

INCH-POUND**A-A-55313****August 25, 1997****COMMERCIAL ITEM DESCRIPTION****CAP, UTILITY: CAMOUFLAGE**

The General Services Administration has authorized the use of this commercial item description as a replacement for MIL-C-29366 for all Federal agencies.

1. **SCOPE.** This commercial item description covers the requirements for a camouflage utility cap worn by personnel of the Marine Corps and Navy.

2. **CLASSIFICATION.** The caps shall be available in the following types and sizes:

Type I - with Marine Corps insignia

Type II - without insignia

Schedules of sizes

Extra-Extra Small

Extra Small

Small

Medium

Large

Extra Large

3. SALIENT CHARACTERISTICS

3.1 Description. The cap shall be a visor style (see Figures 1 through 4), having a lined, two-piece crown shaped with eight evenly shaped, folded, and stitched darts; Marine Corps insignia (Type I cap); two metal eyelets at each side of the crown for ventilation; a lined outside band and a sweatband made from one ply of basic material; and a flexible, quilted hinge-type visor. The upper edge of the crown shall be folded and stitched 1/16 inch from folded edge at upper dart ends for extra circumference of crown.

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any data which may improve this document should be sent to: Defense Personnel Support Center, Clothing and Textiles Directorate, Attn: DPSC-FNS, 2800 South 20th Street, Philadelphia, PA 19145-5099.

AMSC N/A

FSC 8405

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The crown darts shall finish without gathers, puckers, and pleats. The height of the center front panel shall finish evenly with the height of the top finished points of the front darts. The interlining shall be single stitched to the inside ply of the crown. The Marine Corps insignia decal (Type I cap) shall be placed in the center front of the crown. The eyelets shall be securely attached through each side of the crown. The outside band shall have an interlining with top edges even and stitched across full width of stitching perpendicular to each other forming an X at the center together 1/8 inch from the edge of the entire length of the band. The ends of the band shall be joined with a 1/4 inch seam and backstitched to form a sweatband. The visor shall be smooth and free of wrinkles, gathers, puckers, and other distortions. The visor quilting shall be uniform with 4 rows of stitching spaced 3/8 to 1/4 inch apart and parallel to the outer edge of visor.

3.2 Material.

3.2.1 Basic material. The cap material, including the sweatband, shall be a nylon/cotton blend, wind resistant poplin, woodland camouflage printed cloth. The warp and filling yarns shall be 50 ± 5 percent nylon, 1 percent static dissipative fiber, and the remaining percentage cotton. The warp yarn shall be 2-ply or singles. The weave shall be a plain weave with reinforcement ribs in both directions forming a uniform pattern. The ribs shall be formed by having every twenty-fourth warp end contain two ends weaving as one and every thirteenth filling pick contain two picks weaving as one. The inside crown and sweatband shall be the basic material or it may be dyed the ground shade of the basic material, or it may be printed seconds of the basic material. The color shall be a Woodland Camouflage Pattern (Light Green 354, Dark Green 355, Brown 356, and Black 357).

All colors of the finished cloth shall match the standard sample when viewed under filtered tungsten lamps that approximate artificial daylight and that have a correlated color temperature of 7500 ± 200 K, with illumination of 100 ± 20 foot candles, and shall be a good match to the standard sample under incandescent lamplight at 2300 ± 200 K.

The cloth shall conform to the requirements specified in Table I.

TABLE I. Basic material physical requirements

Characteristic	Requirement	Test method
Weave	plain	Visual
Weight, oz./ sq. yd.		
Minimum	6.0	ASTM-D-3776, Option C
Maximum	7.0	ASTM-D-3776, Option C
Yarns per inch (min.)		
Warp	104	ASTM-D-3775
Filling	52	ASTM-D-3775
Breaking strength, (lbs., min.)		
Warp	200	ASTM-D-5034
Filling	90	ASTM-D-5034
Tearing strength, (lbs., min.)		
Warp	7.0	ASTM-D-1424
Filling	5.0	ASTM-D-1424
Air permeability (ft. ³ /min./ft. ²), max.	15.0	ASTM-D-737

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TABLE I. Basic material physical requirements continued

Characteristic	Requirement	Test method
Colorfastness to: Laundering Light Perspiration Crocking	"good" "good" "good" "good"	AATCC 61, Test 3A AATCC 16, Opt. A AATCC 15 AATCC 8 (AATCC Crockmeter Method)
Spectral reflectance (nanometers)	TABLE II	3.2.1.1
Non-fibrous material, (percentage, max.)	2.0	ASTM-D-629, Section 9
pH	5.0 - 8.5	AATCC 81 or ASTM-D-2165
Dimensional stability (percentage, max.)		
Warp	3.5	AATCC 96, Opt. 1C & D
Filling	3.5	AATCC 96, Opt. 1C & D
Seam efficiency, (percentage, min.)	80	ASTM-D-1683

3.2.1.1 Spectral reflectance requirements. The spectral reflectance values for each color in the Woodland Camouflage printed cloth shall conform to the requirements specified in Table II.

TABLE II. Spectral reflectance requirements

Reflectance values (percent)						
Wavelength, Nanometers (nm)	Light Green 354		Dark Green 355 and Brown 356		Black 357	
	Min.	Max.	Min.	Max.	Min.	Max.
600	8	18	3	9	--	10
620	8	18	3	9	--	10
640	8	18	3	9	--	10
660	8	18	3	12	--	10
680	10	22	3	14	--	10
700	18	33	5	18	--	10
720	22	45	7	20	--	10
740	30	55	12	28	--	10
760	35	65	18	36	--	10
780	40	75	26	44	--	10
800	45	80	34	52	--	10
820	50	86	42	60	--	10
840	55	88	50	68	--	10
860	60	90	56	74	--	10

3.2.2 Interlining. The cloth for interlining the crown and outside band shall be a plain weave, multifilament, polyester cloth conforming to the requirements stated in Table III. The cloth shall have no finish and the color shall be natural.

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TABLE III. Interlining requirements

Characteristic	Requirement	Test method
Weight, oz./ sq. yd. (min.)	3.3	ASTM-D-3776, Opt. C
Yarns per inch (min.)		
Warp	57	ASTM-D-3775
Filling	37	ASTM-D-3775
Breaking strength, (lbs., min.)		
Warp	190	ASTM-D-1682
Filling	150	ASTM-D-1682
Shrinkage, (percentage, max.)		
Warp	2.0	AATCC 135, II.B
Filling	2.0	AATCC 135, II.B
Warp stiffness, (in./lbs.)		
Minimum	0.0030	ASTM-D-747
Maximum	0.0120	ASTM-D-747

3.2.3 Inner visor. The inner visor shall be made out of a non-woven material produced from a highly purified alpha cellulose vegetable fiber, wet web impregnated with approximately 26 percent compounded neoprene or an acrylic binder, and shall conform to the requirements specified in Table IV. As an alternate, a high density polyethylene material weighing 10.25 to 13.5 grams per visor, thickness of 0.082 inch and stiffness of 35% to 60% when tested with ASTM D747, may be used.

TABLE IV. Inner visor requirements

Characteristic	Requirement Direction		Test method
	Machine	Cross	
Stiffness, (load lb., per in., min.)			
Original	2.4	1.5	ASTM-D-747
After laundering	2.4	1.5	ASTM-D-747
Tensile strength, (lbs. per in., min.)	156	103	TAPPI 404 <u>1/</u>
Stretch (percent, max.)	17	26	TAPPI 404 <u>1/</u>
Tearing strength, (grams, min.)	1600	1840	TAPPI 414 <u>1/</u>
Weight, lbs./sq. yd.	2.25 \pm 8%		ASTM-D-3776, Opt.C
Thickness	0.075 \pm 0.003 in.		ASTM-D-1777 <u>2/</u>
Water absorption (percent, max.)	30		FED-STD-191/TM 5502
Resistance to perspiration	3.2.3.1		AATCC 15
Accelerated aging	3.2.3.2		<u>3/</u>
Insignia	3.2.3.3		AATCC 61, Test 3A

1/ Technical Association of the Pulp and Paper Industry test method

2/ Woven and knitted materials, felts, nonwovens. A thickness gauge of the dead-weight type equipped with a dial graduated to read directly to .001 inches shall be used. The presser foot shall be circular, with a diameter of 1.129 ± 0.03 pounds per square inch to the specimen. The anvil shall be not less than 1.129 inches in diameter. The presser foot and anvil surface shall be planed to within 0.001 inches and shall be parallel to each other to within 0.0001 inches.

3/ The material shall be kept in circulating air over 15 days at 100 degrees C.

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3.2.3.1 Resistance to perspiration. The material shall show no embrittlement, development of stickiness, or delimitation.

3.2.3.2 Accelerated aging. The material shall remain flexible and show no brittleness, development of stickiness, or delimitation.

3.2.3.3 Insignia (type I cap). The Marine Corps insignia for the front of the type I cap shall conform to the design and dimensions shown in Figures 1 and 2. The insignia shall be applied by decalcomania marking (process of transferring ink-produced design printed on specially prepared paper by heat and pressure). The transfer shall produce an imprint on the basic material which is clear and distinct with sharp outlines, the filled-in areas a solid black, and the open areas of rope and globe clearly visible. The transferred marking shall be clearly visible after being subjected to three launderings when tested in accordance with AATCC 61, Test 3A.

3.2.4 Eyelets. The eyelets shall be brass, rolled flange type, 0.185 ± 0.004 inch with the barrel scored 6 to 8 scores, and shall be enameled a green shade to closely match the dark green shade of the basic fabric.

3.2.5 Thread. The thread shall be spun from combed cotton and shall be machine thread with a soft finish. The thread shall be 8267 yards per pound minimum, 3 ply, with a minimum breaking strength of 2.2 pounds with 5 determinations per sample unit when tested according to ASTM-D-2256. (Speed shall be 12 ± 0.5 inch/minute and a 10 inch gauge length shall be used).

The finished thread shall have no chemical finishes or treatments other than those used on commercial threads and no finish or treatment shall be applied for the purpose of increasing breaking strength. The direction of the final twist shall be "Z". The color of the dyed thread shall be Olive Drab shade S-1, C.A. 66022. The thread shall show "good" colorfastness to laundering (after 3 cycles; dried after each cycle), light, perspiration, and weathering when tested according to AATCC 61-3A; AATCC 16-Option A; AATCC 15; and AATCC 111A, respectively.

The color of the dyed thread shall match the standard sample when viewed under filtered tungsten lamps which approximate artificial daylight having a correlated color temperature of $7500 \pm 200\text{K}$ with illumination of 100 ± 20 foot candles, and shall be a good match to the standard sample under incandescent lamplight at $2300 \pm 200\text{K}$. 1/

As an alternate, the thread shall be cotton-covered, polyester core thread, 36-45 Tex, 2 ply, with a breaking strength of 3.2 pounds minimum and 26 percent maximum elongation when tested according to ASTM-D-2256. (Speed shall be 12 ± 0.5 inch/minute and a 10 inch gauge length shall be used). The direction of twist for the single ply shall be "S" and for the plied thread "Z". The thread shall be dyed Olive Drab shade S-1, C.A. 66022. The dyed and finished thread shall show fastness to laundering (3 cycles; dried after each cycle), dry heat, light (exposure time shall be 40 standard fading hours), perspiration, and weathering (exposure time shall be 80 hours) equal to or better than the standard sample when tested according to AATCC 61-3A; AATCC 117; AATCC 16, Option A; AATCC 15; and AATCC 111A, respectively. The dyed thread shall be compared to the standard sample under artificial daylight at $7000 \pm 500\text{K}$ and iridescent lamplight at $2850 \pm 100\text{K}$. The thread shall contain only the minimum amount of lubricant to facilitate sewing. The yarn finish shall be non-staining and non-flame propagating. 1/

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1/ Certificates of compliance shall be submitted for all requirements and the Government reserves the right to inspect such items to determine the validity of the certification.

3.2.6 Labels. Each cap shall have an identification label, a size label, and a care label. The size and identification labels or the identification and care labels may be combined. The identification label shall contain the item description, contract number, fiber content information, and the contractor's name. The label color shall be Medium Green, Cable No. 70034, 70130, or 70131 and shall show colorfastness to laundering in accordance with AATCC 61-3A.

The inscription shall have a minimum font size of 10 points. The inscription legibility, label, and label attachment shall last the expected life of the cap. The care or the combination label, as applicable, shall include the following information.

1. If worn under helmet, helmet band may require readjustment for proper fit and comfort.
2. Machine washing. Use Permanent Press Cycle. Wash in warm water with mild detergent.
3. Hand washing. Wash in warm water using mild detergent. DO NOT WRING OR TWIST. Rinse in clean warm water.
4. DO NOT USE CHLORINE BLEACH OR STARCH.
5. Dry at low heat (Do not exceed 130°F). After drying, tumble at room temperature for approximately 10 minutes. Remove immediately from dryer.

DO NOT REMOVE THIS LABEL

The size label shall show the size designation and the stock number as shown by the following example:

Small
Stock Number

3.2.6.1 Label/tag. Each item shall be individually bar-coded with a paper tag for personal clothing items. The paper tag shall be standard bleached sulfate having a basis weight of 100 pounds. The paper used for the tags shall have a smooth finish to accept thermal transfer and direct printing. The tags shall have a hole and shall be attached to each item by a fastener, clearly legible and readable by a scanner. The bar coding element shall be a 13 digit national stock number (NSN). The bar code type shall be a medium to high code density and shall be located so that it is completely visible on the item when it is folded and/or packaged as specified and so that it causes no damage to the item.

3.3 Sizes and measurements. The finished caps shall conform to the measurements specified in Table V.

TABLE V. Cap sizes (inches)

Size	Inside hat circumference ($\pm 1/4$ inch tolerance)
Extra-Extra Small	20-1/2
Extra Small	21-1/4
Small	22
Medium	22-3/4
Large	23-1/2
Extra Large	24-1/4

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3.4 Patterns. A set of standard patterns to be used to cut working patterns will be furnished by the Government. The working patterns shall be identical to the Government patterns. Neither the Government patterns nor the working patterns shall be altered in any way, except that additional notches for use during construction are allowed on the working patterns. Also, minor modifications are permitted where necessary when using automatic equipment. These modifications shall not alter the dimensional, serviceability, or appearance requirements. The standard patterns provide a seam allowance of 3/8 inch for the joining seams, and 1/4 inch for all other seams.

4. REGULATORY REQUIREMENTS. The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR).

5. QUALITY ASSURANCE PROVISIONS

5.1 Product conformance. The products offered shall meet the salient characteristics of this commercial item description, conform to the producer's own drawings, specifications, standards, and quality assurance practices, and be a similar product that is offered for sale in the commercial market. The Government reserves the right to require proof of such conformance.

5.2 Market acceptance criteria. The item offered, or a generic equivalent, must have been sold to the commercial market or to the Government.

5.3 Visual examination. Each cap shall be examined for the defects listed below.

5.3.1 Defects. Any hole, cut, or tear; color not as specified; any part shaded; any spot or stain (outside); raw edges, open seams, thread ends not removed, or loose tension resulting in loose seams; any material defects, distorted parts or poor workmanship; added, missing, or defective eyelets; visor not centered, secured properly, or constructed as specified; any band twisted, pleated, excessively full or irregular; any crown improperly stitched; any darts omitted; any insignia not type, size, or color specified; any twisted or tight sweatband; any component part omitted; label missing, incorrect, or illegible; measurement of item not as specified; bar code omitted or not readable by scanner; human-readable interpretation (HRI) omitted or illegible; bar code not visible on folded, packaged item; bar code causes damage to the item; any items not packaged in accordance with the contract or purchase order.

5.4 Acceptance criteria. Acceptance criteria shall be as specified in the contract or purchase order.

6. PACKAGING

6.1 Preservation, packing, and marking. The preservation, packing, and marking shall be as specified in the contract or purchase order.

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7. NOTES

7.1 Source of Government documents. Copies of military and Federal documents are available from:

Standardization Documents Order Desk
Bldg. 4D
700 Robbins Avenue
Philadelphia, PA 19111-5094

7.2 Source of non-Government documents

ASTM Test Methods

(Applications for copies should be addressed to American Society For Testing and Materials (ASTM), 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)

AATCC Test Methods

(Applications for copies should be addressed to American Association of Textile Chemists and Colorists (AATCC), P.O. Box 12215, Triangle Park, NC 27709-2215.)

TAPPI Test Methods

(Applications for copies should be addressed to Technical Association of the Pulp and Paper Industry (TAPPI), Technology Park/Atlanta, P. O. Box 105113, Atlanta, GA 30348.)

MILITARY INTERESTS:

Custodian:
Navy - MC

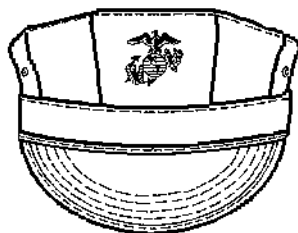
CIVIL AGENCY COORDINATING ACTIVITY:
GSA - FSS

Review Activities:
Navy - NU, YD

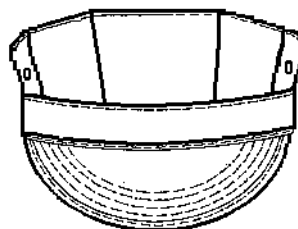
PREPARING ACTIVITY:
DLA - CT

Project 8405-0328

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TYPE I



TYPE II

FIGURE 1
CAP, UTILITY, CAMOUFLAGE

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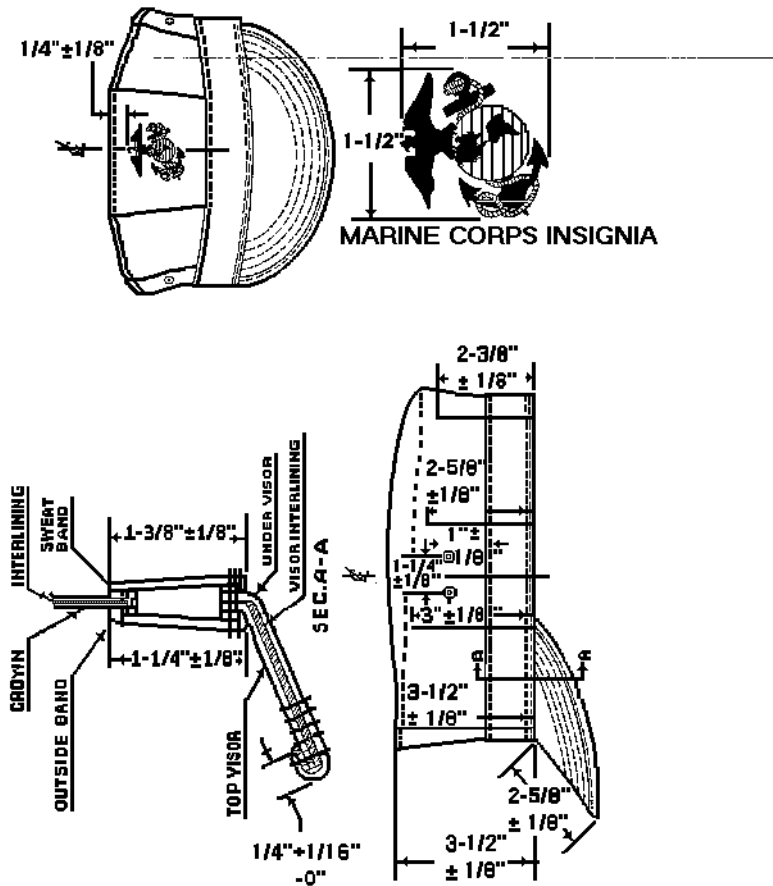


FIGURE 2
CAP, UTILITY, CAMOUFLAGE

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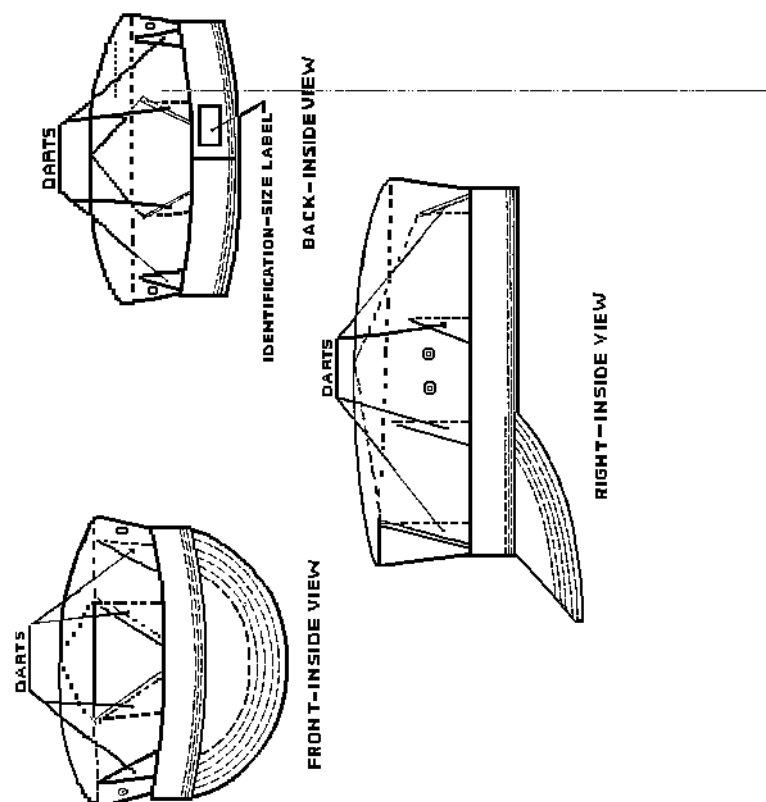


FIGURE 3
CAP, UTILITY, CAMOUFLAGE

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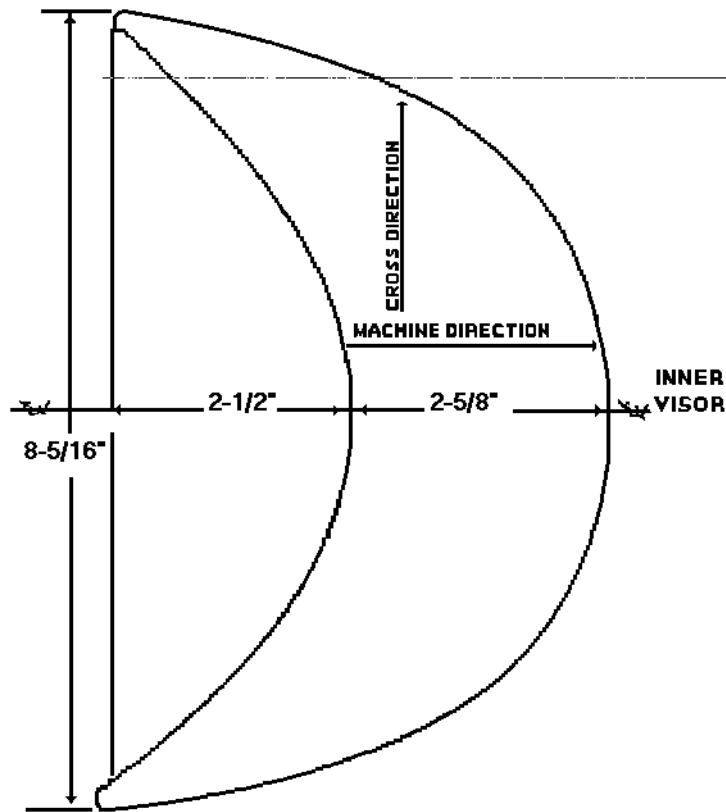


FIGURE 4
CAP, UTILITY, CAMOUFLAGE