

MIL-S-17618H(NU)

30 September 1988  
SUPERSEDING  
MIL-S-17618G(NU)  
17 October 1985

## MILITARY SPECIFICATION

### SHIRT, MAN'S, (POLYESTER/COTTON, TROPICAL, SHORT SLEEVE)

This specification is approved for use by the Navy Clothing and Textile Research Facility, Department of the Navy, 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/cotton, short sleeve shirt.

1.2 Classification. The shirts shall be of one type only and of the following classes and sizes (see 6.2):

- Class 1 - White (with shoulder loops)
- Class 2 - Khaki (without shoulder loops)
- Class 3 - White (without shoulder loops)

#### Schedule of sizes

Extra Small, Small, Medium, Large, and Extra Large

#### 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 issue of these documents shall be listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

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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## SPECIFICATIONS

## FEDERAL

- V-B-871 - Button, Sewing Hole and Button, Staple (Plastic)
- NN-P-71 - Pallet, Material Handling, Wood, Stringer Construction, 2 Way and 4 Way (Partial)
- DDD-L-20 - Label; For Clothing, Equipage and Tentage (General Use)
- PPP-B-676 - Boxes, Setup

## MILITARY

- MIL-P-15011 - Pallet, Material Handling, Wood, Post Construction, 4 Way Entry
- MIL-B-17757 - Boxes, Shipping, Fiberboard (Modular Sizes)
- MIL-C-21881 - Cloth, Poplin, Polyester and Cotton
- MIL-T-43548 - Thread, Polyester Core: Cotton-, Rayon-, or Polyester-Covered
- MIL-P-55010 - Plastic Sheet, Polyethylene Terephthalate

## STANDARDS

## FEDERAL

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

## 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
- MIL-STD-1492 - Provisions for Evaluating Quality of Shirts

(Copies of specifications, standards, drawings, and publications required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.1.2 Other Government documents, 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

## U.S. POSTAL SERVICE MANUAL

(Copies of the Manual may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-0001).

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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 DoDISS specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS shall be the issue of the nongovernment documents which is current on the date of the solicitation.

**NATIONAL MOTOR FREIGHT TRAFFIC ASSOCIATION, INC., AGENT**

**National Motor Freight Classification**

(Applications for copies should be addressed to the American Trucking Association, ATTN: Traffic Department, 1616 P Street, N.W., Washington, DC 20036-1404).

**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 60606-5808).

**THE COLOR ASSOCIATION OF THE UNITED STATES**

**Department of Defense Standard Shades for Buttons**

**Department of Defense Standard Shades for Sewing Threads**

(Application for copies of color cards should be addressed to the Color Association of the U.S. Inc., 343 Lexington Avenue, New York, NY 10016).

**TECHNICAL MANUAL OF THE AMERICAN ASSOCIATION OF CHEMISTS AND COLORISTS**

Test method - 135-1978 - Dimensional Changes in Automatic Home Laundering of Woven and Knit Fabrics.

(Applications for copies should be addressed to AATCC, P.O. Box 12215, Research Triangle Park, NC 27709-9989).

\* 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.

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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. (See 6.4).

3.3.1 Cloth, poplin, polyester and cotton. The poplin for the class 1 and class 3 shirts shall conform to type II, class 2 of MIL-C-21881. The color shall be shade White 3013. The poplin for the class 2 shirt shall conform to type II, class 1 of MIL-C-21881. The color shall be shade khaki 3729.

3.3.2 Fusible interlining. The topcollar and pocket flaps shall be fused. A fused sample consisting of the fusible and basic material shall conform to the requirements specified below when tested as specified in 4.4.1. The color shall be white.

Component testing requirements

Appearance of fused sample 1/

Initial 2/	- no evidence of bubbling, delamination of the bond, color change, or strike through.
After 25 washings	- no evidence of bubbling, delamination of the bond, color change, or strike through.

Stiffness, inch lbs x  $10^{-4}$  (Average of six samples; three tested fusible side up and three tested fusible side down).

Initial

Warp	Min 13.0	Max 38.0
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Filling	Min 6.0	Max 22.0
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After 25 washings - samples shall retain a minimum of 20% of the original stiffness.

Bond Strength (ounces per inch of width) 3/

Initial	Min 24 oz.
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After 25 washings	Min 16 oz.
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1/ After evaluation for appearance, samples may be used for the remainder of the tests.

2/ Initial requirement apply to both quality conformance and in-process inspections.

3/ When a nonwoven fusible is used, the item will be accepted if the fusible either splits from itself rather than separates from the outershell material or if it begins to separate from the outershell material higher than the minimal bond strength and then splits from itself.

3.3.2.1 Thickness, fusible. The thickness of the fusible interlining should not measure greater than 0.030 inch, when tested as specified in 4.4.1.

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**3.3.3 Buttons.** The buttons of class 2 shirt shall be 20-line, and conform to type II, class D, style 24 of V-B-871. The buttons of classes 1 and 3 shirts shall be 19-line, and conform to type II, class K, style 25 of V-B-871. The buttons for classes 1 and 3 shirts shall be white, BA cable #62031 and for class 2 shirts, the buttons shall be khaki, AL cable #62026 to match the shade of the shirt. The color of the buttons shall conform to the DOD Standard Shade for Buttons.

**3.3.4 Collar stay.** The collar stays 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 stays shall measure from 1/4 to 3/8 inch wide and 3 inches long. Both ends shall be round, pointed, cut on an angle or any combination thereof. When other than round, points shall be rounded. Inspection shall be as specified in 4.4.1.

**3.3.5 Thread.** Unless otherwise indicated, the thread shall be a cotton or rayon covered polyester core thread, size 70, 2 or 3 ply conforming to MIL-T-43548. The polyester covered, polyester core thread is not allowed.

**3.3.5.1 Color.** The thread shall be white AH, CA #66050 for class 1 and class 3 shirts and dyed khaki P-1, CA #66019 for class 2 shirts. The color of the thread shall conform to the DOD standard shade for sewing threads.

**3.3.5.2 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. As a limit of acceptability, or when no standard is available, the dyed thread shall show minimum of "good" colorfastness to laundering, perspiration, and light when tested as specified in MIL-T-43548.

**3.3.6 Combination label.** Each shirt shall have a combination label conforming to Type IV or VI, classes 10 and 15 of DDD-L-20. The printing shall show fastness to laundering and shall bear the following inscription:

NAME:  
SERVICE NO:  
SHIRT, MAN'S (POLYESTER/COTTON, TROPICAL, SHORT SLEEVE)  
FIBER CONTENT: (65% Polyester/35% Cotton)  
CONTRACT NUMBER: DLA-100-00-0-0000 (EXAMPLE)  
NAME OF CONTRACTOR:  
NAME OF MANUFACTURER (If other than contractor)

## LAUNDERING INSTRUCTIONS

Machine wash - warm water - no bleach  
Tumble dry - medium heat - remove promptly  
or  
Follow NAVEDTRA 414-01-45-81 - Formula II

**3.3.6.1 Size label.** The size label shall conform to type IV or VI, class 2 of DDD-L-20, and bear the following inscription:

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SIZE: MEDIUM (EXAMPLE)  
 STOCK NO.: 8405-00-000-0000 (EXAMPLE)

### 3.4 Design.

3.4.1 Class 1. The class 1 shirt shall be white poplin of a sport style with turned back facings and notch collar. The collar and pocket flaps shall be fused. It shall have five buttons down the front, two patch pockets with flaps, single yoke (superimposed), short sleeves and two loops on each shoulder. The pocket on the left front shall contain a pen and pencil pocket. (See Figure 1).

3.4.2 Class 2. Class 2 shirt shall be of khaki poplin and of the same design as specified in 3.4.1, except that the shoulder loops shall be omitted.

3.4.3 Class 3. Class 3 shirt shall be the same material and design as specified in 3.4.1, except that the shoulder loops shall be omitted.

3.4.4 Figure. Figure 1 is furnished for information purposes only. When inconsistencies exist between the written specification and the figure, the written 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 working patterns shall be identical to the Government patterns. Neither the Government patterns nor the working patterns shall be altered in any way, except that additional notches for use during construction are permitted on the working patterns. The seam allowance shall be 1/4 inch for all seams, unless otherwise specified in Table I.

3.5.1 Pattern parts. The component parts of the shirt shall be cut from the material specified in accordance with the following pattern parts:

Materials	Nomenclature of Pattern Parts	Cut Parts
Basic material	Back	1
	Back yoke	1
	Front (left and right)	2
	Sleeve	2
	Collar	2
	Pocket	2
	Pocket flap	4
	Pen and pencil pocket	1
	Shoulder loop	No pattern
	(for class 1 only)	
Fusible interlining	Collar interlining	1
	Pocket flap interlining	2
Template	Finished pocket shaper	-
	Finished pocket flap shaper	-

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### 3.6 Construction.

3.6.1 Stitches, seams and stitchings. Stitch, seam and stitching types specified in Table I shall conform to FED-STD-751. Whenever two or more methods for seam or stitch types are given for the same part of the operation any one may be used. Seam allowance shall be maintained with seams sewn so that no raw edges, runoffs, twists, pleats, puckers or open seams result. All seams shall start and finish evenly. Thread tension shall be maintained so that there is no tight or loose stitching. Where stitch type 401 is used, the looper (underthread) shall be on the inside of the shirts. Ends of all seams produced by stitch type 401 shall be caught in other seams or stitching. Edge stitching shall be 1/16 inch and top stitching shall be 3/16 to 1/4 inch from the edge. The bight of the overedge stitching shall be 3/16 inch. The guide and knife shall be set to trim only the ravelled ends of the fabric. When stitch type 515, 516 or 519 is used, the finished seam shall measure 3/8 inch and may be accomplished in two separate operations. Buttonholes shall be clean cut and the stitching shall be securely caught in the fabric. Bartacks shall be 3/8 to 1/2 inch long and the width shall be 1/8 (+ 1/32) inch wide.

3.6.2 Thread breaks and end of seams. End of all seams and stitching when not caught in other seams or stitching 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 label stitching shall be overlapped not less than 3 stitches. Thread breaks (all stitch type) shall be repaired by stitching back of the break not less than 1/2 inch. Skipped stitches or thread breaks on 401 stitch type 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.

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

3.6.4 Buttonholes. The buttonholes shall be straight style with both ends securely barred. The finished cut length shall be 5/8 (+ 1/16) inch.

3.7 Manufacturing operations requirements. The shirt shall be manufactured in accordance with all operation requirements specified in Table I. The contractor is not required to follow the exact sequence of operations listed, provided that the shirt is identical to those produced by following the sequence of operations as listed in Table I.

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3.7.1 Shade and size marking. The component parts shall be marked 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.

3.7.2 Pressing. All pressing as required by Table I shall be performed with a heated pressing iron or machine at a suitable temperature for synthetics.

3.7.3 All fusing of the fusible to the basic material shall be on a single ply basis (no stacking allowed).

3.7.4 The statement "press fusible to various cut parts in accordance with the fusible manufacturer's recommendation" refer to time, temperature, and pressure.

3.7.5 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
Comrcl	-	Commercial
smlr	-	similar
Btnhl	-	Buttonhole
incl	-	including
dbl	-	double



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TABLE I - CONSTRUCTION OF SHIRT

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD	
					NDL BOB/ LPR	
1.	<u>Cutting</u> *a. The shirts shall be cut in strict accordance with patterns furnished which show size, shape, placement of pocket, directional line for cutting, and notches for the proper assembly of all parts. The fronts shall be cut with the edge of the grown-on facings on the selvage. When selvageless cloth is utilized, or when selvaged edge is cut or frayed the edge shall be serged.  b. All component parts shall be cut from one piece of material, except that the under ply of pocket flaps, pen and pencil pocket, and undercollar may be cut from ends. Part cut from ends shall match main assembly.  c. Fusing of the fusible to the basic material shall not be performed prior to cutting of cut parts.	502 or 503	EPd-1	6-8	70	70
2.	<u>Replacement of defective components</u> During the spreading, cutting and manufacturing process, components having material defects or damages that are classified as defects in MIL-STD-1492 shall be removed from production and replaced with nondefective and properly matched components.					
3.	<u>Shade marking (see 3.7.1)</u> Mark or ticket all parts except those cut from ends to insure a uniform shade and proper assembly of the shirt.					

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TABLE I - CONSTRUCTION OF SHIRT

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD	
					NDL	BOB/ LPR
4.	<b>Marking</b> The combination identification and instruction marking or label shall be legibly stamped or stitched on the outside of the left shirt tail. It shall be positioned so that the left edge of printing is 3 (+ 1/4) inches from the left front turned edge and the top edge of printing not more than 5 inches from bottom hemmed edge of shirt at left hand bottom corner of label. Measurements indicated are for a finished shirt.	301	LSbj-1	12-14	70	70
5.	<b>Make pocket flaps and attach pen and pencil pocket</b>					
	a. Center fusible interlining to backside of outer ply of pocket flap. Press fusible interlining to top ply of pocket flap in accordance with the directions of the fusible manufacturer.					
	b. Stitch the two plies of flap, face to face, around the ends and pointed edge 1/4 inch from the raw edges. Trim corners and point.	301	SSe-2(a)	12-14	70	70
	c. Turn flaps to finished position and topstitch 1/16 inch from folded edges.	301	SSe-2(b)	12-14	70	70
	OR					
	d. As an alternate to operations 5b and 5c, precrease the plies of the pocket flap 1/4 (+ 1/16) inch from raw edge. Trim corners and point. Superimpose the plies of the flap, with the face of the fabric on the outside, and topstitch the sides and bottom 1/16 inch from folded edges.	301	SSc-1	12-14	70	70
	e. Position a flap on each shirt front by placing raw edge along marks on patterns. Stitch each flap to front 1/8 to 3/16 inch from raw edge.	301	LSbl-2(a)	12-14	70	70

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NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD	
					NDL	BOB/ LPR
	f. Turn the flaps down and topstitch 3/16 to 1/4 inch from the folded edge enclosing raw edges.	301	LSbl-2(b)	12-14	70	70
	*g. The finished flap shall measure 5-1/4 (+ 1/8) inches wide, 1-3/4 (+ 1/8) inches deep at the sides and 2-1/2 (+ 1/8) inches deep at the center. The finished flap shall be checked for size and uniformity against the finished pocket flap shaper.					
	h. Turn down the top edge of the pencil pocket 3/4 (+ 1/4) inch and stitch 1/16 to 1/8 inch from the raw edge.	301	EFa-1	12-14	70	70
	i. Turn in the side edges of the pencil pocket 3/8 inch and stitch to the left front of the shirt as indicated on the patterns. Tack the ends of each seam by backstitching. The finished pencil pocket shall be 2 (+ 1/8) inches wide.	301	LSd-1	12-14	70	70
	j. Form two compartments with a row of vertical stitching at the center (+ 1/8 inch off center tolerance) through the shirt.	301	SSv-1	12-14	70	70
6.	<u>Make patch pockets</u>					
	a. Form a hem at top of pocket according to pattern marks with raw edge folded under 3/16 to 1/4 inch with row of stitching 1/16 inch from folded edge.	301	EFb-1	12-14	70	70

OR

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TABLE I - CONSTRUCTION OF SHIRT

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD	
					NDL	BOB/ LPR
	b. As an alternate, overedge top raw edge of pocket and fold hem as indicated by pattern marks.	503 504 or 505	EPd-1	6-8	70	70
	*c. Fold raw edges under $3/8 (+ 1/16)$ inch and edge stitch pocket to each front with top of pocket $3/8$ to $1/2$ inch below topstitching of flap, with top corners of pockets tacked with a triangular stitching. The base of the triangle shall be at top corner of pocket and apex at lower corner of the hem. The base of the triangle shall measure $1/8$ to $3/16$ inch wide.	301	LSd-1	12-14	70	70
	OR					
	As an alternate, backtacking the ends of pocket stitching is permitted.					
	d. The finished pocket shall measure $5-1/2 (+ 1/8)$ inches long and $5 (+ 1/8)$ inches wide for all sizes.					
	e. The finished pocket shall be checked for size and uniformity against the finished pocket shaper.					
	f. The pocket may be creased in an edge creasing machine to insure uniformity of shape and size.					
7.	<u>Make shoulder loops</u> (for class 1 shirt only)					
	a. Fold a strip of self fabric in half lengthwise; turn both raw edges to the inside, and stitch $1/16$ inch from each edge.	301	EFp-2	12-14	70	70

OR

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NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD	
					NDL	BOB/ LPR
	b. Abut raw edges of a self fabric strip and double stitch not less than 3/16 inch gauge, using a covering stitch on the underside.	402 or 406	EFh-1	8-10	70	70
	c. Finished shoulder loops shall measure 1/4 to 5/16 inch wide.					
8.	<u>Attach yoke</u> NOTE: Class 2 and class 3 shirts shall not include shoulder loops.					
	a. Stitch the yoke and back to front at the shoulder with stitching 1/4 to 5/16 inch from the raw edge simultaneously, inserting two shoulder loops (class 1 only) in the seam as indicated by pattern marks.	301 or 401	SSq-2(a)	12-14	70	70
	b. Turn the yoke against the shirt back with the shirt front extended; edgestitch through all plies of material	301	SSq-2(b)	12-14	70	70
	OR					
	c. On class 2 or class 3 shirts, the following option may be used in place of operations 8a and 8b above: Fold inward the raw edges of yoke and back 1/4 to 5/16 inch. Insert raw edge of front between yoke and back 5/16 to 3/8 inch and stitch through all plies 1/16 inch from folded edge.	301	LSe-1	12-14	70	70
	d. Turn under the raw edge of the yoke 1/4 to 5/16 inch; stitch to shirt back 1/16 inch from the folded edge.	301	LSd-1	12-14	70	70
	e. Turn under (class 1 only) the free end of loops 1/4 to 5/16 inch; securely stitch or bartack to shirt through yoke and back 1/16 inch from the folded edge. The tack shall extend the width of the loop but not beyond.	301 or Bartack or auto- loop tacker		12-14 28 per bartack 24-28	70 70 70	70 70 70

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NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD	
					NDL	BOB/ LPR
	f. (Class 1 only) - The loop nearest to the armhole seam shall have a free opening of 1-3/8 (+ 1/8) inches and the loop nearest the collar shall have a free opening of 1 (+ 1/8) inch.					
9.	<u>Make collar</u>					
	a. Center fusible interlining to back side of topcollar and press in accordance with the directions of the fusible manufacturer.					
	b. The collar stays shall be positioned onto the undercollar according to marks on patterns with the tapered end placed so as to fit into the finished collar point. The construction shall be as follows:					
	(1) Spot laminate both tips of stay to 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	12-14	70	70
	c. Stitch the top collar to the undercollar, back to back, 1/4 to 5/16 inch from raw edges. Trim collar points.	301	SSe-2a	12-14	70	70
	d. Turn collar to finished position working out points and outer edges.					

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NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD	
					NDL	BOB/ LPR
	e. Edge stitch 1/16 inch from sides and outer edges.	301	SSe-2b	12-14	70	70
	f. The collar shall be pressed smooth and flat. The undercollar shall not be exposed beyond the edge of the top collar.					
10.	<u>Attach collar and size label</u>					
	a. Fold back the left and right fronts to the outside at the notch indicated on pattern to form a facing.					
	b. Position the collar between the front and the facing at the collar notches (1 inch from the folded 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 neckline at the termination of the stitches.	301	SSa-1	12-14	70	70
	c. Stitch undercollar to back along neckline between the notches previously made on operation 10b, with stitching 1/4 inch from raw edge.	301	LScg-2(a)	12-14	70	70
	d. Turn the facings and work out steps. Stitch the collar between the notches 1/16 inch gauge turning the raw edges of collar under 3/16 to 1/4 inch, simultaneously catching the ends of the facing in the seam and the size label horizontally. The label shall be centered (+ 1/2 inch) on the inside back of the shirt.	301	LScg-2(b)	12-14	70	70
	e. The finished collar shall measure 3-1/4 (+ 1/8) inches deep at the center back and 3-1/4 (+ 1/8) inches long at front points.					
	*f. As an alternate, the type IV size label inscription shall be stamped on inside bottom edge of topcollar and centered + 1/2 inch. There shall be no evidence of the printing visible on outside of finished collar as worn.					
	g. The pointed ends of the collar shall be uniform in shape and the ends equal distance from the shirt front edges and from the shoulder yoke seam line.					

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NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD	
					NDL	BOB/ LPR
11.	<u>Attach sleeves</u> Join sleeves to armholes by seaming and overedging the raw edges in one operation. The width of the overedge stitching shall be 1/8 to 3/16 inch.	515 or 516 or 519	SSa-2	12-14	70	70
*12.	<u>Join sides and sleeve seams</u> Join side seams and sleeve seams by seaming and overedging the raw edges in one operation. Ends of armhole seam shall not be staggered more than 3/8 inch at armpit. The width (bight) of the overedge stitching shall be 3/16 inch.	515 or 516 or 519	SSa-2	12-14	70	70
13.	<u>Hem shirts</u> a. Form a hem on the bottom of shirt with raw edge turned under 3/16 to 1/4 inch and the bottom edge of the facing caught in the hem. Hem stitching shall be 1/16 inch along the top of the hem from the folded edge.  b. The finished hem shall measure 1/4 + 1/16 inch wide and shall be backtacked (see 3.6.2).	301	EFb-1	12-14	70	70
14.	<u>Hem bottom of sleeves</u> a. Form a hem on the bottom of the sleeves with raw edge turned under 1/4 to 3/8 inch. Turn hem up according to marks on patterns. Stitch hem 1/16 to 1/8 inch from inner folded edge.  NOTE: The hemming of sleeve may be performed before or after joining of underarm seam.  b. The finished hem shall measure 1 (+ 1/8) inch wide.  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	EFb-1	12-14	70	70
		301 Bar- tack	SSa-1	10-12 21-28 stchs/ bartack	70	70



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NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD		
					NDL	BOB/ LPR	
*15.	<u>Make buttonholes</u> All buttonholes shall be vertical, and shall be located as follows: One centered in each pocket flap $1/2 (+ 1/8)$ inch above the center point, measured from lower inside end of buttonhole. Five on the left front placed $7/8 (+ 1/8)$ inch from the folded edge. The buttonholes shall be spaced $3-1/2 (+ 1/8)$ inches apart according to marks on pattern. Buttonholes shall be measured from center to center. The second buttonhole shall be horizontally in line with the buttonhole in each pocket flap.	Button-hole		42-46	70	70	per-button-hole including tacks
*16.	<u>Sev on buttons</u> Sew seven 20-line buttons located as follows: Five on right front with center of buttons $7/8 (+ 1/8)$ inch from the edge to correspond with the buttonhole on the left front. One centered on each pocket with the center of the button aligned with the center of the buttonhole on the pocket flap. Stitching shall be through pocket hem.	101 or 301		14-16	70		per button 14-16 70 70 per button
17.	<u>Cleaning</u> a. All thread ends shall be trimmed and loose threads removed from shirt.						
*Note: Care shall be taken when trimming thread ends that damage to the fabric does not result.							
	b. Remove all spots and stains.						
	c. Remove all shade tickets.						
18.	<u>Press shirts</u> Before buttoning the flaps and shirt front, press the collar, fronts, pocket flaps, pockets, yoke, back and sleeves. The sleeves shall be pressed flat with a crease along the top of the sleeve and the collar shall be pressed flat for its entire length.						

NOTE: The use of steam inflated bag type machine is prohibited for pressing.

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3.8 Sizes and measurements. Sizes and measurements of the finished shirts shall be as shown in Table II. All measurements and tolerances indicated in Table II are in inches.

Table II - Sizes and Measurements

Size	A Chest	B Back Length	C Yoke Width	D Sleeve Length	E Collar
Extra Small	37	30-1/2	16	6-3/8	14
Small	41	31	17	6-3/8	15
Medium	45	31-1/2	18	6-3/8	16
Large	49	32	19	6-3/8	17
Extra Large	53	32-1/2	20	6-3/8	18
Tolerance	$\pm 1$	$\pm 1/2$	$\pm 1/2$	$\pm 1/4$	$\pm 1/4$

NOTE: Measurements A, B, C, and D shall be taken with the shirt fully buttoned, laid flat, and in a relaxed condition. Measurement E shall be taken with the shirt unbuttoned.

- A. Chest - Twice the measurement taken across the front at base of armholes from folded edge to folded edge.
- B. Back Length - Measurement shall be taken along center of back from neckline to bottom of shirt.
- C. Yoke Width - Measurement shall be taken across back along base of yoke from sleeve seam to sleeve seam.
- D. Sleeve Length - Measurement shall be taken from base of armhole (junction of seams) along inseam to bottom of sleeve.
- E. Collar - Measurement shall be taken along base of collar from collar edge to collar edge.

3.9 Workmanship. The finished shirt shall conform to the quality established by this specification. As a final step in the contractor's production control plan, before formation of a lot, each shirt shall be buttoned and examined for selected defects. A shirt containing a selected defect shall not be included in the end item lot. Selected defects are those defects listed in Table V of MIL-STD-1492. The occurrence of defects shall not exceed the applicable point or defect limit.

#### 4. QUALITY ASSURANCE PROVISIONS

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4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or 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.

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. Component and material inspection (see 4.4.1)
  - b. In process inspection (see 4.4.1.2)

4.3 First article inspection. The first article submitted in accordance with 3.2, shall be inspected as specified in 4.4.2 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-1492, except where otherwise indicated.

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4.4.1 Component and material inspection. In accordance with 4.1 above, components and materials shall be inspected and tested in accordance with all the requirements of referenced specifications, drawings, and standards unless otherwise excluded, amended, modified, or qualified in this specification or applicable procurement documents. In addition, testing shall be performed on the components listed in Table III for characteristics noted. The contractor shall furnish a certificate of compliance for the color and thickness requirements for the fusible as required in 3.3.2 and 3.3.2.1 and the collar stay requirements of 3.3.4. All requirements are applicable to the sample unit. Whenever applicable, tests shall be in accordance with methods prescribed in FED-STD-191. All test reports shall contain the individual values utilized in expressing the final results. The lot shall be unacceptable if one or more units fail to meet any test requirements specified. All fused samples for Table III testing shall be fused 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:

Material

Basic material and fusible  
interlining fused together

Sample unit for testing

Two 24 by 24 inch sample  
(prepared by the contractor  
during the same period and under  
the same conditions as fusing of  
the end item.)

Table III - Test methods

Component	Characteristic	Requirement paragraph	Test method
Fusible interlining	Stiffness	3.3.2	
	Initial		5206
	After 25 launderings		AATCC-TM 135-1978 1/ and 5206
	Bond strength 2/	3.3.2	
	Initial		5951
	After 25 launderings		AATCC-TM 135-1978 1/ and 5951
	Appearance of fused	3.3.2	
	Sample		Visual
	Initial		AATCC-TM 135-1978 1/
	After 25 launderings		and Visual

1/ One 24 by 24 inch specimen shall be laundered. Wash temperature shall be  $140^{\circ} \pm 5^{\circ}\text{F}$  ( $60^{\circ} \pm 3^{\circ}\text{C}$ ). Drying shall be performed only after the 25th washing. The evaluation portion of the AATCC test method is not applicable. Pressing of the sample prior to evaluation is prohibited.

2/ All bond strength test samples shall have a 1 inch minimum non-fused area at the top, perpendicular to the warp. Both the basic material and the fusible shall be fused with the warps (or machine direction) parallel.

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4.4.1.2 In-process inspection.

4.4.1.2.1 Sample size. The size of the fused check sample shall correspond to the total area covered by the collars or pocket flaps which are fused at one time on the press.

4.4.1.2.2 Number of check samples. One check sample (see 4.4.1.2.1) shall be prepared following fusing of every 1000 collars or pocket flaps as applicable, or once every 4 hours, whichever occurs first, and at the start of the day, or when the machine has been down for any length of time.

4.4.1.2.3 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 or pocket flaps shall be inspected for the above conditions. Any collar or pocket flaps exhibiting any of these conditions shall be removed from the lot.

4.4.1.2.4 Bond strength. The method of testing shall be as specified in 4.4.1.2.4.1. If the check sample fails the bond strength test, the previously 1000 fused collars or pocket flaps and check sample shall be re-fused after the fault has been corrected. If the check sample fails a second time, the 1000 collars or pocket flaps shall be rejected.

4.4.1.2.4.1 Apparatus and procedure for in-process bond 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:

- (1) Three 1 x 8 inch wide strips parallel to the warp direction shall be cut from right, middle and left side of the check sample for bond strength testing.
- (2) Separate the fusible from the basic fabric at the end of the 1 inch wide strips for a distance of 2 inches.
- (3) Secure the end of the basic fabric to a lightweight clamp like holder 1 inch or more in width and approximately 1.0 ounce in weight. Hang the clamp to the end of the spring scale.
- (4) Position the fusible in another clamp 1 inch or more in width and approximately 1.0 ounce in weight and pull the fusible downwards 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 bond strength reading shall be taken visually from the spring scale. Failure of any individual strip shall indicate failure of the check sample.

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

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4.4.2 End item examination. Sampling and examination of the end item shall be as specified for Dress Shirt ("D") in MIL-STD-1492 and in accordance with the list below:

Defect	Point Value
Pocket(s)	<u>D</u>
a. Not uniform in size or shape - any measurement varying from pocket to pocket or pocket to template by:	
1. More than 1/4 inch	3
2. 1/8 up to 1/4 inch inclusive	2

## Pocket flap(s)

a. Not uniform in size or shape - any measurement varying from flap to flap or flap to template by:	
1. More than 1/4 inch	3
2. 1/8 up to 1/4 inch inclusive	2

4.4.3 Packaging inspection. Packaging inspection shall be in accordance with MIL-STD-1492.

4.5 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. Preservation-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 approximately 14 by 11 inches and secured with noncorrosive metal pins, aluminum clips or plastic fasteners. Each folded shirt shall be inserted in a clear polyethylene bag fabricated from film of not less than 0.00125 (+ 20 percent tolerance) thickness. All seams and closures shall be effected by heat sealing with final heat closure made as close as possible to the open end. A 1/4 inch maximum diameter hole shall be made at one corner of each polyethylene bag to allow excess air to escape. As an alternate for class 2, the polyethylene bag may be of the tuck-in or reverse flap type where a heat seal closure and corner hole are not required (see 5.3.1)

\* 5.1.1.1 Intermediate packaging. Five (5) shirts of one class and size only, packaged as specified in 5.1.1 and alternated top to bottom, shall be placed in a setup paperboard box conforming to type II, variety 1, class a or c, style 4 of PPP-B-676. Outside dimensions of the setup box, cover included, shall be 14-1/2 inches in length, 11-1/2 inches in width and 3-3/4 inches in depth. The depth of the cover shall be one inch.

5.1.2 Level C. The shirts shall be packaged to afford adequate protection against physical damage during shipment from the supply source 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. Eight (8) intermediate packages (40 shirts of one class and size only) shall be packed in a fiberboard shipping container, closed and reinforced conforming to type CF, class weather-resistant, variety DW, grade V15c, size 3A of MIL-B-17757. The fiberboard for the box liner shall conform to type CF, class domestic of MIL-B-17757. The intermediate packages shall be arranged in the shipping container in two stacks, side-by-side and four high.

\* 5.2.2 Level B. Eight (8) intermediate packages (40 shirts of one class and size only) shall be packed in a fiberboard shipping container and closed conforming to type CF, class domestic, variety DW, grade 275, size 3A of MIL-B-17757. The fiberboard for the liner shall conform to type CF, class domestic of MIL-B-17757. The intermediate packages shall be arranged in the shipping container in two stacks, side-by-side and four high.

5.2.3 Level C. 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 used by the contractor for retail distribution. Containers 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 or order, shipping containers shall be marked in accordance with MIL-STD-129.

5.3.1 Polyethylene bagged packages. Polyethylene bagged packages shall have the required information legibly printed or stamped in black, bold letters 1/4 inch in height directly on the bag across the center face or on a white paper label inserted within the bag so as to permit ready identification. The bag or label shall indicate the following information:



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STOCK NUMBER  
NOMENCLATURE  
SIZE  
QUANTITY

**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 banded with primary and secondary straps in accordance with the banding means C, K and L, or O or P. Pallet patterns shall be in accordance with the appendix of MIL-STD-147. The pallet shall be 4-way, Type IV; Type V, class 1, size 2; or Type 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 groups specified of 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 in MIL-STD-147, the pallet pattern used shall first be approved by the contacting officer.

## 6. NOTES

**6.1 Intended use.** The shirts covered by this specification are intended to be worn by male personnel of the Navy.

**6.2 Ordering data.** Procurement documents should specify the following:

- a. Title, number and date of this specification
- b. Sizes and classes required (see 1.2)
- c. When first article sample 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 Recycled material.** It is encouraged that recycled material be used when practical as long as it meets the requirements of this specification.

**6.5 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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6.6 Subject term (key word) listing:

Collar stay  
Interlining, fusible  
Poplin, polyester/cotton  
Shirt, man's, short sleeve  
Uniform, man's

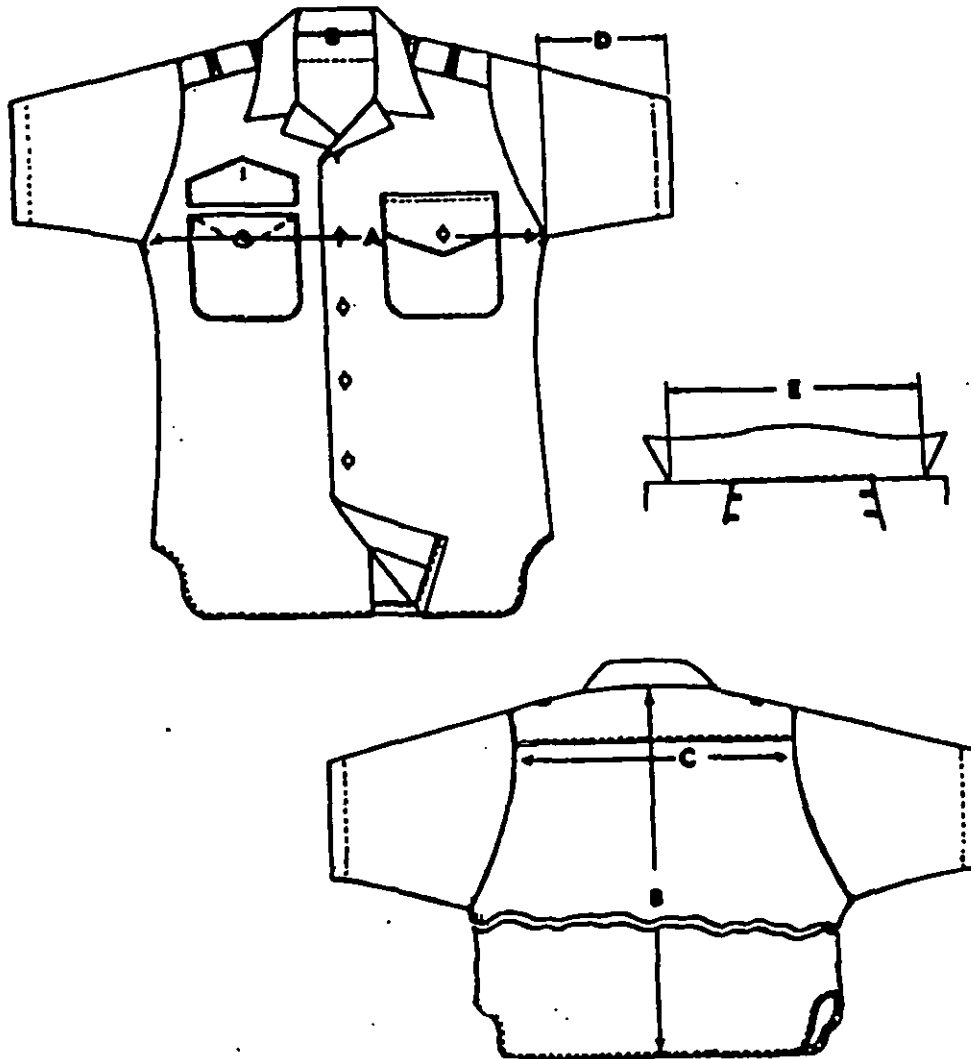
Custodian:  
Navy - NU

Review Activity:  
DLA - CT

Preparing Activity:  
Navy - NU

Project No. 8405-N075

MIL-S-17618H(NU)



**FIGURE 1-SHIRT, MAN'S (POLYESTER/COTTON, TROPICAL, SHORT SLEEVE (CLASS 1)**

**NOTE: The left front patch pocket shall contain a pen and pencil pocket not visible from the outside**



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