

INCH-POUND

MIL-H-43577E

16 October 1989

SUPERSEDING

MIL-H-43577D

31 December 1984

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 hats made of cotton material.

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

Type I	- Olive Green 107; 2-3/8-inch width brim
Type II	- Camouflage Pattern; 3-inch width brim
Type III	- Woodland Camouflage Pattern; 2-3/8-inch width brim

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

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 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 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

- A-A-50083 - Bag, Plastic, Folded Garment
- V-L-61 - Laces, Nylon
- V-T-276 - Thread, Cotton
- 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

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- 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-T-43548 - Thread, Polyester Core; Cotton-, Rayon-, or
Polyester-Covered
- MIL-W-43668 - Webbing, Textile, Bulked Nylon
- MIL-C-43836 - Cloth, Interlining, Non-Woven

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

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MIL-STD-731 - Quality of Wood Members for Containers and Pallet Contractors

(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.)

2.2 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 19102-1187).

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

3.3.1 Basic materials.

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

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3.3.1.2 Type II hat. The basic material shall be cotton rip-stop poplin cloth, camouflage pattern, conforming to type II of MIL-C-43468.

3.3.1.3 Type III hat. The basic material shall be cotton rip-stop poplin cloth, woodland camouflage pattern, conforming to type IV of MIL-C-43468.

3.3.1.4 Side lining. For types II and III hats only, the side lining may be cut from ground shade cloth.

3.3.2 Brim binding. The brim binding shall be bias-cut from the basic materials (see 3.3.1) applicable to the type hat required (see 6.2).

3.3.3 Brim interlining and head-band stay piece. The brim interlining and head-band stay piece shall be white, nonwoven, continuous filament polyester cloth conforming to type I, class 2 of MIL-C-43836.

3.3.4 Webbing, nylon. The nylon webbing for the camouflage band 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.

3.3.5 Laces, nylon. The nylon lace for the chin strap shall be Olive Green 106 conforming to type II, class 2, 8/32 inch wide of V-L-61, except that the requirements for length and tipping shall not apply.

3.3.6 Keeper, leather. The leather for the chinstrap keeper shall conform to any type, 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 thickness of the leather shall be 6/64 to 8/64 inch and the color shall be natural as produced by the tanning agents. The finish shall be smooth and have a natural gloss appearance.

3.3.7 Thread. The thread for stitching the hat shall be cotton, soft finish, type IA3, ticket No. 50, 3 ply and ticket No. 70, 2 ply conforming to V-T-276 or polyester-covered, cotton-covered or rayon-covered thread, ticket No. 50 and ticket No. 70 conforming to MIL-T-43548. The thread shall be water repellent treated to conform to type II, class 3 of MIL-T-3530.

3.3.7.1 Color and colorfastness. The thread shall be dyed Shade S-1, C.A. 66022 and 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 and light.

3.3.8 Labels. Each hat shall have a combination identification-size label conforming to type IV, class 4 of DDD-L-20 and an instruction label conforming to type IV, class 3 of DDD-L-20. The labels shall show fastness to laundering. The instruction label shall measure not more than 2 inches by 2 inches and shall include the following information.

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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

3.3.9 Ventilators, with washers. The screen type ventilators with washers shall be brass, black chemical, 9/16 inch outside rim diameter, and 7/16 inch outside diameter screening, conforming to Stimpson Company, #53 or equal (see 6.6). Prior to use of the "or equal" item, the contractor shall submit the item to the contracting officer, with supporting data, for approval.

3.4 Design. The design shall be as shown on figure 1.

3.5 Patterns. Patterns which provide an allowance for all seams, will be furnished by the Government to the contractor for cutting working patterns. Neither the Government patterns nor the working patterns shall be altered in any way. Seam allowances shall be as follows:

Side lining to crown	- 3/16 inch
Top side to crown, back seams, top side to bottom side	- 1/4 inch
Brim to sides	- 3/8 inch

3.5.1 List of pattern parts. The components of the hat shall be cut from materials specified according to the pattern parts indicated in table I.

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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 <u>1/</u>	1	
	Top brim (type I and type III hats) <u>2/</u>	1	
	Top brim (type II hat) <u>3/</u>	1	
	Bottom brim (type I and type III hats) <u>2/</u>	1	
	Bottom brim (type II hat) <u>3/</u>	1	
	Nonwoven material	Brim interlining (type I and type III hats)	1
		Brim interlining (type II hat)	1
Headband stay		1	

1/ May be cut from ground shade fabric

2/ Same pattern part

3/ Same pattern part

3.6 Construction.

3.6.1 Stitches, seams, and stitching. Stitch, seam, 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 allowances shall be maintained with seams sewn so that raw edges, run offs, twists, pleats, or puckers will not result. All seams shall start and finish evenly. Ends of a continuous line of stitching shall be overlapped not less than 1/2 inch. The ends of the label stitching shall be overlapped not less than three stitches.

3.6.1.1 Type 301 stitching. Ends of all seams and stitching when not caught in other seams or stitching shall be backtacked not less than 1/4 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.

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

a. When thread breaks or bobbin run-outs occur during sewing, the stitching shall be repaired by restarting the stitching a minimum of 1/2 inch back of 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 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. When damaged thread has been removed, needle holes do not constitute damage to the material. ^{1/}

^{1/} When making the above repairs the ends of the stitching are not required to be back stitched.

3.6.1.2 Types 101, 401, and 701 stitching. Thread tension shall be maintained so that there will be no loose stitching. All repairs shall be in accordance with 3.6.1.1.1a and 3.6.1.1.1b. Repairs to stitch type 401 may be accomplished by use of stitch type 301.

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

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

3.8 Manufacturing operations requirements. The hat shall be made in accordance with the operation requirements 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.

3.8.1 Figure. Figure 1 is furnished for information purposes only. If there are any inconsistencies between the specification and the figure, the written specification shall control.

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NO.	TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	HOBBLIN/ LOOPER	COVER
1.	<p><u>Cutting.</u></p> <p>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 all parts.</p> <p>b. Cut basic material parts of hat from one piece of material except brim binding and side lining which may be cut from ends. The side lining and brim binding, when cut from ends, shall approximate the shade or color pattern of the respective basic material.</p> <p>c. Cut the brim binding on the bias, not less than 1-1/8 inches wide. Brim binding may be placed on rolls.</p> <p>d. Cut the lace for the chin strap with a heated blade to fuse ends of straps. The cut lengths shall be 25 inches + 1 inch.</p>						
2.	<p><u>Replacement of damaged parts.</u></p> <p>Care shall be exercised during the spreading, cutting, and manufacturing operations to assure that material defects and damages, as classified in 4.4.2, are excluded and replaced with non-defective and properly matched material.</p>						
3.	<p><u>Marking.</u></p> <p>a. Mark, ticket or bundle all cut parts to insure a uniform shade, color pattern, and size throughout the hat.</p>						

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	HOBBIN/ LOOPER	COVER
3.	<p><u>Marking.</u> (cont'd)</p> <p>b. Any method of marking may be used except:</p> <p>(1) Metal fastening devices.</p> <p>(2) Sew-on tickets.</p> <p>(3) Adhesive type tickets which leave traces of adhesive on the material after removal of the tickets.</p>						
4.	<p><u>Make chin strap keeper and chin strap.</u></p> <p>a. Cut leather piece for chin strap keeper, $3/4 + 1/8$ inch long by $1/2 + 1/8$ inch wide.</p> <p>b. Punch two holes, equally spaced, in keeper to accommodate chin strap. The holes shall be of sufficient length and width to insure proper function of the keeper, i.e., keeper shall not move without exertion of a slight pressure.</p> <p>c. Thread chin strap through holes in keeper.</p>						
5.	<p><u>Make brim.</u></p> <p>Finished appearance. The brim shall be made of two plies of basic material interlined with one ply of nonwoven material and shall finish without twists or puckers. The brim shall be quilted with parallel lines of stitching and shall finish in the applicable width specified in table III and finish with an upward curl.</p> <p>a. (1) Superimpose outside edges of bottom brim and brim interlining with notches matching, and stitch together $1/16$ to $1/8$ inch from outside edges.</p>	101 or 301 or 401	SSa-1	6-14	50 50 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	T H R E A D	
					NEEDLE	NOBBIN/ LOOPER COVER
5.	<p><u>Make brim.</u> (cont'd)</p> <p>(2) 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.</p> <p>b. 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.</p> <p>c. Stitch bottom brim to top brim along inner edge adjacent to brim interlining.</p> <p>d. 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 inch to 1/4 inch apart. The needle thread shall finish on top brim in the finished hat.</p> <p>e. 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 opposite end of binding.</p>	101 or 301 or 401	SSa-1	6-14	50 50 50	50 50 70
		101 or 301 or 401	SSa-1	6-14 or 6-14	50 50 50	50 50 70
		301	SSa-1	8-10	50	50
		301		8-10	50	50
		301 or 401	Bsg-(a)	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	ROBBIN/LOOPER COVER
5.	<p>Make brim. (cont'd)</p> <p>f. 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 for type I and type III hats and 1 to 1-1/8 inches for type II hat.</p> <p>As an alternate the binding may be attached to the brim in one operation using a folder.</p> <p>or</p> <p>Join sides and camouflage band.</p>	301	Rsg-2(b)	10-14	50	50
6.	<p>a. Join top side to bottom side with front notches matching.</p> <p>b. Turn down bottom side and raise stitch bottom side, 1/16 to 3/32 inch from outside edge.</p> <p>or</p> <p><u>Alternate construction</u></p> <p>Finished appearance. The finished mock seam shall be uniform in width, without distortion, and be accomplished only by use of a folder.</p> <p>c. 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 the stitching 1/8 inch from the folded edge.</p> <p>d. Cut nylon webbing of sufficient length to meet the following requirements:</p>	301 or 401 301 or	I.Sq-2(a) I.Sq-2(b)	10-14 10-14	50 50 50	50 70 50
		301 or 401	OSE-1	10-14 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	DOBBIAH/ LOOPER COVER
6.	<p>Join sides and camouflage band. (cont'd)</p> <p>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.</p> <p>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.</p> <p>3. Join center back seam of top and bottom sides 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.</p> <p>e. Position the instruction label 3/4 to 1 inch from the back raw edge of the left side lining as worn on the inside of the hat. Stitch label on all four sides. The stitching shall not be through the printing.</p> <p>f. Join center back seam of side lining and open seam allowances.</p>	Bartack or 701		28 per bartack 28 per tack	50 50	50
		101 or 301 or 401			50 50 70	
		301 or 401 and 301	SSa-1 SSz-3(b) shows finished seam	10-14 10-14	50 50 50	50 70 50
		301	LSbj-1	10-14	50	50
		301 or 401	SSa-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
7.	<p><u>Join sides to crown.</u></p> <p>Finished appearance. The top side piece shall finish on top of crown and shall be free of twists, puckers, pleats or raw edges.</p> <p>a. Join side lining to inside of crown, matching front notches and with back seam in line with back notch on crown. Stitching shall not show on outside.</p> <p>b. Join top side to outside of crown, matching front notches and with back seam in line with back notch on crown.</p> <p>c. Turn down top side and raise stitch 1/16 to 3/32 inch from edge.</p> <p>NOTE: The stitchings specified in operation b and c shall not show on inside of hat.</p>	<p>101 or 301 or 401</p> <p>301 or 401</p> <p>301</p>	<p>SSa-1</p> <p>LSbp-2(a)</p> <p>LSbp-2(b)</p>	<p>10-14</p> <p>10-14</p> <p>10-14</p>	<p>50 50 50</p> <p>50 50</p> <p>50</p>	<p>50 70</p> <p>50 70</p> <p>50</p>	
8.	<p><u>Join sides to brim.</u></p> <p>a. Position ends of chin strap to underside of brim at each side notch and tack in position.</p> <p>b. Position bottom side piece to top of brim matching front notches and back seam in line with back notch of brim and raw edges even and stitch side piece to brim, not through brim interlining.</p> <p>c. Turn up bottom side piece and edge stitch 1/16 to 3/32 inch from edge.</p>	<p>301 or 401 or Bartack</p> <p>301 or 401</p> <p>301 or 401</p>	<p>LSq-2(a)</p> <p>LSq-2(b)</p>	<p>6-14</p> <p>10-14</p> <p>10-14</p>	<p>50 50 50</p> <p>50 50</p> <p>50 50</p>	<p>50 70 50</p> <p>50 70</p> <p>50 70</p>	

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NO.	TABLE II (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN/ LOOPER	COVER
8.	<p>Join <u>sides to brim.</u> (cont'd)</p> <p>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 with back edges of stay piece butted and in line with back seam of lining. Stitch top edge of stay piece to lining 1/16 to 1/8 inch from edge of stay piece.</p> <p>e. Turn up bottom raw edge of lining over bottom edge of stay piece.</p> <p>f. Position side lining to bottom of brim matching front notches and back seam in line with back notch of brim, 1/16 to 3/32 inch from turned edge, catching bottom edge of size label in the stitching. The label shall extend upward into the crown and positioned to right side of center back seam.</p> <p>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.</p>	301 or 401	LSq-2(a)	10-14	50	50 70	50
9.	<p><u>Blocking.</u></p> <p>Block crown on proper sized heated blocks and flange brims with metal dies on hydraulic press with heat and pressure to properly set brims.</p>	301	LSq-2(b)	10-14	50	50	
10.	<p><u>Attach ventilators.</u></p> <p>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.</p>						

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NO.	TABLE II (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	ROBBIN/LOOPER	COVER
11.	<p><u>Clean hats.</u></p> <p>a. Trim all thread ends.</p> <p>b. Remove all loose threads, spots, stains, shade or color pattern and size markings.</p>						

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3.9 Measurements. The finished measurements of the hats shall conform to table III.

TABLE III. Finished measurements (in 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	all sizes	all sizes	all sizes (type I and type III hat)
6-5/8	21-1/4			
6-3/4	21-5/8			3 all sizes (type II hat)
6-7/8	22			
7	22-3/8			
7-1/8	22-3/4			
7-1/4	23-1/8			
7-3/8	23-1/2			
7-1/2	23-7/8			
7-5/8	24-1/4			
7-3/4	24-5/8			
7-7/8	25			
Tolerance	$\pm 1/4$	$\pm 1/4$	$\pm 1/4$	$\pm 1/8$

1/ Measure along bottom edge of side lining.

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

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

4/ From base of side to outer bound edge of brim.

3.10 Workmanship. The end item shall conform to the quality of product established by this specification.

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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 assure 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.

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.

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

4.4.2 End item visual examination. The end 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 (see 6.5).

TABLE IV. End item visual defects

Defects	Classification	
	Major	Minor A B
<u>Blocking</u>		
a. Omitted	101	
b. Poorly blocked, causing distortion on crown or brim; hat not symmetrical, affecting appearance		201
<u>Cleanness</u>		
a. Any spot or stain on outside		301
b. Thread ends not trimmed, loose threads, or one or more shade, color pattern, or size marking not removed		302
c. Shade stamp marking (when used for type I hat only) exposed on outside		202
<u>Component and assembly</u>		
a. Any component part or required operation omitted (unless otherwise classified herein)	102	
b. Any operation not performed as specified (unless otherwise classified herein)		303
<u>Cutting</u>		
Any part not cut in accordance with directional lines indicated on pattern or not cut in accordance with specification requirements	103	

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

Defects	Classification	
	Major	Minor A B
<u>Ventilators</u>		
a. One or more omitted or added	104	
b. Broken or bent	105	
c. One or more improperly clinched, i.e., loose or raw edges exposed around edges of ventilator on outside	106	
d. One or more not properly clinched, i.e., raw edges of lining exposed around edges of ventilator on inside		304
e. Side puckered, pleated, or full in clinching one or more ventilators		203
f. One or more ventilators with washer on outside	107	
<u>Labels (identification-size and instruction)</u>		
a. Missing, incorrect, or illegible	108	
b. Not securely attached		204
<u>Material defects and workmanship damages</u>		
a. Any hole or shade bar	109	
b. Any defect such as a smash, multiple float, or slub	110	
c. Cut, tear, rip, mend, or burn	111	
d. Needle chew	112	
<u>Seams and stitching</u>		
a. General:		
1. Seam twisted, puckered, or pleated		205
2. Part of hat caught in any unrelated operation or stitching	113	
3. Thread(s) used on outside not same shade or not specified shade	114	
4. End of seam (except continuous line of stitching) when not caught in other seam stitching backtacked less than 1/4 inch		206
5. End of continuous line of stitching overlapped less than 1/2 inch, unless otherwise specified		207
6. Thread break (all stitch types) stitched less than 1/2 inch beyond each end of break		305

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

Defects	Classification	
	Major	Minor A B
<u>Seams and stitching (cont'd)</u>		
b. Gage of stitching and seam allowances:		
1. Irregular, i.e., unevenly gaged, or corresponding stitching not uniformly gaged (to be scored only when condition exists along major portion of seam)		208
2. Width not as specified or not within range of gage specified or varies more than 1/16 inch when no range is specified		306
3. Edge or raised stitching sewn too close to edge resulting in damage to cloth	115	
NOTE: The above defects to be scored only when the condition exists on major portion (i.e., over the half or more) of seam		
c. Open seams (one or more broken or two or more skipped or runoff stitches constitute an open seam):		
1. Any seam open on outside: - up to 1/4 inch inclusive - more than 1/4 inch	116	209
2. Any seam open on inside of hat: - up to 1/4 inch inclusive - more than 1/4 inch to 1 inch inclusive - more than 1 inch	117	307 210
d. Raw edges:		
1. Any raw edge on outside of hat: - 1/4 to 1/2 inch inclusive - more than 1/2 inch	118	211
2. Any raw edge on inside of hat more than 1/4 inch		308
NOTE: Raw edges not securely caught in stitching shall be classified as an open seam.		
e. Runoffs:		
1. On joining seams, when resulting in an open seam, score as "open seam"		
2. On binding stitching: - 1/4 to 1/2 inch inclusive - over 1/2 inch	119	212

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

Defects	Classification	
	Major	Minor A B
<u>Seams and stitching (cont'd)</u>		
f. Seam and stitch types:		
1. Not specified seam or stitch type		213
2. Looper thread on outside (when 401 stitch is used)	120	
3. Chain of 101 stitch type exposed on outside of hat	121	
g. Stitch tension:		
1. Loose tension resulting in a loose seam		214
2. Loose tension on top quilting stitches or edge stitching, resulting in loosely exposed lower thread or top thread		215
3. Tight tension (stitches break when strain is applied to the direction of seam)	122	
h. Stitches per inch (to be scored only when the condition exists on major portion of seam or stitching):		
1. Less than minimum specified		216
2. More than maximum specified		309
<u>Shaded parts</u>		
a. Badly shaded parts (except those cut from ends)	123	
b. Parts permitted to be cut from ends badly shaded		310
<u>Brim</u>		
a. Twisted, stretched, or poorly shaped	124	
b. Rows of quilting stitches less than 3/16 inch or more than 1/4 inch apart		217
c. Needle thread of quilting stitching finished on underside of brim		311
d. Fullness between rows of quilting stitches		218
e. Binding, twisted, puckered, or pleated	125	
f. Outside end of binding not turned under or not within 1/2 inch of center back of brim		312
g. Binding finished more than 3/8 inch wide on top of brim for a distance of 2 inches or more		219
h. Irregular in width by more than 1/2 inch inclusive		220

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

Defects	Classification	
	Major	Minor A B
<u>Brim</u> (cont'd)		
i. Ends of binding lapped less than 1/2 inch		221
j. Brim curving upward less than 3/4 inch or more than 1 inch (type I and type III hats), or less than 1 inch or more than 1-1/8 inches (type II hat)		222
<u>Crown and sides</u>		
a. Crown twisted or distorted		223
b. Side twisted or distorted	126	
c. Side lining twisted or distorted		313
d. Lining extending below edge of brim		314
e. Camouflage band bartacks positioned less than 1-1/8 or more than 1-3/8 inches apart		315
f. Camouflage band attached to side with less than 1/8 inch or more than 1/4 inch fullness		224
g. Ends of camouflage band not caught in back seam stitching	127	
h. Camouflage band bartacks insecure		316
i. Camouflage band bartacks not positioned across width of band		225
j. Camouflage band bartack measuring less than 1/2 inch or more than 5/8 inch		317
k. Camouflage band bartack measuring more than 3/32 inch wide		318
l. Camouflage band bartack extending beyond edge of webbing		319
m. Side back seam and side lining back seam not seam on seam, by more than 1/8 inch		226
n. Stitches joining top side to crown exposed on inside of hat		227
o. Stitches joining side lining to crown exposed on outside of hat		228
p. Joining seam of top side to bottom side out of alignment by more than 1/16 inch at back seam		229
q. Camouflage band off center of bottom side piece by more than 1/8 inch		320

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

Defects	Classification	
	Major	Minor A B
<u>Chin strap and keeper</u>		
a. Chin strap missing	128	
b. End of chin strap not fused		230
c. Keeper missing	129	
d. 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		321
e. 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	130	
f. Chin strap measuring less than 24 inches or more than 26 inches long		322

4.4.3 End item dimensional examination. The end items shall be examined for conformance to the dimensions specified in table III. Any dimension not within the specified tolerance shall be classified 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 (see 6.5).

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 (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

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<u>Examine</u>	<u>Defect</u>
Content	Number per container is more or less than required

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 (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
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. Each hat shall be firmly rolled along the lengthwise dimension of the hat. Each rolled hat shall be inserted into a close-fitting flat style clear polyethylene film bag conforming to A-A-50083.

5.1.2 Commercial. 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 forty-four 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. Level A unit intermediate packs shall be packed one in length, five in width, and thirty in depth. Inside dimensions of each container shall approximate 20 inches in length, 14-1/2 inches in width, and 15 inches in depth. Approximate dimensions are furnished as a guide only. Each shipping container shall be closed and waterproofed in accordance with method V, and reinforced as specified in the appendix of PPP-B-636, except that the inspection shall be

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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). Strapping shall be limited to nonmetallic strapping, except for type II, class F loads.

5.2.2 Level B packing. One hundred and fifty 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. Level A unit packs shall be packed one in length, five in width, and thirty in depth. Inside dimensions of each container shall approximate 20 inches in length, 14-1/2 inches in width, and 15 inches in depth. Approximate dimensions are furnished as a guide only. 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 V 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 4 in accordance with the appendix of MIL-STD-147.

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

5.4.2 Polyethylene bagged unit packs. Polyethylene bagged unit packs shall have the required identification information legibly printed or stamped in black directly on the bag across the center face or on a white paper label inserted within the bag so as to permit ready identification.

6. NOTES

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

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6.1 Intended use. The hat is intended for use by male military personnel of the Department of Defense for special purposes in tropical and semi-tropical areas.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification.
- b. Type and size (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. 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.

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 end item visual examination. An acceptable quality level (AQL), expressed in terms of defects per hundred units, of 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.

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

6.5.3 For packaging examination. An AQL, expressed in terms of defects per hundred units, of 2.5 is recommended.

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

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6.6 Source for ventilators with washers. Screen type ventilators with washers may be obtained from Stimpson Co., 900 Sylvan Ave., Bayport, New York, 11705.

6.7 Subject term (key word) listing.

Camouflage pattern
Headgear
Men's clothing

6.8 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

Preparing activity:

Army - GL
(Project 8415-0705)

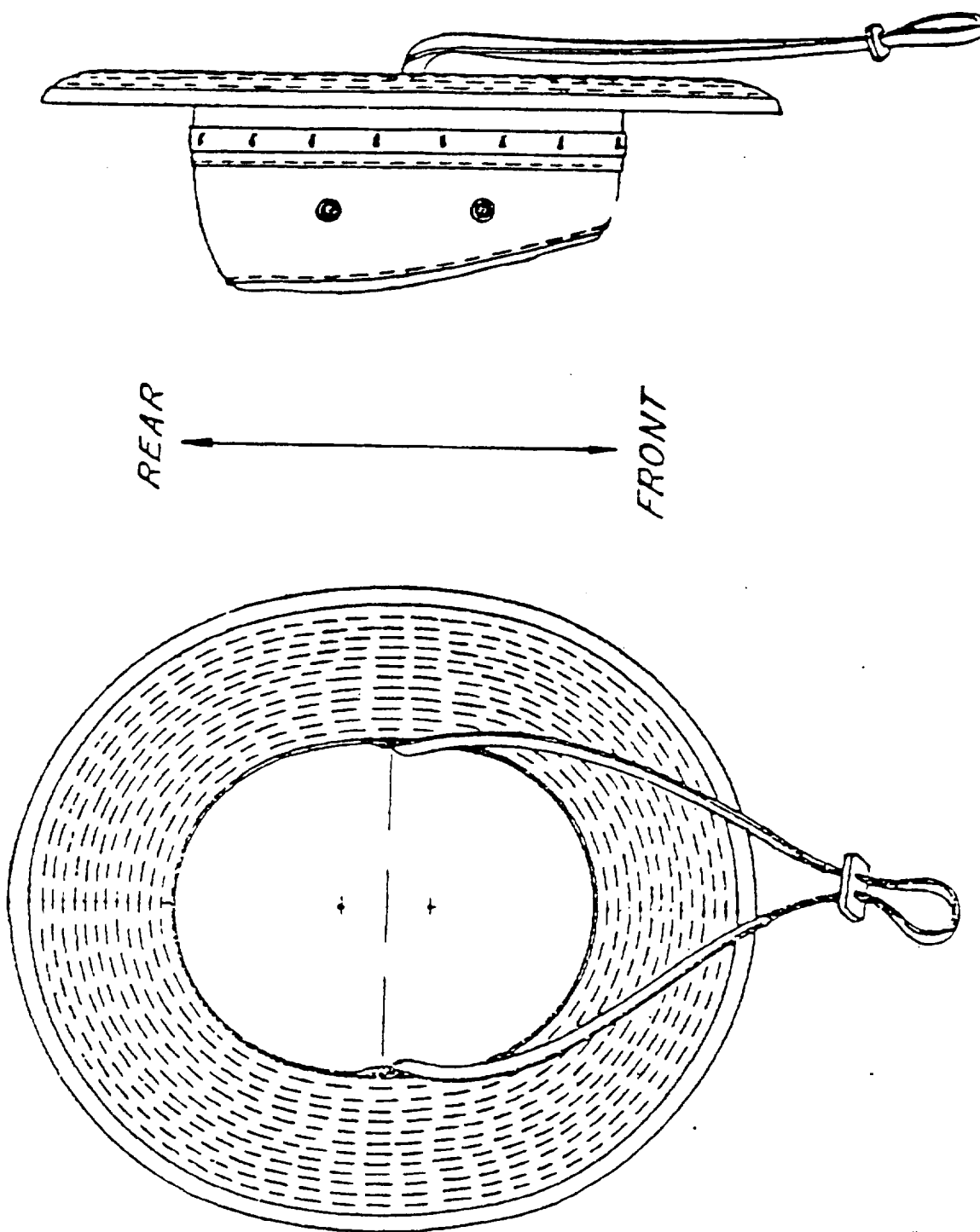
Review activities:

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

User activity:

Air Force - 45

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SIDE VIEW

INSIDE VIEW

FIGURE 1, HATS, SUN, HOT WEATHER

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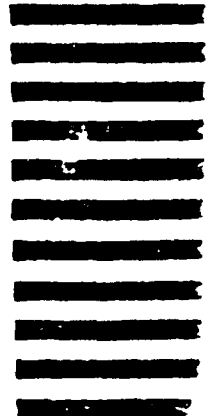


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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER MIL-H-43577E		2. DOCUMENT TITLE HATS, SUN, HOT WEATHER	
3. NAME OF SUBMITTING ORGANIZATION		4. TYPE OF ORGANIZATION (More one)	
5. ADDRESS (Street, City, State, ZIP Code)		<input type="checkbox"/> VENDOR <input type="checkbox"/> USER <input type="checkbox"/> MANUFACTURER <input type="checkbox"/> OTHER (Specify): _____	
6. PROBLEM AREAS			
a. Paragraph Number and Wording:			
b. Recommended Wording:			
c. Reason/Rationale for Recommendation:			
7. REMARKS			
7a. NAME OF SUBMITTER (Last, First, MI) - Optional		7b. WORK TELEPHONE NUMBER (Include Area Code) - Optional	
8. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional		8. DATE OF SUBMISSION (YYMMDD)	