

MIL-C-44077B
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 SUPERSEDING
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MILITARY SPECIFICATION

COVERALLS, COMBAT VEHICLE CREWMEN'S

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This document covers requirements for coveralls made of fire-resistant material.

1.2 Classification. The coveralls shall be of one type in the following sizes (see 6.2).

Schedule of sizes

<u>Short</u>	<u>Regular</u>	<u>Long</u>
X-Small	X-Small	X-Small
Small	Small	Small
Medium	Medium	Medium
Large	Large	Large
X-Large	X-Large	X-Large

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: U.S. Army Natick Research, Development, and Engineering Center, Natick, MA 01760-5014 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 8415

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MIL-C-44077B

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

- T-T-881 - Twine, Cotton, Seine
- V-F-106 - Fasteners, Slide, Interlocking
- JJ-W-155 - Webbing, Textile, (Cotton, Elastic)
- DDD-L-20 - Label: For Clothing, Equipage, and Tentage (General Use)
- PPP-B-636 - Boxes, Shipping, Fiberboard

MILITARY

- MIL-F-10884 - Fasteners, Snap
- MIL-F-21840 - Fastener Tapes, Hook and Loop, Synthetic
- MIL-L-35078 - Loads, Unit: Preparation of Semiperishable Subsistence Items; Clothing, Personal Equipment and Equipage; General Specification For
- MIL-T-43548 - Thread, Polyester Core, Cotton-, Rayon-, or Polyester-Covered
- MIL-T-43636 - Thread, Aramid
- MIL-W-43685 - Webbing, Tape, Textile, Aramid Fiber
- MIL-T-43709 - Tape, Textile Aramid
- MIL-T-44100 - Thread, Para-Aramid, Spun, Intermediate Modulus
- MIL-C-83429 - Cloth, Plain and Basket Weave, Aramid

STANDARDS

FEDERAL

- 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
- MIL-STD-731 - Quality of Wood Members for Containers and Pallets

MIL-C-44077B

(Copies of specifications, standards, and handbooks required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of the 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 issues of the nongovernment documents which are current on the date of the solicitation.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D 3951 - Standard Practice for Commercial Packaging

(Copies should be obtained from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103-1187.)

COLOR ASSOCIATION OF THE UNITED STATES, INC.

Department of Defense Standard Shades of Sewing Threads

(Copies should be obtained from the Color Association of the United States, Inc., 343 Lexington Ave., New York, NY 10016-0927.)

(Nongovernment standards and other publications are normally available from the organizations which prepare or which distribute the documents. These documents also may be available in or through libraries or other informational services.)

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 samples. Samples, when furnished, are solely for guidance and information to the contractor (see 6.3). Variation from the document may appear in the sample, in which case the document shall govern.

* 3.2 First article. When specified in the contract or purchase order, a sample shall be subjected to first article inspection (see 4.3, 6.2, and 6.4).

MIL-C-44077B

3.3 Materials.

3.3.1 Basic material. The basic cloth for the coveralls shall be plain weave Olive Green 106 conforming to type II, class 3 of MIL-C-83429.

3.3.2 Fastener tapes. The fastener tapes shall be Green 3421, 1 and 2 inch wide hook and pile tapes conforming to type I, class 2 of MIL-F-21840.

3.3.3 Elastic webbing. The elastic webbing shall be bleached or unbleached and shall conform to type I of JJ-W-155 in the following classes (with exceptions as indicated):

Class 1 - (Except that the water repellent and mildew resistant treatments are not required) sleeve and leg bottoms

Class 6 - Waist tunnel

3.3.4 Cord. The cord beading used for welts of pocket openings and the front openings shall conform to type I, size 18 of T-T-881.

3.3.5 Webbing. The webbing for the retrieval strap tab, the retrieval strap, and holster loop shall conform to type II of MIL-W-43685 with the following exceptions:

a. The webbing for the retrieval strap shall be natural in color.

b. The webbing for the liner snap fastener tabs may be natural in color; however, the same color (OG 106 or natural) must be used for all of the snap fastener tabs within a single garment.

3.3.6 Slide fasteners. The slide fasteners shall be brass with a black chemical finish and conform to size M of V-F-106 in the following types and styles (see operation 2 for length requirements):

Type I, style 3 - Drop seat, and sleeve and leg side openings

Type I, style 7 - All pockets

Type I, style 15 - Front opening

* 3.3.6.1 Slide fastener tapes. The material for the slide fastener tapes shall be aramid, dyed to match the basic material and shall show "good" fastness to laundering. The tapes shall be of sufficient lengths to comply with respective slide fastener attachment operations. Color matching of the fastener tape under incandescent lamplight at $2300 \pm 100K$ shall be exempt.

3.3.6.2 Colorfastness. The finished tape shall show fastness to light and laundering equal to or better than the standard sample. When no standard sample is available, the tape shall show "fair" fastness to light after 20 standard fading hours, and "good" fastness to laundering.

MIL-C-44077B

- * 3.3.6.3 Slide fastener thongs. The slide fastener thongs shall be 1/4-inch wide tape, Olive Green 106 conforming to MIL-T-43709. To prevent fraying, the thong tape ends shall be either seared or ultrasonically cut.

3.3.7 Thread, aramid and para-aramid. The thread shall be aramid, sizes B and E conforming to MIL-T-43636. Para-aramid spun staple thread, size T-35 conforming to MIL-T-44100, may be used as an alternate to aramid sizes B and E. The color of the aramid and para-aramid threads shall be Olive Drab No. S-1, C.A. 66022, and shall show fastness to laundering equal to or better than the standard sample. When no standard sample is available, the thread shall show "good" fastness to laundering.

3.3.7.1 Polyester thread. Cotton, covered polyester core thread, conforming to ticket No. 50, 2 ply of MIL-T-43548 may be used as an alternate thread for bartacking. The thread shall be dyed Olive Drab S-1, C.A. 66022, and shall show fastness to laundering equal to or better than the standard sample. When no standard sample is available, the thread shall show "good" fastness to laundering.

3.3.8 Snap fasteners. The snap fasteners shall be brass, finish 2, male and female, consisting of stud and eyelet size 1 or 2 with button size 1 or 2 and socket, conforming to style 2A of MIL-F-10884, except an uncapped button may be used to attach the socket.

3.3.9 Labels. Each coverall shall have an identification label, a size label, and instruction label, conforming to type VI of DDD-L-20. The color of the label cloth shall be Medium Green, Cable No. 70034, 70130, or 70131, and the fastness to laundering requirements of DDD-L-20 shall apply.

3.3.9.1 Identification label. The identification label shall conform to class 1.

3.3.9.2 Size label. The size label shall conform to class 2 and shall contain the following information for each respective size. Descriptive information shall be printed in letters and numerals not less than 10-point and as follows:

<u>X-Small - Short</u>	<u>X-Small - Regular</u>	<u>X-Small - Long</u>
Height: Below 67 in.	Height: From 67 to 71 in.	Height: Over 71 in.
Chest: Below 33 in.	Chest: Below 33 in.	Chest: Below 33 in.
Stock No.	Stock No.	Stock No.
NATO Size: 6070/7484	NATO Size: 7080/7484	NATO Size: 8090/7484

MIL-C-44077B

<u>Small - Short</u>	<u>Small - Regular</u>	<u>Small - Long</u>
Height: Below 67 in. Chest: From 33 to 37 in. Stock No. NATO Size: 6070/8494	Height: From 67 to 71 in. Chest: From 33 to 37 in. Stock No. NATO Size: 7080/8494	Height: Over 71 in. Chest: From 33 to 37 in. Stock No. NATO Size: 8090/8494
<u>Medium - Short</u>	<u>Medium - Regular</u>	<u>Medium - Long</u>
Height: Below 67 in. Chest: From 37 to 41 in. Stock No. NATO Size: 6070/9404	Height: From 67 to 71 in. Chest: From 37 to 41 in. Stock No. NATO Size: 7080/9404	Height: Over 71 in. Chest: From 37 to 41 in. Stock No. NATO Size: 8090/9404
<u>Large - Short</u>	<u>Large - Regular</u>	<u>Large - Long</u>
Height: Below 67 in. Chest: From 41 to 45 in. Stock No. NATO Size: 6070/0414	Height: From 67 to 71 in. Chest: From 41 to 45 in. Stock No. NATO Size: 7080/0414	Height: Over 71 in. Chest: From 41 to 45 in. Stock No. NATO Size: 8090/0414
<u>X-Large - Short</u>	<u>X-Large - Regular</u>	<u>X-Large - Long</u>
Height: Below 67 in. Chest: Over 45 in. Stock No. NATO Size: 6070/1424	Height: From 67 to 71 in. Chest: Over 45 in. Stock No. NATO Size: 7080/1424	Height: Over 71 in. Chest: Over 45 in. Stock No. NATO Size: 8090/1424

3.3.9.3. Instruction label. The instruction label shall conform to class 3 and shall contain the following information:

COVERALLS, COMBAT VEHICLE CREWMEN'S

These coveralls are of low-flammability.

No other special flame resistant treatments are required.

1. Wear as outer garment or as under-layer in cold climates.
2. Pockets are designed to accommodate operational equipment and personal effects.
3. Wear liner for added insulation.
4. Brush snow or frost from garments before entering heated shelters.
5. Dry liner and coveralls separately when damp or wet.

MIL-C-44077B

6. For thorough cleaning, return to laundry unit for machine washing in accordance with established procedures. Coverall may be hand laundered; make sure that all soap is thoroughly rinsed out.
7. WARNING: Launder with slide fasteners and hook and pile fasteners engaged. Do not press hook and pile fasteners.
8. DO NOT STARCH. STARCH OR ANY OTHER TREATMENT THAT LEAVES A RESIDUE WILL DETERIORATE FLAME RESISTANCE.

DO NOT REMOVE THIS LABEL

3.3.9.4 Combination identification-instruction label. The identification label (class 1) and the instruction label (class 3) may be combined into one label. When combined, the item nomenclature shall not be repeated. The combination label shall conform to the requirements of the class 3 label.

3.4 Design. The coveralls feature a drop seat with slide fastener closure at sides and hook and pile tape at top edge, a retrieval strap (loop) located at a hook and pile closure at lower end of back yoke, and neck tab. There are nine pockets having slide fastener openings and welt pieces (two chest patch types, two front inside hanging, two thigh inside hanging, two shin inside hanging, and a left sleeve utility pocket, elastic at sleeve and leg bottoms, with slide fastener side opening, and an elastic waist tunnel).

3.5 Patterns. Standard patterns which provide an allowance of 1/2 inch for all double-lapped and double-stitched seams, and 3/8 inch for all other seams, unless otherwise specified, will be furnished by the Government. The Government patterns shall not be altered in any way and are to be used only as a guide for cutting the contractor's work patterns. The working patterns shall be identical to the Government patterns.

3.5.1 Pattern parts. The component parts shall be cut from the material specified below and in accordance with the pattern parts indicated.

TABLE I. List of pattern parts

Component	Pattern nomenclature	Cut parts
Basic material	Front	2
	Back yoke	1
	Upper back	1
	Lower back	2
	Front sleeve	2
	Back sleeve	2

MIL-C-44077B

TABLE I. List of pattern parts (cont'd)

Component	Pattern nomenclature	Cut parts
Basic material (cont'd)	Collar 1/	2
	Chest pocket	2
	Front pocket	2
	Shin pocket	2
	Ankle patch	2
	Front sleeve elbow patch	2
	Back sleeve elbow patch	2
	Knee patch	2
	Seat patch	2
	Waist tunnel	2
	Upper back facing	1
	Neck tab	2
	Thigh pocket	2
	Utility pocket	1
	Pencil pocket upper	1
	Pencil pocket lower	1
	Slide fastener cover	1
	Drop seat zipper facing	2
	Front zipper facing	1
	Sleeve zipper facing	2
	Retrieval strap marker, front	-
	Retrieval strap marker, back	-

1/ Collar may be cut in one piece with seam allowances along back edge deducted.

3.6 Construction. The construction shall conform in all respects to the requirements specified in table II and herein. Figure 1 is furnished solely for guidance and information. Should variation from the document appear in figure 1, the document shall govern.

3.6.1 Stitches, seams, and stitching. All stitches, seams, and stitching shall conform to FED-STD-751. The type of seam, stitching, and stitches per inch shall be as specified in table II. Seam allowances shall be maintained with seams sewn so that no raw edges, run-offs, pleats, puckers, or open seams occur. When two or more methods of seams or stitches are given for the same operation, any one may be used. Where stitch type 401 is used, the looper (underthread) shall be on the inside of the coverall.

MIL-C-44077B

- * **3.6.1.1 Type 301 stitching.** Ends of all stitching shall be backstitched or overstitched not less than 1/2 inch, except where ends are turned under or caught in other seams or stitching. Ends of a continuous line of stitching shall be overlapped not less than 1/2 inch except on labels where a minimum of a three stitch overlap is required. Thread tensions shall be maintained so that there will be no loose stitching resulting in loose bobbin or top thread, or excessively tight stitching resulting in puckering of the materials sewn. The lock shall be embedded in the materials sewn.

3.6.1.1.1 Repairs of type 301 stitching. Repairs of type 301 stitching shall be as follows:

a. When thread breaks, skipped stitches, run-offs, or bobbin run-outs occur during stitching, the stitching shall be repaired by restarting the stitching a minimum of 1/2 inch back of the end of the stitching. 1/

b. Except for prestitching, thread breaks or two or more consecutive skipped or run-off stitches noted during inspection of the item shall be repaired by overstitching. The stitching shall start a minimum of 1/2 inch in back of the defective area, continue over the defective area and continue a minimum of 1/2 inch beyond the defective area on to the existing stitching. Loose or excessively tight stitching shall be repaired by removing the defective stitching, without damaging the materials, and restitching in the required manner. 1/

1/ When making the above repairs the ends of the stitching are not required to be backstitched.

3.6.1.2 Type 401, 502, and 503 stitching. Thread tension shall be maintained so that there will be no loose stitching. All repairs shall be in accordance with 3.6.1.1.a and b. Thread tension shall be maintained so that there will be no loose or excessively tight stitching resulting in puckering of the materials sewn. Type 301 stitching may be used to repair 401 stitching.

3.6.2 Bartacking. The bartacks shall measure 3/8 to 1/2 inch in length.

- * **3.7 Manufacturing operations requirements.** The coverall shall be made in accordance with operation requirements specified in table II. The contractor is not required to follow the exact sequence of operations. Any additional basting or holding stitches used to facilitate manufacture are permissible provided that the thread is removed or does not show on the finished coverall.

MIL-C-44077B

NO.	TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD	
					NEEDLE	BOBBIN/ LOOPER COVER
1.	<p><u>Cutting.</u></p> <p>a. Cut the coveralls in strict accordance with the patterns furnished which show size, shape, directional lines (warp), placement of pockets, reinforcement patches, fasteners, and retrieval strap, and marks for proper assembly.</p> <p>b. Cut all component parts of the overall out of one piece of material except waist tunnel pieces, pocket pieces, reinforcement piece at base of front closure, upper back facings, front zipper facing, drop seat zipper facings, and sleeve zipper facings, which may be cut from ends. Parts cut from ends shall approximate the shade of the overall.</p> <p>c. Cut the welt pieces for the slide fastener openings (excluding front closure) from the basic material on the bias, filling, or warp direction. The welt pieces shall be 1-1/2 to 1-5/8 inches in width and shall extend the same length as the respective slide fastener tapes.</p> <p>d. The cord pieces shall be cut of sufficient lengths to correspond to respective slide fastener welts.</p> <p>e. Cut the aramid webbing for the retrieval strap opening tab 3 inches + 1/4 inch in length. Cut six liner snap fastener tabs 3 inches + 1/4 inch from aramid webbing.</p>					

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1 Dec 76

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MIL-C-44077B

NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD																									
					NEEDLE	COVER																								
1.	<p><u>Cutting.</u> (cont'd)</p> <p>f. Cut the slide fastener pull thongs of sufficient lengths to finish 3 inches \pm 1/4 inch when folded in half. To prevent fraying either ultrasonically cut or sear each fastener thong tape end.</p> <p>g. Cut the chest pocket loops of sufficient lengths to finish 1-1/4 to 1-1/2 inches when folded in half.</p> <p>h. Cut the elastic webbing in the following lengths:</p> <table><thead><tr><th><u>Sleeves</u></th><th><u>Legs</u></th><th><u>Waist tunnel</u></th></tr></thead><tbody><tr><td>7 inches (all sizes)</td><td>10-1/2 inches (all sizes)</td><td>X-Small - 6</td></tr><tr><td></td><td></td><td>Small - 7</td></tr><tr><td></td><td></td><td>Medium - 8</td></tr><tr><td></td><td></td><td>Large - 9</td></tr><tr><td></td><td></td><td>X-Large - 10</td></tr></tbody></table> <p>i. Cut the reinforcement pieces for the base of front closure to finish 2-3/4 inches \pm 1/8 inch by 2-1/2 inches \pm 1/8 inch wide tapering to 2-1/4 inches \pm 1/8 inch.</p> <p>j. Cut the hook and pile fastener tape pieces in the following widths and lengths:</p> <table><thead><tr><th><u>Use</u></th><th><u>Width (inches)</u></th><th><u>Length</u></th></tr></thead><tbody><tr><td>Hook and pile pieces for retrieval strap opening</td><td>1</td><td>To correspond with marks on pattern</td></tr></tbody></table>	<u>Sleeves</u>	<u>Legs</u>	<u>Waist tunnel</u>	7 inches (all sizes)	10-1/2 inches (all sizes)	X-Small - 6			Small - 7			Medium - 8			Large - 9			X-Large - 10	<u>Use</u>	<u>Width (inches)</u>	<u>Length</u>	Hook and pile pieces for retrieval strap opening	1	To correspond with marks on pattern					
<u>Sleeves</u>	<u>Legs</u>	<u>Waist tunnel</u>																												
7 inches (all sizes)	10-1/2 inches (all sizes)	X-Small - 6																												
		Small - 7																												
		Medium - 8																												
		Large - 9																												
		X-Large - 10																												
<u>Use</u>	<u>Width (inches)</u>	<u>Length</u>																												
Hook and pile pieces for retrieval strap opening	1	To correspond with marks on pattern																												

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MIL-C-44077B

NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS				STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD	
								NEEDLE	BOBBIN/ LOOPER COVER
1.	Cutting. (cont'd)								
	Use	Width (inches)	Length						
	Hook portion for top edge of drop seat panel.	2	To correspond with marks on pattern.						
	Pile piece for neck tab	1	To correspond with marks on pattern						
	Hook pieces for collar	1	To correspond with marks on pattern						
	Hook portion for top ends of lower back pieces	2	To correspond with marks on pattern						
	Pile portion for drop seat	2	To correspond with marks on pattern						
2.	Lengths of slide fasteners (excluding tape).								
	Breast pockets (2)	-	7-1/2 inches						
	Drop seats (2)	-	12-1/2 inches						
	Front pockets (2)	-	7-1/2 inches						
	Leg openings (2)	-	9-1/2 inches						
	Sleeve openings (2)	-	6-1/2 inches						
	Shin pockets (2)	-	8-1/2 inches						

NATICK Form 903

1 Dec 76

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MIL-C-44077B

NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
2.	<p>Lengths of slide fasteners (excluding tape). (cont'd)</p> <p>Front opening (1) - Of sufficient length so that the bottom stop finishes at the notch at base of opening, and the top stops 5/8 to 7/8 inch from neck edge extending to neck edge.</p> <p>Thigh pockets (2) - 8-1/2 inches</p> <p>Utility pocket (1) - 4-3/4 inches</p>						
3.	<p><u>Marking.</u></p> <p>Mark, ticket, or bundle all components to ensure uniform shade and size throughout the coverall.</p>						
4.	<p><u>Replacement of damaged parts.</u></p> <p>a. Replace at time of cutting any part containing a hole, smash, multiple float, or loose slub.</p> <p>b. Replace any part damaged during the manufacturing process by a needle chew, out, tear, or hole. (A darn or mend in seam allowance will be acceptable.)</p>						

MIL-C-44077B

NO.	MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN/ LOOPER	COVER
5.	<p>Attach thongs to slide fasteners (sixteen each overall; see operation 1.f.).</p> <p>Thread thong through pull tab of slide fastener and with the ends even single stitch or bartack the plies together through the center (1/16 inch off center tolerance) in the lengthwise direction. The top end of the stitching shall finish 3/8 to 5/8 inch from the end of the metal pull tab. The bartack shall measure 1/4 to 3/8 inch in length.</p>	301 or bartack	SSa-1	10-12 28 per bartack	B B	B B	
6.	<p>Make neck tab.</p> <p>a. Join plies of neck tab, leaving the end to be joined to collar, open. Turn tab and raise stitch 3/16 to 1/4 inch from folded edge.</p> <p>b. Join pile portion of fastener tape to each side of tab (as indicated by marks on pattern) with the stitching 1/16 to 1/8 inch from edges.</p>	301 or 401 and 301	SSe-1(a) SSe-2(b)	10-12 10-12	B E B	B B B	
7.	<p>Make collar.</p> <p>a. Position the two hook pieces of the fastener tape to the under collar (as indicated by marks on pattern) and stitch on four sides.</p> <p>b. Position raw edge of neck tab to the under collar (as indicated by marks on pattern) and stitch 1/8 to 3/16 inch from edge. Turn and raise stitch tab with the stitching 1/8 to 3/16 inch from turned edge. The tab shall finish toward the back of collar.</p> <p>c. Join under collar and top collar pieces along top and side edges; turn, work out points and edges, and stitch 3/16 to 1/4 inch from side and top edges.</p>	301 301 301 or 401 and 301	LSbj-1 LSbl-2 SSe-2(a) SSe-2(b)	10-12 10-12 10-12 10-12 10-12	B B B E B	B B B B B	

NATICK Form 903

1 Dec 76

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MIL-C-44077B

TABLE II. (cont'd)						
MANUFACTURING OPERATIONS REQUIREMENTS						
STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		COVER	
			NEEDLE	BOBBIN/ LOOPER		
Make collar. (cont'd)						
or						
When collar is out in one piece, fold collar in half lengthwise and stitch side edges, trim corners, turn, work out points and edges, and stitch 3/16 to 1/4 inch from side and top edges.						
Make welt pieces (see operation 1.d.).						
a. Fold welt pieces in half widthwise; insert the cording at folded edges and single stitch 1/8 to 3/16 inch from folded edge.	SSbf-3(a)	10-12	B	B		
b. Overedge stitch back raw edges of welt pieces together.	SSa-1	6-10	E	E		
NOTE: Welt pieces including cording may be cut in strips and placed on rolls; however, there shall be no piecing visible on the finished coveralls.						
Attach welt pieces to fastener tapes (see operation 1.c.).						
Position welt pieces to the face side of respective fastener tapes with the back edges of tape extending 1/16 to 1/8 inch beyond raw edges of welt pieces and join plies together 1/4 to 5/16 inch from back edges of tapes.						

NATICK Form 903
1 Dec 76

EDITION OF 1 OCT 76 WILL BE USED UNTIL EXHAUSTED.

MIL-C-44077B

NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN/ LOOPER	COVER
10.	<p>Make and attach utility and pencil pocket.</p> <p>a. Turn outer edge of slide fastener cover under 1/2 inch. Turn inner edge under 7/8 inch enclosing the cording and the other turned edge and stitch 1/8 to 3/16 inch from folded edge. Position slide fastener on underside of cover, with edge of chain even with the folded edge of the 7/8-inch fold (inner edge) and stitch tape to cover with two rows of stitching 1/4 to 5/16 inch gage with the back row 1/16 to 1/8 inch from edge of fastener tape. Bridge of slide fastener shall finish toward top of sleeve.</p> <p>NOTE: Although only stitch type LSbj-1 is shown in FED-STD-751, LSbj-2 indicates requirements for two rows of stitching.</p> <p>b. Turn under top raw edge of upper pencil pocket 1/4 inch and hem. Turn under top raw edge of lower pencil pocket 1/4 inch and hem. Both hems shall measure $1/4 + 1/16$ inch.</p> <p>c. Position top edge of lower pencil pocket to bottom of upper pencil pocket as indicated by marks on pattern. Turn under side and bottom edges of the combined pencil pocket and stitch to the utility pocket as indicated by marks on pattern 1/16 to 3/16 inch from folded edge.</p> <p>d. Place a vertical row of stitching through the center (1/8 inch off center tolerance) of upper and lower pencil pockets. Stitching shall be through all plies, forming two compartments in each pencil pocket.</p>	301	LSbj-2	10-12	E	E	
		301	EFb-1	10-12	B	B	
		301	Lsd-1	10-12	E	E	
		301	SSv-1	10-12	B	B	

NATICK Form 903

1 Dec 76

EDITION OF 1 OCT 76 WILL BE USED UNTIL EXHAUSTED.

MIL-C-44077B

NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD	
					NEEDLE	BOBBIN/ LOOPER COVER
10.	Make and attach utility and pencil pocket. (cont'd)					
	e. Place vertical bartacks on ends of pencil pocket openings, superimposed on rows of side stitching, and center stitching of upper and lower pencil pockets and at bottom of lower pencil pocket, at sides and center making total of nine bartacks.	Bartack	-	28 per bartack	B	B
	f. Close bottom corners of utility pocket and stitch, forming a bellows bottom. Turn and work out edges and points.	301	SSa-1	10-12	E	E
	g. Turn back inner side edge of utility pocket 7/8 inch and insert cording at folded edge and stitch 1/8 to 3/16 inch from folded edge. Position free part of slide fastener tape on turned portion, with edge of slide fastener chain even with inner turned edge of pocket and stitch tape to pocket with two rows of stitching 1/4 to 5/16 inch gage with the back row 1/16 to 1/8 inch from edge of tape.	301	-	10-12	E	E
	h. Position pocket on left top sleeve on marks indicated on pattern. Turn under top, bottom, and side raw edges and stitch pocket to sleeve.	301	LSD-1	10-12	E	E
	i. Bartack each end of slide fastener opening with a horizontal bartack extending from slide fastener cover to pocket. Bartack shall be 1/4 + 1/8 inch from top and bottom edges of pocket.	Bartack	-	28 per bartack	B	B

NATICK Form 903

1 Dec 76

EDITION OF 1 OCT 76 WILL BE USED UNTIL EXHAUSTED.

MIL-C-44077B

NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN/ LOOPER	COVER
11.	<p><u>Make sleeves.</u></p> <p>a. Position front sleeve elbow patch to front (as indicated on pattern) with the fronts, top and bottom edges of patch turned in, and single stitch 1/16 to 1/8 inch from turned edges.</p> <p>b. Position back sleeve elbow patch to back sleeve (as indicated on pattern) with the back top and bottom edges of patch turned in, and single stitch 1/16 to 1/8 inch from turned edges.</p> <p>c. Join sleeve pieces at underarm with a double-lapped and double-stitched seam. The front sleeve shall lap the back sleeve.</p> <p>d. Join sleeve pieces at back arm with a double-lapped and double-stitched seam, forming pleats positioned as indicated on pattern. The outside fold of pleats shall be toward bottom of sleeve and the front sleeve shall lap the back sleeve. The seam shall terminate at the sleeve opening (as indicated on pattern).</p> <p>e. Slash top of side sleeve opening (as indicated on pattern); turn seam allowances to inside and position slide fastener on the inside of sleeve with the back edges of tapes 1/8 to 3/16 inch beyond the raw edges of the seam allowances.</p> <p>f. Join slide fastener to sleeve with two rows of stitching 1/4 to 5/16 inch gage. The first row of stitching shall be 1/16 to 1/8 inch from folded edges of sleeves, and the rows of stitching shall continue across the top of the opening with the raw edge turned in and caught in the stitching.</p>	<p>301</p> <p>301</p> <p>301 or 401</p> <p>301 or 401</p> <p>301</p>	<p>LSc-1</p> <p>LSc-1</p> <p>LSc-2</p> <p>LSc-2</p> <p>LSb-2</p>	<p>10-12</p> <p>10-12</p> <p>10-12</p> <p>10-12</p> <p>10-12</p>	<p>B</p> <p>B</p> <p>B E</p> <p>B E</p> <p>B</p>		

NATICK Form 903

1 Dec 76

EDITION OF 1 OCT 76 WILL BE USED UNTIL EXHAUSTED.

MIL-C-44077B

NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD	
					NEEDLE	BOBBIN/ LOOPER COVER
11.	Make sleeves. (cont'd)					
	g. Position elastic webbing on the inside of sleeve below hem line with the ends of webbing 3/8 to 1/2 inch from edges of side sleeve opening, and tack in position 1/4 to 3/8 inch from raw ends.	301 or tack	SSbd-1	10-12 14-28 per tack	B B	B
	h. Turn the bottom edge 1/4 inch toward the inside of the sleeve. Then turn in bottom of sleeve (as indicated on pattern) with the top side edges 1/8 to 3/16 inch in back of back edges of slide fastener scoops, and single stitch 1/16 to 1/8 inch from turned edge. The stitching shall continue along the width of hem at ends, and the elastic webbing shall not be caught in the stitching.	301	EFb-1	10-12	B	B
	i. Fold sleeve facings face to face and stitch top and bottom ends together. Turn right side, work out corners and edges, and edge stitch 1/16 to 1/8 inch from turned edge. or Fold sleeve facings in half lengthwise, turn in raw edges at ends of facings and edge stitch top, front, and bottom edges 1/16 to 1/8 inch from turned edges.	301	SSe-2 and OSf-1	10-12	B	B
	j. Overedge back raw edges of facings.	502 or 503	SSa-1	6-10	E	E
	k. Position a facing behind each slide fastener on under sleeve side. Place a row of stitching through all plies, 5/8 to 11/16 inch from edge of cord. Stitching shall be through all plies and shall start from the cording of the slide fastener, go across to the edge of the facing, continue the full length of the facing, and across bottom edge.	301	SSJ-1	10-12	B	B

NATICK Form 903

1 Dec 76

EDITION OF 1 OCT 76 WILL BE USED UNTIL EXHAUSTED.

MIL-C-44077B

NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
11.	Make sleeves. (cont'd)						
	1. Secure a stud portion of snap fastener at each bottom end of side sleeve opening (as indicated on pattern) with the stud toward the inside of sleeve.						
12.	Make yoke, attach retrieval opening tab.						
	a. Make tab by folding 3 inches + 1/4 inch length of aramid tape in half and stitch 1/16 to 1/8 inch from folded edge, or with a 3/8 to 1/2 inch bartack.	301 Bartack	OSf-1	10-12 28 per bartack	B B	B B	
	b. Turn in bottom raw edge of yoke and stitch 3/16 to 1/4 inch from folded edge catching retrieval opening tab in stitching. One + 1/8 inch of the tab shall extend beyond the yoke and shall be centered + 1/2 inch on the yoke.	301	EFa-1	10-12	B	B	
13.	c. Position 1 inch wide pile portion of tape to inside bottom edge, as indicated on pattern. Stitch tape to yoke with the lines of stitching 1/16 to 1/8 inch from top and bottom edges of tape.	301	LSbj-1	10-12	B	B	
	Make upper back.						
	a. Position back facing to the outside bottom edge of upper back and stitch along step and side edges, turn and edge stitch 1/16 to 1/8 inch from edges.	301 or 401 and 301	SSE-2(a) SSE-2(b)	10-12 10-12	B E B	B B B	
	b. Fold the liner snap fastener tab in half so that they measure 1-1/2 inches + 1/8 inch. Turn in the top edge of facing and with the cut ends of the liner snap fastener tabs positioned between the facing and upper back in accordance with the pattern markings, stitch 1/16 to 1/8 inch from the turned edge. Fold	301	LSd-1	10-12	B	B	

NATICK Form 903

1 Dec 76

EDITION OF 1 OCT 76 WILL BE USED UNTIL EXHAUSTED

MIL-C-44077B

NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD	
					NEEDLE	BOBBIN/ LOOPER COVER
13.	<p>Make upper back. (cont'd)</p> <p>the tab onto the facing and stitch with a row of stitches superimposed on the previous row. The tab shall finish 1 inch to 1-1/4 inches in length when measured from the folded edge of the facing.</p> <p>c. Turn top raw edge of upper back to outside and stitch 3/16 to 1/4 inch from turned edge.</p> <p>d. Position the 1 inch wide hook portion of tape to outside of top edge (as indicated on pattern) and single stitch with the lines of stitching 1/16 to 1/8 inch from top and bottom edges of tape.</p> <p>e. Position the 2-inch wide pile portion of fastener tape to inside bottom edge (as indicated on pattern) and single stitch 1/16 to 1/8 inch from all edges of tape.</p>	301	EFa-1	10-12	B	B
		301	LSbj-1	10-12	B	B
		301	SSb-1 and LSbj-1	10-12	B	B
14.	<p>Join yoke to upper back.</p> <p>Finished appearance. The retrieval strap opening shall finish in the following lengths:</p> <p>X-Small 11 (+ 1/4 to 1/2 inch)</p> <p>Small 12 (+ 1/4 to 1/2 inch)</p> <p>Medium 13 (+ 1/4 to 1/2 inch)</p> <p>Large 14 (+ 1/4 to 1/2 inch)</p> <p>X-Large 15 (+ 1/4 to 1/2 inch)</p> <p>Lap yoke on upper edge of back piece (as indicated on pattern) and double stitch. The rows of stitching shall be in line with and overlap the rows of stitching joining tape to yoke with one of the rows of stitching continued across width of double stitching at each end of strap opening.</p>	301	LSa-2	10-12	B	B

NATICK Form 903

1 Dec 76

EDITION OF 1 OCT 76 WILL BE USED UNTIL EXHAUSTED.

MIL-C-44077B

NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D	
					NEEDLE	COVER
15.	<p>Attach seat reinforcement pieces.</p> <p>a. Position seat reinforcement pieces to each lower back piece with the raw edges of seam allowances even at seat and inseam area.</p> <p>b. Turn in rounded edges and the diagonal edges at the crotch areas of reinforcement pieces 1/2 inch, and stitch to the plies of lower back pieces with two rows of stitching. The first row of stitching shall be located 1/16 to 1/8 inch from the folded edge and the second row 5/16 to 3/8 inch from the edge.</p>	301	LSd-2	10-12	B	B
16.	<p>Join seat seam.</p> <p>Join seat seam from crotch to top edge of lower back with double-lapped and double-stitched seam catching seat reinforcement pieces in the stitching. The edges of the seat reinforcement pieces shall be aligned, and the seat seam may lap in either direction.</p>	301 or 401	LSd-2	10-12	B E	B B
17.	<p>Make drop seat.</p> <p>a. Slash lower back (as indicated on pattern) and tongue notch lower ends. Turn seam allowances and tongue notch end to inside; position slide fastener to underside of slash opening with the back edges of tapes extending 1/8 to 3/16 inch beyond raw edges of slashed seam allowance.</p>					

NATICK Form 903

1 Dec 76

EDITION OF 1 OCT 76 WILL BE USED UNTIL EXHAUSTED.

MIL-C-44077B

NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD	
					NEEDLE	BOBBIN/ LOOPER COVER
17.	<p>Make drop seat. (cont'd)</p> <p>b. Join slide fastener to lower back with 2 rows of stitching 5/16 to 3/8 inch gage. The first row of stitching shall be 1/16 to 1/8 inch from folded edges of lower back, and the rows of stitching shall continue across the bottom of opening catching the turned edge of tongue notch with the first row of stitching.</p> <p>c. Turn top raw edge of drop seat panel (include top ends of fastener tapes) to outside and stitch 1/4 to 5/16 inch from folded edge.</p> <p>d. Fold facings face to face and stitch top and bottom ends together. Turn to right side, work out corners and edges, and edge stitch 1/8 to 3/16 inch from turned edges.</p> <p style="text-align: center;">or</p> <p>Fold drop seat facings in half lengthwise, turn in raw edges at ends of facing and edge stitch top, front, and bottom edges 1/8 to 3/16 inch from turned edges.</p> <p>e. Overedge back raw edges of facings.</p> <p>f. Position one facing behind each slide fastener near side seam. Place a row of stitching, 5/8 to 11/16 inch from edge of cord. Stitching shall be through all plies and shall start from the cording of the slide fastener across to the edge of the facing, continue the full length of facing, and across bottom edge.</p>	301	-	10-12	B	B
		301	EFa-1	10-12	B	B
		301	SSE-2	10-12	B	B
		502 or 503	SSa-1	6-8	E	E
		301	SSJ-1	10-12	B	B

MIL-C-44077B

NO.	MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD	
					NEEDLE	BOBBIN/ LOOPER COVER
17.	<p>Make drop seat. (cont'd)</p> <p>g. Position the hook portion of 2 inch wide fastener tape to the outside top edge of lower back (as indicated on pattern) and stitch tapes 1/16 to 1/8 inch from all edges.</p> <p>h. Overedge stitch top raw ends of lower back catching the ends of slide fastener tapes.</p> <p>i. Position a hook portion of fastener tape to each top end of upper back piece in line with hook portion of tape on drop seat panel (slide fasteners at sides closed), and the front edge 1/2 to 5/8 inch from beaded edge of welt. Single stitch tape to back 1/16 to 1/8 inch from all edges.</p> <p>j. Secure 3 stud portions of snap fasteners to top of drop seat panel (as indicated on pattern) with the stud toward the inside of coverall.</p>	<p>301</p> <p>502 or 503</p> <p>301</p>	<p>LSbj-1</p> <p>SSa-1</p> <p>LSbj-1</p>	<p>10-12</p> <p>6-10</p> <p>10-12</p>	<p>B</p> <p>E</p> <p>B</p>	
18.	<p>Make chest pocket openings, attach pockets and labels (see operation 31).</p> <p>Finished appearance. The slider portion of slide fastener shall be located on the back end of pocket opening when fastener is closed.</p> <p>a. Slash pocket opening and tongue notch ends, as indicated on pattern. Turn seam allowances and tongue notched end to inside; position slide fastener to the underside of slash opening with the back edges of tapes extending 1/8 to 3/16 inch beyond raw edges of slashed seam allowance.</p>					

NATICK Form 903

1 Dec 76

EDITION OF 1 OCT 76 WILL BE USED UNTIL EXHAUSTED.

MIL-C-44077B

NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/LOOPER	COVER
18.	<p>Make chest pocket openings, attach pockets and labels (see operation 31). (cont'd)</p> <p>b. Join slide fastener to front with a row of stitching 1/16 to 1/8 inch from folded edge of front with the stitching continued across ends of opening catching the tongue notch. The loops for pockets shall be positioned as indicated on pattern, and caught in the line of stitching joining fastener tape to front at top of pocket opening.</p> <p>c. Center identification label on left chest pocket (as worn) with top of label near top of pocket and stitch on all four sides.</p> <p>d. Position instruction label directly below the identification label with left side of labels-lined up, and stitch on all four sides 1/16 to 1/8 inch from edge. The top edge of the instruction label may be caught in the bottom row of the identification label stitching. Stitching shall not be through the printing.</p> <p>e. Combination identification-instruction label, when used, shall be positioned as indicated for identification label. Stitching on labels shall not be through printing.</p> <p>f. Position chest pockets to inside of coveralls (as indicated on pattern) with the top and side edges turned in, and single stitch to fronts 1/16 to 1/8 inch from turned edges.</p>	301	-	10-12	B	B	
		301	LSbj-1	10-12	B	B	
		301	LSbj-1	10-12	B	B	
		301	LSbj-1	10-12	B	B	
		301	Lsd-1	10-12	B	B	

NATICK Form 903

1 Dec 76

EDITION OF 1 OCT 76 WILL BE USED UNTIL EXHAUSTED.

MIL-C-44077B

ING.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD	
					NEEDLE	DOBBIN/ LOOPER COVER
19.	<p>Attach cording and slide fastener to front opening and join crotch seams.</p> <p>a. Turn in edges at front opening (as indicated on pattern); insert cording at folded edges with the top ends even with top edge of neck and extending to the notch at base of front opening, and single stitch 1/8 to 3/16 inch from folded edges.</p> <p>b. Join crotch seams with the stitching terminating at notch at base of front opening. Spread seam allowance open.</p> <p>c. Position the slide fastener on the inside of coverall with the front edges of scoops even with the corded front edges and the front edge of chest pockets inserted between fastener tape and front.</p> <p>Join tapes to fronts 1/16 to 1/8 inch from back edges of tapes catching the chest pockets in the line of stitching. Place a second row of stitching through tape and front 7/16 to 1/2 inch from first row of stitching. Both rows of stitching shall extend the full length of fastener tape and the bottom edges of fastener tapes shall finish 1/2 to 3/8 inch from raw edge of crotch.</p> <p>or</p> <p>Fold facing face to face and stitch bottom ends together. Turn corner of bottom end, work out edges and corners, and edge stitch 1/8 to 3/16 inch across the bottom; then edge stitch up the folded edge; turn in raw edges of the top end, and continue stitching across the top end.</p>	301	SSbf-3(a) (with cord)	10-12	B	B
		301	SSa-1	10-12	B	B
		301	SSt-2	10-12	B	B

NATICK Form 903

1 Dec 76

EDITION OF 1 OCT 76 WILL BE USED UNTIL EXHAUSTED.

MIL-C-44077B

NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD	
					NEEDLE	BOBBIN/LOOPER COVER
19.	Attach cording and slide fastener to front opening and join crotch seams. (cont'd)					
	d. Position bottom raw edge of reinforcement piece even with bottom edge of front slide fastener tape; turn in top and side edges of reinforcement piece, (turned edges of sides even with back edges of fastener tapes), and stitch reinforcement piece to tape at front 1/16 to 1/8 inch from folded edges. The stitching may be continued across bottom edge.	301	Lsd-1	10-12	B	B
	e. Fold facing face to face and stitch top ends together. Turn right side, work out edges and corners, and edge stitch 1/8 to 3/16 inch from turned edges.	301	SSe-2 and OSf-1	10-12	B	B
	or					
	f. Overedge back raw edges of facing.	502 and 503	SSa-1	6-10	E	E
	g. Position the facing behind left side of slide fastener (as worn). Place a row of stitching, through all plies, 5/8 to 11/16 inch from edge of cord. Stitching shall be through all plies and shall continue the full length of the facing and along curve of bottom edge.	301	SSj-1	10-12	B	B

NATICK Form 903
1 Dec 76

EDITION OF 1 OCT 76 WILL BE USED UNTIL EXHAUSTED.

MIL-C-44077B

NO.	MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/LOOPER	COVER
20.	<p><u>Make side opening in leg.</u></p> <p>a. Slash side opening and tongue notch top end (as indicated on pattern); turn seam allowances and tongue notch to inside, and position slide fastener on the underside of back with the back edges of tapes 1/8 to 3/16 inch beyond the raw edges of seam allowances.</p> <p>b. Join the slide fastener to leg with 2 rows of stitching 1/4 to 5/16 inch gage. The first row of stitching shall be 1/16 to 1/8 inch from folded edges of leg, and the rows of stitching shall continue across the top of opening.</p>	301	-	10-12	B	B	
21.	<p><u>Attach knee patch.</u></p> <p>Turn in top and bottom edges of knee patch 3/8 inch (as indicated on pattern); position bottom edge to front (as indicated on pattern) and single stitch top and bottom edges 1/16 to 1/8 inch from turned edges. The stitching may be continued along outseam and inseam.</p>	301	LSd-1	10-12	B	B	
22.	<p><u>Join shoulder seam.</u></p> <p>Join shoulder seams with double-lapped and double-stitched seams. The back shall lap the fronts.</p>	301 or 401	LSd-2	10-14	B E	B B	
23.	<p><u>Join outseams.</u></p> <p>a. Lap step edge at bottom of upper back over upper ends of lower back (as indicated on pattern) and join outseams on one continuous operation with double-lapped and double-stitched seams forming leg pleats</p>	301 or 401	LSd-2	10-14	B E	B B	

NATICK Form 903

1 Dec 76

EDITION OF 1 OCT 76 WILL BE USED UNTIL EXHAUSTED.

MIL-C-44077B

NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
23.	<p><u>Join outseams.</u> (cont'd)</p> <p>(as indicated on pattern) with the fronts lapping the back. The knee patches shall be caught in the stitching, and the outside fold of pleats shall be toward the bottom.</p> <p>b. A bartack, 3/8 to 1/2 inch in length, shall be placed at each side of the flap for the drop seat opening. It shall be located at the top of the opening formed by the side edge of the flap and the side seam and positioned diagonally across the flap and the seam. The bartack shall be slanted from the upper back to the front piece.</p>	Bartack	-	28 per bartack	B	B	
24.	<p><u>Set sleeves.</u></p> <p>a. Join sleeve to armhole and overedge raw edges.</p> <p style="text-align: center;">or</p> <p>Join sleeve and overedge simultaneously.</p> <p>b. Turn sleeve seam toward body and raise stitch 3/16 to 1/4 inch from turned edge.</p>	301 or 401 502 or 503 515 or 516	- LSq-2(a) EFD-1 LSq-2	10-14 6-8 10-14	B E E E	B B E E	
25.	<p><u>Make thigh pockets.</u></p> <p>Finished appearance. The slider portion of the slide fastener shall be located on the back part when fastener is closed.</p> <p>a. Position slide fastener to leg (face to face) with the pocket piece positioned on the inside of leg</p>	301 or 401	LSq-2(b)	10-14	B E	B B	
		301	LSbj-1	10-12	B	B	

NATICK Form 903
1 Dec 76

EDITION OF 1 OCT 76 WILL BE USED UNTIL EXHAUSTED.

MIL-C-44077B

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					NEEDLE	DOBBIN/ LOOPER COVER
25.	<p><u>Make thigh pockets. (cont'd)</u></p> <p>(slash marks matching) and stitch tape through all plies the length of the slash mark.</p> <p>b. Slash pocket opening through pocket and plies of leg (as indicated on pattern), tongue notch ends, turn fastener to inside, and join opposite edges of pocket opening to the respective tape on the inside of leg.</p> <p>c. Turn in tongue notched ends and raise stitch leg 1/16 to 1/8 inch from turned edge at bottom of opening with the stitching continued along tongue notched ends.</p> <p>d. Pull pocket piece through opening, fold pocket in half forming bottom pleat (as indicated on pattern), and join sides. Turn pocket through opening to finished position.</p> <p>e. Raise stitch leg at top of pocket opening through all plies including the pocket with the stitching 1/16 to 1/8 inch from turned edge and continuing along sides superimposed on the stitching.</p> <p>f. Overedge stitch top raw edges of pockets together.</p> <p><u>Make shin pockets.</u></p> <p>Finished appearance. The slider portion of the slide fastener shall be located on the back part when fastener is closed.</p> <p>a. Position slide fastener to leg (face to face) with the pocket piece positioned on the inside of leg (slash marks matching) and stitch tape through all plies the length of the slash mark.</p>	301	SSa-1	10-12	B	B
		301	LSq-2(b) and LSd-1	10-12	B	B
		301	SSa-1	10-12	B	B
		301	LSq-2(b)	10-12	B	B
26.		502 or 503	SSa-2	6-10	E	E
		301	LSbj-1	10-12	B	B

NATICK Form 903
1 Dec 76

EDITION OF 1 OCT 76 WILL BE USED UNTIL EXHAUSTED.

MIL-C-44077B

NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD	
					NEEDLE	BOBBIN/ LOOPER COVER
26.	Make shin pockets. (cont'd) b. Slash pocket opening through pocket and plies of leg (as indicated on pattern), tongue notch ends, turn fastener to inside, and join opposite edges of pocket opening to the respective tape on the inside of leg. c. Turn in tongue notched ends and raise stitch leg 1/16 to 1/8 inch from turned edge at bottom of opening with the stitching continued along tongue notched ends. d. Pull pocket piece through opening, fold pocket in half forming bottom pleat (as indicated on pattern), and join sides.. Turn pocket through opening to finished position. e. Raise stitch leg at top of pocket opening through all plies including the pocket with the stitching 1/16 to 1/8 inch from turned edge and continuing along the sides superimposed on the stitching. f. Overedge stitch top raw edges of pockets together. Join inseams.	301 301 301 301 502 or 503 301 or 401	SSa-1 LSq-2(b) and LSd-1 SSa-1 LSq-2(b) SSa-2 LSa-2	10-12 10-12 10-12 10-12 6-10 10-12	B B B B E B E	
27.	Join inseams in one continuous operation with a double-lapped and double-stitched seam forming pleats as indicated on pattern. The knee patches shall be caught in the stitching and the fronts shall lap the backs. The outside fold of pleats shall finish toward the bottom and the crotch and seat seams shall not be staggered more than 3/8 inch (measurement taken from center of seam).					

NATICK Form 903

1 Dec 76

EDITION OF 1 OCT 76 WILL BE USED UNTIL EXHAUSTED.

MIL-C-44077B

NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD											
					NEEDLE	DOBBIN/ LOOPER COVER										
28.	<p><u>Attach retrieval strap.</u></p> <p>a. Position aramid webbing retrieval strap to inside of coverall (as indicated on patterns). Leave a free end of strap a minimum of 12 inches in length. Begin stitching strap to left front of coveralls (as worn) 1/16 to 1/8 inch from outer edge. Stitching shall not be through chest pocket. Continue stitching around armhole stopping at pattern marks on left upper back.</p> <p>Measure strap lengths as indicated per size:</p> <table><tr><td>X-Small</td><td>- 10 inches</td></tr><tr><td>Small</td><td>- 11 inches</td></tr><tr><td>Medium</td><td>- 12 inches</td></tr><tr><td>Large</td><td>- 13 inches</td></tr><tr><td>X-Large</td><td>- 14 inches</td></tr></table> <p>Continue stitching outer edge of strap starting at pattern marks on right back and around armhole to right front leaving a 10-inch length of strap and cut.</p> <p>b. Stitch inside edge of strap to coverall 1/16 to 1/8 inch from edge easing in excess in the underarm areas. Stitching shall not be through chest pockets and shall not penetrate into armhole seam.</p> <p>c. Boxstitch strap on fronts and back as indicated on patterns. The stitching shall be superimposed on the stitching of strap at sides and top forming a pattern 2 to 2-1/4 inches in length with diagonal stitching from corner to corner crossing at center.</p>	X-Small	- 10 inches	Small	- 11 inches	Medium	- 12 inches	Large	- 13 inches	X-Large	- 14 inches	301	LSbj-1	10-12	B	B
X-Small	- 10 inches															
Small	- 11 inches															
Medium	- 12 inches															
Large	- 13 inches															
X-Large	- 14 inches															
		301	LSbj-1	10-12	B	B										
		301	-	10-12	B	B										

NAVJAG FORM 902

NATICK Form 903
1 Dec 76

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MIL-C-44077B

NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/LOOPER	COVER
28.	<p><u>Attach retrieval strap. (cont'd)</u></p> <p>d. Overlap free ends of strap such a distance that, when centered and superimposed on the continuous loop there will be no excess in either loop when the retrieval strap is pulled taut. Turn under ends of straps so that overlap is a minimum of 6-1/4 inches. Trim off any turn under in excess of 1/4 inch. Stitch overlap to continuous loop with a 6 to 6-1/4 inch box stitch with stitching 1/16 to 1/8 inch.</p> <p style="text-align: center;">or</p> <p>Two box X stitch patterns will be allowed as an alternative to join the ends of the retrieval strap. When the alternative stitch pattern is utilized, the distance between the box patterns shall not be more than 1/2 inch and not less than 1/8 inch from edges and diagonal stitching from corner to corner crossing at center. There shall be no piecing of the aramid webbing and the raw ends shall be seared.</p> <p><u>Make front pockets.</u></p> <p>Finished appearance. The slider portion of slide fastener shall be located at the top end of opening when fastener is closed.</p> <p>a. Position the back edge of slide fastener tape to front (face to face) at slash mark, and join to front the length of the slash mark.</p>	301		10-12	B	B	
29.		301		10-12	B	B	
		301	LSbj-1	10-12	B	B	

NATICK Form 903
1 Dec 76

EDITION OF 1 OCT 76 WILL BE USED UNTIL EXHAUSTED.

MIL-C-44077B

NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN/ LOOPER	COVER
29.	Make front pockets. (cont'd)						
	b. Slash opening through pocket and front (as indicated on pattern), tongue notch ends, turn fastener to inside, and join opposite edge of pocket opening to the respective tape on the inside of front.	301	LSq-2(a)	10-12	B	B	
	c. Position the top pocket portion to inside of coveralls to the slide fastener tape at front of pocket opening (as indicated on pattern) and, with the slide fastener tape extending 1/16 to 1/8 inch beyond raw edge of pocket, single stitch, tape and welt pieces only, through pocket the length of slash opening.	301		10-12	B	B	
	d. Turn in tongue notched ends; raise stitch fronts at sides of pocket opening with the stitching 1/16 to 1/8 inch from turned edges. The stitching shall continue across bottom and top ends of opening 1/16 to 1/8 inch from folded edges of tongue notches. The pocketing shall be turned toward the front of coverall and caught in the raised stitching along front side of pocket opening.	301		10-12	B	B	
	e. Turn pocket inside out at mark indicated on pattern, and join along back and bottom edges. Turn pocket, and edge stitch 3/16 to 1/4 inch.	301 or 401 and 301	SSe-2(a) SSe-2(b)	10-12 10-12	B E B	B B B	
	f. Turn in raw edge of facing at inside back edge of underpocketing (as indicated on pattern), and stitch 1/16 to 1/8 inch from folded edge. The stitching shall continue across the width of facing at tongue notch at bottom of pocket opening.						

NATICK Form 903
1 Dec 76

EDITION OF 1 OCT 76 WILL BE USED UNTIL EXHAUSTED.

MIL-C-44077B

NO.	MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
29.	Make front pockets. (cont'd)	301 or tack		10-12 28 per tack	B B	B B	
30.	<p>Finish leg bottoms.</p> <p>a. Position ankle patch to leg bottom with the notches positioned on inseam and the bottom edges even.</p> <p>b. Turn in curved raw edges of patch $3/8$ inch and single stitch $1/16$ to $1/8$ inch from turned edge.</p> <p>c. Position elastic webbing on the inside of leg below hemline with the ends of webbing $3/8$ to $1/2$ inch from edges of side leg opening, and tack in position $1/4$ to $3/8$ inch from raw ends.</p> <p>d. Turn up the bottom edge of the leg cuff $1/4$ inch toward the inside of the leg and then turn in bottom of leg (as indicated on pattern) with the top side edges $1/8$ to $3/16$ inch in back of back edges of slide fastener scoops, and single stitch $1/16$ to $1/8$ inch from turned edge. The stitching shall continue along the width of hem at ends, and the elastic webbing shall not be caught in the stitching.</p> <p>e. Secure a stud portion of snap fastener at each bottom end of leg opening (as indicated on pattern) with the stud toward the inside of leg.</p>	301 301 or tack 301	LSD-1 SSbd-1 EFA-1	10-12 10-12 14-28 per tack 10-12	B B B	B B B	

NATICK Form 903
1 Dec 76

EDITION OF 1 OCT 76 WILL BE USED UNTIL EXHAUSTED.

MIL-C-44077B

NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD	
					NEEDLE	JOBBIN/ LOOPER COVER
31.	Attach collar and size label (see operation 18).					
	a. With raw edge of undercollar and outside back edge even, stitch 3/8 inch from raw edges. The size label shall be centered on the inside back and caught in the joining seam.	301 or 401	SSa-1	10-12	B E	B B
	b. Turn in raw edge of top ply of collar and stitch to neck 1/16 to 1/8 inch from turned edge.	301	LSb-1	10-12	B	B
32.	c. Stitch the remaining three sides of the size label 1/16 to 1/8 inch from edge. Stitching shall not be through the printing.	301	LSbj-1	10-12	B	B
	Make and attach tunnel pieces.					
	Finished appearance. The top ends of front pockets, the bottom of chest pockets, and the liner snap fastener tabs shall be caught in the stitching of tunnels to fronts. The webbing shall not be caught in the stitching along top and bottom edges of tunnel pieces.					
	a. Fold the 1-3/4 inch piece of aramid tape for holster holder in half lengthwise and edge stitch 1/16 to 1/8 inch from edges.	301	SSa-1 and OSf-1	10-12	B	B
	b. Turn under raw edges of holster holder 1/8 to 3/16 inch, position as indicated by marks on pattern, and bartack in place. The length of the bartack shall be 3/8 + 1/16 inch.	Bartack	-	28 per bartack	B	B
	c. Center the elastic webbing on waist tunnel with the raw ends even, and tack in position the width of webbing 1/8 to 1/4 inch from ends. Turn pieces inside out.	301	-	28 per tack	B	B

NATICK Form 903

1 Dec 76

EDITION OF 1 OCT 76 WILL BE USED UNTIL EXHAUSTED.

MIL-C-44077B

NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD	
					NEEDLE	BOBBIN/LOOPER COVER
32.	<p>Make and attach tunnel pieces. (cont'd)</p> <p>d. Position waist tunnel to the inside of fronts (as indicated on pattern) and with the top and bottom raw edges of tunnel turned in 3/8 inch and with liner snap fastener tabs positioned as indicated by marks on pattern, single stitch to fronts 1/16 to 1/8 inch from turned edge catching raw ends of fastener tabs in stitching.</p> <p>e. Fold the snap fastener tabs onto the tunnel and top stitch 1/16 to 1/8 inch from folded edge. The finished length of the tab shall be 1 inch to 1-1/4 inches.</p> <p>f. Secure the socket portion of snap fastener at each liner snap fastener tab. The snap fastener shall be centered on the tab and shall face the wearer when coveralls are worn.</p>	301	LSd-1	10-12	B	B
33.	<p>Prepare for packing.</p> <p>a. Trim all thread ends and remove loose threads.</p> <p>b. Remove all spots, stains, and shade or size markings.</p> <p>c. Close all slide fasteners.</p>	301	OSf-1	10-12	B	B

NATICK Form 903
1 Dec 76

EDITION OF 1 OCT 76 WILL BE USED UNTIL EXHAUSTED.

MIL-C-44077B

3.8 Finished measurements. The coverall shall conform to finished measurements shown in table III.

TABLE III. Finished measurements (in inches)

	Short	Regular	Long	Tolerance
Half chest <u>1/</u>				
X-Small	20-1/2	20-1/2	20-1/2	$\pm 1/2$
Small	22-1/2	22-1/2	22-1/2	
Medium	24-1/2	24-1/2	24-1/2	
Large	26-1/2	26-1/2	26-1/2	
X-Large	28-1/2	28-1/2	28-1/2	
Sleeve length <u>2/</u>				
X-Small	18-1/2	19-1/2	20-1/2	$\pm 1/2$
Small	18-1/2	19-1/2	20-1/2	
Medium	18-1/2	19-1/2	20-1/2	
Large	18-1/2	19-1/2	20-1/2	
X-Large	18-1/2	19-1/2	20-1/2	
1/2 Waist (relaxed) <u>3/</u>				
X-Small	16	16	16	$\pm 3/4$
Small	18	18	18	
Medium	20	20	20	
Large	22	22	22	
X-Large	24	24	24	
Inseam <u>4/</u>				
X-Small	28	30	32	$\pm 1/2$
Small	28	30	32	
Medium	28	30	32	
Large	28	30	32	
X-Large	28	30	32	

1/ Measure from folded edge to folded edge at bottom of armhole.

2/ Measure from base of armhole to bottom edge of sleeve. Individual coverall sleeves shall not differ in length by more than 1/2 inch.

3/ Measure from side edge to side edge between rows of waist tunnel stitching.

4/ Measure from seam line at base of crotch to bottom of leg. Individual coverall inseams shall not differ in length by more than 1/2 inch.

MIL-C-44077B

3.9 Workmanship. The finished coveralls shall conform to the quality of product established by this document and the occurrence of defects shall not exceed the applicable acceptable quality levels.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in this document 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 document shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirement in the document 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 Responsibility for dimensional requirements. Unless otherwise specified in the contract or purchase order, the contractor is responsible for assuring that all specified dimensions have been met. When dimensions cannot be examined on the end item, inspection shall be made at any point or at all points in the manufacturing process necessary to assure compliance with all dimensional requirements.

* 4.1.3 Certificates of compliance. When certificates of compliance are submitted, the Government reserves the right to inspect such items to determine the validity of the certification.

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

- a. First article inspection (see 4.3).
- b. Quality conformance inspection (see 4.4).

* 4.3 First article inspection. When a first article is required (see 6.2), it shall be examined for the defects specified in 4.4.2 and 4.4.3. The presence of any defect shall be cause for rejection of the first article.

MIL-C-44077B

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

4.4.1 Component and material inspection. In accordance with 4.1, components and materials shall be inspected in accordance with all the requirements of referenced documents unless otherwise excluded, amended, modified, or qualified in this document or applicable purchase document.

- * 4.4.2 End item visual examination. The end item shall be examined for the defects listed in table III. The lot size shall be expressed in units of coveralls. The sample unit shall be one coverall. The inspection level shall be II and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 2.5 for major defects, 15.0 for major and minor A defects combined, and 40.0 for total (major, minor A, and minor B combined) defects.

TABLE IV. End item visual defects

Examine	Defect	Classification	
		Major	Minor A B
Material defects	Hole, cut, tear, or needle chew:		
	On outside:		
	-up to 1/8 inch in diameter or length		X
	-more than 1/8 inch up to 1/4 inch inclusive		X
	-more than 1/4 inch	X	
	On inside:		
	-up to 1/4 inch in diameter or length		X
	-more than 1/4 inch up to 1/2 inch inclusive		X
	-more than 1/2 inch	X	
	Mend, darn, or patch:		
	On outside:		
	-any	X	
	On inside (except on seam allowance):		
	-1/4 inch up to 1/2 inch in diameter or length		X
	-more than 1/2 inch		X
	Friction burn:		
	-when fibers are broken use "hole, cut, tear, or needle chew" classification		
	Drill hole exposed on outside		X

MIL-C-44077B

TABLE IV. End item visual defects (cont'd)

Examine	Defect	Classification	
		Major	Minor A B
Material defects (cont'd)	Weakening defects:		
	Smash	X	
	Multiple float or loose slub:		
	-on outside		X
	-on inside		X
	Slub or shade bar:		
	-on outside	X	
	-on inside		X
	NOTE: Only knots and slubs that exceed the limits specified in the basic cloth document and are clearly visible when examined at a distance of 3 feet shall be scored as defects in evaluating the quality of the coveralls.		
Shaded parts	Any outside part shaded (except those cut from ends)		X
Cleanness	Any spot or stain on outside		X
	One or more shade or size markings not removed		X
	Thread ends not trimmed		
	1/4 inch or more (largest dimension in any direction)		X
Component and assembly	Any component or required operation omitted (unless otherwise classified herein)	X	
	Any operation not performed as specified (unless otherwise classified herein)		X
Cutting	Any component part not cut in conformance with directional lines indicated on patterns or not in accordance with specification requirements	X	

MIL-C-44077B

TABLE IV. End item visual defects (cont'd)

Examine	Defect	Classification	
		Major	Minor A B
Seams and stitching	Accuracy of seaming:		
	Seam twisted, puckered, or pleated		X
	Part of garment caught in unrelated operation or stitching	X	
	Ends of stitching, when not caught in other seams or stitching, back-stitched less than 1/4 inch		X
	Stitching overlapping end(s) of thread break less than 1/2 inch		X
	Ends of a continuous line of stitching overlapped less than 1/2 inch (except label stitching)		X
	Ends of stitching on label overlapped with less than three stitches		X
	Gage of stitching:		
	Irregular, i.e., unevenly gaged or corresponding stitchings not uniform (to be scored only when condition exists along major portion of seam)		X
	Not within range of gage specified or varies more than 1/16 inch when no range is specified		X
	Stitches broken or missing:		
	-up to 1/4 inch inclusive		X
	-more than 1/4 inch to 1/2 inclusive		X
	-more than 1/2 inch	X	
	Raw edges (except ends of exposed welts and slide fasteners):		
	-more than 1/4 inch long		X
	Seam or stitch type not as specified		X
	Stitches per inch more than maximum or less than minimum specified		X
	Stitch tension:		
	Loose tension, resulting in a loose seam	X	
	Loose tension (exposed loops of top or bottom threads):		
	-on outside		X
	-on inside		X

MIL-C-44077B

TABLE IV. End item visual defects (cont'd)

Examine	Defect	Classification	
		Major	Minor A B
Seams and stitching (cont'd)	Tight tension (stitches break when strain is applied in the direction of the seam or stitching)	X	
	Run-offs (on edge or raised stitching):		
	-1/4 inch up to 1/2 inch inclusive		X
	-more than 1/2 inch		X
Slide fasteners	One or more defective, affecting function	X	
	Not type, size, or style specified		X
	Slider on reverse side	X	
	Pocket slider not closing in direction specified		X
	Any other slider not closing in direction specified	X	
Slide fastener thongs	One or more omitted		X
	Less than 2-3/4 inches or more than 3-1/4 inches long		X
	Line of stitching or bartack joining ends, off center by more than 1/16 inch, or the top end of the stitching finishing less than 3/8 inch or more than 5/8 inch from end of metal pull tab		X
Waist tunnel	Elastic webbing caught in the stitching of top and bottom edges		X
Front opening	Top ends of slide fastener or cording not caught in collar joining seams		X
	Top ends of slide fastener or cording stops less than 1/4 inch or more than 1/2 inch from collar joining seam		X
	Cord edges of fronts not abutted or overlapping 1/16 inch or more when fastener is closed		X

MIL-C-44077B

TABLE IV. End item visual defects (cont'd)

Examine	Defect	Classification	
		Major	Minor A B
Welts at slide fastener openings	Piecing of welt pieces visible at one or more slide fastener openings (when applicable)		X
	Cording at folded edges not extending the full length of slide fastener opening		X
	Ends of tapes and welts not caught in the line of stitching at tongue notched ends of openings		X
	Corded edges not abutted or overlapping 1/16 inch or more when fastener is closed		X
Retrieval strap	Length of continuous loop not as specified		X
	Dimensions and locations of box stitches of retrieval strap not as specified		X
Collar	Twisted or puckered	X	
	Points not of uniform shape, affecting appearance		X
	Points uneven in length by more than 1/4 inch		X
	Ends insecurely stitched at edges of front opening		X
Back yoke	Not lapped on upper back	X	
	Yoke not overlapped to cover entire fastener tape on upper back		X
	Retrieval strap opening not as specified in operation 14 (finished appearance)		X
	Hook and pile portions of fastener tapes not positioned as specified (i.e., hook portion positioned at the inside bottom edge of yoke and the pile portion positioned at the outside top edge of upper back)		X

MIL-C-44077B

TABLE IV. End item visual defects (cont'd)

Examine	Defect	Classification	
		Major	Minor A B
Back yoke (cont'd)	Rows of stitching joining yoke and upper back not in line with overlapping the stitching joining pile portion of tape to yoke		X
Drop seat	Hook portion positioned at the lower inside edge of upper back and the pile portion positioned at the outside of top edge of lower back		X
	Hook portions of fastener tape at ends of upper back out of alignment with hook portion on drop seat panel by more than 1/4 inch or positioned less than 1/2 inch or more than 5/8 inch from front edge of welts		X
Shoulder and side seams	Backs not lapping fronts		X
Neck tab	Not finishing toward the back of collar		X
Inseams and outseams	Fronts not lapping backs		X
	Outside fold of pleats not toward bottom		X
Thigh and shin pockets	Bottom pleat missing in one or both pockets		X
Sleeve and leg openings	Elastic webbing caught in the hemming operation		X
	Hem less than 7/8 inch or more than 1-1/8 inches wide		X
Labels	Missing, incorrect, or illegible:		
	-size	X	
	-identification, instruction, or combination identification-instruction (where applicable)		X

MIL-C-44077B

TABLE IV. End item visual defects (cont'd)

Examine	Defect	Classification	
		Major	Minor A B
Labels (cont'd)	Not stitched on all four sides		X
	Stitching through printing		X
	Size label off center by more than 1/2 inch, or any other label not positioned as specified		X
Elbow and seat patches	Uneven at top by 1/8 to 1/4 inch inclusive		X
	Uneven at top by more than 1/4 inch		X
Snap fasteners	Any part of assembly missing, mismatched, broken, cracked, bent, not securely clinched, affecting function:		
	-two or more snap fasteners	X	
	-one snap fastener		X
	One or more clinched too tightly cutting surrounding fabric	X	
	Loose (i.e., socket or stud spins freely or wobbles in connection portions)		X
	One or more having rough or sharp edge	X	
	More than 3 splits in eyelet or button barrel		X

4.4.3 End item dimensional examination. The end item shall be examined for conformance to the measurements specified in table III. Any dimension not within the specified tolerance shall be classified as a defect. The lot size shall be expressed in units of coveralls. The sample unit shall be one coverall. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 4.0.

MIL-C-44077B

4.4.4 Packaging examination. The fully packaged end items shall be examined for the defects listed below. The lot size shall be expressed in units of shipping containers. The sample unit shall be one shipping container fully packaged. The inspection level shall be S-2 and the AQL, expressed in terms of defects per hundred units, shall be 2.5.

<u>Examine</u>	<u>Defect</u>
Workmanship	Inadequate application of components, such as incomplete sealing or closure of flap, improper taping, loose strapping, or inadequate stapling Bulged or distorted container Open and non-continuous heat sealed seams and closure of polyethylene bags Alternate polyethylene bags not provided with tuck or reverse flap, as specified Incorrectly fabricated bag
Content	Number of unit packs per shipping container is more or less than specified

4.4.5 Palletization examination. The fully packaged and palletized end items shall be examined for the defects listed below. The lot size shall be expressed in units of palletized unit loads. The sample unit shall be one palletized unit load, fully packaged. The inspection level shall be S-1 and the AQL, expressed in terms of defects per hundred units, shall be 6.5.

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

MIL-C-44077B

5.1.1 Level A. Each pair of coveralls with sleeves and legs fully extended and with slide fasteners closed, shall be laid flat, front down. Fold the leg bottoms up approximately 15 inches. Next bring the leg portion up even with the lower edge of the collar and fold the sleeve one on top of the other across the back. The length shall then be folded in half. Each completely folded coverall shall measure approximately 21 inches by 15 inches. Each folded coverall shall be unit packed in a close-fitting clear polyethylene film bag of 0.0015-inch thickness (+ 20 percent tolerance). The polyethylene bag shall be formed with heat sealed seams that are straight and continuous and parallel to each other and to the formed edges of the bag. The final closure of the bag shall be heat sealed with the heat seal made as close as possible to the open end. The bag may be fabricated from polyethylene film tubing or sheeting. A 1/4-inch diameter hole shall be made at one corner of the polyethylene bag to allow excess air to escape. Alternatively, the final closure of the polyethylene bag may be accomplished by means of a tuck or reverse flap.

5.1.2 Commercial. Coveralls shall be preserved in accordance with ASTM D 3951.

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

5.2.1 Level A packing. Ten coveralls of one size only, preserved as specified in 5.1, shall be packed in a fiberboard shipping container conforming to style RSC-L, grade V2s of PPP-B-636. The inside of each container shall be fitted with a box liner conforming to type CF, class weather-resistant, variety DW, grade V15c of PPP-B-636. Level A unit packs shall be packed flat, alternated end for end, one in length, one in width and ten in depth. Inside dimensions of each container shall be approximately 21-1/2 inches in length, 15-1/2 inches in width, and 15 inches in depth. Approximate dimensions are furnished as a guide only. Each shipping container shall be closed in accordance with method III, waterproofed in accordance with method V, and reinforced as specified in the appendix of PPP-B-636, except that the inspection shall be in accordance with 4.4.4. Shipping containers shall be arranged in unit loads in accordance with MIL-L-35078 for the type and class of load specified (see 6.2). When unit loads are strapped, strapping shall be limited to nonmetallic strapping, except for type II, class F loads.

5.2.2 Level B packing. Ten coveralls of one size only, preserved as specified in 5.1, shall be packed in a fiberboard shipping container conforming to style RSC-L, type CF (variety SW) or SF, class domestic, grade 275 of PPP-B-636. The inside of each container shall be fitted with a box liner conforming to type CF, class domestic, variety DW, grade 275 of PPP-B-636. Level A unit packs shall be packed flat, alternated end for end, one in length, one in width, and ten in depth within a container. Inside dimensions of each container shall be approximately 21-1/2 inches in length, 15-1/2 inches in width, and 15 inches in depth. Approximate dimensions are furnished as a guide only. Each container shall be closed in accordance with method II as specified in the appendix of PPP-B-636, except that the inspection shall be in accordance with 4.4.4.

MIL-C-44077B

5.2.2.1 Weather-resistant fiberboard container. When specified (see 6.2), the shipping container shall be a grade V3c, V3s, or V4s fiberboard box fabricated in accordance with PPP-B-636 and closed in accordance with method III as specified in the appendix of PPP-B-636, except that the inspection shall be in accordance with 4.4.4.

5.2.3 Commercial packing. Coveralls, preserved as specified in 5.1, shall be packed in accordance with ASTM D 3951.

5.3 Palletization. When specified (see 6.2), coveralls packed as specified in 5.2.2 and 5.2.3, shall be palletized on a 4-way entry pallet in accordance with load type Ia of MIL-STD-147. Pallet types shall be type I (4-way entry), type IV, or type V in accordance with MIL-STD-147. Pallets shall be fabricated from groups I, II, III, or IV of MIL-STD-731. Each prepared load shall be bonded with primary and secondary straps in accordance with bonding means K and L or film bonding means O or P. Pallet pattern shall be number 3 in accordance with appendix of MIL-STD-147. Interlocking of loads shall be effected by reversing the pattern of each course.

5.4 Marking. In addition to any special marking required by the contract or purchase order, unit packs, shipping containers, and palletized unit loads shall be marked in accordance with MIL-STD-129 or ASTM D 3951, as applicable.

6. NOTES

6.1 Intended use. The coveralls are intended for wear by combat vehicle crewmen of the Department of Defense.

6.2 Ordering data. Acquisition documents should specify the following:

- a. Title, number, and date of this document.
- b. Size required (see 1.2).
- c. When a first article is required (see 3.2, 4.3, and 6.4).
- d. Selection of applicable levels of preservation and packing (see 5.1 and 5.2).
- e. Type and class of unit load specified (see 5.2.1).
- f. When weather-resistant grade fiberboard shipping containers are required for level B packing (see 5.2.2.1).
- g. When palletization is required (see 5.3).

6.3 Sample. For access to samples, address the contracting activity issuing the invitation for bids.

6.4 First article. When a first article is required, it shall be inspected and approved under the appropriate provisions of FAR 52.209. The first article should be a preproduction sample. The contracting officer should specify the appropriate type of first article and the number of units to be furnished. The contracting officer should include specific instructions in all acquisition instruments regarding arrangements for selection, inspection, and approval of the first article.

MIL-C-44077B

6.5 Subject term (key word) listing.

Combat vehicle crewmen
Coveralls, combat
Coveralls, fire-resistant

6.6 Changes from previous issue. The margins of this document 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.

Custodians:

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Navy - NU

Preparing activity:

Army - GL

Review activities:

Army - MD
Navy - MC
DLA - CT

Project No. 8415-0641

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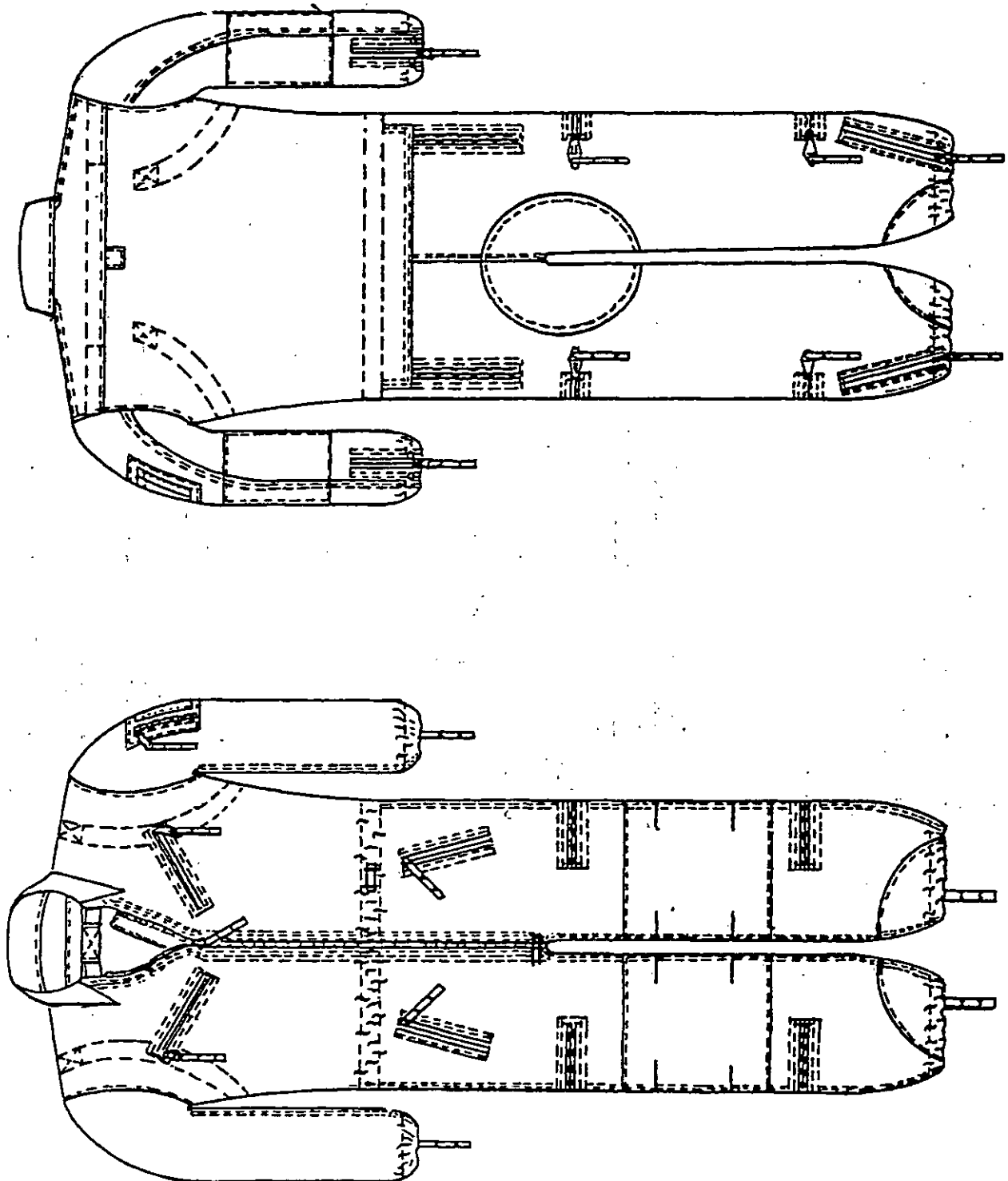


FIGURE 1. Coveralls, combat vehicle crewmen's.

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