

MIL-I-11489E

29 June 1976

SUPERSEDING

MIL-I-11489D

24 February 1970

## MILITARY SPECIFICATION

## INSECT NET, HEAD

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

## 1. SCOPE

1.1 Scope. This specification covers a head insect net made from nylon cloth and nylon netting. The head net shall be of one type and one size.

## 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:

## SPECIFICATIONS

## FEDERAL

- |           |  |
|-----------|--|
| V-T-285   | - Thread, Polyester  |
| V-T-295   | - Thread, Nylon  |
| DDD-L-20  | - Label; For Clothing, Equipage and Tentage<br>(General Use) |
| PPP-B-636 | - Boxes, Shipping, Fiberboard                                |
| PPP-B-676 | - Boxes, Set-up  |

## MILITARY

- |             |                                       |
|-------------|---------------------------------------|
| MIL-C-508   | - Cloth, Oxford, Nylon, 3 Ounce       |
| MIL-C-43352 | - Cloth, Netting, Nylon; Tulle Tricot |

## STANDARDS

## FEDERAL

- |             |                                   |
|-------------|-----------------------------------|
| FED-STD-601 | - Rubber, Sampling and Testing    |
| FED-STD-751 | - Stitches, Seams, and Stitchings |
| FED-STD-191 | - Textile Test Methods            |

FSC 8415

MIL-I-11489E

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 for 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 issues 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., Tariff Order Section, 1616 P Street, N.W., Washington, D.C. 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 Samples

3.1.1 Guide sample. Guide samples, when furnished, are solely for guidance and information to the contractor (see 6.3). Variation from the specification may appear in the sample, in which case the specification shall govern.

- \* 3.1.2 First article. When specified (see 6.2), the contractor shall furnish a sample for first article inspection and approval (see 4.3 and 6.4).

3.2 Materials.

- \* 3.2.1 Cloth, nylon. The material for the crown, crown loops, grommet cover, and binding be nylon oxford cloth, dyed Olive Green 106 conforming to type I, class 1 of MIL-C-508 except the requirements for colorfastness to wet drycleaning and perspiration shall not apply.

MIL-I-11489E

3.2.2 Netting. The netting shall be nylon conforming to class 2 of MIL-C-43352, color Dark Green 323.

3.2.3 Braid, elastic. The flat elastic nylon braid shall be Olive Green 106,  $1/4 + 1/32$  inch wide made on a 17 carrier braider. The braiding yarns shall be 210 denier or equivalent nylon. There shall be 2 ends per carrier, the carriers braiding one-over one-under with not less than 58 picks per inch. The elastic braid shall have 8 strands, equally spaced across the width of the braid, of compounded natural rubber, synthetic rubber or a mixture thereof. The maximum gauge of the rubber strands shall be 42. The finished braid shall have an elongation of not less than 160 percent when a load of 7 pounds, 10.5 ounces is applied. After being subjected to this load for 24 hours the elastic braid shall have a permanent set of not more than 10 percent. The change in elongation and permanent set after accelerated aging shall be not more than 20 percent. The dyed braid shall show "good" fastness to laundering and light. The ends of the headband and bottom draw braids shall be dipped or impregnated with cellulose acetate or cellulose butyrate to prevent fraying a minimum of  $1/2$  inch. Testing shall be as specified in 4.4.1.

- \* 3.2.4 Thread. The thread for all stitching shall be nylon, type I or II, class 1, or type III, subclass A of V-T-295, or polyester, type I, class 1, subclass A, of V-T-285. The sizes shall be as specified in table I. The thread shall be dyed Olive Drab S-1, C.A. 66022 and shall show colorfastness to light and laundering equal to or better than the standard sample.
- \* 3.2.5 Identification label. The insect net shall have an identification label conforming to type I, class 4 of DDD-L-20 except that the size is not required. The fastness to laundering requirements of DDD-L-20 shall apply.
- \* 3.2.6 Instruction ticket. The insect net shall be furnished with an instruction ticket made of heavy cardboard and provided with a reinforced eyelet for attachment of a tie cord. The ticket shall measure not less than  $6-1/4$  by  $3-1/8$  inches and shall be legibly printed with the figures and instructions specified on figure 3. The printing shall be made with a water insoluble ink.
  - \* 3.2.6.1 Cord, tie. A tie cord shall be furnished no finer than 5 ply cotton cord, doubled to no less than 5-inches long. The tie cord shall be attached to the instruction ticket by passing the loop end through the eyelet and then by passing the free ends through the loop.
- \* 3.2.7 Grommet assemblies. The upper grommet assembly shall be  $32 + 1/2$ -inches in circumference and the lower grommet assembly  $38 + 1/2$ -inches in circumference. The ends of each grommet ring shall be notched and joined with a coupling as shown on figure 2. The coupling shall be securely clinched with the edges of the coupling abutted,  $+ 0, - 1/32$  inch and with no burrs or projecting corners.

MIL-I-11489E

- \* 3.2.7.1 Ring, grommet. The grommet rings shall be made of spring tempered steel having a carbon content of 0.80 to 0.93 and a Rockwell Hardness of C-40 to C-48. The width of the grommet rings shall be  $.230 \pm .005$  inch with a thickness of  $.014 \pm .001$  inch. The grommet rings shall be coated with a good quality dark colored enamel. Prior to applying the enamel the grommet rings shall be first coated with a primer conforming to the paint supplier's recommendation. The enamel coating shall be smooth, without skips, cracks, or other defects that could affect serviceability. The enamel coating shall be 0.0015 to 0.0020 inch thick on sides and edges. If the grommets are coated before cutting and notching, the ends shall be dipped in enamel to seal the exposed metal.
- \* 3.2.7.2 Coupling, grommet. The grommet coupling shall be formed as shown on figure 2 with nibs on each side that will fit into the notched edges of the grommet ring. The coupling shall be  $7/16 \pm 1/16$  inch long and such that when securely clinched around the ends of the grommet ring the edges are abutted within  $1/32$  inch. The coupling shall be made of type 430 stainless steel 0.016 to 0.018 inch thick.

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

3.4 Patterns. Standard patterns will be furnished by the Government. Unless otherwise specified the patterns provide a seam allowance of  $1/4$  inch for single stitched seams and  $1/2$ -inch seam allowance for double lapped, double stitched seams. The standard patterns shall not be altered in any way and shall be used only as a guide for cutting the contractor's working patterns. The working patterns shall be identical to the standard pattern.

3.4.1 List of pattern parts. The components of the insect net shall be cut from the specified materials in accordance with pattern parts indicated below:

<u>Material</u>	<u>Pattern nomenclature</u>	<u>Cut parts</u>
Nylon netting cloth	Netting	1
Nylon oxford cloth	Crown piece	6

- \* 3.5 Construction. The construction shall conform to the requirements specified in table I and herein.
- \* 3.5.1 Stitches, seams, and stitching. All stitches, seams and stitching shall conform to FED-STD-751. The type of seam, stitching and stitches per inch shall be as specified in table I. Seam allowances shall be maintained with seams sewn so that no raw edges, run-offs, twists, pleats, puckers, or open seams occur (see 6.5).

MIL-I-11489E

- \* 3.5.1.1 Type 301 stitching. Ends of all stitching except when caught in other seams or stitching shall be backstitched or overstitched 1/2 inch minimum. Thread tension shall be maintained so that there will be no loose stitching resulting in loose bobbin or top thread, or excessively tight stitching resulting in puckering of the materials sewn. The lock shall be embedded in the materials sewn.
- \* 3.5.1.1.1 Repairs of type 301 stitching. Repairs of type 301 stitching shall be as follows:
  - a. When thread breaks or bobbin run-outs occur during sewing, the stitching shall be repaired by restarting the stitching a minimum of one inch back of the end of the stitching. 1/
  - b. Thread breaks, two or more consecutive skipped stitches or run-offs noted during inspection of the item (in-process of end item) shall be repaired by overstitching. The stitching shall start a minimum of one inch in back of the defective area, continue over the defective area and continue a minimum of one 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 material, and restitching in the required manner. 1/
- 1/ When making the above repairs the ends of the stitching are not required to be backstitched.
- \* 3.5.1.2 Type 401 stitching. Thread tension shall be maintained so that there will be no loose stitching. All repairs shall be in accordance with 3.5.1.1.1.a and 3.5.1.1.1.b except substitute 3/4 inch for one inch wherever one inch appears. Type 301 stitching may be used for repairing type 401 stitching. Where type 401 stitching is used the looper thread shall be on the inside of the head net.
- \* 3.5.1.3 Bartacks. Unless otherwise specified, bartacks shall be 1/2 + 1/16 inch in length, 1/8 + 1/32 inch in width and shall contain 28 stitches. Bartacks shall be free from thread breaks and loose stitching.
- \* 3.5.1.4 Thread ends. All thread ends shall be trimmed to a length of not more than 1/4 inch.
- \* 3.5.2 Repairs. Except as otherwise specified herein, repairs are not allowed to be made to the insect net.
- \* 3.5.3 Replacement of defective components. During the spreading, cutting and manufacturing process, components having material defects or damages that are classified as defects in 4.4.3.1 shall be removed from production and replaced with non-defective components.

3.6 Manufacturing operation requirements. The head net shall be made in accordance with operations requirements listed in table I. The contractor is not required to follow the exact sequence of operations listed.

MIL-I-11489E

NO.	MANUFACTURING OPERATIONS REQUIREMENTS TABLE I	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D	
					NEEDLE	BOBBIN or LOOPER COVER
1.	<p><u>Cutting.</u></p> <p>a. Cut netting component in accordance with directional lines on pattern.</p> <p>b. Cut the crown pieces in the direction of the material warp as shown on pattern.</p> <p>c. Cut the following from nylon oxford cloth with an apparatus which will fuse the edges of the cloth during the cutting operation.</p> <p>(1) Four crown loops <math>1-1/4 + 1/8</math> inches wide and <math>3-1/2 + 1/8</math> inches long.</p> <p>(2) Buttonhole reinforcement piece <math>1-1/4 + 1/8</math> inches wide and <math>3-1/2 + 1/4</math> inches long.</p> <p>(3) Lower grommet cover <math>1-1/4 + 1/8</math> inches wide and of sufficient length to cover lower grommet with a <math>3/4</math> to 1 inch overlap.</p> <p>(4) Binding for bottom of head net <math>3/4 + 1/8</math> inch wide and of sufficient length to bind bottom edge of netting.</p> <p>d. Cut two pieces of elastic braid for (1) headband and (2) hem, each <math>25 + 1/2</math> inches long. Ends shall be treated as specified in 3.2.3.</p> <p>e. Cut two pieces of elastic braid for anchor loops <math>6 + 1/4</math> inches long.</p>					
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*						
c						
*						
*						

NO.	MANUFACTURING OPERATIONS REQUIREMENTS TABLE I (cont'd)	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D	
					NEEDLE	BOBBIN or LOOPER
2.	<p><u>Make crown.</u></p> <p>a. Initially form the crown in two separate halves by joining three crown pieces together with <math>1/2 + 1/16</math> inch double lapped stitched seams with a <math>1/4</math> to <math>5/16</math> inch stitch gauge. Stitch margin <math>1/16</math> to <math>1/8</math> inch.</p> <p>b. Join the two halves of the crown together with the same seam and stitching requirements as in operation a. above.</p>	301 or 401	LSc-2	10-14	A A	A 00
3.	<p><u>Attach crown loops.</u></p> <p>a. Fold crown loops evenly in half to form loops <math>1-3/4</math> inches long. Position the four loops around the peripheral edge of the crown on the inner surface with each loop spaced an equal distance apart. Position the ends of each loop even with the edge of the crown within <math>1/8</math> inch and stitch with row of stitching located <math>1/4 + 1/16</math> inch from edge of crown.</p>	301 or 401	SSa-1	10-14	A A	A 00
4.	<p><u>Finish bottom of netting component.</u></p> <p>a. Fold buttonhole reinforcement piece in half lengthwise abutting the narrowest ends together and with side edges aligned within <math>1/16</math> inch. Position on netting with the raw edges of the narrow end of the reinforcement piece even with the edge of the netting at the bottom end and in the center, <math>+ 1</math>-inch, of the netting. (The reinforcement piece shall lie directly opposite netting joining seam after performance of operation 5). Stitch reinforce-</p>	301 or 401	-	7-9	A A	A 00

MIL-I-11489E

NO.	MANUFACTURING OPERATIONS REQUIREMENTS TABLE I (cont'd)	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN or LOOPER	COVER
* 4.	<p><u>Finish bottom of netting component.</u> (cont'd)</p> <p>ment piece to netting with row of stitching along sides and top edge with stitch margin 1/16 to 1/8 inch.</p> <p>b. Make a 3/8 to 1/2 inch vertical straight cut buttonhole, with ends tacked, through reinforcement piece and netting with the purling finishing on the reinforcement side. Position buttonhole in center of reinforcement piece, + 1/16 inch and with top end 1/4 to 3/8 inch from top edge of reinforcement.</p> <p>c. Bind bottom edge of netting with material cut in operation 1.c(4). Stitch 1/16 to 1/8 inch from inner edges of binding. Buttonhole reinforcement shall be caught in the stitching.</p>	Buttonhole		40-42 per buttonhole	A	A	
* 5.	<p><u>Join sides of netting component.</u></p> <p>Join sides of netting with a 1/2 + 1/16 inch double lapped, double stitched seam. Stitch gauge shall be 1/4 to 5/16 inch and stitch margin 1/16 to 1/8 inch.</p>	301	BSa-1	7-9	A	A	
* 6.	<p><u>Hem bottom of netting component and install anchor loops.</u></p> <p>a. With netting inside out (buttonhole reinforcement facing inside) turn the bound bottom edge back 3/4 + 1/8 inch and position the elastic braid cut in operation 1.d. within the hem. Fold elastic braid pieces for anchor loops evenly in half and position cut ends under hem 1/2 + 1/8 inch and located on each side of reinforcement piece 4 + 1/2 inches from</p>	301 or 401	LSc-2	10-14	A A	A OO	
		301	EFa-1	7-9	A	A	



NO.	MANUFACTURING OPERATIONS REQUIREMENTS TABLE I (cont'd)	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN or LOOPER	
							COVER
* 6.	<p><u>Hem bottom of netting component and install anchor loops.</u> (cont'd)</p> <p>center of buttonhole. Anchor loops shall be perpendicular to edge of hem. Stitch around edge with stitching located 1/8 to 3/16 inch from the bound edge. Stitching shall not pass through the elastic braid within the hem.</p> <p>b. Fold anchor loops back across hem and bartack across the loops. Locate bartack 1/16 to 1/8 inch from the bound edge of the hem.</p> <p>c. Pull ends of elastic braid out through buttonhole and knot ends together.</p> <p>(NOTE: As an option operation c. may be accomplished prior to stitching hem. If performed in this manner the elastic braid shall be stretched during the stitching operation to assure that puckers or pleats are not sewn into the hem.)</p> <p>d. With the netting evenly distributed around the elastic braid, bartack through hem and elastic braid at the netting joining seam. Bartack shall run parallel with and in the approximate center of the elastic braid.</p> <p><u>Attach lower grommet to netting component.</u></p> <p>a. Fold lower grommet cover evenly in half lengthwise and position lower grommet within the channel formed. Secure grommet within cover by stitching around circumference with row of stitching located 3/16 + 1/16 inch from edges of cover.</p>	1/2 inch bartack	-	28 stitches per bartack	A	A	
		1/2 inch bartack	-	28 stitches per bartack	A	A	
* 7.		301 or 401	SSa-1	10-14	A A	A 00	

MIL-I-11489E

NO.	MANUFACTURING OPERATIONS REQUIREMENTS TABLE I (cont'd)	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN or LOOPER	COVER
* 7.	<p><u>Attach lower grommet to netting component.</u> (cont'd)</p> <p>b. With inside surface of netting component facing out position the cut edges of the grommet cover on the netting in the location shown on the pattern, + 3/16 inch with the opposite edge of the cover facing towards the top edge of the netting. The coupling of the grommet shall be located at the back of the insect net not more than 4 inches from the joining seam of the netting. Stitch grommet to netting with row of stitching around periphery of cover with stitching located 1/8 to 3/16 inch from edges of cover.</p>	301	-	7-9	A	A	
8.	<p><u>Join crown and netting.</u></p> <p>Finished appearance. The netting shall be joined to crown with the joining seam of netting aligned with the center back crown seam (1/4 inch off center tolerance).</p> <p>a. Hem top of head net with edge turned under 1/2 + 1/8 inch and stitch 1/16 to 1/8 inch from turned edge.</p> <p>b. Join top of head net to crown with turned edge of netting even with raw edge of crown.</p> <p>c. Attach upper grommet (32-inch circumference) to inside bottom crown, placing the coupling at back of head not more than 4 inches from joining seam of netting. Turn up netting and edge of crown over grommet and stitch to crown forming channel for grommet, catch top edge of identification label in the stitching, centered on joining seam of netting (1/4 inch off center tolerance).</p>	301 or 401  301  301	EFa-1	7-9  7-9  7-9	A A A A	A 00 A A	

STSNL Form 903  
27 Jul 73

EDITION OF 16 JUN 72 WILL BE USED UNTIL EXHAUSTED

MIL-I-11489E

NO.	MANUFACTURING OPERATIONS REQUIREMENTS TABLE I (cont'd)	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN or LOOPER	COVER
*9.	<p><u>Install elastic braid in crown and attach instruction ticket.</u></p> <p>a. Insert elastic braid cut in operation 1.d. through all four loops in the crown and secure the ends with a loose square knot.</p> <p>b. Attach the instruction ticket to one of the anchor loops.</p>						
10.	<p><u>Clean head net.</u></p> <p>a. Trim and remove all thread ends.</p> <p>b. Remove all spots and stains.</p>						

11

MIL-I-11489E

- \* 3.7 Workmanship. The finished item shall conform to the quality of product established by this specification. The occurrence of defects shall not exceed the applicable acceptable quality levels.

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract, 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 Certificate of compliance. When 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 required, the preproduction sample submitted in accordance with 3.1.2, shall be inspected as specified in 4.4.3 for compliance with design, construction, workmanship and dimensional requirements.

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

- \* 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 document. In addition inspection shall be performed on the materials and components listed in 4.5. All test reports shall contain the individual values utilized in expressing the final results.

- \* 4.4.1.1 Sampling for inspection and acceptance of elastic braid, grommets and couplings.

- \* 4.4.1.1.1 Braid, elastic. Sampling for inspection of the elastic braid shall be in accordance with table II. The lot size shall be expressed in terms of yards of elastic braid and the sample unit shall be five yards. The lot shall be unacceptable if one or more sample units fail to meet any requirement specified.

TABLE II. Sample size

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

- \* 4.4.1.1.2 Grommets and couplings. The lot size shall be expressed in terms of grommets or couplings, as applicable. The sample unit shall be one grommet or one coupling. The inspection level shall be S-3 with an acceptable quality level of 4.0 expressed in terms of defects per hundred units.
- \* 4.4.2 In-process inspection. Inspection shall be made at any point or during any phase of the manufacturing process to determine whether construction details which cannot be examined in the finished product are in accordance with specified requirements. This inspection shall include verification that the working patterns conform to the Government patterns in all respects and that the cut lengths of the elastic braid components are as specified. Whenever nonconformance is noted, corrections shall be made to the items affected and lot in-process. Items which cannot be corrected shall be removed from production.
- \* 4.4.3 Examination of the end item. The defects found during the examination shall be classified in accordance with the lists shown in 4.4.3.1 and 4.4.3.2. The lot size shall be expressed in units of insect nets. The sample unit shall be one completely fabricated insect net. The inspection levels and acceptable quality levels shall be in accordance with 4.4.3.3. Unless otherwise specified defects are to be scored on an individual basis, i.e., each cut or hole in material, each open seam, each stitching end, each dimension, etc.
- \* 4.4.3.1 Visual examination.

<u>Examine</u>	<u>Defect</u>	<u>Classification</u>	
		<u>Major</u>	<u>Minor</u>
Cloth, oxford and netting	Any hole, cut, tear, abraded area or burn	X	
	Any broken or missing yarn or multiple floats	X	
	Edges of oxford cloth not fused where required		X
	Any mend, darn or patch	X	
	Not cut in accordance with specified directional lines		X
	Any needle chew	X	

MIL-I-11489E

Examine	Defect	Classification	
		Major	Minor
Elastic braid	Any hole, cut, tear or frayed edge	X	
	Ends not treated as specified		X
	Ends not knotted (where required)		X
Grommets	Finish omitted, corroded area, burr or sharp edge	X	
	Bent or twisted		X
	Coupling not securely clinched allowing ends of grommet to become separated	X	
Seams and stitching: Open seams	Up to and including 1/2 inch		X
	Over 1/2 inch	X	
	NOTE: A seam shall be classified as open when one or more stitches joining a seam are broken or when two or more consecutive skipped stitches or runoffs occur.		
Seam and stitch type	Seam type or stitch type not as specified	X	
	Any seam excessively pleated or puckered		X
	Looper thread of type 401 stitching not on inside surfaces of insect net		X
Stitches per inch	One or two stitches per inch less than minimum specified		X
	Three or more stitches per inch less than specified	X	
	Two or more stitches in excess of maximum specified.		X
	NOTE: Defects for stitches per inch shall be scored only when condition exists on major portion of seam, i.e., more than half the length of the seam or stitch pattern.		
Stitching ends	Ends of stitching not secured as specified (except when caught in other stitching or turned under in a hem).		X

Examine	Defect	Classification	
		Major	Minor
<b>Seams and stitching:</b> (cont'd)			
Thread breaks, skipped stitches or runoffs (on type 301 and 401 stitching)	Overstitched less than specified in each direction beyond the defective stitching area NOTE: On all types of stitching, thread breaks, or two or more consecutive skipped stitches or runoffs not overstitched shall be classified as open seams.		X
Stitch tension	Loose, resulting in loose needle or bobbin thread or excessively tight resulting in excessive puckering of material		X
Rows of stitching	Any row omitted	X	
Buttonhole stitching	Purling not on reinforcement side of bottom hem of netting One or both ends insecurely tacked Stitching loose, incomplete or broken		X X X
Bartack	Stitching loose, incomplete or broken Bartack omitted	X	X
Raw edges	More than 1/4 inch when securely caught in stitching NOTE: Raw edges not securely caught in stitching shall be classified as open seams.		X
Components and assembly	Any component caught in any unrelated operation of stitching (not otherwise classified herein). Any component part omitted or not attached as specified (not otherwise classified herein). Any unauthorized repair	X X X	

MIL-I-11489E

Examine	Defect	Classification	
		Major	Minor
Identification label and instruction ticket	Omitted, misplaced, illegible, incorrect or not as specified		X
Cleanness	Grease or oil stains clearly noticeable; thread ends not trimmed throughout, as specified		X

\* 4.4.3.2 Dimensional examination. Examination shall be made for compliance with all dimensions specified in table I including stitch margins and gauge. Any dimension that is not within the specified tolerance shall be classified as a defect.

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

<u>Examination</u>	<u>Inspection level</u>	<u>AQL's</u>	
		<u>Major</u>	<u>Total</u>
For defects applicable to 4.4.3.1, visual	II	2.5	10.0
For defects applicable to 4.4.3.2, dimensional	S-3	---	6.5

\* 4.4.4 Packaging inspection. An examination shall be made to determine that the preservation-packaging, packing and marking comply with the section five 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 it need not be closed. Defects of closure listed below shall be examined 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.



<u>Examine</u>	<u>Defect</u>
Markings (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, improper taping, loose strapping, inadequate stapling. Bulged or distorted container.
Content	Number of insect nets per unit package is more or less than required. <u>1/</u>

1/ For this defect one container in the sample shall be examined.

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.

<u>Examine</u>	<u>Defect</u>
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.

\* 4.5 Testing and examination of materials and components. Testing and examination of materials and components shall be performed as specified in table III. All requirements are applicable to the sample unit. When the "number of determinations per sample unit" and the "results reported as" columns are not specified in the table, they shall be as required by the referenced test method.

MIL-I-11489E

TABLE III. Inspection of materials and components

Component	Characteristic	Requirement paragraph	Test method or examination required	Determinations per sample unit	Results reported as
Braid, elastic	Material identification	3.2.3	<u>1/</u>	1	Pass or fail
	Weave	3.2.3	Visual	1	Pass or fail
	Width	3.2.3	5020 <u>2/</u>	-	-----
	No. of carriers	3.2.3	Visual	1	Pass or fail
	Ends per carrier	3.2.3	Visual	1	Pass or fail
	Picks per inch	3.2.3	Visual	1	Pass or fail
	No. of strands	3.2.3	Visual	1	Pass or fail
	Gage of strands	3.2.3	4.5.3 <u>1/</u>	1	Pass or fail
	Denier	3.2.3	<u>1/</u>	1	Pass or fail
	Colorfastness: - laundering	3.2.3	5614 <u>2/</u> <u>3/</u>	-	-----
	- light		5660 <u>2/</u> <u>3/</u>	-	-----
	Elongation:	3.2.3			Nearest 0.1 percent
	- initial		4.5.1	3	
	- after aging		4.5.1 and Method 7221 of FED-STD-601 <u>4/</u>	3	Nearest 0.1 percent
	Permanent set: - initial	3.2.3	4.5.2	3	Nearest 0.1 percent
	- after aging		4.5.2 and Method 7221 of FED-STD-601 <u>4/</u>	3	Nearest 0.1 percent
Dipping or impregnation compound	Material identification	3.2.3	<u>1/</u>	1	Pass or fail

TABLE III. Inspection of materials and components (cont'd)

Component	Characteristic	Requirement paragraph	Test method or examination required	Determinations per sample unit	Results reported as
Grommet rings	Material identification	3.2.7.1	<u>1/</u>	1	Pass or fail
	Carbon content and hardness	3.2.7.1	<u>1/</u>	1	Pass or fail
	Width	3.2.7.1	Visual	1	Pass or fail
	Thickness	3.2.7.1	Visual	1	Pass or fail
	Coating	3.2.7.1	Visual	1	Pass or fail
Coupling	Length	3.2.7.2	Visual	1	Pass or fail
	Thickness	3.2.7.2	Visual	1	Pass or fail
	Material identification	3.2.7.2	<u>1/</u>	1	Pass or fail

1/ Unless otherwise specified, a certificate of compliance shall be submitted and will be acceptable for the stated requirements.

2/ Test method indicated shall conform to FED-STD-191.

3/ The width of the specimen shall be the full width of the braid.

4/ The accelerated aging shall be carried out at a temperature of  $212 \pm 2$  degrees Fahrenheit for 70 hours.

4.5.1 Elongation. A 14-inch specimen shall be cut from a representative sample of braid and two marks made on the braid so that a distance of 10 inches shall be between the gage marks. The braid is suspended from a clamp in such a manner as to allow the seven pound, 10.5 ounce weight to be hung on the lower end. The weight shall be gradually lowered until the entire load is carried by the braid. After two minutes a measurement is taken between the two marks and the increase in length is calculated as percent elongation. The calculation of percent elongation shall be calculated as follows:

MIL-I-11489E

$$\frac{B - A}{A} \times 100 = \text{percent elongation}$$

A - Initial measurement

B - Measurement of elongation.

4.5.2 Permanent set. The 14-inch test specimen shall be marked so that a distance of 10 inches is between the gage marks and rhea shall be stretched by suspending the braid from a clamp in such a manner as to allow the seven pound, 10.5 ounce weight to be hung on the lower end and held there for 24 hours under laboratory conditions. The sample shall then be released and allowed to rest for 10 minutes. The extension remaining shall be measured and expressed as a percentage of the original distance between the gage marks. The calculation of permanent set shall be calculated as follows:

$$\frac{B - A}{A} \times 100 = \text{permanent set}$$

A - Initial measurement

B - Measurement after permanent set.

4.5.3 Gage of rubber. The gage of rubber shall be determined by counting the actual number of strands, laid side by side, contained in one inch. The gage is equivalent to the actual number of rubber yarns contained in one inch. A measuring device which measures the gage of the rubber yarns may be utilized providing results are comparable.

## 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 head net shall be positioned flat on its crown with the netting folded downward in the center. Ten head nets, so prepared, shall be placed flat in a set-up paperboard box conforming to type I, variety 1, class A, style 3 or 4 of PPP-B-676. Inside dimensions of each box shall be 12-1/2 inches in length, 12-1/2 inches in width, and 3 inches in depth. Thumb notch requirement is optional. Box closure shall be in accordance with the appendix of the box specification.

5.1.2 Level C. Head nets shall be preserved-packaged to afford adequate protection against physical damage during shipment from the supply source to the first receiving activity. The contractor may use his standard practice when it meets this requirement.

MIL-I-11489E

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

**5.2.1 Level A packing.** One hundred and twenty head nets, preserved-packaged as specified in 5.1, shall be packed in a fiberboard shipping container conforming to style RSC, grade V2s of PPP-8-636. Level A boxes shall be packed on sides two in length, six in width, and one in depth within a shipping container. Inside dimensions of each shipping container shall approximate 25-1/2 inches in length, 18-3/4 inches in width and 12-3/4 inches in depth. Approximate dimensions are furnished as a guide only. Each shipping container shall be closed in accordance with method III, waterproofed in accordance with method V, and reinforced as specified in the appendix of PPP-B-636.

**5.2.2 Level B packing.** One hundred and twenty head nets, preserved-packaged as specified in 5.1, shall be packed in a fiberboard shipping container conforming to style RSC, type CF (variety SW) or SF, class domestic, grade 275 of PPP-B-636. Level A boxes shall be packed on sides two in length, six in width and one in depth within a shipping container. Inside dimensions of each shipping container shall approximate 25-1/2 inches in length, 18-3/4 inches in width, and 12-3/4 inches in depth. Approximate dimensions are furnished as a guide only. Each shipping container shall be closed in accordance with method II as specified in the appendix of PPP-B-636.

**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 PPP-B-636 and closed in accordance with the appendix of the box specification.

**5.2.3 Level C packing.** Head nets, preserved-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. Containers shall be in accordance with Uniform Freight Classification or National Motor Freight Classification, as applicable.

**5.3 Palletization.** When specified (see 6.2), head nets, packed as specified in 5.2, shall be palletized in accordance with load type I of MIL-STD-147. Each prepared load shall be banded 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. If the container is of a size which does not conform to any of the pallet patterns specified in MIL-STD-147, the pallet pattern used shall first be approved by the contracting officer.

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

MIL-I-11489E

## 6. NOTES

6.1 Intended use. The head insect net is intended for use to provide protection against insects.

6.2 Ordering data. Procurement documents should specify the following:

- (a) Title, number and date of this specification.
- \* (b) When a first article sample is required (see 3.1.2).
- (c) Selection of applicable levels of preservation-packaging and packing (see 5.1 and 5.2).
- (d) When weather-resistant grade fiberboard shipping containers are required for level B packing (see 5.2.2.1).
- (e) When palletization is required (see 5.3).

6.3 Samples. For access to sample of the head insect net and shade samples, address the procuring office issuing the invitation for bids.

\* 6.4 First article. When a first article 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 finished head-insect net. The contracting officer should include specific instructions in all procurement instruments, regarding arrangements for inspection and approval of the first article.

6.5 Seams and stitchings. Care should be exercised by the contractor in the selection of the needle and throat plate hole size to stitch the netting. Too large a needle may damage or weaken the netting. Care should be exercised to maintain a smooth and damage-free feed dog. A knurled feed dog has been shown to work satisfactorily.

6.6 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.

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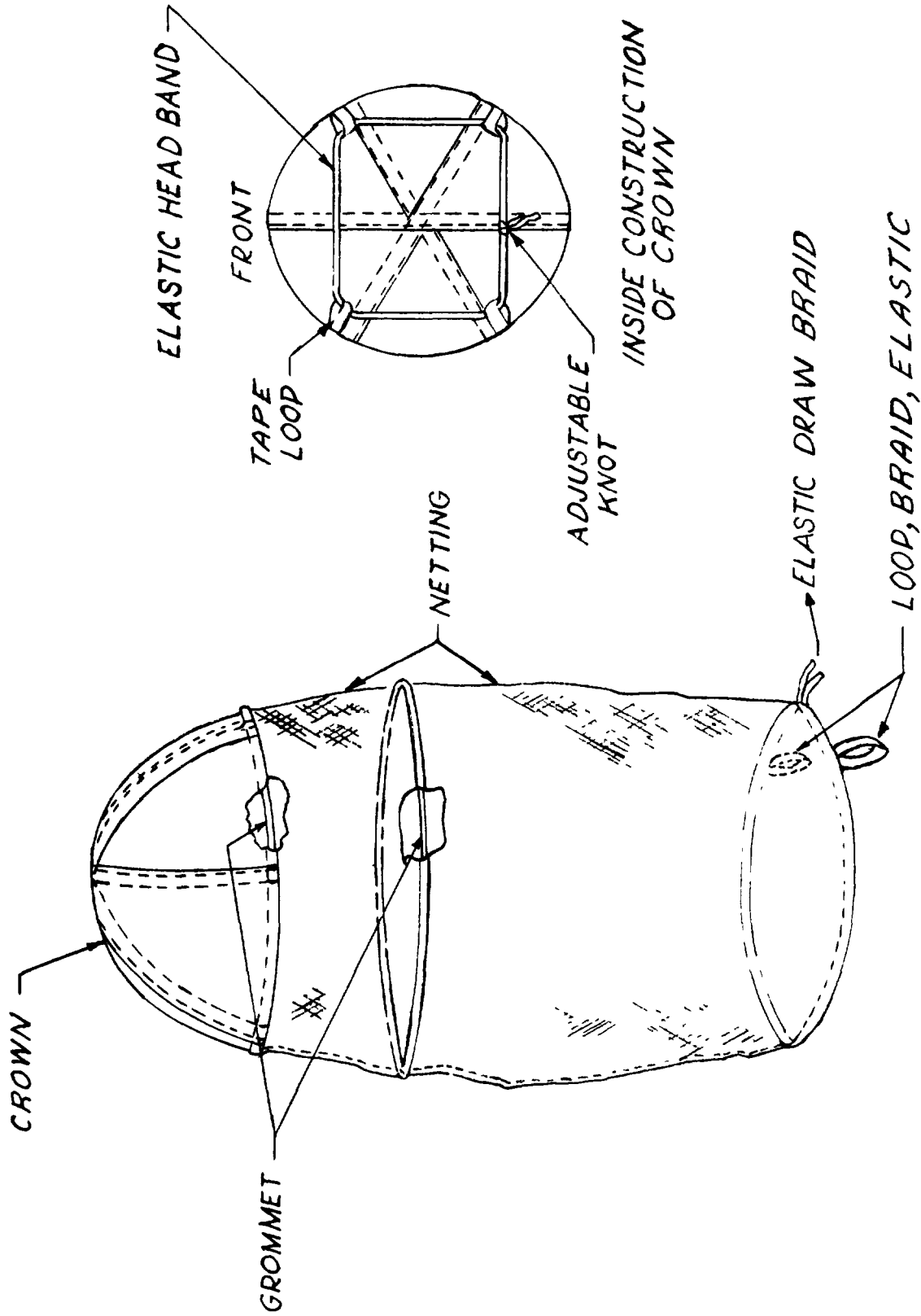
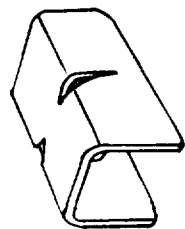
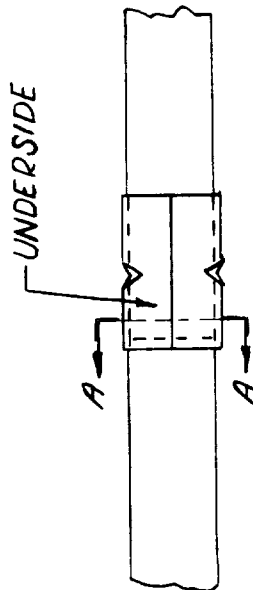


FIG. 1 - INSECT NET, HEAD

2-1-367B



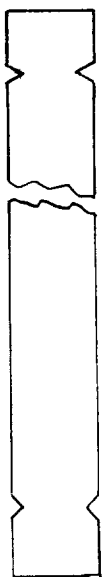
COUPLING, (BEFORE CLOSING)



COUPLING, (AFTER CLOSING)



SECTION A-A



GROMMET, (METHOD OF NOTCHING ENDS)

FIG 2 - GROMMET, WIRE (INSECT NET, HEAD)  
2-1-368C



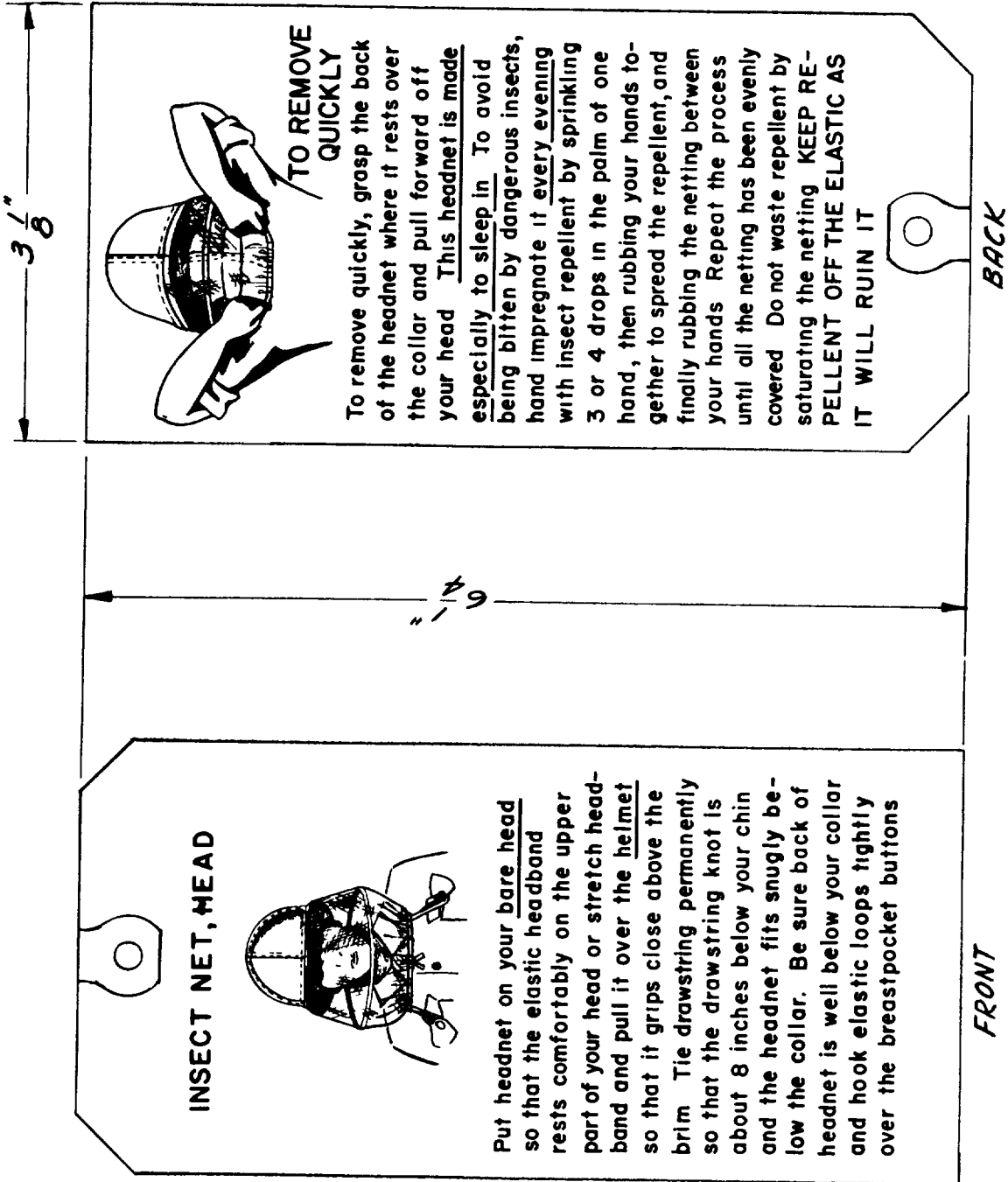


FIG. 3- INSTRUCTION TICKET (INSECT NET, HEAD) 2-1-369B

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