

MIL-M-24913
6 January 1984

MILITARY SPECIFICATION

MASK, EXTREME COLD WEATHER, DRY AND WET COLD

This specification is approved for use by the Navy Clothing and Textile Research Facility, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the requirements for a one type and size cold weather mask.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. Unless otherwise specified, the following specifications and standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation form a part of this specification to the extent specified herein.

SPECIFICATIONS

FEDERAL

DDD-L-20 - Label, for Clothing , Equipage, and Tentage
(General Use)

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Officer in Charge, Navy Clothing & Textile Research Facility, 21 Strathmore Road, 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.

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- MIL-W-5664 - Webbing, Textile, Elastic, Cotton
- MIL-B-17757 - Boxes, Shipping, Fiberboard (Modular Sizes)
- MIL-F-21840 - Fastener Tapes, Hook and Pile, Synthetic
- MIL-T-83193 - Thread, Aramid, Spun Staple
- MIL-C-83429 - Cloth, Plain and Basket Weave, Aramid

STANDARDS

FEDERAL

- FED-STD-191 - Textile Test Methods
- FED-STD-406 - Plastics: Method of Testing
- FED-STD-751 - Stitches, Seams and Stitching

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- MIL-STD-105 - Sampling Procedures and Tables for Inspection
by Attributes
- MIL-STD-129 - Marking for Shipment and Storage

(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.)

2.1.2 Other Government documents and publications. The following other Government documents and publications form a part of this specification to the extent specified herein.

LAWS AND REGULATIONS

US POSTAL SERVICE MANUAL

(Copies of the manual may be obtained from the Superintendent of Documents, US Government Printing Office, Washington, DC 20402).

(Copies of documents required by contractors in connection with specific procurement functions should be obtained from the procuring agency 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 shall be addressed to the American Trucking Association, Inc., Traffic Department, 1616 P Street, N.W., Washington, D.C. 20036.)

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UNIFORM CLASSIFICATION COMMITTEE, AGENT
Uniform Freight Classification

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

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
D1564 - Testing Flexible Cellular Materials - Slab, Bonded, and Molded Urethane Foams

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

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document shall take precedence.

3. REQUIREMENTS

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

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

3.3 Materials.

3.3.1 Basic material. The basic material for the face mask shall be made from a woven aramid fabric, a microporous plastic film, a polyurethane foam, and a cotton knit fabric laminated together in the order stated. The face side of the laminated material will be the woven aramid fabric. The basic material components shall comply with the requirements of 3.3.1.1, 3.3.1.2, 3.3.1.3, 3.3.1.4 and 3.3.1.5.

3.3.1.1 Outer layer. The material used for the outer layer (face) of the mask shall be a woven aramid fabric conforming to type II of MIL-C-83429, except that the color shall be Sage Green 3734.

3.3.1.2 Inner layer (plastic film). The plastic film used as a moisture barrier in the laminated material shall be microporous polytetrafluoroethylene (PTFE) weighing 0.5 ± 0.1 ounces per square yard when tested as specified in 4.4.1. The color of the film shall be natural or white (see 6.5).

3.3.1.3 Inner layer (foam). The foam used as an insulator in the laminated material shall be made of unpigmented polyurethane conforming to the following requirements when tested as specified in 4.4.1. (see 6.5).

<u>Characteristic</u>	<u>Requirement</u>
Thickness, inch	0.235 thru 0.250
Density, pounds per cubic foot, max.	2.0
Tear strength, pounds per inch of thickness, min.	3.5
Compression set, percent, max.	15.0

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3.3.1.4 Back layer (knit cloth). The material used as a lining for the laminated material shall be a cotton flat jersey knit cloth conforming to the following requirements when tested as specified in 4.4.1 (see 6.5).

<u>Characteristic</u>	<u>Requirement</u>
Type of yarn	single or 2 ply, combed cotton
Yarns per inch	
Wales	30 (min.)
Courses	36 (min.)
Weight per square yard, ounces	3.3 (min.)
Bursting strength, pounds	55 (min.)
Shrinkage or elongation, percent	
Wales direction	12.0
Course direction	12.0
Non-fibrous matter, percent	6.0 (max.)
pH value	6.0 to 8.0
Color	bleached

3.3.1.5 Laminated cloth. The finished laminated cloth described in 3.3.1 shall conform to the following requirements when tested as specified in 4.4.1.

<u>Characteristic</u>	<u>Requirement</u>
Thickness, inches	0.180 (min.)
Weight per square yard, ounces	13.0 (min.)
Shrinkage, percent	
Length direction	5.0 (max.)
Width direction	5.0 (max.)
Moisture vapor transmission rate, gms/m ² /24 hrs.	300 (min.)
Hydrostatic resistance, high, PSI	
Initial	90 (min.)
After strength of coating	85
Hydrostatic resistance, low	No leakage
Delamination after laundering	No delamination

3.3.2 Webbing. The elasticized cotton webbing used for the head harness and neck band shall be black, 1 inch wide, conforming to class 1 of MIL-W-5664.

3.3.3 Fastener tape. The material used for the adjustable neck band shall be 1 inch wide hook and loop fastener tape conforming to type I, class 1 of MIL-F-21840. The color shall be Black 3230 or Green OG 106.

3.3.4 Thread. The thread used for stitching and overedging the mask shall be 100 percent aramid, shade olive green, conforming to MIL-T-83193.

3.3.5 Ring. The ring (rectangular or oval shape) used as a slide for the adjustable neck band shall be made of 0.100 to 0.110 diameter, low brass 80% minimum 8 hard temper wire, welded or unwelded, with a durable black finish. The inside measurements of the ring shall be 1 inch wide and 3/8 to 1/2 inch in height. The ring shall be tested as specified in 4.4.1 (see 6.5).

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3.3.6 Label. Each mask shall have a combination identification/instruction label conforming to type VI, class 4 of DDD-L-20. The label shall measure $1 + \frac{1}{16}$ inches in height by $1 \frac{1}{2} + \frac{1}{16}$ inches wide and shall contain the following information:

MASK, EXTREME COLD WEATHER
 CONTRACT NO.
 STOCK NO.
 SUPPLIER'S NAME
 HAND LAUNDER ONLY

3.4 Design. The mask is made of a soft flexible four ply laminated material that is contoured through stitching to fit the face comfortably. The mask includes an elastic webbing head harness, an open bottom nose cover with hook and loop fastener tapes to hold the front of the nose cover open or closed, an adjustable neck band, two cut-out eye openings and a cut-out nose opening.

3.4.1 Figures. Figures are furnished for information purposes only. To the extent of any inconsistencies between the written document and the figures, the document shall govern.

3.5 Patterns. Standard patterns will be furnished by the Government. The standard patterns shall not be altered in any way and are to be used as a guide for cutting the contractor's working patterns. Since the patterns do not provide a $\frac{1}{8}$ inch trim-off for overedgeing, the use of a knife shall not be permitted during the overedge operation.

3.5.1 List of pattern parts. The mask shall be cut from the materials specified herein in accordance with the number of pattern parts indicated below:

<u>Material</u>	<u>Pattern nomenclature</u>	<u>Cut parts</u>
Laminated fabric (3.3.1)	Face	1
	Nose cover	2
	Nose-bridge cushion	1
	Nose closure template	--

3.5.2 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 run-offs, pleats, puckers, or open seams occur. Unless otherwise specified, ends of all stitching shall be back stitched or overstitched $\frac{3}{8}$ inch minimum, except when caught in other stitching. Thread tension shall be maintained so that there will be no loose stitching, resulting in loose top or bottom thread or excessively tight stitching, resulting in puckering. When thread breaks or bobbin run-outs occur, the stitching shall be repaired by restarting the stitching a minimum of $\frac{3}{8}$ inch back of the end of the stitching. The fabric bight for the overedge stitching shall be $\frac{3}{16}$ to $\frac{1}{4}$ inch and a trim-off knife shall not be used.

3.6 Manufacturing operation requirements. The mask shall be manufactured in accordance with the operation requirements specified in Table I. The contractor is not required to follow the exact sequence of operations.

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TABLE I - CONSTRUCTION OF MASK

No.	Operation	Stch Type	Seam/ Stch type	Stch/ in	Thread	
					Ndl	Bob/ Lpr
1.	<p><u>Cutting.</u></p> <p>a. Cut all material in strict accordance with patterns furnished, which show directional lines, notches and location marks for assembling component parts. The sage green aramid fabric shall be considered the face side of laminated material.</p> <p>b. Cut two strips of 1 inch wide elastic webbing for head harness (over-the-head) each 10 (+ 1/4) inches long.</p> <p>c. Cut one strip of 1 inch wide elastic webbing for head harness (back-of-the-head) 14 1/2 (+ 1/4) inches long.</p> <p>d. Cut one strip of 1 inch wide elastic webbing for neck adjustment strap, 19 (+ 1/4) inches long.</p> <p>e. Cut one strip of 1 inch wide loop fastener tape for neck adjustment strap, 8 (+ 1/4) inches long.</p> <p>f. Cut one strip of 1 inch wide hook fastener tape for neck adjustment strap, 4 (+ 1/4) inches long.</p>					
2.	<p><u>Replacement of defective components.</u></p> <p>During the spreading, cutting, and manufacturing process, components having material defects or damages that are classified as defects in Section 4, shall be removed from production and replaced with nondefective and properly matched components.</p>					

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TABLE I - CONSTRUCTION OF MASK

No.	Operation	Stch Type	Seam/ Stch type	Stch/ in	Thread	
					Ndl	Bob/ Lpr
3.	<u>Make head harness.</u>					
	a. Center and lap the two 10 inch long strips of elastic webbing, side by side, over the 14 1/2 inch long strip of webbing for a distance of 3/4 inch perpendicularly. Stitch across the full width of the two 10 inch long strips of webbing with two rows of stitching down the center parallel to the 14 1/2 inch long strip of webbing.	301	Similar to LSa-2	10-12		
	b. Position the combination identification and instruction label over the two stitched down ends of webbing and stitch label thru all plies 1/16 inch from all four sides of label. Length of label shall be parallel to the 14 1/2 inch long strip of webbing. Label shall be wide enough to cover the cut ends of lapped webbing and shall face towards the wearer.	301	LSbj-1	8-12		
4.	<u>Make neck adjustment strap.</u>					
	a. Superimpose the back side of the 8 inch long strip of 1 inch wide loop tape on one side and end of the 19 inch long strip of 1 inch wide elastic webbing. The loop tape shall extend 1/8 to 1/4 inch beyond the end of elastic webbing. Stitch perimeter of the loop tape, except extension end, 1/16 to 1/8 inch from edge.	301	LSbj-1	10-12		
	b. Superimpose the back side of the 4 inch long strip of 1 inch wide hook tape on the 19 inch long strip of 1 inch wide elastic webbing, approximately 1 inch from the opposite end of the elastic webbing on the same side as the stitched loop tape.	301	LSbj-1	10-12		
	c. Fold back the 1 inch extension of the elastic webbing and insert the end under the hook tape for a distance of approximately 1/4 inch. Stitch entire perimeter of the hook tape twice around with 1/16 to 1/8 inch edge stitching, simultaneously catching the end of the elastic webbing.	301	—	10-12		

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TABLE I - CONSTRUCTION OF MASK

No.	Operation	Stch Type	Seam/ Stch type	Stch/ in	Thread	
					Ndl	Bob/ Lpr
5.	<u>Make nosecover.</u>					
	a. Superimpose the two nosecover pieces, face to face, and stitch 3/16 to 1/4 inch gage at center seamline starting at the notch indicated on patterns and ending at a point approximately 1/4 inch from the top of nosecover at center, a distance of about 1 3/4 inches.	301	SSz-3(a)	10-12		
	b. Cut out a 3 1/4 inch long piece of hook and loop fastener tape.					
	c. Spread open seam allowances of center joining seam, simultaneously turning under the edges of the two free flaps 1/4 inch, and stitch entire length of nosecover 1/16 to 1/8 inch from the seamline of the joining seam and folded edges of left and right flaps.	301	SSz-3(b) and EFa-1	10-12		
	d. Align the selvage edge of the 3 1/4 inch long piece of hook fastener tape on the underside of the folded edge of the left flap (as worn). Stitch hook tape with a triangular shaped stitchline. Some trimming in the length of the hook tape may be required to fit the nose flap properly (see figure 4).	301	LSbj-1	10-12		
	e. Align the selvage edge of the 3 1/4 inch long piece of loop fastener tape with the cut edge of the turn under on the right flap (as worn) and stitch 1/16 to 1/8 inch from folded edge of flap. This stitchline may be performed simultaneously with the edge stitch performed in operation 5.c. Some trimming in the length of the loop tape may be required to fit nose flap properly.	301	LSa-1	10-12		
	f. Overedge all three sides of the nosecover leaving runoff tails at corners of center opening.	503 or 504	SSa-1	10-12		
	g. Overedge top and bottom of nose-bridge cushion piece.	503 or 504	SSa-1	10-12		

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TABLE I - CONSTRUCTION OF MASK

No.	Operation	Stch Type	Seam/ Stch type	Stch/ in	Thread	
					Ndl	Bob/ Lpr
5.	<u>Make nosecover.</u> (cont'd)					
	h. Position bridge cushion piece on underside of nosecover, face side of cushion piece against back side of nosecover, approximately 1/16 inch in from outer serged edge of nosecover. Stitch the top and two sides of the cushion piece to nosecover 1/8 to 3/16 inch gage.	301	SSa-1	10-12		
	i. Cut out one 3/4 x 1 inch rectangle of loop pile fastener tape and stitch all four sides, twice around, 1/16 to 1/8 inch gage to lower corner of opening on face side of left flap (as worn), simultaneously tucking under and catching the runoff tail of overedging. The long direction of tape shall be parallel to bottom of nosecover.	301	LSbj-1	10-12		
	j. Cut out one 3/4 x 1 inch rectangle of loop pile fastener tape and stitch all four sides, twice around, 1/16 to 1/8 inch gage to lower corner of opening on face side of right flap (as worn), simultaneously tucking under and catching the runoff tail of overedging. The long direction of tape shall be parallel to bottom of nosecover.	301	LSbj-1	10-12		
	k. Stitch a 5/16 to 3/8 inch long bartack across the center seam, thru all plies of material, at a point adjacent to the ends of the hook and loop fastener tapes at junction of nose flaps.	Bar- tack		26-28		
6.	<u>Make face.</u>					
	a. Stitch periphery of each eye and the nose in accordance with stitchline on pattern.	301	OSa-1	10-12		
	b. Cut out two rectangular pieces of hook fastener tape, each 1 x 1 1/4 inches.					
	c. Position each piece of hook tape under the respective piece of eye of the face in accordance with marks on pattern and stitch, twice around, the perimeter of hook tape 1/16 to 3/32 inch gage.	301	LSbj-1	10-12		

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TABLE I - CONSTRUCTION OF MASK

No.	Operation	Stch Type	Seam/ Stch type	Stch/ in	Thread	
					Ndl	Bob/ Lpr
6.	<u>Make face.</u> (cont'd)					
	d. Position nosecover assembly on face in accordance with marks on pattern and stitch the sides of nosecover to face 1/16 to 1/8 inch from outer edge of serging.	301	LSbj-1	10-12		
	e. Close the two forehead darts, starting with a 1/4 inch seam allowance at the top and tapering down to zero at the bottom. The stitchline should finish approximately 1/4 inch below cut end of dart. Length of stitched dart shall finish 1 1/4 to 1 1/2 inches.	301	SSz-3(a)	10-12		
	f. Spread open seam allowance of the two forehead darts and topstitch each side of dart 1/16 to 1/8 inch from seamline tapering stitchline down to a point at bottom.	301	SSz-3(b)	10-12		
	g. Close 3 3/4 inch long chin dart by stitching 1/4 inch gage.	301	SSz-3(a)	10-12		
	h. Spread open seam allowances of chin dart and topstitch each side of seamline 1/16 to 3/32 inch gage rounding off the stitchline at end of dart.	301	SSz-3(b)	10-12		
	i. Overedge stitch periphery of face.	503 or 504	SSa-1	10-12		
7.	<u>Attach head harness assembly to face.</u>					
	Stitch the four free ends of head harness assembly prepared in operation 3 to the outside of the face in accordance with location marks on patterns. The elastic webbing shall overlap the face material 3/4 to 7/8 inch with the end of the elastic webbing turned under 1/4 to 3/8 inch. Stitch, twice around, with a 5/8 x 7/8 inch boxstitch. The label shall be facing towards the wearer.	301	LSb-1 Box- stitch	10-12		

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TABLE I - CONSTRUCTION OF MASK

No.	Operation	Stch Type	Seam/ Stch type	Stch/ in	Thread	
					Ndl	Bob/ Lpr
8.	<u>Attach neck adjustment strap to face.</u>					
	a. Lap the back side of the loop pile tape of the long neck adjustment strap assembly on the face side of the mask for a distance of 3/4 to 7/8 inch in accordance with location marks on pattern and stitch twice around with a 5/8 x 7/8 inch boxstitch.	301	LSa-1	10-12		
	b. Cut out a 1 x 2 inch strip of loop pile fastener tape.					
	c. Thread the 1 x 2 inch strip of loop fastener tape through the rectangular or oval shaped metal ring specified in 3.3.5. Fold strip back on itself 3/4 to 7/8 inch and stitch across full width of strip 3/8 to 1/2 inch from foldline of tape.	301	OSf-1	10-12		
	d. In accordance with location marks on pattern position the free end of the loop fastener tape on the outer side of face mask and stitch twice around with a 5/8 to 7/8 inch boxstitch.	301	LSbj-1 Box- stitch	10-12		
9.	<u>Finish mask.</u>					
	Cut out nose and eye openings 1/16 to 1/8 inch from the stitched outline. The cut line shall be on the inside of the stitching and shall be clean.					
10.	<u>Clean mask.</u>					
	a. Trim all thread ends longer than 1/4 inch.					
	b. Remove all loose threads.					
	c. Remove spots and stains.					

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3.7 Finished measurements. The finished mask shall conform to the measurements specified in Table II.

TABLE II Finished Measurements in Inches

			Tolerance
A - Length	-	12	$\pm 1/4$
B - Width across forehead	-	4 7/8	$\pm 1/4$
C - Width across chin	-	4 1/4	$\pm 1/4$

NOTE: Refer to figure 1 for determining points of measurement for A, B, and C.

3.8 Workmanship. The finished mask shall conform to the quality established by this document. The occurrence of defects shall not exceed the applicable acceptable quality levels specified in this document.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his 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 document where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Certificates 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 (see 4.4.1).

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 a first article is required (see 6.2), it shall be inspected as specified in 4.4.2.1 and 4.4.2.2 for compliance with design, construction, workmanship, and dimensional requirements.

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

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4.4.1 Component and material inspection. In accordance with 4.1, components and materials shall be inspected in accordance with all the requirements of referenced documents unless otherwise excluded, amended, modified, or qualified in this document or applicable purchase document. Unless otherwise indicated, testing shall be conducted in accordance with FED-STD-191. All test reports shall contain the individual values utilized in expressing the final result. The lot shall be unacceptable if one or more sample units fail to meet any of the test requirements specified. The sample for testing shall be as follows:

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

TABLE III Component Tests

<u>Component and Sample unit</u>	<u>Characteristic</u>	<u>Requirement paragraph</u>	<u>Test method</u>
Inner layer, plastic film (One yard)	Material identification	3.3.1.2	<u>1/</u>
	Weight	3.3.1.2	5041
	Color	3.3.1.2	Visual
Inner layer, foam (One yard)	Material identification	3.3.1.3	<u>1/</u>
	Thickness	3.3.1.3	D-3574 <u>2/</u>
	Density	3.3.1.3	D-3574 <u>2/</u>
	Tear strength	3.3.1.3	D-3574 <u>2/</u> , <u>3/</u>
	Compression set	3.3.1.3	D-3574 <u>2/</u> , <u>4/</u>
Back layer, knit cloth (One yard)	Material identification	3.3.1.4	1200
	Yarn ply	3.3.1.4	Visual
	Yarns per inch	3.3.1.4	5070
	Weight	3.3.1.4	5041
	Bursting strength	3.3.1.4	5120
	Shrinkage	3.3.1.4	5556 <u>5/</u>
	Non-fibrous material	3.3.1.4	2611
	pH value	3.3.1.4	2811
Laminated cloth (One yard)	Color	3.3.1.4	Visual
	Thickness	3.3.1.5	D-3574 <u>6/</u> , <u>2/</u>
	Weight	3.3.1.5	5041
	Shrinkage	3.3.1.5	5556 <u>7/</u>
	Moisture transmission	3.3.1.5	7032 <u>8/</u> <u>1/</u>
	Hydrostatic, high		
	Initial	3.3.1.5	5512 <u>9/</u>
	After strength of coating	3.3.1.5	5972 and 5512 <u>9/</u> , <u>10/</u>
	Hydrostatic, low	3.3.1.5	5516 <u>11/</u>
	Delamination	3.3.1.5	Visual <u>12/</u>

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Component and Sample unit	Characteristic	Requirement paragraph	Test method
Ring (Three rings)	Material identification	3.3.5	1/
	Diameter	3.3.5	1/
	Finish	3.3.5	1/
	Dimensions	3.3.5	1/

- 1/ A certificate of compliance will be accepted for the testing of this characteristic.
- 2/ ASTM test method.
- 3/ Except that the test specimen shall be a piece of foam 2 inches by 6 inches in the thickness supplied. A slit 2 inches long shall be cut in one end of the specimen parallel to the long dimension to form two legs 1 inch wide which shall be gripped in opposite jaws of the testing machine. Machine speed shall be 2 inches per minute. Pounds pull shall be divided by the thickness to give tear strength in pounds per inch thickness.
- 4/ Deflection shall be 50 \pm 1 percent of the thickness of the specimen and compression set shall be calculated as percentage of the original thickness.
- 5/ Cotton laundering procedure shall be followed and pressing shall be omitted.
- 6/ Thickness shall be determined with the aramid fabric facing up using a 3-inch diameter pressure foot at 0.1 pounds per square inch.
- 7/ Three 20x20 inch specimens shall be laundered five (5) times using the cotton laundering procedure. Heat drying and pressing shall be omitted. After fifth laundering, specimens shall be laid out flat and allowed to air dry. Shrinkage shall be measured on the cotton knit side.
- 8/ Cotton knit side shall face towards the water. FED-STD-406 test method.
- 9/ Aramid fabric side shall face towards the water.
- 10/ Specimen shall be stretched under a twenty (20) pound load using 1x2 inch jaws.
- 11/ A hydrostatic head of 50 centimeters for 10 minutes shall be used.
- 12/ Specimens tested for shrinkage shall be inspected visually for signs of delamination.

4.4.2 Examination of the end item.

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4.4.2.1 End item visual examination. The end item shall be examined for the defects listed below. The lot size shall be expressed in units of masks. The sample unit shall be one finished mask. The inspection level shall be II and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 6.5.

Examine	Defect
I Cleaness	a. Spot or stain. b. Thread ends longer than 1/4 inch not trimmed or loose threads not removed.
II Component and assembly	a. Any component or required operation omitted. b. Any required operation not as specified .
III Cutting	a. Not cut as indicated by pattern. b. Eye and nose openings not cut cleanly.
IV Material defect and damages	a. Any hole, cut or tear. b. Misweave. c. Needle chew or repair. d. Color not as specified.
V Seams and stitching	a. Seam twisted, puckered or pleated. b. Any part of mask caught in unrelated operation. c. Ends of a continuous line of stitching not overlapped by 3/8 inch or more. d. Backtacks less than 3/8 inch. e. Any open seam (see NOTE). f. Stitches skipped more than 1/4 inch in length. g. Raw edge more than 1/4 inch in length. h. Loose tension resulting in loose seam. i. Tight tension (stitches break when normal tension is applied in direction of seam). j. Fabric bight for overedgeing less than 3/16 inch. k. Gage of stitching irregular or not within range specified. l. Stitches per inch more or less than specified. m. Seam or stitch type not as specified.

NOTE: A seam shall be classified as open when one or more stitches joining a seam are broken or when two or more continuous skipped or run-off stitches occur.

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Examine	Defect
VI Hardware	a. Not as specified. b. Bent, broken or malformed. c. Finish missing, marred or scratched.
VII Labels	a. Missing, incorrect or illegible. b. Not stitched on all four sides. c. Stitching through the printing. d. Not positioned as specified.

4.4.2.2 End item dimensional examination. The end item shall be examined for conformance to the dimensions specified in table II. Any dimension deviating from the specified requirement shall be classified as a defect. The lot size shall be expressed in units of masks. The sample unit shall be one finished mask. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 6.5.

4.4.3 Packaging inspection. An examination shall be made to determine that preservation, packing and marking comply with the section 5 requirements. Defects shall be scored in accordance with list below. The sample unit shall be one shipping container fully packaged with the exception that it need not be closed. Examination of closure defects listed below shall be made on shipping containers fully packaged. The lot size shall be the number of shipping containers in the end item inspection lot. The inspection level shall be S-1 and the AQL, expressed in terms of defects per hundred units, shall be 2.5.

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	Masks not properly folded, stacked, or tied. Incomplete closure of container flap, loose strapping, improper taping, or inadequate stapling. Bulged or distorted container.
Content	Number of masks per shipping container is more or less than specified. <u>1/</u>

1/ For this defect one shipping container within the inspection lot shall be examined.

5. PACKAGING

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

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5.1.1 Level A. Each mask shall be folded in half lengthwise, with the neck and head straps tucked into the fold. Five folded masks shall be stacked, each mask reversed, forehead to chin, and tied in a bundle with cotton tape or twine to form a unit pack.

5.1.2 Commercial packaging. Masks shall be preserved-packaged to afford adequate protection against deterioration and physical damage during shipment from the contractor to the first receiving activity. The package and the 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 Commercial as specified (see 6.2).

5.2.1 Level A. Eighty (80) masks, preserved as specified in 5.1 shall be packed in a fiberboard shipping container assembled, closed, and reinforced conforming to type CF, class weather resistant, variety DW, grade V15c, size 2A of MIL-B-17757. The fiberboard used for the liner shall conform to type CF, class domestic, variety SW or DW, grade 200 of MIL-B-17757. Each container shall have the contents completely covered on the top and bottom with a sheet of commercial grade kraft paper.

5.2.2 Level B. Eighty (80) masks, preserved as specified in 5.1 shall be packed in a fiberboard shipping container assembled, closed, and reinforced conforming to type CF, class domestic, variety DW, size 2A, grade 200 of MIL-B-17757. The fiberboard used for the liner shall conform to type CF, class domestic, variety SW or DW, grade 200 of MIL-B-17757. Each container shall have the contents completely covered on the top and bottom with a sheet of commercial grade kraft paper.

5.2.3 Level C (Commercial packaging). Masks shall be packaged to afford adequate protection against physical damage during shipment from the contractor to the first receiving activity. The package and the quantity per package shall be the same as that normally used by the contractor for retail distribution. Containers shall comply with the U.S. Postal Service Manual, Uniform Freight Classification Rules or National Freight Classification Rules as applicable.

5.3 Marking. In addition to any special marking required by the contract or order, intermediate packages and shipping containers shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. The masks are intended to be worn when performing operational duties in extremely low temperatures under dry and wet conditions.

6.2 Ordering data. Procurement documents should specify the following:

- a. Title, number, and date of this specification.
- b. When a first article is required (see 3.2, 4.3, and 6.4).
- c. Selection of applicable levels of preservation and packing (see 5.1 and 5.2).

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6.3 Sample. For access to samples, address the procuring activity issuing the invitation for bids or request for proposal.

6.4 First article. When a first article sample is required, it shall be a preproduction sample and it shall be inspected and approved. The contracting officer should include specific instructions in acquisition documents regarding arrangements for inspection, quantity, and approval of the first article.

6.5 Suppliers of component parts. To obtain the names of approved suppliers of component parts listed within this specification write to:

Navy Clothing and Textile Research Facility
21 Strathmore Road
Natick, MA 01760

Any supplier with a similar item that is equal to or better than the approved suppliers' item will also be acceptable.

Custodian:
Navy - NU

Preparing activity:
Navy - NU

Review activity:
Navy - SH
DLA-CT

Project No. 8415-0393

User activity:
Navy - MC

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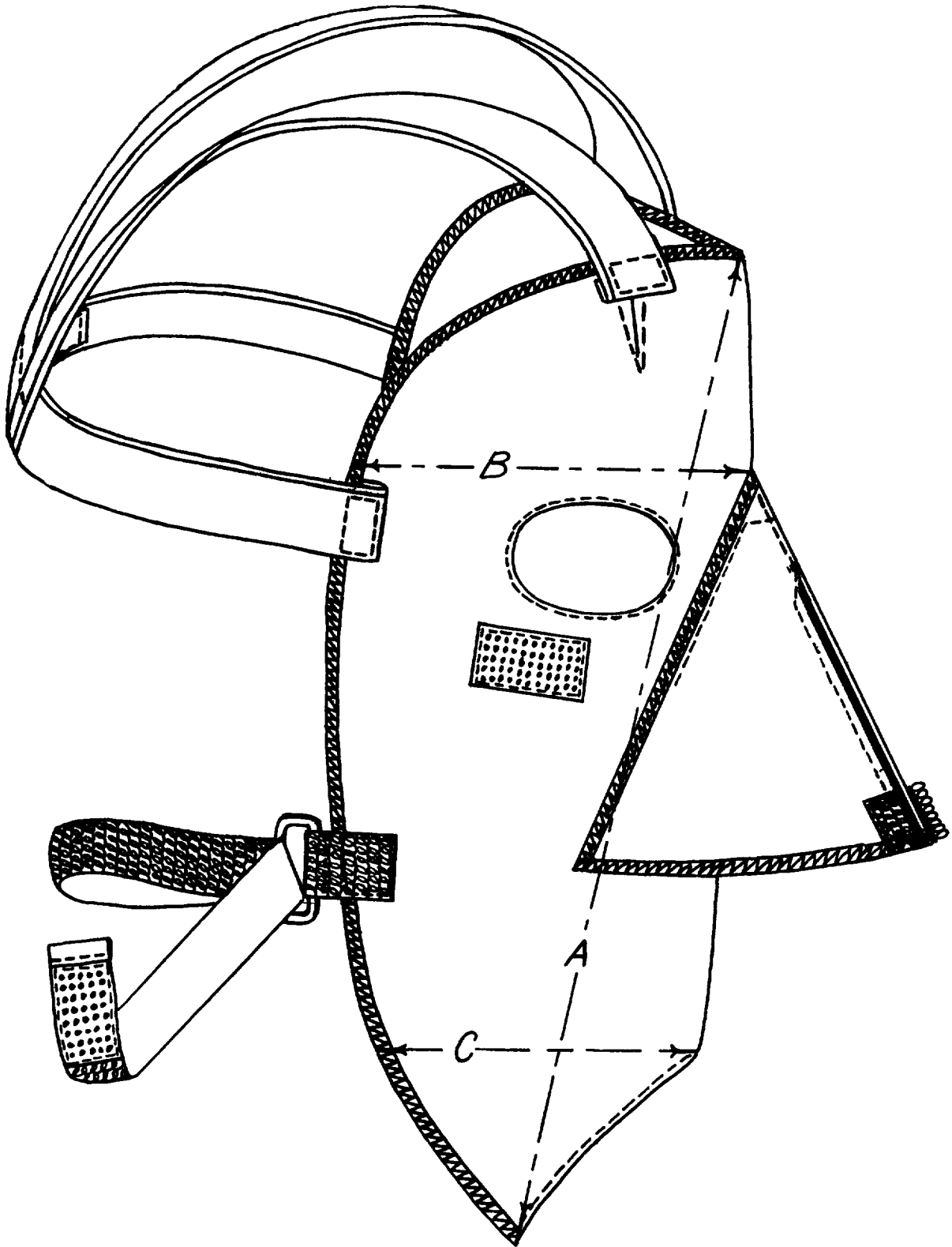
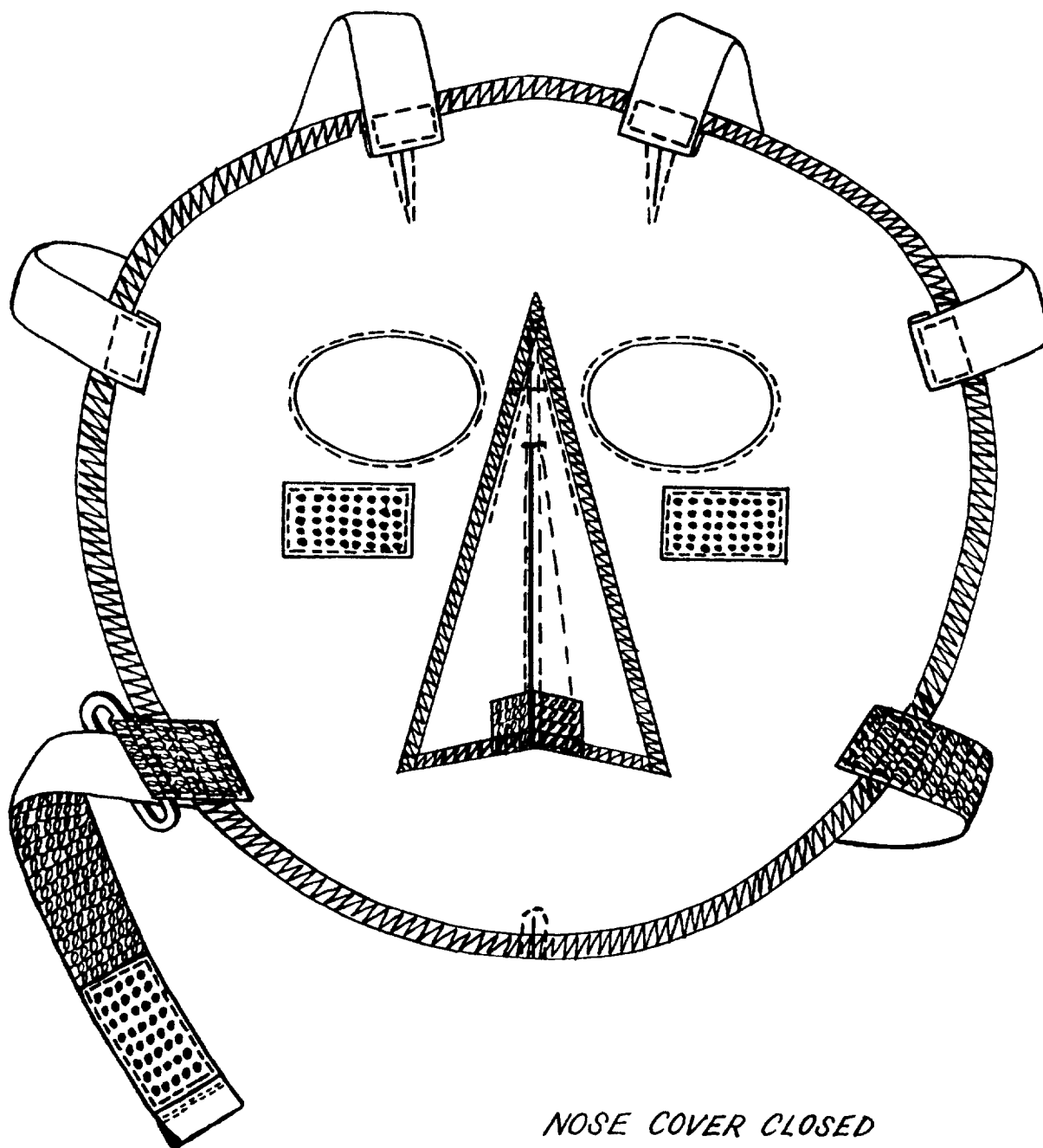


FIG. 1 - MASK, EXTREME COLD WEATHER

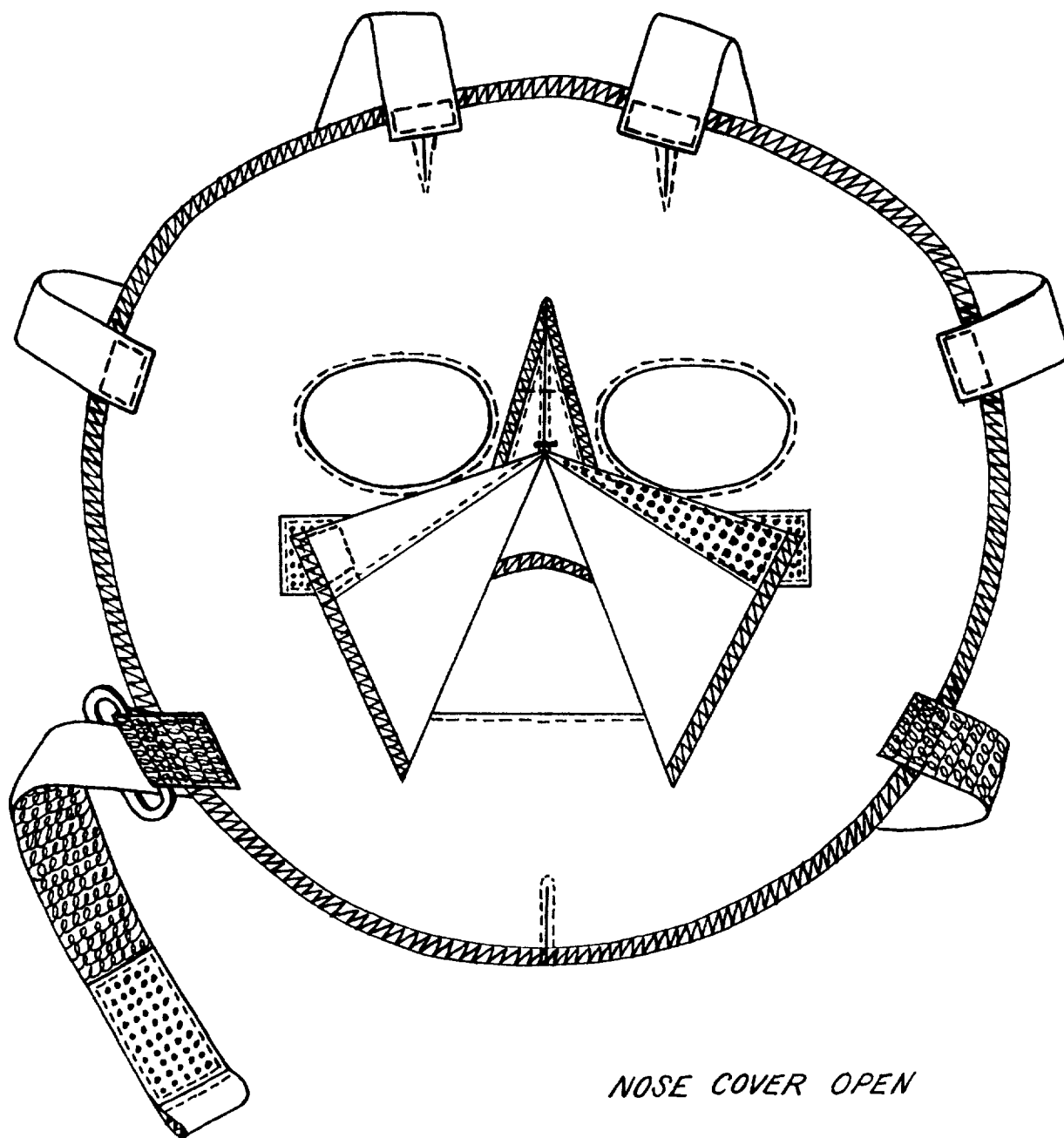
MIL-M-24913



NOSE COVER CLOSED

FIG. 2 - MASK, EXTREME COLD WEATHER

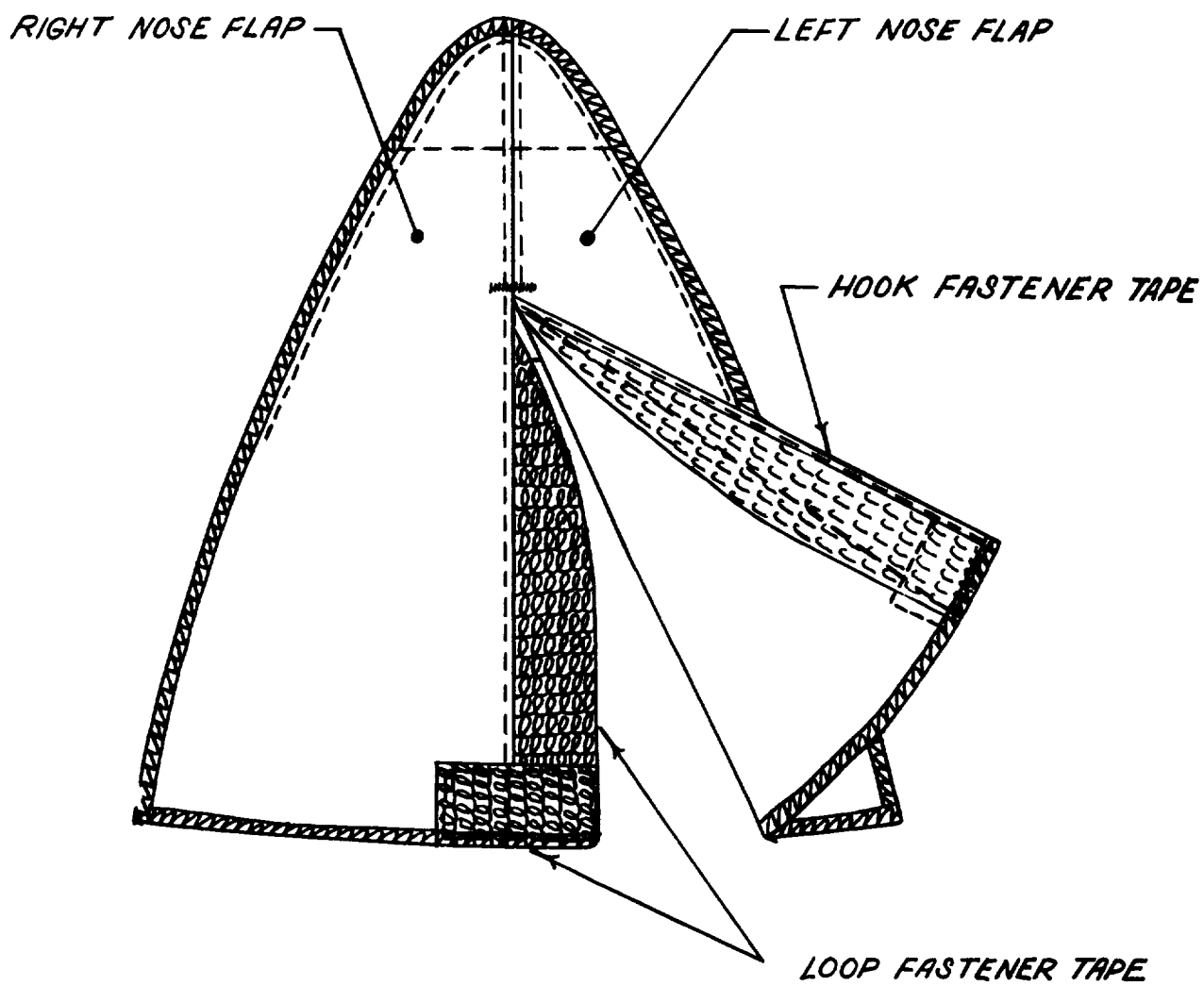
MIL-M-24913



NOSE COVER OPEN

FIG 3 - MASK, EXTREME COLD WEATHER

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NOSECOVER

FIG. 4 - MASK, EXTREME COLD WEATHER

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NOTE This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

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21 Strathmore Road
Natick, MA 01760



STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER

MIL-M-24913

2. DOCUMENT TITLE

Mask, ECW, Dry and Wet Cold

3a. NAME OF SUBMITTING ORGANIZATION

NCTRF, Natick, MA 01760

4 TYPE OF ORGANIZATION (Mark one)

VENDOR

USER

MANUFACTURER

OTHER (Specify) _____

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

5 PROBLEM AREAS

a. Paragraph Number and Wording

b Recommended Wording

c Reason/Rationale for Recommendation.

6 REMARKS

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

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

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

8. DATE OF SUBMISSION (YYMMDD)