).

5.1.1 Level A preservation. Each hat shall be folded along the lengthwise dimension of the hat.

5.1.2 Commercial preservation. The hats 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 hundred and twenty hats of one type and size only, preserved as specified in 5.1, shall be packed in a fiberboard shipping container conforming to style RSC-L, grade V2s of PPP-B-636. Inside dimensions of each container shall approximate 26 inches in length, 12 inches in width, and 15 inches in depth. Approximate dimensions are furnished as a guide only. Each shipping 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 A-A-203. 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 4.4.4. 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). When unit loads are strapped, strapping shall be limited to nonmetallic strapping, except for type II, class F loads.

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5.2.2 Level B packing. One hundred and twenty hats of one type and size only, preserved as specified in 5.1, shall be packed in a fiberboard shipping container conforming to style RSC-L, type CF (variety SW) or SF, class domestic, grade 275 of PPP-B-636. Inside dimensions of each container shall approximate 26 inches in length, 12 inches in width, and 15 inches in depth. Approximate dimensions are furnished as a guide only. Each shipping container shall have the contents completely covered on the top and bottom with a sheet of 30 pound basis weight kraft paper conforming to A-A-203. 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 4.4.4.

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, except that the inspection shall be in accordance with 4.4.4.

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

5.3 Palletization. When specified (see 6.2), hats packed as specified in 5.2.2 or 5.2.3, 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. Pallets shall 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 bonding means C and D or film bonding means F or G. Pallet pattern shall be number 79 in accordance with the appendix of MIL-STD-147.

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 types I and III hats are intended for use by military personnel of the Department of Defense for special purposes in tropical and semi-tropical environments. The type II hat is intended for use by military personnel of the Department of Defense for special purpose in desert environments.

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6.2 Acquisition requirements. Acquisition documents must specify the following:

a. Title, number and date of this specification.
b. Type and size required (see 1.2).
c. 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).
d. When a first article is required (see 3.1, 4.3, and 6.3).
e. Levels of preservation and packing (see 5.1 and 5.2).
f. Type and class of unit load required (see 5.2.1).
g. When weather-resistant grade fiberboard shipping containers are required for level B packing (see 5.2.2.1).
h. 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 52.209-4. 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 Source for ventilators with washers. The No. 53 screen type ventilator with washer may be obtained from the Stimpson Company, 900 Sylvan Avenue, Bayport, NY 11705.

6.6 Source for viscosimeter. The Brookfield viscosimeter may be obtained from Brookfield Engineering Laboratories, Inc., 240 Cushing Street, Stoughton, MA 02072.

6.7 Supersession data.

Type I of this specification replaces type I of MIL-H-43577E.
Type II of this specification replaces the hat covered by MIL-H-44105A.
Type III of this specification replaces type III of MIL-H-43577E.
The type II hat covered by MIL-H-43577E is no longer required and has been deleted.

6.8 Subject term (key word) listing.

Camouflage pattern
Clothing
Headgear
Heat protection

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6.9 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
Air Force - 99

Review activities:

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

User activities:

Navy - YD
Air Force - 45

Preparing activity:

Army - GL

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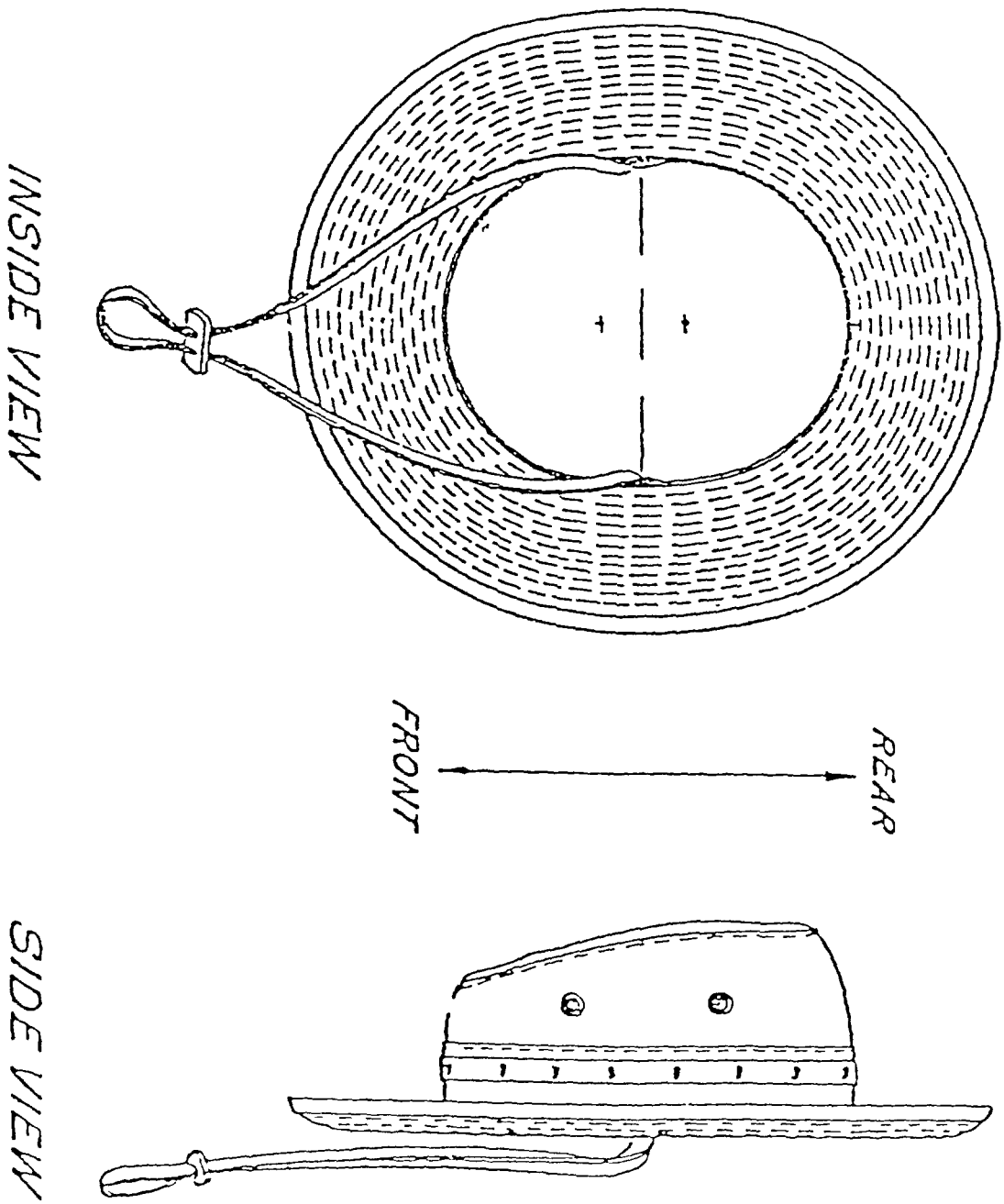

FIGURE 1. HATS, SUN, HOT WEATHER (TYPES I AND III)

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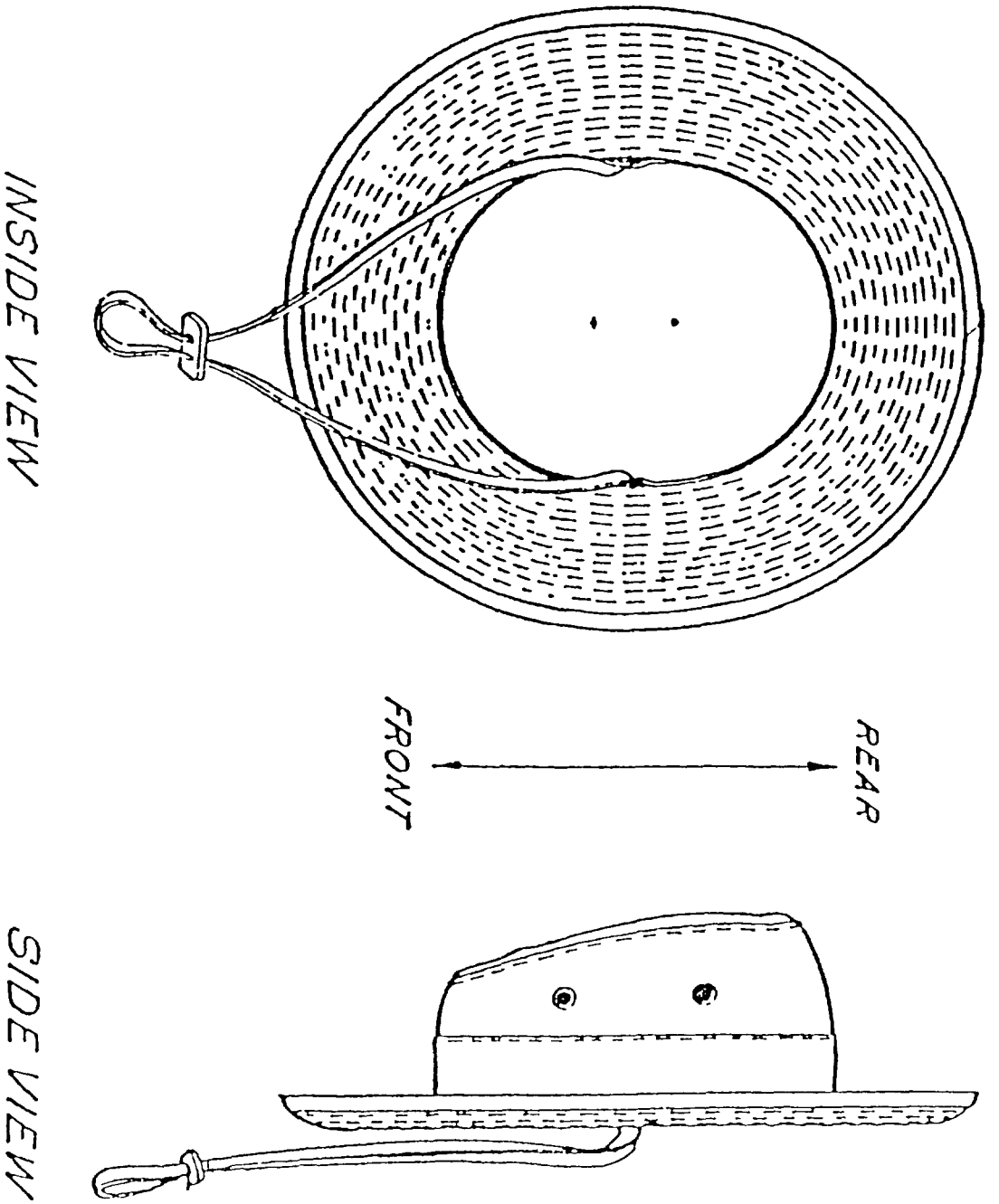

FIGURE 2. HATS, SUN, HOT WEATHER (TYPE II)

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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	2. DOCUMENT DATE (YYMMDD)
	MIL-H-44105B	1992 March 4

3. DOCUMENT TITLE
HATS, SUN, HOT WEATHER

4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as 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	b. TELEPHONE (Include Area Code) (1) Commercial	(2) AUTOVON/DSN
U.S. Army Natick RD&E Center	508-651-4532	256-4532
c. ADDRESS (Include Zip Code) Commander, U.S. Army Natick RD&E Center ATTN: STRNC-IRT Natick, MA 01760-5019	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	

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198/290