

MILITARY SPECIFICATION

* COVERALLS, FLYER'S, MEN'S, SUMMER, (FIRE-RESISTANT

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

1. SCOPE

- * 1.1 Scope. This specification covers the requirements for two types of fire-resistant, summer, men's, flying coveralls.

1.2 Classification

- * 1.2.1 Types. The coveralls shall be furnished in the following types, as specified (see 6.2):

→ CWU-27/P - Sage-green, nylon
CWU-28/P - Indian-orange, nylon.

- * 1.2.2 Sizes. The coveralls shall be furnished in the following sizes, as specified (see 6.2):

Schedule of Sizes

36S	38L	42R	46S
36R	40S	42L	46R
36L	40R	44S	46L
38S	40L	44R	48R
38R	42S	44L	48L.

2. APPLICABLE DOCUMENTS

- * 2.1 The following documents, of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

SPECIFICATIONSFederal

V-F-106 Fasteners, Slide, Interlocking
DDD-L-20 Label; for Clothing, Equipage, and Tentage, (General Use)

FSC 8415

Military

MIL-W-4088	Webbing, Textile, Woven Nylon
MIL-C-5040	Cord, Nylon
MIL-W-5664	Webbing, Textile, Elastic, Cotton
MIL-F-10884	Fasteners, Snap
MIL-G-16491	Grommet, Metallic
MIL-B-17757	Boxes, Fiberboard, Corrugated (Modular Sizes)
MIL-C-18387	Cloth, Twill, Cotton, Fire Retardant Treated
MIL-F-21840	Fastener Tapes, Hook and Pile, Synthetic
MIL-T-83193	Thread, Nylon, Spun Staple, High Temperature
MIL-C-83429	Cloth, Plain and Basket Weave, Aromatic Polyimide, Non-Melting

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
MS27980	Fasteners, Snap, Style 2 (Regular Wire Spring Clamp Type)

DRAWINGS

Air Force

68E292	Coveralls, Flying, Men's, Summer, Fire-Resistant, Types CWU-27/P and CWU-28/P, All Sizes
68J293	Coveralls, Flying, Men's, Summer, Fire-Resistant, Types CWU-27/P and CWU-28/P, Size 36 Short
68J294	Coveralls, Flying, Men's, Summer, Fire-Resistant, Types CWU-27/P and CWU-28/P, Size 36 Regular
68J295	Coveralls, Flying, Men's, Summer, Fire-Resistant, Types CWU-27/P and CWU-28/P, Size 38 Short
68J296	Coveralls, Flying, Men's, Summer, Fire-Resistant, Types CWU-27/P and CWU-28/P, Size 38 Regular
68J297	Coveralls, Flying, Men's, Summer, Fire-Resistant, Types CWU-27/P and CWU-28/P, Size 40 Short
68J298	Coveralls, Flying, Men's, Summer, Fire-Resistant, Types CWU-27/P and CWU-28/P, Size 40 Regular

68J299	Coveralls, Flying, Men's, Summer, Fire-Resistant, Types CWU-27/P and CWU-28/P, Size 40 Long
68J300	Coveralls, Flying, Men's, Summer, Fire-Resistant, Types CWU-27/P and CWU-28/P, Size 42 Regular
68J301	Coveralls, Flying, Men's, Summer, Fire-Resistant, Types CWU-27/P and CWU-28/P, Size 42 Long
68J302	Coveralls, Flying, Men's, Summer, Fire-Resistant, Types CWU-27/P and CWU-28/P, Size 44 Regular
68J303	Coveralls, Flying, Men's, Summer, Fire-Resistant, Types CWU-27/P and CWU-28/P, Size 44 Long
68J304	Coveralls, Flying, Men's, Summer, Fire-Resistant, Types CWU-27/P and CWU-28/P, Size 46 Regular
68J305	Coveralls, Flying, Men's, Summer, Fire-Resistant, Types CWU-27/P and CWU-28/P, Size 46 Long
68J306	Coveralls, Flying, Men's, Summer, Fire-Resistant, Types CWU-27/P and CWU-28/P, Size 48 Regular
71218	Coveralls, Flying, Men's, Summer, Fire-Resistant, Types CWU-27/P and CWU-28/P, Size 36 Long
71219	Coveralls, Flying, Men's, Summer, Fire-Resistant, Types CWU-27/P and CWU-28/P, Size 38 Long
71220	Coveralls, Flying, Men's, Summer, Fire-Resistant, Types CWU-27/P and CWU-28/P, Size 42 Short
71221	Coveralls, Flying, Men's, Summer, Fire-Resistant, Types CWU-27/P and CWU-28/P, Size 44 Short
71222	Coveralls, Flying, Men's, Summer, Fire-Resistant, Types CWU-27/P and CWU-28/P, Size 46 Short
71223	Coveralls, Flying, Men's, Summer, Fire-Resistant, Types CWU-27/P and CWU-28/P, Size 48 Long

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

3. REQUIREMENTS

3.1 Materials

3.1.1 Basic fabric. The outer shell, the collar, the hanger, the pockets, the back belt, the waistband adjustment tabs, the sleeve adjustment tabs, the thong for the front slide fastener, the facings, the flaps, and the slide fastener coverings shall be fabricated from the basic fabric.

* 3.1.1.1 CWU-27/P coveralls. The basic fabric for the CWU-27/P coveralls shall conform to type II of MIL-C-83429 and shall be sage green, USAF color shade No. 1565 (see 6.3).

* 3.1.1.2 CWU-28/P coveralls. The basic fabric for the CWU-28/P coveralls shall conform to type II of MIL-C-83429 except that the color shall be Indian orange; Textile Color Association Cable No. 70072 (see 6.3).

3.1.2 Topcollar facing. The fabric for the topcollar facing shall conform to MIL-C-18387. The color of the topcollar facing shall be sage green, USAF color shade No. 1524 for the CWU-27/P coveralls and Indian Orange, Textile Color Association Cable No. 70072 for the CWU-28/P coveralls (see 6.3).

* 3.1.3 Thread. The thread for all sewing operations shall conform to MIL-T-83193, except that the color of the thread for the CWU-28/P coveralls shall approximately match the color of the basic fabric.

* 3.1.4 Elastic webbing. The elastic webbing for the waistband center section shall be class 1, 1-1/2 inches wide, minimum of 0.035 inch thick, 7 inches long, color optional of MIL-W-5664.

3.1.5 Snap fastener. The snap fastener for the knife pocket shall conform to style 2, finish 2 of MIL-F-10884 and MS27980-1B (button), MS27980-6B (socket), MS27980-7B (stud), and MS27980-8B (eyelet).

* 3.1.6 Slide fasteners. The slide fasteners shall conform to the requirements of V-F-106 and to tables I, II, and III of this specification. The chain and any other metal components except the latch and the spring of the automatic lock shall be brass with a black chemical finish. The tape of the slide fasteners shall be 3/4 inch wide, shall be high-temperature-resistant polyamide, and shall approximately match the color of the basic fabric. The slide fastener for the front opening shall have a thong made of a double thickness of the basic fabric.

* 3.1.7 Hook and pile fastener tape. The hook and pile nylon fastener tape shall conform to type I, class 1 of MIL-F-21840 and to table IV of this specification. The color of the hook and pile fastener tape shall approximately match the color of the basic fabric.

TABLE I. Slide Fasteners

Location	Requirements of V-F-106					Top and Bottom Tape Extensions (Inches)
	Quantity	Type	Style	Size	Sliders <u>1/</u>	
Front opening	1	I	15	MS	2	<u>2/</u>
Leg openings	2	I	3	M	1	1 to 1-1/4
Breast pockets	2	I	7	M	1	1 to 1-1/4
Thigh pockets	2	I	7	M	1	1 to 1-1/4
Lower leg pockets	2	I	7	M	1	1 to 1-1/4
Left sleeve pocket	1	I	7	M	1	1 to 1-1/4
Side pass-throughs	2	I	7	M	1	1 to 1-1/4

1/ The sliders shall have a short tab pull.

2/ The top tape extension shall be 1 to 1-1/4 inches. The bottom tape extension shall be 1-1/2 to 1-3/4 inches.

3.1.8 Metallic grommet. The metallic grommet for the knife pocket shall conform to type I, class 3, size No. 0 of MIL-G-16491.

* 3.1.9 Nylon cord. The nylon cord for the lanyard that is attached to the knife pocket and for the cord beading in the edges of the slide fasteners shall be natural color and shall conform to type IA of MIL-C-5040.

* 3.1.10 Binding tape. The strip for binding the edges of the knife pocket shall be bias-cut, 1-1/8 inch wide, from the basic fabric.

* 3.1.11 Webbing reinforcement. The webbing used for the reinforcement piece on the knife pocket shall conform to type XII of MIL-W-4088. The color may be natural white.

6 *

TABLE II. Length of Slide Fasteners

Coverall Size	Measurements in Inches <u>1/</u>						
	Front Opening	Leg Openings	Breast Pockets	Thigh Pockets	Lower Leg Pockets	Left Sleeve Pocket	Side Pass-Throughs
36S	26	10	6-1/2	7	8-1/2	4-3/4	10
36R	27	10	6-1/2	7	8-1/2	4-3/4	10
36L	28	10	6-1/2	7	8-1/2	4-3/4	10
38S	26-1/2	10	6-1/2	7	8-1/2	4-3/4	10
38R	27-1/2	10	6-1/2	7	8-1/2	4-3/4	10
38L	28-1/2	10	6-1/2	7	8-1/2	4-3/4	10
40S	27	10	6-1/2	7	8-1/2	4-3/4	10
40R	28	10	6-1/2	7	8-1/2	4-3/4	10
40L	29	10	6-1/2	7	8-1/2	4-3/4	10
42S	27-1/2	10	6-1/2	7	8-1/2	4-3/4	10

MIL-C-83141A(USAF)

TABLE II. Length of Slide Fasteners (Cont)

Coverall Size	Measurements in Inches ^{1/}							
	Front Opening	Leg Openings	Breast Pockets	Thigh Pockets	Lower Leg Pockets	Left Sleeve Pocket	Side Pass-throughs	
42R	28	10	6-1/2	7	8-1/2	4-3/4	10	
42L	29-1/2	10	6-1/2	7	8-1/2	4-3/4	10	
44S	28	10	6-1/2	7	8-1/2	4-3/4	10	
44R	29	10	6-1/2	7	8-1/2	4-3/4	10	
44L	30	10	6-1/2	7	8-1/2	4-3/4	10	
46S	28-1/2	10	6-1/2	7	8-1/2	4-3/4	10	
46R	29-1/2	10	6-1/2	7	8-1/2	4-3/4	10	
46L	30-1/2	10	6-1/2	7	8-1/2	4-3/4	10	
48R	30	10	6-1/2	7	8-1/2	4-3/4	10	
48L	31	10	6-1/2	7	8-1/2	4-3/4	10	

^{1/} Except for the front opening, the breast pockets, and the thigh pockets, the tolerance shall be plus or minus 3/16 inch. The tolerance for the front opening shall be plus 3/16 inch or minus 3/8 inch. The tolerance for the breast pockets and the thigh pockets shall be plus 0 or minus 3/16 inch.

* TABLE III. Direction of Slide Fastener Closure

Location	Direction of Slider Closure
Front opening	Top slider upward and bottom slider downward
Leg openings	Downward
Breast pockets	Downward
Thigh pockets	Right in direction of inseam and left downward
Lower leg pockets	Direction of outseam
Left sleeve pocket	Upward
Side pass-throughs	Downward

* TABLE IV. Fastener Tapes

Overall Sizes	Width and Cut Lengths of Fastener Tapes (Inches)				
	Back Belt <u>1/</u>	Waist <u>1/</u>	Tab <u>2/</u>	Cuff <u>2/</u>	Nameplate
	Hook	Pile	Hook	Pile	Hook and Pile
36S	1 by 4	1 by 6	1-1/2 by 2	1-1/2 by 6	2 by 4
36R	1 by 4	1 by 6	1-1/2 by 2	1-1/2 by 6	2 by 4
36L	1 by 4	1 by 6	1-1/2 by 2	1-1/2 by 6	2 by 4
38S	1 by 4	1 by 6	1-1/2 by 2	1-1/2 by 6	2 by 4
38R	1 by 4	1 by 6	1-1/2 by 2	1-1/2 by 6	2 by 4
38L	1 by 4	1 by 6	1-1/2 by 2	1-1/2 by 6	2 by 4
40S	1 by 4	1 by 7	1-1/2 by 2	1-1/2 by 6	2 by 4
40R	1 by 4	1 by 7	1-1/2 by 2	1-1/2 by 6	2 by 4
40L	1 by 4	1 by 7	1-1/2 by 2	1-1/2 by 6	2 by 4
42S	1 by 4	1 by 7	1-1/2 by 2	1-1/2 by 6	2 by 4
42R	1 by 4	1 by 7	1-1/2 by 2	1-1/2 by 6	2 by 4
42L	1 by 4	1 by 7	1-1/2 by 2	1-1/2 by 6	2 by 4

* TABLE IV. Fastener Tapes (Cont)

Coverall Sizes	Width and Cut Lengths of Fastener Tapes (Inches)				
	Back Belt <u>1/</u>	Waist <u>1/</u>	Tab <u>2/</u>	Cuff <u>2/</u>	Nameplate
	Hook	Pile	Hook	Pile	Hook and Pile
44S	1 by 4	1 by 8	1-1/2 by 2	1-1/2 by 6	2 by 4
44R	1 by 4	1 by 8	1-1/2 by 2	1-1/2 by 6	2 by 4
44L	1 by 4	1 by 8	1-1/2 by 2	1-1/2 by 6	2 by 4
46S	1 by 4	1 by 8	1-1/2 by 2	1-1/2 by 6	2 by 4
46R	1 by 4	1 by 8	1-1/2 by 2	1-1/2 by 6	2 by 4
46L	1 by 4	1 by 8	1-1/2 by 2	1-1/2 by 6	2 by 4
48R	1 by 4	1 by 9	1-1/2 by 2	1-1/2 by 6	2 by 4
48L	1 by 4	1 by 9	1-1/2 by 2	1-1/2 by 6	2 by 4

1/ Each side.

2/ Each sleeve.

* 3.2 Design. The coveralls shall be a one-piece, unlined garment with a slide fastener front closure and side pass throughs, a bi-swing back, hook and pile fastener tape adjustments for the waist and the sleeves, and a slide fastener size adjustment on each leg terminal. The coveralls shall have two breast patch pockets, one combination cigarette pack and multiple pencil compartment pocket on the upper front left sleeve, two thigh patch pockets, a knife pocket with a lanyard on the left thigh, two lower leg patch pockets, and a multiple pencil compartment pocket on the right lower leg patch pocket. Except for the knife pocket on the left thigh and the multiple pencil compartment pocket on the right lower leg, all pockets and side pass-throughs shall have butted-beaded covered slide fasteners.

3.3 Construction. The coveralls shall be constructed in accordance with table V; however, the manufacturer is not required to follow the exact sequence of operations as listed therein.

3.3.1 Stitches, seams, and stitchings. Stitches, seams, and stitchings shall conform to FED-STD-751. Whenever two or more methods, seams, or stitches are specified for the same operation, any one of them may be used. Where stitch type 401 is used, the looper (underthread) shall be on the inside of the coveralls.

TABLE V. Sewing Operations

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
1	<p><u>Cutting</u></p> <p>(a) Cut the coveralls in strict accordance with the patterns which show size, shape, placement of pockets, and notches for proper assembling of all parts. The directional line may vary from the warp direction by not more than 1 inch on the trouser parts. The measurements shall be taken at the top and bottom edges of the pattern from the directional line to the selvage edges of the fabric; and the difference between the two measurements shall not exceed 1 inch.</p> <p>(b) Place the patterns on the material with the directional line coinciding with the warp threads.</p> <p>(c) Except for the sleeve tabs, the waist tabs, the front facings, the undercollar, the collar interlining, the hanger, the protective fly, and the slide fastener closure covers, which may be cut from ends, cut all parts from one piece of material.</p> <p>(d) Replace any parts containing holes or seriously weakening defects.</p>			
2	<p><u>Overedging</u></p> <p>(a) Overedge all slide fastener cover and pocket raw edges that are not selvaged.</p>	502 or 503 or 504	SSa-1	8

TABLE V. Sewing Operations (Cont)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
3	<p><u>Shade marking</u></p> <p>(a) Except for the parts cut from ends as indicated in No. 1(c), mark all parts of the coveralls to insure a uniform shade throughout the garment. Corrosive metal-fastening devices shall not be used.</p>			
4	<p><u>Collar</u></p> <p>(a) Quilt the undercollar to the interlining with a series of diagonal stitching with the points of the diagonal stitching approximately 3 inches apart.</p> <p>(b) Position the collar facing on the topcollar, at the drill marks, face to face; join with a single row of stitching 1/4 inch from the curved edge. Turn the facing down to the finished position.</p> <p>(c) Join the collar to the undercollar around the outer edge with a single row of stitching 1/4 inch from the edge.</p> <p>(d) Turn, force out the edges. Shape the rounded collar.</p>	301 or 401 301 301 or 401	SSv-1 LSbj-1 SSe-2(a)	12 12 12
5	<p><u>Sleeve and waist tabs</u></p> <p>(a) Join the two plies of the basic material on the two long sides, the pointed end of the sleeve tabs and one end of the waist tabs, with a single row of stitching 1/4 inch from the edge.</p> <p>(b) Turn, work out edges, and raise with a single row of stitching 1/4 inch from the edge.</p>	301 or 401 301	SSe-2(a) SSe-2(b)	12 12

TABLE V. Sewing Operations (Cont)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
6	<p>Note: As an option fold the waist tab strippings in half lengthwise; turn in the raw edges, and stitch 1/16 to 1/8 inch from each edge.</p> <p>(c) Join the hook part of the fastener tape to the sleeve tabs and the waist tabs at the drill marks, and stitch on all four edges with a single row of stitching 1/16 inch from the edge.</p> <p><u>Corded beading in edges of slide fastener coverings</u></p> <p>(a) Fold the material to the inside at the pattern marks. Insert the cord in the fold and stitch close to the cord with a single row of stitching. The beaded edges shall be flush with each other when the slide fastener is closed.</p> <p>Note: All slides fastener closures for the pockets, the leg terminals, the front opening, and the side pass throughs shall have corded beading in the edges of the slide fastener coverings.</p>	301	EFP-2	12
7	<p><u>Combination cigarette pack and multiple pencil compartment pocket.</u> The pocket shall be a bellows-style cigarette pack compartment with a covered vertical slide fastener closure, on the forward side, the full length of the pocket and of four pencil compartment openings, two upper and two lower. The front openings and the rear openings shall be 7/8 inch (plus or minus 1/8 inch) wide. The finished pocket shall be approximately 5-3/4 inches long by 3-1/2 inches wide, including the slide fastener tape. The width measurement shall be taken across the top of the pocket.</p>	301	SSa-1	12

* TABLE V. Sewing Operations (Cont)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per inch
	<p>(a) Hem the top opening of the pencil compartment, in accordance with the notches, with a double row of stitching, with the first row of stitching 1/16 to 1/8 inch from the top edge, 1/4-inch gage.</p> <p>(b) Fold the pencil pocket at the lower notches to form the two lower openings, and sew with a double row of stitching 1/4-inch gage 1/16 to 1/8 inch from the edge.</p> <p>(c) Fold the opening to the center notch, tacking each side edge with a single row of stitching (optional).</p> <p>(d) Slit the fold through the center to make the pencil pass-through, or the pencil pocket may be made in two pieces.</p> <p>(e) Join the pencil compartment to the cigarette pack compartment with a double row of stitching 1/4-inch gage 1/16 to 1/8 inch from the edge along both sides, in accordance with the notches and the drill marks, with the bottom edges even.</p> <p>(f) Place a single row of stitching centered between the front and the back edge the entire length of the pencil compartment to separate the openings.</p> <p>(g) Bartack the ends of all pencil compartment openings with the bartack superposed on the inner row of double stitching and on the center row of stitching. The bartack shall be 3/8 to 1/2 inch long.</p>	<p>301</p> <p>301</p> <p>301</p> <p>301</p> <p>301</p> <p>301</p> <p>bartack</p>	<p>EFa-2</p> <p>OSf-2</p> <p>SSa-1</p> <p>LSd-2</p> <p>SSv-1</p>	<p>12</p> <p>12</p> <p>12</p> <p>12</p> <p>12</p> <p>28 stitches per bartack</p>

TABLE V. Sewing Operations (Cont)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
	(h) Form a 3/4-inch bellows by joining the two bottom corners with a single row of stitching 1/4 inch from the edge.	301	SSa-1	12
	(i) Sew the slide fastener tape to the forward side of the pocket with a double row of stitching 1/8-inch to 1/4-inch gage 1/4 inch from the edge of the scoops with the beaded edge covering the scoops.	301	LSb-2	12
	(j) Position the slide fastener cover on the opposite side fastener tape with the beaded edge covering the scoops, and join with a single row of stitching 1/4 inch from the edge of the scoops.	301	SSa-1	12
	(k) Position the pocket to the left sleeve at the drill marks. Turn the raw edges under 3/8 inch, and sew with a single row of stitching 1/16 inch from the folded edge.	301	LSd-1	12
	(l) Place a second row of stitching 1/4 inch from the front edge and across the top of the pocket.	301	SSv-1	12
	(m) Bartack across each end of the slide fastener on the inner row of stitching.	bartack		28 stitches per bartack
8	<u>Right thigh pocket</u>			
	(a) Sew the slide fastener tape to the top of the pocket with a double row of stitching 1/8-inch to 1/4-inch gage 1/4 inch from the edge of the scoops with the beaded edge covering the scoops.	301	LSb-2	12

* TABLE V. Sewing Operations (Cont)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
	(b) Position the slide fastener cover on the opposite slide fastener tape with the beaded edges covering the scoops, and join with a single row of stitching 1/4 inch from the edge of the scoops.	301	SSa-1	12
	(c) Position the pocket on the right front panel at the drill marks. Turn all raw edges under 3/8 inch, except the side seam edge, and sew with a single row of stitching 1/16 inch from the folded edge.	301	LSd-1	12
	(d) Place a second row of stitching 1/4 inch from the edge at the top, the bottom, and front.	301	SSv-1	12
9	<p>Note: A double-needle machine may be used to accomplish No. 8(c) and 8(d).</p> <p><u>Left thigh pocket</u></p>			
	(a) Sew the slide fastener tape to the forward side of the pocket with a double row of stitching 1/8-inch to 1/4-inch gage 1/4 inch from the edges of the scoops with the beaded edge covering the scoops.	301	LSb-2	12
	(b) Position the slide fastener cover on the opposite slide fastener tape with the beaded edge covering the scoops, and join with a single row of stitching 1/4 inch from the edge of the scoops.	301	SSa-1	12
	(c) Position the pocket on the left front panel at the drill marks. Turn all raw edges under 3/8 inch, except the side seam edges, and sew with a single row of stitching 1/16 inch from the folded edge.	301	LSd-1	12

TABLE V. Sewing Operations (Cont)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
	<p>(d) Place a second row of stitching 1/4 inch from the edge at the top, the bottom, the front, and the slide fastener.</p> <p>Note: A double-needle machine may be used to accomplish No. 9(c) and 9(d).</p>	301	SSv-1	12
10	<p><u>Fabrication of lower leg pockets</u></p> <p>(a) Sew the slide fastener tapes to the top of the pockets with a double row of stitching 1/8-inch to 1/4-inch gage 1/4 inch from the edge of the scoops with the beaded edge covering the scoops.</p> <p>(b) Position the slide fastener cover on the opposite slide fastener tape with the beaded edge covering the scoops, and join with a single row of stitching 1/4 inch from the edge of the scoops.</p>	301	LSb-2	12
11	<p><u>Leg pencil compartment pocket</u></p> <p>(a) Hem the top opening of the pencil compartment, in accordance with the pattern marks, and sew with a double row of stitching 1/16 inch from the folded edge 1/4-inch gage.</p> <p>(b) Fold the pencil pocket at the lower pattern marks to form the two lower openings, and sew with a double row of stitching 1/16 inch from the folded edge 1/4-inch gage.</p> <p>(c) Fold the opening to the center pattern marks, tacking each side edge with a single row of stitching (optional).</p>	301	SSa-1	12
		301	Efa-2	12
		301	OSf-2	12
		301	SSa-1	12

* TABLE V. Sewing Operations (Cont)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
	<p>(d) Slit the fold through the center to make the pencil pass-through, or the pencil compartment pocket may be made in two pieces.</p> <p>(e) Place a single row of stitching, centered between the front and back edge, the entire length of the pencil compartment to separate the openings.</p> <p>(f) Sew the pencil compartment pocket to the right lower leg pocket, at the pattern marks, with a double row of stitching 1/16 inch from the edge 1/4-inch gage at the sides and the bottom. Fold the raw edges under 3/8 inch.</p> <p>(g) Bartack the ends of all pencil compartment openings with the bartack superimposed on the inner row of double stitching and on the center row of stitching.</p>	<p>301</p> <p>301</p> <p>bartack</p>	<p>SSv-1</p> <p>LSd-2</p>	<p>12</p> <p>12</p> <p>28 stitches per bartack</p>
12	<p><u>Knife pocket</u></p> <p>(a) Lay the webbing reinforcement piece on the pocket material, wrong side up, in accordance with the notches and the drill marks. Sew the reinforcement piece to the pocket with a single row of stitching 1/16 to 1/8 inch from the edge across the top and the bottom.</p> <p>(b) Fold the pocket material lengthwise with the raw edges even; fold a pleat in accordance with the notches, and bind the square end with 1-1/8-inch-wide, bias-cut binding of the basic material.</p>	301	SSa-1	12
		301	BSc-1	12

TABLE V. Sewing Operations (Cont)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
	<p>(c) Bind the straight edge of the small flap reinforcement piece for the top of the pocket, with 1-1/8-inch-wide, bias-cut binding of the basic material.</p> <p>(d) Position the flap reinforcement piece, in accordance with the notch and the drill marks, at the round end of the pocket with the flap piece on the same side as the webbing piece. Sew the flap piece to the top two plies of the pocket material with a single row of stitching 1/8 inch from the edge, or the flap reinforcement piece may be joined to the top of the knife pocket in the binding specified in No. 12(e).</p> <p>(e) Fold the pocket material on the center notch, and bind the pocket with a 1-1/8-inch-wide, bias-cut binding of basic material, starting at the bottom folded end and sewing the binding around the sides and the top. The reinforcement webbing piece shall be on the inside. The binding shall extend 1/2 inch beyond the end on each side for turning under.</p> <p>(f) Place a single row of stitching across the flap through both plies at the round end of the flap, approximately 1 inch from the open bound end.</p> <p>(g) Install a size 0 grommet on the pocket, below the bottom edge of the flap reinforcement piece, at the drill marks.</p> <p>(h) Position the reinforcement patch on the left front leg, with the raw edges even, matching the notches of the pocket and the leg inseam. Turn the raw edges under 1/2 inch on the top, the side, and the bottom. Sew the patch</p>	301	BSc-1	12
		301	SSa-1	12
		301	BSc-1	12
		301	SSa-1	12
		301	LSD-2	12

TABLE V. Sewing Operations (Cont)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
	<p>to the coveralls, with a double row of stitching, 1/4-inch to 5/16-inch gage, 1/16 inch from the edge.</p>	301	LSd-2	12
	<p>(i) Position the knife pocket on the reinforcement patch, with the round end up and the opening on the inside in accordance with the drill marks. Starting at the bound opening, sew with a double row of stitching, 1/8-inch to 3/16-inch gage 1/16 inch from the edge, down the side across the bottom and up the side to the bound opening, turning the bias end of the tape under on each side and catching same in the stitching. The ends of stitching shall be backstitched 1/2 inch on each side.</p>	301	SSa-1	12
	<p>(j) Sew across the bound square end at the top of the pocket opening, with a single row of stitching, securely tacking the top of the pocket to the patch and the coveralls.</p>			
	<p>(k) Stamp one snap fastener socket to the center of the pocket flap, in accordance with the drill marks, at the rounded end.</p>			
	<p>(l) Stamp one snap fastener stud, reinforced on the inside with the basic material, on the coveralls to correspond with the snap fastener socket.</p>			
	<p>(m) Pull the nylon cord (lanyard), which shall be 60 inches (plus or minus 1 inch) long, through the grommet. Tie the lanyard with a square knot. Sear both ends of the nylon cord, or the ends of the nylon cord may be dipped in a suitable resin. Fold the loose cord in layers approximately 4 inches long, and position the folded cord in the</p>			

TABLE V. Sewing Operations (Cont)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
13	<p>pocket parallel with the pocket with all the folds within the pocket. Snap the flap closed.</p> <p><u>Front protective fly</u></p> <p>(a) Join the outer edges of the two plies of material with a single row of stitching 3/8 inch from the edges on the top, along one side and the bottom.</p> <p>(b) Turn the fly. Work out the edges and sew with a single row of stitching 1/4 inch from the folded edge.</p> <p>(c) Quilt the protective fly through and through with a double row of stitching 1/4-inch to 3/8-inch gage down the center of the entire length of the protective fly.</p>	301	SSE-2(a)	12
14	<p><u>Thong for front slide fastener</u></p> <p>(a) Fabricate the thong to finish 1/2 inch wide by 3 inches long.</p> <p><u>Front slide fastener</u></p> <p>(a) Place the face side of the facing on the protective fly with the raw edges even. Join with a single row of stitching 3/8 inch from the edge.</p> <p>(b) Turn the top edge of the slide fastener cover piece under 1/4 inch. Stitch with a single row of stitching 1/16 inch from the edge, with the folded edge close to the bottom stop.</p>	301	SSE-2(b)	12
15	<p><u>Thong for front slide fastener</u></p> <p>(a) Fabricate the thong to finish 1/2 inch wide by 3 inches long.</p> <p><u>Front slide fastener</u></p> <p>(a) Place the face side of the facing on the protective fly with the raw edges even. Join with a single row of stitching 3/8 inch from the edge.</p> <p>(b) Turn the top edge of the slide fastener cover piece under 1/4 inch. Stitch with a single row of stitching 1/16 inch from the edge, with the folded edge close to the bottom stop.</p>	301	SSv-2	12
14	<p><u>Thong for front slide fastener</u></p> <p>(a) Fabricate the thong to finish 1/2 inch wide by 3 inches long.</p> <p><u>Front slide fastener</u></p> <p>(a) Place the face side of the facing on the protective fly with the raw edges even. Join with a single row of stitching 3/8 inch from the edge.</p> <p>(b) Turn the top edge of the slide fastener cover piece under 1/4 inch. Stitch with a single row of stitching 1/16 inch from the edge, with the folded edge close to the bottom stop.</p>	301	EFp-2	12
15	<p><u>Thong for front slide fastener</u></p> <p>(a) Fabricate the thong to finish 1/2 inch wide by 3 inches long.</p> <p><u>Front slide fastener</u></p> <p>(a) Place the face side of the facing on the protective fly with the raw edges even. Join with a single row of stitching 3/8 inch from the edge.</p> <p>(b) Turn the top edge of the slide fastener cover piece under 1/4 inch. Stitch with a single row of stitching 1/16 inch from the edge, with the folded edge close to the bottom stop.</p>	301	SSa-1	12
15	<p><u>Thong for front slide fastener</u></p> <p>(a) Fabricate the thong to finish 1/2 inch wide by 3 inches long.</p> <p><u>Front slide fastener</u></p> <p>(a) Place the face side of the facing on the protective fly with the raw edges even. Join with a single row of stitching 3/8 inch from the edge.</p> <p>(b) Turn the top edge of the slide fastener cover piece under 1/4 inch. Stitch with a single row of stitching 1/16 inch from the edge, with the folded edge close to the bottom stop.</p>	301	LSD-1	12

TABLE V. Sewing Operations (Cont)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
	<p>(c) Position the right slide fastener on the protective fly, the front (inside) beaded edge of the coveralls on the slide fastener with the raw edges even. Join, with a single row of stitching 1/4 inch from the edge of the scoops, with the front beaded edge covering the scoops.</p> <p>(d) Fold the facing over the stitching, and place a second row of stitching 1/16 inch from the folded edge of the facing, sewing through the coveralls, the slide fastener, the protective fly, and the facing.</p> <p>(e) Turn the raw edge of the facing under 1/2 inch, and join with a single row of stitching 1/16 inch from the folded edge.</p> <p>(f) Position and join the left slide fastener tape the same as specified for the right slide fastener tape, except that there is no protective fly.</p> <p>Note: The slide fastener scoops shall start 1/2 inch (plus or minus 1/4 inch) from the collar gore and extend to within 1-1/4 inches of the crotch.</p> <p>(g) Pull the thong, through the hole in the top slider, with the raw edges even. Bartack at the bottom, the center, and up close to the slider across the 1/2-inch width.</p>	301	LSax-4(a) (similar to)	12
		301	LSax-4(b) (similar to)	12
		301	LSd-1	12
		bartack		28 stitches per bartack
16	<p><u>Right and left breast pockets</u></p> <p>(a) Sew the slide fastener tape to the top diagonal side of the pocket with a double row of stitching 1/16 inch</p>	301	LSb-2	12

TABLE V. Sewing Operations (Cont)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
	<p>from the edge, 1/8-inch to 1/4-inch gage, 1/4 inch from the edge of the scoops.</p> <p>(b) Position the slide fastener cover on the opposite slide fastener tape with the beaded edge covering the scoops. Join with a single row of stitching 1/4 inch from the edge of the scoops.</p> <p>(c) Position the breast pockets on the right and the left fronts at the drill marks; turn all raw edges under 3/8 inch except the side seam, and sew with a single row of stitching 1/16 inch from the folded edge.</p> <p>(d) Place a second row of stitching 1/4 inch from the edge at the front, top, and bottom edges.</p> <p>Note: A double-needle machine may be used to accomplish No. 16(c) and 16 (d).</p>	301	SSa-1	12
17	<p><u>Wearer's nameplate</u></p> <p>(a) Position the bottom corners of the pile fastener tape nameplate above the left breast pocket, 1 inch from the front beaded edge of the coveralls with the back bottom corner flush with the top edge of the slide fastener cover; join on all four sides with a single row of stitching 1/16 inch from the edge (see 3.3.3).</p>	301	LSbj-1	12

* TABLE V. Sewing Operations (Cont)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
18	<p><u>Upper back</u></p> <p>(a) Fold the back panel, at the inner pattern marks, face to face from the shoulder raw edge to the bottom edge. Join with a single row of stitching 1/16 inch from the folded edge.</p> <p>(b) Fold the back panel at the outer patterns marks, with the face side out, and sew with a double row of stitching 1/16 inch from the folded edge 1/4-inch to 5/16-inch gage.</p>	301	OSf-1	12
19	<p><u>Side pass-through openings</u></p> <p>(a) Cut the slide fastener opening, tongue notching each end of the opening. Turn the raw edges of the slide fastener opening 3/8 inch to the outside, and stitch around the sides and the ends with a single row of stitching 1/16 inch from the folded edge.</p> <p>(b) Position the slide fastener cover on the slide fastener tape with the beaded edge covering the scoops, and join with a single row of stitching 1/4 inch from the edge of the scoops. Trim the ends of the tape to within 3/8 to 1/2 inch of the bottom and the top stops.</p> <p>(c) Position the slide fastener tape (with the covers attached) on the opening, 3/16 to 1/4 inch of the tape exposed, and join with a single row of stitching 1/16 inch from folded edge at the sides and the ends.</p> <p>(d) Turn all raw edges of the covers under 3/8 inch, and sew with a single row of stitching 1/16 inch from the folded edge.</p>	301	LSD-1	12
		301	LSD-1	12
		301	LSD-1	12
		301	LSD-2	12

TABLE V. Sewing Operations (Cont)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
	<p>(e) Fold the pass-through protective fly in half length-wise, and overedge or serge the ends and along the side of raw edge.</p> <p>(f) Raise stitch the folded edge with a single row of stitching 1/8 inch from the edge.</p> <p>(g) Stitch the pass-through protective fly through and through, with a double row of stitching 1/4-inch to 5/8-inch gage, down the center of the entire length of the protective fly.</p> <p>(h) Place the raw edge of the protective fly on the back edge of the slide fastener tape, centered lengthwise on the back part of the opening (the folded edge of the protective fly facing toward the front); join with a double row of stitching 1/16 inch from the edge 1/8-inch gage through all plies.</p> <p>(i) Bartack across each end of the slide fastener 1/8 to 1/4 inch from the ends and the front folded edge through all plies.</p>	503 or 504	EFd-1	6-8
		301	SSa-1 and SSe-2(b)	12
		301	SSv-2	12
		301	SSa-1	12
20	<p><u>Seat seam</u></p> <p>(a) Join with a double-lapped, double-stitched seam, 1/4-inch to 5/16-inch gage, 1/16 inch from the folded edge, the right panel overlapping the left panel.</p>	bartack		28 stitches per bartack
21	<p><u>Joining of upper back to lower back</u></p> <p>(a) Join with a double-stitched, double-lapped seam, 1/4-inch to 5/16-inch gage, 1/16 inch from the folded edge, the right panel overlapping the left panel.</p>	301 or 401	LSc-2	12
		301 or 401	LSc-2	12

TABLE V. Sewing Operations (Cont)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
22	edge, the upper back overlapping the lower back.			
	<u>Shoulder seams</u>			
	(a) Join with double-lapped, double-stitched seams, 1/4-inch to 5/16-inch gage, 1/16 inch from the folded edge, upper back overlapping the lower back.	301 or 401	LSc-2	12
23	<u>Sleeves</u>			
	(a) For underarm ventilation make sewed eyelets, with finished inside diameters of 1/8 to 5/16 inch, on the sleeves at the pattern marks.	401		19-24 stitches per eyelet
	(b) Join the elbow seam of the sleeves, the topsleeve overlapping the undersleeve, with a double-lapped, double-stitched seam, 1/4-inch to 5/16-inch gage, 1/16 inch from the folded edge.	301 or 401	LSc-2	12
	(c) Sew the sleeves to the armholes, the front and the back panels overlapping the sleeve, with a double-lapped, double-stitched seam, 1/4-inch to 5/16-inch gage, 1/16 inch from the folded edge.	301 or 401	LSc-2	12
	(d) Turn up the bottom of the sleeves, at the pattern marks, with the raw edges turned under 3/8 inch. Sew with a single row of stitching 1/16 inch from the edge.	301	EFb-1	12
	(e) Position the pile fastener tape at the pattern marks on the topsleeve end; sew with a single row of stitching on all four sides 1/16 inch from the edge.	301	SSa-1	12

TABLE V. Sewing Operations (Cont)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
24	<p><u>Shoulder reinforcement patch</u></p> <p>(a) Fold or form the edge of the reinforcement patch with a 5/8 inch turn-under on four sides.</p> <p>(b) Position the curved edge of the reinforcement patch on the edge of the armhole seam, the notch matching the shoulder seam, and sew with a double row of stitching 1/16 inch from the folded edge 1/4-inch gage.</p> <p>Note: As an option No. 24(c) and 24(d) may be performed in lieu of No. 24(a) and 24(b).</p> <p>(c) Fold or form the edge of the reinforcement patch with a 1/2-inch turn-under on three sides, leaving the curved portion free. Position the curved edge of the reinforcement patch on the armhole with the center notch matching the shoulder seam. Sew the curved edge to the armhole with a single row of stitching 1/8 inch from the raw edge.</p> <p>(d) Stitch the folded edges of the patch to the coveralls with a double row of stitching 5/16-inch gage 1/16 inch from the edge. The curved edge of the reinforcement patch will be caught in the armhole seam with setting in the sleeve.</p>	301	LSD-2	12
25	<p><u>Side seams</u></p> <p>(a) Join the side seams of the coveralls from the sleeve terminals to the leg terminals, the back overlapping the fronts, with double-lapped, double-stitched seams, 1/4-inch to 5/16-inch gage, 1/16 inch from the folded edge.</p>	301 or 401	LSc-2	12

* TABLE V. Sewing Operations (Cont)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
26	<p><u>Sleeve tabs</u></p> <p>(a) Fold the raw end under 1/4-inch. Position the tab on the sleeve in seam at the pattern marks, the pointed end toward the pile fastener tape. Sew with a double row of stitching 1/16 inch from the folded edge 1/4-inch gage, forming a box and "X" type stitch. The "X" type stitch shall start and terminate at the four corners of the box stitching.</p>	301	LSD-2	12
27	<p><u>Side seams and sleeve tabs</u></p> <p>(a) As an option to No. 25 and 26, position each tab on the sleeve raw edge at the pattern marks, and stitch with a row of stitching 1/8 inch from the edge. Join the side seams as specified in No. 26, catching the tab raw edge in the side seam.</p>	301 and 401	SSa-1	12
28	<p><u>Joining of lower leg pocket</u></p> <p>(a) Sew the pockets to the lower legs, in accordance with the drill marks, with a double row of stitching 1/16 inch from the folded edge 1/4-inch gage. Turn under 3/8 inch at the top, the bottom, and the sides.</p>	301	LSD-2	12
29	<p><u>Leg terminal hems</u></p> <p>(a) Turn up the bottom of the legs, at the pattern marks, with the raw edges turned under 3/8 inch. Sew with a single row of stitching 1/16 inch from the edge.</p>	301	EFb-1	12

TABLE V. Sewing Operations (Cont)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
30	<p><u>Leg slide fastener</u></p> <p>(a) Sew the slide fastener to the bottom of the front legs, at the drill marks, with a double row of stitching 1/16 inch from the edge, 1/8-inch to 1/4-inch gage. Fold the slide fastener covers under at the edge of the tapes. The top and the bottom ends shall finish at the bottom of the legs. The slider shall be at the bottom of the coveralls when closed (see table III).</p>	501	LSD-2	12
31	<p><u>Gusset</u></p> <p>(a) Fold the material, matching the pattern marks at the bottoms of the coveralls, to form a gusset on the front of the lower legs.</p> <p>(b) Sew a single row of stitching, 1/16 inch from the folded edge through the center of the formed gusset from the bottom of the leg terminals to the pattern marks. The stitching shall be on the inside of the legs.</p>	301	OSf-1	12
32	<p><u>Belt assembly</u></p> <p>(a) Fold the raw end of the waist adjustment tabs under 1/2 inch. Position on the elastic webbing by overlapping 1/2 inch on each end, and join with a single row of stitching, forming a box and "X" type stitch 5/8 inch by 7/8 inch.</p> <p>(b) Center the elastic webbing on the center of the back waist seam. Place a vertical bartack through the elastic webbing and the coveralls at the waist and seat seam.</p>	301	LSD-1	12
		bartack		28 stitches per bartack

TABLE V. Sewing Operations (Cont)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
	<p>(c) Double fold the ends of the back belt to the inside 1/4 inch, and sew with a single row of stitching 1/16 inch from the folded edge.</p> <p>(d) Turn under each raw edge of the back belt lengthwise, and sew to the back of the coveralls, centered over the waist seam and the pattern mark at the center back with a double row of stitching 1/16 inch from the folded edges 1/4-inch gage.</p> <p>(e) Position the waist pile fastener tapes on the front panels at the waistline pattern marks, centered over the lower folded edge of the breast pockets, with the back end flush with the side seams. Sew with a single row of stitching 1/16 inch from the edge on four sides. The pile fastener tapes shall be aligned with the waist tabs.</p>	<p>301</p> <p>301</p> <p>301</p>	<p>EPb-1</p> <p>LSd-2</p> <p>LSbj-1</p>	<p>12</p> <p>12</p> <p>12</p>
53	<p><u>Inseam</u></p> <p>(a) Join with a double-lapped, double-stitched seam, 1/4-inch to 5/16-inch gage, 1/16 inch from the folded edge, the back overlapping the front.</p>	<p>301 or 401</p>	<p>LSc-2</p>	<p>12</p>
34	<p><u>Joining of collar to neck</u></p> <p>(a) Sew the undercollar to the neck with a single row of stitching 3/8 inch from the edges.</p> <p>(b) Turn under the raw edges, and sew the topcollar to the neck with a single row of stitching 1/16 inch from the folded edges.</p>	<p>301</p> <p>301</p>	<p>SSa-1</p> <p>LSd-1</p>	<p>12</p> <p>12</p>

TABLE V. Sewing Operations (Cont)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
35	<p>(c) Raise stitch the collar with a single row of stitching 1/4 inch from the outer edge all around the collar.</p> <p><u>Hanger</u></p> <p>(a) Fabricate the hanger to finish 1/2 inch wide by 4 inches long.</p> <p>(b) Position the hanger at the center of the back of the neck, approximately 1 inch (plus or minus 1/4 inch) below the neckline, and sew with a double row of stitching 1/16 inch from the edge 1/4-inch gage. In lieu of stitching the ends, each end may be bartacked.</p> <p><u>Label</u></p> <p>(a) Position the label approximately 1-1/2 inches from the neck seam, centered directly below the hanger, on the inside back of the coveralls. Sew the label securely along all four edges to the coveralls with a single row of stitching 1/16 inch from the edge.</p>	301	SSe-2(b)	12
36	<p><u>Bartack</u></p> <p>(a) The bartacks shall be 3/8 to 1/2 inch in length and positioned as follows:</p> <p>(1) One at the crotch seam, catching the slide fastener tapes</p> <p>(2) One across both slide fastener tapes, centered between the crotch seam and the bottom of the front opening slide fastener bottom stop, uniting the edges of both tapes</p>	301 or bar-tack	Efp-2 Lsd-2	12 12 28 stitches per bartack
37	<p><u>Bartack</u></p> <p>(a) The bartacks shall be 3/8 to 1/2 inch in length and positioned as follows:</p> <p>(1) One at the crotch seam, catching the slide fastener tapes</p> <p>(2) One across both slide fastener tapes, centered between the crotch seam and the bottom of the front opening slide fastener bottom stop, uniting the edges of both tapes</p>	301	SSa-1	12 28 stitches per bartack

TABLE V. Sewing Operations (Cont)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
	catching the protective fly			
(3)	One across the bottom stitching on each side of the leg slide fastener tape at the leg terminals and one across the top closed end on the inside row of stitching			
(4)	Two on each breast pocket: one at each end of the slide fastener on the inside row of stitching			
(5)	Two on each thigh pocket: one at each end of the slide fastener on the inside row of stitching			
(6)	Two on each lower leg pocket, one at each end of the slide fastener on the inside row of stitching			
(7)	Two on each side pass-through opening: one across each end of the slide fastener on the inside row of stitching			
(8)	Two on each end of the back belt on the inside row of stitching			
(9)	One on each shoulder reinforcement patch at the top of the bi-swing back pleats on the outside row of stitching			
(10)	Two on the knife pocket at the top end, between			
(1)	One at the crotch seam, catching the slide fastener tapes			bartack
(2)	One across both slide fastener tapes, centered between the crotch seam and the bottom of the front opening slide fastener bottom stop, uniting the edges of both tapes			

TABLE V. Sewing Operations (Cont)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
38	<p>(11) One across the double row of stitching on the trouser leg inseams and the sleeve side seams, 1/8 inch from the end of the sleeve and the leg terminals.</p> <p><u>Cleaning</u></p> <p>(a) Trim all thread ends, and remove all loose thread ends. Remove all spots, stains, and shade tickets without injury to the fabric.</p>			

3.3.1.1 Thread breaks and ends of all seams. Ends of seams and stitches (stitch type 301) that are not caught in other seams or stitchings shall be securely tacked or backstitched not less than 1/2 inch. When stitch type 401 is permitted as an option, the ends of stitch type 401 shall be caught in other seams or rows of stitchings. Thread breaks (all stitch types) shall be secured by stitching back of break not less than 1/2 inch.

3.3.1.2 Stitches per inch. Unless otherwise specified herein, a tolerance of plus or minus 1 stitch per inch will be permitted.

3.3.1.3 Sewing tolerances. The sewing tolerances for 1/4-inch and 5/16-inch gages of stitching shall be plus or minus 1/16 inch. The sewing tolerances for 3/8-inch gage of stitching shall be plus 0 or minus 1/8 inch. The sewing tolerance for 1/16 inch from the edge shall be minus 0 or plus 1/32 inch.

3.3.2 Corded beading in edges of slide fastener coverings. All slide fastener closures for the pockets, the leg terminals, the front opening, and the side pass-throughs shall have a cord beading in the edges of the slide fastener coverings. The outer beaded cloth edges of all slide fastener closures shall be flush with the slide fastener scoops. The scoops, when locked together, shall be completely concealed by the beaded coverings.

3.3.3 Hook part of fastener tape for nameplate. An identical size of the hook fastener tape shall be affixed to the pile fastener tape for use as a mounting for the wearer's nameplate (see No. 17 of table V).

* 3.4 Patterns. The manufacturer's working patterns shall be identical in size and shape to the patterns referenced on Drawings 68E292, 68J293 through 68J306, and 71218 through 71223, as applicable. Unless otherwise specified herein, the patterns provide an allowance of 3/8 inch for single-needle seams and 1/2 inch for double-needle seams.

3.5 Finished measurements. The finished measurements of the coveralls shall conform to table VI.

3.6 Contractor's label. Each of the coveralls shall have a combination size and identification label conforming to type I, classes 1 and 2 of DDD-L-20, except that the name of the contractor and the specification number shall be included on the label. The label shall have colorfastness to both laundering and dry cleaning.

TABLE VI. Finished Measurements of Coveralls

Coverall Sizes	Finished Measurements in Inches <u>1/</u> <u>2/</u>		
	Breast	Sleeve Inseam Length	Leg Inseam Length
36S	19-3/4	20-3/4	26-1/2
36R	19-3/4	22	28-1/2
36L	19-3/4	23	30-1/2
38S	21	20-3/4	26-1/2
38R	21	22	28-1/2
38L	21	23	30-1/2
40S	22-1/2	21	26-1/2
40R	22-1/2	22	28-1/2
40L	22-1/2	23	30-1/2
42S	23-1/2	21-1/4	26-1/2
42R	23-1/2	22-1/4	28-1/2
42L	23-1/2	23-1/4	30-1/2
44S	24-1/2	21-1/4	26-1/2
44R	24-1/2	22-1/4	28-1/2
44L	24-1/2	23-1/4	30-1/2

* TABLE VI. Finished Measurements of Coveralls (Cont)

Coverall Sizes	Finished Measurements in Inches <u>1/</u> <u>2/</u>		
	Breast	Sleeve Inseam Length	Leg Inseam Length
46S	25-1/2	21-1/4	26-1/2
46R	25-1/2	22-1/4	28-1/2
46L	25-1/2	23-1/4	30-1/2
48R	26-1/2	22-1/4	28-1/2
48L	26-1/2	23-1/4	30-1/2

1/ A tolerance of plus or minus 1/2 inch will be permitted.

* 2/ The procedure for measuring shall be as follows: The coveralls to be measured shall be closed; the hook and the pile parts of the fastener tapes shall not be engaged. The coveralls shall be laid flat without tension on a smooth flat surface so that the creases and wrinkles shall not affect the measurement. The measurement of the breast shall be taken across the breast area, from folded edge to folded edge, at the bottom of the armholes. The measurement of the sleeve inseam length shall be taken, along the inseam on the sleeve, from the base of the armhole to the bottom of the sleeve. The measurement of the leg inseam length shall be taken, along the inseam on the leg, from the center of the crotch seam to the bottom of the leg.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier 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 the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

* 4.2 Inspection

* 4.2.1 Components and materials. Unless otherwise specified herein or in the applicable purchase documents (see 6.2), components and materials shall be tested in accordance with all the requirements of referenced documents.

4.2.2 End item. The end item shall be examined as specified in 4.2.2.1 and 4.2.2.2. The sample unit for these examinations shall be one of the coveralls.

4.2.2.1 Visual examination. The end item shall be visually examined for defects which shall be classified as specified in tables VII and VIII. The inspection level for this visual examination shall be II of MIL-STD-105. The acceptable quality level (AQL) for this visual examination shall be 2.5 defects per 100 units (dhu) for major defects, 15.0 dhu for major and minor A (combined) defects, and 25.0 dhu for total (combined major, minor A, and minor B) defects.

4.2.2.2 Examination of finished measurements. The finished measurements of the coveralls shall be thoroughly checked for conformance to the finished measurement specified in table VI. The inspection level for the examination of the finished measurements shall be S-3 of MIL-STD-105. The AQL for the examination of the finished measurements shall be 4.0 dhu for defects (one class). Any finished measurement of the coveralls deviating from the finished measurement specified in table VI shall be classified as a finished measurement defect. Sleeve and leg lengths of coveralls (same garment) uneven by more than 1/2 inch shall be classified as a finished measurement defect.

* 4.2.3 Examination of preparation for delivery. Shipping containers fully prepared for delivery shall be examined, for the defects listed in table IX, to determine compliance with the preservation, packaging, packing, and marking requirements specified herein. The sample unit shall be one shipping container that is fully prepared for delivery with the exception that it need not be sealed. The lot size shall be the number of containers in the inspection lot. The inspection level shall be S-2 of MIL-STD-105. The acceptable quality level shall be 2.5 dhu.

5. PREPARATION FOR DELIVERY

5.1 Packaging. Packaging shall be level A or C as specified (see 6.2).

5.1.1 Level A. Each of the coveralls shall have all fastenings secured and shall be neatly folded, in accordance with normal practice, to an approximate size of 14-1/2 inches in length by 11-1/2 inches in width. The folded coveralls shall then be individually packaged in a heat-sealed bag that is a flat size of approximately 17 inches in length and 13 inches in width. The bag shall be made of polyethylene film that is 0.0015 inch thick. All seams and closures shall be effected by heat-sealing. Prior to or during the bag closure, excess air shall be exhausted to the extent necessary to permit packaging of the required quantity in the shipping container.

TABLE VII. General Defects -

Defect	Major	Minor A	Minor B
<u>Material defects and workmanship damages</u>			
Any hole, scissor or knife cut, tear, mend, burn, or weakening defect, such as smash, multiple float, loose slub, or needle chews, that might develop into hole	X		
Cloth stiffened, hardened, or seared by heat, where thermoactivated shade and size marking tickets were attached	X		
<u>Slide fasteners ^{1/}</u>			
Slide fastener not specified type, size, or style or any part of assembly omitted, bent, or broken	X		
Any garment portion or slide fastener tape puckered, twisted, or pleated at slide fastener tape joining seam, when slide fastener is open or closed		X	
Interference with movement of any slider	X		
Any slide fastener, except for front opening, not entirely covered by its respective flap	X		
Any slider not closing in specified direction		X	
<u>Slide fastener coverings</u>			
Edges of slide fastener coverings overlapped more than 1/16 inch or gapped more than 1/16 inch, when slide fastener is closed		X	
Beading omitted in the slide fastener covering	X		
Beading not sewn taut in slide fastener covering		X	
<u>Hook and pile fastener tape</u>			
Hooks or pile flattened or missing from any tape closure area but less than 25 percent		X	
25 percent or more of the hooks or pile flattened or missing from any tape closure area	X		

TABLE VII. General Defects (Cont)

Defect	Major	Minor A	Minor B
Fastener tape not specified size		X	
Fastener tape misplaced not serving intended purpose	X		
<u>Snap fastener or grommet</u>			
Snap fastener or grommet loose or mismatched		X	
Any cracks, sharp edges, nicks, burrs, or metal slivers or distorted snap fastener or grommet	X		
Snap fastener or grommet improperly clinched resulting in cutting of cloth.	X		
Snap fastener or grommet improperly finished or finished missing on snap fastener or grommet		X	
Snap fastener or grommet off center more than 1/8 inch but not more than 1/4 inch		X	
Snap fastener or grommet off center more than 1/4 inch	X		
Snap fastener stud not aligned with socket causing a noticeable bulge or twist when snapped <u>2/</u>		X	
<u>Shaded parts</u>			
Any part shaded or any shade bar		X	
<u>Color</u>			
Any component not specified color		X	
<u>Cleanness</u>			
Any slub, spot, or stain on outer side		X	
Thread ends not trimmed or loose thread ends not removed (to be scored only when condition exists on major portion of coveralls)			X
Any shade ticket not removed			X

TABLE VII. General Defects (Cont)

Defect	Major	Minor A	Minor B
Any shade identification stamping visible on outer side		X	
Any corrosive metal fastening device or sewn-on ticket	X		
<u>Component and assembly</u>			
* Any component not as specified or any defect of component or defect of assembly not herein classified <u>3/</u>			
Any component, component part, or required operation omitted or any other operation improperly performed not herein specified classified <u>3/</u>			
<u>Cutting</u>			
Any component part not cut in accordance with patterns	X		
* <u>Seams and stitchings</u>			
Any seam twisted, puckered, or pleated (unless otherwise classified herein)		X	
Outer side of any sleeve or leg puckered, twisted, or pleated by stitching joining sleeve cuff or forming leg hem		X	
Any cuff or hem twisted, puckered, or pleated affecting smoothness of outer surface of sleeve or leg		X	
Any part of coveralls caught in unrelated operations or stitchings		X	
Any edge not properly forced out, i.e., having fold 1/8 inch or more			X
Ends of stitching that are not caught in other seams or stitchings not securely tacked or backstitched	X		
Ends of seams or stitches that are not caught in other seams or stitchings secured but backstitched for distance less than 1/2 inch		X	

TABLE VII. General Defects (Cont)

Defect	Major	Minor A	Minor B
Backstitching not overlapped on itself on ends of stitching that are not caught in other seams or stitching			X
Thread breaks not securely overstitched	X		
Thread breaks overstitched for distance less than 1/2 inch		X	
Ends of any armhole seam, at side seam, or ends of any leg inseam, at crotch, staggered by 1/2 inch or more		X	
Gage of stitching irregular, i.e., unevenly gaged or various stitching not uniform (to be scored only when condition exists on the major portion of seam)		X	
Gage of stitching beyond range of width specified			X
Open seam except on hem, up to and including 1/4 inch <u>4/</u>			X
Open seam except on hem, more than 1/4 inch but not more than 1 inch <u>4/</u>		X	
Open seam, except on hem, more than 1 inch <u>4/</u>	X		
Open seam, on any hem, 1/2 inch or less <u>4/</u>			X
Open seam, on any hem, more than 1/2 inch <u>4/</u>		X	
* Raw edges more than 1/8 inch but not more than 1/4 inch on outer side of coveralls <u>5/</u>	X		
* Raw edges more than 1/4 inch but not more than 1 inch on outer side of coveralls <u>5/</u>		X	
* Raw edges more than 1 inch on outer side of coveralls <u>5/</u>			X
* Raw edges more than 1/4 inch but not more than 1 inch on inner side of coveralls <u>5/</u>			X
* Raw edges more than 1 inch on inner side of coveralls <u>5/</u>		X	

TABLE VII. General Defects (Cont)

Defect	Major	Minor A	Minor B
Not specified seam or stitch type <u>3/</u>			
Looper thread on outer side of coveralls when stitch type 401 is used	X		
Stitch tension loose resulting in loose seam	X		
Stitches in sewn eyelet one or two stitches less than specified			X
Stitches in sewn eyelet three or more stitches less than specified		X	

1/ Each slide fastener shall be checked for proper functioning by opening and closing it at least three times along its full length.

2/ The snap fastener shall be checked for proper functioning by snapping and unsnapping it at least three times.

3/ If the defect seriously affects appearance or serviceability, it shall be classified as a major defect. If the defect does not seriously affect appearance or serviceability, it shall be classified as a minor A defect.

4/ If one or more stitches joining a seam are broken or if two or more continuous skipped stitches or runoffs occur, a seam shall be classified as open. If either one or both sides of a double-stitched seam is open, it shall be classified as an open seam.

5/ Any edge that is required to be turned under and is not but is securely caught in the stitching shall be classified as raw edge. Any raw edge not securely caught in the stitching shall be classified as an open seam.

6/ Puckering is evidence of tight tension. If puckering is evident, the seam shall be tested by exerting normal pull in the lengthwise direction of the seam or stitching.

TABLE VII. General Defects (Cont)

Defect	Major	Minor A	Minor B
Stitch tension tight resulting in breakage of stitches when normal pull is applied <u>6/</u>	X		
* Stitches per inch on major portion of seam one or two stitches more or less than specified, except on labels			X
* Stitches per inch on major portion of seam three stitches more or less than specified, except on labels		X	
* Stitches per inch on major portion of seam more than three stitches more or less than specified, except on labels	X		
* Stitches per inch on major portion of label one to four stitches more or less than specified for labels			X
* Stitches per inch on major portion of label more than four stitches more or less than specified for labels		X	
Any loose or misplaced bartacks not serving intended purpose on crotch, thong, knife pocket, or pocket closures	X		
One bartack missing, loose, misplaced, or not serving intended purpose on multiple pencil compartment pocket			X
Two bartacks missing, loose, misplaced, or not serving intended purpose on multiple pencil compartment pocket		X	
Three or more bartacks missing, loose, misplaced, or not serving intended purpose on multiple pencil compartment pocket	X		
Length of any bartack on multiple pencil compartment pocket not as specified		X	
One sewn eyelet omitted		X	
Two or more sewn eyelets omitted	X		
Skipped or broken stitches on one sewn eyelet			X
Skipped or broken stitches in two or more sewn eyelets		X	

TABLE VIII. Detailed Defects Applicable to Specific Parts

Defect	Major	Minor A	Minor B
<u>Collar</u>			
Front or back puckered or pleated at collar joining seam		X	
Twisted or excessive fullness on topcollar or undercollar		X	
Topcollar short or tight, causing any collar edge to curl		X	
Any collar end not securely tacked to coveralls		X	
Any collar edge crooked, undercollar edge exposed, or any collar corner poorly shaped or not uniform in shape		X	
Collar off center more than 1/4 inch but not more than 1/2 inch			X
Collar off center more than 1/2 inch		X	
Rounded corners of collar uneven in length more than 1/4 inch but not more than 3/8 inch			X
Rounded corners of collar uneven in length more than 3/8 inch		X	
<u>Front opening</u>			
Fronts uneven in length at neck, when slide fastener is closed, more than 1/8 inch but not more than 1/4 inch			X
Fronts uneven in length at neck, when slide fastener is closed, more than 1/4 inch		X	
Points of diagonal stitching on protective fly more than 3-1/2 inches apart			X
Points of diagonal stitching on protective fly less than 2-1/2 inches apart			X
Thong omitted or less than 3 inches or more than 3-1/2 inches long			X

TABLE VIII. Detailed Defects Applicable to Specific Parts (Cont)

Defect	Major	Minor A	Minor B
Thong not pulled through hole in top slider and securely bartacked			X
Front facing short, tight, or twisted, causing fullness or twist on outer side		X	
Distance from bottom of collar gore to top end of slide fastener more than 3/4 inch or less than 1/4 inch		X	
<u>Pockets</u>			
Any breast, thigh, lower leg, or knife pocket more than 1/8 inch but not more than 3/8 inch out of horizontal or vertical alignment			X
Any breast, thigh, lower leg, or knife pocket more than 3/8 inch but not more than 1/2 inch out of horizontal or vertical alignment		X	
Any breast, thigh, lower leg, or knife pocket more than 1/2 inch out of horizontal or vertical alignment	X		
Any breast, thigh, lower leg, or knife pocket poorly shaped or not uniform size and shape		X	
* Combination cigarette pack and pencil compartment pocket not on left sleeve	X		
Opening in cigarette pack pocket not on forward side of pocket (toward front opening of coveralls)	X		
Pencil compartments not integral part of combination cigarette pack and multiple pencil pocket		X	
One pencil compartment missing		X	
Two or more pencil compartments missing	X		
Multiple pencil compartment pocket not on right lower leg		X	

TABLE VIII. Detailed Defects Applicable to Specific Parts, (Cont)

Defect	Major	Minor A	Minor B
<u>Sleeves</u>			
Sleeves reversed, i.e., right sleeve in left armhole or left sleeve in right armhole	X		
Sleeve pleated or excessive fullness at armhole		X	
Sleeve tight at any armhole seam causing puckers on fronts or back		X	
Sleeve lapped on top of fronts and back at armholes		X	
<u>Bellows</u>			
Outer folded edge of bellows too full, causing noticeable bulge or too short, not permitting back to lie smooth		X	
Top end of any outer folded edge of bellows unequal distance by more than 1/4 inch from armhole seam at shoulder		X	
Lower end of any outer folded edge of bellows unequal distance by more than 1/4 inch from side seam		X	
<u>Belt assembly</u>			
Belt assembly set on crookedly or irregular in width		X	
<u>Hanger</u>			
Hanger missing		X	
Hanger misplaced, off center of back by more than 1/2 inch		X	
<u>Contractor's label</u>			
Size missing, incorrect, or illegible on contractor's label	X		
Information on contractor's label, except size, incomplete, incorrect, or illegible		X	

TABLE VIII. Detailed Defects Applicable to Specific Parts (Cont)

Defect	Major	Minor A	Minor B
Contractor's label less than 1-1/4 inches or more than 1-3/4 inches below collar joining seam			X
Contractor's label misplaced, off center of back by more than 1/2 inch			X
Stitching omitted on one or more edges of contractor's label		X	
<u>Fastener tape for wearer's nameplate</u>			
Fastener tape for wearer's nameplate missing	X		
Fastener tape for wearer's nameplate not specified size	X		
Fastener tape for wearer's nameplate misplaced more than 1/2 inch		X	
Stitching omitted on one or more edges of pile fastener tape for wearer's nameplate		X	

TABLE IX. Examination of Preparation for Delivery

Examine	Defect
Marking (exterior and interior)	Omitted; incorrect; illegible; or improper size, location, sequence, or method of application
Materials	Any component missing, damaged, or not as specified
Workmanship	Inadequate application of components such as incomplete closure of container flaps, loose strapping, improper taping, or inadequate stapling Bulged or distorted container
Content (exterior and interior)	Number of bundles per shipping container more or less than required Number of shirts per bundle more or less than required <u>1/</u>

1/ One bundle from each shipping container in the sample shall be examined for this defect.

5.1.2 Level C. The coveralls shall be packaged and preserved to afford the minimum degree of protection necessary to prevent deterioration or damage during shipment under normal environmental conditions and commercial modes of transportation.

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

5.2.1 Level A. Twenty coveralls of one size and color only, packaged as specified, shall be packed in a fiberboard shipping container assembled, closed, and reinforced to conform to class weather-resistant, grade V2s, size 3A of MIL-B-17757. Level A packages shall be packed two in length, one in width, and ten in depth.

5.2.2 Level B. Twenty coveralls of one size and color only, packaged as specified, shall be packed in a fiberboard shipping container assembled and closed in accordance with MIL-B-17757. The container shall be size 3A constructed of grade 275 fiberboard of MIL-B-17757.

5.2.3 Level C. Coveralls packaged as specified shall be packed in a manner to insure acceptance by the carrier and safe delivery to destination at the lowest transportation rate for such supplies. The containers shall be in accordance with regulations as applicable to the mode of transportation.

5.3 Marking. In addition to any special marking required by contract or order, unit packages and shipping containers shall be marked in accordance with MIL-STD-129 and shall include the size of the coveralls and the date of manufacture (month and year).

5.3.1 Polyethylene bag. ^{Polyethylene} Prior to heat-sealing (see 5.1.1), a white paper label containing the information specified in 5.3 in legible and durable black letters and numerals shall be placed inside each bag. The label shall be placed so that it can be read through the bag. As a substitute for the label, the information may be printed or stamped on each polyethylene bag.

6. NOTES

6.1 Intended use. The coveralls covered by this specification are intended to be worn as an outer garment by flight personnel in temperatures above 68 degrees Fahrenheit.

6.2 Ordering data. Procurement documents should specify the following:

- (a) Title, number, and date of this specification
- (b) Type and size required (see 1.2.1 and 1.2.2)

- (c) Requirements for testing components and materials (see 4.2.1)
- (d) Selection of applicable levels of packaging and packing (see 5.1 and 5.2).

6.3 Color samples. Samples of color shades may be obtained from the procuring activity or as directed by the contracting officer.

6.4 Figures. Figures 1 and 2 show the general style of the coveralls and are furnished for information only.

6.5 Notation of changes. The margins of this specification are marked with asterisks to indicate where changes from the previous issue were made. This notation was done as a convenience only, and the Government assumes no reliability 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.

Custodian:
Air Force - 11

Reviewer:
Air Force - 82

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Air Force - 11

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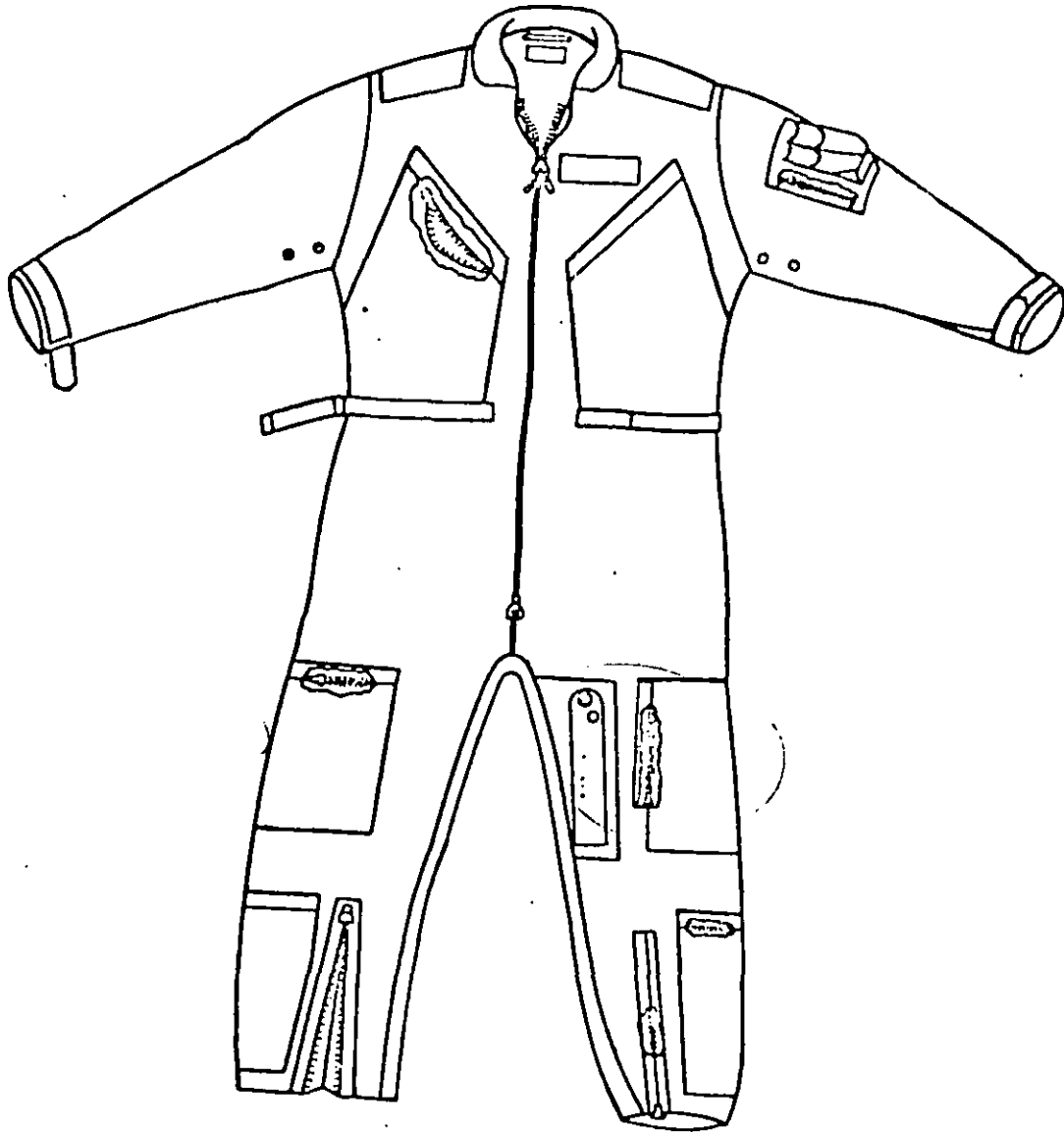


FIGURE 1. Coveralls (Front View)

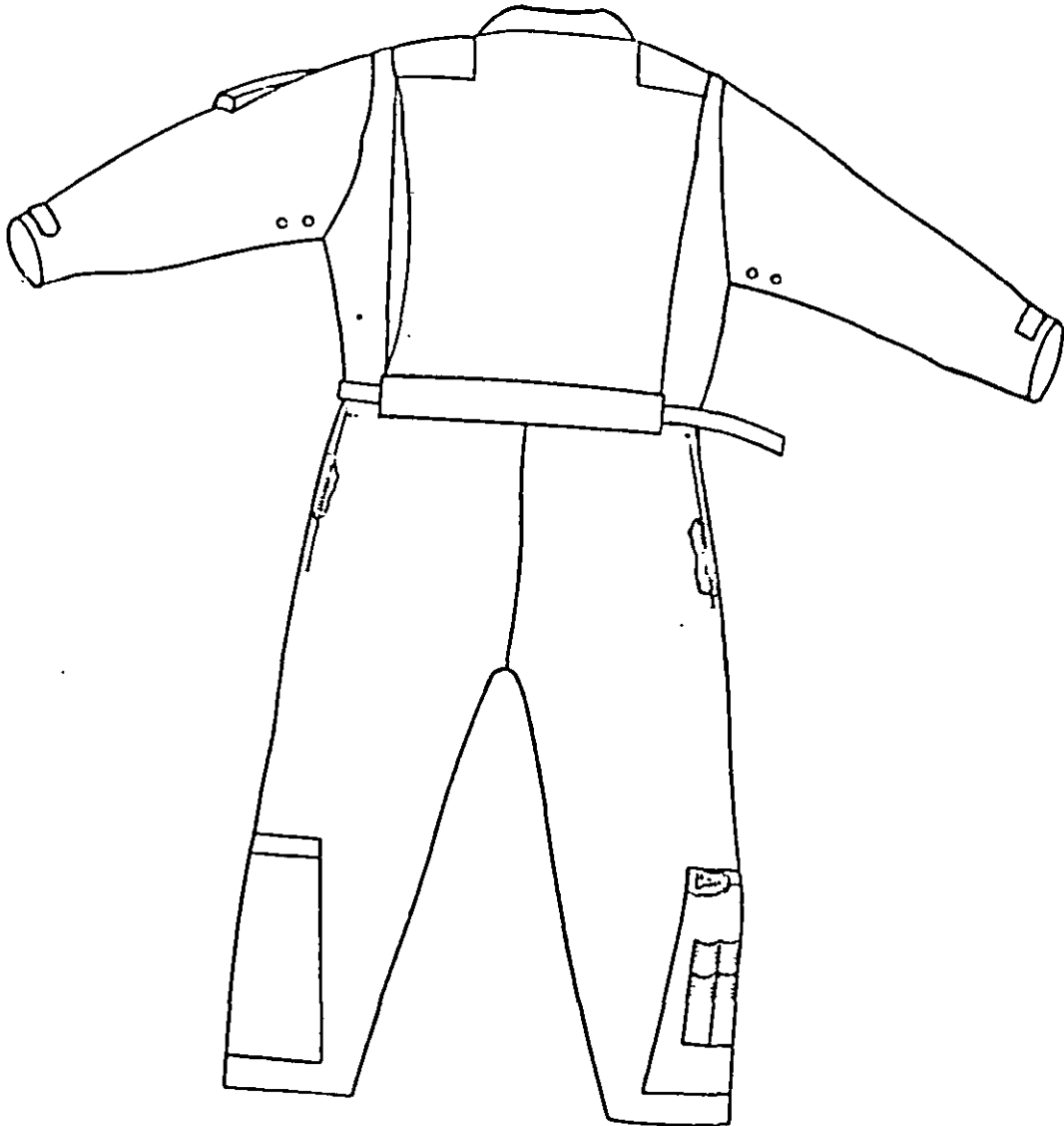


FIGURE 2. Coveralls (Rear View)