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13 December 1978
SUPERSEDING
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MILITARY SPECIFICATION

HELMET, SUN

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 sun helmet.

1.2 Classification. The sun helmet shall be of one type and of the following colors, as specified (see 6.2).

1.2.1 Colors. Bleached white

Khaki No. 1

Olive Green 107

2. APPLICABLE DOCUMENTS

* 2.1 Issues of documents. The following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein:

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

FSC 8415

SPECIFICATIONS

FEDERAL

V-T-285	-	Thread, Polyester.
TT-E-489	-	Enamel, Alkyd, Gloss (For Exterior and Interior Surfaces).
TT-I-542	-	Ink, Marking, Laundry, Black.
UU-P-268	-	Paper, Kraft, Wrapping.
UU-P-553	-	Paper, Wrapping, Tissue.
CCC-C-426	-	Cloth, Drill, Cotton.
CCC-C-446	-	Cloth, Muslin, Cotton.
PPP-F-320	-	Fiberboard, Corrugated and Solid, Sheet Stock (Container Grade) and Cut Shapes.
PPP-T-45	-	Tape, Gummed, Paper Reinforced and Plain, For Sealing and Securing.

MILITARY

MIL-C-342	-	Cloth, Wind Resistant, Poplin, Cotton.
MIL-F-495	-	Finish, Chemical, Black, For Copper Alloys.
MIL-B-17757	-	Boxes, Shipping, Fiberboard (Modular Sizes).
MIL-C-43892	-	Cloth, Twill: Cotton and Nylon.

STANDARDS

FEDERAL

FED-STD-191	-	Textile Test Methods.

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 40" X 48" Pallets.

(Copies of specifications, standards, drawings and publications required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

* 2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply:

NATIONAL MOTOR FREIGHT TRAFFIC ASSOCIATION, INC., AGENT

National Motor Freight Classification

(Application for copies should be addressed to the American Trucking Associations, Inc., Traffic Department, 1616 P Street, N.W., Washington, DC 20036.)

UNIFORM CLASSIFICATION COMMITTEE, AGENT

Uniform Freight Classification

(Application for copies should be addressed to the Uniform Classification Committee, Room 1106, 222 South Riverside Plaza, Chicago, IL 60606.)

3. REQUIREMENTS

3.1 Guide sample. Samples of the end item, when furnished, are solely for guidance and information to the contractor. Variations from this specification may appear in the sample, in which case this specification shall govern (see 6.4).

* 3.2 First article. When specified (see 6.2), the contractor shall furnish a sample for first article inspection and approval (see 4.3 and 6.3).

3.3 Materials (see 6.6.) and components.

3.3.1 Impregnated fiber shell. The molded fiber shell shall consist basically of sulphate pulp, combined with other fibers for suitable strength and impregnated with varnish and water-repellent materials. The molded fiber shell shall contain sufficient impregnating materials to meet the requirements specified in 3.6. The molded impregnated fiber shell shall be uniform in thickness and free from separations and objectionable odors.

* 3.3.2 Cloth, wind resistant, poplin, cotton. The cotton poplin wind-resistant cloth for the helmet shell outer cover shall conform to class B of MIL-C-342. The colors shall be bleached white, khaki shade No. 1, or olive green 107 as applicable. As an option, cotton and nylon twill cloth conforming to MIL-C-43892 may be used as a substitute.

* 3.3.3 Cloth, muslin, cotton. The cotton muslin cloth for the helmet shell inner cover shall conform to type III, class 3 of CCC-C-446, except that the cloth shall be water-repellent treated so that the finished helmet meets the water resistance requirement specified in 3.6.3. The color of the cloth shall be natural.

3.3.4 Webbing. The webbing shall be made of combed two-ply cotton yarns and shall conform to the requirements in table I when tested as specified in 4.4.1. The webbing shall be plain weave face and back and the filling shall weave continuously one face pick and one back pick. The weave shall begin on one selvage with seven warp threads (four face and three back) followed by one warp binder thread. Binder threads shall weave plain, binding together the face and back. There shall be four warp threads (two face and two back) between the binders. Following the eighth binder, on the opposite selvage, the webbing shall end with six threads (three face and three back warp threads).

TABLE I. Physical requirements for webbing

Width	7/16 ± 1/32 inch (11 ± 1 mm)
Weight	0.20 to 0.25 ounces per linear yard (6.2 to 7.8 g/m)
Thickness	0.055 inch (1.40 mm) maximum
Total warp threads	49 minimum
Face and back warp threads	41 minimum
Binder warp threads	8 minimum
Filling threads	55 per inch (22 per cm) maximum
Breaking strength (full width)	90 pounds (400 N) minimum

3.3.4.1 Color. The color of the webbing shall match the outer covering (cloth, cotton, uniform twill) of the helmet and shall show good fastness to weather, perspiration, and laundering when tested as specified in 4.4.1. Colorfastness requirements for bleached white webbing are not applicable.

3.3.5 Cloth, coated, pyroxylin (for sweatband). The base cloth shall be a cotton sateen with a minimum thread count of 96 ends and 60 picks per inch (38 ends and 24 picks per cm). The cloth shall be coated on one side only with sufficient pyroxylin so that the coated fabric weight is not less than 17.5 ounces per square yard (593 g/m^2). The color of the coated cloth shall be brown 231 and the coating shall have a box calf grain finish (see 6.4).

3.3.6 Cloth, drill, cotton (for sweatband). The cloth shall conform to type III, class 1 of CCC-C-426.

3.3.7 Braid (for sweatband). The braid shall be made from mercerized cotton yarn and shall be either flat or circular. Circular braid shall be not greater than 3/32 inch (2 mm) in diameter and flat braid shall be not greater than 1/8 inch (3 mm) in width. The braid shall have a breaking strength of not less than 40 pounds (178 N).

3.3.7.1 Color. The braid shall be vat dyed a brown shade to approximate the color of the pyroxylin-coated cotton fabric specified in 3.3.5. The braid shall show good fastness to perspiration and crocking when tested as specified in 4.4.1.

3.3.7.2 Braid tips. The tips shall be made of fiber, slow-burning plastic, or nonferrous metal and shall measure 1/2 ± 1/16 inch (13 ± 2 mm) in length. A tip shall be firmly attached to each end of the braid.

3.3.8 Adhesive. The adhesive or adhesives used in the manufacture of the helmet shall be water resistant. Evidence of water resistance shall be determined by conformance to wet strength requirements specified in 3.6.2.

3.3.9 Hardware. All hardware shall be fabricated from good commercial grade brass sheet and shall conform to the dimensions specified in figures 1, 2, and 3 as applicable. The hardware shall consist of the following items:

Sweatband attachment brackets
Hooks
Slide buckle
Washers
Eyelets

3.3.9.1 Color and finish. All hardware components shall have a black chemical finish conforming to MIL-F-495. All hardware components excluding the eyelets shall be protected with a lacquer finish.

3.3.9.2 Color of eyelets. After the eyelets have been given the black chemical finish specified in 3.3.9.1, they shall be given an enamel finish conforming to class B of TT-E-489. The color of enamel shall approximate the shade of the outer material of the sun helmet.

3.3.10 Ink. The ink used to mark the inside crown of the sun helmet shall conform to TT-I-542.

* 3.3.11 Thread polyester. The thread for bartacking the looped ends of the chin strap shall be thread, polyester, type I or II, class 1, sub-class A, size B, conforming to V-T-285.

3.3.11.1 Color and colorfastness. The color of the thread shall be the same as the webbing and shall show good fastness to weather, perspiration, and laundering.

3.4 Design. The design of the sun helmet shall be in accordance with figure 1.

3.5 Construction of helmet.

* 3.5.1 Shell. The shell shall be produced by molding the impregnated fiber specified in 3.3.1 to the shape, size, and design shown on figure 1. The shell shall be covered on the outside with the cotton poplin specified in 3.3.2 and on the inside with the cotton muslin specified in 3.3.3. The outer and inner covering shall be seamless and shall be cemented to the shell with the adhesive specified in 3.3.8. The outer and inner covering shall be turned under the rolled edge brim and cemented to the pressed fiber shell so that no raw edges are exposed as shown on figure 1.

3.5.2 Brackets. Two attachment brackets for the sweatband shall be secured to the inside of the helmet, at the base of the crown, midway between the front and back, on each side as shown on figure 1. Each bracket shall be attached with two eyelets which shall be securely clinched on the inner side as shown on figure 2.

3.5.3 Eyelets for ventilation. Nine eyelets (in addition to those utilized for securing the brackets) shall be located on the helmet as shown on figure 1. The eyelets shall be securely clinched on the inner side of the helmet.

3.5.4 Sweatband. The sweatband shall be constructed from the fabrics specified in 3.3.5 and 3.3.6, the adhesive specified in 3.3.8, and the eyelets specified in 3.3.9 in the following manner:

(a) A 2-1/2 ± 1/16 inch (64 ± 2 mm) wide strip of the pyroxylin coated fabric shall be folded over a 15/16 inch (24 mm) minimum width strip of cotton drill to meet at the center on the underside and folds of the underside and the folds of the band shall be thoroughly and evenly cemented.

(b) Four eyelets shall be placed at each end of the sweatband (for lacing adjustment) as shown on figure 1.

(c) Four eyelets equipped with washers (for attachment of the sweatband bracket) shall be located along the upper edge of the sweatband and shall be clinched on the underside of the sweatband. One eyelet shall be located 2-1/2 ± 1/8 inches (64 ± 3 mm) from each end of the sweatband and the remaining two eyelets shall be equally spaced between them.

(d) The sweatband shall finish 1-1/8 ± 1/16 inches (29 ± 2 mm) wide and 21-3/4 ± 1/4 inches (552 ± 6 mm) long.

(e) The braid specified in 3.3.7 of sufficient length, shall be laced in the adjustment eyelets.

* 3.5.5 Chin strap. The chin strap shall be made of the 7/16 inch (11 mm) webbing specified in 3.3.4 with a slide buckle (for length adjustment) and a metal hook at each end as shown on figure 3.

* 3.5.5.1 Chin strap (alternate construction). The chin strap shall be made of 7/16 inch (11 mm) webbing specified in 3.3.4 with a slide buckle (for length adjustment) and a metal loop at each end as shown on figure 3. When the alternate construction is used each bracket shall be equipped with an attaching hook of the dimensions shown on figure 3.

* 3.5.5.2 Bartacks. Bartacks shall be 5/16 to 3/8 inch (8 to 10 mm) in length, 1/8 ± 1/32 inch (3 ± 1 mm) in width and shall have 28 stitches per bartack. The bartacks shall have no thread breaks or loose stitching.

* 3.5.6 Marking. The following information shall be stamped in black characters at the inside back of the crown:

Item description
Contract number
Stock number
Contractor's name

The marking shall be in characters not less than 8 point (approximately 3/32 inch (2 mm) in height with the ink specified in 3.3.10. The marking shall be clearly legible and shall not show smearing, bleeding or off-setting.

3.6 Performance requirements.

* 3.6.1 Sweatband. The sweatband assembly shall not deteriorate or become stiff when tested as specified in 4.4.6.

3.6.2 Dry and wet strength of helmet. The finished sun helmet shall not delaminate or become distorted when subjected to the wet and dry strength tests specified in 4.4.6.

3.6.3 Water resistance of helmet. The sun helmet, less sweatband and chin strap, shall show an increase in weight of not more than 30 percent of the dry, sun helmet weight when tested as specified in 4.4.6. In addition, there shall be no evidence of any separation of either lining or outer covering from the body of the sun helmet. The rolled edge may unroll slightly, but

the unrolling shall not be apparent on the outside of the helmet, and the opening between rolled edge and brim shall not exceed 3/16 inch (5 mm) after testing.

3.6.4 Heat resistance of helmet. The finished sun helmet shall not become distorted when subjected to the heat resistance test specified in 4.4.6.

3.7 Weight. The complete sun helmet, including component parts, shall weight not more than 9.5 ounces (269 g).

* 3.8 Repairs. Except as otherwise specified herein, repairs are not allowed to be made to the sun helmet.

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

3.10 Workmanship. The finished sun helmet shall conform to the quality of product established by this specification and the occurrence of defects shall not exceed the applicable acceptable quality level.

4. QUALITY ASSURANCE PROVISIONS

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

4.1.1 Certificates of compliance. Where certificates of compliance are submitted, the Government reserves the right to check test such items to determine the validity of the certification.

* 4.2 Classification of inspection. The inspection requirements specified herein are classified as follows:

a. First article inspection (see 4.3).
b. Quality conformance inspection (see 4.4).

* 4.3 First article inspection. When specified (see 6.2), the preproduction sample submitted in accordance with 3.2 shall be inspected for all provisions of this specification applicable to end item inspection.

4.4 Quality conformance inspection. Sampling for inspection shall be performed in accordance with MIL-STD-105, except where otherwise indicated hereinafter.

4.4.1 Component and material inspection. In accordance with 4.1 above, components and materials shall be inspected in accordance with all requirements of referenced specifications, drawings and standards unless otherwise excluded, amended, modified or qualified in this specification or applicable purchase documents. In addition, components shall be examined and tested for the characteristics listed in table II. For purposes of sampling, the lot size for each component listed shall be expressed in units of the component required to manufacture one complete end item. The sample unit shall be as designated in table II. The sample size for the designated lot size shall be as shown below. There shall be no evidence of failure of any sample unit to meet the requirements as specified.

Lot size	Sample size
800 or less	2
801 up to and including 22,000	3
22,001 and more	5

All test reports shall contain the individual values utilized in expressing the final result. The methods of testing specified in FED-STD-191 whenever applicable, and as listed in table II shall be followed.

TABLE II. Instructions for testing of components

Component and lot size expressed in terms of	Characteristic	Specification reference: Requirement paragraph	Specification reference: Test method	Number determinations per sample unit	Results reported as: Pass or fail	Results reported as: Numerically to nearest	Sample unit
Impregnated fiber shell	Material identification	3.3.1	1/				
Webbing (yard)	Color	3.3.4.1	4.5.2	1	X	---	2 linear yards (2 m)
	Weave	3.3.4	Visual	1	X	---	
	Width	Table I	5020	5	---	1/32 inch (1 mm)	
	Weight	Table I	5041	5	---	0.1 ounce (1 g)	
	Thickness	Table I	5030	5	---	0.001 inch (.01 mm)	
	Yarns full width:						
	Total warp	Table I	5050	5	---	Actual count	
	Face and back warp	Table I	5050	5	---	Actual count	
	Binder warp	Table I	5050	5	---	Actual count	
	Filling thread (per inch)	Table I	5050	5	---	Whole number	
	Breaking strength (full width)	Table I	4108	5	---	1 pound (1 N)	
	Colorfastness to:						
	Accelerated weathering	3.3.4.1	5671	1	---	Excellent, good, fair, or poor	
	Perspiration	3.3.4.1	5680 1/	1	---	Excellent, good, fair, or poor	
	Laundering	3.3.4.1	5610	1	---	Excellent, good, fair, or poor	
	Material identification	3.3.4	1200 1/	1	X		

TABLE II. Instructions for testing of components (cont'd)

Component and lot size expressed in terms of	Characteristic	Specification reference: Requirement paragraph	Specification reference: Test method	Number determinations per sample unit	Results reported as: Pass or fail	Results reported as: Numerically to nearest	Sample unit
Cloth, coated pyroxylin	Coating identification	3.3.5	Standard	1	X	---	1 linear yard (1 m)
	Weight	3.3.5	5041	5	---	0.1 ounce (1 g)	
	Thread count	3.3.5	5050	5	---	Whole number	
	Color	3.3.5	4.5.2	1	X		
Braid	Diameter (when applicable)	3.3.7	4.5.1	5	---	1/64 inch (1 mm)	7 yards (6 m)
	Width (when applicable)	3.3.7	5020	5	---	1/16 inch (2 mm)	
	Breaking strength	3.3.7	4102	5	---	0.5 pounds (1 N)	
	Color	3.3.7.1	4.5.2	1	X		
	Colorfastness to:						
	Perspiration	3.3.7.1	5680	1	---	Excellent, good, fair, or poor	
	Crocking	3.3.7.1	5651	1	---	Excellent, good, fair, or poor	
	Dye identification	3.3.7.1	Standard	1	X		

TABLE II. Instructions for testing of components (cont'd)

Component and lot size expressed in terms of	Characteristic	Specification reference: Requirement paragraph	Specification reference: Test method	Number determinations per sample unit	Results reported as: Pass or fail	Results reported as: Numerically to nearest	Sample unit
Braid tips	Material identification	3.3.7.2	Standard	1	X	---	5 each
	Length	3.3.7.2	Standard	1	---	1/16 inch (2 mm)	
Hardware (eyelets, brackets, hooks, loops, slide buckles or washers)	Composition	3.3.9	Standard	1	X	---	5 each
	Dimensions	3.3.9	Standard	1	X		
	Finish	3.3.9.1 and 3.3.9.2	Standard	1	X		

1/ Unless otherwise specified a certificate of compliance will be acceptable for the requirement stated.

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

* 4.4.3 Examination of the end item. The defects found during examination shall be classified in accordance with 4.4.3.1 and 4.4.3.2. The acceptable quality levels and the inspection levels shall be as specified in 4.4.3.3. The lot size shall be expressed in terms of sun helmets. The sample unit for each examination shall be one finished sun helmet.

* 4.4.3.1 Visual examination.

Examine	Defect	Classification Major	Minor
Color	Any component not specified or approved color	X	
Design	Any characteristic not in accordance with specified requirement or approved sample (unless otherwise indicated herein)	X	
Cleanliness	Any permanent spot, stain or foreign matter clearly noticeable	X	
Material (general)	Any cut, tear or hole	X	
	Any slub, float, knot, crease, wrinkle, blister or abraded area	X	
	Any component not fabricated of the specified material	X	
Construction and workmanship (general)	Material not uniformly or securely bonded to shell, e.g., any delamination or separation	X	
	Any seams, i.e., not one piece construction on inner or outer surface	X	
	Any dent or crushed area in crown, brim or brim edge	X	
	Edge of brim not rolled	X	
	Any raw edge in rolled brim area (outer or inner material not turned under rolled edge)	X	
	Any component misplaced, operation omitted or not properly performed	X	

Examine	Defect	Classification Major	Minor
Construction and workmanship (general) (cont'd)	Any component missing or not specified type	X	
	Any component or assembly damaged or defective	X	
	Any component not properly or securely affixed	X	
	Any repair or mend	X	
	Any part not functioning as required		X
Sweatband	Not removable type	X	
	Finish is tacky or not calf grain	X	
	Does not slide along suspension brackets	X	
	Slides with difficulty along suspension bracket		X
	Edge not folded over strip of cotton drill	X	
	Edge does not meet at center on underside		X
	Imbedded foreign matter resulting in bump or swell	X	
	Any tip of braid missing or not securely attached		X
Chin strap	Bartack omitted	X	
Hardware:			
Eyelets	Any eyelet exhibiting rupture of the roll or peen		X
	Clinched too tight resulting in crushing of the shell or cutting of the underlying fabric	X	
Other hardware	Broken, damaged or malformed	X	
	Any sharp burr or metal sliver		X
	Any part missing	X	
	Any part that will not function as intended	X	
	Any part reversed	X	
	Any part not properly attached but will adequately be retained on assembly and will function as intended		X

Examine	Defect	Classification Major	Minor
Finish (hardware)	Not uniform		X
	Not color specified		X
	Finish missing, chipped, abraded or scratched exposing base metal		X
Marking	Missing, incomplete, incorrect, not legible, not in proper location or not accomplished in the specified manner		X

4.4.3.2 Dimensional examination. The sun helmet shall be examined for defects in dimensions. Any dimension that is not within the specified tolerance shall be classified a defect.

4.4.3.3 Inspection levels and acceptable quality levels (AQLs). The applicable inspection levels and acceptable quality levels, expressed in defects per 100 units shall be as follows:

Examination	Inspection level	AQL
In 4.4.3.1	II	2.5 Major 6.5 Total major and minor defects combined
In 4.4.3.2	S-3	4.0 (one class)

* 4.4.4 Packaging inspection. An examination shall be made to determine that the preservation-packaging, packing and marking comply with the section 5 requirements. Defects shall be scored in accordance with the list below. The sample unit shall be one shipping container fully prepared for delivery with the exception that it need not be sealed. Examination of closure defects listed below 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 defects per hundred units.

Examine	Defect
Marking (exterior and interior)	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application.
Materials	Any component missing, damaged or not as specified.
Workmanship	Inadequate application of components, such as incomplete closure of container flap, loose strapping, inadequate stapling, improper taping. Bulged or distorted of containers.
Content	Number per container is more or less than required.

4.4.5 Examination for palletization. An examination shall be made to determine that the palletization complies with the section 5 requirements. Defects shall be scored in accordance with the list below. The sample unit shall be one palletized unit load fully prepared for delivery. The lot size shall be the number of palletized unit loads in the end item inspection lot. The inspection level shall be S-1 and the AQL shall be 6.5 defects per hundred units.

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

4.4.6 Testing of the end item. The helmets shall be tested for the characteristics indicated in table III. The sample unit shall be five helmets. The inspection level shall be S-1 and the acceptable quality level (AQL) shall be 6.5 defects per hundred units.

TABLE III. Testing of end item

Characteristic	Requirement paragraph	Test method	Determinations per sample unit	Results reported as: Pass or fail	Results reported as: Numerically to nearest
Weight	3.7	Standard	2	---	0.1 ounce (1 g)
Strength (dry)	3.6.2	4.5.3.1	1	X	---
Strength (wet)	3.6.2	4.5.3.2	1	X	---
Water resistance	3.6.3	4.5.4	1	---	1.0 percent
Heat resistance	3.6.4	4.5.5	1	X	---
Immersion (sweatband):					
Acid	3.6.1	4.5.6	1	X	---
Alkaline	3.6.1	4.5.6	1	X	---
Odor	3.3.1	4.5.7	1	X	---

4.5 Test methods.

4.5.1 Diameter of braid. The diameter of the braid shall be determined by calipers at five points at least 3 feet (1 m) apart and the results averaged. The diameter shall be measured with the braid under a tension of 1 pound (0.45 kg) after the tension has been applied for 2 minutes.

4.5.2 Color matching. When a specific shade is specified, the color shall match the approved standard shade (see 6.4), under artificial daylight having a color temperature of 7,500 kelvin and shall be a good approximation to the standard under incandescent lamplight at 2,800 kelvin.

4.5.3 Helmet strength.

4.5.3.1 Dry. The helmets shall be tested dry (under standard atmospheric conditions specified in FED-STD-191) by applying a minimum load of 110 pounds (50 kg) on top of the crown exclusive of the knob.

4.5.3.2 Wet. The helmets shall be tested wet, after being submerged in water at a temperature of 75° to 80°F (24° to 27°C) for 24 hours, by applying a minimum load of 50 pounds (23 kg) on the top of the crown exclusive of the knob.

4.5.4 Water resistance. The helmet, less sweatband and chinstrap, to be tested shall be weighed dry, and then submerged in water at a temperature of 75° to 80°F (24° to 27°C) for 24 hours. The excess water shall then be wiped off with an absorbent cloth, the helmet shall be weighed again and the percentage increase in weight calculated based on the dry weight.

4.5.5 Heat resistance. The helmet shall be subjected to a temperature of 212°F (100°C) for a period of 4 hours.

4.5.6 Sweatband immersion test. One sweatband shall be immersed in the acid perspiration solution specified in Method 5682 of FED-STD-191 for a period of 72 hours and one sweatband shall be immersed in the alkaline perspiration solution specified in Method 5682 of FED-STD-191 for a period of 72 hours. After removing the bands from each solution, they shall be dried and examined for deterioration and pliability.

4.5.7 Odor. A minimum of five finished helmets shall be freely exposed to circulating air at 75 ± 5°F (24 ± 3°C) for not less than 24 hours. At the end of the exposure period the helmets shall not have an objectionable odor.

5. PACKAGING

5.1 Preservation-packaging. Preservation-packaging shall be level A or C as specified (see 6.2).

5.1.1 Level A. Each helmet shall be completely wrapped in at least one thickness of tissue paper conforming to type I, class 1 or 2 of UU-P-553. Five tissue-wrapped helmets of one color only, shall be nested together with the crowns facing downward. The helmets within the nest shall be separated by nontest single-faced corrugated fiberboard material. Each fiberboard separator shall be 1-3/4 inches (44 mm) in width and of sufficient length to encircle the crown of the helmet. The ends of the separators shall be secured with 1 inch (25 mm) minimum width gummed paper tape conforming to type III, grade B of PPP-T-45. The crown of the bottom helmet shall be encircled with a 5 inch (127 mm) width strip of fiberboard conforming to type CF (variety SW - corrugations running in the short direction) or SF, class domestic, grade 200 of PPP-F-320. The ends of the strip shall be secured with the afore specified gummed paper tape. The five nested helmets shall then be completely wrapped with 30-pound basis weight (49 g/m^2) minimum kraft paper conforming to grade B of UU-P-268. The paper wrap shall be secured with the afore specified gummed paper tape.

* 5.1.2 Level C. Helmets shall be packaged to afford adequate protection against physical damage during shipment from the supply source to the first receiving activity. The package and quantity per package shall be the same as that normally used by the contractor for retail distribution.

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

5.2.1 Level A packing. Ten helmets of one color only, packaged as specified in 5.1, shall be packed in a fiberboard shipping container assembled, closed, and reinforced conforming to class weather-resistant, grade V2s, size 3A of MIL-B-17757. The fiberboard for the box liner shall conform to type CF, class weather-resistant, variety DW, grade V15c of MIL-B-17757. Level A packages shall be packed upright two in length within a shipping container.

5.2.2 Level B packing. Ten helmets of one color only, packaged as specified in 5.1, shall be packed in a fiberboard shipping container assembled and closed conforming to class domestic, grade 275, size 3A of MIL-B-17757. The fiberboard for the box liner shall conform to type CF, class domestic, variety DW, grade 275 of MIL-B-17757. Level A packages shall be packed upright two in length within a shipping container.

* 5.2.2.1 Weather-resistant fiberboard containers. When specified (see 6.2), the shipping container shall be a grade V3c, V3s or V4s fiberboard box fabricated in accordance with MIL-B-17757 and closed in accordance with the appendix of the box specification.

* 5.2.3 Level C packing. Helmets packaged as specified in 5.1, shall be packed in a manner to insure carrier acceptance and safe delivery at destination at the lowest transportation rate for such supplies. The quantity per shipping container shall be the same as that normally used by the contractor for retail distribution. Containers shall be in accordance with Uniform Freight Classification or National Motor Freight Classification, as applicable.

5.3 Palletization. Unless otherwise specified (see 6.2), helmets, packed as specified in 5.2, shall be palletized in accordance with Load Type I of MIL-STD-147. Each prepared load shall be bonded with primary and secondary straps in accordance with bonding means K and L. Pallet patterns shall be in accordance with the appendix of MIL-STD-147. Interlocking of loads shall be effected by reversing the pattern of each course.

* 5.4 Marking. In addition to any special marking required by the contract, unit packs, shipping containers, and palletized unit loads shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. The sun helmet is intended for use as part of the tropical uniform to be worn by all Military personnel in zones 1, 2, and 3 whose duties require exposure to direct sunlight.

6.2 Ordering data. Procurement documents should specify the following.

(a) Title, number, and date of this specification.
(b) Color required (see 1.2.1).
(c) When a first article sample is required (see 3.2).
(d) Selection of the applicable levels of packaging and packing (see 5.1 and 5.2).
(e) When weather-resistant grade fiberboard shipping containers are required for level B packing (see 5.2.2.1).
(f) When palletization is required (see 5.3).

* 6.3 First article. When a first article sample is required it shall be inspected and approved under the appropriate provisions of ASPR 7-104.55. The first article should be a preproduction sample consisting of one complete sun helmet. The contracting officer should include specific instructions in all procurement instruments, regarding arrangements for examination, test and approval of the first article.

6.4 Sample. For access to sample sun helmet and standard sample for shade and finish, address the procuring activity issuing the invitation for bids.

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

* 6.6 Metric equivalents. Metric equivalents, indicated in parentheses throughout this document, are based on practices, conversion factors, and symbols specified in ASTM E 380 Standard for Metric Practice, and are for information only. In each instance, the value stated in US customary units shall be controlling.

6.7 Changes from previous issue. The margins of this specification are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

Custodians:

Army - GL
Navy - SA
Air Force - 99

Review activities:

Army - MD
Air Force - 45
DLA - CT

User activity:

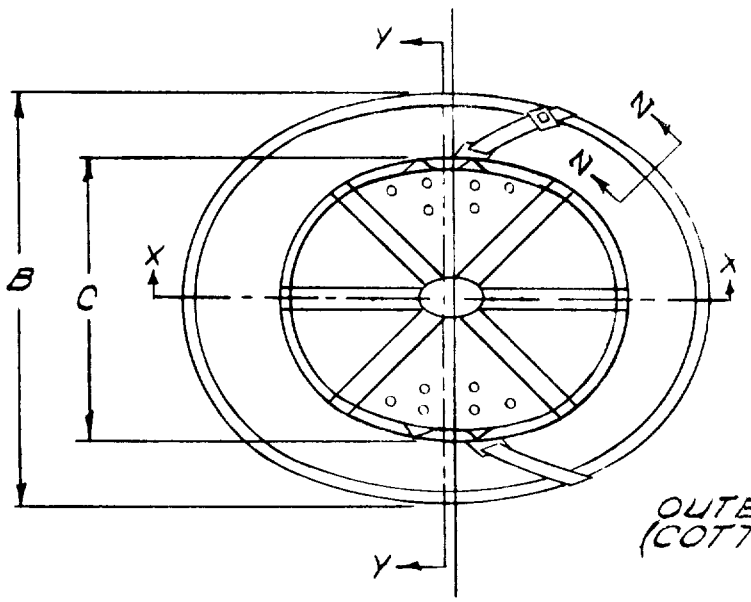
Navy - MC

Preparing activity:

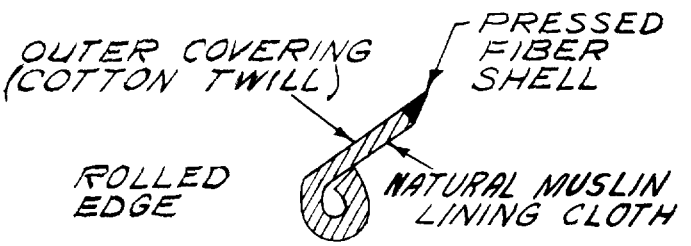
Army - GL

Project No. 8415-0717

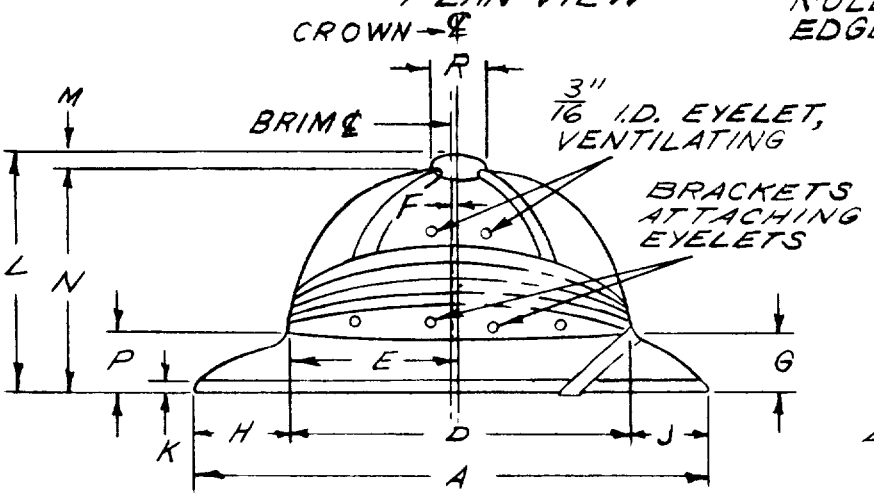
DIMENSIONS		
A	13-29/32	± 1/32
B	11-1/2	± 1/32
C	7-9/16	± 1/16
D	3- [illegible]	± 1/16
E	1-23/64	± 1/16
F	3/16	± 1/32
G	1 9/16	± 1/32
H	2-5/8	± 1/32
J	2-1/4	± 1/32
K	1/4	± 1/32
L	6-1/16	± 1/16
M	3/8	± 1/32
N	5-11/16	± 1/32
P	1-11/16	± 1/32
R	1-19/32	± 1/32



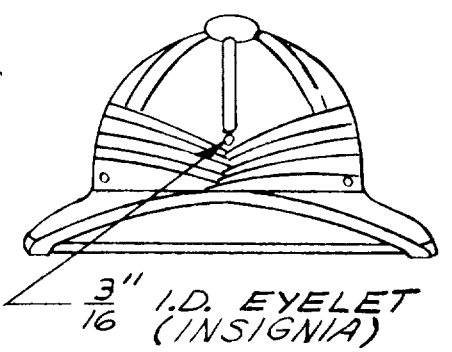
PLAN VIEW



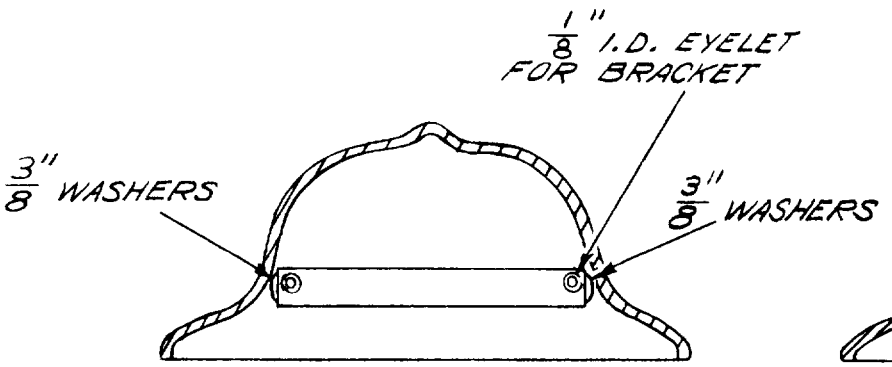
SECTION Z-Z



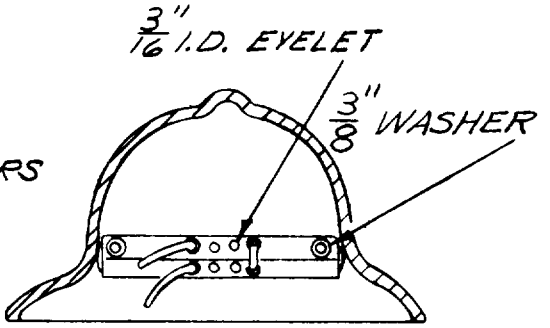
SIDE VIEW



FRONT VIEW

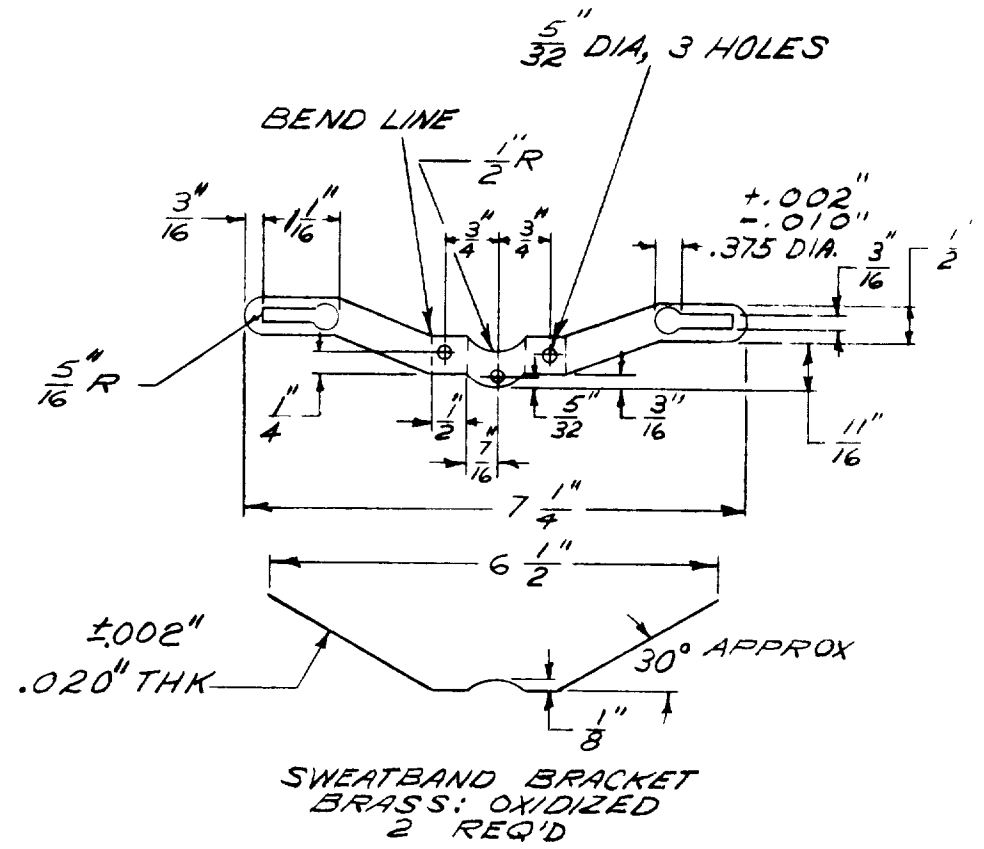


SECTION X-X



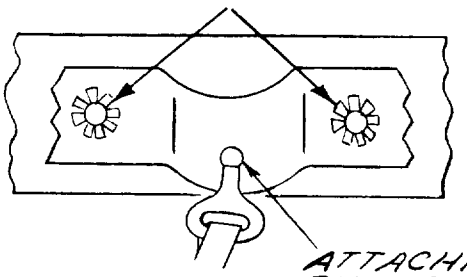
SECTION Y-Y

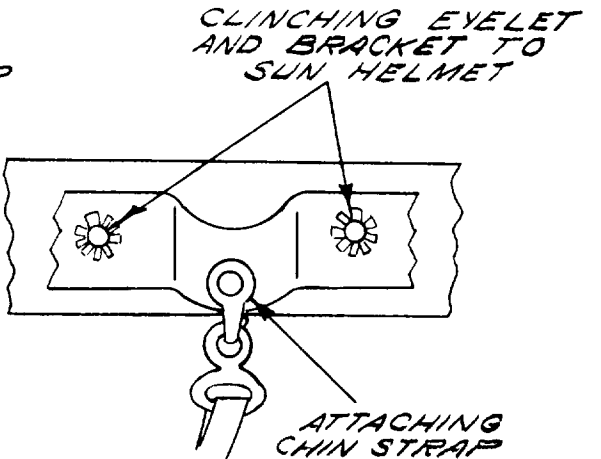
FIGURE 1. HELMET, SUN



SWEATBAND BRACKET
BRASS: OXIDIZED
2 REQ'D

CLINCHING EYELET AND BRACKET TO SUN HELMET

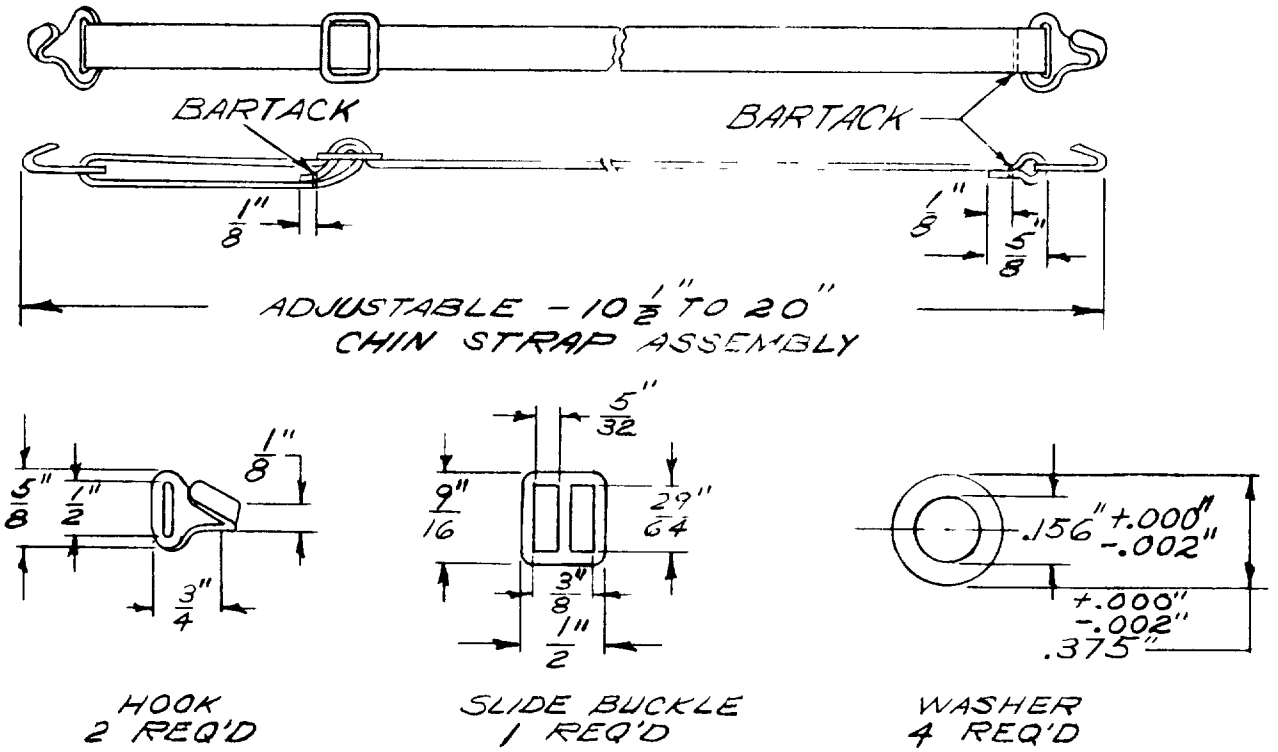




(ALTERNATE METHOD)

GENERAL NOTES:
1- UNLESS OTHERWISE SPECFIED ALL HARDWARE .045" MIN THK.
2- FABRICATING TOLERANCES ARE; DECIMALS ±.005"; WHOLE NO'S, AND FRACTIONS ± 1/64" ANGLES ± 1°

FIGURE 2. HARDWARE AND METHODS OF ATTACHING CHIN STRAP TO HELMET



GENERAL NOTES:
1- UNLESS OTHERWISE SPECIFIED ALL HARDWARE .045" MIN THK
2- FABRICATING TOLERANCES ARE; DECIMALS ±.005" WHOLE NUMBERS AND FRACTIONS ± 1/64"

FIGURE 3. DETAILS OF HARDWARE AND CHIN STRAP FOR HELMET, SUN

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DOCUMENT IDENTIFIER *(Number)* AND TITLE

MIL-H-3364D Helmet, Sun

NAME OF ORGANIZATION AND ADDRESS OF SUBMITTER

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