

MIL-T-838L

10 October 1975

SUPERSEDING

MIL-T-838K

11 February 1971

MILITARY SPECIFICATION**TROUSERS, UTILITY**

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 the manufacture of utility trousers.

1.2 Classification. The trousers shall be of two types in the following sizes as specified (see 6.2):

- Type I - Cotton Sateen, Olive Green 107 with Button and Buttonhole Front Closure
- Type III - Cotton and Polyester Twill, Blue 1588 with Slide Fastener Front Closure

Schedule of sizesWaistInseam

26
28
30
32
34
36
38
40
42
44
46

29, 31
29, 31, 33
29, 31, 33, 35
29, 31, 33, 35
29, 31, 33, 35
29, 31, 33, 35
31, 33, 35
31, 33
31, 33
31, 33
33

FSC 8405

MIL-T-838L

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.

SPECIFICATIONS

FEDERAL

V-B-871	- Button, Sewing Hole, and Button, Staple, (Plastic)
V-F-106	- Fasteners, Slide, Interlocking
V-T-276	- Thread, Cotton
V-T-280	- Thread, Cotton Gimp, Buttonhole
UU-P-268	- Paper, Kraft, Wrapping
DDD-L-20	- Label; For Clothing, Equipage, and Tentage, (General Use)

MILITARY

MIL-C-10296	- Cloth, Sateen, Cotton
MIL-B-17757	- Boxes, Shipping, Fiberboard (Modular Sizes)
MIL-C-27353	- Cloth, Cotton and Polyester Fiber, for Summer Uniforms
MIL-T-43548	- Thread, Polyester, Cotton-Covered

STANDARDS

FEDERAL

* FED-STD-356	- Commercial Packaging of Supplies and Equipment
FED-STD-751	- Stitches, Seams, and Stitchings

MILITARY

* MIL-STD-129	- Marking for Shipment and Storage
MIL-STD-1488	- Provisions for Evaluating Quality of Trousers

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

3.2 Materials.

3.2.1 Basic material.

3.2.1.1 Type I trousers. The cotton sateen cloth for type I trousers shall be dyed Olive Green 107 and conform to class 1 of MIL-C-10296.

3.2.1.2 Type III trousers. The cotton and polyester cloth for type III trousers shall be dyed Blue 1588 and conform to type II of MIL-C-27353.

3.2.2 Buttons. The buttons shall be type II, class D, style 26, 30-line conforming to V-B-871. The buttons shall have a dull finish and shall be Olive Green BP, Cable 62016 for type I trousers and Blue BV, Cable 62003 for type III trousers.

3.2.3 Thread.

* 3.2.3.1 Cotton thread. Except for single needle pocket and flap constructions, the thread shall be cotton conforming to IA3, ticket Nos. 30, 3-ply; 50, 3-ply; 70, 2-ply; and 20, 4-ply (as indicated in table I) of V-T-276.

* 3.2.3.2 Polyester cotton-covered thread. When single needle pocket and flap constructions are used, the thread shall be polyester cotton-covered, size 30 or 50, conforming to MIL-T-43548. The polyester cotton-covered thread may be substituted for the cotton thread in all other operations, using size 50 for the ticket Nos. 30, 3-ply; 50, 3-ply and 20, 4-ply cotton thread, and size 70 for the 70, 2-ply cotton thread.

3.2.3.3 Color and colorfastness. The thread shall be dyed Olive Drab S-1, C.A. 66022 for type I trousers, and Navy Blue AT, C.A. 66060 for type III trousers. The dyed thread shall show fastness to light, and laundering equal to or better than the standard sample. When no standard sample is available, the dyed thread shall show "good" fastness to light and laundering.

3.2.4 Gimp. The cotton gimp for reinforcing buttonholes shall be No. 8, conforming to type I or II of V-T-280. The gimp shall be dyed Olive Drab, S-1, C.A. 66022 for type I trousers, and Navy Blue AT, C.A. 66060 for type III trousers.

* 3.2.4.1 The dyed gimp shall show fastness to laundering (after 3 cycles) equal to or better than the standard sample. When no standard sample is available, the dyed gimp shall show "good" fastness to laundering (after 3 cycles). The specimens must be dried after each laundering cycle on the color transfer cloth evaluation, only the stain on the cotton fibers of the color transfer cloth shall be evaluated.

3.2.5 Labels. Each pair of trousers shall have an identification label, a size label, an identification label, or a combination size, identification, instruction label conforming to type I of DDD-L-20. Fastness to laundering requirements shall apply.

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

MIL-T-838L

3.2.5.2 Size label. The size label shall conform to class 2.

3.2.5.3 Instruction label. The instruction label shall conform to class 3 and shall state "DO NOT STARCH".

3.2.6 Fastener, slide, interlocking (type III trousers). The slide fastener shall be type I, style 1, 1A, 3 or 4, size LMS, short tab pull, brass or zinc chain conforming to V-F-106. Slide fasteners shall be furnished with staple bottom stop and open end top stops, and shall be of sufficient lengths to comply with operations 7 and 10. All the components of the slide fastener shall be from the same supplier.

3.2.6.1 Slide fastener tape. The tape shall be dyed to match the color of the basic material and shall show "good" fastness to laundering and chlorine bleaching.

3.3 Design. The trousers have a grown-on waistband, two front patch pockets, two hip pockets with flaps closed with buttons and buttonholes, seven belt loops, and hemmed bottoms (see figures 1 and 2). Type I trousers have a button and buttonhole front closure and type III trousers have a slide fastener front closure.

3.4 Patterns. Standard patterns which provide an allowance of 1/2 inch for outseams, inseams, seat and crotch seams, side and bottom edges of hip pockets, front and bottom edge of front pockets, and 3/8 inch for all other seams will be furnished by the Government. The standard patterns shall not be altered in any way and are to be used only as a guide for cutting the supplier's working patterns. The working patterns shall be identical to the standard patterns.

3.4.1 List of pattern parts. Trousers shall be cut from the specified material, in accordance with the pattern parts indicated in table I:

TABLE I. List of pattern parts

Material	Pattern nomenclature	Cut parts
Sateen cloth or twill cloth	Front	2
	Back	2
	Front patch pocket	2
	Front patch pocket facing	2
	Hip pocket (type I)	2
	Hip pocket (type III)	2
	Hip pocket flap (type I)	2
	Hip pocket flap (type III)	2
	Left fly (type I trousers)	3
	Right fly and lining (type I trousers)	2
	Fly (left-1, right-2 (type III trousers)	3

NOTE: Patterns are not furnished for belt loops, waist lining and for alternate method of making pocket flaps (see respective operations).

3.5 Construction.

3.5.1 Stitches, seams, and stitching. Stitch, seams and stitching types, as specified in table II shall conform to FED-STD-751. Whenever two or more methods for seams or stitches are given for the same part of the operation, any one of them may be used. Where stitch type 401 is used, the looper (that is, the under-thread) shall be on the inside. The gage of double stitching shall be 1/4 to 5/16 inch with the outside row 1/16 to 1/8 inch from turned edge except where otherwise specified herein.

3.5.2 Thread breaks and ends of seams. Ends of seams and stitchings produced with 301 stitch type, when not caught in other seams or stitching, shall be backtacked not less than 1/4 inch. Thread breaks (all stitch types) shall be secured by stitching back of the break not less than 1/2 inch. Skipped stitches or thread breaks (401 stitch type) may be repaired using 301 stitch type. Ends of a continuous line of stitching shall overlap not less than 1/2 inch.

3.5.3 Stitches per inch. The minimum and maximum number of stitches per inch shall be as specified in table II.

3.5.4 Buttonholes. The buttonholes shall be the eyelet-end taper-bar type worked over No. 8 gimp with the ends tacked and shall have a cut length of 3/4 to 7/8 inch. The bar end of buttonholes shall have a minimum of 4 tacks not counting the first cross-over stitch in that it is part of the buttonhole not the bar. The purling shall finish toward the outside of the trousers.

3.6 Manufacturing operations requirements. The trousers shall be manufactured in accordance with operation requirements specified in table II. The supplier is not required to follow the exact sequence of operations. Any additional basting or holding stitching may be used providing it is removed or not visible in the finished trousers.

3.6.1 Figures. Figures 1 and 2 are furnished for information only. To the extent of any inconsistencies between the figures and the written specification, the written specification shall control.

3.6.2 Marking. The components of the trousers shall be marked, ticketed or bundled to insure a uniform shade and size throughout the garment. Any method of marking may be used except:

- (1) Corrosive metal fastening devices.
- (2) Sew-on type tickets.
- (3) Adhesive-type tickets which leave traces of paper or adhesive on the material after removal of the tickets.

MIL-T-838L

NO.	MANUFACTURING OPERATIONS REQUIREMENTS TABLE II	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN & LOOPER	COVER
1.	<p><u>Cutting.</u></p> <p>a. Cut the basic material for type I trousers with the filling effect (dull side) of the material as the outside or face of the material. The twill side of the fabric for type III trousers shall be the face.</p> <p>b. Lay the cloth in uniform widths and lengths with care taken in spreading of the material that the plies are not stretched or full, and that one side of the lay is even.</p> <p>c. Cut the trousers in strict accordance with patterns furnished which show size and placement of pockets; also notches for the proper assembling of all parts. The waistband lining and pocket facings may be roll cut.</p> <p>d. Directional lines on the fronts and backs may vary from the warp direction by not more than 2-1/2 inches. Measurements shall be taken at top and bottom edges of the pattern from the directional line to the selvage edge (on the even side of lay) of the fabric and the difference between the two measurements shall not exceed 2-1/2 inches.</p> <p>e. Cut all parts of the respective trousers out of one piece of material except fly parts, waistband lining, belt loops, pocket facings, flap linings (when made of two-piece construction) which may be cut from ends. Visible parts cut from ends shall approximate the shade of the trousers. The waistband lining may be placed with no more than one joining seam and the seam spread open.</p>						

NO.	MANUFACTURING OPERATIONS REQUIREMENTS TABLE II	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN or LOOPER	COVER
1.	<p><u>Cutting.</u> (cont'd)</p> <p>f. Cut all component parts in the direction of the warp except the right fly lining which may be cut on the bias, or in the warp or filling direction. The pocket flaps (flap linings when applicable) may be cut in the warp or filling direction.</p> <p>g. Cut the stripping for belt loops of sufficient width to comply with operation 21. The stripping may be placed on rolls; however, there shall be no placing visible on the finished trousers.</p> <p>h. Cut the waistband lining in the direction of the warp of sufficient width and length to meet the requirements of operation 22. The waistband lining may be strip cut to proper width and placed on rolls.</p>						
*2.	<p><u>Replacement of damaged parts.</u></p> <p>Care shall be exercised during the spreading, cutting, and manufacturing operations to assure that material defects and damages as specified in MIL-STD-1488 are excluded and replaced with non-defective and properly matched material.</p>						
3.	<p><u>Marking.</u></p> <p>Mark, ticket or bundle all parts except those cut from ends, (see 3.6.2) to insure uniform shade and correct size.</p>						

NO.	MANUFACTURING OPERATIONS REQUIREMENTS TABLE II	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN or LOOPER	COVER
4.	<p><u>Labeling.</u></p> <p>a. Position identification label inside right back, adjacent to seat seam. The top of the label shall be caught in the lower waistband stitching.</p> <p>b. Position size label inside left back adjacent to seat seam. The top of the label shall be caught in the lower waistband stitching.</p> <p>c. When a combination size and identification label is used, it shall be positioned as the size label.</p> <p><u>Make front patch pockets.</u></p> <p>Finished appearance. The edges of the pockets shall finish smooth and flat. The pocket openings shall be uniform. Pockets shall be in alignment. The facing shall not be exposed beyond edge of pocket opening. Bottom and front edges of pockets may be precreased.</p> <p>a. Seam facing to front edge of pocket opening.</p> <p>b. Turn facing to the inside of pocket and fold pocket with the seam 3/16 to 1/4 inch from folded edge of pocket. Raise stitch facing 1/16 to 1/8 inch from edge of facing.</p> <p>c. Turn in the back raw edge of facing and single stitch 1/16 to 1/8 inch from edge through pocket.</p>	301 or 401 301 301	SSa-1 BSm-3(a & b) BSm-3(c)	10-14 10-14 10-14	30-3 30-3 30-3 30-3		

NO.	MANUFACTURING OPERATIONS REQUIREMENTS TABLE II	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN or LOOPER	COVER
5.	<p><u>Make front patch pockets.</u> (cont'd)</p> <p>or</p> <p>d. Attach facing with a double needle machine in one operation using folder.</p> <p><u>Sew on front patch pockets.</u></p> <p>a. Position pockets on the outside of each front of trousers as indicated by marks on patterns, with the cut-side edge of pocket even with the side seam. The outside edge of pocket shall be caught in the side seam allowance.</p> <p>b. Turn under the front and bottom edges of pocket and double stitch, 3/16 to 1/4 inch gage, through pockets and trousers. The outer row of double stitching shall be 1/16 to 1/8 inch from edge.</p> <p>or</p> <p>c. In lieu of the double stitching requirements, the pockets may be attached to trousers with one row of stitching 1/16 to 1/8 inch from the turned edges, using cotton-wrapped polyester core thread (see 3.2.3.2).</p> <p>d. Single stitch pocket to trousers above and below pocket opening 1/16 to 1/8 inch from edge. The top of pocket opening, in finished trousers, shall terminate on bottom row of waistband stitching.</p>	301	LSk-2	10-14	30-3	30-3	
6.		301	Lsd-2	10-14	30-3	30-3	
		301	Lsd-1	10-14	30-3	30-3	
		301	LSbj-1	6-8	30-3	30-3	

NO.	MANUFACTURING OPERATIONS REQUIREMENTS TABLE II	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN or LOOPER	COVER
7.	<p><u>Make flies.</u></p> <p><u>Type I trousers</u></p> <p>a. Join front edges of left fly (buttonhole fly); turn and stitch 1/16 to 1/8 inch from edge.</p> <p>b. Join front edges of right fly and fly lining; turn and stitch 1/16 to 1/8 inch from edge.</p> <p><u>Type III trousers</u></p> <p>c. Position left half of fastener on left fly so that the edge of chain will be 5/8 to 7/8 inch from front edge of finished fly at top tapering to 3/8 to 1/2 inch from front edge of finished fly at bottom (when fasteners are cut and scoops removed), and the top end of the chain 2 + 1/4 inches from top of trousers. Stitch the tape, with the top of the tape extension turned under, through the fly with two rows of stitching; the first row 1/8 to 3/16 inch back of chain and the second row 1/16 to 1/8 inch from back edge of tape, securely tacking across top of tape extension. A 3/8 to 1/2 inch horizontal or vertical bartack may be used for securing the top edge of slide fastener tape in lieu of the tacking.</p> <p>d. Stitch right fly lining to right fly; turn and stitch 1/16 to 1/8 inch from edge.</p>	<p>301 or 401 and 301</p> <p>301 or 401 and 301</p> <p>301</p> <p>301 or 401 and 301</p>	<p>SSe-2(a)</p> <p>SSe-2(b)</p> <p>SSe-2(a)</p> <p>SSe-2(b)</p> <p>SSau-2</p> <p>SSe-2(a)</p> <p>SSe-2(b)</p>	<p>10-14</p> <p>10-14</p> <p>10-14</p> <p>10-14</p> <p>10-14</p> <p>10-14</p>	<p>30-3</p> <p>30-3</p> <p>30-3</p> <p>30-3</p> <p>30-3</p> <p>30-3</p>	<p>30-3</p> <p>50-3</p> <p>30-3</p> <p>30-3</p> <p>50-3</p> <p>30-3</p>	

NO.	MANUFACTURING OPERATIONS REQUIREMENTS TABLE II	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN or LOOPER	COVER
7.	<p><u>Make flies.</u> (con't)</p> <p><u>Type III trousers</u> (cont'd)</p> <p>e. Overedge stitch back raw edges of right fly and right fly lining together with the right of the overedge stitching 1/8 to 3/16 inch.</p> <p>f. Position the right half of slide fastener to the back edge of the right fly with the bottom end of chain 1/2 to 3/4 inch above the fly notch and with the edge corresponding with the left fly. Turn in top end of tape extension to one side for catching in seam of subsequent operation and single stitch 1/8 to 3/16 inch from back edge of tape through all plies the length of the tape.</p>	502 or 503	SSa-1	6-10	50-3 50-3	50-3 50-3	
8.	<p><u>Make buttonholes in left fly (type I trousers).</u></p> <p>Finished appearance. The lower buttonhole shall be 1-3/4 + 3/8 inches from lower end of finished fly opening, the top buttonhole 3 + 1/4 inches from top finished edge of waistband and the rest equally spaced. All flies shall have four buttonholes except fly for sizes 42, 44 and 46 which shall have five buttonholes (not including waistband buttonholes).</p> <p>Make horizontal buttonholes in left fly with the inside edges of eyelets 3/8 to 1/2 inch from front edge.</p>	301 or 401	SSa-1	10-14	30-3 30-3	30-3 50-3	
		Buttonhole		52-56 per buttonhole including tack	30-3	50-3	

MIL-T-838L

NO.	MANUFACTURING OPERATIONS REQUIREMENTS TABLE II	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN or LOOPER	COVER
9.	<u>Overedge stitch back edges of flies.</u>						
	<u>Type I trousers</u> a. Overedge stitch the back edges of the left fly and lining together. Fly shall finish $2 + 1/4$ inches in width.	502 or 503 or 504	SSa-1	6-10	50-3	50-3	
10.	<u>Type III trousers</u> b. Overedge stitch the back raw edge of left fly.	502 or 503 or 504	EPd-1	6-10	50-3	50-3	
	<u>Attach flies to fronts.</u> Finished appearance. The left fly shall be set so that the tacking between buttonholes shall not be exposed on left front edge (type I trousers). The male portion of scoops shall finish toward the top of flies (type III trousers). The flies shall be even in length and shall not bulge when secured.						
	<u>Type I trousers</u> a. Join right fly and fly lining to front with notches matching and the stitching terminating at the notch.	301 or 401	SSa-1	10-14	30-3 30-3	30-3 50-3	
	b. Overedge stitch the raw edges of right fly, fly lining and front in one operation. or	502 or 503	SSa-1	6-10	50-3 50-3	50-3 50-3	

NO.	MANUFACTURING OPERATIONS REQUIREMENTS TABLE II	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN or LOOPER	COVER
10.	<p><u>Attach flies to fronts. (cont'd)</u></p> <p><u>Type I trousers</u></p> <p>c. Join right fly and fly lining to front with a safety-stitch, matching notches and terminating the seam at notch. The stitching may run off the front at the notch to the end of the fly. The 3/8 inch seam allowance must be maintained and the gage between the line of 401 stitching and the inside edge of the overedging shall be 3/16 inch.</p> <p>d. Turn right fly to finished position and raise stitch front catching the seam allowances of fly and fly lining in the stitching. The stitching may be continued along the crotch with the seam allowance turned to the outside.</p> <p>e. Join left fly to front with notches matching and the stitching terminating at the notch.</p> <p><u>Type III trousers</u></p> <p>f. Join left fly to left front with notches matching. Turn and raise stitch fly 1/16 to 1/8 inch from turned edge.</p> <p>g. Overedge stitch right front from fly notch to top edge of waist.</p> <p>h. Join right fly to right front with notches matching.</p>	<p>515 or 516 or 519</p> <p>301</p> <p>301</p> <p>301 or 401 and 301</p> <p>502 or 503 or 504</p> <p>301 or 401</p>	<p>SSa-2</p> <p>LSq-2(b) Shows finished seam</p> <p>SSa-1</p> <p>LSq-2(a) LSq-2(b) EPd-1</p> <p>LSq-2(a)</p>	<p>10-12</p> <p>10-14</p> <p>10-14</p> <p>10-14 6-10</p> <p>10-14</p>	<p>30-3 Chain stitching 50-3 (overedging)</p> <p>30-3</p> <p>30-3</p> <p>50-3 50-3 50-3 50-3</p> <p>50-3 50-3</p>	<p>50-3 70-2</p> <p>50-3 70-2</p>	

NO.	MANUFACTURING OPERATIONS REQUIREMENTS TABLE II	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN or LOOPER	COVER
10.	<p>Attach flies to fronts. (cont'd)</p> <p><u>Type III trousers</u></p> <p>1. Turn seam allowance toward the outseam of the trousers front and raise stitch through all plies from top of trouser to base of fly, 1/16 to 1/8 inch from edge of trouser front. The stitching may be continued along crotch with the right front turned to outside and the stitching catching right fly lining extension piece (see operation 18.a.)</p> <p>j. With the fly turned to outside, stitch top end of fly to fronts, turn fly to finished position. The seam line at front edge of fly shall be set back 1/8 to 3/16 inch from finished front edge.</p> <p>k. Attach slider, and with the scoops evenly matched, staple the bottom of tape. The staple shall be perpendicular to the line of scoops and shall overlap the scoops.</p> <p><u>Finish buttonhole fly (type I trousers).</u></p> <p>a. Tack buttonhole fly between buttonholes to front edge of left fly facing with horizontal tacks or bartacks 1/4 to 1/2 inch long.</p> <p>b. Stitch front edge of left fly through facing only from the top down to 1 + 1/4 inches above top buttonhole in fly with the stitching superimposed on edge stitching of fly.</p> <p>c. Turn back top end of left fly and stitch across top of front the width of the fly. Trim, turn and work out edges.</p>	301	LSq-2(b)	10-14	30-3	30-3	
		301 or 401	SSa-1	10-14	30-3 30-3	30-3 50-3	
11.		301 or Bartack		10-14 28 per bartack	30-3 30-3	30-3 30-3	
		301		10-14	30-3	30-3	
		301 or 401	SSe-2(a)	10-14	30-3 30-3	30-3 50-3	

NO.	MANUFACTURING OPERATIONS REQUIREMENTS TABLE II	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN or LOOPER	COVER
12.	<p><u>Make hip pocket flaps.</u></p> <p><u>Type I trousers</u></p> <p>a. Fold flap, as indicated on pattern, and join side edges; turn, work out edges and double stitch side and bottom edges 3/16 to 1/4 inch gage.</p> <p><u>Type III trousers</u></p> <p>b. Fold flap, as indicated on pattern, and stitch side and bottom edges leaving an opening for turning. Turn flap, work out edges and double stitch 3/16 to 1/4 inch gage along side and bottom edges. The raw edges at opening for turning the flap shall be turned between the plies of flap and caught in the stitching.</p> <p>or</p> <p><u>Types I and III trousers</u></p> <p>c. Precrease edges of flap, fold flap, as indicated on pattern, and double stitch 3/16 to 1/4 inch gage the side and bottom edges only. The folded edge of the flap shall be the top of the flap.</p> <p>or</p> <p>d. Make flap from two pieces with seam allowances added accordingly, and as follows:</p> <p>(1) Turn in side and bottom edges and join plies with double stitching 3/16 to 1/4 inch gage. Edges may be precreased.</p> <p>or</p>	<p>301 or 401 and 301</p> <p>301 or 401 and 301</p> <p>301</p>	<p>SSe-3(a) SSe-3(b) and OSf-2</p> <p>SSe-3(a) SSe-3(b) and OSf-2 and SSe-2</p> <p>SSc-2</p> <p>SSc-2</p>	<p>10-14 10-14</p> <p>10-14 10-14</p> <p>10-14</p>	<p>30-3 30-3 30-3</p> <p>30-3 30-3 30-3</p> <p>30-3</p> <p>30-3</p>	<p>30-3 50-3 30-3</p> <p>30-3 50-3 30-3</p> <p>30-3</p> <p>30-3</p>	

NO.	MANUFACTURING OPERATIONS REQUIREMENTS TABLE II	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN or LOOPER	COVER
12.	<p><u>Make hip pocket flaps.</u> (cont'd)</p> <p><u>Types I and III trousers</u></p> <p>(2) Join plies along side and bottom edges; turn, force out edges and double stitch side and bottom edges 3/16 to 1/4 inch gage.</p> <p>or</p> <p>e. In lieu of the double stitching specified in operations a., b., c. and d. above, the outside edges of flaps may be stitched with one row of stitching 1/16 to 1/8 inch from edges using cotton-wrapped polyester core thread (see 3.2.3.2).</p>	301 or 401 and 301	SSe-3(a) SSe-3(b)	10-14 10-14	30-3 30-3 30-3	30-3 50-3 30-3	
13.	<p><u>Make buttonhole in flaps.</u></p> <p>Make a vertical buttonhole in the center of each flap (1/4 inch off center tolerance allowed) with the inside edge of the eyelet 1/2 to 5/8 inch from bottom edge.</p>	301	SSe-2(b) and OSf-1 and SSc-1	10-14	30-3	30-3	
14.	<p><u>Make hip pockets (types I and III trousers).</u></p> <p>Finished appearance. The hem of the pocket shall finish smooth and flat, without twists, pleats or puckers. The pockets shall be uniform in shape and size.</p> <p>Turn in top edge 1-3/4 + 1/8 inches with raw edge turned in and single stitch 1/16 to 1/8 inch from edge.</p>	Button- hole 301		52-56 per buttonhole including	30-3	50-3	

MIL-T-838L

NO.	MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BORBIN or LOOPER	COVER
*15.	<p><u>Sew on hip pockets (types I and III trousers).</u></p> <p>Finished appearance. The pocket opening shall be not less than 5-3/4 inches for all sizes.</p> <p>a. Turn in the edges of pockets and double stitch 3/16 to 1/4 inch gage to each back of trousers positioned as indicated by marks on patterns. Pocket edges may be prepressed prior to setting.</p> <p>or</p> <p>b. Attach pockets to trousers with one row of stitching 1/16 to 1/8 inch from turned edges using cotton-wrapped polyester core threads (see 3.2.3.2).</p> <p><u>Attach pocket flaps (types I and III trousers).</u></p> <p>a. The top raw edges of finished flap (when applicable) shall be centered 1/2 + 1/8 inch above top of pocket and stitched 1/8 to 3/16 inch from raw edges. Turn flap to finished position and raise stitch flap 3/16 to 1/4 inch from turned edge.</p> <p>or</p> <p>b. Turn in top raw edges of flap, center flap above pocket with the turned edge 1/2 + 1/8 inch above pocket opening and double stitch 3/16 to 1/4 inch gage with the first row of stitching 1/16 to 1/8 inch from turned edge.</p>	301	Lsd-2	10-14	30-3	30-3	
16.		301	Lsd-1	10-14	30-3	30-3	
		301	LSb1-2	10-14	30-3	30-3	
		301	Lsd-2	10-14	30-3	30-3	

NO.	MANUFACTURING OPERATIONS REQUIREMENTS TABLE II	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN or LOOPER	COVER
16.	<p>Attach pocket flaps (types I and III trousers). (cont'd)</p> <p>or</p> <p>c. Finished flap with folded edges at top shall be positioned and joined to trousers as specified in "b" above.</p> <p>or</p> <p>d. In lieu of operations a., b. and c. above, turn in top raw edges of flap (when applicable); center top edge of flap $1/2 + 1/8$ inch above pocket opening and single stitch flap to front $1/16$ to $1/8$ inch from top edge of flap using cotton-wrapped polyester core thread (see 3.2.3.2).</p>	301	LSbj-2	10-14	30-3	30-3	
17.	<p>Join seat seam.</p> <p>Join seat seam with a double-lapped and double-stitched seam.</p>	401	LSc-2	10-14	30-3	50-3	
18.	<p>Join crotch seam.</p> <p>a. When the raise stitching of right fly is not continued along crotch of right front, (see operation 10.1.) turn crotch seam of right front to the outside and stitch $1/16$ to $1/8$ inch on edge catching the right fly lining extension piece.</p> <p>b. Turn edge of left front crotch seam to inside and double stitch, catching the right front crotch seam with both rows of stitching through right fly lining. The double stitching shall be $3/16$ to $1/4$ inch gage with the outer row of stitching $1/16$ to $1/8$ inch from folded edge. The top end of stitching shall terminate at the stitching along the back edge of left fly.</p>	301 or 401	EFa-1	10-14	30-3 30-3	30-3 50-3	

NO.	MANUFACTURING OPERATIONS REQUIREMENTS TABLE II	STITCH TYPE	SEAL AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOMBIN or LOOPER	COVER
19.	<u>Join side seams.</u> Join side seams with a double-lapped and double-stitched seam, with fronts lapped over backs, catching in the back edge of front pockets in the seaming.	301 or 401	LSc-2	10-14	30-3 30-3	30-3 50-3	
20.	<u>Join inseams.</u> Join inseams in one continuous operation with a double-lapped and double-stitched seam. The seat and crotch seams shall not be staggered more than 5/8 inch (measurements taken from center of seams). The fronts shall lap the backs.	301 or 401	LSc-2	10-14	30-3 30-3	30-3 50-3	
21.	<u>Make seven belt loops.</u> Finished appearance. The seven belt loops shall measure 3/8 inch to 1/2 inch wide and shall be located as follows: One centered on each front; one adjacent to each side seam on the back part; one adjacent to seat seam; and one on each back, midway between seat seam and side seam. a. Fold stripping with edges abutted at center and double stitch not less than 3/16 inch gage, using a cover stitch on the underside. or b. Fold stripping (see operation 1.g.) lengthwise, turn under both raw edges and single stitch each edge 1/16 to 1/8 inch from edge.	406 301	EFh-1 EFp-2	6-10 10-14	50-3 30-3	30-3 30-3	

NO.	MANUFACTURING OPERATIONS REQUIREMENTS TABLE II	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD	
					NEEDLE	BOBBIN or LOOPER COVER
21.	<p><u>Make seven belt loops.</u> (cont'd)</p> <p>or</p> <p>c. Fold stripping (see operation 1.g.) with both edges turned in and the turned in edges abutted and with the covering stitch on the underside.</p> <p><u>Attach waistband.</u></p> <p>Finished appearance. The waistband shall be sewn on flat and smooth without fullness, gathers, or pleats. The waistband shall have the belt loops correctly positioned with the ends inserted and caught in the stitching, or top end of belt loops may be attached separately. The lining shall not be exposed beyond the top of waistband.</p>	105	Efae-1	12-16	30-3	--
22.	<p>a. Waistband shall finish 1-5/8 to 1-3/4 inches wide and be made with either of the following methods:</p> <p>(1) Turn in the upper and lower edge of waistband lining and double stitch, 1-3/8 to 1-1/2 inch gage, to the top of the trouser with raw edge of trouser top turned in and top end of belt loops inserted in seam at top of waistband; or belt loops may be separately attached.</p> <p>or</p> <p>(2) Attach the waistband lining by single needle seaming the top of band to trouser with top end of belt loops inserted in the seam at top of waistband; or the belt loops may be separately attached. Turn lining and raise stitch 1/8 inch from top edge.</p>	301 or 401	LSk-2	10-14	30-3 30-3	30-3 50-3
		301 or 401	SSe-2	10-14	30-3 30-3	30-3 50-3

NO.	MANUFACTURING OPERATIONS REQUIREMENTS TABLE II	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D	
					NEEDLE	BOBBIN or LOOPER
22.	<u>Attach waistband.</u> (cont'd) (3) Turn in bottom raw edge of lining and stitch to trouser. The rows of stitching shall be 1-3/8 to 1-1/2 inch gage. The bottom row of stitching shall extend to the back edge of the left fly stitching.	301 or 401	L5d-1	10-14	30-3 30-3	30-3 50-3
23.	<u>Finish end of right fly and top of left fly (types I and III trousers).</u> a. Turn in the ends of the waistband lining and stitch to front edge of right fly. b. Insert end of waistband lining under the left fly and seam back edge of left fly from notch to top of waistband, 1-5/8 to 1-7/8 inches from front edge. c. Continue the top waistband lining stitching to the edge of left fly. <u>Finish bottoms.</u> Hem bottom of trousers, as indicated by marks on pattern, with the raw edges turned in, and single stitch 1/16 to 1/8 inch from edge. The hem shall finish 1 + 1/4 inches wide. <u>Make waistband buttonhole.</u> Make a horizontal buttonhole in the top of left fly in the center of waistband (1/4 inch off center tolerance) with the inside of edge of eyelet 1/2 to 5/8 inch from edge of left fly.	301 301 301 301 301	SSb-1 SSa-1 SSe-2(b) E7b-1	10-14 10-14 10-14 10-14 52-56 per buttonhole including tack	30-3 30-3 30-3 30-3 30-3	30-3 30-3 30-3 30-3 50-3
24.						
25.						

NO.	MANUFACTURING OPERATIONS REQUIREMENTS TABLE II	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN or LOOPER	COVER
26.	<p><u>Attach buttons.</u></p> <p>a. Sew 4 or 5 buttons (whichever applicable) on right fly through fly lining to correspond with eyelet ends of buttonholes in left fly (type I trousers). The rims of the buttons shall be adjacent to, but not overlapping the seam joining the fly to the front.</p> <p>b. Sew a button on right fly at waist to correspond with eyelet end of buttonhole in left fly at waist, and in line with fly buttons.</p> <p>c. Sew a button to each hip pocket through hem to correspond to eyelet ends of buttonholes in flaps.</p>	101 or 301		14-16 per button 14-16 button	20-4 20-4	20-4	
		101 or 301		14-16 per button 14-16 per button	20-4 20-4	20-4	
		101 or 301		14-16 per button 14-16 per button	20-4 20-4	20-4	
		Bartack		28 per bartack	30-3	30-3	
27.	<p><u>Bartacking.</u></p> <p>Finished appearance. The bartacks shall be 3/8 to 1/2 inch long and positioned as specified.</p> <p>a. Turn under raw ends and bartack belt loops at the bottom ends. The distance between bartacks shall be not less than 1-3/4 inches or more than 2-1/4 inches. When belt loops are inserted in the waistband lining joining seam, the loops shall be bartacked at tops and bottoms with the bottom raw ends turned in. When belt loops are not inserted in waistband lining, the top edges shall be turned in even (+ 1/8 inch tolerance) with top edge of waistband bartacked to waist. Bartacks shall not be more than 1/4 inch from the top and bottom folded ends of loops.</p>						

NO.	MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN or LOOPER	COVER
27.	<p><u>Bartacking.</u> (cont'd)</p> <p>b. Bartack top and bottom ends of front patch pocket opening to the trousers with bartacks positioned at right angles to patch opening. The lower bartack shall extend into the outseam of the trousers. The top bartack shall be not more than 1/2 inch below bottom row of waistband stitching. The pocket opening shall not finish less than 5-3/4 inches for sizes 26 through 30 inclusive, and not less than 6 inches for sizes 32 through 46 inclusive.</p> <p>c. Bartack the top corners of hip pocket openings with vertical bartacks superimposed on the inside row of pocket stitching. When pockets are attached with one row of stitching, the bartacks shall be superimposed on the stitching at the top ends of pockets.</p> <p>d. Bartack bottom of left fly at top of crotch seam with a 1/2 inch bartack through right fly. Bartack to be set diagonally in line with the left fly stitching at the junction of the crotch seam and stitching on left fly.</p>	Bartack		28 per bartack	30-3	30-3	
28.	<p><u>Cleaning.</u></p> <p>Trim all ends of outside stitching and remove loose threads from the trousers. Trim ends of belt loops; remove all spots, stains, and all shade or size markings. Button waistband.</p>	Bartack		28 per bartack	30-3	30-3	

MIL-T-838L

3.7 Finished measurements. The finished measurements shall be as shown in table III.

TABLE III. Finished measurements (in inches)

Size	Outseam 2/					Knee 3/				
	1/2 Waist 1/	29	Inseam lengths			29	31	Inseam lengths		
			31	33	35			33	35	35
26	13	39-7/8	42-1/4			20-7/8	20-7/8			
28	14	40-1/8	42-5/8	45-1/8		21-1/4	21-1/4	21-1/4		21-1/4
30	15	40-3/8	42-7/8	45-3/8	48	21-5/8	21-5/8	21-5/8	21-5/8	21-5/8
32	16	40-5/8	43-1/8	45-5/8	48-1/4	22-1/8	22-1/8	22-1/8	22-1/8	22-1/8
34	17	41	43-3/8	45-7/8	48-1/2	22-7/8	22-7/8	22-7/8	22-7/8	22-7/8
36	18	41-1/4	43-3/4	46-1/8	48-5/8	23-1/8	23-1/8	23-1/8	23-1/8	23-1/8
38	19		44	46-3/8	48-7/8	23-5/8	23-5/8	23-5/8	23-5/8	23-5/8
40	20		44-1/4	46-5/8		24	24	24	24	24
42	21		44-1/2	46-7/8		24-5/8	24-5/8	24-5/8	24-5/8	24-5/8
44	22		44-3/4	47-1/4		25-1/8	25-1/8	25-1/8	25-1/8	25-1/8
46	23			47-1/2				25-1/2	25-1/2	25-1/2
Tolerance	+ 1/2	+ 1/2	+ 1/2	+ 1/2	+ 1/2	+ 1/2	+ 1/2	+ 1/2	+ 1/2	+ 1/2

TABLE IUI. Finished measurements (in inches) (cont'd)

Size	Bottom 4/				Inseams (as marked)
	20	31	Inseam lengths 33	35	
26	17	17			29
28	17	17	17		31
30	17	17	17	17	33
32	17	17	17	17	35
34	17-3/4	17-3/4	17-3/4	17-3/4	35
36	17-3/4	17-3/4	17-3/4	17-3/4	35
38	17-3/4	17-3/4	17-3/4	17-3/4	35
40	17-3/4	17-3/4	17-3/4	17-3/4	35
42	18-1/2	18-1/2	18-1/2	18-1/2	35
44	18-1/2	18-1/2	18-1/2	18-1/2	35
46	18-1/2	18-1/2	18-1/2	18-1/2	35
Tolerance	+ 1/2	+ 1/2	+ 1/2	+ 1/2	+ 1/2

1/ With the waistband buttoned, measure along center of waistband from side to side edge.

2/ Measure from top edge of waist to bottom of leg along outseam.

3/ Measure across leg from side edge to side edge up from the finished leg bottoms at points listed below. (Multiply by two.)

29 Inseam -	17-1/4 inches	33 Inseam -	19-1/4 inches
31 Inseam -	18-1/4 inches	35 Inseam -	20-1/4 inches

4/ Measure across leg at bottom edge (multiply by two).

MTL-T-838L

3.8 Workmanship. The finished trousers shall conform to the quality of product established by this specification. The occurrence of defects shall not exceed the applicable acceptable point values.

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.

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

4.2 Quality conformance inspection.

4.2.1 Component and material inspection. In accordance with 4.1 above, components and materials shall be tested in accordance with all the requirements of referenced specifications, drawings and standards unless otherwise excluded, amended, modified or qualified in this specification or applicable purchase documents. All test reports shall contain the individual values utilized in expressing the final result. All components of the slide fastener furnished by one supplier shall be accepted on one certificate of compliance.

* 4.2.2 End item examination. Sampling and examination of the end item shall be performed in accordance with the provisions of MIL-STD-1488. The trousers shall be classified as utility ("U") trousers.

5. PREPARATION FOR DELIVERY

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

5.1.1 Level A. Each pair of trousers, with inseams meeting, shall be folded from the leg bottom up toward the waistband to an overall length of approximately 23 inches. The trousers shall then be folded in half the length to approximately 11-1/2 inches. For the larger sizes it may be necessary to adjust the seat area to achieve the desired width of approximately 14-1/2 inches. Ten pairs of folded trousers of one type and size only shall be neatly stacked in a bundle with the waistbands alternated and securely crosstied with cotton tape or twine.

5.1.2 Commercial. Trousers shall be packaged in accordance with FED-STD-356, provided the packages and the quantity per package is the same as that normally used by the supplier for retail distribution.

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

5.2.1 Level A. Forty pairs of trousers of one type and size only, packaged as specified in 5.1, shall be packed in a fiberboard shipping container assembled, closed and reinforced conforming to class weather-resistant grade V2s, size 3A of MIL-B-17757. The fiberboard used in fabricating the box liner shall conform to type CF, class weather-resistant, variety DW, grade V15c of MIL-B-17757. Level A packages shall be packed flat two in length, one in width, and two in depth within a shipping container. Each container shall have the contents completely covered on the top and bottom with a sheet of 30-pound minimum basis weight kraft paper conforming to grade B of UU-P-268. Toward the end of the contract or when there are less than the required amount per container of the same size, mixed sizes of one type may be packed within the same shipping container.

* 5.2.2 Level B. Forty pairs of trousers of one type and size only, packaged as specified in 5.1, shall be packed in a fiberboard shipping container assembled and closed conforming to class domestic, grade 275, size 3A of MIL-B-17757. The fiberboard used in fabricating the box liner shall conform to type CF, class domestic, variety DW, grade 275 of MIL-B-17757. Level A packages shall be packed flat, two in length, one in width, and two in depth within a shipping container. Each container shall have the contents completely covered on the top and bottom with a sheet of 30-pound minimum basis weight kraft paper conforming to grade B of UU-P-268. Toward the end of the contract or when there are less than the required amount per container of the same size, mixed sizes of one type may be packed within the same shipping container.

5.2.2.1 When specified (see 6.2), the shipping container shall be a grade V3c, V3s or V4s fiberboard box fabricated in accordance with MIL-B-17757 and closed in accordance with the appendix of the container specification.

5.2.3 Commercial. Trousers, packaged as specified in 5.1, shall be packed in accordance with FED-STD-356, provided the quantity packed per shipping container is the same as that normally used by the supplier for retail distribution.

5.3 Marking.

5.3.1 Military (levels A and B). In addition to any special marking required by the contract or order, shipping containers shall be marked in accordance with MIL-STD-129.

5.3.2 Commercial. In addition to any special marking required by the contract or order, shipping containers shall be marked in accordance with FED-STD-356.

MIL-T-838L

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

6. NOTES

6.1 Intended use. The type I trousers are intended for use by male military personnel of the Department of Defense as the standard component for use with the Olive Green 107 utility shirt. The type III trousers are intended for use by male military personnel of the Air Force Missile Combat Crew.

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).
- (c) Selection of applicable levels of packaging and packing (see 5.1 and 5.2).
- (d) When weather-resistant grade fiberboard shipping containers are required for level B packing (see 5.2.2.1).

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

6.4 The margins of this specification are marked with an asterisk (*) to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and suppliers are cautioned to evaluate the requirements of this document based on the entire content irrespective to the marginal notations and relationship to the last previous issue.

Custodians:

Army - GL
Navy - SA
Air Force - 11

Preparing activity:

Army - GL
Project No. 8405-0557

Review activities:

Army - MD
Navy - MC
Air Force - 82
DSA - CT

MIL-T-838L

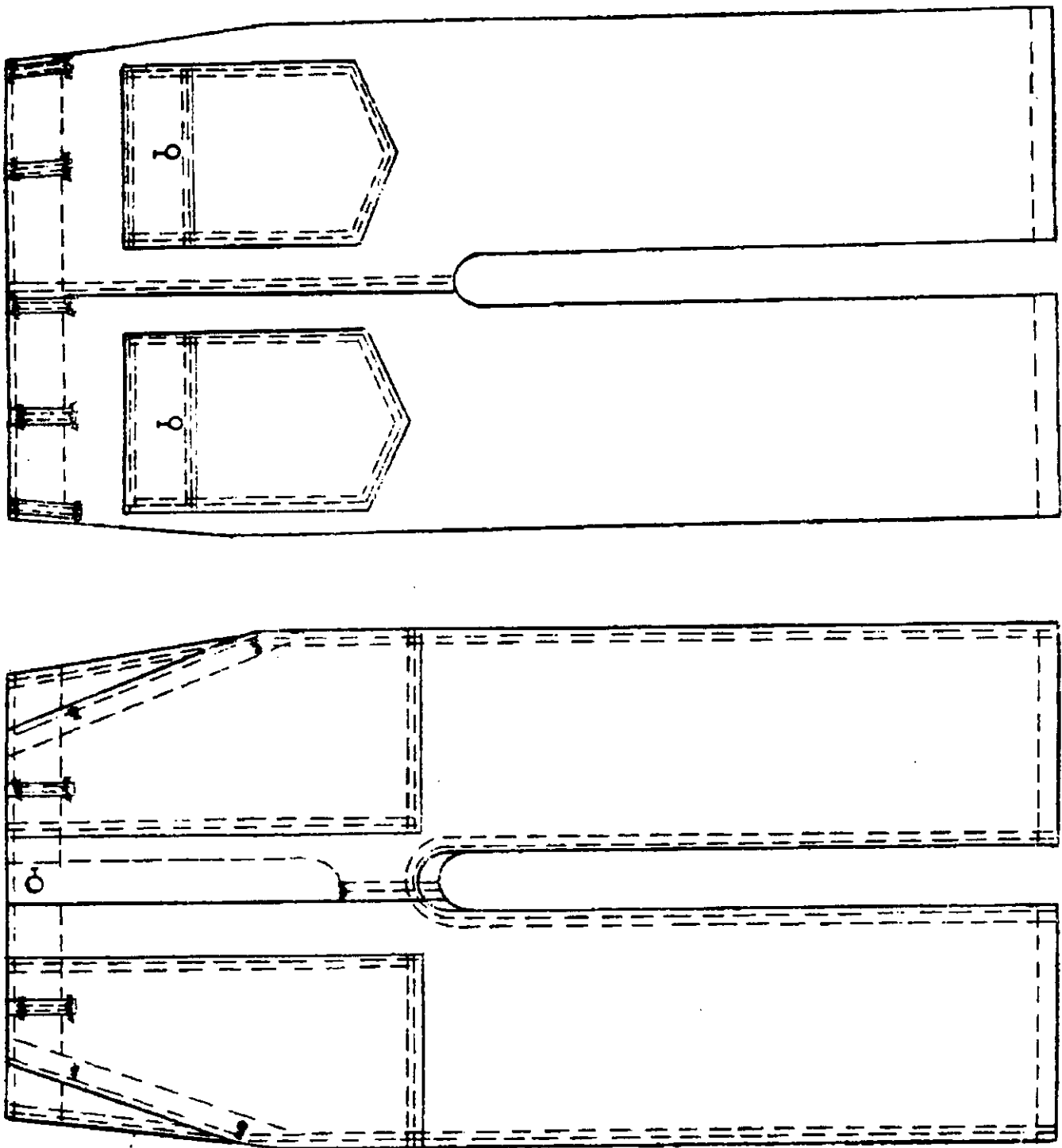


FIG 1 TROUSERS, UTILITY, TYPE I

MIL-T-838L

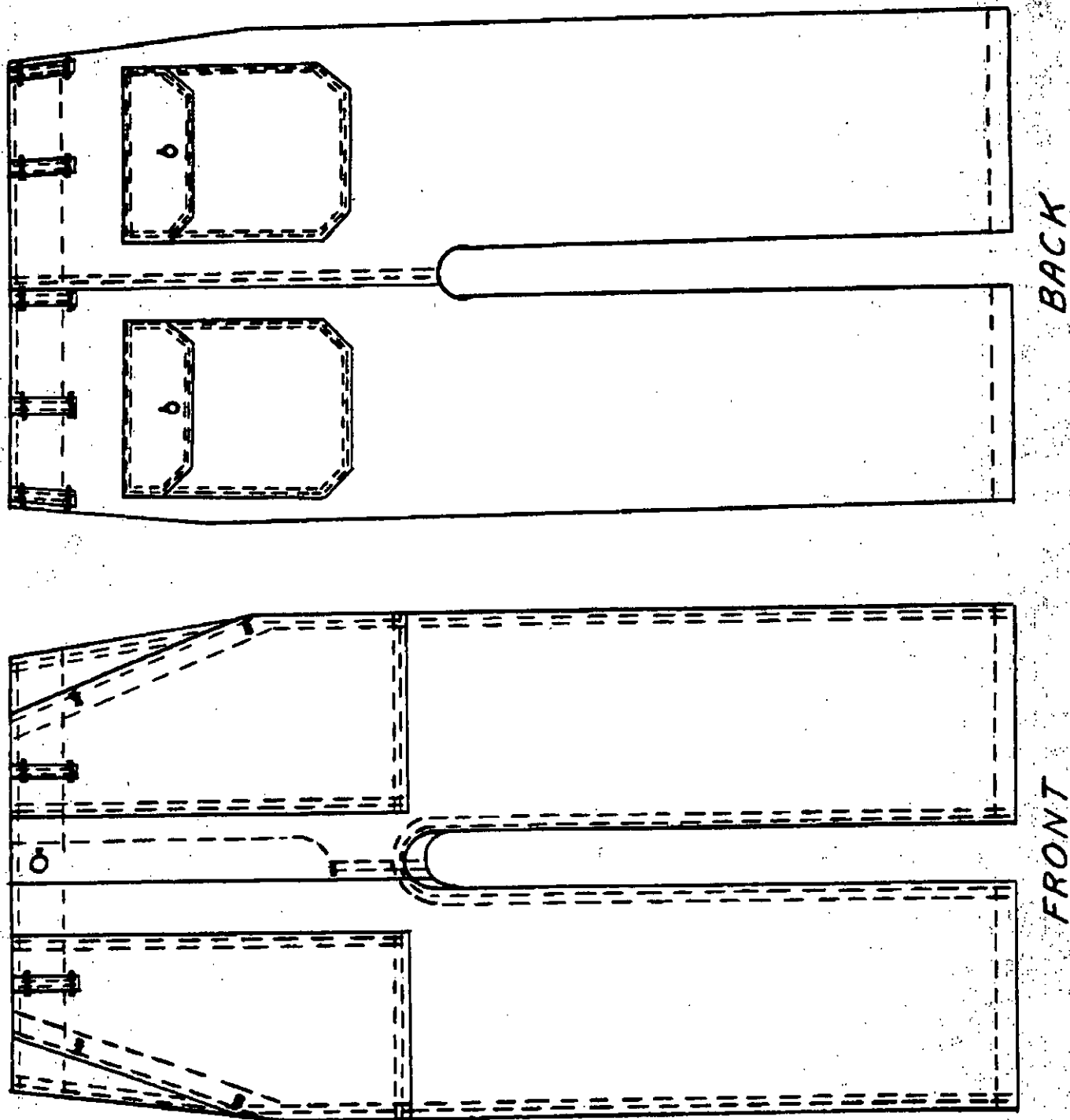


FIGURE 2 TROUSERS, UTILITY, TYPE III

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

OMD Approval
No. 22-R255

INSTRUCTIONS: The purpose of this form is to solicit beneficial comments which will help achieve procurement of suitable products at reasonable cost and minimum delay, or will otherwise enhance use of the document. DoD contractors, government activities, or manufacturers/vendors who are prospective suppliers of the product are invited to submit comments to the government. Fold on lines on reverse side, staple in corner, and send to preparing activity. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements. Attach any pertinent data which may be of use in improving this document. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity.

DOCUMENT IDENTIFIER AND TITLE

MIL-T-838L - TROUSERS, UTILITY

NAME OF ORGANIZATION AND ADDRESS

CONTRACT NUMBER

MATERIAL PROCURED UNDER A

☐ DIRECT GOVERNMENT CONTRACT ☐ SUBCONTRACT

1. HAS ANY PART OF THE DOCUMENT CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?

A. GIVE PARAGRAPH NUMBER AND WORDING

B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES

2. COMMENTS ON ANY DOCUMENT REQUIREMENT CONSIDERED TOO RIGID

3. IS THE DOCUMENT RESTRICTIVE?

☐ YES ☐ NO (If "Yes", in what way?)

4. REMARKS

SUBMITTED BY (Printed or typed name and address - Optional)

TELEPHONE NO.

DATE