

MIL-T-83385A

13 March 84

SUPERSEDING

MIL-T-83385

1 September 1972

MILITARY SPECIFICATION

TROUSERS, FLYERS', EXTREME COLD WEATHER, CWU-18/P

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

1. SCOPE

1.1 Scope. This specification covers one type of flight trousers designated CWU-18/P and furnished in the following sizes as specified (see 6.2):

28	32	36	40	44
30	34	38	42	46.

2. APPLICABLE DOCUMENTS

*2.1 Government documents.

*2.1.1 Specifications and standards. Unless otherwise specified (see 6.2), the following specifications and standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation, form a part of this specification to the extent specified herein.

SPECIFICATIONS

FEDERAL

T-T-881	Twine, Cotton, Seine
V-B-871	Button, Sewing Hole, And Button, Staple (Plastic)
V-F-106	Fastener, Slide, Interlocking
DDD-L-20	Label; For Clothing, Equipage, And Tentage, (General Use)
PPP-B-636	Boxes, Shipping, Fiberboard
PPP-T-45	Tape, Gummed, Paper, Reinforced And Plain, For Sealing And Securing

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MIL-B-543	Buckles, Tongueless And Web Strap
MIL-C-3735	Cuffs, Knit, Wrist And Ankle, And Cloth, Knitted

*Beneficial comments (recommendations additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: the Engineering Division, San Antonio Air Logistics Center, Kelly AFB, TX 78241 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

FSC 8415

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MIL-W-4088	Webbing, Textile, Woven Nylon
MIL-C-5040	Cord, Nylon
MIL-S-6790	Suspenders, Trousers (Suspenders, Flying Suit)
MIL-F-10884	Fasteners, Snap
MIL-G-16491	Grommet, Metallic
*MIL-T-44100	Thread, Para-Aramid, Spun, Immediate Modulus
MIL-B-81813	Batting, Aramid Or Novoloid Fiber, Quilted
MIL-C-81814	Cloth, Twill, Aromatic Polyamide, High Temperature Resistant

STANDARDS

FEDERAL

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

MILITARY

MIL-STD-105	Sampling Procedures And Tables For Inspection By Attributes
MIL-STD-129	Marking For Shipment And Storage
MS27980	Fasteners, Snap, Style 2 (Regular Wire Spring Clamp Type)

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

*2.1.2 Other Government documents, drawings, and publications. The following other Government documents form a part of this specification to the extent specified herein.

DRAWINGSAir Force

70109	Patterns, Trousers, Flying, Extreme Cold Weather, CWU-18/P Miscellaneous, All Sizes
70110	Patterns, Trousers, Flying, Extreme Cold Weather, CWU-18/P, Size 28
70111	Patterns, Trousers, Flying, Extreme Cold Weather, CWU-18/P, Size 30
70112	Patterns, Trousers, Flying, Extreme Cold Weather, CWU-18/P, Size 32
70113	Patterns, Trousers, Flying, Extreme Cold Weather, CWU-18/P, Size 34
70114	Patterns, Trousers, Flying, Extreme Cold Weather, CWU-18/P, Size 36
70115	Patterns, Trousers, Flying, Extreme Cold Weather, CWU-18/P, Size 38
70116	Patterns, Trousers, Flying, Extreme Cold Weather, CWU-18/P, Size 40
70117	Patterns, Trousers, Flying, Extreme Cold Weather, CWU-18/P, Size 42

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70118	Patterns, Trousers, Flying, Extreme Cold Weather, CWU-18/P, Size 44
70119	Patterns, Trousers, Flying, Extreme Cold Weather, CWU-18/P, Size 46

2.2 Other publications. The following document(s) form a part of this specification to the extent specified herein. The issues of the documents which are indicated as DoD adopted shall be the issue listed in the current DoDISS and the supplement thereto, if applicable.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

* ASTM D 3951 - Standard Practice for Commercial Packaging

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

Department of Defense (DOD) Standard Shades for Buttons 1966.

(Copies of this publication may be obtained from The Color Association of the United States, Inc., 200 Madison Avenue, New York, New York 10016.)

(Technical society and technical association specifications and standards are generally available for reference from libraries and are also distributed among technical groups and using federal agencies.)

*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.

3. REQUIREMENTS

3.1 Materials.

3.1.1 Basic fabric. The material for the outer shell; the protective flaps of the leg and the side pass-through openings; the facing of the pockets, the leg openings, and the side pass-through openings; the lining of the fly and the pocket flaps; the hanger; the adjustment straps; the knee and the seat reinforcement patches; the belt loops; the pocketing including the flaps and the welts; and the reinforcements of the snap fasteners shall conform to MIL-C-81814 and shall be USAF color shade No. 1565 (see 6.3).

3.1.2 Quilted lining. The material for the quilted lining shall conform to Size T-35 of MIL-T-44100 except that the color shall be sage green, conforming to USAF color shade No. 1565 (see 6.3).

*3.1.3 Thread. The thread for all sewing operations shall conform to size T-35 of MIL-T-44100.

3.1.4 Anklelets. The material for the anklelets shall conform to type I, class 3 of MIL-C-3735. The anklelets shall be USAF color shade No. 1525 (see 6.3).

3.1.5 Buttons. The buttons shall conform to type II, class D, style 4, size 27 lines of V-B-871. The color of the buttons shall be DOD Button Shade Green AD, Cable No. 62012 (see DoD Standard Shades for Buttons 1966).

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3.1.6 Snap fasteners. The snap fasteners shall conform to style 2, finish 2 of MIL-F-10884 and MS27980-1B (button), MS27908-6B (socket), MS27908-7B (stud), and MS27980-8B (eyelet).

3.1.7 Slider. The slider (buckle) shall conform to type II, style 4, class 1 or 3, size 1 inch of MIL-B-543.

3.1.8 Slide fasteners. The slide fasteners shall conform to the requirements of V-F-106 and to table I herein. 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 slide fastener tapes shall be high temperature resistant polyamide and shall approximately match the color of the basic fabric. The slide fastener shall be heat set to obtain dimensional stability so that the tapes will not shrink more than 2 percent in the warp direction. The slide fastener for the front opening shall have a thong made of the basic fabric.

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

3.1.10 Cord beading. The cord beading in the edges of the slide fastener covers shall conform to type I, size (commercial number) 18 of T-T-881.

3.1.11 Cord for lanyard. The cord for the lanyard attached to the knife pocket shall be natural color and shall conform to type IA of MIL-C-5040. The cord shall be 60 inches (plus or minus 1 inch) long.

3.1.12 Binding. The binding for the edges of the knife pocket shall be bias-cut, 1-1/8 inches wide from the basic fabric.

3.1.13 Reinforcement on knife pocket. The webbing for the reinforcement on the knife pocket shall conform to type XII of MIL-W-4088 and may be natural white.

3.1.14 Suspenders. The suspenders shall conform to type I of MIL-S-6790 except that the colorfastness to wet crocking of the leather components shall be fair and the identification marking shall not be required. The suspenders shall be sage green approximating the shade of the basic fabric.

3.2 Design. The trousers shall have an outer shell, reinforcement patches on the seat and the knees, cuffs, (anklets), and a quilted lining made of high temperature resistant, aromatic polyamide material. A knife pocket with a snap fastener closure shall be located on the left thigh of the trousers. A lanyard shall be attached to the knife pocket. The trousers shall have two hip pockets and two thigh pockets. Each hip pocket and each thigh pocket shall have a flap and snap fastener closure. Each side of the trousers shall have a covered pass-through opening. Each leg opening and each side pass-through opening shall have a slide fastener closure with a protective flap under the slide fastener. Each slide fastener for the leg opening shall be positioned on the outer side of the leg, running from the terminal to a point below the knee of the trousers. A two-bar, friction-type slider and takeup straps for adjusting the waist shall be positioned on the back of the trousers. The trousers shall have belt loops as well as buttons with suspenders.

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TABLE I. Slide fasteners

Application	Specification V-F-106			Length in Inches (Plus or minus 1/2)
	Type	Style	Size 1/	
Size 28				
Pass-through openings	I	7	M	10-1/2
Fly opening	I	3	M	8-3/4
Leg openings	I	3	M	15-1/2
Size 30				
Pass-through openings	I	7	M	10-1/2
Fly opening	I	3	M	9
Leg openings	I	3	M	15-1/2
Size 32				
Pass-through openings	I	7	M	10-1/2
Fly opening	I	3	M	9-1/4
Leg openings	I	3	M	15-1/2
Size 34				
Pass-through openings	I	7	M	10-1/2
Fly opening	I	3	M	9-1/2
Leg openings	I	3	M	15-1/2
Size 36				
Pass-through openings	I	7	M	10-1/2
Fly opening	I	3	M	9-3/4
Leg openings	I	3	M	15-1/2
Size 38				
Pass-through openings	I	7	M	10-1/2
Fly opening	I	3	M	10
Leg openings	I	3	M	15-1/2
Size 40				
Pass-through openings	I	7	M	10-1/2
Fly opening	I	3	M	10-1/4
Leg openings	I	3	M	15-1/2
Size 42				
Pass-through openings	I	7	M	10-1/2
Fly opening	I	3	M	10-1/2
Leg openings	I	3	M	15-1/2
Size 44				
Pass-through openings	I	7	M	10-1/2
Fly opening	I	3	M	10-3/4
Leg openings	I	3	M	15-1/2
Size 46				
Pass-through openings	I	7	M	10-1/2
Fly opening	I	3	M	11
Leg openings	I	3	M	15-1/2

1/ The width of the tape shall be 3/4 inch (plus 3/32 or minus 1/32 inch).

3.3 Construction. The trousers shall be constructed as specified in table II; however, the manufacturer is not required to follow the exact sequence at operations as listed therein.

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3.3.1 Stitches, seams, and stitchings. Stitches, seams, and stitchings used in the construction of the trousers shall conform to FED-STD-751. Wherever two or more methods, seams, or stitches are specified for the same operation, any one of them may be used. All seams shall start and finish evenly. Seam allowances shall be maintained so that raw edges, run-offs, twists, pleats, puckers, or open seams will not result. Thread tension shall be maintained so that there will be no tight or loose tension. The looper (under thread) of stitch 401 shall be on the inside of the trousers.

3.3.1.1 Sewing tolerances. Unless otherwise specified herein, a tolerance of plus or minus 2 stitches per inch will be permitted. The stitching tolerances shall be plus or minus 1/16 inch for 1/4-inch gage and 5/16-inch gage, plus 0 or minus 1/8 inch for 3/8-inch gage, plus or minus 1/16 inch for raise seam 3/16-inch gage, plus 1/16 or minus 0 inch for raise seam open 1/8 inch, plus 1/16 or minus 0 inch for 1/16 inch from edge, and plus 1/16 or minus 0 inch for raise seam 1/4 inch from the edge.

3.3.1.2 Ends of seams and stitches and thread breaks. Ends of seams and stitchings (stitch type 301) that are not caught in other seams or stitchings shall be securely tacked or backstitched not less than 1/2 inch. 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 to break not less than 1/2 inch. Skipped stitches or thread breaks of stitch type 401 may be repaired using stitch type 301.

3.3.2 Cutting. The trousers shall be cut from the materials specified herein in accordance with the pattern parts listed in table III.

3.4 Patterns. The manufacturer's working patterns shall be identical in size and shape to the patterns referenced on Drawings 70109 through 70119 as applicable. Unless otherwise specified herein, the patterns provide an allowance of 1/2 inch for all seams.

3.5 Finished measurements. The finished measurements of the trousers shall conform to table IV. The finished measurements shall be taken as follows: Measure the 1/2 waist, with the slide fastener closed and with the trousers laid flat, along the top of the fronts from side to side. Measure the in-seam, on the inside of the leg, from the crotch to the top of the knit.

*3.6 Labels. Each pair of trouser shall have a combination identification and size label and an instruction label. The labels shall have colorfastness to both laundering and dry cleaning. The combination identification and size label shall conform to type I, classes 1 and 2 of DDD-L-20 except that the specification number shall be included on the label. The instruction label shall conform to type I, class 3 of DDD-L-20 and shall contain the following information:

Instruction Label

These trousers are made of fire resistant material. No other special flame resistant treatment is required.

The trousers may be dry cleaned or may be laundered by machine or hand. DO NOT STARCH. Ironing or pressing is not necessary.

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TABLE II. Sewing operations.

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
1	<p><u>Cut</u></p> <p>(a) Cut the parts of the trousers in strict accordance with the patterns which show size, placement of parts, directional lines for cutting, and notches for proper assembly. Cut the basic fabric and the quilted lining either face down, that is, the face of each ply of material against the back of the next ply below, or face to face. Except for parts that may be cut from ends, cut all parts made of the basic fabric from one piece of material. The hanger, the leg and the pass-through protective flies, the pocket facings, the facings for the leg and the side pass-through openings, the fly lining, and the flap lining may be cut from ends but shall approximately match the color of the other parts cut from the basic fabric. The face side of the basic fabric shall be the inside of the roll and the outer side of the finished trousers. Cut all parts made of the quilted lining from one piece of material. The sage green side of the quilted lining shall be the exposed side in the finished trousers.</p>			
2	<p><u>Replace defective or damaged parts</u></p> <p>(a) Replace at the time of cutting any part containing a hole, a multiple float, or a slub that might develop into a hole.</p> <p>(b) Replace during the manufacturing process any part damaged by needle chews that might develop into a hole, a scissor or knife cut, a tear, a hole, a mend, a burn, or an exposed drill hole.</p>			

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TABLE II. Sewing operations. (Continued)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
3	<p><u>Shade marks</u></p> <p>(a) Except for parts cut from ends, all parts shall be marked or ticketed to insure a uniform shade and proper assembly throughout the trousers. The marking may be any method except adhesive-type tickets that will leave traces of paper or adhesive on the material after the tickets are removed or metal fastening devices.</p>			
4	<p><u>Insert beading in edges of covers</u></p> <p>(a) Fold the material to the inside at the pattern marks. Insert the cord in the fold. Stitch close to the cord with a single row of stitching. The beaded edges shall be flush with each when the slide fastener is closed.</p> <p>Note: The edges of the slide fastener covers for the leg openings and for the side pass-through openings shall have corded beading.</p>	301	EFA-1	12
5	<p><u>Make adjustment straps.</u></p> <p>(a) Sew the adjustment straps together with a single row of stitching 1/4 inch from the edge, leaving the raw edges open for turning.</p> <p>(b) Turn and raise stitch the adjustment straps with a double row of stitching 1/4-inch gage 1/16 inch from edge.</p>	301	SSE-3(a)	12
6	<p><u>Make back</u></p> <p>(a) Sew the back darts with a 3/8-inch seam, catching the adjustment straps at the notch and tapering to zero at the end. The 7-1/2-inch-long pointed strap shall be caught in the right back side of the trousers. The 6-inch-long strap shall be caught in the left back side of the trousers.</p>	301	LSq-2(a)	12

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TABLE II. Sewing operations. (Continued)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
(b)	Turn and raise stitch the darts, with the seam allowance toward the side seams on the inside, with a single row of stitching 1/16 inch from the edge.	301	LSq-2(b)	12
(c)	Bartack the top and the bottom edges of both adjustment straps with a 1/2-inch-wide bartack through the outer shell only. The bartack shall be vertical, and superimposed on or adjacent to the dart raise stitching, through all plies including the seam allowance.	bartack		28
(d)	Thread the edge of the left adjustment strap 1/2 inch through slider, and sew with a double row of stitching 1/4-inch gage 1/16 inch from the edge.	301	SSa-2	12
(e)	Position the reinforcement patches for the seat, in accordance with the notches, with a 1/2-inch fold, and sew with a double row of stitching 1/4-inch gage 1/16 inch from the edge.	301	LSD-2	12
7	Make hip and thigh pockets. Each finished hip pocket and each finished thigh pocket shall be 9-1/4 inches (plus or minus 1/4 inch) deep at the center. The finished flap for sizes 28 and 30 shall be 6-3/4 inches (plus or minus 1/4 inch) long by 2-1/4 inches (plus or minus 1/4 inch) wide at the widest point. The finished flap for sizes 32 through 46 shall be 7-1/2 inches (plus or minus 1/4 inch) long by 2-1/4 inches (plus or minus 1/4 inch) wide at the widest point. The welt for sizes 28 and 30 shall be 6-3/4 inches (plus or minus 1/4 inch) long to correspond to the length of the flap by 1/2 inch (plus or minus 1/4 inch) wide. The welt for sizes 32 through 46 shall be 7-1/2 inches (plus or minus 1/4 inch) long by 1/2 inch (plus or minus 1/4 inch) wide to correspond to the length of the flap.			

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TABLE II. Sewing operations. (Continued)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
	<p>(a) Stamp a snap fastener button and socket, reinforced with a 1-1/2-inch square of the basic fabric, at the center of the flap 3/4 inch from the edge. Stamp the snap fastener stud on the pocket to correspond with the socket on the flap.</p> <p>(b) Sew the flaps to the flap lining with a single row of stitching 1/4 inch from the edge.</p> <p>(c) Turn the flaps and raise stitch with a double row of stitching 1/4-inch gage 1/16 inch from the edge, catching the reinforcement in the second row of stitching. The reinforcement shall be centered between the inner and the outer plies.</p> <p>(d) Turn under 1/2 inch and sew the facings and the welt pieces to the ends of the pocketing with a single row of stitching 1/16 inch from the edge. If the facings and the welt pieces are cut with the selvedge, the selvedge edge need not be turned under.</p> <p>(e) Sew the flaps, as indicated by the patterns, on the outer shell with a single row of stitching 1/4 inch from the edge.</p>	301	SSe-3(a)	12
		301	SSe-3(b)	12
		301	Lsd-1	12
		301	SSa-1	12

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TABLE II. Sewing operations. (Continued)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
	<p>(f) Sew the welt and the pocketing with the raw edges of pocketing and the flaps abutted with a single row of stitching 1/4 inch from the edge.</p>	301	SSa-1	12
	<p>(g) Cut the pockets through with a diamond-shaped tongue at the corners</p>			
	OR			
	<p>(h) As option No. 7(e), 7(f), and 7(g) may be performed with a double-needle knife machine.</p>	301	SSa-2	12
	<p>(i) Place the pocketing through the slits; double over at the edge for reinforcement to form a 1/2-inch welt.</p>			
	<p>(j) Sew the tongues at the corners to the welt on the inside with a single row of stitching.</p>	301	SSa-1	12
	<p>(k) Sew around the sides and the bottom of the welts on the trousers with a single row of stitching 1/16 inch from the edge.</p>	301	LSq-2(b)	12
	<p>(l) Fold the pocketing in place; sew the side edges with a single row of stitching, and turn.</p>	301	SSE-2(a)	12
	<p>(m) Sew around the sides and the bottom of the pocketing with a row of stitching 1/2 inch from the side edges and 1/8 to 1/4 inch from the bottom folded edge.</p>	301	SSE-2(b)	12
	<p>(n) Sew across the top of the flaps on the trousers through the pocketing with a single row of stitching 1/16 inch from the edge.</p>	301	LSq-2(b)	12
	<p>(o) Bartack each corner of the pocket opening with a 1/2 inch-wide bartack through the outer shell only.</p>	bartack		28 stitches per bartack

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TABLE II. Sewing operations. (Continued)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
8	<p><u>Make pass-through openings</u></p> <p>(a) Join the facings to the fronts and the backs at the pass-through openings with a 3/8-inch seam.</p> <p>(b) Turn and edge stitch with a single row of stitching 1/16 inch from the edge.</p>	301	SSe-2(a)	12
9	<p><u>Join seat seam</u></p> <p>(a) Join the seat seam with a 1/2-inch seam. In joining the seat seam, stretch shall be applied to the crotch to insure sufficient length of thread.</p> <p>(b) Turn and raise stitch the seat seam, with the left back overlapping the right back, with a single row of stitching 1/16 inch from the edge.</p> <p>(c) As an option to No. 9(a) and 9(b), join the seat seam with a double-lapped, double-stitched seam 1/4-inch to 5/16-inch gage 1/16 inch from edge.</p>	301	LSq-2(a)	12
10	<p><u>Make darts and attach knee patches</u></p> <p>(a) Join the darts on the fronts of the legs with a single row of stitching 1/4-inch seam, tapering to zero.</p> <p>(b) Turn and raise stitch, with upper part overlapping the lower part, with a single row of stitching 1/16 inch from the edge.</p> <p>(c) Position the knee patches, in accordance with the drill marks, matching the notches with a 1/2-inch fold, and sew with a double row of stitching 1/4-inch gage 1/16 inch from the edge on all four sides.</p>	301 or 401	LSc-2	12
		301	LSq-2(a)	12
		301	LSq-2(b)	12
		301	LSD-2	12

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TABLE II. Sewing Operations. (Continued)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
11	<p data-bbox="448 1455 472 1692"><u>Make knife pocket</u></p> <p data-bbox="505 894 638 1692">(a) Lay the webbing reinforcement on the pocket material, wrong side up, in accordance with the notches and the drill marks. Sew the reinforcement 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 data-bbox="670 926 776 1692">(b) Fold the pocket material lengthwise with the raw edges even; fold a pleat in accordance with the notches. Bind the square end with 1-1/8-inch-wide, bias-cut binding made of the basic fabric.</p> <p data-bbox="808 926 889 1692">(c) Bind the straight edge of the small flap reinforcement for the top of the pocket, with 1-1/8-inch-wide, bias-cut binding made of the basic fabric.</p> <p data-bbox="922 936 1133 1692">(d) Position the flap reinforcement, in accordance with the notch and the drill marks, at the round end of the pocket with the flap on the same side as the webbing reinforcement. Sew the flap 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 may be joined to the top of the knife pocket in the binding specified in No. 11(e).</p> <p data-bbox="1166 951 1360 1692">(e) Fold the pocket material on the center notch, and bind the pocket with a 1-1/8-inch-wide, bias-cut binding made of the basic fabric, starting at the bottom folded end and sewing the binding around the sides and the top. The webbing reinforcement shall be on the inside. The binding shall extend 1/2 inch beyond the end of each side for turning under.</p>	301	SSa-1	12
		301	BSc-1	12
		301	BSc-1	12
		301	SSa-1	12
		301	BSc-1	12

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TABLE II. Sewing operations. (Continued)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
12	<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>	301	SSa-1	12
	<p>(g) Install a size 0 grommet on the pocket, below the bottom edge of the flap reinforcement, at the drill marks.</p>			
	<p><u>Attach knife pocket</u></p>			
	<p>(a) 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 reinforcement patch to the trousers 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>(b) 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	Lsd-2	12
	<p>(c) 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 reinforcement patch and the trousers.</p>	301	SSa-1	12

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TABLE II. Sewing operations. (Continued)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
13	<p>(d) Stamp one snap fastener socket to the center of the pocket flap, in accordance with the drill marks, at the rounded end.</p> <p>(e) Stamp one snap fastener stud, reinforced on the inside with the basic fabric, on the trousers to correspond with the snap fastener socket.</p> <p>(f) Pull the nylon cord through the grommet. Tie the nylon cord with a square knot. Sear both ends of the nylon cord or dip the ends of the nylon cord in a suitable resin to prevent unravelling. Fold the loose nylon cord in layers approximately 4 inches long. Position the folded nylon cord in the pocket, with all the folds within the pocket. Snap the flap closed.</p> <p><u>Prepare quilted lining</u></p> <p>(a) Notch openings at the corners for the side pass-through openings and the bottom leg openings. Turn and stitch the openings 1/8 to 1/4 inch from the edge.</p>	301	SSe-2(b)	12
14	<p><u>Make left fly</u></p> <p>(a) Position the left fly to the left front as indicated by the notch, and stitch 1/8 to 1/4 inch from the raw edge across the top and the front edge of the fly, through the quilted lining.</p> <p>(b) Turn the back edge of the fly, and stitch through the quilted lining 1/16 to 1/8 inch from the edge. Note: The back edge of the fly may be hemmed prior to performing No. 14(b).</p>	301	SSa-1 Lsd-1	12 12

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TABLE II. Sewing operations. (Continued)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
(c)	Stitch the slide fastener to the left fly through the quilted lining, with a double row of stitching 1/4-inch to 3/8-inch gage. The bottom slide fastener stop shall be positioned on the bottom fly notch, and the top end of the slide fastener tape shall be turned under. The scoops of the slide fastener shall be positioned so that the right portion of the slide fastener tape is not exposed when the slide fastener of the fly is closed.	301	SSa-2	12
15	<u>Make right fly</u>			
(a)	Stitch the fly pieces together across the top and the front edge 1/4 to 3/8 inch from the edge.	301	SSe-2(a)	12
(b)	Turn the fly and edge stitch the seamed edge 1/16 to 1/8 inch from the edge.	301	SSe-2(b)	12
(c)	Stitch the protective flies through all plies with a double row of stitching 1/4-inch to 3/8-inch gage down the center of the entire length.	301	SSv-1	12
(d)	Stitch the assembled fly to the right front quilted lining as indicated by the notch; continue the stitching to the bottom end of the assembled fly 3/8 inch from the raw edge.	301	LSq-2(a)	12
(e)	Raise stitch the seamed edge of the right fly, with the front over the fly, 1/8 to 3/16 inch from the edge, from the top of the fly to approximately 1-1/2 inches above the bottom of the fly.	301	LSq-2(b)	12

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TABLE II. Sewing operations. (Continued)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per inch
16	<u>Assemble fronts and flies</u>			
	<p>(a) Join the left front (outer shell) to the assembled fronts (quilted lining) from the fly notch to approximately 5 inches beyond the back edge of the left fly at the top of the trousers 3/8-inch gage. Trim the top corner of the trousers; turn and edge stitch from the bottom notch to approximately 3 inches from beyond the back edge of the left fly at the top of the trousers 1/4-inch gage.</p>	301	SSE-2	12
	<p>(b) Stitch the back edge of the left fly, from the fly notch to the top of the trousers, through the quilted lining and outer shell 1-3/4 to 2 inches from the front edge. The line of stitching shall follow the contour at the bottom of the fly.</p>	301	SSa-1	12
	<p>(c) Stitch the right portion of the slide fastener tape to the right front outer shell 3/8 inch from the edge. The bottom of the slide fastener stop shall be positioned approximately 1/2 inch above the fly notch, and the top raw end of the tape shall be turned in at the top and caught in the stitching.</p>	301	SSa-1	12
	<p>(d) Join the crotch of the outer shell, with the left front over the right front, with a double row of stitching 1/4-inch to 5/16-inch gage 1/16 inch from the edge.</p>	301	LSb-2	12
	<p>(e) Join the quilted lining at the crotch, as indicated by the notch, with a single row of stitching 3/8-inch gage.</p>	301	SSz-3(a)	12
	<p>(f) Spread the seam open and raise stitch 1/8-inch gage on each side of the seam.</p>	301	SSz-3(a)	12

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TABLE II. Sewing operations. (Continued)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
17	<p><u>Join outer shell</u></p> <p>(a) Join the side seams, with the back over the front, above and below the side pass-through openings. Raise stitch the side seams 1/4 inch from the edge.</p>	301	LSq-2	12
18	<p><u>Join seat seam of quilted lining</u></p> <p>(a) Join the seat seam of the quilted lining with a single row of stitching 3/8 inch from the edge. Spread the seat seam open and raise stitch 1/8-inch gage each side of seam.</p> <p>*(b) Position the top of the combination identification and size label so that it will be centered on the seat seam 3 inches (plus or minus 1/2 inch) below the top edge. Position the top of the instruction label so that it will be centered, not more than 1/2 inch below, the bottom of the combination identification label. Sew the combination identification and size label and the instruction label on all four sides to the quilted lining with a single row of stitching 1/16 inch from the edge. The top of the instruction label may be caught in the stitching of the bottom of the combination identification and size label.</p> <p>(c) Fold the basic fabric for the hanger lengthwise; turn under the raw edges, and stitch with a single row of stitching 1/16 to 1/8 inch from each edge. The finished hanger shall be 3/8 to 1/2 inch wide and approximately 5-1/2 inches long.</p> <p>(d) Position the hanger, directly above the label, centered across the seat seam. Turn under 3/8 inch, and bartack 1/8 inch from each end with a 1/2-inch wide bartack.</p>	301 or 401 301	SSz-3 LSbj-1	12 12 12 12 12 28 stitches per bartack
		301	FFp-2	
		301 bartack		

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TABLE II. Sewing operations. (Continued)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
19	<p><u>Join darts and side seams of quilted lining</u></p> <p>(a) Join the knee and the back darts of the quilted lining with a 3/8-inch seam tapering to zero at the end. Spread the seams open, and raise stitch 1/8-inch gage on each side of the seams.</p> <p>(b) Join the side seams of the quilted lining above and below the pass-through opening with a 3/8 inch seam. Spread the seams open, and raise stitch 1/8-inch gage on each side of the seams.</p>	301	SSz-3(a) and SSz-3(b)	12
20	<p><u>Attach knitted cuffs</u></p> <p>(a) Sew the facing to each end of the knitted fabric with single row of stitching 1/2-inch gage. Raise stitch the seam of the side of the basic fabric 1/4 inch from the edge.</p> <p>(b) Sew both sides of the knitted cuff facings with each end turned back 1/2 inch, and stitch to the bottom of the quilted lining 1/2-inch gage.</p>	301	LSq-2	12
21	<p><u>Make belt loops</u></p> <p>(a) Fold the basic fabric for the five belt loops lengthwise. Turn under the raw edges, and stitch with a single row of stitching 1/16 to 1/8 inch from each edge. The belt loops shall be located at the pattern marks. The finished belt loops shall be 3/8 inch to 1/2 inch wide.</p>	301	SSa-1	12
22	<p><u>Make thong</u></p> <p>(a) Fold the basic fabric for the thong lengthwise. Turn under the raw edges, and stitch with a single row of stitching 1/16 to 1/8 inch from each edge. The finished thong shall be 3/8 to 1/2 inch wide and 3 inches long.</p>	301	EFp-2	12

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TABLE II. Sewing operations. (Continued)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
23	<p><u>Attach slide fasteners and thong</u></p> <p>(a) Sew the slide fasteners with the covers attached to the side pass-through openings of the quilted lining with a single row of stitching 1/16 to 1/8 inch from the edge, exposing approximately 1/4 inch of the slide fastener tape. The slide in the finished trousers shall be at the bottom when the slide fastener is closed and shall be between the outer shell and the quilted lining.</p> <p>(b) Sew slide fasteners with the covers attached to the quilted lining, at the bottom opening, including the turned under knitted cuff facing in accordance with the notches, with a single row of stitching 1/16 to 1/8 inch from the edge, exposing approximately 1/4 inch of the slide fastener tape. The slider in the finished trousers shall be at the bottom when the slide fastener is closed and shall be between the outer shell and the quilted lining.</p>	301	SSa-1	12
24	<p><u>Make protective flies for pass-through and leg openings</u></p> <p>(a) Double the basic fabric lengthwise, Add a ply of the quilted lining. Join the plies together on the ends with a single row of stitching 3/8-inch gage.</p>	bartack	SSe-2(a)	28 stitches per bartack

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TABLE II. Sewing operations. (Continued)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
25	(b) Turn and edge stitch the four sides of the protective flies 1/4 inch from the edge, closing the openings in the stitching.	301	Sse-2(b) SSa-1 OSf-1	12
	(c) Serge or overedge stitch the raw edge.	301	SSa-1	12
	(d) Stitch the protective flies through all plies with a double row of stitching 1/4-inch to 3/8-inch gage down the center of the entire length.	301	SSv-1	12
	<u>Attach cuffs</u>	301	SSa-1	12
26	(a) Turn back each end of the facing 1/2 inch. Stitch the facings and a ply of the knitted cuff material to the bottom of the outer shell of the trousers, with the edge of the fold even with the opening, with a 1/2-inch seam.	301	SSa-1	12
	(b) Complete the stitching of the knitted cuff to the bottom of the quilted lining with a single row of stitching 1/2-inch gage.	301	SSa-1	12
	(c) Join the seam allowance of the knitted cuff at the bottom with a single row of stitching to within approximately 1 inch from the cuff facing seam on both sides.	301	SSa-1	12
	<u>Complete stitching of outer shell to quilted lining.</u>	301	Sse-2(b)	12
	(a) Stitch the quilted lining to the outer shell at the top of the trousers.	301	Sse-2(b)	12
	(b) Turn the trousers right side out through the opening in the right fly.			

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TABLE II. Sewing operations. (Continued)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
	<p>(c) Edge stitch the top of the trousers, 1/4-inch gage, from the back edge of the right fly 1/2 to 1 inch beyond the edge stitching on the left front.</p> <p>(d) Raise stitch 1/4-inch gage the bottom of the trousers through the knitted cuff seam allowance from one edge of the facing to the outer edge of the facing.</p> <p>(e) Turn under the right front over the right fly, joining the seam with the slide fastener tape between the front and the fly. Topstitch the right front edge through all plies 1/16 to 1/8 inch from the seamed edge.</p>	301	Sse-2(b)	12
27	<p><u>Join side pass-through protective flies</u></p> <p>(a) Position the protective fly of the pass-through to the back part of the trousers, approximately 3/4 inch from the side edge of the opening, covering the entire length of the opening, and stitch through the quilted lining, the slide fastener tape, and the outer shell 1/8 inch from the serged edge. The side of the protective fly facing the front shall be left free.</p>	301	SSa-1	12
28	<p><u>Join leg opening protective flies</u></p> <p>(a) Place the protective fly on the front of the trousers at the bottom of the trousers, approximately 3/4 inch from the side edge of the opening, and stitch to the quilted lining 1/8 inch from the serged edge. The leg protective fly shall extend approximately 1/2 inch from the finished bottom edge of the trousers. The side of the protective fly facing the back shall be left free.</p>	301	SSa-1	12

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TABLE II. Sewing operations. (Continued)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
29	<p><u>Bartack</u></p> <p>(a) Bartack the top and the bottom free ends of the protective fly of the side pass-throughs through the outer shell and the quilted lining with a 1/2-inch-wide bartack.</p> <p>(b) Bartack the bottom of the fly opening through the quilted lining and the outer shell, catching the right fly, with a 1/2-inch-wide bartack.</p> <p>(c) Bartack the top of the free end of the protective fly at the bottom of the right and the left leg openings of the trousers, through the outer shell and the quilted linings, with a 1/2-inch-wide bartack.</p> <p>(d) Vertically bartack the bottom of both slide fastener tapes at the right and the left leg terminals with a 1/2-inch-wide bartack.</p> <p>(e) Turn under each end of the belt loops 3/8 inch. Vertically bartack the turnunder, 1/8 inch from each end, with a 1/2-inch-wide bartack.</p>	<p>304 bartack</p> <p>304 bartack</p> <p>304 bartack</p> <p>304 bartack</p> <p>304 bartack</p>	<p></p> <p></p> <p></p> <p>Lsd-1</p> <p></p>	<p>28 stitches</p> <p>28 stitches per bartack</p> <p>28 stitches per</p> <p>28 stitches</p> <p>28 stitches per bartack</p> <p>28 stitches per bartack</p>
30	<p><u>Attach snap fastener</u></p> <p>(a) Stamp the socket of one snap fastener 1/2 inch from the left fly front edge and 3/4 inch from the top waist edge. The snap fastener in the finished trousers shall be at the top edge of the slide fastener tape.</p> <p>(b) Stamp the stud and the eyelet of the snap fastener on the right front of the fly in a position that will correspond with the socket of the snap fastener on the left fly.</p>	<p></p>	<p></p>	<p></p>

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TABLE II. Sewing operations. (Continued)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch
31	<p><u>Sew on buttons</u></p> <p>(a) Place eight buttons 1 inch from top edge on the outside of the trousers at the following locations and sew: one button midway between each side and the fly opening; one button 1/2 inch in front of each side seam; one button 2 inches from each side of the seat seam; and one button, to act as a spare, 1 inch outward from each button on the back of the trousers.</p>	101 or 301		20 - 22 stitches per button 16 - 18 stitches per button
32	<p><u>Clean</u></p> <p>(a) Trim all thread ends. Remove all loose ends of threads.</p> <p>(b) Remove all spots and stains. Remove all shade tickets without damaging the fabric.</p>			

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TABLE III. Pattern parts.

Material	Pattern	Cut Parts
Basic fabric (see 3.1.1)	Front	2
	Back	2
	Leg protective fly	2
	Side pass through protective fly	2
	Back takeup strap	2
	Buckle strap	2
	Seat patch	2
	Knee patch	2
	Left fly facing	1
	Right fly	2
	Pocket welt and facing	8
	Pocket flap	8
	Knit cuff facing	4
	Hanger loop	1
	Belt loop	5
	Front opening slide fastener thong	1
	Knife pocket	1
Knife pocket patch	1	
Knife pocket reinforcement flap	1	
Hip and thigh pocket	4	
Quilted lining (see 3.1.2)	Front	2
	Back	2
	Side pass through protective fly	2
	Leg protective fly	2

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TABLE IV. Finished measurements.

Size of Trousers	Finished Measurements In Inches	
	1/ 1/2 Waist	2/ Inseam
28	16	28-3/4
30	17	28-1/4
32	18	28
34	19	29-1/4
36	20	29
38	21	30
40	22	29-3/4
42	22-3/4	29-1/2
44	23-3/4	31-3/4
46	24-3/4	31-1/2

1/ The tolerances shall be plus or minus 1/2 inch for the 1/2 waist and plus or minus 3/4 for the inseam.

2/ The finished measurements shall be taken as specified in 3.5.

3.7 Workmanship. The trousers shall be uniform in quality and shall be free from irregularities and the occurrence of defects shall not exceed the acceptance criteria established herein.

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 the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.2 Inspection and components. Unless otherwise specified herein, inspection shall be in accordance with MIL-STD-105.

4.2.1 Materials and components. Unless otherwise specified by the procuring activity (see 6.2), materials and components shall be examined and tested in accordance with all the applicable subsidiary documents referenced herein to the extent applicable. In addition to the examinations and tests specified in the applicable subsidiary documents reference herein, the tape specified in 3.1.8 for the slide fastener shall be tested for shrinkage in accordance with 5556 (cotton procedure for five launderings) of FED-STD-191. The unit for expressing lot sizes and the sample size for testing materials and components shall be as specified in the applicable subsidiary documents.

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4.2.2 End item. The end item shall be examined for defects as specified in 4.2.2.1 and 4.2.2.2. The sample unit for these examinations shall be one pair of finished trousers.

4.2.2.1 Visual examination. The end item shall be visually examined for defects. The inspection level for this visual examination shall be II of MIL-STD-105. The acceptable quality level shall be 2.5 defects per 100 units (dhu) for major defects, 15.0 dhu for major and minor A (combined) defects, and 40.0 dhu for total major and minor A and B (combined) defects. The defects found during this visual examination shall be classified as specified in tables V and VI.

4.2.2.2 Examination of finished measurements. The end item shall be measured, as specified in 3.5, to determine conformance to the finished measurements. A finished measurement deviating from the finished measurements specified in table IV or inseams uneven in length by 1/2 inch or more shall be classified as a finished measurement defect. The inspection level for this examination of finished measurements shall be S-3 of MIL-STD-105. The acceptable quality level for this examination of the finished measurements shall be 4.0 dhu for defects (one class).

4.3 Examination of packing, packaging, and marking. Shipping containers fully prepared for delivery shall be examined, for the defects listed in table VII, to determine conformance of packing packaging, and marking to the requirements specified herein. The lot size shall be the number of shipping containers in the end item inspection lot. The inspection level shall be S-2 of MIL-STD-105. The acceptable quality level shall be 4.0 dhu. The sample unit shall be one shipping container full prepared for delivery except that it need not be sealed.

5. PACKAGING

*5.1 Preservation and packaging. Preservation and packaging shall be level A, or Commercial (see 6.2).

5.1.1 Level A. Each pair of trousers shall be folded to approximately 16 inches in width by 12 inches in length. Each pair of the folded trousers shall be placed in a box conforming to type CF, class domestic, style RSC, grade 175 of PPP-B-636. The maximum outside dimensions of the box shall be 16 inches by 12 inches by 8 inches. The box shall be sealed with 2-inch-wide tape conforming to PPP-T-45.

*5.1.2 Commercial. Trousers shall be packaged 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. Six pairs of trousers of one size and type only, packaged as specified, shall be packed in an exterior shipping container conforming to type CF or SF, class weather-resistant, grade V3c or V3s, style RSC of PPP-B-636. Closure and strapping shall be in accordance with the appendix of the container specification. The inside dimensions of the container shall be 24 inches by 24 inches by 16 inches. Toward the end of the contract or if the quantity of trousers of the same size is less than the quantity required per container, mixed sizes (see 5.3.1) may be packed within the same shipping container.

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TABLE V. General defects.

Defect	Major	Minor A	Minor B
<u>Bartack</u>			
One or more bartacks missing or loose		X	
One bartack misplaced, not serving intended purpose			X
Two or more bartacks misplaced not serving intended purpose		X	
Bartack not specified number of stitches			X
<u>Slider</u>			
Slider not specified type, size, or finish		X	
Slide missing, bent, broken, or defective	X		
Edges of slider rough or sharp		X	
<u>Buttons</u>			
One button missing, loose, or broken			X
Two or more buttons missing, loose, or broken		X	
Buttons not specified type, size, or color		X	
<u>Cleanness</u>			
Spot or stain of permanent nature		X	
Removable spot or stain, clearly noticeable		X	
Thread ends not trimmed or loose thread ends or one or more shade tickets not removed			X
Any shade stamp marking exposed and visible on outside of trousers (to be scored only when clearly noticeable)		X	
<u>Component and assembly</u>			
Any component defective	X		

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TABLE V. General defects. (Continued)

Defect	Major	Minor A	Minor B
Any component omitted	X		
Any required operation omitted or improperly performed (unless otherwise classified herein)	X		
<u>Cutting</u>			
Any component not cut in accordance with directional lines indicated on patterns or specified requirements	X		
Any component of outer shell finished with twill lines not running from lower left-hand corner to upper right-hand corner	X		
<u>Label</u>			
Size on label, incorrect, illegible, or missing	X		
Information (except size) on label incomplete, incorrect, or illegible		X	
Label less than 2-1/2 inches or more than 3-1/2 inches below top edge of trousers			X
Label off center more than 1/2 inch with seat seam			X
Stitching on one or more edges of label omitted		X	
<u>Material defects and workmanship damages</u>			
Material (except knitted fabric) containing any weakening defect such as smash, multiple float, or loose slub that might develop into hole		X	
Material (except knitted fabric and quilted lining) containing shade bars, slubs, or dye or finishing streaks		X	
Material (except knitted fabric and quilted lining) containing hole, scissor or knife cut, tear, mend, or burn or needle chew that might develop into hole	X		
Ruptured fibers (except knitted fabric and quilted lining) in line of sewing (usually caused by broken, blunt, or hooked needles), affecting appearance or serviceability		X	

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TABLE V. General defects. (Continued)

Defect	Major	Minor A	Minor B
Quilted lining containing hole, scissor or knife cut, tear, or burn or needle chew that might develop into hole	X		
Darn or mend in quilted lining		X	
Exposed drill hole in quilted lining			X
One or more rows of quilting stitching omitted in quilted lining	X		
More than 1-1/2 inches of broken or missing quilting stitches in quilted lining		X	
Batting in quilted lining uneven resulting in thin or thick place	X		
One or more laps of batting in quilted lining	X		
One or more piecing or splicing of covering of batting of quilted lining	X		
Any area of quilted lining evidencing complete bobbin change	X		
Knitted fabric containing hole, run, or dropped stitches	X		
Knitted fabric lacking elasticity, i.e., tight		X	
Knitted fabric containing slubby yarn, affecting appearance		X	
Unsightly mend in knitted fabric		X	
<u>Seams and stitchings</u>			
Seams twisted, puckered, or pleated, affecting appearance (unless otherwise classified herein)		X	
Part of trousers caught in any unrelated stitching operation	X		

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TABLE V. General defects. (Continued)

Defect	Major	Minor A	Minor B
Thread used on outside of same trousers not same shade or not satisfactorily matching shade of garment, affecting appearance		X	
Thread breaks or end of stitching, if not caught in other seams or stitching, not tacked or not back-stitched		X	
Gage of edge, raise, or double stitching irregular, i. e., unevenly gaged or corresponding stitchings not uniformly gaged, affecting appearance		X	
Gage (width) of edge, raise, or double stitching exceeding specified tolerance			X
Any open seam on outside more than 1/8 inch but not more than 1/4 inch <u>1/</u>			X
Any open seam on outside more than 1/4 inch but not more than 1 inch <u>1/</u>		X	
Any open seam on outside more than 1 inch	X		
Any open seam on inside 1/4 inch or more but not more than 1/2 inch <u>1/</u>			X
Any open seam on inside more than 1/2 inch <u>1/</u>		X	
Any raw edge on outside less than 1/8 inch or more but less than 1/4 inch <u>2/</u>			X
Any raw edge on outside 1/4 inch or more but not more than 1 inch <u>2/</u>		X	
Any raw edge on outside more than 1 inch <u>2/</u>	X		
Any raw edge on inside 1/4 inch or more but not more than 1 inch <u>2/</u>			X
Any raw edge on inside more than 1 inch <u>2/</u>		X	
Run-offs on joining seams, if resulting in open seam <u>1/</u>			

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TABLE V. General defects. (Continued)

Defect	Major	Minor A	Minor B
Run-offs on edge or raise stitching, if not resulting in open seam, more than 1/4 inch but not more than 1/2 inch			X
Run-offs on edge or raise stitching, if not resulting in open seam, more than 1/2 inch		X	
Seams and stitchings not specified type		X	
Loose stitch tension, resulting in loose seam	X		
Loose tension on edge, top or raise stitching, recognized by loosely exposed loops of top or lower thread		X	
Tight tension (stitches breaking when normal strain is applied to seam or stitching) <u>3/</u>			
One or two stitches per inch in major portion of seam (except on label) more than specified minimum			X
Three stitches per inch in major portion of seam (except on label) more than specified minimum		X	
More than three stitches per inch in major portion of seam (except on label) more than specified minimum	X		
One or two stitches per inch in major portion of seam (except on label) more than specified maximum tolerance			X
Three or more stitches per inch in major portion of seam (except on label) more than specified maximum tolerance		X	
One or more stitches per inch in major portion of seam of label more than minimum tolerance			X
Skipped or broken stitches 1/4 inch or more but not more than 1/2 inch on edge or raised stitching when seam is seamed, turned and stitched			X
Skipped or broken stitches more than 1/2 inch on edge or raised stitching when seam is seamed, turned, and stitched		X	

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TABLE V. General defects. (Continued)

Defect	Major	Minor A	Minor B
Skipped or broken quilting stitches more than 1 inch			X
<u>Shaded parts</u>			
Any shaded part of outer shell (except pocket facings, adjustment strap linings, and hanger)		X	
Any shaded part of lining			X
<u>Snap fasteners 4/</u>			
One snap fastener missing, loose, mismatched, or otherwise defective, affecting function		X	
Two or more snap fasteners missing, loose, mismatched or otherwise defective, affecting function	X		
Snap fastener not specified style, size, or finish		X	
Edges of snap fastener rough or sharp		X	
One or more snap fasteners clinched too tightly, cutting surrounding fabric	X		
<u>Slide fasteners 4/</u>			
One or more slide fasteners omitted or defective, affecting function	X		
Slide fastener not specified type, size, or style		X	
Tape set on too loosely or too tightly causing bulge twist, or fullness on outside of trousers when slide fastener is closed, affecting appearance		X	
Stitching on slide fastener too close to metal chain, not permitting slide to pass	X		

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TABLE V. General defects. (Continued)

Defect	Major	Minor A	Minor B
Thong omitted or not specified type		X	
Stitching on thong not as specified or omitted or insecure			X

1/ A break in a line of stitching or continuous skipped or run-off stitches (except on edge or raise stitching) shall constitute an open seam. Run-offs on joining seams, if resulting in an open seam, shall be classified as an open seam.

2/ A raw edge shall be classified as such if it occurs along an edge required to be turned under but the edge is securely caught in the stitching. If the edge is not securely caught in the stitching, the raw edge shall be classified as an open seam.

3/ 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 the stitching. Tight tension shall be classified as an open seam.

4/ The studs and the sockets of the snap fasteners shall be checked for proper functioning and secure clinching by opening and closing several times. The slide fasteners shall be checked for proper functioning by opening and closing each slide fastener at least three times.

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TABLE VI. Detailed defects applicable to specific parts.

Defect	Major	Minor A	Minor B
<u>Outside of trousers</u>			
<u>Top edge of trousers</u>			
Excessive fullness, twist, puckers, or gathers at joining to lining at top edge of trousers, affecting appearance		X	
Lining exposed above top of trousers affecting appearance (to be scored only if condition exists along major portion of seam)		X	
<u>Suspenders and buttons</u>			
Front buttons 1 inch or more from midway between fly opening and side seam		X	
Side seam button 1 inch or more from either side of side seam		X	
Back buttons less than 1-1/2 inches or more than 3 inches from seat seam		X	
Buttons less than 3/4 inch or more than 1-1/4 inches from top edge of trousers			X
Suspenders not attached to trousers			X
<u>Belt loops</u>			
Belt loops less than 3/8 inch or more than 1/2 inch inch wide			X
Belt loops set on crookedly or noticeably uneven in length			X
Belt loops bartacked more than 1/4 inch or less than 1/16 inch		X	
Any belt loop misplaced more than 3/8 inch			X
One belt loop missing		X	
Two or more belt loops missing	X		

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TABLE VI. Detailed defects applicable to specific parts. (Continued)

Defect	Major	Minor A	Minor B
<u>Pass-through openings</u>			
Pass-through openings on right and left side out of horizontal alignment more than 3/4 inch		X	
Ends of pass-through opening puckered or twisted, affecting appearance		X	
Protective fly not completely covering top or lower ends of pass-through opening		X	
Double row of stitching omitted on protective fly of pass-through opening		X	
Outer shell stitched to slide fastener pass-through opening with one row of stitching		X	
Length of pass-through opening less than 10 inches or more than 11 inches		X	
Slide fastener reversed, i.e., closing upward instead of downward	X		
<u>Fly</u>			
Fly or fly base twisted, puckered, or bulging, affecting appearance		X	
Fly opening 1/4 inch or more but not more than 3/8 inch uneven in length		X	
Fly opening more than 3/8 inch uneven in length	X		
Right fly stitching or slide fastener tape exposed beyond left front edge when fly is closed (to be scored only if condition exists in major portion of seam)		X	
Double row of quilting stitching omitted on right fly		X	
Tape stitched to left fly with one row of stitching		X	
Ends of metal chain 1/4 inch or more but not more than 1/2 inch uneven at bottom of fly			X

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TABLE VI. Detailed defects applicable to specific parts. (Continued)

Defect	Major	Minor A	Minor B
Ends of metal chain more than 1/2 inch uneven at bottom of fly		X	
Socket and stud not aligned, when clinched causing bulge or twist on fly, affecting appearance		X	
Socket at waist less than 5/8 inch or more than 7/8 inch from top edge or less than 3/8 inch or more than 5/8 inch from left fly front edge		X	
Edge of fly pleated in bartack		X	
Left fly exposed beyond front edge, affecting appearance		X	
<u>Slide fastener covers</u>			
Edges of slide fastener covers overlapped more than 1/16 inch or gapped more than 1/16 inch when slide fastener is closed		X	
Beading omitted in slide fastener cover	X		
Beading not sewn taut in slide fastener cover		X	
Slide fastener too high above base of opening, leaving more than 1/2-inch gap between end of slide fastener chain and fly bartack		X	
One or more ends of slide fastener tapes (if required) not turned under		X	
Length of fly opening not as specified		X	
<u>Pockets</u>			
Notch exposed at one or both ends of one or more pocket openings		X	
Pocket facing short, i.e., ends of facing not caught in bartacks	X		
Hip or thigh pocket flap lining tight or short, causing flap to curl or fullness on outside, affecting appearance		X	

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TABLE VI. Detailed defects applicable to specific parts. (Continued)

Defect	Major	Minor A	Minor B
Corners of hip or thigh pocket opening pleated or puckered, affecting appearance		X	
Hip or thigh pocket flap poorly shaped, affecting appearance		X	
Finished length of hip or thigh pocket flap less than 6-1/2 inches or more than 7 inches on trousers in sizes 28 and 30		X	
Finished length of hip or thigh pocket flap less than 7-1/4 inches or more than 7-3/4 inches on trousers in sizes 32 through 46		X	
Width of hip or thigh pocket flap less than 2 inches or more than 2-1/2 inches at widest point		X	
Hip or thigh pocket welt irregular or not uniform in width			X
Ends of hip or thigh pocket welt exposed more than 1/8 inch beyond side edges of flap		X	
Facing not caught in raise stitching of hip or thigh pocket flap	X		
Width of hip or thigh pocket welt less than 3/8 inch or more than 5/8 inch			X
Edge of hip or thigh pocket opening stretched or gaped			X
Depth of hip or thigh pocket less than 9 inches			X
Depth of hip or thigh pocket more than 9-1/2 inches		X	
Hip or thigh pocket more than 1/2 inch but not more than 3/4 inch out of horizontal alignment		X	
Hip or thigh pocket more than 3/4 inch out of horizontal alignment	X		

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TABLE VI. Detailed defects applicable to specific parts. (Continued)

Defect	Major	Minor A	Minor B
Stud on hip or thigh pocket out of alignment with socket, when snapped causing noticeable bulge or twist on flap or trousers, affecting appearance		X	
Corners of hip or thigh pocket flaps caught in bartacks, restricting freedom of flap		X	
Snap fastener more than 1/4 inch off center of hip or thigh pocket flap		X	
Center of socket less than 5/8 inch but not less than 1/2 inch or more than 7/8 inch but not more than 1 inch from edge of hip or thigh pocket flap			X
*Center of socket less than 1/2 inch or more than 1 inch from edge of hip of thigh pocket flap		X	
Stud portion of snap fastener on hip or thigh pocket flap and socket portion on hip or thigh pocket		X	
Socket of snap fastener on hip or thigh pocket not clinched through reinforcement piece		X	
<u>Crotch seam</u>			
Crotch seam not raise stitched		X	
Crotch seam raise stitched with right fly overlapping left fly		X	
Crotch seam stitched 1/4 inch or more but not less than 3/8 inch above fly bartack			X
Crotch seam stitched more than 3/8 inch above fly bartack		X	
Crotch seam improperly joined, i.e., causing exposure of right fly joining seam		X	
End of crotch seam not centered more than 3/8 inch to end of seat seam		X	

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TABLE VI. Detailed defects applicable to specific parts. (Continued)

Defect	Major	Minor A	Minor B
<u>Seat seam</u>			
Seat seam not raise stitched		X	
Seat seam raise stitched with right back overlapping left back			X
<u>Seat reinforcement patches</u>			
Fullness, tightness, twisting, or pleats on seat reinforcement patches or trousers in joining to seat, affecting appearance		X	
Top or lower edges of seat reinforcement patch staggered 3/8 inch or more at seat seam		X	
Seat reinforcement patches poorly shaped, affecting appearance		X	
Seat reinforcement patches joined with only one row of stitching		X	
<u>Back darts</u>			
Ends of back darts not properly tapered, causing unsightly bulge or fullness			X
Back darts not raise stitched		X	
Position of back darts not corresponding more than 3/8 inch but not more than 5/8 inch			X
Position of back darts not corresponding more than 5/8 inch		X	
<u>Adjustment straps</u>			
Ends of slider or adjustment straps not caught in dart stitching or not securely bartacked at one or both ends		X	
Adjustment straps more than 1/2 inch out of horizontal alignment		X	

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TABLE VI. Detailed defects applicable to specific parts. (Continued)

Defect	Major	Minor A	Minor B
Free end of pointed adjustment strap on left back		X	
Adjustment straps not proper width, i.e., not allowing free movement through slider		X	
Slider attached to adjustment strap with only one row of stitching		X	
<u>Inseams and side seams</u>			
One or more inseams or side seams not raise stitched		X	
Raised stitched with fronts overlapping backs at side seam		X	
Raise stitched with fronts overlapping backs at inseam		X	
<u>Knee darts</u>			
Knee darts not raise stitched		X	
Knee darts raise stitched with lower part overlapping upper part			X
<u>Knee patches</u>			
Fullness, tightness, twisting, or pleats on knee patches or trousers in joining to front leg, affecting appearance		X	
Knee patches poorly shaped, affecting appearance		X	
Knee patches joined with only one row of stitching		X	
<u>Leg opening</u>			
Slider of slide fastener at top of leg opening when slide fastener is closed		X	
Length of slide fastener of leg opening less than 15 inches or more than 16 inches		X	

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TABLE VI. Detailed defects applicable to specific parts. (Continued)

Defect	Major	Minor A	Minor B
Protective fly extending less than 1/4 inch above top end of leg opening or extending more than 1/4 inch beyond bottom end of leg opening		X	
Row of quilting stitching omitted on leg opening protective fly		X	
Outer shell stitched with one row of stitching to slide fastener leg opening		X	
Leg opening at bottom uneven length more than 1/4 inch but not more than 3/8 inch when slide fastener is closed			X
Leg opening at bottom uneven length more than 3/8 inch when slide fastener is closed		X	
<u>Knitted cuffs</u>			
Cuffs badly twisted		X	
Width of cuffs uneven more than 1/2 inch		X	
Bottom of trousers or facing joining seam to knitted cuff not raise stitched		X	
<u>Inside of trousers</u>			
<u>Hanger</u>			
Hanger less than 1/2 inch wide but not less than 3/8 inch wide			X
Hanger less than 3/8 inch wide		X	
Hanger less than 2 inches or more than 3 inches from top edge of trousers			X
Ends of hanger not securely bartacked as specified		X	
Hanger off center more than 1/2 inch with seat seam			X
Hanger less than 5 inches or more than 6 inches long			X

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TABLE VI. Detailed defects applicable to specific parts. (Continued)

Defect	Major	Minor A	Minor B
Hanger omitted		X	
<u>Quilted lining</u>			
Lining tight, short, or twisting, causing, fullness or twist, affecting appearance of outside of trousers		X	
One or both sides of back darts in lining not raise stitched		X	
One or both sides of outseams or inseams in lining not raise stitched		X	
One or both sides of seat seam or crotch seam in lining not raise stitched		X	
Lining twisted but not affecting smoothness of outside of trousers			X
Quilting pattern on lining not as specified		X	

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TABLE VII. Packing, Packaging, and Marking.

Examine	Defect
Marking (exterior and interior)	Omitted; incorrect; illegible; or improper size, location, sequence, or method of application
Materials	Any component missing Any component damaged, affecting serviceability
Workmanship	Inadequate application of components such as incomplete closure of case liners or container flaps, loose strapping, or inadequate stapling Bulging or distortion of containers
Contents	Number of intermediate packages more or less than required or gross or net weight exceeding requirement

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5.2.2 Level B. Six pairs of trousers of one size and type only, packaged as specified, shall be packed in an exterior container conforming to type CF or SF, class domestic, style RSC, minimum bursting strength 275 pounds per square inch of PPP-B-636. The inside dimensions of the container shall be 24 inches by 24 inches by 16 inches. The container shall be sealed by applying a suitable adhesive (glue) throughout the entire area of contact between the flaps or by combination of metal stitching the bottom flaps and sealing the top flaps with adhesive. Toward the end of the contract or if the quantity of trousers of the same size is less than the quantity required per container, mixed sizes (see 5.3.1) may be packed within the same shipping container.

*5.2.3 Commercial. Trousers shall be packaged in accordance with ASTM D 3951.

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

5.3.1 Mixed sizes. Each shipping container packed with mixed sizes (see 5.2.1 and 5.2.2) shall have white paper labels, 5 by 4 inches in size, securely attached to the end and side. The words "mixed sizes" shall be plainly printed on the labels. Under these words, the sizes and quantities of each size of trousers contained therein shall be legibly printed.

6. NOTES

6.1 Intended use. The trousers covered by this specification are intended for use in very cold temperature zones by flight personnel.

6.2 Ordering data. Procurement documents should specify the following:

- (a) Title, number, and date of this specification
- (b) Size required (see 1.1)
- (c) Requirements for testing materials and components (see 4.2.1)
- (d) Selection of applicable levels of preservation and packaging and packing (see 5.1 and 5.2).

6.3 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 indicate the general appearance of the trousers and are for information only.

*6.5 Changes from previous issue. The margins of this document are marked with asterisks 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

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to evaluate the requirements of this document based on the entire content, irrespective of the marginal notations and relationship to the last previous issue.

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Reviewer:

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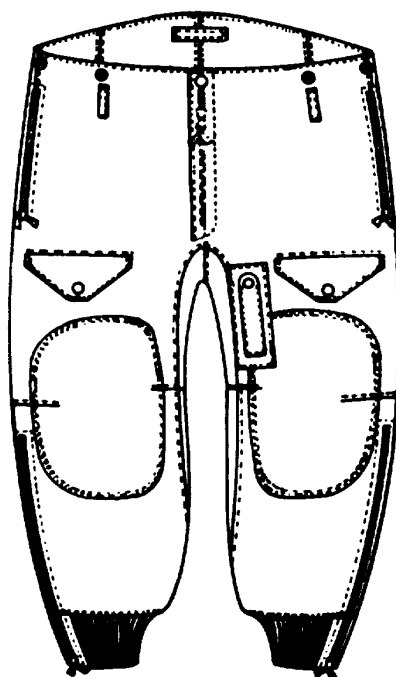


FIGURE 1. Trousers, front view.

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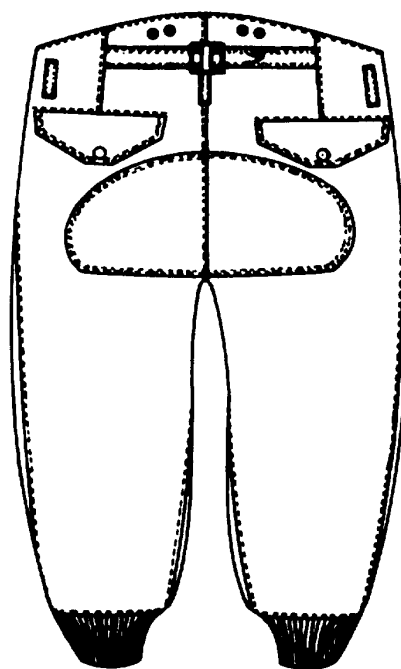


FIGURE 2. Trousers, back view.

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