

MIL-S-87046A(CG)

12 November 1986

SUPERSEDING

MIL-S-87046

27 October 1978

## MILITARY SPECIFICATION

## SHIRT, UTILITY, MAN'S, POLYESTER/COTTON (CG)

\*This specification is approved for use by the United States Coast Guard, Department of Transportation, 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 polyester and cotton blend work shirt.

1.2 Classification. The shirts shall be in the following types and sizes (see 6.2).

1.2.1 Types.

Type I - Short Sleeve  
Type II - Long Sleeve

\* 1.2.2 Sizes.

	<u>Collar</u>	<u>Sleeve length (Type II only)</u>
Extra Small	(13-13 1/2)	31
Small	(14-14 1/2)	32
Medium	(15-15 1/2)	33
Large	(16-16 1/2)	34
Extra Large	(17-17 1/2)	35

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 and Textile Research Facility, 21 Strathmore Road, Natick, MA 01760-2490 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 8405

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## 2. APPLICABLE DOCUMENTS

2.1 Government documents.

\*2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation.

## SPECIFICATIONS

## FEDERAL

- NN-P-71 - Pallets, Material Handling, Wood, Stringer Construction, 2 and 4 Way (Partial).  
 DDD-L-20 - Label: for Clothing, Equipage and Tentage (General Use)

## MILITARY

- MIL-P-15011 - Pallets, Material Handling, Wood, Post Construction, 4-Way Entry  
 MIL-B-17143 - Button, Insignia (Anchor, Plastic, Black)  
 MIL-B-17757 - Boxes, Shipping, Fiberboard (Modular Sizes)  
 MIL-C-29140 - Cloth, Basket Weave, Polyester/Cotton (Crease Resistant Finish)  
 MIL-T-43548 - Thread, Polyester, Cotton-Covered and Rayon Covered  
 MIL-P-55010 - Plastic, Sheet, Polyethylene Terephthalate

## STANDARDS

## FEDERAL

- FED-STD-191 - Textile Test Methods  
 FED-STD-751 - Stitches, Seams, and Stitchings

## 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

(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.)

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2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this specification to the extent specified herein. Unless otherwise specified, the issues shall be those in effect on the date of the solicitation.

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).

\* 2.2 Other publications. The following document(s) form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of documents which are DoD adopted shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation.

TECHNICAL MANUAL OF THE AMERICAN

ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS

(Application for copies of the AATCC Manual should be addressed to the American Association of Textile Chemists and Colorists, Research Triangle Park, Post Office Box 12215, Durham, NC 27709.)

NATIONAL MOTOR FREIGHT TRAFFIC ASSOCIATION, INC., AGENT

National Motor Freight Classification

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

UNIFORM CLASSIFICATION COMMITTEE, AGENT

Uniform Freight Classification

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

DEPARTMENT OF DEFENSE STANDARD COLOR CARD  
OF OFFICIAL STANDARDIZED SHADES FOR SEWING THREAD

DEPARTMENT OF DEFENSE STANDARD SHADES FOR BUTTONS

(Application for copies may be obtained from the Color Association of the United States, Inc., 343 Lexington Avenue, New York, NY 10016).

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2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

## 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, the contractor shall furnish sample unit(s) for first article inspection and approval (see 4.3 and 6.2).

3.3 Material.

3.3.1 Basic material. The basic material shall be cloth, basket weave polyester/cotton conforming to Type I, MIL-C-29140. The color shall match shade Blue 3362.

\*3.3.2 Thread. The thread for seaming and stitching shall be covered polyester conforming to ticket No. 50, 30 and 70, 2 or 3 ply, of MIL-T-43548. The color of the thread shall be shade Blue AR Cable No. 66058 of Department of Defense Standard Shades for Sewing Thread.

\* 3.3.2.1 Colorfastness of thread. The dyed thread shall show fastness to laundering, perspiration, and light equal to or better than the standard sample when tested as specified in MIL-T-43548. When no standard sample is available, the dyed thread shall show good fastness to laundering, perspiration, and light when tested as specified in MIL-T-43548.

\*3.3.3 Buttons. The buttons shall be 25 line anchor insignia design conforming to class I of MIL-B-17143. The button shall match DoD Button shade black BT, Cable No.62001,cited in the Department of Defense Standard for Button shades (see 2.2), and shall have a glossy finish.

3.3.4 Label.

\* 3.3.4.1 Combination label. Each shirt shall have a combination identification, instruction and personal label conforming to type VI, classes 10 and 15 of DDD-L-20. The label shall show colorfastness to laundering. The inscription shall be as follows:

Name:  
 Service No:  
 Shirt, Utility, Man's, Polyester/Cotton  
 Fiber Content: Polyester (65%) and Cotton (35%)  
 Contract No: DLA 100-00-0-0000 (EXAMPLE)  
 Name of Contractor:

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## Laundering Instructions:

Machine Wash Warm, NO BLEACH  
Tumble Dry Medium Heat - Remove Promptly

3.3.4.2 Size label. Each shirt shall have a size label conforming to type IV or VI, Class 2 of DDD-L-20. The label shall be sufficiently sized to indicate size, sleeve length (when applicable) and stock number. The inscription shall be as follows:

M - 33 SL (EXAMPLE) (Type II only)  
M - (EXAMPLE) (Type I only)  
Stock Number 8405-00-000-0000 (EXAMPLE)

Abbreviation for the applicable size shall be XS for Extra Small; S for Small; M for Medium; L for Large; XL for Extra Large and sleeve length shall be SL.

3.3.5 Interlining, fusible. The topcollar, pocket flaps, and cuffs (Type II) shall be fused. The fused sample, consisting of fusible interlining and basic fabric, shall conform to the requirements stated below when tested as specified in 4.4.2.1 and 4.5. The color of the fusible shall be grey or black.

Component testing requirements

## Appearance of fused sample

Initial - No evidence of bubbling, color change or bleed through  
After 25 launderings - No evidence of bubbling or delamination

Stiffness, inch/lbs X 10<sup>-4</sup> (Average of six samples, three tested fusible side up and three tested fusible side down)

## Initial

Warp	Min. 47	Max. 96
Filling	Min. 14	Max. 30

After 25 laundering - Samples shall retain a minimum of 20% of its original measured stiffness.

## Peel Strength

Initial Min. 22 oz  
After 25 laundering Min. 16 oz

In process Testing Requirements

Appearance of fused sample - No evidence of bubbling, color change or bleed through

Peel strength Min. 20 oz.

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3.3.5.1 Fusible thickness. The thickness of the fusible interlining shall not measure greater than 0.030 inch when tested as specified in 4.4.2.

3.3.6 Collar stay. The collar stay shall be made from polyethylene terephthalate plastic sheet conforming to MIL-P-55010 except the thickness shall be  $0.010 \pm 0.001$  inch, the color shall be natural (clear or opaque) and the transparency and optical properties shall not apply. The stay shall measure not less than 1/4 inch or more than 3/8 inch wide and 3 ( $\pm 1/16$ ) inches long when tested as specified in 4.4.2. Both ends shall be round, pointed, cut on an angle or any combination thereof. When other than round, points shall be rounded.

3.4 Design. The Type II long sleeved shirt shall be made with a convertible collar and have a six button front, (extra small shall have a five button front) squared off bottom, and two outside breast patch pockets with button down flaps, with the left flap having a pencil opening. The top collar and the top ply of each pocket flap and cuff shall have a fusible interlining fused to it. The squared-off sleeve cuffs shall have two buttons on each cuff and the sleeve openings shall have a continuous binding (See figure 2).

The Type I shirt shall be similar in design and construction features, except that it shall have short sleeves (see figure 1).

3.4.1 Figures. Figures 1 and 2 are furnished for information purposes only. To the extent of any inconsistencies between the specification and the figure, the specification shall govern.

3.5 Patterns. Standard patterns to be used to cut working patterns will be furnished by the Government (see 6.3). The patterns allow 1/2 ( $\pm 1/16$ ) inch seam allowance for all seams, except as otherwise indicated in Table I. The working patterns shall be identical to the Government patterns. Neither the Government patterns nor the working patterns shall be altered in any way.

\* 3.5.1 Pattern parts. The component parts shall be cut from the material as specified and in accordance with the following list of pattern parts.

Material	Pattern Parts	Cut Parts
Cloth, polyester and cotton	Back	1
	Front (left and right)	2
	Sleeves	
	Type I	2
	Type II	2
	Collar (top and under)	2
	Cuff (Type II, only)	4
	Sleeve binding (Type II only)	2 <u>1/</u>
	Pocket (patch)	2
	Pocket flap	4 <u>2/</u>

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Material	Pattern Parts	Cut Parts
Fusible Interlining	Pocket flap	
	interlining (top ply)	2
	Collar interlining (top ply)	1
	Cuff interlining (top ply) (Type II only)	2
Templates	Template, finished pocket	-
	Template, finished flap	-
	Template marker, collar stay	-
	Template, buttonhole marker	-

1/ See operation 9e when sleeve binding pattern is not used and sleeve binding is rolled.

2/ Pocket flap may be cut as one piece. When used, delete seam allowance at top edge of flap.

### 3.6 Construction.

\* 3.6.1 Stitches, seams and stitchings. Stitch, seam and stitching types, as specified in Table I shall conform to the requirements of FED-STD-751. Whenever two or more methods for seams or stitchings are given for the same operation, any one of them may be used. Where stitch type 401 is used, the looper (underthread) shall be on the inside of the shirt. Edgestitching and topstitching shall be 1/16 inch from folded edge except as otherwise specified. Ends of all seams produced by stitch type 401 shall be caught in other seams or stitchings. The bight of the overedge stitching shall be 3/16 to 1/4 inch. When stitch type 515, 516, or 519 is used, the finished seam allowance shall measure 3/8 inch and the guide and knives on the machine shall be set to trim only the raveled ends of the fabric.

\* 3.6.2 Stitches per inch. The minimum and maximum number of stitches shall be as specified in Table I.

3.6.3 Thread breaks and ends of seams. Ends of all seams and stitchings when not caught in other seams or stitchings shall be backtacked not less than 3/8 inch. The ends of a continuous line of stitching (except label) shall be overlapped not less than 1/2 inch. The ends of the label stitching shall be overlapped not less than 3 stitches. Thread breaks (all stitch types) shall be secured by stitching back of break not less than 1/2 inch. Skipped stitches or thread breaks may be repaired by using 301 stitch type. When ends of overedge stitching are not caught in other seams or stitching, the ends shall be tacked.

3.6.4 Buttonholes. The buttonholes shall be straight style with both ends securely barred. The finished cut length shall be 3/4 (+ 1/16) inch.

3.6.5 Bartacks. Unless otherwise specified all bartacks shall be 1/4 (+ 1/16) inch long and 1/8 (+ 1/32) inch wide.

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\* 3.7 Manufacturing operations requirements. The shirts shall be manufactured in accordance with operation requirements as specified in Table I. The contractor is not required to follow the exact sequence of operations provided the finished shirts are identical to that produced by following the sequence listed in Table I.

3.7.1 Pressing operations. All pressing operations referenced in Table I shall be performed by using a heated pressing iron or steam pressing machine, except the fusible pressing which shall be pressed as recommended by the fusible manufacturer.

3.7.2 Fusing operations. All fusing of the fusible to the basic material shall be on a single ply basis (no stacking allowed). The statement "press fusible to various cut parts in accordance with directions of the fusible manufacturer" refers to time, temperature and pressure.

\*3.7.3 Shade and size marking. The component parts shall be marked, bundled, or ticketed to insure a uniform shade and size throughout the shirt. Any method of shade and size marking may be used except:

1. Corrosive metal fastening devices
2. Sew-on shade tickets
3. Adhesive type tickets whose adhesive causes discoloration or whose adhesive mass adheres to the material upon removal of the tickets.

NOTE: The use of ink pad numbering machine, rubber stamp or pencil is allowed, provided the numbering does not show on the outside of the shirt and wherever possible, is covered by the seam allowance.

3.7.4 Abbreviations in table of operations. The abbreviations used in table I are as follows:

Stch	-	Stitch
in	-	inch
Ndl	-	Needle
Bob	-	Bobbin
Lpr	-	Looper
Mchne	-	Machine
Brtck	-	Bartack
Comrc1	-	Commercial
smlr	-	similar
Btntl	-	Buttonhole
incl	-	including
dbl	-	double



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TABLE - I CONSTRUCTION OF SHIRTS

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD	
					NDL	BOB/ LPR
1.	<u>Cutting</u>					
	a. All components of the basic cloth shall be cut in strict accordance with patterns furnished, which show size, shape, placement of pockets and flaps, directional lines for cutting and notches for proper assembly of all parts.					
	b. All component parts shall be cut from one piece of material, except the under ply of the flaps, under ply of cuffs, sleeve bindings and undercollar which may be cut from ends, and when so cut, shall approximate the shade of the main assembly.					
*	c. Left and right fronts shall be cut with a selvage as the facing back edge or when shuttleless loom fabric is utilized, the facing back edge shall be turned under 1/8 inch and stitched 1/16 inch from folded edge.	301	EFb-1	8-12	50	50
	d. Fusing of the fusible to the basic material shall not be performed prior to cutting of cut parts.					
*2.	<u>Replacement of defective components</u>					
	During the spreading, cutting and manufacturing process, components having material defects or damages that are classified in section 4 shall be removed from production and replaced with non-defective and properly matched components.					
*3.	<u>Shade and size markings</u>					
	a. All parts shall be marked, banded, or ticketed to insure proper shade and size identification, except parts cut from ends (see 3.7.3).					
4.	<u>Make patch pocket</u>	301	EFb-1	8-12	50	50
	a. Fold top edge of pockets as indicated by pattern marks forming hem. Turn raw edge under and topstitch the folded edge.					

OR

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TABLE - I CONSTRUCTION OF SHIRTS

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD	
					NDL	BOB/ LPR
	As an alternate to operation 4(a), overedge stitch top raw edge of pockets. Fold the top edge of pocket as indicated by pattern marks forming the hem.	503, 504 or 505	EFd-1	8-12	70	70
	b. The pockets may be creased on an edge creasing machine to insure uniformity of size and shape.					
5.	<u>Make pocket flap</u>					
	*a. When flap is cut as one piece, fold flap in half face to face, center fusible to top portion 1/4 inch from sides and bottom edges and press. The pressing of the fusible to the top portion shall be in accordance with the directions of the fusible manufacturer. (fusible may be pressed prior to folding of the pocket flap).					
	b. With face sides together, stitch 1/4 inch from raw edge along one side, across bottom edges, and up opposite side, leaving a portion of the side open for turning.	301	SSe-2(a)	8-12	50	50
	c. Trim corners, turn flap through opening, work out corners and edges.					
	d. Topstitch the entire flap, 3/16 inch from worked-out edge, across top, side and bottom edges.	301	SSe-2(b)	8-12	50	50
	OR					
*	e. When flap is cut as two pieces, center fusible to backside of top ply of pocket flaps. Press fusible to top ply of pocket flaps in accordance with the directions of the fusible manufacturer.					

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TABLE - I CONSTRUCTION OF SHIRTS

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD	
					NDL	BOB/ LPR
	f. With face sides together, stitch top and bottom plies of left flap 1/4 inch from raw edge from mark on pattern across pencil opening, down side, across bottom edge and up opposite side.	301	SSe-2(a)	8-12	50	50
	g. Trim corners.					
	h. Turn flap to finished position working corners and seams out smooth and flat to edges.					
	i. Topstitch 3/16 inch from worked-out edge, from mark on pattern across pencil opening, down side, across bottom edge and up opposite side.	301	SSe-2(b)	8-12	50	50
	j. With face sides together stitch top and bottom plies of right flap 1/4 inch from raw edge down side, across bottom edge and up opposite side.	301	SSe-2(a)	8-12	50	50
	k. Trim corners.					
	l. Turn flap to finished position working corners, and seams out smooth and flat to edges.					
	m. Topstitch 3/16 inch from worked-out edge, down side, across bottom edge and up opposite side.	301	SSe-2(b)	8-12	50	50
	<u>Attach pockets</u> Finished appearance - When the facing is caught in pocket stitching it shall lay flat and smooth.					
	a. Set pockets to shirt according to marks on pattern, edgestitching the bottom and sides 1/16 inch from the folded edge.	301	LSd-1	8-12	50	50

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OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD	
				NDL	BOB/ LPR
b. Place a vertical bartack at each end of pocket opening, superimposed on pocket stitching.	Bartack		21-28 per bartack	50	50
c. The finished pocket shall measure 6 (+ 1/8) inches long and 5-1/4 (+ 1/8) inches wide for all sizes.					
d. The stitching and bartacking of the pocket to the shirt front shall catch that amount of the front facing that overlaps it and shall produce a smooth and flat appearance on the facings.					
NOTE: The finished pocket shall be checked for size and uniformity against the pocket template.					
7. <u>Sew on pocket flap</u>					
Finished appearance - When the facings are caught in the pocket flap stitchings, they shall lay flat and smooth.					
When flap is two piece:					
a. Position right flap on shirt aligned with marks on pattern, having the top ply of flap against outside of shirt with the pointed edge towards the neckline. Stitch 1/8 to 3/16 inch from raw edge.	301	LSb1-2(a)	8-12	50	50
b. Turn flap down and topstitch 3/16 to 1/4 inch from folded edge. Backstitch ends of topstitching and the raw edge of the pocket flap shall not be exposed.	301	LSb1-2(b)	8-12	50	50
c. Position left flap as indicated by marks on pattern having the top ply of flap against the outside of shirt with the pointed edge towards the neckline. Stitch 1/8 to 3/16 inch from raw edge, from end of pencil opening to end of flap.	301	LSb1-2(a)	8-12	50	50

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TABLE - I CONSTRUCTION OF SHIRTS

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD	
					NDL	BOB/ LPR
	d. Turn flap down and topstitch 3/16 to 1/4 inch from folded edge from end of pencil pocket opening to end of flap. Backstitch ends of topstitching. The raw edge of the pocket flap shall not be exposed.	301	LSb1-2(b)	8-12	50	50
	e. Place two vertical bartacks as indicated by marks on patterns to form pencil opening.	Bartack		21-28 per bartack	50	50
	f. The pencil opening in left pocket flap shall measure 1-1/4 to 1-3/8 inches wide.					
	or					
	When flap is one piece:					
	g. Position right flap on shirt as indicated by marks on pattern and edgestitch 1/16 inch from fold along the top edge from end to end of flap. Continue the stitching down the sides (approximately 1/8 inch) and across flap with the stitching superimposed upon the topstitching performed in operation 5d. Backstitch ends of topstitching.	301	Similar to LSd-2	8-12	50	50
	h. Position left flap on shirt as indicated by marks on pattern and edgestitch 1/16 inch from fold along the top edge of flap from end of pencil opening to end of flap. Continue the stitching down the sides (approximately 1/8 inch) and across flap, stopping the stitching at the end of pencil opening, and superimposing the stitching upon the topstitching performed in operation 5d.	301	Similar to LSd-2	8-12	50	50
	NOTE: Care shall be exercised to insure that the specified pencil opening is not closed by the flap attachment stitching.					

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NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD	
					NDL	BOB/ LPR
	1. Place two vertical bartacks as indicated by marks on pattern to form pencil opening.	Bartack		21-28 per bartack	50	50
	j. The finished flap shall measure 5-3/8 (+ 1/8) inches wide, 1-3/4 (+ 1/8) inches deep at sides and 2-3/4 (+1/8) inches deep at center for all sizes.					
	k. The stitching and bartacking of the pocket flap to the shirt front shall catch that amount of the front facing that overlaps it and shall produce a smooth and flat appearance on the facings.					
	NOTE: The finished pocket flap shall be checked for size and uniformity against the finished pocket flap template.					
8.	<u>Join shoulder seams</u>					
	a. Stitch the back to fronts at the shoulder seam, 1/2 inch from raw edges.	301 or 401	SSa-1	8-12	50	50 70
	b. Overedge stitch the edges together.	503, 504 or 602	SSa-1	8-12	70	70
	Operation 8a and 8b may be performed in one operation by simultaneously stitching and overedging.	515, 516 or 519	SSa-2	8-12	50	50 (chain- stitch- ing) 70 70 (over- edging)
9.	<u>Make sleeve openings</u> (Type II only)					
	a. Bind sleeve opening with a continuous 2 inch wide strip of basic fabric. Fold strip in half, turn raw edges of binding inside, inserting edge of sleeve opening. Stitch through all plies of material, 1/16 inch from folded edge of binding.	301 or 401	BSc-1	8-12	50	50 70

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NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD	
					NDL	BOB/ LPR
	b. Fold and turn opening to finished position with the top binding forming a facing. Stitch or bartack with a 1/16 inch wide bartack, 1/8 to 1/4 inch below top of opening through sleeve, top binding, and bottom binding the full width of facing.	301 or - bartack		8-12	50	50
	c. Finished facing shall measure 5/8 to 3/4 inch in width.					
	d. Finished sleeve opening shall measure 5-1/2 (+ 1/4) inches long, exclusive of cuffs.					
	OR					
	As an alternate, the sleeve bindings may be furnished on rolls. When this option is exercised, the binding shall be cut in the warp direction approximately 2 inches wide. The finished facing shall measure 5/8 to 3/4 inch wide and splices shall not appear on the finished binding.					
10.	<u>Set sleeves to armholes</u>					
	a. With face sides together, stitch the sleeves to the armholes 1/2 inch from the raw edges. The shoulder seam allowance shall finish towards the back.	301 or 401	SSa-1	8-12	50	50 70
	b. Overedge stitch the raw edges together.	503, 504 or 602	SSa-1	8-12	70	70
	OR					
	Operations 10a and 10b may be performed in one operation by simultaneously stitching and overedging. The shoulder seam allowance shall finish towards the back.	515, or 519	516 SSa-2	8-12	50	70 (chain- stitch- ing) 70 70 (over- edging)

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NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD	
					NDL	BOB/ LPR
11.	<u>Join side seams and underarm seams</u>					
	a. With face sides together, stitch the side seams and underarm seams 1/2 inch from raw edge. The armhole seam allowance shall finish towards the sleeve.	301 or 401	SSa-1	8-12	50	50 70
	b. Overedge stitch the raw edges together.	503, 504 or 602	SSa-1	8-12	70	70
	or					
	Operations 11a and 11b may be performed in one operation by simultaneously stitching and overedging. The armhole seam allowance shall finish towards the sleeve.	515, 516 or 519	SSa-2	8-12	50	50 (chain- stitch- ing) 70 70 (over- edging)
*	NOTE: Side and underarm seams shall be staggered not more than 1/4 inch.					
12.	<u>Make and set cuffs - Type II shirt</u>					
	a. Position fusible to inside of top ply of cuff with the fusible centered and 3/16 inch from all raw edges. Press fusible to top ply of cuff in accordance with the directions of the fusible manufacturer.					
	b. Position the cuff plies, face to face, and stitch 1/4 inch from the edge along bottom and both ends.	301	SSe-2(a)	8-12	50	50
	c. Trim corners and turn cuffs to finished position.					
	d. Topstitch 3/16 inch from folded edge along bottom and both ends. The topstitching shall finish 1/2 (+ 1/8) inch from top edge of finished cuff. The topstitching may taper to edge of cuff at ends of stitching and need not be backstitched.	301	SSe-2(b)	8-12	50	50



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NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD	
					NDL	BOB/ LPR
*	e. Stitch the top edge of the inner ply of cuff to the bottom edge of sleeve 1/4 inch from raw edge putting pleat into sleeve according to marks on pattern with the pleat folded towards the buttonhole.	301	SSa-1	8-12	50	50
	f. Turn cuff to finished position and stitch 1/16 inch from folded top edge of cuff to bottom of sleeve on the outside. The finished cuff depth shall be 2-3/4 inches ( $\pm 1/8$ ).	301	LSb-1	8-12	50	50
	OR					
	As an alternate: Cuffs may be attached in one operation, (1/8 inch may be added to the patterns, however, finished measurements must be maintained) providing the finished appearance is the same as specified in "e" and "f" above, and the ends of the row of stitching are backtacked or crossed with another line of stitching.					
13.	<u>Hem sleeve (Type I shirts)</u>					
	a. Form a hem on the bottom of the sleeves with edge turned under, stitching 1/16 to 1/8 inch from edge.	301	EFb-1	8-12	50	50
	NOTE: The hemming of sleeve may be performed before or after joining of underarm seam.)					
	b. The finished hem shall measure 7/8 to 1 inch in width.					

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NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD	
					NDL	BOB/ LPR
*	NOTE: When sleeve is hemmed prior to joining underarm seams, end of seam shall be backtacked not less than 3/8 inch, or a horizontal bartack shall be placed across seam allowance, at the end of the underarm seam 3/16 to 1/4 inch from bottom of sleeve.	301	SSa-1	8-12	70	70
		Bartack		21-28 stchs/ bartack	70	70
14.	<u>Make collar</u>					
	a. The stays shall be positioned so that on the finished shirt they are at a 25 to 30 degree angle from the front edge of the collar and the tapered ends are fitted into the collar point. The construction shall be as follows:					
	(1) Spot laminate both tips of the stay to the undercollar. Spot lamination shall not extend more than 5/8 inch from either tip.					
	or					
	(2) If slot type collar stays are used, stitch stays to undercollar. The stitching shall straddle the center bar of the stay and shall not penetrate the stay material.	101	(zig-zag)	20-24	70	70
	or					
	(3) If solid stays are used, the stay shall be stitched to the undercollar with the stitching centered down the middle of the stay.	301	SSaa-1	8-12	50	50
	b. Position fusible to back side of topcollar 3/16 inch from sides and top edges. Press fusible to back side of topcollar in accordance with directions of the fusible manufacturer.					
	c. With face sides together, stitch top collar and undercollar pieces together around the top and side edges 1/4 inch from raw edges.	301	SSe-2(a)	8-12	50	50
	d. Trim corners.					
	e. Turn to finished position working out points and outer edges.					

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TABLE - I CONSTRUCTION OF SHIRTS

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD	
					NDL	BOB/ LPR
	f. Topstitch 3/16 inch from sides and outer edges.	301	SSe-2(b)	8-12	50	50
15.	<u>Attach collar to body of shirt</u>					
	a. Center the combination label (see 3.3.4.1) on right facing approximately 1-1/2 inches above finished bottom edge and stitch on all four sides (through facing only).	301	LSbj-1	8-12	50	50
	b. Fold back left and right fronts, face to face, at notch to form facing.					
	c. Position the collar between the front and facing at the collar notches (3/4 inch from folded facing edge) and stitch from the front edge to within 3/4 (+ 1/8) inch from the inner edge of the facing, 1/4 inch from the raw edge. Notch through all plies of materials on the neckline at termination of stitches.	301	SSa-1	8-12	50	50
	d. Stitch the undercollar to back at neckline between the notches made by the operator, with the stitching 1/4 inch from raw edge.	301	LScg-2(a)	8-12	50	50
	e. Turn facings to finished position working out steps.					
	f. Turn under raw edges of top collar between notches and topstitch 1/16 inch gauge simultaneously catching the ends of facing in the stitching and catching the size label (see 3.3.4.2) in the top collar stitching. The label shall be centered (+ 1/2 inch) on the inside neckline of shirt.	301	LScg-2(b)	8-12	50	50

OR

As an alternate, the type IV size label inscription as specified in 3.3.4.2 may be stamped using white ink, centered inside bottom edge of top collar. There shall be no printing visible on outside of finished collar as worn.

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TABLE - I CONSTRUCTION OF SHIRTS

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD	
					NDL	BOB/ LPR
*16.	<u>Hem fronts and backs.</u>					
	a. Fold under the bottom of the shirt with the raw edge turned under 3/8 inch, the side seams folded towards the back and the facing turned to the finished position. Stitch through all plies of material 1/16 inch from inner folded edge of hem.	301	EFb-1	8-12	50	50
	b. The finished hem shall measure 3/8 (+ 1/8) inch wide.					
17.	<u>Make buttonholes</u>					
	All shirts shall have six buttonholes in the left front (except extra small which shall have five), one buttonhole in each pocket flap, and one buttonhole in each cuff (Type II only).					
	a. Make one horizontal buttonhole at top in left front with inside cut end of buttonhole 1/2 (+ 1/8) inch from front edge and 3/8 (+ 1/8) inch below neckline.		Button- hole		42-46	50 50 per buttonhole not includ- ing tacks
	b. Make five vertical buttonholes in the left front (except extra small which shall have four) 3/4 (+ 1/8) inch from edge of front and spaced as indicated by pattern marks.					
	c. One vertical buttonhole shall be centered in each pocket flap 7/8 (+ 1/8) inch from the lower edge. The measurement shall be taken from center of buttonhole.					
	d. Make a buttonhole parallel to the long edge of, and centered in each cuff 3/8 to 1/2 inch from edge. (Type II only).					
18.	<u>Sew on buttons</u>					
	a. All buttons shall align with corresponding buttonholes. The crown of the anchor shall point downward and the stitching shall follow the sewing guide of the buttons.					

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TABLE - I CONSTRUCTION OF SHIRTS

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD	
					NDL	BOB/ LPR
	b. Sew six buttons securely by machine (except extra small which shall have five) on right front with center of button $3/4$ ( $+ 1/8$ ) inch from front edge of facing, corresponding to respective buttonholes.	301 or 101		14-16 per button 20-22 per button	30 30	30 30
	c. Sew a button on each pocket to correspond with buttonhole in pocket flap.	301 or 101		14-16 per button 20-22 per button	30 30	30 30
	d. Sew two buttons aligned on each cuff and centered to correspond with buttonholes in cuffs; with center of first button $1/2$ ( $+ 1/8$ ) inch from edge and center of second button placed one inch from the center of first (Type II only).	301 or 101		14-16 per button 20-22 per button	30 30	30 30
	e. The crown (bottom) of the anchor of all buttons shall point towards the bottom of the shirt. On Type II shirt cuffs, it shall point towards the bottom of the cuff.					
19.	<u>Clean shirts</u>					
	a. Trim all thread ends. Care shall be taken when trimming thread ends that damage to the fabric does not result.					
	b. Remove all loose threads inside and out.					
	c. Remove all spots, stains and shade tickets.					
20.	<u>Press shirts</u>					
	a. The entire shirt shall be neatly pressed with heated iron or pressing machine.					
	NOTE: The use of steam inflated bag type machine is prohibited for pressing.					
	b. Button shirt and fold for packaging.					

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\* 3.8 Size and measurement. Size and measurements of the finished shirts shall be according to Table II (see figures 1 and 2). All measurements are expressed in inches.

Table II - Sizes and finished measurements

Size	A	B	C		D
	Chest	Length	Sleeve lengths		collar
			Type I	Type II	
Extra Small	38	30-3/4	6	31	13
Small	42	31	6	32	14
Medium	46	31-1/4	6	33	15
Large	50	31-1/2	6	34	16
Extra Large	54	31-3/4	6	35	17
Tolerances	<u>+ 1</u>	<u>+ 1/2</u>	<u>+ 1/2</u>	<u>+ 1/2</u>	+ 1/2 - 1/4

NOTE: A, B, C and D refer to figures 1 and 2. A, B, and C measurements shall be taken with the shirt buttoned, laid flat and smooth.

- A. Chest - Twice the measurement taken across the front at the base of the armhole from folded edge to folded edge.
- B. Back length - Back length shall be taken along the center of the back from the under collar seam to bottom edge of shirt.
- C. Sleeve length - (Type I) Measure from base of armhole (junction of seams) along inseam to bottom of sleeve.  
(Type II) Measurement shall be taken from center of back at undercollar seam, diagonally across back along sleeve to top fold at bottom edge of cuff.
- D. Collar - Measurement shall be taken along base of collar, from collar edge to collar edge.

3.9 Workmanship. The finished shirts shall conform to the quality of product established by this specification. The occurrence of defects shall not exceed the applicable acceptable quality level.

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the contractor may use his own or any other facilities suitable for 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.

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4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

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

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

1. First article inspection (see 4.3).
2. Quality conformance inspection (see 4.4).
  - a. In process inspection (see 4.4.1)
  - b. Material inspection (see 4.4.2).

4.3 First article inspection. The first article submitted in accordance with 3.2 shall be inspected as specified 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 hereinafter.

4.4.1 In-process inspection. In addition to component and material inspection, in-process inspection is required. (see 4.5).

4.4.2 Component and material inspection. In accordance with 4.1 above, components and materials shall be tested in accordance with all the<sup>o</sup> requirements of referenced specifications, drawings, and standards unless otherwise excluded, amended, modified, or qualified in this specification or applicable purchase documents. The contractor shall furnish a certificate of compliance for the fusible thickness requirements of 3.3.5.1 and the collar stay requirements of 3.3.6.

4.4.2.1 Testing of components. In addition, components and materials listed in Table III shall be tested for the characteristics specified and in accordance with the referenced test methods of 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 units fail to meet any requirements specified. All fused samples for Table III testing shall be performed on the end item manufacturer's equipment. Two sample units shall be taken regardless of end item lot size. The sample unit shall be expressed as follows:

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<u>Material</u>	<u>Sample unit for testing</u>
Basic material and fusible interlining fused together	a 15X15 inch sample

Table III - Component testing

<u>Characteristic</u>	<u>Requirement paragraph</u>	<u>Test method</u>
Stiffness Initial After 25 launderings	3.3.5	5206 AATCC-124-1978 <u>1/</u> and 5206
Peel strength Initial After 25 launderings	3.3.5	5951 AATCC-124-1978 <u>1/</u> and 5951
Appearance of fused sample Initial After 25 launderings	3.3.5	Visual AATCC-124-1978 <u>1/</u> and Visual

1/ One 15X15 inch specimen shall be laundered; wash temperature shall be 140° + 5° F (60° + 3° C); and tumble drying shall be performed after each wash. The evaluation portion of the AATCC test method is not applicable. Pressing of the samples prior to evaluation is prohibited.

#### 4.5 In-process inspection.

4.5.1 Sample size. The size of the fused check sample shall correspond to the total area covered by the collars, pocket flaps or cuffs which are fused at one time on the press (see 4.5.2).

4.5.2 Number of check samples. One check sample (see 4.5.1) shall be prepared following fusing of every 1000 collars, pocket flaps, or cuffs as applicable, and tested for the characteristics in 4.5.3. and 4.5.4.

4.5.3 Appearance of the fused check sample. Each check sample shall be visually inspected for color change, bleed through and bubbling. If there is any evidence of these conditions present, the previously fused 1000 collars, pocket flaps or cuffs shall be inspected for the above conditions. Any collar, pocket flaps, or cuffs exhibiting any one of these conditions shall be removed from the lot.

4.5.4 Peel strength. The method of testing shall be as specified in 4.5.4.1. If the check sample fails the peel strength test, the previously 1000 fused collars, pocket flaps or cuffs and check sample shall be refused after the fault has been corrected. If the check sample fails a second time, the 1000 collars, pocket flaps or cuffs shall be rejected.

4.5.4.1 Apparatus and procedure for in-process peel strength testing. The apparatus to be used for this test shall be a commercial type spring scale accurate to 0.5 oz. The procedure to be followed in performing the test shall be as follows.



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- (1) Three 1X8 inch wide strips parallel to the warp direction shall \*be cut (one each from the right, middle and left side of the sample) for peel strength testing.
- (2) Separate the fusible from the basic material at the end of 1 inch wide strips for a distance of 2 inches.
- (3) Secure the end of the basic material in a lightweight clamp like holder that is 1 inch or more in width and approximately 1.0 oz in weight. Hang the clamp on the end of the spring scale.
- (4) Position the fusible to another clamp 1 inch or more in width and pull the fusible downward in a vertical direction with a steady continuous motion (motion to be exerted by hand) until complete separation of the fusible from the samples. Minimum peel strength reading shall be taken visually from the spring scale.

Failure of any individual strip shall indicate failure of the sample.

NOTE: Care should be taken not to jerk the fabric during the testing.

\* 4.6 Examination of the end item. The item shall be examined for the defects listed in 4.6.1 through 4.6.3. The sample unit shall be one shirt. Defects shall be classified as listed.

4.6.1 General defects.

Defect	Classification	
	Major	Minor
<b>I MATERIAL DEFECT AND DAMAGE</b>		
a. Hole, cut, tear, smash, burn, drill hole, scorched area or open place:		
1. On outside (longest dimension in any direction):	X	
2. On inside (longest dimension in any direction):		
(a) More than 1/4 inch		X
3. Knot or slub on outside		X
b. Misweave, area of no dye penetration, dye streak, missing yarn, broken yarn, visible mend, thin place, shade bar; on outside. (Not to be scored on on undercollar, underply of flaps or below bottom button		X
c. Loose yarn, snagged thread, coarse yarn or woven in waste <u>1/</u>		X
d. Embedded crease of a permanent nature in cloth		X
e. Needle chew on outside (largest dimension in any direction):		
1. Up to 1/2 inch, inclusive		X
2. More than 1/2 inch	X	

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Defect	Classification	
	Major	Minor
<u>II SHADED PARTS</u>		
a. Any part required to be cut from one piece of material, shaded	X	
b. Variation in shade within an outside part or between outside parts. Not to be scored on undercollar, underply of flaps or below bottom button		X
c. Under collar, under flaps, sleeve bindings or underply of cuffs do not approximate the shade of shirt.		X
<u>III CLEANNESS</u>		
a. Spot or stain on outside	X	
b. Thread ends not trimmed.		
1. Three or more on outside more than 1/4 inch	X	
2. Five or more inside 1/2 inch or less		X
c. One or more shade or size tickets not removed		X
<u>IV CUTTING</u>		
a. Any component part not cut in conformance with specification requirements	X	
<u>V COMPONENT AND ASSEMBLY</u>		
a. Any component part omitted or required operation omitted (unless otherwise classified)	X	
b. Any component part twisted, distorted, pleated, misshaped, tight or full (unless otherwise classified)		X
c. Any component not as specified (type, size, color etc)	X	
d. Any operation not performed as specified (unless otherwise classified)		X
e. The edge of any component part required to be forced out having folds of more than 1/8 inch (unless otherwise classified)		X
1. More than 1/8 inch		X
<u>VI PRESSING</u>		
a. Omitted	X	
b. Seams not pressed flat or poorly pressed		X
c. Seams not pressed in direction indicated		X

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Defect	Classification	
	Major	Minor
<b>VII SEAMS AND STITCHING</b>		
<b>a. Accuracy of seaming:</b>		
1. Seam irregular, twisted, pleated, or wavy on outside	X	
2. Seam puckered (score only when on major portion of seam)		X
3. Any part of shirt caught in an unrelated operation or stitching		X
4. End of stitching when not caught in other seam or stitching backstitched less than 3/8 inch		X
5. Thread break secured by stitching back of the break less than 1/2 inch		X
6. Ends of a continuous line of stitching overlapped less than 1/2 inch		X
7. Wrong or varying shades of specified color thread used on outside of shirt		X
<b>b. Gauge of stitching and seam allowance:</b>		
1. Gauge irregular or not within range specified		X
2. Edge or topstitching sewn too close to edge, resulting in damage of cloth		X
3. Seam allowance greater than 1/16 inch more or less than specified		X
<b>c. Open seam: (Resulting from 2 or more skipped, broken, run-off or missing stitches)</b>		
1. On all seams except bottom hem and label stitching		
(a) Up to 3/4 inch (inclusive)		X
(b) More than 3/4 inch	X	
2. Bottom hem: more than 1/2 inch		
NOTE: A safety-stitch seam shall be considered open when either the inside stitch or the overedging is broken. A joining seam shall be classified as open when one or more stitches in a seam are broken or runoff, or when two or more continuous skipped stitches occur.		
<b>d. Runoff:</b>		
1. On joining seam score as open seam		
2. Edge or topstitching (When not resulting in an open seam):		
(a) More than 1/2 inch		X

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Defect	Classification	
	Major	Minor
e. Raw edge:		
1. On outside		
(a) More than 3/8 inch	X	
2. On inside		
(a) More than 2 inches	X	
(b) 1/4 inch up to 2 inches inclusive		X
f. Seams and stitch type:		
1. Not specified seam or stitch type	X	
2. Looper thread of 401 stitch type on outside	X	
3. Any required line of stitching omitted	X	
4. Any line of stitching not beginning or ending where specified (unless otherwise classified herein)		X
5. Any seam not lapped or finished as specified		X
g. Broken, missing or skipped stitches on edge or top stitching (when seam is seamed, turned and stitched):		
1. 1/2 inch or more		X
h. Stitch tension		
1. Loose tension resulting in a loose seam	X	
2. Loose tension on top or edge stitching resulting in exposed loose thread		X
3. Tight tension (stitches break when normal strain is applied in direction of seam or stitching)	X	
4. Tight tension; top and bottom thread loops not uniform		X
i. Stitches per inch (to be scored only when the condition exists on more than half the length of seam or stitching)		
1. Less than the minimum	X	
2. More than maximum		X

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Defect	Classification	
	Major	Minor
<u>VIII BUTTONHOLE</u>		
a. Omitted, not specified type, size or not finished as specified	X	
b. Uncut or partially cut buttonhole		X
c. Ragged edges, i.e, yarns or thread ends on inside of buttonholes not trimmed to less than 1/4 inch or basic fabric not caught by buttonhole stitching		
1. One or more but less than six		X
2. Six or more	X	
d. One or more broken stitches or two or more skipped stitches in one or more buttonholes		X
e. Buttonhole stitching extending beyond bartack; stitches per buttonhole less than minimum specified		X
f. Finished cut length less than 11/16 inch or greater than 13/16 inch		X
<u>IX BUTTON: One or more</u>		
a. Missing, broken, defective, misplaced, not positioned or attached a specified, or insecurely sewn	X	
b. Stitching on one or more not locked at end of cycle (tug at the loose end of the thread when accessible to determine if it will ravel)		X
c. Button stitching not in the grooves of button		X
<u>X MARKING</u>		
a. Not affixed as specified or misplaced		X
b. Missing, incorrect, illegible or strike through	X	
<u>XI COLLAR</u>		
a. Not uniform in size or shape - any point varying:		
1. More than 3/8 inch with corresponding point on matching part	X	
2. 1/4 inch up to 3/8 inch (inclusive) with corresponding point on matching part		X
b. Collar point uneven in length by:		
1. More than 1/4 inch up to 3/8 inch (inclusive)		X
2. More than 3/8 inch	X	
c. Twisted, not smooth, short or tight causing collar to turn out	X	
d. Collar point not properly forced out	X	

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Defect	Classification	
	Major	Minor
e. Collar off center (Center of collar is determined by aligning the two shoulder seams at junction of collar).		
1. More than 3/8 inch		X
f. Collar tight causing puckers or pleats at neckline		X
g. Ends of collar not properly forced out, i.e., having a fold of		
1. More than 1/8 inch in depth		X
h. One or both collar stays missing	X	
i. One or both collar stays not spot laminated at both of ends of stay if laminated stays are used		X
j. Under collar exposed on outside of top collar more than 1/16 inch for a distance of more than 1 inch		X
k. Any pleat, pucker, or crease on topcollar piece		X
<b>XII <u>FRONTS</u></b>		
a. Closure		
1. Buttons and buttonholes out of alignment causing a noticeable bulge on fronts when buttoned	X	
2. Length of fronts uneven at bottom when buttoned by:		
(a) More than 3/8 inch		X
3. Length of fronts uneven at neckline when buttoned by 1/4 inch or more		X
b. Front buttonholes (position)		
1. Vertical misalignment of 3/8 inch or more		X
2. Not positioned as specified	X	
c. Front facing		
1. Inner edge not cut on selvage or hemmed		X
2. Neck edge not completely caught in collar seam	X	
<b>XIII <u>POCKET(S) OR FLAP(S)</u></b>		
a. Not uniform in size or shape - any measurement varying from pocket to pocket, or flap to flap, or pocket or flap to template by:		
1. More than 1/4 inch	X	
2. 1/8 inch up to 1/4 inch (inclusive)		X

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Defect	Classification	
	Major	Minor
b. Out of alignment from pocket to pocket or flap to flap by: (Determination may be made by a straight edge)		
1. More than 3/8 inch	X	
2. More than 1/4 inch up to and including 3/8 inch		X
<b>XIV <u>POCKET</u></b>		
a. Pocket edge not parallel to front edge of shirt by:		
1. More than 3/8 inch	X	
2. 1/4 inch up to 3/8 inch inclusive		X
b. Edge of pocket pleated or twisted		X
c. Pocket corner not bartacked as specified		X
d. Pocket width or depth not as specified		X
e. Pocket opening gapped		X
<b>XV <u>FLAP</u></b>		
a. Attached crookedly		
1. Distance between sides of pocket and underside of opened flap vary by more than 1/8 inch.	X	
b. Width or length of flap not as specified		X
c. Pocket exposed beyond end of flap by 1/8 inch or more		X
d. Raw edge exposed on underside of flap		X
e. Edge of flap not parallel to front edge of shirt by:		
1. More than 3/8 inch	X	
2. 1/4 inch up to 3/8 inch (inclusive)		X
<b>XVI <u>SLEEVES AND ARMHOLE</u></b>		
a. Sleeve tight causing pleat or excessive puckers on front, back or sleeve	X	
b. Sleeves reversed	X	
c. Construction of sleeve opening:		
1. End of binding not securely caught in sleeve opening, i.e., can be easily pulled away	X	
2. Top of bound opening not stitched across width of binding		X
3. Binding twisted or puckered		X
4. Bound edge of sleeve opening not turned to the inside at buttonhole end of cuff		X
5. Binding width not as specified		X
6. Sleeve opening not as specified		X
7. Splice visible on sleeve binding		X
d. Side and underarm seam staggered more than 1/4 inch		X

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Defect	Classification	
	Major	Minor
<b>XVII <u>CUFFS</u></b>		
a. Reversed, i.e., buttonhole on underside and button on top side	X	
b. Irregular in width by 1/4 inch or more		X
<b>XVIII <u>BOTTOM HEM AND SLEEVE HEM</u></b>		
a. Width not as specified		X
b. Irregular in width by 1/4 inch or more		X
c. Hem twisted, pleated or puckered		X
d. Hem end extending more than 1/8 inch beyond front edge of shirt		X

4.6.2 Dimensional examination. Any measurement deviating from the dimensions and tolerances specified in Table II shall be scored as a measurement defect. Sleeves uneven in length by more than 1/2 inch shall be classified as a measurement defect.

\* 4.6.3 Inspection levels and AQL's The inspection levels and the acceptable quality levels (AQL) expressed in defects per hundred units (DHU) shall be as follows:

	<u>AQL's</u>	<u>Inspection levels</u>
For defects listed in 4.6.1		
Major	2.5	II
Total (Major and minor combined)	10.0	II
For defects listed in 4.6.2 (size measurements)		
One class	4.0	S-3

\* 4.7 Packaging inspection An examination shall be made to determine that packaging, packing, and marking complies with the Section 5 requirements of the specification. Defects shall be scored in accordance with the list below. The sample unit shall be one shipping container fully prepared for delivery except that it need not be sealed. 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 100 units.



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<u>Examine</u>	<u>Defect</u>
Marking (exterior or 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, loose strapping, or inadequate stapling. Bulging or distorted container.
Content	Number of unit packages per shipping container is more or less than specified. Size shown on shirt not as specified on unit package or shipping container. <u>1/</u>

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1/ For this defect, one unit package from each shipping container in sample shall be examined

\* 4.7.1 Palletization examination 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 packaged. 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, expressed in terms of defects per hundred units, shall be 6.5 in accordance with MIL-STD-105.

<u>Examine</u>	<u>Defect</u>
Finished dimensions	Length, width, or height exceeds specified maximum requirements.
Palletization	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

## 5. PACKAGING

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

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5.1.1 Level A Each fully buttoned shirt shall be folded to measure approximately 14 1/2 inches in length by 11 inches in width. Five shirts of one size only shall be neatly stacked in a bundle with the collars alternated with the body portion. The bundle shall be secured at each end with cotton twine or tape.

5.1.2 Level C (Commercial packaging) Shirts shall be packed 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.

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

5.2.1 Level A Sixty type I shirts or fifty type II shirts of one size only, packaged as specified in 5.1, shall be packed in a fiberboard shipping container assembled, closed and reinforced conforming type CF, to class weather-resistant, variety DW, grade V15C, size 3A of MIL-B-177557. The fiberboard for the box liner shall conform to type CF, class domestic, of MIL-B-17757. Level A packages shall be packed flat two in length, one in width, and six in depth for type I shirts or two in length, one in width, and five in depth for type II shirts. Each container shall have the contents completely covered on the top and bottom with a sheet of commercial grade kraft paper. Toward the end of the contract or when there are less than the required amount per container of the same size, mixed sizes of one type only may be packed within the same shipping container.

5.2.2 Level B Sixty type I shirts or fifty type II shirts of one size only, packaged as specified in 5.1, shall be packed in a fiberboard shipping container assembled and closed conforming to type CF, class domestic, variety DW, grade 275, size 3A of MIL-B-17757. The fiberboard for the box liner shall conform to type CF, class domestic, of MIL-B-17757. Level A Packages shall be packed flat two in length, one in width, and six in depth for type I shirts or two in length, one in width, and five in depth for type II shirts. Each container shall have the contents completely covered on the top and bottom with a sheet of commercial grade kraft paper. Toward the end of the contract or when there are less than the required amount per container of the same size, mixed sizes of one type only may be packed within the same shipping container.

5.2.3 Level C (Commercial packing) Shirts packaged as specified in 5.1, shall be packed in a manner to insure carrier acceptance and safe delivery at destination at the lowest transportation rate for such supplies. The quantity per shipping container shall be the same as that normally used by the contractor for retail distribution. Container shall comply with the US Postal Service Manual, Uniform Freight Classification Rules or National Motor Freight Classification Rules, as applicable.

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

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5.3.1 Labels, Mixed NSN'S. Each shipping container packed with mixed NSN's shall have securely attached to the end and side, directly under the printing and stenciling, a white paper label 5 by 4 inches with the words "MIXED NSN'S" plainly stamped or printed thereon and under these words shall be legibly stamped or printed the correct quantity and sizes contained therein.

5.4 Palletization. When specified (see 6.2), item, packed as specified in 5.2, shall be palletized on a 4-way entry pallet in accordance with load type Ia of MIL-STD-147. Each prepared load shall be bonded with primary and secondary straps in accordance with the bonding means C, K and L or bonding means P or O. Pallet patterns shall be in accordance with the appendix of MIL-STD-147. The pallet shall be 4-way, Type IV, V, Class 1, Size 2 or VIII, fabricated from Wood Groups I, II, III, or IV, Grade A of NN-P-71, or 4-way, Style 1, Size A, Type I, Class 1 fabricated from Wood Groups specified in MIL-P-15011. Interlocking of loads shall be effected by reversing the pattern of each course. If the container is of a size which does not conform to any of the patterns specified on MIL-STD-147, the pallet pattern used shall be approved by the contracting officer.

## 6. NOTES

6.1 Intended use The shirts are intended to be worn with the utility trousers by Coast Guard enlisted male personnel stationed aboard ships and at shore bases in the performance of multi-type indoor and outside duties.

6.2 Ordering data Procurement documents should specify the following:

a. Title, number and date of this specification.

b. Types and sizes required (see 1.2).

c. When a first article inspection is required, (see 3.2) the item will be tested and should be a first article sample. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examinations, quantity, and testing and approval of the first article.

d. Selection of applicable levels of packaging and packing (see 5.1 and 5.2).

e. When palletization is required (see 5.4).

6.3 Samples and patterns For access to samples and patterns, address the procuring activity issuing the invitation for bids.

6.4 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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6.5 Subject term (key word) listing

Blue 3362  
Fused  
Long/short sleeve  
Polyester/cotton 65/35  
Utility

Custodian:  
Navy - NU

Preparing Activity:  
Navy - NU

Review activity:  
Navy - CG  
DLA-CT

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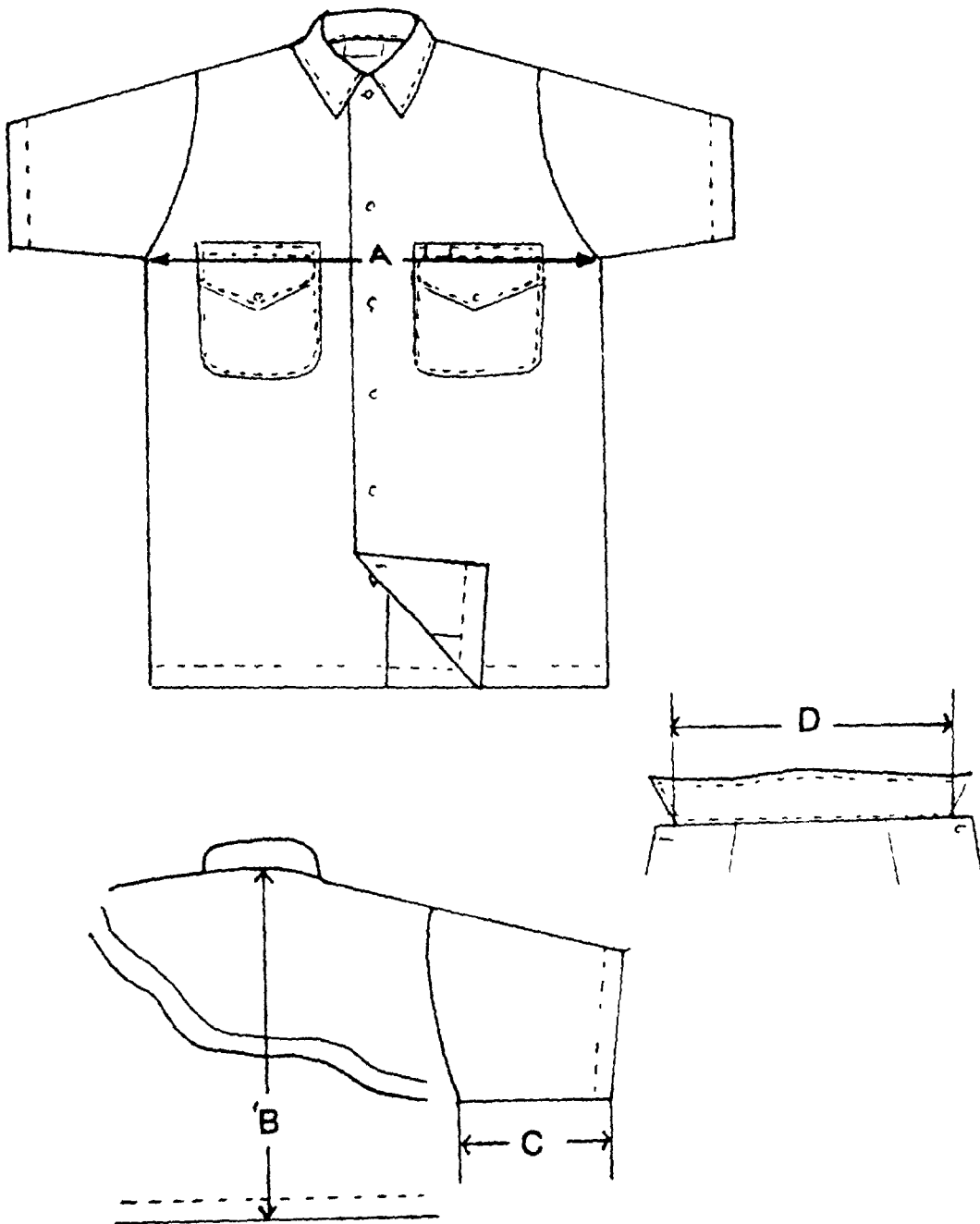


FIGURE 1  
SHIRT, UTILITY, MAN'S  
TYPE I-SHORT SLEEVE

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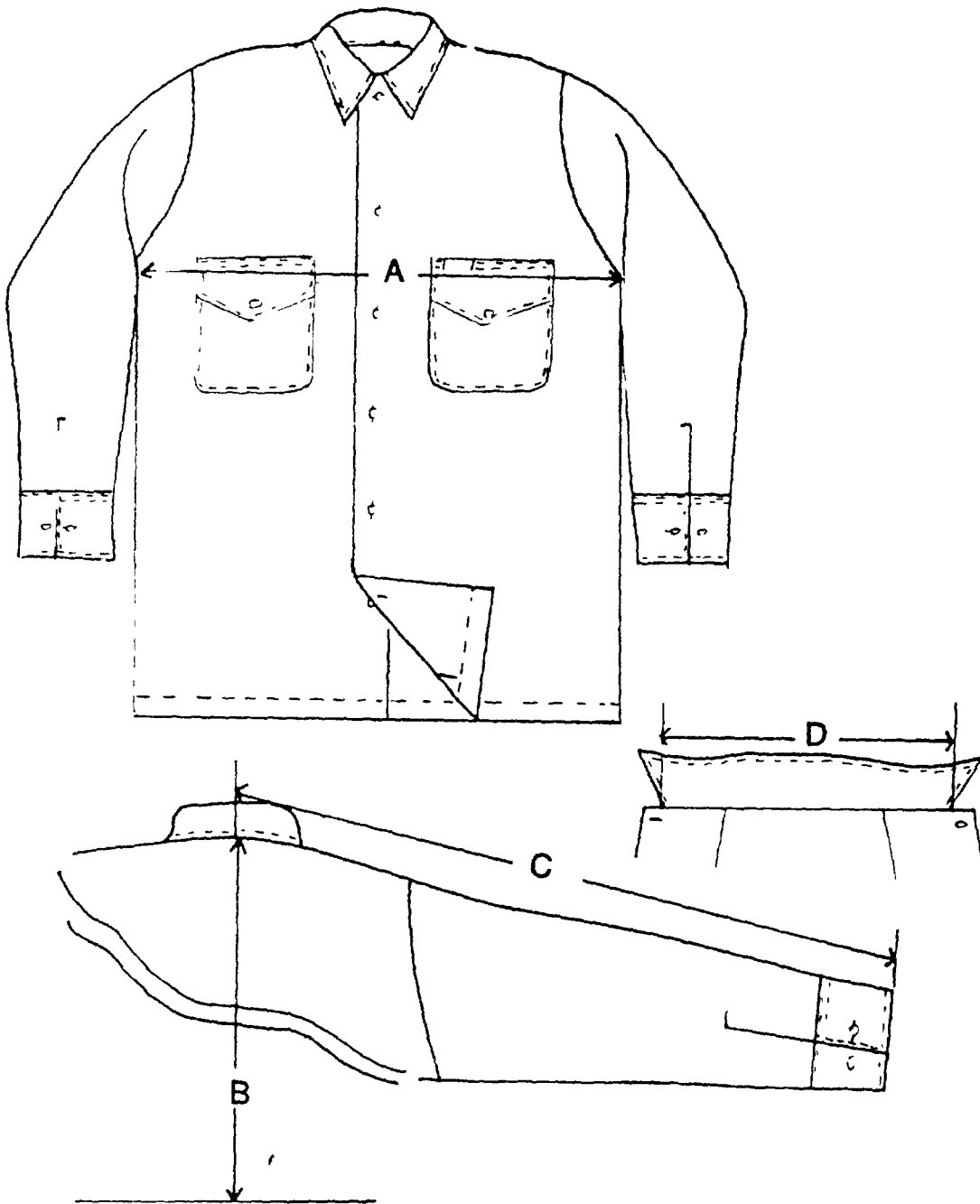


FIGURE 2  
SHIRT, UTILITY, MAN'S  
TYPE II-LONG SLEEVE

(Fold along this line)

DEPARTMENT OF THE NAVY



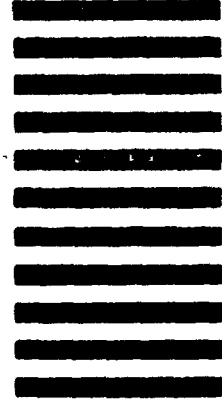
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(Fold along this line)

**STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL***(See Instructions - Reverse Side)*

<b>1 DOCUMENT NUMBER</b> MIL-S-87046A(CG)		<b>2 DOCUMENT TITLE</b> SHIRT, UTILITY, MAN'S, POLYESTER/COTTON (CG)	
<b>3a. NAME OF SUBMITTING ORGANIZATION</b>		<b>4 TYPE OF ORGANIZATION (Mark one)</b>	
<b>b ADDRESS (Street, City, State, ZIP Code)</b>		<input type="checkbox"/> VENDOR	
		<input type="checkbox"/> USER	
		<input type="checkbox"/> MANUFACTURER	
		<input type="checkbox"/> OTHER (Specify) _____	
<b>5 PROBLEM AREAS</b>			
<b>a. Paragraph Number and Wording</b>			
<b>b. Recommended Wording</b>			
<b>c. Reason/Rationale for Recommendation</b>			
<b>6 REMARKS</b>			
<b>7a. NAME OF SUBMITTER (Last, First, MI) - Optional</b>		<b>b. WORK TELEPHONE NUMBER (Include Area Code) - Optional</b>	
<b>c. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional</b>		<b>8. DATE OF SUBMISSION (YYMMDD)</b>	