

MIL-C-87248  
31 December 1987  
SUPERSEDING  
(See 6.8)

## MILITARY SPECIFICATION

### CAP, CAMOUFLAGE PATTERN (BASEBALL STYLE)

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

#### 1. SCOPE

1.1 Scope. This specification covers the requirements for a baseball style cap fabricated of nylon and cotton camouflage fabrics.

1.2 Classification. The cap shall be of one style only in the following types, as specified (see 6.2):

Type I - Woodland camouflage pattern

Type II - Desert camouflage pattern

1.2.1 Sizes. The cap shall be furnished in the following sizes, as specified (see 6.2):

Small

Medium

Large

#### 2. APPLICABLE DOCUMENTS

##### 2.1 Government documents

2.1.1 Specifications and standards. The following specifications and standards form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: ASD/ENES, Wright-Patterson AFB OH 45433-6503, 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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## SPECIFICATIONS

## FEDERAL

NN-P-71 Pallets, Material Handling, Wood, Stringer Construction  
2-Way and 4-Way (Partial)  
UU-P-31 Paper; General Specifications and Methods of Testing  
DDD-L-20 Label: For Clothing, Equipage, and Tentage (General  
Use)  
PPP-B-636 Boxes, Shipping, Fiberboard  
PPP-T-45 Tape, Gummed, Paper, Reinforced and Plain, For Sealing  
and Securing

## MILITARY

MIL-C-508 Cloth, Oxford, Nylon, 3 Ounce  
MIL-P-15011 Pallets, Material Handling, Wood Post Construction, 4-  
Way Entry  
MIL-B-17757 Boxes, Shipping, Fiberboard (Modular Sizes)  
MIL-T-43548 Thread, Polyester Core: Cotton-, Rayon-, or Polyester-  
Covered  
MIL-C-44031 Cloth, Camouflage Pattern: Woodland, Cotton and  
Nylon  
MIL-T-44034 Cloth, Twill, Camouflage Pattern, Cotton and Nylon  
for Desert Uniform  
MIL-P-55010 Plastic Sheet, Polyethylene Terephthalate

## STANDARDS

## FEDERAL

FED-STD-191 Textile Test Methods  
FED-STD-751 Stitches, Seams, and Stitchings

## MILITARY

MIL-STD-105 Sampling Procedures and Tables for Inspection by  
Attributes  
MIL-STD-129 Marking for Shipment and Storage  
MIL-STD-147 Palletized Unit Loads  
MIL-STD-2073-1 DoD Materiel Procedures for Development and Application  
of Packaging Requirements

2.1.1 Other Government documents. The following other Government documents form a part of this specification to the extent specified herein. Unless otherwise specified, the issue shall be that in effect on the date of the solicitation.

## LAWS AND REGULATIONS

Rules and Regulations Under the Textile Fiber Products Identification Act

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(Application for copies should be addressed to the Federal Trade Commission, Washington DC 20508-0001.)

(Copies of specifications, standards, and other Government documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted shall be those listed in the issue of the DoDISS specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS shall be the issue of the nongovernment documents which is current on the date of the solicitation.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3951 Standard Practice for Commercial Packaging

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

THE COLOR ASSOCIATION OF THE UNITED STATES

Department of Defense (DoD) Standard Color Card of Official Standardized Shades for Sewing Threads

(Applications for copies should be addressed to The Color Association of the United States, 343 Lexington Ave., New York NY 10016-0927.)

(Nongovernment standards and other publications are normally available from the organizations which prepare or which 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 specification and the references cited herein, the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

### 3. REQUIREMENTS

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

3.2 First article. When specified in the contract or purchase order, a sample shall be subjected to first article inspection (see 4.4, 6.2 and 6.4).

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3.3 Materials (see 6.5)

3.3.1 Basic material. The basic material shall be cotton and nylon twill cloth conforming to class 1, woodland camouflage pattern, of MIL-C-44031 for the type I cap and class 1, desert camouflage pattern, of MIL-C-44034 for the type II cap.

3.3.2 Visorboard. The visorboard shall be composed of high alpha cellulose wood pulp, wet web impregnated with compounded neoprene conforming to the requirements specified in table I (see 4.5.1.1) or shall be of an equal material (see 6.6).

TABLE I. Physical requirements of visorboard.

Characteristics	Requirements
Thickness	0.075 $\pm$ 0.003 inch
Weight	2.21 $\pm$ .11 pounds per yard (minimum)
Tearing strength:	
Machine direction	1412 grams per centimeters (minimum)
Cross direction	1642 grams per centimeters (minimum)
Tensile strength:	
Machine direction	135 pounds per inch (minimum)
Cross direction	86 pounds per inch (minimum)
Stretch:	
Machine direction	11.0 percent (maximum)
Cross direction	22.0 percent (maximum)
Neoprene content:	
Maximum	35.0 percent
Minimum	15.0 percent

3.3.3 Front crown stiffener. The material for the front crown stiffener shall be 100 percent cotton warp and 100 percent nylon monofilament filling (synthetic haircloth). The weave shall be a plain weave (1/1). The cloth may be finished with a stiffening agent provided that the compound used is non-toxic. The finished cloth shall conform to the requirements specified in table II (see 4.5.1.1).

3.3.4 Sweatband. The material for the sweatband shall be 75 percent cotton, 8 to 8.5 ounces, 30/1 yarn for the face and 25 percent polyester, 70 denier, for the backing. The color for the type I cap shall approximate Olive Drab S-1, C.A. 66022 and the type II shall be Khaki P-1, C.A. 66019.

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The interlining for the sweatband shall be made from clickable polyester foam of 1.090 thickness, with a plastic backing of 4 gauge extruded black vinyl.

3.3.5 Sizing strip. The sizing strip shall be made from polyethylene terephthalate plastic sheets conforming to MIL-P-55010, except the thickness shall be 0.010  $\pm$ 0.002 inch and the color shall be natural (clear or opaque). The transparency and optical properties shall not apply. The strip shall measure from 1/4 to 5/16 inch wide and be of sufficient length to offer a neat appearance without puckering or excessive fullness.

TABLE II. Physical requirements of cotton-nylon cloth.

Characteristics	Requirements
Weight	7.0 ounces per square yard (minimum)
Yarns:	
Warp	40 per inch (minimum)
Filling	25 per inch (minimum)
Thickness	0.025 $\pm$ 0.001 inch
Stiffness:	
Warp	0.010 $\pm$ 0.001 pound
Filling	0.080 $\pm$ 0.003 pound

3.3.6 Bias tape. The tape shall be made from nylon oxford cloth conforming to type I, class 2 of MIL-C-508. The tape shall be cut 1-1/8 inches wide on bias, double folded, finished 5/8  $\pm$ 1/16 inch. For binding back of cap, cut 1 inch on bias and finish flat. The color of the tape for the type I cap shall be Olive Green 106 and the tape for the type II cap shall be Khaki P-1, C.A. 66019.

3.3.7 Adjustable sizing straps. The material for the adjustable sizing straps shall be as specified in 3.3.5 except the thickness shall be 0.055  $\pm$ 0.005 inch thick, and the color shall be Olive Green 106 for the type I cap and Khaki P-1, C.A. 66019 for the type II cap. The male portion of the strap shall have 6 or 7 prongs with the top flanged out for good snapping and closing. The female strap shall have the same number of holes as prongs on the male strap. The size of the straps shall be 3/4  $\pm$ 1/8 inch wide and 3-1/2  $\pm$ 1/8 inches long with one end of each strap rounded. Testing shall be as specified in 4.5.1.1.

3.3.8 Labels. Each cap shall have a combination identification-size label and an instruction label conforming to DDD-L-20. The fastness to laundering requirements of DDD-L-20 shall apply.

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3.3.8.1 Combination label. The combination identification-size label shall conform to type VI, class 4 and shall include the following information:

Cap, Camouflage Pattern (Baseball Style)	SIZE 2/
DLA-100-00-0-0000 1/	
8415-00-000-0000 1/	
50% Nylon 50% Cotton 1/	
Supplier's Name: 1/	

- 1/ The supplier shall include the applicable information.  
 2/ The size (small, medium, and large) may be abbreviated as follows:  
 S, M, and L.

3.3.8.2 Instruction label. The instruction label shall conform to type VI, class 3 and shall contain the following information:

LAUNDERING INSTRUCTIONS

Hand wash in lukewarm water using mild soap.

Reshape and air dry.

DO NOT WRING OR TWIST

DO NOT USE BLEACH OR STARCH

3.3.9 Thread. A polyester, cotton-covered thread conforming to Ticket No. 50, 2 or 3 ply of MIL-T-43548 shall be used for seaming and stitching, stitching of eyelets, and reinforcement of the visor. Thread for stitching the bias tape shall conform to Ticket No. 70, 2 or 3 ply. The thread shall be dyed Olive Drab S-1, C.A. 66022 for the type I cap and Khaki P-1, C.A. 66019 for the type II cap (see DoD Standard Color Card).

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

3.4. Design. The cap shall be a six gore construction, open back, mushroom shaped, made of nylon and cotton camouflage material. The front shall be stiffened with a heavy duty material and shall have a three piece visor with eight rows of stitching. All gore seams shall be covered by bias-cut tape. There shall be a heavy duty sewn eyelet in each gore, a bound back opening, an adjustable sizing strap, a multi-layer sweatband assembly, and a sizing strip. Combination identification-size and instruction labels shall be sewn into the back of the sweatband to permit ready identification.

3.5 Patterns and blocks. Standard patterns which show size, directional lines, placement marks, and notches for assembly and blocks will be furnished by the Government to the contractor for use in cutting working patterns and reproducing wood or metal blocks. The contractor's working patterns and blocks shall be identical to the Government patterns and blocks. Neither the Government patterns nor the working patterns shall be altered in any way. The standard blocks shall be returned to the Government in good condition (see 6.3).

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3.5.1 List of pattern parts. The component parts of the cap shall be cut from the materials specified in accordance with the number of parts indicated in table III. Patterns are not furnished for sizing strip, adjustable sizing strap, sweatband, bias tape, and binding for back opening.

3.6 Construction. The construction shall conform in all respects to the requirements specified in table IV and herein. Figures 1 and 2 are furnished for guidance and information only. If there are any inconsistencies between the specification and the figures, the specification shall govern.

3.6.1 Stitches, seams, and stitching. All stitches, seams, and stitching shall conform to FED-STD-751. The type of stitches, seams, stitchings, and stitches per inch shall be as specified in table IV. Whenever two or more seam or stitch types are given for the same part of the operation, any one may be used. Where stitch type 401 is used, the looper (underthread) shall be on the inside of the cap. Seam allowances shall be maintained with seams properly sewn so that no raw edges, runoffs, twists, pleats, puckers, or open seams will result. Unless otherwise specified, top stitching or edge stitching shall be 1/8 to 3/16 inch from folded edge.

TABLE III. List of pattern parts.

Material	Pattern nomenclature	Cut parts
Nylon and cotton cloth twill (see 3.3.1)	Front crown	2
	Side crown	2
	Back crown	2
	Visor top ply	1
	Visor bottom ply	1
Alpha cellulose wood pulp (see 3.3.2)	Visorboard	1
Synthetic haircloth (see 3.3.3)	Front crown panel (stiffener)	2

3.6.1.1 Type 301 stitching. Ends of all stitchings shall be backstitched or overstitched not less than 1/2 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 1/4 inch. Thread tensions shall be maintained so that there will be no loose bobbin or top thread or excessively tight stitching resulting in puckering of the materials sewn. The lock shall be imbedded in the materials sewn.

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TABLE IV. Manufacturing operations.

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch	Thread	
					Top	Lower
1.	<p><u>Cutting.</u></p> <p>a. Cut all parts in strict accordance with patterns furnished, which show size, and directional (warp) lines.</p> <p>b. Cut all parts from the same piece of material except the visor (bottom ply), which may be cut from ends. Parts cut from ends shall approximate the shade of the main lay.</p> <p>c. Cut material for sweatband and tape on the bias of sufficient length to conform to the measurement.</p> <p>d. Cut front crown stiffener according to patterns. Cut in filling direction.</p> <p>e. Cut sweatband interlining 1-3/8 +1/16 inches wide and of sufficient length to conform to the measurement.</p> <p>f. Cut the sizing strip 1/4 to 5/16 inch and of sufficient length to comply with Operation 7 and to meet the applicable head measurements specified.</p> <p>NOTE: Materials for cutting c, e, and f may be cut off a roll.</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 components having material defects or damages as specified</p>					

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TABLE IV. Manufacturing operations. - Continued

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch	Thread	
					Top	Lower
2.	<u>Replacement of damaged parts.</u> - Contd  in section 4 shall be removed from production and replaced with nondefective and properly matched components.					
3.	<u>Shade and size marking.</u>  Mark, ticket, or bundle all parts, except parts cut from ends, to insure a uniform shade, size, and proper assembly throughout the cap.					
4.	<u>Make visor.</u>  a. The visor shall be made of two plies of the basic material interlined with a visorboard.  b. Seam the outer edge of the top and bottom ply of the visor pieces together along the outer arc $3/16 \pm 1/16$ inch from the edge. Turn to finished position.  c. Insert visorboard so that it is up against front edge. The stitching shall be on the under-side of visor.  d. Stitch the two plies of the basic material (visor pieces only), along the inner edge (arc). The stitching shall be not more than $1/32$ inch from edge of visorboard interlining. Do not catch visorboard in the stitching.	301 or 401	SSa-1	9-10	50 50	50 50
		301 or 401	SSa-1	6-12	50 50	50 50

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TABLE IV. Manufacturing operations. - Continued

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch	Thread	
					Top	Lower
4.	<u>Make visor.</u> - Contd					
	e. Stitch eight rows of stitching through all plies of material 3/16 to 1/4 inch apart following the contour of the outer arc. The outer row shall be 1/4 $\pm$ 1/16 inch from the outer arc.	301	SSa-1	5-8	50	50
5.	<u>Crown.</u>					
	a. Stitch 1/16 $\pm$ 1/32 inch from bottom edge and along front section to stiffener.	301 or 401	SSa-1	6-8	50	50
	b. Stitch one eyelet on each side, back, and front piece, centered and 3 $\pm$ 1/4 inches from top of pieces.	Eyelet		Minimum of 22 per eyelet	A	A
	c. Stitch side sections (one front with stiffener, side and back) together face to face 3/16 $\pm$ 1/32 inch from raw edge.	301 or 401	SSa-1	9-12	50	50
	d. Press seams open flat except for sides of crown stiffener piece which are pressed towards back of cap.					
	e. Join the two sections together face to face, 3/16 $\pm$ 1/32.	301 or 401	SSa-1	9-12	50	50
	f. Press seams open and flat.					
6.	<u>Make and attach seam tape.</u>					
	a. Turn in both raw edges of seam tape stripping and precrease or turn in both raw edges and stitch not more than 1/8 inch from each folded edge. The tape shall finish 5/8 $\pm$ 1/16 inch wide.	101 or 301 or 401	EFa-1 each side	6-12	50 50 50	50 50 50

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TABLE IV. Manufacturing operations. - Continued

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch	Thread	
					Top	Lower
6.	<u>Make and attach seam tape.</u> - Contd					
	b. Place tape over seams on crown, tape shall be centered on seams, and stitch $1/8 \pm 1/16$ inch from each edge.	301 or 401	Similar to SSag-3	9-12	50 50	50 50
7.	<u>Attach sizing strip.</u>					
	With the bottom edge of cap and one edge of sizing strip even, stitch sizing strip to inside bottom of cap $1/8 \pm 1/16$ inch from edge.	101 or 301 or 401	SSab-1	6-12	50 50 50	50 50 50
8.	<u>Attach visor to crown.</u>					
	a. Prior to sewing visor to crown, place a cut or notch $1/4$ inch long in the center of material seam allowance on the visor.					
	b. Position visor on outside crown assembly with the cut or notch in visor centered with stitching on outside center seam. Stitch the visor to crown assembly $3/8 \pm 1/16$ inch from edge of front crown. There shall be no puckering between front crown panel and visor on the completed assembly.	101 or 301	SSa-1	6-12	50 50	50 50
9.	<u>Make sweatband.</u>					
	a. Fold edges of outer ply of sweatband over interlining and double needle $1-1/8$ inch gauge, $1/8$ inch from each folded edge.	301 or 401	SSbc-1	6-12	50 50	50 50
	OR					

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TABLE IV. Manufacturing operations. - Continued

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch	Thread	
					Top	Lower
9.	<u>Make sweatband.</u> - Contd					
	b. As an alternate, a folder with a double needle may be used.					
10.	<u>Attach sweatband.</u>					
	a. Position the inner bottom edge of sweatband on outer bottom edge of cap $1/4$ to $3/8$ inch in from the edge. Stitch $3/32$ $\pm 1/32$ inch from edge joining sweatband to bottom crown assembly. The sweatband shall be fitted to the cap without stretching or twisting. The stitching shall be caught in the sizing strip.	301 or 401	LSa-1	6-12	50 50	50 50
	b. Turn to finished position and top stitch bottom of cap around visor portion.	301	EFa-1	6-12	50	50
11.	<u>Finish back.</u>					
	a. Bind back of cap with one inch wide bias flat tape. Turn under and double needle $1/8$ inch gauge.	301		6-8	50	50
	b. Stitch adjustable strap between sweatband and crown. The strap shall finish $2-7/8$ $\pm 1/8$ inches long with the male prongs facing outward. Fold sweatband under and double stitch adjustable strap.	301 or 401 or 101	LSb-2	6-12	50	50

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TABLE IV. Manufacturing operations. - Continued

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch	Thread	
					Top	Lower
12.	<u>Attach labels.</u> Position labels on left portion of sweatband. Stitch label $3/32 + 1/32$ inch from edge on all four sides. The instruction and combination identification-size labels shall be placed next to each other.	301	LSbj-1	6-12	50	50
13.	<u>Clean and block cap.</u> a. Trim thread ends and remove loose thread. b. Remove shade markings. c. Clean white residue on outside of cap made when stitching of sizing strip. d. Steam and dry cap on the appropriate size block.					

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

a. When threads or bobbin run-outs occur during stitching, the stitching shall be repaired by restarting the stitching a minimum of 1/4 inch back of the end of the stitching (see NOTE).

b. Thread breaks, or two or more consecutive skipped or run-off stitches noted during inspection of the item (in-process or end item) shall be repaired by overstitching. The stitching shall start a minimum of 1/2 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 (see NOTE).

NOTE: When making the above repairs, the ends of the stitching are not required to be backstitched.

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

3.6.1.3 Thread ends. All thread ends shall be trimmed to 1/4 inch maximum length.

3.6.1.4 Repairs. Repairs, such as, mends or darns, greater than 1/4 inch in length or diameter are prohibited.

3.6.2 Sewn eyelets. Eyelets shall be clean cut. The bight of stitching around the eyelets shall be not less than 1/16 inch and the inside diameter of the finished eyelet shall be 1/8 to 3/16 inch. The eyelets shall have the stitches overlapping not less than 1/16 inch. The stitches per eyelet shall be determined by counting the number of needle penetrations in the outside row of eyelet stitching. The overlapping stitches at the end of the stitching shall be excluded. The thread ends shall be on the inside of the cap. There shall be a minimum of 22 stitches per eyelet (see figure 2). The eyelets on the front sections shall be stitched with the stiffener in place.

3.7 Manufacturing operations requirements. The cap shall be manufactured in accordance with operation requirements specified in table IV. The contractor is not required to follow the exact sequence of operations listed unless otherwise specified. Any additional basting or holding stitching used to facilitate manufacture is permissible provided the thread is removed or does not show on the finished cap.

3.7.1 Shade and size marking. The component parts of the cap shall be marked, ticketed, or bundled to insure a uniform shade and size throughout the cap. Any method may be used except:

- a. Metal fastening devices.
- b. Sew-on shade tickets.
- c. Adhesive type tickets which discolor or adhere to the material upon removal of tickets.

NOTE The use of an ink pad numbering machine, rubber stamp, or pencil is allowed, provided the numbering does not show on the outside of the cap and wherever possible, is covered by the seam allowance.

3.7.2 Blocking. The blocking of the cap as specified in table IV shall be performed with a one or two piece steam heated machine or wooden block and dried.

3.8 Finished measurements. The measurements of the finished caps shall conform to the requirements specified in table V.

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3.9 Workmanship. The finished cap shall conform to the quality of product established by this specification. The occurrence of defects shall not exceed the applicable acceptable quality levels.

TABLE V. Finished cap measurements (in inches).

Sizes	Front crown height <u>1/</u>	Head circumference <u>2/</u>
Small	6-3/4	21-3/8
Medium	6-3/4	22-1/8
Large	6-3/4	22-7/8
Tolerance	<u>+1/4</u>	<u>+1/4</u>

1/ The measurement for the crown shall be taken from center base of visor along front seam to top of cap.

2/ The measurement for the head circumference shall be taken around the inside bottom edge of sweatband with adjustable sizing strap male prongs engaged with all the holes in the female part.

#### 4. QUALITY ASSURANCE PROVISIONS

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

4.1.1 Responsibility for compliance. All caps 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 assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

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4.1.2 Certificate 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 4.4).
- b. Quality conformance inspection (see 4.5).

4.3 Inspection conditions. Unless otherwise specified, all inspections shall be performed in accordance with test conditions specified in FED-STD-191 and UU-P-31.

4.4 First article inspections. When a first article is required (see 6.2), it shall be examined for the defects specified in 4.5.2.1 and 4.5.2.2. The presence of any defect shall be cause for rejection of the first article.

4.5 Quality conformance inspection. Unless otherwise specified, sampling for inspection shall be in accordance with MIL-STD-105.

4.5.1 Components 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 document or applicable purchase document.

4.5.1.1 Component testing. In addition to any testing required by 4.5.1, components listed in table VI shall be tested for the characteristics noted. The methods of testing specified in FED-STD-191 and UU-P-31, wherever applicable, and as specified in table VI shall be followed. All test reports shall contain the individual values used in expressing the final results. The sample size shall be as follows:

<u>Lot size</u>	<u>Sample size</u>
800 or less	2
801 up to and including 22,000	3
22,001 and over	5

The lot shall be unacceptable if one or more sample units fail to meet any test requirement specified. The lot size units and the sample units shall be as follows:

<u>Component</u>	<u>Lot size unit</u>	<u>Sample unit</u>
Visorboard	Yard	2 continuous yards
Synthetic haircloth	Yard	2 continuous yards
Sweatband	Yard	1 yard
Sizing strip	Yard	1 yard
Sizing strap	Yard	1 yard

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TABLE VI. Component tests.

Component	Characteristic	Requirement paragraph	Test method
Visorboard	Thickness	3.3.2	5030 <u>1/</u>
	Weight	3.3.2	5041 <u>1/</u>
	Tearing strength	3.3.2	171 <u>2/</u>
	Tensile strength	3.3.2	170 <u>2/</u>
	Stretch	3.3.2	171 <u>2/</u>
	Neoprene content	3.3.2	<u>3/</u>
Front crown stiffener	Material identification	3.3.3	<u>3/</u>
	Weave	3.3.3	<u>3/</u>
	Weight	3.3.3	<u>3/</u>
	Yarns per inch	3.3.3	<u>3/</u>
	Thickness	3.3.3	<u>3/</u>
	Stiffness	3.3.3	<u>3/</u>
Sweatband	Material identification and construction	3.3.4	<u>3/</u>
	Color	3.3.4	Visual <u>3/</u>
Sizing strip	Material identification	3.3.5	<u>3/</u>
	Thickness	3.3.5	<u>3/</u>
	Color	3.3.5	Visual <u>3/</u>
Adjustable sizing strap	Thickness	3.3.7	<u>3/</u>
	Color	3.3.7	Visual <u>3/</u>
	Dimensional requirements	3.3.7	<u>3/</u>

1/ FED-STD-1912/ UU-P-313/ A certificate of compliance is acceptable for this requirement.4.5.2 End item examination

4.5.2.1 Visual examination. The end item shall be examined for the defects listed in table VII. The lot size shall be expressed in units of one cap. The sample unit shall be one finished cap. The inspection level shall be II and the acceptable quality level (AQL), expressed in terms of defects per hundred units (dhu), shall be 2.5 for major defects and 15.0 total (major and minor combined) defects.

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TABLE VII. General defects.

No.	Defect	Classification	
		Major	Minor
1.	<u>Material defects and workmanship damages</u>		
	a. Any hole, needle chew, cut or tear.	X	
	b. Weakening defect such as slub, smash, or float.	X	
	c. Any visible mend or burn.	X	
	d. Any outside part shaded.		X
2.	<u>Cleanness</u>		
	a. More than 3 thread ends not trimmed to 1/4 inch or less on outside.	X	
	b. Any spot or stain on outside.		X
	c. More than 5 thread ends not trimmed to 1/4 inch or less on outside.		X
	d. Two or more shade or size markings not removed.		X
	e. Shade marking exposed or readily visible on outside of cap.		X
3.	<u>Components and assembly</u>		
	Any component part or operation omitted or not as specified (unless otherwise classified herein).	X	
4.	<u>Cutting</u>		
	Any part not cut in accordance with directional lines indicated on patterns or in accordance with specification requirements.	X	
5.	<u>Blocking and pressing</u>		
	a. Blocking omitted.	X	
	b. Burned or scorched.	X	
	c. Poorly blocked.		X
	d. Any seam not pressed as specified.		X
6.	<u>Seams and stitching</u>		
	a. Accuracy of stitching: (1) Part of garment caught in any unrelated stitching operation.	X	

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TABLE VII. General defects.- Continued

No.	Defect	Classification	
		Major	Minor
6.	<u>Seams and stitching - Contd</u>		
	(2) End of a continuous line of stitching overlapped less than 1/2 inch.	X	
	(3) Seam puckered, twisted, or pleated (unless otherwise classified herein).		X
	(4) End of seam or stitching when not caught in another seam or stitching back-tacked less than 1/4 inch.		X
	(5) Thread breaks not secured or stitching back of the break less than 1/2 inch.		X
	b. Gauge of stitching:		
	(1) Irregular, i.e., unevenly gauged, not uniform, on major portion of seam.	X	
	(2) Beyond range of width specified or varies more than 1/16 inch when no range is specified.		X
	c. Open seam runoff:		
	(1) More than 1/4 inch.	X	
	(2) Up to 1/4 inch inclusive.		X
	NOTE: One or more broken stitches or two or more continuous skipped or runoff stitches constitutes an open seam.		
	d. Raw edge:		
	(1) On outside:		
	- More than 3/4 inch.	X	
	- More than 1/4 inch to 3/4 inch.		X
	(2) On inside:		
	- More than 3/4 inch.		X
	e. Seam and stitch type:		
	(1) Not specified seam or stitch type.		X
	(2) Looper thread on outside (when 401 stitch is used).		X
	f. Stitch tension:		
	(1) Loose tension resulting in loose seam.	X	
	(2) Tight tension (stitches break when normal strain is applied to the seam or stitching).		X

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TABLE VII. General defects. - Continued

No.	Defect	Classification	
		Major	Minor
6.	<u>Seams and stitching</u> - Contd		
	(3) Loose tension recognized by loosely exposed loops of lower or top thread.		X
	g. Stitches per inch: Less than minimum or more than maximum as specified.		X
7.	<u>Eyelets</u>		
	a. One or more omitted or added.	X	
	b. Stitches not securely caught in fabric (stitches pull away from fabric).	X	
	c. One or more broken or more than two continuous skipped stitches in one or more eyelet.		X
	d. Loose stitch tension.		X
	e. Number of stitches per eyelet not as specified.		X
	f. Inside diameter of eyelet less than 1/8 or more than 3/16 inch.		X
	g. Cloth cut-out in center of eyelet not removed.		X
8.	<u>Visor.</u>		
	a. Outer edge of the two plies of visor pieces not sewn completely along outer arc.	X	
	b. Visorboard not held between visor plies tightly causing wrinkle on visor.	X	
	c. Visorboard not positioned on top of seam allowance.	X	
	d. Pucker on front crown panel where visor is joined.	X	
	e. Inner edge of visor stitching not sewn from side to side.		X
	f. Inner edge of visor stitching sewn through visor.		X
	g. Less than or more than eight rows of stitching on visor or stitching not properly centered on visor or not following contour of outer arc.		X
	h. Eight rows of stitching less than 3/16 inch or more than 5/16 inch apart.		X

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TABLE VII. General defects. - Continued

No.	Defect	Classification	
		Major	Minor
8.	<u>Visor.</u> - Contd		
	i. Cut omitted in visor causing bulk, tight tension when stitching visor to cap.		X
	j. Visor not centered with front seam.		X
	k. Stitching of visor less than 5/16 inch or more than 7/16 inch from edge.		X
	l. Stitching not on bottom underside of visor at outer arc.		X
9.	<u>Crown.</u>		
	a. Discorted, pleated, or fullness on one or more panels.	X	
	b. Crown puckered or pleated at joining to sweatband.		X
	c. Any seam tape less than 9/16 inch or more than 11/16 inch wide.		X
10.	<u>Stiffener</u>		
	a. Sides of stiffener not overlapped by seam tape.		X
	b. Stiffener not caught in stitching attaching visor to crown or sweatband to crown.		X
	c. Binding on stiffener twisted.		X
	d. Binding on stiffener less than 3/16 inch or more than 5/16 inch wide.		X
11.	<u>Tape</u>		
	a. Omitted.	X	
	b. Tape other than bias cut.	X	
12.	<u>Adjustable sizing strap</u>		
	a. Omitted.	X	
	b. Male prongs not facing outward.		X
	c. Not correct length.		X
	d. Not securely attached.		X
13.	<u>Back opening</u>		
	Not bound as specified.	X	

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TABLE VII. General defects. - Continued

No.	Defect	Classification	
		Major	Minor
14.	<u>Sizing strip</u> a. Sizing strip omitted. b. Sizing strip stitching not on inside bottom edge of cap.	X	X
15.	<u>Sweatband</u> a. Edge stitching of folded sweatband material omitted. b. Sweatband pleated or puckered. c. Sweatband turn up visible at back opening. d. Edge of sweatband to crown less than 1/4 inch or more than 3/8 inch. e. Edge of sweatband not attached to outside bottom edge of crown assembly. f. Sweatband stitching to cap less than 1/16 inch or more than 3/8 inch. g. Sweatband exposed below bottom edge of cap. h. Stitching not caught in sizing strip 1/2 inch or more.	X X X	X X X X X
16.	<u>Labels</u> a. Combination label position off center by more than 1/4 inch. b. Instruction label omitted, incorrect or illegible. c. Combination label (identification and size) omitted, incorrect, or illegible. d. Label not stitched on all four sides. e. Label not positioned as specified. f. Either label extending beyond the width of the sweatband.	X X X	X X X

4.5.2.2 Dimensional examination. The end item shall be examined for conformance to the finished measurements listed in table V. Any measurement deviating from the finished dimension specified for the cap shall be classified as a defect. The lot size shall be expressed in units of one cap. The sample unit shall be one finished cap. The inspection level shall be S-3 and the AQL, shall be 4.0 dhu.

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4.5.3 Packaging inspection. An examination shall be made to determine that preservation, packing, and marking comply with the requirements of section 5. Defects shall be scored in accordance with the list below. The sample unit shall be one shipping container fully packaged with the exception that it need not be closed. Examination for the closure defects shall be made on shipping containers fully prepared for delivery. The lot size shall be the number of shipping containers in the end item inspection lot. The inspection level shall be S-2 and the AQL shall be 2.5 dhu.

<u>Examine</u>	<u>Defect</u>
Marking (exterior and interior)	Omitted; incorrect; illegible; of improper size location, sequence, or method of application.
Materials	Any component missing, damaged, or not as specified.
Workmanship	Inadequate application of components, such as: incomplete closure of container flaps, loose strapping, inadequate stapling, or improper taping. Bulged or distorted container.
Content	Number of caps per container is more or less than required. <u>1/</u> Size shown on one or more caps not as specified on shipping container. <u>1/</u>

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

4.5.4 Palletization examination. An examination shall be made to determine that the palletization complies with the requirements of section 5. Defects shall be scored in accordance with the list below. The sample unit shall be one palletized unit load fully packaged. The lot size shall be the number of palletized unit loads in the inspection lot. The inspection level shall be S-1 and the AQL shall be 6.5 dhu.

<u>Examine</u>	<u>Defect</u>
Finished dimensions	Length, width, or height exceeds specified maximum requirements.
Palletization	Pallet pattern not as specified. Interlocking of loads not as specified. Load not bonded with required straps or film as specified.
Weight	Exceeds maximum load limits.
Marking	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application.

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## 5. PACKAGING

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

5.1.1 Level A. Each cap shall be neatly folded in half by bringing the back portion of the crown toward the front of the cap. Twenty caps of one size only shall be nested and placed with the visor flat in a fiberboard box conforming to type CF, class domestic, variety SW, grade 125, style RSC, of PPP-B-636. Inside dimensions of each box shall be 14-3/4 inches in length, 7-1/2 inches in width, and 6-1/4 inches in depth. The nested caps shall be protected in the box with crumpled tissue paper in the voids above the visor on one end and beyond the folded crown at the opposite end. Box closure shall be secured with a minimum of two inches wide, gummed paper tape conforming to type II, grade B of PPP-T-45.

5.1.2 Level C. Caps shall be preserved in accordance with the applicable requirements of MIL-STD-2073-1.

5.1.3 Commercial. The caps shall be preserved in accordance with ASTM D 3951.

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

5.2.1 Level A. Sixty caps, of one size only, preserved as specified in 5.1, shall be packed in a fiberboard shipping container assembled and reinforced, conforming to type CF, class weather-resistant, variety DW, grade V15c, size 2A of MIL-B-17757. Level A packages shall be packed flat, three in length within the shipping container. Toward the end of the contract or when there are less than the required amount of the same size per container, mixed sizes may be packed within the same shipping container.

5.2.2 Level B. Sixty caps, of one size only, preserved as specified in 5.1, shall be packed in a fiberboard shipping container assembled and closed conforming to type CF, class domestic, variety DW, grade 200, size 2A of MIL-B-17757. Level A packages shall be packed flat three in length within the shipping container. Toward the end of the contract or when there are less than the required amount of the same size per container, mixed sizes may be packed within the same shipping container.

5.2.3 Level C. Sixty caps, of one size only, preserved as specified in 5.1, shall be packed in accordance with the applicable requirements of MIL-STD-2073-1.

5.2.4 Commercial. Sixty caps, of one size only, preserved as specified in 5.1, shall be packed in accordance with ASTM D 3951.

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5.3 Palletization. When specified (see 6.2), caps packed as specified in 5.2, shall be palletized on a 4-way, type I, style 1, 1A, or 1B, size A, class 1 pallet fabricated in accordance with MIL-P-15011 or on a 4-way, type IV, V, or VIII, class 1, size 2, grade A pallet fabricated in accordance with NN-P-71. Each prepared load shall be in accordance with load type I or Ia and bonded with the applicable strap bonding or film bonding means specified in MIL-STD-147. The pallet pattern shall be in accordance with the appendix of MIL-STD-147. Interlocking of loads shall be effected by reversing the pattern of each course. If the container is of a size which does not conform to any of the patterns specified in MIL-STD-147, the pallet pattern used shall be approved by the contracting officer.

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

5.4.1 Bar code markings. Bar code markings, when specified (see 6.2), shall be in accordance with MIL-STD-129.

5.4.2 Labels, mixed sizes. Each shipping container packed with mixed sizes shall have securely attached to the end and side, directly under the printing or stenciling, a white paper label with the words "MIXED NSN'S" plainly stamped or printed thereon and under these words shall be legibly stamped or printed the correct quantity and NSN's contained therein.

## 6. NOTES

6.1 Intended use. The cap covered by this specification is intended to be worn by male and female personnel of the Department of Defense.

### 6.2 Ordering data

6.2.1 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. Type and size required (see 1.2).
- c. When first article is required (see 3.2).
- d. Selection of applicable levels of preservation and packing (see 5.1 and 5.2).
- e. When palletization is required (see 5.3).
- f. When bar code markings are required (see 5.4).

6.3 Samples, patterns, and blocks. For access to samples, patterns and blocks, address the contracting activity issuing the invitation for bids.

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6.4 First article. When a first article inspection is required, the item should be a first article sample, inspected and approved under the appropriate provisions of FAR 52.209-4. The first article should consist of one cap. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examination, approval of first article test results and disposition of first article. Invitations for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is represently appropriate for the pending contract.

6.5 Recycled material. It is encouraged that recycled material be used when practical as long as it meets the requirements of the document (see 3.3).

6.6 Equal item. Prior to the use of an "interchangeable" item, the contractor shall submit the item with supporting data to the contracting officer for subsequent approval or disapproval by the responsible Military Agency.

6.7 Subject term (key word) listing.

Cap, baseball  
Cap, camouflage

6.8 Supersession data. This specification includes the requirements of Purchase Description AESC 87-4.

Custodian:  
Army - GL  
Air Force - 11

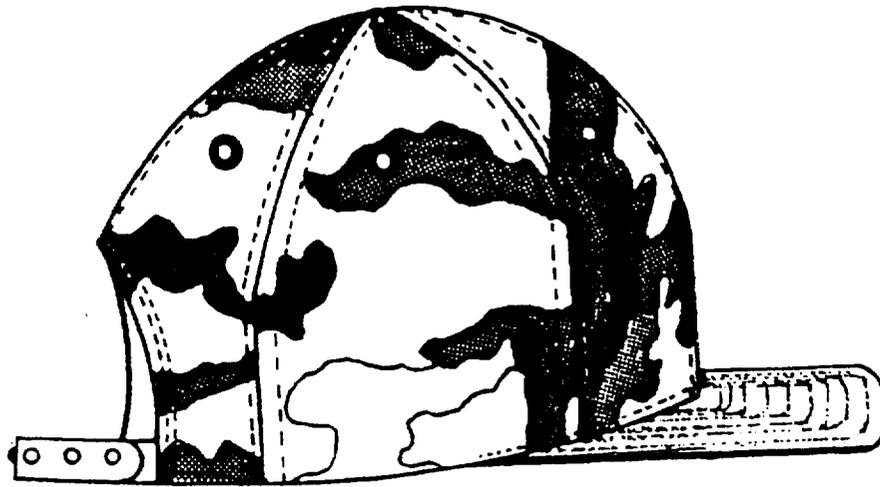
Preparing activity:  
Air Force - 11

Reviewer activities:  
Air Force - 82, 99  
DLA - CT

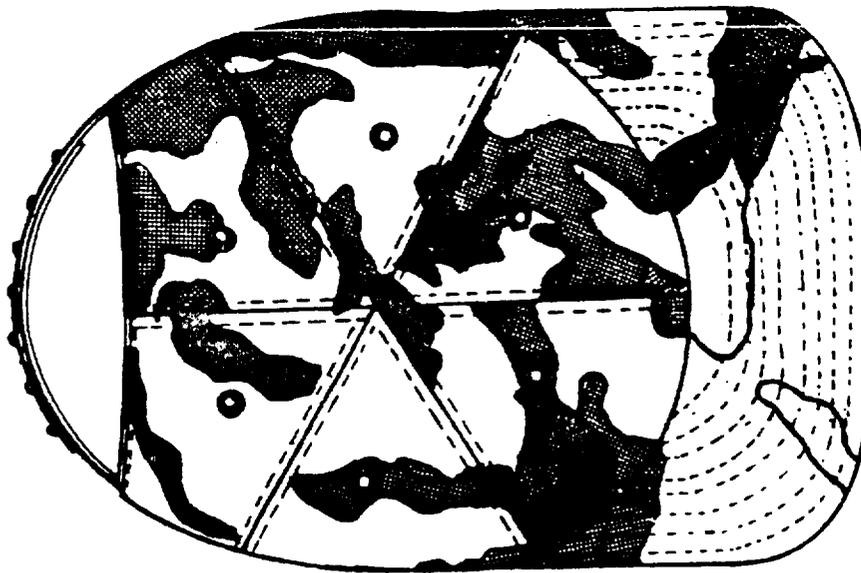
Project No. 8415-0616

User:  
Air Force - 45

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Side view



Top view

FIGURE 1. Cap, camouflage pattern (baseball style).

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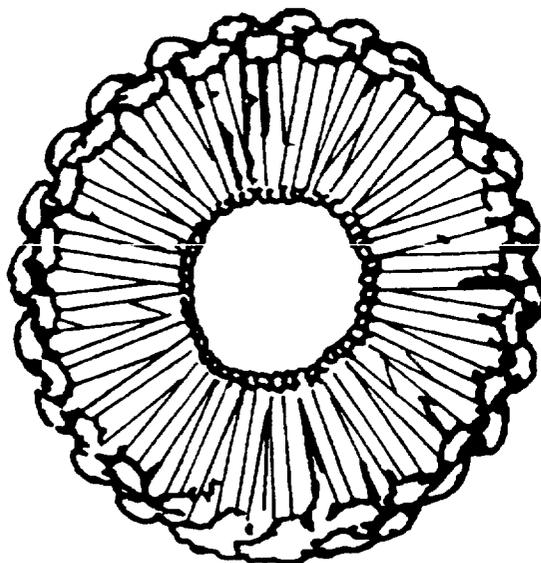


FIGURE 2. Stitched eyelet.

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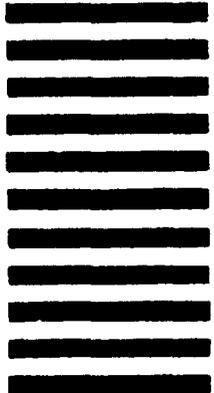


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## STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER

MIL-C-87248

2. DOCUMENT TITLE

Cap, Camouflage Pattern (Baseball Style)

3a. NAME OF SUBMITTING ORGANIZATION

4. TYPE OF ORGANIZATION (Mark one)

 VENDOR USER MANUFACTURER OTHER (Specify): \_\_\_\_\_

b. ADDRESS (Street, City, State, ZIP Code)

5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording:

c. Reason/Rationale for Recommendation:

6. REMARKS

7a. NAME OF SUBMITTER (Last, First, MI) - Optional

b. WORK TELEPHONE NUMBER (Include Area Code) - Optional

c. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional

8. DATE OF SUBMISSION (YYMMDD)