

PURCHASE DESCRIPTION

HARD SHOULDER BOARDS, AND SLEEVE INSIGNIA, (MALE AND FEMALE), U.S. PUBLIC HEALTH SERVICES

1 SCOPE.

1.1 Scope. This purchase description covers the requirements for hard shoulder boards and sleeve insignia worn on U.S. Public Health Services Uniforms.

1.2 Classifications.

Type I – Shoulder Boards

Class 1 -Officers of Flag Rank

Class 2 -Commissioned Officers below Flag Rank

Style M – Male

Style F - Female

Type II - Sleeve Insignia

Class 1 -Blue

Class 2 -White

2 APPLICABLE DOCUMENTS.

2.1 Government Documents

FEDERAL

A-A-50199	Thread, Polyester Core, Cotton or Polyester Covered
A-A-52094	Thread, Cotton
A-A-50186	Cloth, Buckram, Woven, Nonwoven
A-A-55198	Cloth, Melton Wool (Moth Proofed)

MILITARY

MIL-B-3461	Button, Insignia, Metal, Uniform and Cap
MIL-DTL-10884	Fasteners, Snap
MIL-L-17507	Lace, Ornamental
MIL-E-17568	Embroidery Materials, Metallic and Synthetic Metallic
MIL-C-82252	Cloth, Broadcloth, Wool & Wool Synthetic (Moth-Proofed)

2.2 Non-Government Publications. The following documents form a part of this document to the extent specified herein.

American Association of Textile Chemists and Colorists

AATCC 8	Crocking
AATCC 15	Colorfastness to Perspiration
AATCC 16	Colorfastness to Light
AATCC 20A	Fiber Analysis Quantitative
AATCC 81	pH of Water-Extract from Wet Processed Textiles
AATCC 132	Colorfastness to Dry cleaning

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

American Society for Testing and Materials

ASTM D-6193	Standard Practice for Seams and Stitches
ASTM D-1777	Standard Test Method for Thickness of Textile Materials
ASTM D-3775	Standard Test Method for Warp End Count and Filling Pick Count of Woven Fabrics
ASTM D-3776	Standard Test Method for Mass Per Unit Area (Weight) of Fabric

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

American National Standards Institute (ANSI)

ANSI/ASQC Z1.4 Sampling Procedures and Tables of Inspections by Attributes

(Applications for copies should be addressed to the American Society for Quality, 600 North Plankinton Ave., Milwaukee, WI 53203)

Department of Defense Standard Shades for Heraldic Yarns for Embroidery and Ribbons

(Copies of this standard is available online at <http://www.iragreen.com> or Ira Green, Inc. 177 Georgia Ave., Providence, RI 02905)

Department of Defense Official Standard Metal Finish Chips

(Copies of this standard is available The Institute of Heraldry 9325 Gunston Rd, Room S-112 Ft Belvoir, Virginia 22060-5579)

3 REQUIREMENTS

3.1 Materials and Components.

- 3.1.1 Cloth, Basic, Type I and Type II Hard Shoulder Boards and Type II, Class 1 Sleeve Insignia. The cloth used for the hard shoulder boards and the Class 1 sleeve insignia background shall conform to the requirements of type I, class 3 of MIL-C-82252 or type I of A-A- 55198. The color shall match Blue 3346.
- 3.1.2 Cloth, Basic, Type II, Class 2 Sleeve Insignia. The cloth used for the Class 2 sleeve insignia shall be 100% white polyester felt 11.00 ounces per square yard and shall be equal to or better than Central Shippee style# 7251 (see 5.2)
- 3.1.3 Cloth, Lining. The lining cloth shall be made of a solution dyed 100% acetate twill cloth conforming to the requirements in Table I when tested as specified in 4.2.1. The yarn for the warp and filling shall be a continuous multifilament, bright acetate. The size of the warp and filling yarns shall be 100 denier.

TABLE I – Cloth Lining, Physical Requirements

Characteristics	Requirements
Weight oz/sq. yd (min)	2.0
Yarns per inch	
Warp	128 to 134
Filling	77 to 80
Weave	2/2 RHT
Colorfastness:	
Perspiration	not less than grade 3
Light (40 hrs)	not less than grade 3
Crocking, wet/dry	not less than grade 3
Nonfibrous materials, % (max)	6
pH	5.0 to 8.5

- 3.1.4 Lace, Ornamental: The lace used for striping shall conform to the requirements of MIL-L-17507 in the following types, classes, and widths listed below.
- Type I, Class 1, Style M and F Hard Shoulder Boards-Type II, Classes 3, 4 or 5, Style A, 2 inch (2 Vellum)
 - Type I, Class 2, Style M and F Hard Shoulder Boards- Type II, Classes 3, 4, or 5, Style A, 1/4 inch (2 Vellum) and 1/2 inch (2 Vellum)
- 3.1.5 Embroidery Material. The embroidery material shall conform to Type II and Type III, Classes 1 (silver matte bullion), 5 (silver frizze), and 8 (gold synthetic) of MIL-E-17568.

- 3.1.6 Yarn, Embroidery. Yarns used for highlights of the embroidery shall be polyester when tested in accordance with 4.2.1. Yarns shall be bright (with abundant luster), continuous filament embroidery yarn. The yarns shall be dyed to match Cable No. 67138, Black Han and Cable No. 67111, Scarlet Red. All yarns shall show good colorfastness of not less than grade 4 to light and wet-dry cleaning when tested as specified in 4.2.1.
- 3.1.7 Yarn color. Colors of for accent embroidery yarns specified in 3.1.6 shall be in accordance with the Department of Defense Standard Shades for Heraldic Yarns for Embroidery and Ribbons.
- 3.1.8 Yarn color matching. The color and appearance of the embroidery yarn on the basic cloth shall match the standard sample when viewed in accordance with the method specified in 4.2.1.1.
- 3.1.9 Thread, Sewing. The cotton sewing thread shall be unbleached, Type I, tex size 50, 3-ply: and black shall be Type III, tex size 35, 3-ply, conforming to the requirements of A-A-52094. The black thread shall approximate the color of the lining and face materials. The gold thread shall approximate the color shade of the gold lace. As an alternate, the black and gold threads may be cotton covered polyester thread conforming to type I, tex size 36-45 or 31-35, conforming to the requirements of A-A-50199.
- 3.1.10 Fiber Board. The fiberboard shall be vulcanized fiber 0.060 (± 0.010) inch thickness when tested as specified in 4.2.1.
- 3.1.11 Paperboard. The paperboard used for backing the lining on the underside of the shoulder boards shall be of a good commercial quality and of a color and thickness suitable for the purpose intended.
- 3.1.12 Buckram. The buckram used to reinforce the back of embroidered insignia shall conform to type III of A-A-50186. The color shall be natural, bleached, or black. Colorfastness requirements shall not apply.
- 3.1.13 Strap. The attachment strap shall be die cut from a flexible vinyl sheet .055 (± 0.010) inch thick when tested as specified in 4.2.1. The color of the strap shall be black.
- 3.1.14 Snap Fastener. Snap fasteners for Type I shoulder boards shall be brass conforming to 2A of MIL-DTL-10884. The diameter of the socket and stud/eyelet components shall be 27/64 inch.
- 3.1.15 Button. The size of the insignia type button cap shall be 22-1/2 ligne and the design shall match Waterbury style # 11721323SB14907 or equal. The material requirements for the button cap shall conform to type I, style 4, class A of MIL-B-3461 and the finish shall match TIOH#6 in accordance with Department of

Defense Official Standard Metal Finish Chips.

- 3.1.16 Cement. The cement used for adhering the top covering and lining materials to the fiberboard base and paperboard backing shall be suitable for the purpose intended. The cement shall not bleed through, alter the color, or leave residue on the finished shoulder board.
- 3.2 Shoulder board design. The shoulder boards shall be curved pentagon shaped rigid boards covered with cloth. A snap fastener type insignia button shall be affixed to the pointed end. A tapered attachment strap (Style M) or tunnel piece (Style F) shall be attached to the underside of the board. The hard shoulder boards come in pairs of left and right and shall have the appropriate embroidered design (Figures 1A, 1B, and 1C), design placement and lace configuration as indicated in Figures 3-12.
- 3.3 Sleeve embroidery insignia design. The background fabric shall be blue 3346 (Class 1) or white (Class 2) and die cut, square in shape with the embroidery centered and a minimum of 1/8 inch boarder between the outermost edge of embroidery and the outermost edge of the patch. The embroidery shall come in pairs of left and right and shall have the appropriate embroidered design as indicated in Figure 1A.
- 3.4 Construction. Stitches, seams and stitching shall be consistent, exhibit uniform appearance and shall conform to ASTM D-6193.
- 3.4.1 Stitching. Sufficient top covering cloth shall be allowed in all directions for turning under edges. Machine stitching used to attach lace on Type I, Class 1 hard shoulder boards shall have a minimum of 8 stitches per inch using stitch type 301 run off is not acceptable. Hand stitching used for attaching the lining and tunnel piece to the underside of the shoulder board shall be a minimum of 6 stitches per inch.
- 3.4.2 Fiberboard Base. The fiberboard base specified shall be cut to shape with overall dimensions slightly less than the finished shoulder board. A 1/4 (\pm 1/32) inch diameter hole for placement of the button/socket snap shall be drilled into the fiberboard base with the center of the hole positioned 5/8 (\pm 1/8) inch in from the pointed end and centered across the width of the base (see Figure 13). When cemented to the fiberboard the basic material shall have a minimum of 3/8 inch of material folded over the edges and cemented to the bottom of the board.
- 3.4.3 Lining Preparation. When cemented to the paper board, the lining material shall have a minimum of 3/8 inch of material folded over to the top of the paperboard.
- 3.4.4 Strap Construction (Style M). The strap shall be centered between the sides of the prepared lining with the square end of the strap parallel to and positioned 1/4 inch up from the square end of the lining. The strap shall be attached by a 3/8 inch wide by 7/8 inch long box-stitch or cross-box-stitch and shall not extend past the

end of the shoulder board.

- 3.4.5 Lining attachment. All edges of the lining shall be securely hand stitched to the underside of the covered fiberboard.
- 3.4.6 Tunnel Construction (Style F). A tunnel piece shall be made by folding under and cementing the edges of the lining material 3/8 inch over the edges of a properly sized and shaped piece of paperboard or buckram backing. The uncovered portion of the backing shall be completely covered by a rectangular piece of lining over it. Each end of the tunnel piece shall then be stitched 1/16 inch from the folded edge. The prepared tunnel piece shall then be superimposed on the face of the prepared lining piece and both joined together by stitching the sides 1/16 inch gauge from the folded edges, forming a tunnel. Align the preassembled tunnel/lining piece on the underside of the shoulder marks and hand stitch all outer edges with a minimum of 6 hand stitches per inch.
- 3.4.7 Type I, Embroidery. All embroidery for shoulder boards shall be hand stitched thru face side of the top covering cloth and lace for class 1 shoulder boards and only top covering clothing for class 2 shoulder boards employing the applicable yarn specified. Outlining of embroidered insignia with outlining stitching is prohibited except on the corp design wings. Embroidery shall be accomplished prior to the application of the top covering cloth to the fiberboard base. Sufficient top covering cloth shall be allowed in all directions to allow for a minimum 3/8 inch turn over to facilitate proper turn under and cementing.
- 3.4.8 Attachment of snap fastener. Attach metal insignia button snap fastener socket through the hole in fiberboard base and the lining. When used, the strap shall lie flat along the board when fastener is in closed position. The orientation of the button shall be as follows: the wings of the Caduceus shall run horizontally across the width of the shoulder board with the top of the Caduceus directly beneath the top point of the hard shoulder board.
- 3.4.9 Type I, Class 1, Face. The face of the Type I, Class 1 hard shoulder board shall consist of a 2 inch wide gold lace as meeting the requirements of 3.1.4 and stitched to the base cloth specified in 3.1.1 with one row of stitching from the top end to the bottom end and centered between the left and right edges of the shoulder boards. The lace attachment stitches shall be 1/16 (+1/16,-0) inches from the finished edge of the lace. The top and bottom ends of lace shall overlap the top and bottom ends of the hard shoulder boards 3/8 inch minimum to facilitate turn under.
- 3.4.10 Type I, Class 1, Embroidered Design. The corps design shall be hand embroidered onto the 2 inch gold lace with gold synthetic metallic embroidery materials specified in 3.1.5 and accent yams as specified in 3.1.6 as indicated in Figure 2A. The size of the corps embroidery and stars shall be in accordance with Figures 1A and 1C (Style M) or 1B and 1D (Style F). Stars for Type I hard

shoulder boards shall be embroidered with silver metallic embroidery materials as specified in 3.1.5 and as indicated in Figure 2B.

- 3.4.11 Type I, Class 2, Face. The shoulder board shall be covered with the applicable background cloth specified in 3.1.1
- 3.4.12 Type I, Class 2, Rank (Stripes). The gold lace conforming to the requirements of 3.1.4 shall be superimposed on the background cloth. The stripes shall be cut to sufficient length to overlap the backside of the board and be covered by the lining. The position, number, width, and spacing of the lace stripes shall be as shown in Figures 7-12.
- 3.4.13 Type I, Class 2, Embroidered Design. The corps design shall be hand embroidered onto the basic cloth with gold synthetic metallic embroidery materials specified in 3.1.5 and accent yarns as specified in 3.1.6 as indicated in Figure 2A. The size of the corps embroidery shall be in accordance with Figures 1A (Style M) or 1B (Style F)
- 3.4.14 Type II, Embroidery. Embroidered sleeve insignia shall be hand stitched to the applicable background cloth specified 3.1.1 and 3.1.2 with gold synthetic metallic embroidery materials specified in 3.1.5 and accent yarns as specified in 3.1.6 as indicated in Figure 2A. The size of the corps embroidery shall be in accordance with Figure 1A
- 3.5 Finished dimensions. The dimensions of the finished shoulder boards and sleeve insignia shall be as indicated in Tables II-III and Figures 1A, 1B, 1C, 1D and 3-13. All dimensions are expressed in inches.

TABLE II – Finished Dimensions

Type	Class	Style	Overall Length/Height	Peak	Width	Notes
I	1 & 2	M	5-1/2	1	2-1/4	Arched 1/4
I	1 & 2	F	5	1	2-1/4	Arched 1/4
II	1 & 2	N/A	1-7/16 (Min)	N/A	1-5/8 (Min)	N/A

- 3.5.1 Dimensional tolerances. Unless otherwise specified in this document dimensional tolerances shall be as detailed in Table III:

TABLE III-Dimensional tolerances

Measurement	Tolerance in inches
Length of shoulder board	± 1/8
Width of shoulder board	± 1/8
Board Arch	± 1/16
Stripes	
-Spacing Between	± 1/16
-Width	± 1/16
Embroidered Design	
-Overall Size	± 1/16
-Placement	± 1/16

3.6 Figures. Figures are furnished for informational purposes only. When inconsistencies exist between figures and the written specification, the written specification shall govern. All measurements indicated on figures are in inches unless otherwise specified. Figures are not drawn to scale and are provided to illustrate dimensions only.

3.7 Workmanship. Each hard shoulder board or sleeve insignia shall conform to the design and construction requirements specified in this purchase description. Each item shall be uniform in appearance, quality and free from irregularities or defects that could affect form, fit or function including performance or durability when tested or visually and/or dimensionally inspected as specified in Section 4.

4 VERIFICATION

4.1 Conformance inspection. Conformance inspection shall consist of the examinations and tests specified in Table IV.

4.1.1 Conformance inspection samples. Unless otherwise specified, sampling for conformance inspection shall be performed in accordance with ASQC Z1.4. Conformance inspection shall be performed on selected hard shoulder boards. The lot shall be expressed in units of hard shoulder board pairs or one pair of sleeve insignia. The sample unit shall be one pair of hard shoulder boards or one pair of sleeve insignia.

TABLE IV - Conformance inspection

Inspection	Requirement Paragraph	Verification
End item testing:		
Visual examination	3.1.1 through 3.4.14 Figures 2A and 2B	4.2.2
Dimensional examination	3.1.4 through 4.2.2 Figures 1A, 1B, 1C, 1D and 3-13	4.2.3

4.2 Methods of verification.

4.2.1 Materials and component verification. The materials and components shall be verified in accordance with the requirements of Table V.

TABLE V - Material and component verification.

Characteristic	Requirement Paragraph	Verification <u>1/</u>
Basic material Type I and Type II, Class I	3.1.1	MIL-C-82252, A-A-55198
Basic Material Type II, Class II	3.1.2	<u>2/</u>
Cloth Lining Testing:	3.1.3	<u>2/</u>
-Weight	3.1.3	ASTM-D 3776, Option C
-Colorfastness to Perspiration	3.1.3	AATCC 15 <u>3/</u>
-Colorfastness to Light	3.1.3	AATCC 16, Option A
-Colorfastness to Crocking	3.1.3	AATCC 8 <u>4/</u>
-Non-Fibrous Materials	3.1.3	AATCC 20A <u>5/</u>
-pH	3.1.3	AATCC 81
Lace Ornamental	3.1.4	MIL-L-17507
Embroidery Material	3.1.5	MIL-E-17568
-Fiber Identification <u>2/</u>	3.1.6	AATCC 20A
Embroidery Yarns Testing <u>2/</u> : Colorfastness to Light (40 AATCC Fading Units or 170 kilojoules)	3.1.6	AATCC-16 Opt 1 or 3
-Colorfastness to Wet-Dry Cleaning	3.1.6	AATCC-132
-Visual color matching <u>2/</u>	3.1.8	4.2.1.1
Thread, Sewing	3.1.9	A-A- 52094
Thread, Sewing (alternative)	3.1.9	A-A-50199
Fiber Board	3.1.10	ASTM D 1777, <u>2/</u>
Buckram	3.1.12	A-A-50186
Strap	3.1.13	<u>2/</u>
Snap Fastener	3.1.14	MIL-DTL-10844
Button	3.1.15	MIL-B-3461, <u>2/</u>

1/ When applicable, the material or components shall be evaluated according to the test methods and requirements in its respective document.

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

3/ Acid and Alkaline

4/ Evaluation using AATCC 8 Chromatic Transference Scale

5/ Non-fibrous shall be determined in accordance with the method prescribed except that perchloroethylene shall be used in lieu of chloroform.

4.2.1.1 Visual Color Matching. The color and appearance of the base fabrics and embroidered yarns in the insignia design shall match their respective shade and cable number colors specified under 3.1.6 when viewed using the AATCC Evaluation Procedure 9, Option A, with sources simulating artificial daylight D75 illuminant with a color temperature of 7500 (+ 200) K illumination of 100 (+ 20) foot candles, and shall be a good match to the cable number color under incandescent lamplight at 2856 (+ 200)K.

4.2.2 End item visual examination. The hard shoulder boards and sleeve insignia selected for end item visual inspection shall be visually examined for compliance to Section 3. The hard shoulder boards and sleeve insignia shall be examined for defects in shade, design, material, construction and workmanship. Defects shall be classified as specified under Table VI.

TABLE VI – Classification of end item visual and dimensional defects

Examine	Defect	Classification	
		Major	Minor
Fabrics	Hole, cut, tear, misweave	X	
	Color or material not as specified	X	
	Spot or stain		X
	Covering not cemented to fiber board base		X
	Overlap less than 3/8 inch	X	
Stripes	Any scuffed or abraded area	X	
	Spot or stain		X
	Type, color or pattern not as specified	X	
	Spacing or number of stripes not as specified	X	
	Incorrect width	X	
	Material not as specified	X	
	Wrong combination of stripes	X	
Strap or Tunnel Piece	Missing	X	
	Wrong Shape		X
	Dimensions not as specified		X
	Snap fastener missing on strap	X	
	Strap does not lie flat in closed position	X	
	Not stitched to lining as specified		X
	Strap not centered	X	
	Any cut or deep scratch in strap		X
	Strap not specified thickness		X
	Not specified material	X	
Button and Snap Fastener	Style, type, or size not as specified	X	
	Not facing direction specified		X
	Any part missing or discolored	X	
	Scratched or dented		X
	Snap does not align with socket on board	X	
	Does not function properly	X	

TABLE V – Classification of end item visual and dimensional defects continued

Examine	Defect	Classification	
Embroidered Design	Any design incorrect or missing	X	
	Use of outline stitching	X	
	Poorly defined, distorted or misshaped	X	
	Unrelated colors of yarn visible on face		X
	Surface yarns loose, tight, or shifted	X	
	Bunched, kinked or tangled yarns on face	X	
	Finished height or width of design not as specified		X
	Edge of design on sleeve insignia less than 1/8 inch from finished cut or folded edge of cloth patch.		X
	Placement of embroidery not as specified		X
Stitching	Any component part or device not securely attached or stitched		X
	Hand stitching less than 6 stitches per inch	X	
	Machine stitching less than 8 stitches per inch	X	
	Broken or missing stitches	X	
	Loose or tight tension affecting appearance	X	
	Thread not good match to face fabric or gold lace	X	
	Stitching runoff		X
Dimensions for construction only	Not as specified	X	
Cleanliness	Any spot, streak, stain, or foreign matter on the face	X	
Pairing	Shoulder boards incorrectly paired	X	

4.2.3 End item dimensional examination. The end item hard shoulder boards selected for examination shall conform to the dimensions specified in Section 3 and Figures 1A, 1B, 1C, 1D and 3-13. Any dimension not within the specified tolerance shall be classified as a defect as specified in Table V.

5 Sources of Supply.

5.1 Embroidery yarn suggested source. The suggested source of supply for the embroidery thread is listed below.

Robison Anton
P. O. Box 159
175 Bergen Boulevard
Fairview, NJ 07022
(800) 932-0250

5.2 Lining cloth suggested source. The suggested source of supply for the lining cloth is listed below.

Central Shippee
46 Lake Road
Bloomingdale, NJ 07403
(973) 838-1100

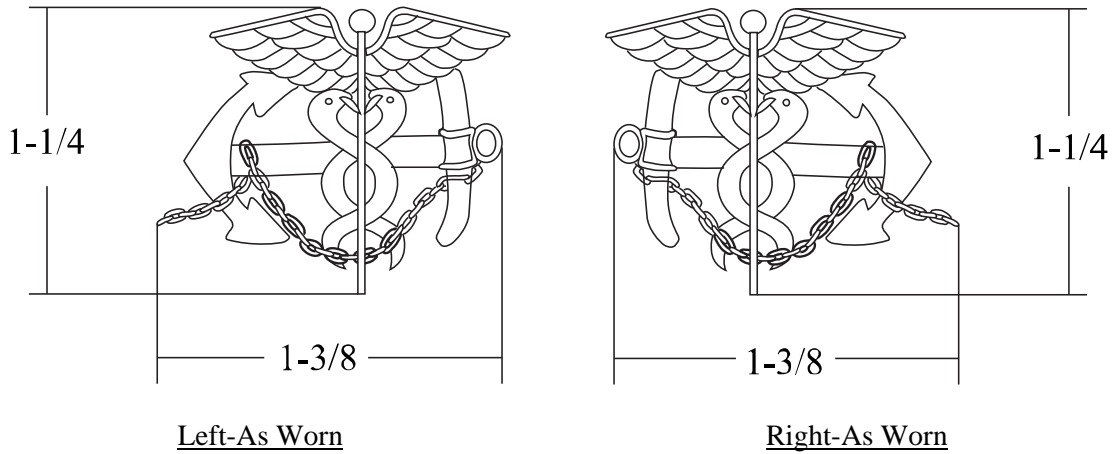


Figure 1A – Hard Shoulder Boards Corps Embroidery - Style M and Type II Sleeve Embroidery Dimensions

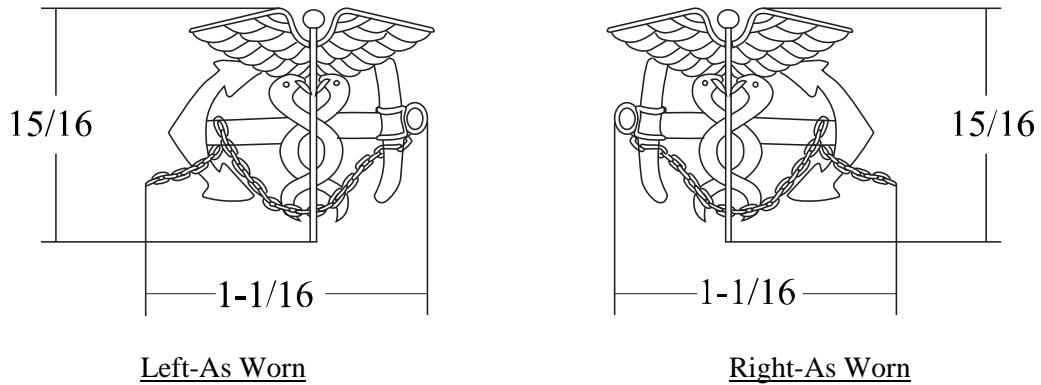


Figure 1B – Hard Shoulder Boards Corps Embroidery Dimensions – Style F

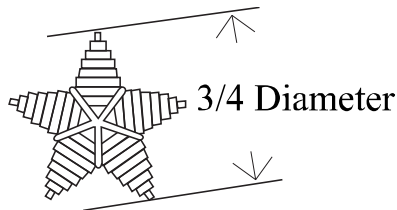


Figure 1C – Hard Shoulder Boards Star Embroidery Dimensions - Style M

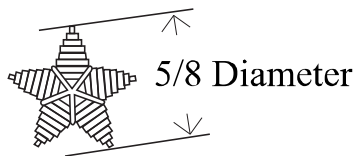


Figure 1D – Hard Shoulder Boards Star Embroidery Dimensions - Style F

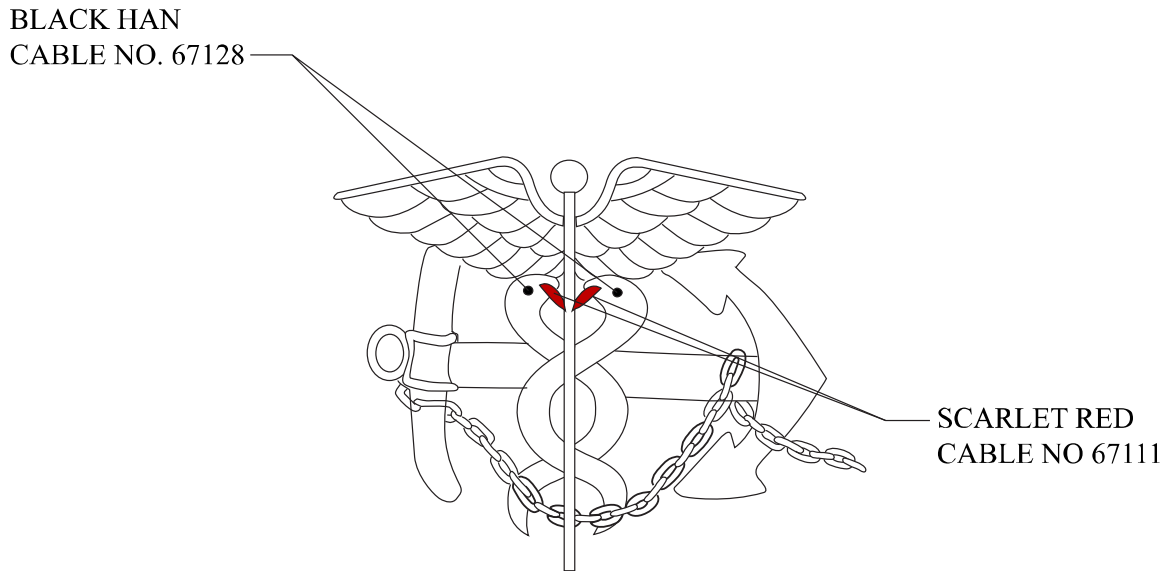


Figure 2A Corps Embroidery Thread and Material Configuration

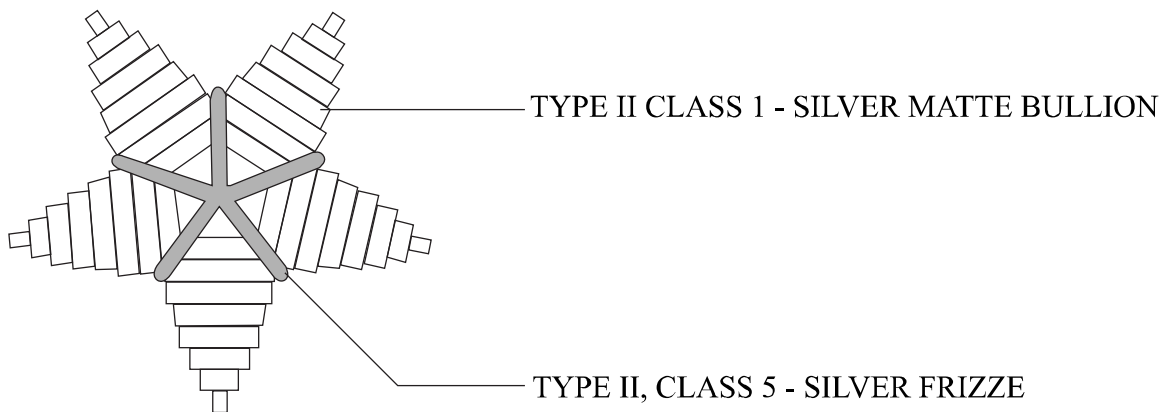


Figure 2B Star Embroidery Thread and Material Configuration

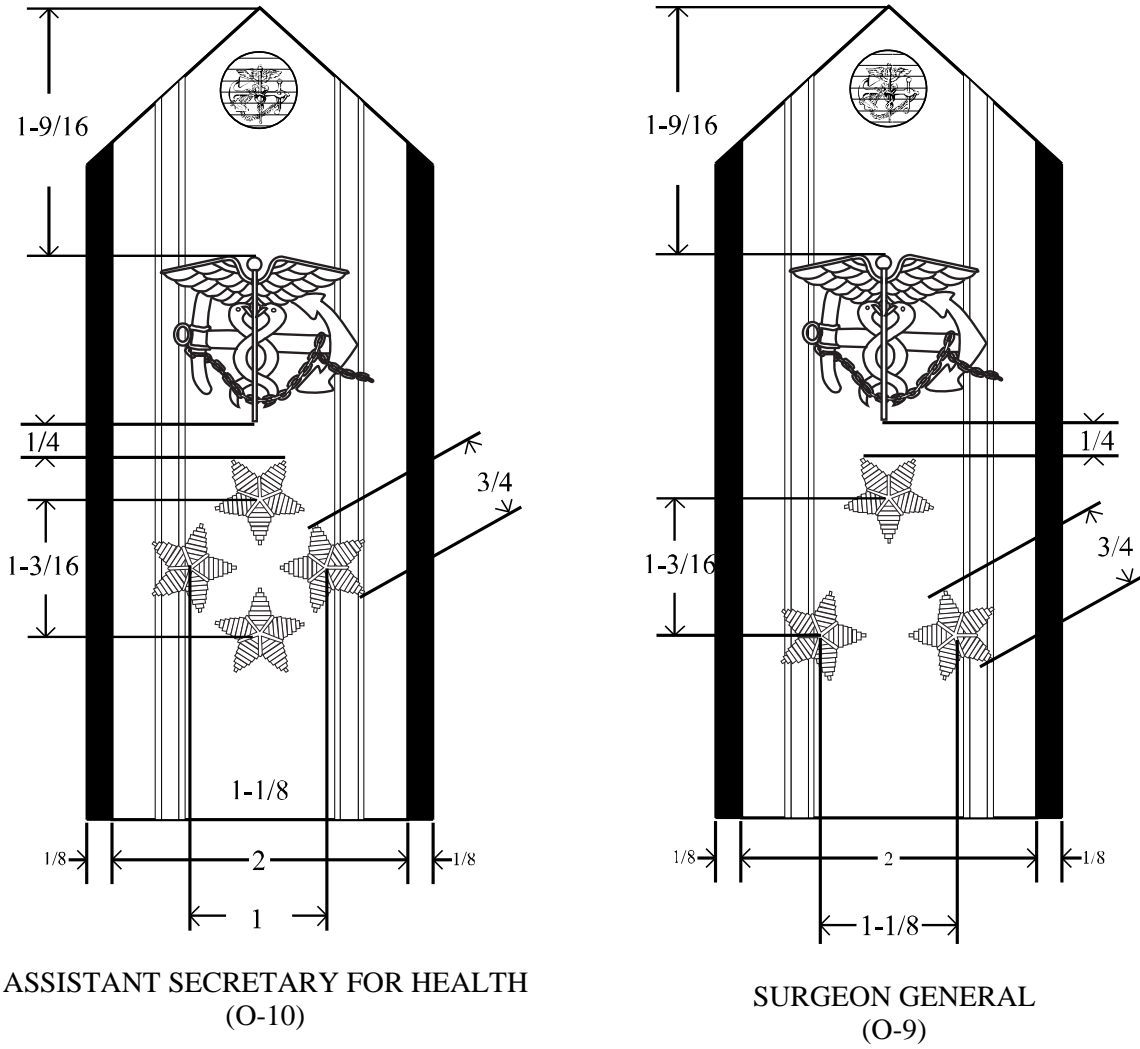


Figure 3 – Hard Shoulder Boards, Type I, Class 2, Style M

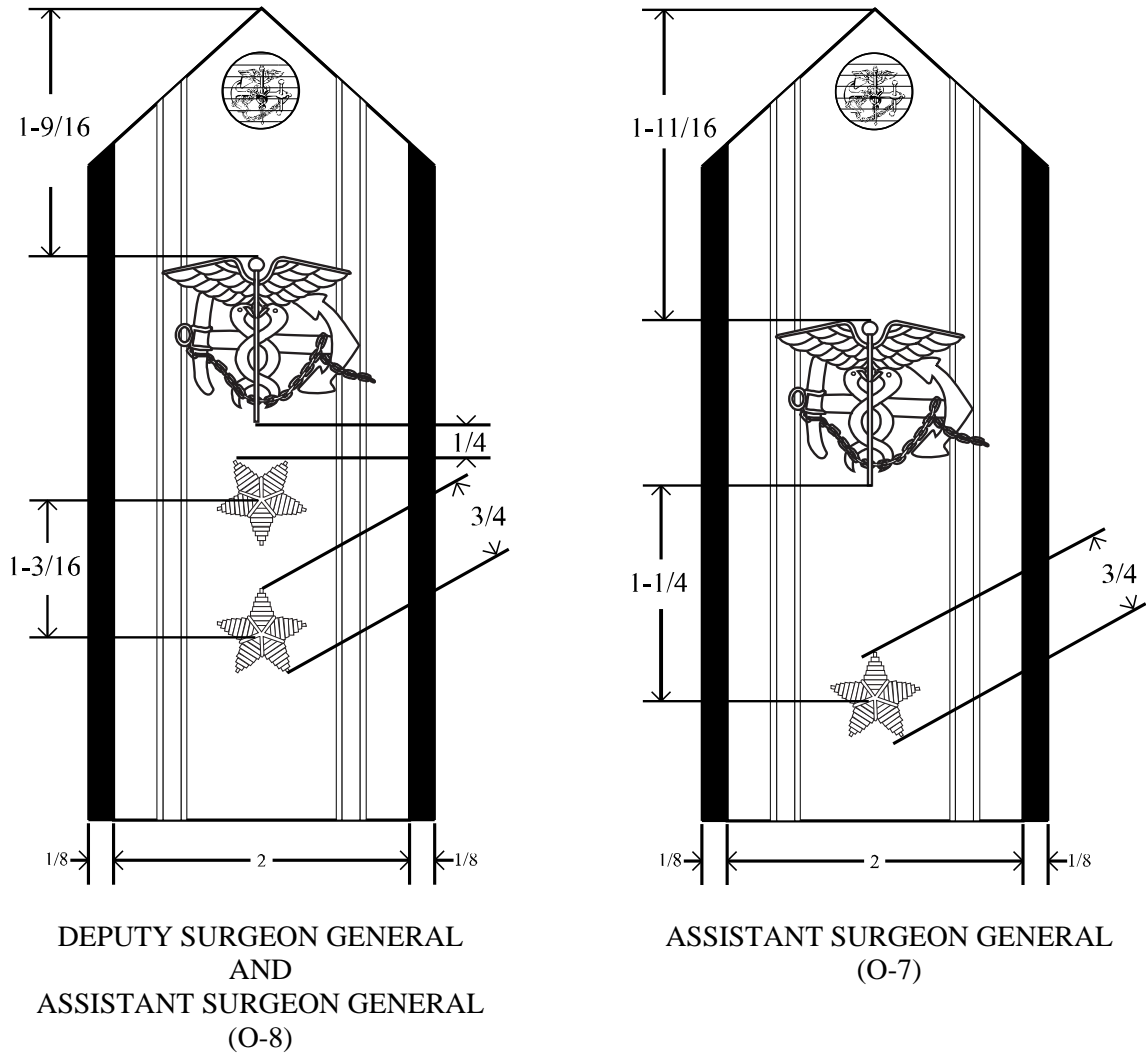


Figure 4 – Hard Shoulder Boards, Type I, Class 2, Style M

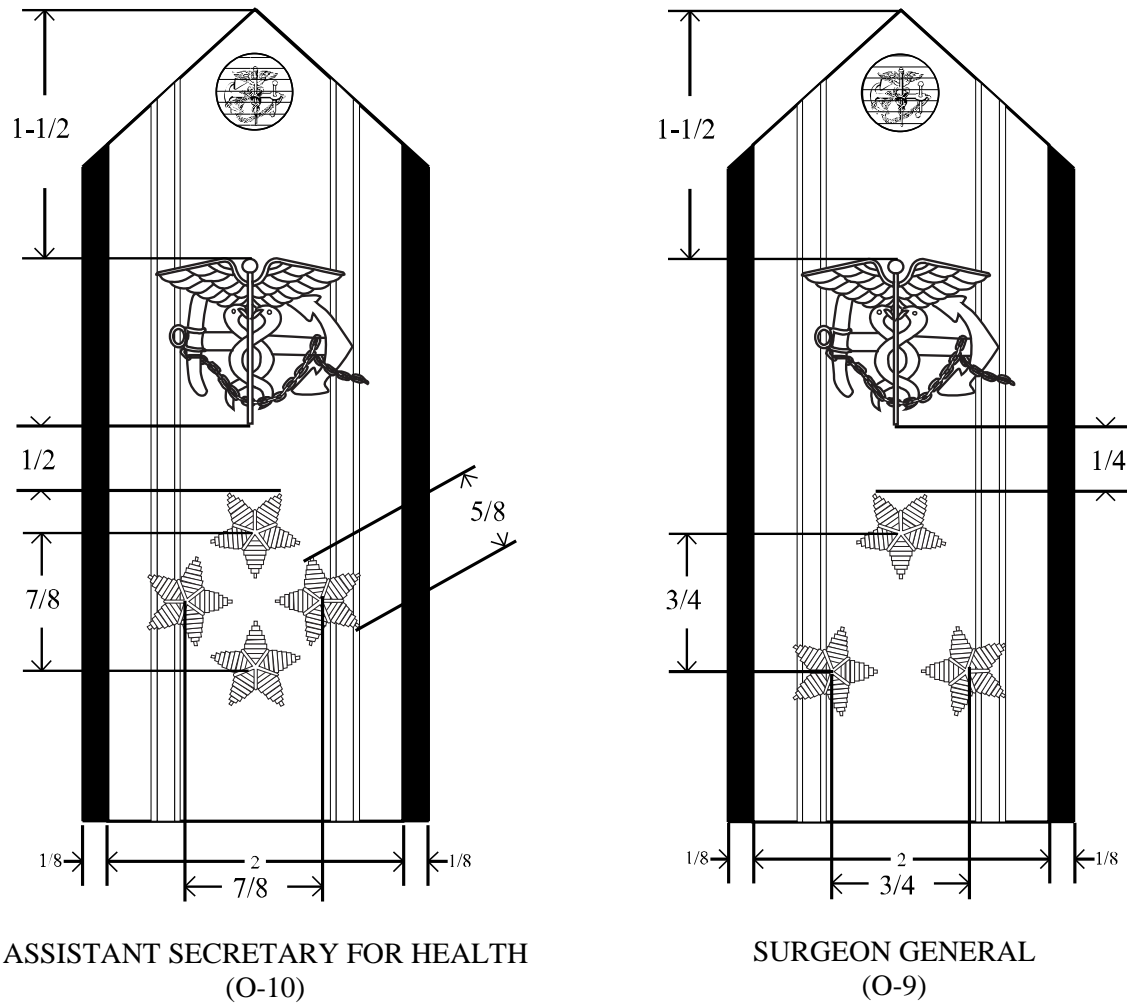


Figure 5 – Hard Shoulder Boards, Type I, Class 2, Style F

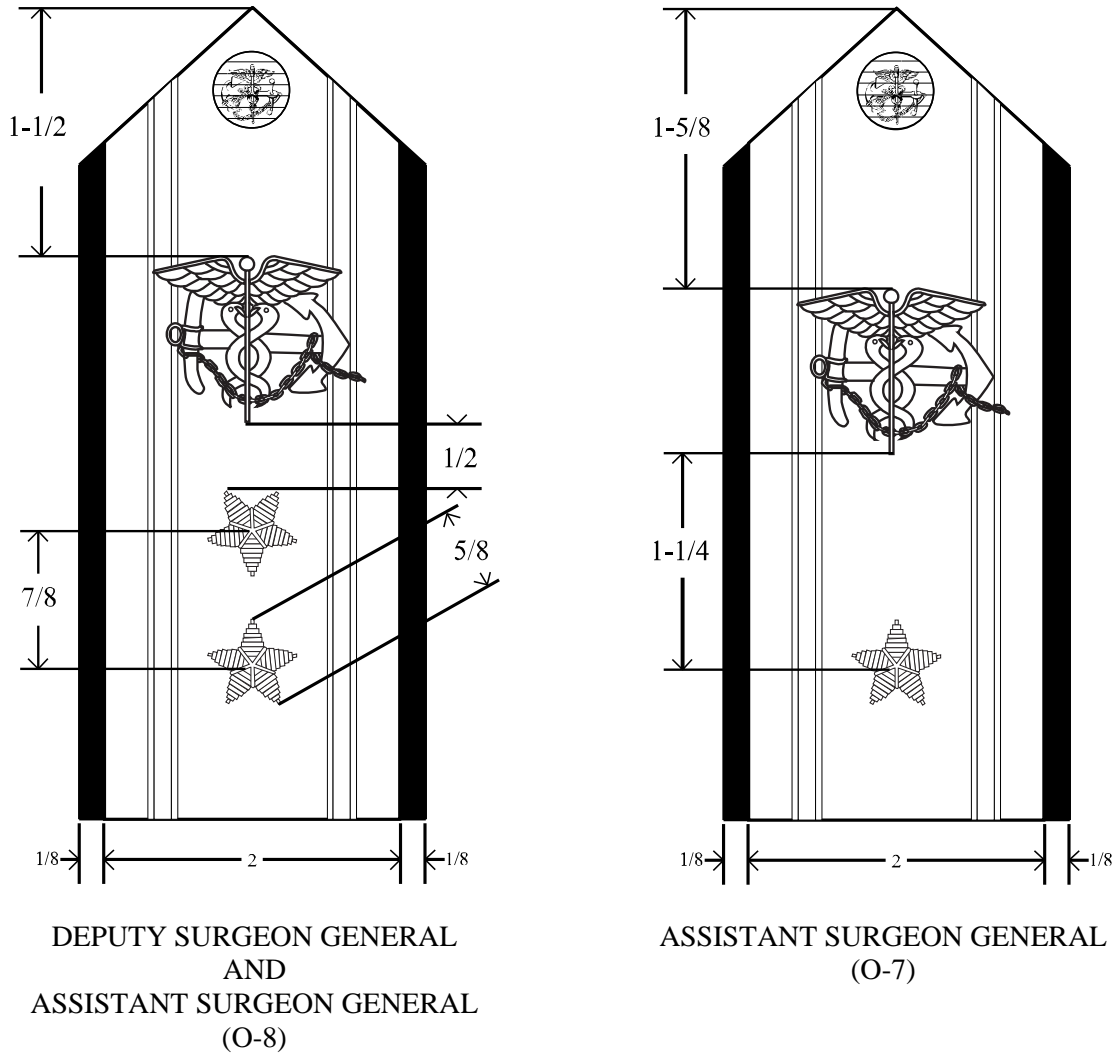


Figure 6 – Hard Shoulder Boards, Type I, Class 2, Style F

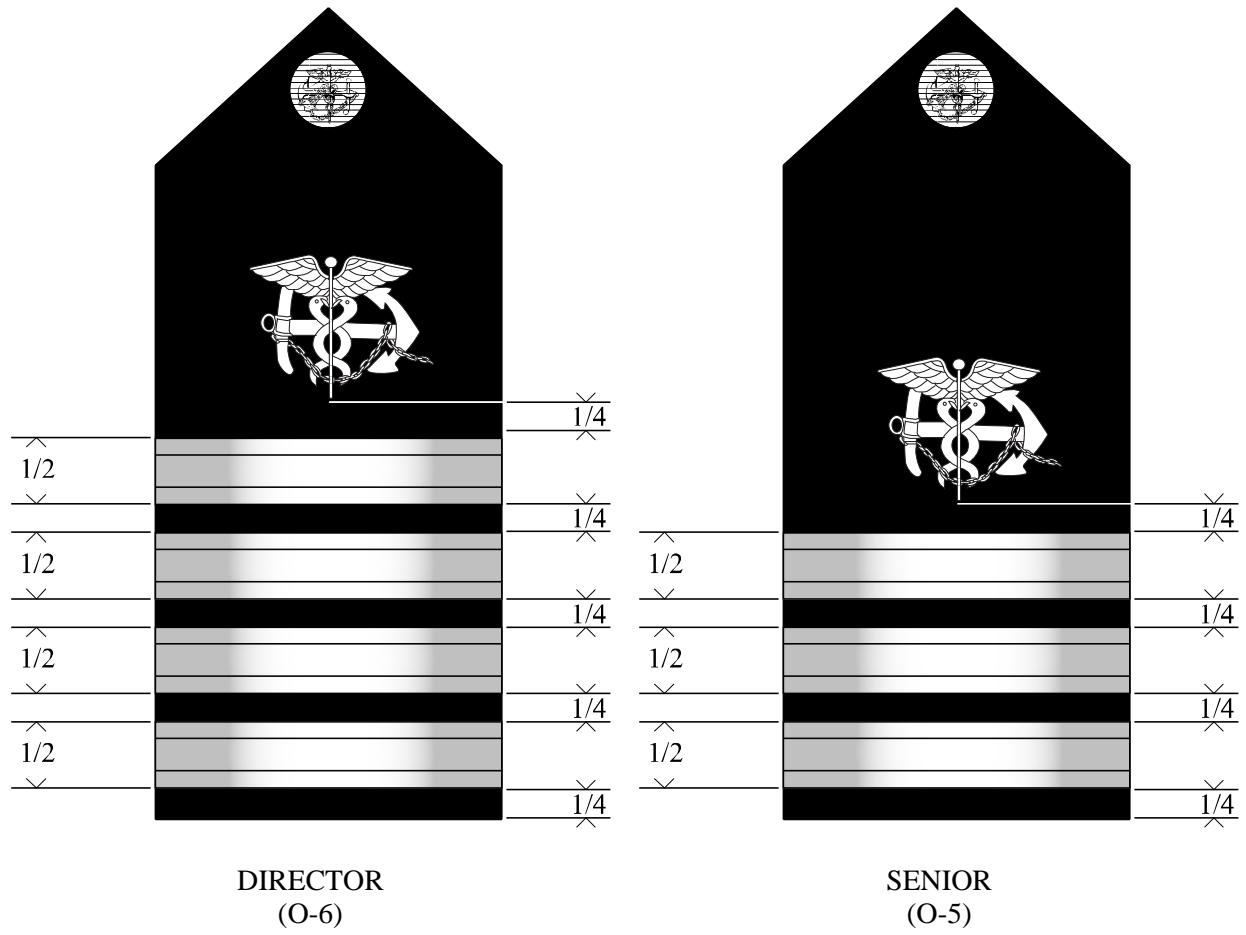


Figure 7 – Hard Shoulder Boards, Type I, Class 2, Style M

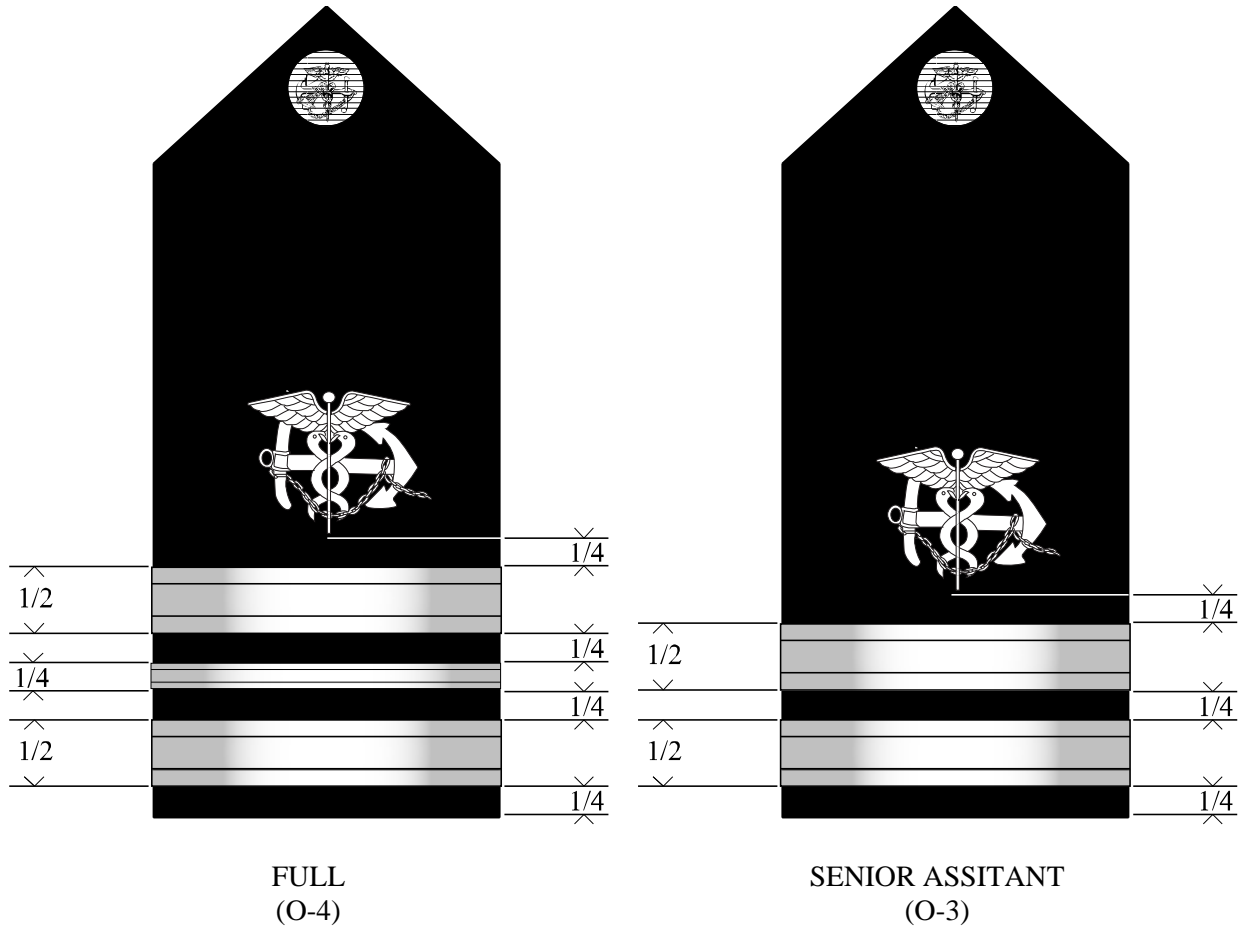


Figure 8 – Hard Shoulder Boards, Type I, Class 2, Style M

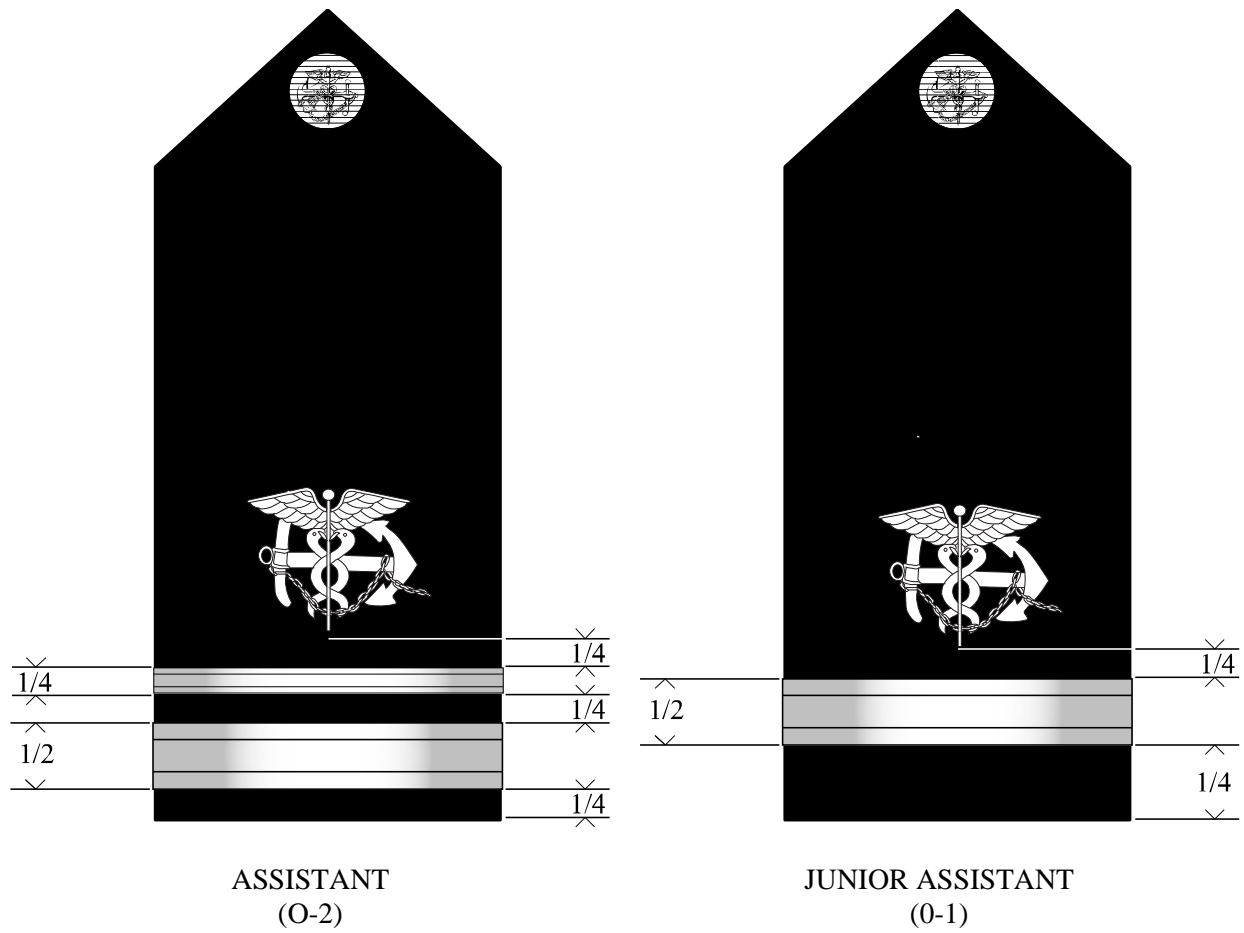


Figure 9 – Hard Shoulder Boards, Type I, Class 2, Style M

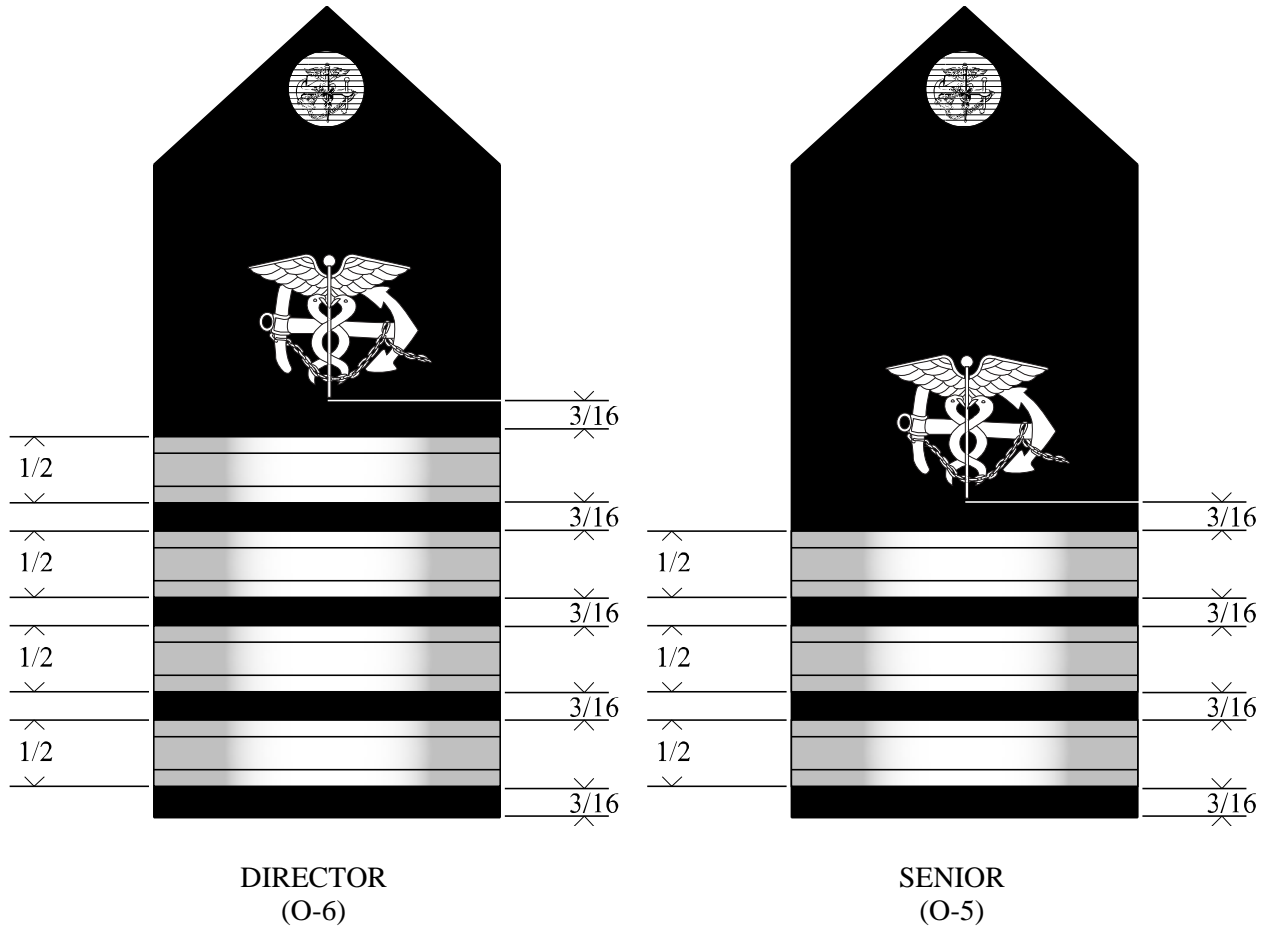


Figure 10 – Hard Shoulder Boards, Type I, Class 2, Style F

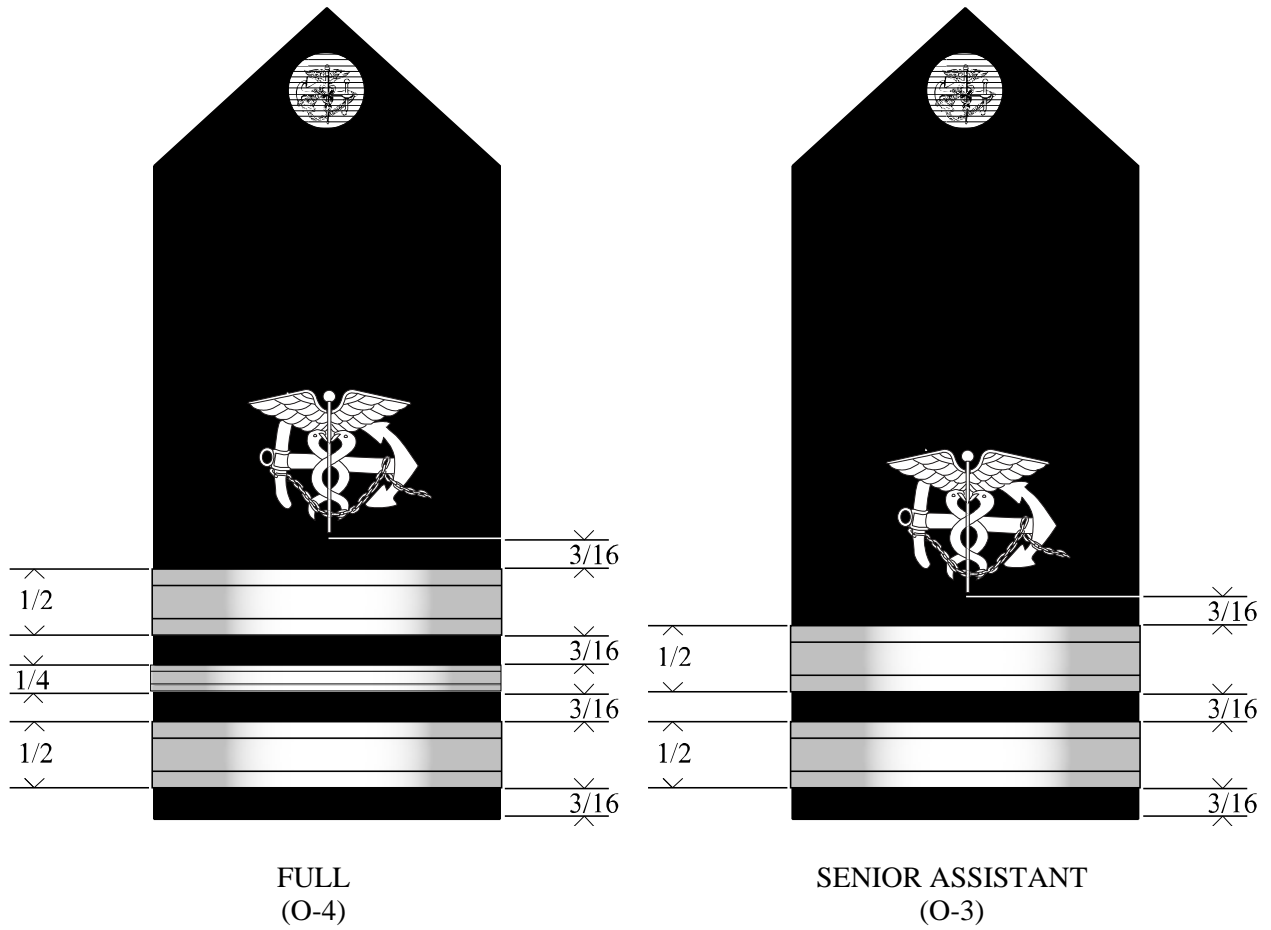


Figure 11 – Hard Shoulder Boards, Type I, Class 2, Style F

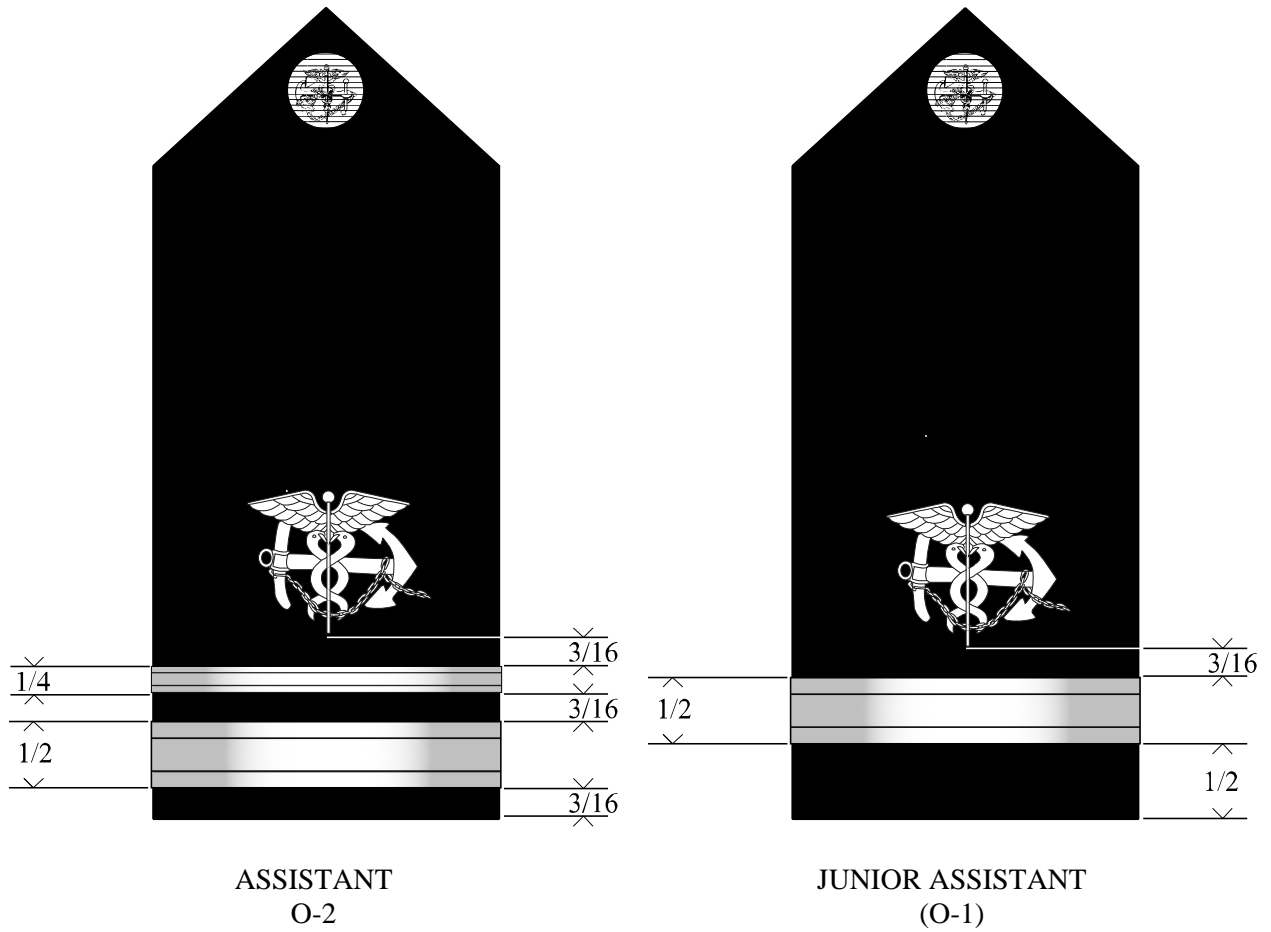
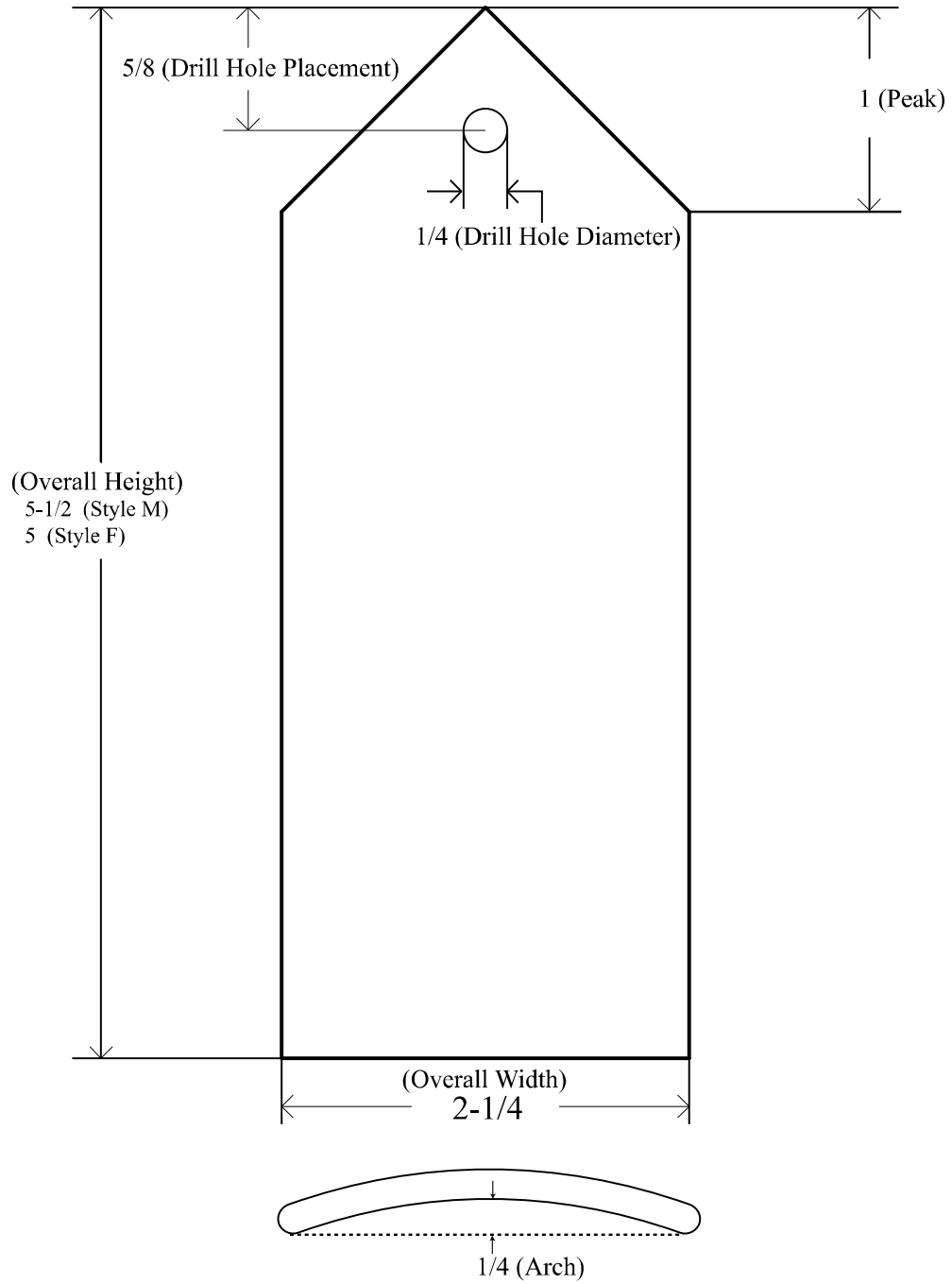


Figure 12 – Hard Shoulder Boards, Type I, Class 2, Style F



Note: Measurement taken for shoulder boards arch, is measured from the lowest edge of the shoulder board while laying flat. To the highest point of the hard shoulder board underside.

Figure 13 – Shoulder Boards, Overall Dimensions Type I, Class I and II Style F and M