

**A - 1**

**C - 1**

**E - 1**

**A - 2**

**C - 2**

**E - 2**

**A - 3**

**C - 3**

**E - 3**

**A - 4**

**C - 4**

**E - 4**

**B - 1**

**D - 1**

**F - 1**

**B - 2**

**D - 2**

**F - 2**

**B - 3**

**D - 3**

**F - 3**

**B - 4**

**D - 4**

**F - 4**

**G - 1**

**G - 2**

**G - 3**

**G - 4**

**H - 1**

**H - 2**

**H - 3**

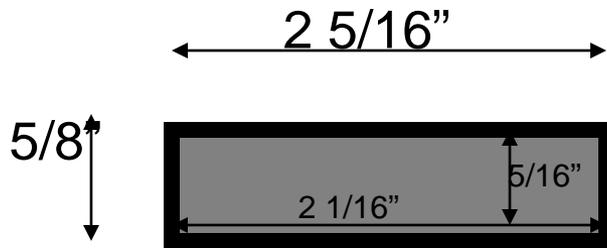
**H - 4**

**I - 1**

**I - 2**

**I - 3**

**I - 4**



Black lettering Centered  
on patch



- $\frac{1}{8}$ " BLACK OVERLOCK EDGE FINISHING SEAM (MERROW) SHALL BE APPLIED IN SUCH A MANNER AS TO PREVENT IT FROM PULLING LOOSE FROM THE EMBLEM OF A DENSITY SUFFICIENT TO COMPLETELY COVER THE FABRIC EDGE OF THE EMBLEM
- EMBLEM MANUFACTURED IN SUCH A MANNER THAT AFTER PROPER ATTACHMENT TO A GARMENT IT WILL NOT CURL AFTER WASHING OR DRY CLEANING
- $2 \frac{1}{16}$ " (LENGTH) x  $\frac{5}{16}$ " (WIDTH) EMBROIDERED GRAY FIELD
- PATCH SIZE  $2 \frac{5}{16}$ " (LENGTH) x  $\frac{5}{8}$ " (WIDTH)
- SHADE MATCHING AS PROVIDED WITH STANDARD SAMPLE (BLACK BORDER/GRAY FIELD)
- $\frac{2}{8}$ " EMBROIDERED BLACK LETTERING IN UNIVERSAL TEXT CENTERED ON PATCH
- 32 DIFFERENT COMPANIES TO BE MANUFACTURED
- DELIVERY OF AT A MINIMUM OF 105 PATCHES PER COMPANY
- INITIAL REQUIREMENT OF 3840 TOTAL PATCHES WITH AS MIMIMUM ACCEPTABLE DELIVERY QUANTITY OF 3360 AFTER QUALITY INSPECTIONS.
- PATCHES SHALL BE BACKED WITH VELCRO HOOK-TAPE.

# UNITED STATES MILITARY ACADEMY PURCHASE DESCRIPTION

## INSIGNIA, EMBROIDERED, RANK, (OCP), CADET, USMA

15 December 2015

### 1. SCOPE

- 1.1 Scope. This description establishes the requirements for embroidered subdued insignia of USMA Cadet Rank for wear with Army Combat Uniform.
- 1.2 The insignia covered by this description will be of the following classes.

<u>Class # - Name</u>
Class 1 - Blank (No embroidery pattern)
Class 2 - 1-Bar
Class 3 - 2-Bar
Class 4 - 2-Bar with Diamond
Class 5 - 2-Bar with Star
Class 6 - 3-Bar
Class 7- 3-Bar with Star
Class 8 - 4-Bar
Class 9 - 4-Bar with Star
Class 10 - 5-Bar
Class 11 - 5-Bar with Star
Class 12 - 6-Bar
Class 13 - 6-Bar with Star

### 2. APPLICABLE DOCUMENTS

- 2.1 Specifications, Standards and handbooks. The following specifications, standards and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specification and Standards (DoDISS) and supplement.

#### Federal Specifications

A-A-50199 – Thread, Polyester Core, Cotton- or Polyester-Covered  
A-A-52094 – Thread; Cotton

#### Department of Defense Specifications

MIL-DTL-44436B

#### American Society for Testing and Materials (ASTM)

ASTM-D6193 – Standard Practice for Stitches and Seams.

ASTM-D1907 – Standard Test Method for Linear Density of Yarn (Yarn Number) by the Skein Method.

American Association of Textile Chemists and Colorists (AATCC)  
AATCC-16 Colorfastness to Light

(This standard can be obtained from the American Association of Textile Chemists and Colorists, P.O. Box 12215, Research Triangle Park, NC 27709.)

2.2 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 takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

### 3. REQUIREMENTS

3.1 First Articles. When specified in the contract or purchase order, one sample of finished items shall be provided by the contractor to the contracting official. These First Article Samples will be subjected to inspection in accordance with sections: 4 through 4.3. The term “finished item” is defined as one completed individual insignia. One First Article Sample shall be of the Class 26, company patch, blank OCP patch, and Company platoon patch. Contractor shall provide first article samples to the contracting official at a time designated by the contracting official.

Recycled, recovered, or environmentally preferable materials. Recycled, recovered, 3.2 or environmentally preferable materials should be used to the maximum extent possible provided that the material meets or exceed operational and maintenance requirements and promotes economically advantageous life cycle costs.

Materials. Materials shall be as specified herein. Verification shall be in accordance 3.3 with the standards and methods specified in section 4, Table 2.

3.3.1 Embroidery yarn.

3.3.1.1 Material Identification. The embroidery yarn shall be a commercially available semi-dull continuous filament, regenerated cellulose type rayon or polyester in a size between 35 to 40 weights or 150/2 to 120/2.

3.3.1.2 Color. The color of the embroidery thread shall be black.

3.3.1.3 Bobbin yarn. The bobbin yarn shall be a continuous multi-filament nylon, 2-ply cotton or 2-ply polyester yarn. The yarn shall be black. And shall show fair colorfastness to wet-dry cleaning and laundering. The use of sulfur dyes is prohibited.

- 3.3.2. Base cloth. The base cloth on which embroidery stitching is applied shall be that of the Operational Combat Pattern (OCP) cloth printed with Universal Camouflage in any of Class 6, Class 7, or Class 8 cloths in MIL-DTL-44436B. Embroidery stitching shall be placed on the face of the base cloth.
- 3.3.3. Backing material. The insignia shall have a light weight single-ply backing with a minimum weight of 2.5 oz per square yard of either woven or non-woven pressed fiber construction.
- 3.3.4. Velcro. The base cloth shall be sewn onto Velcro hook tape.
  - 3.3.4.1. Velcro color. Velcro hook-tape color shall be Bagby green.
  - 3.3.4.2. Velcro size. The Velcro hook-tape shall be 2” wide and shall be cut to appropriate lengths to achieve finished insignia dimensions listed in Table 1. Velcro shall tape shall be cut at 90<sup>0</sup> angles from Velcro-tape length.
- 3.4 Design. The contracting official will provide the contractor with embroidery designs in DST formatted files on a compact disk. These files were developed using proprietary software of Pulse Microsystems version ‘Illustrator’ and shall be converted by contractor into any software or tape necessary for contractors’ use exclusively for this contract.
- 3.5 Construction. The insignia shall be embroidered on automatic multi-head or Schifflli embroidery machines.
  - 3.5.1 Embroidery Pattern Stitching. The visible embroidery stitching shall not unravel or come loose from the insignia. Stitch Count for each embroidery pattern shall be equal or greater to that contained in the respective pattern files provided by the Contracting Official. See Table 1 for pattern names and respective stitch counts per pattern.
  - 3.5.2 Embroidery Pattern Positioning. The length-wise direction of the Bar in any embroidery pattern shall be positioned parallel with the filling (weft) direction of base cloth. The embroidery pattern shall be centered on the finished patch from top to bottom and from side to side (left to right). Figures 1, 2, and 3 are reference only for positioning of embroidery patterns in relation to the filling direction of base cloth.

Figure 1.

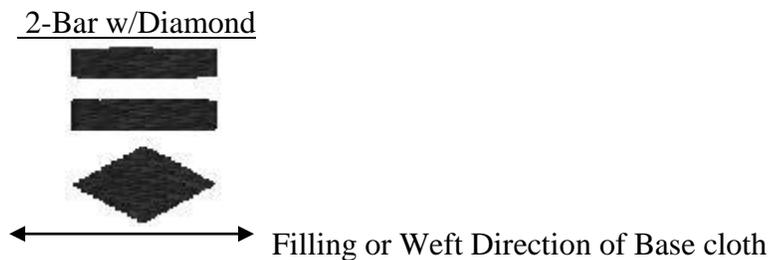


Figure 2.

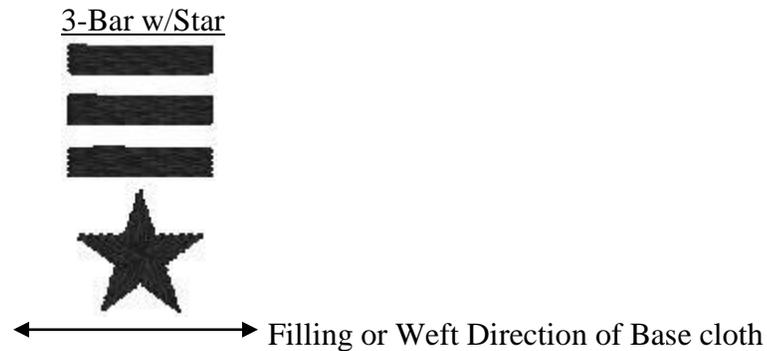
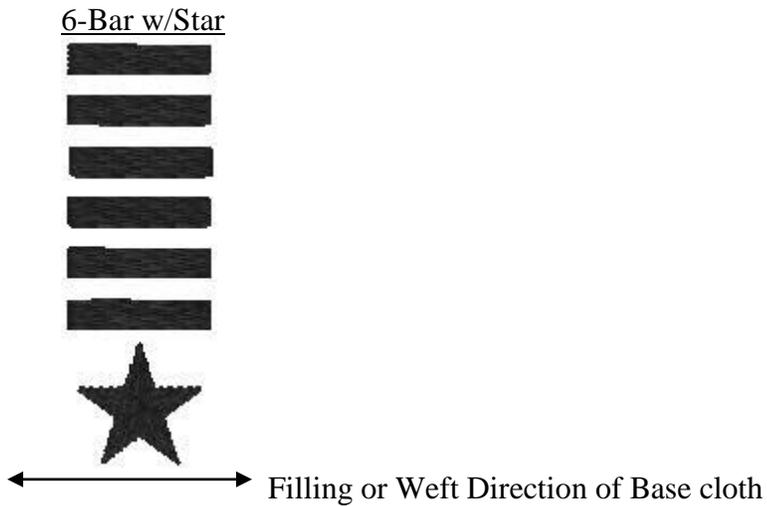


Figure 3.



- 3.5.3 Underlay stitches. Embroidery Underlay stitches are required, the number of stitches for each embroidery pattern shall equal or greater than that contained in the stitch files provided by the Contracting Officer.
- 3.5.4 Complex fill stitches. The visible embroidery patterns of bars, stars, and diamonds are mostly comprised of complex fill stitches. These complex fill stitches in conjunction with underlay stitches shall be of sufficient density as to not allow the base cloth to be visible within the embroidered design during an unaided viewing from a distance of 16-24 inches under naturally occurring lighting.
- 3.5.5 Thread trimming. All embroidery thread ends, threads between components of an embroidery design and sewing threads shall be neatly and cleanly trimmed to within  $\frac{1}{32}$ " of the last stitch.
- 3.6 Cutting and finishing Insignia. The contractor shall be cut into individual pieces and finished by uniformly turning under the edges of the base cloth from between  $\frac{3}{16}$  to  $\frac{5}{16}$ " and uniformly stitching the turned under edges to the Velcro hook-tape. See Table 1 for the finished dimensions of each insignia

- 3.6.1 Cutting base cloth. The contractor shall cut the base material into pieces sufficiently larger than the finished measurements listed in Table 1 to provide needed material for neat and clean turn-under and sewing (top-stitching) of base cloth onto Velcro.
- 3.6.2 Top-stitching. Top-stitching seam shall be between  $\frac{1}{16}$  and  $\frac{1}{8}$ " in from the folded edge. Top-stitching seam shall have 12 to 16 stitches per inch of a Stitching Type 301 of ASTM D6193.
- 3.6.3 Corner turning. The corners and points of the cloth base cloth shall be neatly turned and caught in the top-stitching so that no raw edge is exposed on the front of the finished insignia. The turning, when completed, shall produce a boarder on the face side of the insignia between  $\frac{1}{16}$  and  $\frac{1}{8}$ ".
- 3.6.4 Finished insignia. The finished insignia shall conform to the finished dimensions as listed in Table 1 ( $+\frac{1}{8}/-0$ "). The back-side of Velcro shall not be visible when viewing the face of the insignia. Contractor shall exercise due care and workmanship to cut proper lengths of Velcro and to properly position the folded base cloth on Velcro to prevent edges of Velcro from showing past the folded edges of the base cloth.

Table 1.

Insignia Name	Class	Stock Number	Embroidery Pattern Area (W x L)	Stitches per Pattern	Finished Insignia Area (W x L)
Plain (Blank)	1	840501y504504	none	none	2" x 2"
1-Bar	2	840501y504505	0.75" x 0.20"	445	2" x 2"
2-Bar	3	840501y504506	0.75" x 0.52"	866	2" x 2"
2-Bar w/Diamond	4	840501y504511	0.75" x 1.00"	1393	2" x 2"
2-Bar w/Star	5	840501y504512	0.75" x 1.21"	1435	2" x 2"
3-Bar	6	840501y504507	0.75" x 0.84"	1311	2" x 2"
3-Bar w/Star	7	840501y504513	0.75" x 1.54"	1808	2" x 2"
4-Bar	8	840501y504508	0.75" x 1.16"	1756	2" x 2"
4-Bar w/Star	9	840501y504514	0.75" x 1.86"	2276	2" x 2"
5-Bar	10	840501y504509	0.75" x 1.48"	2201	2" x 2"
5-Bar w/Star	11	840501y504515	0.75" x 2.18"	2721	2" x 2.38"
6-Bar	12	840501y504510	0.75" x 1.81"	2646	2" x 2"
6-Bar w/Star	13	840501y504516	0.75" x 2.50"	3166	2" x 2.75"

( $+\frac{1}{8}/-0$ ")

#### 4. VERIFICATION

4.1 Conformance inspection. Inspection shall be in accordance with the provisions set forth herein.

4.2 Visual examination of the end item. Visual examination of the completely finished item shall be made using the guidelines given in Table 2. The term “finished item” is defined as one completed insignia for an individual insignia. Examination shall be made at a distance of approximately 16-24 inches without aid under average daylight as provided naturally on the day of examination and in a manner to avoid as much reflected light as possible. Defects designated by an asterisk (\*) shall be classified as major when seriously affecting appearance or serviceability and minor when affecting appearance or serviceability but not seriously.

4.3 Examination results. Examination results shall be either pass or fail. To pass the Visual examination, examiner shall find no Major Defects or less than 4 Minor Defects. All other results will be considered failing results.

Table 2. Visual examination of the end item

<b>Examine</b>	<b>Defect</b>	<b>Major Defects</b>	<b>(*)</b>	<b>Minor Defects</b>
Base cloth	Other than specified. . . . .	X		
	Any splice, cut, hole, or tear visible on face . . .	X		
	Color/Shade not as specified . . . . .	X		
	Embroidery not placed on face of base cloth . . . . .	.....	*	
Backing	Backing material omitted or incomplete . . . . .	X		
Embroidery, General	Embroidery yarn not an acceptable match . . . . .	X		
	Non-uniform embroidery stitch density . . . . .	X		
	Bobbin thread showing on face . . . . .	X		
	Tight tension; distorted surface of face side . . . . .	.....	...	X
	Loose tension; loopy surface . . . . .	.....	...	X
	Traveling, walking-stitches on face of insignia . . . . .	X		
Broken stitches or stitching incomplete or missing . . .	X			
Design	Design inadequately covers base cloth; back-ground or underlay showing through; thin or uneven stitch density . . . . .	X		
Workmanship General	Kinked, bunched, tangled yarn on face . . . . .	.....	*	
	Broken, scuffed, or cut yarns on face . . . . .	X		
	Spot, stain, or foreign matter on face . . . . .	.....	*	
	Two or more thread ends untrimmed . . . . .	X		
Finishing	Any raw edge not turned under . . . . .	X		
	Any raw edge not firmly attached to back of insignia by stitching . . . . .	.....	*	
	Stitching irregular or unevenly gauged . . . . .	.....	*	
	Stitching less than 12 or more than 16 stitches per inch . . . . .	.....	*	

	Loose tension, loopy thread on hem . . . . .	.....	*	
	Wrong seam type or stitching type . . . . .	X		
	Corners and points not creased and folded down neatly, open or poorly formed . . . . .	.....	*	
	Corners and points not caught on back by stitching . . . . .	.....	*	
	Stitching margin not as specified . . . . .	.....	*	
	Opposing corners not uniform in appearance. . . . .	X		
	Top and bottom edges not parallel to Filling (weft) / perpendicular to Warp direction of base cloth . . . . .	.....	...	X

4.4 Examination for dimensions. Measurements shall be taken of all edges, points, lines, areas and spaces including:

- Finished length
- Finished width
- Boarder width
- Turn-under
- Spaces and distances to finished edges

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as follows:

- 5.1.1 Finished insignia shall be securely sealed in clear plastic wrap or clear plastic envelopes in quantities of up to fifty (50) pieces per package.
- 5.1.2 Plastic Packages shall contain only one class of insignia.
- 5.1.3 Each package shall be identified clearly with a label.
  - 5.1.3.1 Package labels shall indicate the Name, Stock Number, and Quantity of insignia contained therein.
- 5.1.4 Multiple packages may be shipped in sturdy cardboard boxes (cases) such that the gross weight of any case does not exceed 20 pounds.
- 5.1.5 To the greatest extent possible where quantities are sufficient, the contractor shall keep the contents of a case homogenous to one type of insignia.

6. GOVERNMENT FURNISHED PROPERTY

6.1 The contracting official will furnish only DST embroidery pattern files. Contractor shall convert these file to other formats necessary for only their use on their production equipment to meet the obligations of this contract.

6.1.1 Contractor may modify embroidery patterns as outlined in 3.5.1 to improve the visual appearance of the finished insignia with sharper corners and or cleaner lines. Spacing between bars, between bar and star or diamond shall not deviate from that found in government's patterns.

6.1.1.1 As part of this contract, Contractors shall provide to the Contracting Official copies of all modified patterns in DST format on a CD which shall become government property through the fulfillment of the contract.

6.1.2 Contractors may submit to the Contracting Official their recommendations to improve upon this Purchase Description which may or may not be adopted.

**USMA Purchase Description**  
**Patch, Numeral, Class-year 26**  
Local Stock Number TR0089

1. Numeral Embroidery Pattern area: approximately  $1\frac{5}{8}$ " wide by 1" high (+/-  $\frac{1}{16}$ ").
2. Finished dimensions including Boarder-stitching: approximately  $2\frac{1}{8}$ " wide by  $1\frac{1}{2}$ " high (+/-  $\frac{1}{16}$ ").
3. Numerals shall be embroidered in Perfect Tan (R& A color 2568 rayon) or an acceptably matching tan thread.
  - a. Other threads shall be submitted to the Cadet Uniform Factory, 687 Hardee Place West Point, NY 10996 for evaluation of acceptability prior to use.
4. Numerals shall be embroidered on Black twill or gabardine cloth.
5. Numeral embroidery pattern shall be centered Right to Left and Top to Bottom within the Area.
6. Numeral patches shall be backed with Velcro Hook-tape.
7. Numeral patches shall be stitched with a boarder stitch approximately  $\frac{1}{16}$ " wide on all four sides (+/-  $\frac{1}{64}$ " ).
  - a. Boarder stitch shall slightly increase the finished dimensions of the patch wider and higher than the cut dimensions by approximately  $\frac{1}{8}$ " in width and height (+/-  $\frac{1}{64}$ " ).
8. Numeral patches shall be secured in packages of 25 to 50 per package.
  - a. Packages shall be identified as to the quantity contained therein.

## Notes:

- These patches will be worn on the sleeves of Cadet Black Windbreakers, also known as "Black Jackets".
- The two-digit numerals represent the last two digits of the Class-year in which a class will graduate. Therefore those numerals will be updated annually.
- See page 2 for Figure 1 which is an image approximating the appearance of the patch face. Figure 1 is not drawn to scale and colors are approximations. See thread color listed in #3 above for exact embroidery thread color.

**Figure 1.** (For illustration purposes only, not drawn to scale and color approximations.)

