

INCH-POUND

MIL-T-44047E  
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 SUPERSEDING  
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 14 August 1990

## MILITARY SPECIFICATION

## TROUSERS, CAMOUFLAGE PATTERN, COMBAT

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

## 1. SCOPE

1.1 Scope. This specification covers camouflage pattern combat trousers.

\* 1.2 Classification. The trousers shall be of the following types and sizes as specified (see 6.2):

- Type I - Woodland camouflage pattern, cotton/nylon twill cloth
- Type II - Deleted (see 6.8)
- Type III - Woodland camouflage pattern, cotton poplin cloth
- Type IV - Desert camouflage pattern (3 color) cotton/nylon twill cloth
- Type V - Desert camouflage pattern (3 color) cotton poplin cloth

Schedule of sizes

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

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be used in improving this document should be addressed to: U.S. Army Natick Research, Development, and Engineering Center, Natick, MA 01760-5019 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 8415

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## 2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards and handbooks. The following specifications, standards and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

## SPECIFICATIONS

## FEDERAL

- A-A-50083 - Bag, Plastic, Folded Garment
- A-A-50198 - Thread, Gimp, Cotton, Buttonhole
- A-A-50199 - Thread, Polyester Core, Cotton- or Polyester-Covered
- V-B-871 - Button, Sewing Hole, and Button, Staple, (Plastic)
- V-T-285 - Thread, Polyester
- DDD-L-20 - Label: For Clothing, Equipage, and Tentage (General Use)
- PPP-B-636 - Boxes, Shipping, Fiberboard

## MILITARY

- MIL-B-543 - Buckles, Tongueless and Web Strap
- MIL-T-5038 - Tape, Textile and Webbing, Textile, Reinforcing, Nylon
- MIL-L-35078 - Loads, Unit: Preparation of Semiperishable Subsistence Items; Clothing, Personal Equipment and Equipage; General Specification For
- MIL-C-43468 - Cloth, Camouflage Pattern, Wind Resistant Poplin, Cotton
- MIL-T-43566 - Tape, Textile, Cotton or Polyester, General Purpose, Natural or in Colors
- MIL-C-44031 - Cloth, Camouflage Pattern: Woodland, Cotton and Nylon
- MIL-C-44034 - Cloth, Twill, Camouflage Pattern, Cotton and Nylon for Desert Uniform
- MIL-C-44296 - Cloth, Fusibles

## STANDARDS

## FEDERAL

- FED-STD-595 - Colors Used in Government Procurement
- FED-STD-751 - Stitches, Seams, and Stitchings

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## MILITARY

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-129 - Marking for Shipment and Storage
- MIL-STD-147 - Palletized Unit Loads
- MIL-STD-731 - Quality of Wood Members for Containers and Pallets
- MIL-STD-1488 - Provisions for Evaluating Quality of Trousers

(Unless otherwise indicated, copies of federal and military specifications, standards and handbooks are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.2 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.2).

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (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 19103-1187.)

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

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

## 3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 6.3) in accordance with 4.3.

3.2 Guide sample. Samples, when furnished, are solely for guidance and information to the contractor (see 6.4). Variation from this specification may appear in the sample, in which case this specification shall govern.

3.3 Materials. It is encouraged that recycled material be used when practical as long as it meets the requirements of this specification.

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3.3.1 Basic material.

3.3.1.1 Type I trousers. The basic material shall be cotton/nylon twill cloth printed in a woodland camouflage pattern conforming to class 1 of MIL-C-44031.

3.3.1.2 Type III trousers. The basic material shall be cotton poplin printed in a woodland camouflage pattern conforming to type III of MIL-C-43468.

\* 3.3.1.3 Type IV trousers. The basic material shall be cotton/nylon twill cloth printed in a desert camouflage pattern (3 color) conforming to class 3 of MIL-C-44034.

\* 3.3.1.4 Type V trousers. The basic material shall be cotton poplin printed in a desert camouflage pattern (3 color) conforming to type V of MIL-C-43468.

\* 3.3.2 Cloth, side and hip hanging pockets, waistband lining, right fly lining, left fly, cargo pocket facing and protective flap (type III) only. The cloth for side and hip hanging pockets, waistband lining, right fly lining, left fly (buttonhole fly and lining), cargo pocket facings and protective flap (type III only) shall be basic material, ground shade cloth, or printed seconds cloth. The ground shade cloth shall be dyed conforming to class 1 of MIL-C-44031 for type I trousers, type III of MIL-C-43468 for type III trousers, class 3 of MIL-C-44034 for type IV trousers and type V of MIL-C-43468 for type V trousers prior to overprinting of the respective camouflage patterns. The ground shade cloth shall meet the respective finished fabric's physical, mechanical, and dimensional requirements. Printed seconds shall be cloth which has been rejected only for defects pertaining to color, infrared reflectance, or camouflage printed patterns, as specified in MIL-C-44031 for type I trousers, MIL-C-43468 for types III and type V trousers and MIL-C-44034 for type IV trousers.

3.3.3 Cloth, fusible, interlining pocket flaps. The material for interlining the pocket flaps of the type I, III and V trousers shall conform to bonding strength and type V, class 3, adhesive dot application style B of MIL-C-44296.

3.3.3.1 Fusing press operating procedure and conditions. Fuse a single layer of fusible interlining to a single layer of basic material on a dry electrically heated fusing press which has the capacity of controlling and retaining pressure, dwell time, and temperature for a minimum of 8 hours. Pair or sandwich fusing which can create differential shrinkage, and uneven bonding shall not be permitted. A steam sourced fusing press shall not be allowed for any initial fusing operations. For optimum results, the fusible material manufacturers recommendations for fusing dwell time, pressure, and temperature, based upon the fusing equipment used and basic material being fused, shall be utilized. The temperature used in fusing shall not exceed

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340°F and shall not cause an objectionable color change or staining of the basic fabric. Basic preproduction and production maintenance procedures, including a fusing press information chart, shall be required to ensure proper fusing press performance relative to temperature control, evenness in pressure head or roller contact, dwell time, cleanliness, and bonding strength. The fusing process will be controlled to assure that the fused plies of material show no sign of bubbling or delamination initially or after 3 launderings when tested as specified in 4.4.3.4. Results of the production maintenance procedures shall be recorded on figure 2.

3.3.4 Tape, textile, cotton. The tapes for the adjustment straps shall be 5/8 inch wide, Camouflage Green 483 for type I and III trousers and dyed Tan 380 for types IV and V trousers, conforming to type I, class 3 of MIL-T-43566, except that the colorfastness to crocking and accelerated weathering shall not apply.

3.3.5 Tape, textile, nylon. The tapes for the leg bottoms shall be 3/8 inch wide, dyed Camouflage Green 483 for type I and III trousers and Tan 380 for types IV and V trousers conforming to type III of MIL-T-5038, except that the physical requirements for lateral curvature shall not apply.

3.3.6 Buttons. The buttons shall conform to type II, class D, style 26, 30-line of V-B-871. The buttons shall have a dull finish and the color shall be shade Olive Green BP Cable 62016 for type I and III trousers and Tan AJ Cable 62028 for types IV and V trousers.

3.3.7 Thread and gimp.

3.3.7.1 Thread. The thread for seaming and stitching the trousers shall be polyester- or cotton-covered polyester core thread, ticket Nos. 30, 2 or 3 ply; 50, 2 ply; or 70, 2 ply conforming to A-A-50199. The color shall be Camouflage Green 483 approximating Color Chip 34094 of FED-STD-595 for type I and III trousers and Khaki P-1 C.A. 66019 for types IV and V trousers. As an alternate, polyester thread conforming to type IV or V of V-T-285, size 40 may be substituted for sizes 50 and 70 of A-A-50199 thread and size 60 may be substituted for size 30 of A-A-50199.

3.3.7.2 Gimp. The cotton gimp for reinforcing buttonholes shall conform to type I or II, ticket number 8 of A-A-50198. The color of the gimp shall be Camouflage Green 483 approximating Color Chip 34094 of FED-STD-595 for types I and III and Khaki P-1, Cable No. 66019 for types IV and V.

3.3.7.3 Colorfastness. The dyed thread and gimp shall show fastness to laundering equal to or better than the standard sample. When no standard sample is available, the dyed thread and gimp shall show "good" fastness to laundering.

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\* 3.3.8 Labels. Each trouser shall have a size label, and an identification label and an instruction label or a combination identification and instruction label conforming to type VI of DDD-L-20. The labels shall show fastness to laundering. The following cable numbers of the Standard Color Card of America are furnished for information and guidance as to the intensity of the shade desired for the labels. The label color for types I and III shall be medium green, Cable No. 70034, 70130 or 70131 and for types IV and V trousers shall be Khaki, Cable No. 70188.

3.3.8.1 Size label. The size label shall conform to class 2, containing the following information for each respective size. Descriptive information shall be printed in letters and numerals not less than a minimum of 10 points.

X-Small - X-Short

Inseam: Up to  
26-1/2 in.  
Waist: Up to 27 in.  
Stock No.  
NATO Size 6067/5869

X-Small - Short

Inseam: 26-1/2 to  
29-1/2 in.  
Waist: Up to 27 in.  
Stock No.  
NATO Size 6775/5869

X-Small - Regular

Inseam: 29-1/2 to  
32-1/2 in.  
Waist: Up to 27 in.  
Stock No.  
NATO Size 7583/5869

X-Small - Long

Inseam: 32-1/2 to  
35-1/2 in.  
Waist: Up to 27 in.  
Stock No.  
NATO Size 8390/5869

Small - X-Short

Inseam: Up to  
26-1/2 in.  
Waist: 27 to 31 in.  
Stock No.  
NATO Size 6067/6979

Small - Short

Inseam: 26-1/2 to  
29-1/2 in.  
Waist: 27 to 31 in.  
Stock No.  
NATO Size 6775/6979

Small - Regular

Inseam: 29-1/2 to  
32-1/2 in.  
Waist: 27 to 31 in.  
Stock No.  
NATO Size 7583/6979

Small - Long

Inseam: 32-1/2 to  
35-1/2 in.  
Waist: 27 to 31 in.  
Stock No.  
NATO Size 8390/6979

Small - X-Long

Inseam: Over  
35-1/2 in.  
Waist: 27 to 31 in.  
Stock No.  
NATO Size 9098/6979

Medium - X-Short

Inseam: Up to  
26-1/2 in.  
Waist: 31 to 35 in.  
Stock No.  
NATO Size 6067/7989

Medium - Short

Inseam: 26-1/2  
to 29-1/2 in.  
Waist: 31 to 35 in.  
Stock No.  
NATO Size 6775/7989

Medium - Regular

Inseam: 29-1/2  
to 32-1/2 in.  
Waist: 31 to 35 in.  
Stock No.  
NATO Size 7583/7989

Medium - Long

Inseam: 32-1/2  
to 35-1/2 in.  
Waist: 31 to 35 in.  
Stock No.  
NATO Size 8390/7989

Medium - X-Long

Inseam: Over  
35-1/2 in.  
Waist: 31 to 35 in.  
Stock No.  
NATO Size 9098/7989

Large - Short

Inseam: 26-1/2  
to 29-1/2 in.  
Waist: 35 to 39 in.  
Stock No.  
NATO Size 6775/8999

Large - Regular

Inseam: 29-1/2  
to 32-1/2 in.  
Waist: 35 to 39 in.  
Stock No.  
NATO Size 7583/8999

Large - Long

Inseam: 32-1/2  
to 35-1/2 in.  
Waist 35 to 39 in.  
Stock No.  
NATO Size 8390/8999

Large - X-Long

Inseam: Over  
35-1/2 in.  
Waist: 35 to 39 in.  
Stock No.  
NATO Size 9098/8999

X-Large - Short

Inseam: 26-1/2  
to 29-1/2 in.  
Waist: Over 39 in.  
Stock No.  
NATO Size 6775/9909

X-Large - Regular

Inseam: 29-1/2  
to 32-1/2 in.  
Waist: Over 39 in.  
Stock No.  
NATO Size 7583/9909

X-Large - Long

Inseam: 32-1/2  
to 35-1/2 in.  
Waist: Over 39 in.  
Stock No.  
NATO Size 8390/9909

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

\* 3.3.8.3 Instruction label. The instruction label for type I trousers shall be titled: TROUSERS, WOODLAND CAMOUFLAGE PATTERN; COMBAT; type III trousers shall be titled: TROUSERS, HOT WEATHER, WOODLAND CAMOUFLAGE PATTERN; COMBAT; type IV trousers shall be titled: TROUSERS, DESERT CAMOUFLAGE PATTERN (3 COLOR), COMBAT; and type V trousers shall be titled: TROUSERS, HOT WEATHER, DESERT CAMOUFLAGE PATTERN (3 COLOR), COMBAT. The label for all four types of trousers shall conform to class 3, containing the following information:

1. Adjust waist size by straps on waistband.
2. Blouse trouser outside of boots.
3. Machine washing. Use Permanent Press Cycle. Wash in warm water with mild detergent.
4. Hand washing. Wash in warm water using mild detergent. DO NOT WRING OR TWIST. Rinse in clean warm water.
5. DO NOT USE CHLORINE BLEACH OR STARCH.
6. Dry at low heat (do not exceed 130°F). After drying, tumble at room temperature for 10 minutes. Remove immediately from dryer. To drip dry, remove from water and place on rust-proof hanger.

DO NOT REMOVE THIS LABEL

3.3.8.4 Combination identification and instruction label. The identification label (class 1) and the instruction label (class 3) may be combined into one label. The combination shall conform to the requirements of the class 15 label.

3.3.9 Buckles. The buckles for waist adjustment straps shall be tongueless, 2-bar conforming to type II, class 3, style 3, 5/8 inch of MIL-B-543.

\* 3.4 Design. The trousers shall have a buttonhole fly, right and left hip pockets with flaps, side hanging pockets, right and left leg cargo pockets with flaps, seat patches (types I, III and V), knee patches with front knee action pleats (types I, III and V), and leg hem drawtapes.

3.5 Figures. Figures 1, 2 and 3 are furnished for information only. If there are inconsistencies between the written document and the figures, the written document shall control.

3.6 Patterns. Standard patterns, which provide a seam allowance of 1/2 inch for outseams, seat seams, crotch seams and inseams, 1/4 inch allowance for hip pocket flaps and tabs and 3/8 inch allowance for all other seams,

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except where otherwise specified, will be furnished by the Government. Standard patterns shall not be altered in any way and are to be used only as a guide for cutting the contractor's working patterns. The working patterns shall be identical to the standard patterns. Minor modifications are permitted where necessary when using automatic equipment. These modifications shall not alter the dimensional, serviceability, or appearance requirements cited in the specification.

\* 3.6.1 List of pattern parts. The component parts of the trousers shall be cut from materials specified in accordance with the pattern parts indicated in table I.

TABLE I. List of pattern parts

<u>Material</u>	<u>Nomenclature</u>	<u>Cut parts</u>
Cotton/nylon cloth or cotton poplin	Front <u>1/</u>	2
	Back <u>1/</u>	2
	Side hanging pocket bearer <u>1/</u>	2
	Side hanging pocket facing <u>1/</u>	2
	Left fly (buttonhole fly and lining) <u>1/</u>	3
	Hip pocket facing	2
	Hip pocket bearer	2
	Hip pocket flap	2
	Hip pocket flap tab	2
	Hip pocket flap and tab (one-piece) <u>2/</u>	2
	Seat patches (types I, III and V)	2
	Cargo pocket	2
	Cargo pocket flap	2
	Cargo pocket flap tab	2
	Cargo pocket flap and tab (one-piece) <u>2/</u>	2
Knee patch (types I, III and V)	2	
Cotton/nylon cloth or cotton poplin (ground shade or printing second, see 3.3.2)	Side hanging pocket <u>1/</u>	2
	Right fly lining <u>1/</u>	1
	Cargo pocket facing <u>3/</u>	2
	Hip pocket	2
	Protective flap (type III only)	1
Fusible interlining (types I, III and V trousers only)	Hip pocket flap	2
	Hip pocket flap and tab (one-piece) <u>2/</u>	2
	Cargo pocket flap	2
	Cargo pocket flap and tab (one-piece) <u>2/</u>	2

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

Material	Nomenclature	Cut parts
Alternate sewn-on waistband construction:		
Cotton/nylon cloth or cotton poplin	Front	2
	Back	2
	Side hanging pocket bearer	2
	Side hanging pocket facing	2
	Left fly lining	1
	Buttonhole fly	1
	Waistband <u>4/</u>	1
	Right fly lining	1
Cotton/nylon cloth or cotton poplin (ground shade or printing second, see 3.3.2)	Side hanging pocket	2
	Hip pocket	2
	Waistband lining <u>3/ 4/</u>	1
	Protective flap (type III only)	1

- 1/ When alternate sewn-on waistband and fly pattern pieces are used, disregard these pattern pieces.
- 2/ When alternate (one-piece) hip pocket flap and tab, cargo pocket flap and tab and alternate fusible pattern pieces are used, disregard separate (two-piece) flap, tab and fusible pieces.
- 3/ When cargo pocket facing and waistband lining are strip cut and put on rolls, disregard these pattern pieces.
- 4/ Waistband and waistband lining are cut from the same pattern part.

### 3.7 Construction.

3.7.1 Stitches, seams, and stitching. Stitch, seam, and stitching types, as specified in table I shall conform to FED-STD-751. When two or more methods of seams or stitches are given for the same operation, any one may be used. Where stitch type 401 is used, the looper (underthread), shall be on the inside of the trousers. Unless otherwise specified, double needle stitching shall be 3/16 to 9/32 inch gage with outer row of stitching 1/16 inch from edge on outside of trousers. The gage of stitching for safety stitch construction shall be 3/8 inch. The guides and knives on the safety stitch machines shall be set to trim only the ravelled ends of the fabric. Seam allowances shall be maintained with seams sewn so that raw edges, runoffs, twists, pleats, puckers, or open seams will not result. All seams shall start and finish evenly. Seams required to be worked out having a depth between the fold of 1/8 inch or more shall be considered a defect.

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3.7.1.1 Type 301 stitching. Ends of all stitching shall be backstitched or overstitched not less than 1/4 inch except where ends are turned under or caught in other seams or stitching. Ends of continuous line of stitching shall be overlapped not less than 1/2 inch except on labels where a minimum of three stitch overlap is required. Thread tensions shall be maintained so that there will be no loose stitching resulting in loose bobbin or top thread or excessively tight stitching resulting in puckering of the materials sewn. The lock shall be imbedded in the materials sewn.

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

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

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

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

3.7.1.2 Types 401, 502, 503, 504, 515, 516, or 519 stitching. Thread tension shall be maintained so that there will be no loose stitching. All repairs shall be in accordance with 3.7.1.1.1a. and 3.7.1.1.1b. Repairs to stitch type 401 may be accomplished by use of stitch type 301 except when used for eyelets.

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

### 3.7.3 Buttonholes.

3.7.3.1 Eyelet-end tapered bar. The buttonholes in the cargo pocket flaps, hip pocket flaps, fly, front waist, and leg bottoms shall be eyelet-end tapered bar type worked over the gimp specified in 3.3.7.2 with not less than four tacking stitches at bar end catching gimp ends (not counting crossover stitch). The purling shall be on the outside surface of the facing. The cut lengths shall be 3/4 to 7/8 inch, unless otherwise indicated in table II. The button-holes shall be clean-cut with the stitching securely caught in the fabric.

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3.7.4 Eyelets. Eyelets for alternate leg bottom draw tape shall be sewn with purling on the outside with a 3/16 to 1/4 inch diameter finished opening. The width or bight of stitching around the eyelet shall be not less than 1/16 inch. The eyelet stitching shall have at least four overlapping stitches.

3.7.5 Bartacks. Bartacks shall measure 3/8 inch to 5/8 inch long, except where otherwise indicated. Bartacking shall be free from thread breaks and loose stitching.

3.7.6 Fusing ends of nylon tape. The ends of nylon drawcord tape shall be fused. The apparatus used to fuse ends shall be capable of providing sufficient heat to provide a smooth edge with the cut ends of tape yarns all fused together.

3.8 Manufacturing operations requirements. The trousers shall be manufactured in accordance with the operation requirements specified in table II. The contractor is not required to follow the exact sequence of operations. Any basting or holding stitching required to facilitate manufacture is permissible provided the thread is removed or does not show on the finished trousers, except for size label holding stitches and pockets which may be prehemmed.

3.9 Use of automated apparel equipment. Automated apparel equipment may be used to perform any of the operations specified in table II, providing that the seam and stitch type are as specified and the finished component conforms to the required configuration. When a government furnished shaper pattern is forwarded, the component shall conform to that pattern.

NO.	TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
1.	<p><u>Cut trousers.</u></p> <p>a. Cut trousers in strict accordance with patterns furnished which show size, shape, directional lines, placement of pockets, and notches for proper assembly of parts. The directional lines indicate the warp, unless otherwise specified. The directional lines may vary from the warp direction by not more than 2-1/2 inches on both fronts and backs. Measurements shall be taken from top and bottom of directional lines on pattern to selvage edge of the fabric and the difference between the two measurements shall not exceed 2-1/2 inches.</p> <p>b. Cut all parts from one piece of material except fly parts, waistband lining, belt loops, hip pocket facings and bearers, cargo pocket facing, side pocket facings, side and hip pockets, pocket flap tabs, protective flap and buttonhole or eyelet reinforcements where required, which may be cut from ends. Side and hip pockets may be cut in either the warp or filling direction. The cargo pocket facing may be strip cut to the proper width and placed on rolls. It may be pieced with no more than one joining seam (in the finished trousers) with the seam spread open.</p> <p>c. Cut the waistband lining in the direction of the warp and to meet the requirements of operation 17. The waistband lining shall finish 1-1/2 to 1-3/4 inches in width and may be pieced with no more than one joining seam (in the finished trousers) with the seam spread open. The waistband lining may be strip cut to proper width and placed on rolls.</p>	301	SSa-1	10-14	50	50	

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
1.	<p><u>Cut trousers.</u> (cont'd)</p> <p>d. Cut buttonhole and eyelet reinforcement pieces in either direction of adequate length and width to reinforce buttonhole or eyelet. Leg drawcord reinforcements can be one piece to extend under both buttonholes (see operation 22.a.).</p> <p>e. Cut leg hem drawcord (cut two) <math>32 \pm 1</math> inches long for all sizes. The ends shall be fused.</p> <p>f. Cut seven belt loops to conform to the finished measurements specified in operations 7.a. and 18.f. Loops should measure <math>3/8</math> to <math>1/2</math> inch wide and <math>1-3/4</math> to <math>2-1/4</math> inches long between bartacks when finished (see operation 18.f.).</p> <p>g. Cut the <math>5/8</math> inch tape (two each) for waist adjustment straps <math>7-1/4 \pm 1/2</math> inches for all sizes.</p> <p>h. Cut the <math>5/8</math> inch tape (two each) for the buckle attachment strap <math>2-1/2</math> to <math>2-3/4</math> inches long.</p> <p>i. Cut the fusible interlinings in the same direction as the parts to be fused.</p>						
2.	<p><u>Replacement of damaged parts.</u></p> <p>During the spreading, cutting, and manufacturing process, components having material defects or damages that are classified as defects in MIL-STD-1488 shall be removed from production and replaced with non-defective and properly matched components.</p>						

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
3.	<p><u>Marking or bundling.</u></p> <p>a. Mark, ticket, or bundle all component parts of the trousers except those parts cut from ends to insure correct size, proper assembly, and uniform shade throughout the trousers.</p> <p>b. Any method of marking may be used except:</p> <ol style="list-style-type: none"> <li>(1) Metal fastening devices.</li> <li>(2) Sew-on tickets.</li> <li>(3) Adhesive type tickets which leave traces of adhesive on the material after removal of the tickets.</li> </ol> <p>c. The use of ink pad numbering machine, rubber stamp or pencil will be acceptable provided the numbers do not show through the outside of the trousers.</p> <p>d. Identify test swatches (basic material and fusible interlining) that represent the every 1000 trouser units of production (see 4.4.3.4).</p>						
4.	<p><u>Fusing (types I, III and V trousers only).</u> (see 3.3.3.1)</p> <p>a. Position fusible (both hip and cargo pocket flaps) with all edges set back 1/8 inch from flap edges. Fuse the fusible to the flaps. (The tab is not fused.)</p> <p style="text-align: center;">or</p> <p>b. When using the alternate one piece flap and tab construction, position fusible with all edges</p>						

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
4.	<p><u>Fusing (types I, III and V trousers only).</u> (see 3.3.3.1)</p> <p>set back 1/8 inch from flap side edges. Fuse the fusible to the flaps. (The tabe is not fused).</p> <p>NOTE: Fused lots shall be allowed to cool to the touch prior to bundle tying or testing.</p>						
5.	<p><u>Labeling.</u></p> <p>a. Position size label to inside of trousers, to left of seat seam and catch top edge of size label in bottom row of waistband lining stitching (see operation 18). The label may be tacked into position prior to the waistband stitching operation.</p> <p>b. Stitch identification label or combination identification-instruction label (when applicable) on all four sides to right hip pocket (as worn) so that on finished trousers the label shall face the wearer. The label shall not be caught in the pocket closing stitching, and the label shall be centered on pocket. Stitch margin shall be 1/8 to 3/16 inch. The stitching shall not pass through the contents of the label.</p> <p>c. Stitch the instruction label (when used) on four sides below identification label. Top edge of instruction label may be caught in bottom edge stitching of identification label. Stitch margin shall be 1/8 to 3/16 inch. The stitching shall not pass through the contents of the label.</p>	301	LSbj-1	10-14	50	50	
		301	LSbj-1	10-14	50	50	

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
8.	<u>Make pocket flap tabs and flaps.</u>						
	a. Fold tab, back to back, on tab foldline. Make two vertical buttonholes in each tab, as indicated by pattern, with inside of eyelet 3/8 to 1/2 inch from bottom folded edge. The purling shall finish on the narrow width side of tab.	Button-hole		52-56 per button-hole	30	50	
	b. Align inner (narrow) edges of flap and tab. Stitch through one ply of flap and both plies of tab 1/4 to 3/8 inch from flap edge. The buttonhole purling shall face the flap.	301	LSb-1	10-14	50	50	
	c. Fold opposite raw edge of flap (fabric face to face) even with raw edge of tab enclosing tab within the fold, and stitch raw edges.	301	SSe-2(a)	10-14	50	50	
	d. Turn flap and tab right side out, force out corners and edges and edge stitch bottom and side edges 3/16 to 1/4 inch from edge. Bottom folded edges of buttonhole tab shall not be caught in the bottom edge stitching.	301	SSe-2(b) and	10-14	50	50	
		301	OSf-1	10-14	50	50	
	e. Overedge stitch the top raw edges of each cargo pocket flap.	503 or 504	EFd-1	6-10	70	70	
or							
f. Fold buttonhole tab portion of flap, as indicated by marks on pattern (fabric back to back) and make two vertical button-holes in each tab, as indicated by pattern, with inside edge of eyelet 3/8 to 1/2 inch from bottom folded edge.	Button-hole		52-56 per button-hole	30	50		

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
8.	<u>Make pocket flap tabs and flaps.</u> (cont'd)  g. Fold tab on fold line (fabric face to face), fold opposite raw edge of flap (fabric face to face) even with raw edge of tab inclosing tab within the fold, and stitch side raw edges.  h. Turn flap and tab right side out, force out corners and edges. Turn flap and tab again (to finished position with raw edges hidden) and work out corners and edges. Stitch bottom and side edges 3/16 to 1/4 inch from edge. Bottom edge of buttonhole tab shall not be caught in the bottom edge stitching. The buttonhole purling shall finish facing the pocket flap.	301	SSe-2(a)	10-14	50	50	
		301	SSe-2(b)	10-14	50	50	
9.	<u>Make cargo pockets.</u>  a. Make one 3/16 to 1/4 inch sewn eyelet at bottom of each cargo pocket, positioned as indicated on patterns.  b. Fold the two front pleats at marks indicated on on pattern and stitch along the fold, 1/8 to 3/16 inch from edge.	401 or		19-24 per eyelet	50	70	
		502 or		26-32 per eyelet	70	70	
		503		26-32 per eyelet	70	70	
		301	OSf-1	10-14	50	50	

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
9.	<u>Make cargo pockets.</u> (cont'd)						
	c. Fold pleats, as indicated by marks on pattern, toward back of pocket and stitch or bartack across top and bottom of pleats to hold in position.	301 or 101 or 401 or Bartack	SSa-1 SSa-1 SSa-1	6-14 6-14 6-14 28 per bartack	50 50 50 50	50 50 70 50	
	d. With top raw edges of facing and pocket turned under, stitch facing to top inside of pocket, 3/32 to 1/8 inch from edges.	301 or 401	LSk-2 LSk-2	10-14 10-14	50 50	50 70	
	or						
	e. Stitch the facing to the top of pocket, turn and edge stitch 3/32 to 1/8 inch from edge.	301 or 401 and 301	SSe-2(a) SSe-2(a) SSe-2(b)	10-14 10-14 10-14	50 50 50	50 70 50	
	and						
	f. Turn in bottom raw edge of facing and stitch to pocket 3/32 to 1/8 inch from edge.	301	LSd-1	10-14	50	50	
	g. Bartack horizontally across fold of pleats with 3/8 to 5/8 inch bartacks. The bartacks shall be not more than 1/8 inch from the lower row of facing stitching.	Bartack	-	28 per bartack	50	50	
	h. Fold outside edge of bellows and stitch along folded edge (through facing 1/16 to 3/32 inch from folded edge). Place a vertical bartack 1/8 to 3/16 inch from top of pocket with bartack superimposed on stitching.	301 and bartack	OSf-1 -	10-14 28 per bartack	50 50	50 50	

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
9.	<u>Make cargo pockets.</u> (cont'd)						
	i. Fold bellows pleat at bottom of pocket; fold back side seam allowance in line with folded edge of pleat. Stitch across bottom of pleat catching side seam allowance in the stitching.	301	-	6-14	50	50	
*10.	<u>Make and attach buttonhole fly (for all types) and protective flap (type III only).</u>						
	a. Join buttonhole fly pieces along front edge; and turn and stitch 1/16 to 1/8 inch from turned edge.	301 or 401 and 301	SSe-2(a) SSe-2(a) SSe-2(b)	10-14 10-14	50 50	50 70	
	b. Make horizontal buttonholes in fly, as indicated on pattern, with the inside edge of eyelets 3/8 to 1/2 inch from front edge. All sizes, all groups shall have three buttonholes in the fly (waist buttonhole not included).	Button- hole	-	52-56 per button- hole including tack	30	50	
	c. Position the front edge of fly lining to outside of left front, as indicated on pattern, and join at front edge of lining.	301 or 401	Sbj-1 Sbj-1	10-14 10-14	50 50	50 70	
	d. Make a 3/4 to 1-1/4 inch vertical cut notch in front extension; from bottom raw edge extending upward and 3/8 inch from lining joining seam. Turn lining over front extension of stitch line.						
	e. Overedge stitch back raw edges of buttonhole fly and fly lining together with stitching continued across bottom edge. If possible, catch front extension in the overedge stitching.	502 or 503	SSa-1 SSa-1	6-10 6-10	50 50	50 50	

NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
*10.	<u>Make and attach buttonhole fly (for all types) and protective flap (type III only).</u> (cont'd)						
	f. Tack buttonhole fly between buttonholes to front edge of left fly lining through front extension. The horizontal tacks or bartacks shall be 1/4 to 1/2 inch in length and positioned in line with the front edge of the buttonhole.	301 or bartack 301 line tack	-	10-14 28 per bartack 28 per tack	50 50 50	50 50 50	
	g. Overedge stitch raw edges of the protective flap (type III only).	502 or 503 or 504	EFd-1 EFd-1 EFd-1	6-10 6-10 6-10	50 50 50	50 50 50	
	h. Make a diagonal buttonhole in the top corner of protective flap (type III only), as indicated on pattern, with the inside edge of eyelet 3/4 to 1 inch from pointed end with the purling facing toward the wearer.	Button- hole	-	52-56 per button- hole including tack	30	50	
	i. Position back edge of protective flaps (type III only) to back of buttonhole fly even with the curved edges at the bottom and stitch flap to fly 3/16 to 1/4 inch from back edge. The flaps shall finish 5/8 ± 1/8 inch from the top of the finished waistband.	301	SSa-1	10-14	50	50	
	j. Turn buttonhole fly to finished position, force out edges and stitch front 1/16 to 1/8 inch from edge. Stitching may continue down crotch seam with 1/2 inch seam allowance of left front turned over buttonhole fly and stitching 1/16 to 1/8 inch from folded edge.	301 301	SSE-2(b) SSbc-1	10-14 10-14	50 50	50 50	
	or						

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
*10.	<u>Make and attach buttonhole fly (for all types) and protective flap (type III only).</u> (cont'd)						
	k. Fold fly even and make horizontal buttonholes in fly as indicated on pattern, with the inside edge of eyelets 3/8 to 1/2 inch from front edge. All sizes, all groups shall have three buttonholes in the fly (waist butonhole, not included).	Button-hole		52- per button- hole including tack	30	50	
	l. Overedge stitch back raw edges of buttonhole fly, and fly lining together with the stitching continued across bottom edge.	502 or 503	SSa-1 SSa-1	6-10 6-10	50 50	50 50	
	m. Tack buttonhole fly between buttonholes to front edge of left fly lining with horizontal tacks or bartacks 1/4 to 1/2 inch in length.	301 or line tack or Bartack		10-14 28 per bartack 28 per tack	50 50 50	50 50 50	
	n. Position the front edge of fly to edge of left front and join at front edge of lining.	301 or 401	LSbj-1	10-14 10-14	50 50	50 50	
	o. Turn buttonhole fly to finished position, force out edges and stitch front 1/16 to 1/8 inch from edge. Stitching may continue down crotch seam with 1/2 inch seam allowance of left front turned over buttonhole fly and stitching 1/16 to 1/8 inch from folded edge.	301 and 301	SSe-2(b) SSbc-1	10-14 10-14	50 50	50 50	
11.	<u>Make right fly.</u>						
	a. Position fly lining to outside of right front and stitch lining to front at front edge.	301 or 401	SSe-2(a) SSe-2(a)	10-14 10-14	50 50	50 70	

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
11.	<u>Make right fly.</u> (cont'd)						
	b. Overedge stitch back raw edge of fly lining from top at waist and across bottom of single ply fly lining.	503 or 504	SSa-1 SSa-1	6-10 6-10	50 50	50 50	
	c. Turn lining to inside and edge stitch front 1/16 to 1/8 inch from edge from top of waist to step at base of fly opening.	301	SSe-2(b)	10-14	50	50	
	d. Overedge stitch raw edges of fly lining and front together across step and continuing down front edge to end at crotch.	502 or 503 or 504	SSa-1 SSa-1 SSa-1	6-10 6-10 6-10	50 50 50	50 50 50	
	or						
	e. Fold fly at fold line and overedge raw edges from top at waist and across bottom; overedge right front top at waist to notch.	503 or 504	SSa-1	6-10	50	70	
	f. Position fly on outside of right front and stitch to front.	301 or 401	SSa-1	10-14	50	50	
	or						
	g. Operations e. and f. may be combined.	515 or 516 or 517	LSbm-3(a)				
	h. Turn seam toward side seam of front and topstitch through front and fly.	301	LSbm-3(b)	10-14	50	50	

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
12.	<u>Make hip pockets.</u>  Finished appearance. The hip pockets shall be uniform in width and depth. Ends of openings where the cord facings are turned in shall be neatly finished without raw edges or pleats. The right and left pockets shall be in alignment.	301	LSd-1	10-14	50	50	
	a. Position bearer to pocket according to line on pattern with the lower edge turned in. Stitch 1/16 to 1/8 inch from folded edge. When lower edge is cut on the selvage, the edge need not be turned in.	301	LSd-1	10-14	50	50	
	b. Position hip pocket flap bottom raw edges to mark for pocket opening on trouser back. Position hip pocket on underside of trouser back matching pocket opening marks. Stitch through all plies 1/4 to 3/8 inch from raw edges of flap.	301	LSq-2(a)	10-14	50	50	
	c. Position facing parallel to flap raw edges on outside of trouser and stitch 3/16 to 1/4 inch from edge on flap.	301	SSbe-2(a)	10-14	50	50	
	d. Cut opening between rows of stitching and tongue notch ends.						
	e. Turn pocket facing piece through opening and edge stitch 1/16 to 1/8 inch from seam through trouser forming a cord 3/16 to 1/4 inch wide.	301	SSbe-2(b)	10-14	50	50	
	f. Turn in the bottom edge of the facing piece, and stitch to pocket 1/16 to 1/8 inch from edge. When bottom edge of facing is selvaged, it need not be turned in.	301	LSd-1	10-14	50	50	

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
12.	<u>Make hip pockets.</u> (cont'd)						
	g. Seam side edges of hanging pocket, turn and stitch side 3/16 to 1/4 inch from edge. Stitching may be continued along bottom edge. The raw edges of the pocket shall be on the inside. In lieu of stitching, turning and stitching, the pockets may be finished as indicated in operation 12.n.	301	SSe-2 and OSf-1	10-14	50	50	
	h. Turn down flap over pocket opening and raise stitch 1/16 to 1/8 inch through the trousers, flap seam allowances, pocket bearer, and pocket; continue the stitching across the openings of the ends, catching the turned in tongues and tacking the pocket.	301	LSq-2(b)	10-14	50	50	
	or						
	i. Repeat operation 12.b. and:						
	j. Cut pocket opening and tongue notch ends.						
	k. Position hip pocket bearer to pocket according to line on pattern with raw edge turned under and stitch 1/16 to 1/8 inch from folded edge.	301	LSd-1	10-14	50	50	
	l. Fold facing in half, position raw edges to the end of pocket, and safety-stitch together.	515 or 516 or 519	SSa-2 SSa-2 SSa-2	10-14 10-14 10-14	50 (chain stitch 70 (over stitch	70 ing) 70 edge ing)	

NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
12.	<u>Make hip pockets.</u> (cont'd)						
	m. Turn under the lower edge of pocket opening and stitch 1/16 to 1/8 inch from folded edge through facing forming a cord 3/16 to 1/4 inch wide. The raw edges of seams joining facing cord to pocket shall finish between outside of the pocket and trousers.	301	LSd-1	10-14	50	50	
	n. Form pocket by safety-stitching the sides together. Finish flap by repeating operation 12.h.	515 or 516 or 519	SSa-2 SSa-2 SSa-2	10-14 10-14 10-14	50 (chain stitch 70 (over stitch	70 ing) 70 edge ing)	
	or						
	o. Repeat operations 12.j. through n. and:						
	p. Position pocket to underside of trousers according to pocket opening marks; turn under the top edge of pocket opening, insert top of flap 1/4 to 3/8 inch and raise stitch through trousers 1/16 to 1/8 inch from fold catching the raw edges of the flap, bearer, and pocket opening. Continue across the opening of the ends catching the turned in tongues and tacking pocket.	301	LSd-1	10-14	50	50	
	q. Operations b. through e. may be performed by an automatic machine which sets the flap, stitches, cuts, and turns piped edges in one operation. Facing edge shall be turned under and stitched to pocket as in 12.f. When this method is used, the ends of the pocket opening shall be securely tacked, and the top	101 or 301	-	10-14	50	50	

NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
12.	<u>Make hip pockets.</u> (cont'd)  corded edge shall finish under the flap, or the top cord may be deleted when an automatic machine is used. Raise stitching of lower edge should be through the trouser back and piping piece only.  r. Raise stitch flap through trouser back, flap seam allowances, piping, pocket and bearer 1/16 to 1/8 inch from seam.  s. Close sides of pocket by safety stitching the sides together.	301	-	10-14	50	50	
13.	<u>Make and stitch side hanging pockets.</u>  Finished appearance. The pocket openings shall be uniform in appearance and the edges shall finish smooth and flat without distortion. The pocket openings shall finish not less than 6 inches, nor more than 7-1/4 inches.  a. Overedge stitch front raw edges of bearers.  b. Overedge stitch back raw edges of facings.  or	502 or 503 or 504	EFd-1 EFd-1 EFd-1	10-14 10-14 10-14	50 50 50	50 50 50	

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
13.	<u>Make and stitch side hanging pockets.</u> (cont'd)						
	c. When back edge of facings are selvaged, they need not be overedged.						
	or						
*	d. In lieu of operations a. and b., the raw edges may be turned under and caught in the stitching when performing operations e. and g.						
	e. Position bearer on pocket, as indicated on pattern, and stitch bearer to pocket along front edges and lower end of bearer.	301	SSa-1 or LSd-1	10-14	50	50	
	or	301	LSd-1	10-14	50	50	
*	f. Position bearer on pocket, as indicated on pattern and overstitch bearer to pocket along front edges of bearer.	602 Mod	LSbj-1	10-14	50	70	
	NOTE: When using automated equipment, the facing and bearer may be straight stitched along the inner side with the raw edge turned-in from the top to the bottom.						
	g. Position facing on pocket with ends of facing equidistant from notches and stitch facing to pocket along back edge of facing.	301	SSa-1 or LSd-1	10-14	50	50	
	or	301	LSd-1	10-14	50	50	

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
13.	<u>Make and stitch side hanging pockets.</u> (cont'd)						
*	h. Position facing on pocket with ends of facing equidistant from notches and cover stitch facing to pocket along back edge of facing.	602 Mod	LSbj-1	10-14	50	70	
	i. Fold pocket in half, seam and overedge stitch bottom edges.	515 or 516 or 519	SSa-2 SSa-2 SSa-2	10-14 10-14 10-14	50 (chain stitch 70 (over stitch thread	70 ing) 70 ing s)	
	or						
	j. Fold pocket in half, stitch, turn and edge stitch bottom edges, 1/8 to 3/16 inch from turned edge.	301 or 401 and 301	SSe-2(a) SSe-2(a) SSe-2(b)	10-14 10-14 10-14	50 50 50	50 70 50	
	and						
	k. Position front of pocket to front of trousers matching notches and stitch pocket to front; turn pocket to inside and double stitch edge or single stitch edge 3/16 to 1/4 inch from edge, from top of trousers to edge of outseam.	301 or 401 and 301 301	SSe-1 SSe-1 SSe-3(b) or SSe-2(b)	10-14 10-14 10-14 10-14	50 50 50 50	50 70 50 50	
	l. Position trouser front on bearer. Stitch above and below pocket opening through trouser and bearer with one row of stitching 1/16 to 3/32 inch from edge.	301	LSd-1	10-14	50	50	

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
*14.	<u>Attach seam and knee patches (types I, III and V only).</u>						
	a. Position seat patches on right and left backs, as indicated on pattern with straight raw edges even with raw edges of inseams and seat seams. Turn under straight edge of back 1/2 inch (at junction of seat and inseam) toward facing side of cloth and stitch down to back.	301	LSd-1	10-14	50	50	
	b. Stitch each seat patch to backs 1/16 to 1/8 inch from curved edge. The stitching may be continued along seat and inseams 1/16 to 1/8 inch from edges.	301	LSd-1	10-14	50	50	
	c. Position knee patches on right and left fronts, as indicated on pattern, with front and back raw edges even with raw edges of inseams and outseams.						
	d. Turn in top and bottom edges of patches and stitch to fronts 1/16 to 1/8 inch from edges. The stitching may be continued along inseams and outseams 1/16 to 1/8 inch from edges.	301	LSd-1	10-14	50	50	
15.	<u>Join outseams.</u>  Finished appearance. The outseam shall be carefully joined with notches matching, free of twists, puckers, pleats or raw edges. The seams shall start and finish evenly. Pocket openings shall not show excessive fullness or pleats in the joining of the seams, and shall not be caught in the seam stitching.						

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
15.	<u>Join outseams.</u> (cont'd)						
	a. Form knee action pleats, as indicated on pattern, and join outseams with double-lapped and double-stitched seams with the fronts lapping the backs. The outside folds of pleats shall be toward the bottom of trousers.	301 or 401	LSc-2 LSc-2	10-14 10-14	50 50	50 70	
	b. Pleats may be held in place by holding stitch no more than 1 inch from side raw edge, stitched along pleat folds.	301 or 401	OSe-1 OSe-1	10-14 10-14	50 50	50 70	
	or						
	c. Pleats may be held in place by a bartack, but the bartack must be buried in the leg seams and not be visible from the front view of the trouser.	Bartack		28 per bartack	50	50	
16.	<u>Sew on cargo pockets and flaps.</u>						
	Finished appearance. The bellows side of the cargo pocket shall finish toward the back. Pockets shall be uniformly stitched and properly positioned with the top corners of pocket opening covered by the flap.						
	a. Mark position of cargo pockets and flaps, as indicated on the patterns.						
	b. Turn in the seam allowance, on the bellows side of pocket. Stitch bellows side of pocket to trousers, positioned as marked with one row of stitching 1/16 to 1/8 inch from edge. The end of the seam shall catch the turned-under seam allowance at bottom of pocket, closing bellows at bottom.	301	LSd-1	10-14	50	50	

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
16.	<u>Sew on cargo pockets and flaps.</u> (cont'd)						
*	<p>c. Turn in other side and remaining bottom seam allowance of pocket and stitch to trousers with one row of stitching 1/16 to 1/8 inch from edge to bellows side. Stitching shall superimpose prehemming stitching when this option is selected. Do not catch bellows in the stitching.</p> <p>NOTE: Operations 16b and 16c may be performed as one operation on the cargo pocket. When using the single operation, the back bottom corner of each cargo pocket shall be backtacked through the bellows and the pocket for not less than 1/4 inch. The cross over stitch from the bellows to the pocket should come immediately after the backtack to preclude any weak spot in this area.</p>	301	LSd-1	10-14	50	50	
	<p>d. Bartack back and front edges of pocket opening with vertical bartacks superimposed on pocket stitching through pocket and trousers.</p>	Bartack	-	28 per bartack	50	50	
	<p>e. Position raw edges of flap above pocket opening as indicated on pattern, and join to trousers 1/8 to 3/16 inch from raw edges. Turn flap down and raise stitch 3/16 to 1/4 inch from turned edge making sure to bury raw edges within seam.</p> <p style="text-align: center;">or</p>	301 or 401 and 301	LSbl-2	10-14 10-14 10-14	50 50 <sup>+</sup> 50	50 70 50	
	<p>f. Turn in top edge of flap, positioned on trousers, as indicated on pattern, and double-stitch burying raw edges within seam.</p>	301	LSd-2	10-14	50	50	

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
16.	<u>Sew on cargo pockets and flaps.</u> (cont'd)  g. When operations 8.f through 8.h, are used: Position top folded edge of flap above pocket opening, as indicated on pattern, and stitch with two rows of stitching 3/16 to 1/4 inch apart.	301	OSf-2	10-14	50	50	
17.	<u>Join seat seam.</u>  * NOTE: Prior to joining the seat seam for types I, III and V trousers, the portion of the seat patch that extends beyond the seat seam may be trimmed off. Trimming is intended to facilitate stitching the double-lapped, double-stitched seam.						
34	* Join seat seam with double-lapped, double-stitched seam, catching seat patches (in types I, III and V) in the stitching. The edges of the seat patches shall be aligned and the seat seam may lap in either direction.	401	LSc-2	10-14	30	50	
18.	<u>Seam on waistband lining and attach belt loops.</u>  Finished appearance. The waistband lining shall finish flat and smooth without twists, puckers, pleats or raw edges. The top edges of the side hanging pockets shall extend into the waistband area and shall be caught under the bottom stitching of the waistband lining. The finished waistband lining shall measure 1-5/8 ± 1/8 inches wide.						

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
18.	Seam on waistband lining and attach belt loops. (cont'd)						
	a. Position belt loops as follows:  (1) One centered on left front, midway between front edge and outseam. (2) One on right front centered (1/4 inch tolerance) between front edge of fly and outseam. (3) One adjacent to each outseam on back. (4) One adjacent to seat seam on left back. (5) One each midway between loops at outseam and seat seam.						
	b. With button fly and fly lining turned to outside face to face to front, and top edges even, position waistband lining to waistband extending to 1-1/4 inches from left front edge of trousers. Stitch to top of trousers catching one end of belt loops and top edges of hip pockets (for grown on waistband construction only) in the stitching. Top ends of belt loops may be attached separately as in operation 18.f.	301 or 401	SSe-2(a) SSe-2(a)	10-14 10-14	50 50	50 70	
c. Turn waistband to inside of trousers and work out top edges (and left fly corner). With waistband extension between left front and left fly lining, turn under raw end of waistband lining at right front edge stitch 1/16 to 1/8 inch from top edge continuing down right front waistband. Bottom raw edge on right front ends shall be turned under and caught in stitching. Belt loops shall not be folded over the top of trousers and caught in edge stitching.	301 or 401 and 301	SSe-2(b) SSe-2(b) SSb-1	10-14 10-14 10-14	50 50 50	50 70 50		

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
18.	<u>Seam on waistband lining and attach belt loops.</u> (cont'd)						
	d. Turn under remaining bottom raw edges of waistband lining, and stitch 1/16 to 1/8 inch from edge catching hip pocket and size label at left of center seam. The back edge of lining shall not be caught in the stitching. The label may be tacked to the turned-under bottom of the lining prior to waistband stitching.	301 or 401	LSd-1 LSb-1	10-14 10-14	50 50	50 70	
	or						
	e. Waistband lining operations indicated in 18.c. and d. may be combined in one operation.	301 or 401	LSk-2 LSk-2	10-14 10-14	50 50	50 70	
	f. Bartack top and bottom ends of loops to trousers with the ends turned in. The belt loops shall finish $2 \pm 1/4$ inches between bartacks with the cover stitching on underside. When belt loops are inserted in the waistband stitching, the loops shall be bartacked at top and bottom with the bottom raw end turned in. Bottom bartack shall not be through size label at back of trousers.	Bartack	-	28 per bartack	50	50	
	or						
	Finished appearance. The waistband and waistband lining shall finish flat and smooth without twists, puckers, pleats or raw edges. The top edges of the side hanging pockets shall extend into the waistband area and shall be caught in the two rows of bottom stitching of the waistband. The lining shall measure $1-5/8 \pm 1/8$ inches wide.						

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
18.	<u>Seam on waistband lining and attach belt loops.</u> (cont'd)						
	g. Position waistband lining on face side of waistband, stitch $3/8 \pm 1/16$ inch from edges, turn edge stitch $1/16$ to $1/8$ inch from edge.	301 or 401	SSe-2	10-14	50 50	50 70	
	or						
	h. Fold in edges of waistband and waistband lining $3/8 \pm 1/16$ inch and edge stitch $1/16$ to $1/8$ inch from edge.	301 or 401	SSc-1	10-14	50 50	50 70	
	i. Position waistband on top of trouser, face to face and stitch $3/8 \pm 1/16$ inch from edge.	301 or 401	SSa-1	10-14	50 50	50 70	
j. Turn waistband to finished position, turn bottom edge of waistband lining and stitch through waistband trousers and waistband lining with a double row of stitching $3/16$ inch gage, catching label at center back.	301 or 401	Finished seam is LSco-4	10-14	50 50	50 70		
or							
k. Operations g, h, i and j. above may be performed in one operation using a folder, and a double row of stitching $3/16$ inch gage to attach waistband and lining to trouser top.	301 or 401	LSbc-3	10-14	50 <sup>*</sup> 50	50 70		
l. Turn front end of right waistband inward and stitch along tucked in edge.							

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
19.	<u>Finish left fly.</u>  a. Stitch left front of trousers through front and buttonhole fly from top of trousers to bottom of crotch seam with stitching 1-3/4 to 2 inches from front edge and tapering to front edge at base fly opening. The back end of bottom buttonhole shall not be closed by tapered stitch line.  or  b. Overedge stitch left end of waistband.  c. Fold front end of left waistband and fly to under-side and stitch inner and top edge to trouser front.  d. The stitching above the curve shall be 1-3/4 to 2 inches from front edge for all sizes.  e. The protective flap shall not be caught in the stitching (type III only).	301	SSv-1	10-14	50	50	
		502 or 503 or 504	EFd-1	6-10	70	70	
		301	LSa-1	8-10	50	50	
20.	<u>Join crotch seam.</u>  Position left front over right front along crotch seam with left front seam allowance turned under and buttonhole fly under fold. Seam with two rows of stitching. The stitching shall terminate 2-3/4 to 3 inches from inseam.	301	LSb-2	10-14	50	50	

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
21.	<u>Join inseams.</u>						
	a. Form knee action pleats, as indicated by notches on front pattern and join inseams in one continuous operation with a double-lapped and double-stitched seam with the fronts lapping the backs catching knee patches in the stitching. The outside fold of pleats shall be toward the bottom of trousers, and the crotch and seat seams shall not be staggered more than 5/8 inch (measurement taken from center of seams).	301 or 401	LSc-2 LSc-2	10-14 10-14	50 50	50 70	
	b. Pleats may be held in place by a holding stitch no more than 1 inch from side raw edge stitched along pleat folds.	301 or 401	OSe-1 OSe-1	10-14 10-14	50 50	50 70	
	or						
	Pleats may be held in place by a bartack but the bartack must be buried in the leg seams and not be visible from the front view of the trouser.	Bartack		28 per bartack	50	50	
22.	<u>Make buttonhole for leg hem drawtapes.</u>						
	a. Make two buttonholes to finish in center of under-side of trouser hem through reinforcement piece at front of each trouser leg, as indicated on pattern. Position the eyelet end of each buttonhole toward front of trouser. Reinforcement piece shall be of sufficient width and length to reinforce drawtape outlets. The reinforcement pieces may be pre-stitched into position prior to making drawtape outlets.	Button- hole	-	52-56 per button- hole including tack	30	50	
	or						

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
22.	<p><u>Make buttonhole for leg hem drawtapes.</u> (cont'd)</p> <p>b. Make two sewn eyelets through reinforcement, positioned as indicated for the eyelet end of the buttonhole.</p> <p style="text-align: center;">or</p> <p>c. Make two 1/2 to 5/8 inch, straight-cut buttonholes tacked at both ends, through reinforcement and positioned as indicated in pattern.</p> <p>d. Thread tape through buttonholes or eyelets with tape crossed between outlets and extending around the bottom of each leg, and knot ends.</p> <p>e. Bartack the leg hem tape through the underside of leg bottoms at center of back part; or bartack the tape through the finished hem.</p>	Eyelet	-	19-24 per eyelet	70	70	
		304	-	52-56 or 57-60 per button- hole including tack	30 or 70	50 or 70	
		Bartack	-	28 per bartack	50	50	
23.	<p><u>Hem leg bottoms.</u></p> <p>Turn up leg bottoms as indicated on pattern, and with the raw edge turned in, single stitch through trousers 1/16 to 1/8 inch from edge. Hem shall finish <math>1 \pm 1/4</math> inches wide and the leg hem drawtape shall not be caught in the stitching.</p>	301	EFb-1	10-14	50	50	

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
24.	<u>Make waistband buttonhole.</u>  Mark and make horizontal buttonhole through all plies at the waist of left front with the inside edge of the eyelet 3/8 to 1/2 inch from front edge and centered horizontally on waistband lining. The buttonhole purling shall finish on the outside of the trousers.	Button-hole	-	52-56 per button-hole including tack	30	50	
25.	<u>Bartacking.</u>  a. Bartack the fly perpendicular to crotch joining seam and overlapping end of stitching of crotch joining seam. The bartack shall not extend beyond fly front edge and shall catch the protective flap of the type III alternate construction. (For standard construction see operation 25g).  b. Secure the ends of the side pocket openings with bartacks positioned at right angles to front edge of pocket openings.  c. Bartack the ends of the hip pocket openings with vertical bartacks to cover width of opening and cover raise stitching.  d. Bartack the front lower corner of cargo pocket flaps with a vertical bartack superimposed on the stitching.  e. Bartack the back bottom corner of each cargo pocket with a vertical bartack through both layers of bellows.	Bartack	-	28 per bartack	30 or 50	50	
		Bartack	-	28 per bartack	50	50	
		Bartack	-	28 per bartack	30 or 50	30 or 50	
		Bartack	-	28 per bartack	50	50	
		Bartack	-	28 per bartack	50	50	

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
25.	<p><u>Bartacking.</u> (cont'd)</p> <p>f. Attach waistband adjustment straps to waistband.</p> <p>(1) Thread attachment strap through second bar from lip end; fold back one end over opposite end 1/4 to 3/8 inch.</p> <p>(2) Position folded-under end to center of waistband on front 5/8 to 3/4 inch beyond side seam with buckle lip toward seat seam and double bartack strap to trousers, 1/16 to 1/8 inch from back edge and 1/8 to 3/16 inch apart. Bartack should not be through side seam.</p> <p>(3) Thread free end of adjustment strap under back belt loops, extend full length; turn under raw edge 1/4 to 3/8 inch and double bartack strap to trousers, 1/16 to 1/8 inch from folded edge and 1/8 to 3/16 inch apart.</p> <p>g. Bartack bottom front edge of right fly to the back of left fly with a vertical bartack. The lower end of the bartack shall be <math>1/4 \pm 1/16</math> inch from the base of the right fly and <math>1/2 \pm 1/8</math> inch from the front edge of right fly. When bottom button is buttoned, fly shall lay flat and have no fullness. Also bartack the protective flap to the back edge of the lower right fly lining approximately where the edge starts to curve toward the bottom of the fly (for optional construction see operation 25a.) The bartack must be placed parallel to and not more than 3/8 inch from the edges of the flap and right fly lining.</p>	Bartack	-	28 per bartack	50	50	
		Bartack	-	28 per bartack	50	50	
		Bartack	-	28 per bartack	30 or 50	50	

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
26.	<u>Mark or gage and sew on buttons.</u>						
	a. Sew buttons on right front through fly lining to correspond with eyelet ends of buttonholes in left fly.	101 or 301	-	14-16 per button	30		
				14-16 per button	30	30	
	b. Sew waist button on right front to correspond to eyelet end of waist buttonhole on left front when fly is in closed position.	101 or 301	-	14-16 per button	30	30	
				14-16 per button	30	30	
	c. Sew two buttons on each hip pocket; through pocket to correspond with eyelet ends of buttonholes in pocket flaps.	101 or 301	-	14-16 per button	30		
				14-16 per button	30	30	
	d. Sew two buttons on each cargo pocket through pocket and pocket facing to correspond with eyelet ends of buttonholes in the pocket flap.	101 or 301	-	14-16 per button	30		
			14-16 per button	30	30		

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	THREAD		
					NEEDLE	BOBBIN/ LOOPER	COVER
26.	<p><u>Mark or gage and sew on buttons.</u> (cont'd)</p> <p>e. For type III only, sew one button to the inside of right front through waistband lining and front to correspond with eyelet end of buttonhole in protective flap.</p>	101 or 301		14-16 per button 14-16 per button	30  30	30	
27.	<p><u>Cleaning.</u></p> <p>Trim all ends of stitching to 1/2 inch maximum on outside, 1/2 inch maximum inside and remove loose threads from the trousers. Trim ends of belt loops, remove all spots and stains, and all shade and size markings. The top button in waistband shall be buttoned.</p>						

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

TABLE III. Finished measurements (inches)

Measurement	X-small	Small	Medium	Large	X-large	Tolerance
1/2 waist <u>1/</u>	13-3/4	15-3/4	17-3/4	19-3/4	21-3/4	$\pm 1/2$
Inseam: <u>2/</u>						
X-short	28-3/4	28-3/4	28-3/4	-----	-----	$\pm 3/4$
Short	30-3/4	30-3/4	30-3/4	30-3/4	30-3/4	$\pm 3/4$
Regular	32-3/4	32-3/4	32-3/4	32-3/4	32-3/4	$\pm 3/4$
Long	34-3/4	34-3/4	34-3/4	34-3/4	34-3/4	$\pm 3/4$
X-long	-----	36-3/4	36-3/4	36-3/4	-----	$\pm 3/4$
Outseam: <u>3/</u>						
X-short	37-3/4	38-1/4	38-3/4	-----	-----	$\pm 3/4$
Short	40-1/4	40-3/4	41-1/4	41-3/4	42-1/4	$\pm 3/4$
Regular	42-3/4	43-1/4	43-3/4	44-1/4	44-3/4	$\pm 3/4$
Long	45-1/4	45-3/4	46-1/4	46-3/4	47-1/4	$\pm 3/4$
X-long	-----	48-1/4	48-3/4	49-1/4	-----	$\pm 3/4$
Bottom: <u>4/</u>						
X-short	17	17	17-3/4	-----	-----	$\pm 1/2$
Short	17	17	17-3/4	17-3/4	18-1/2	$\pm 1/2$
Regular	17	17	17-3/4	17-3/4	18-1/2	$\pm 1/2$
Long	17	17	17-3/4	17-3/4	18-1/2	$\pm 1/2$
X-long	-----	17	17-3/4	17-3/4	-----	$\pm 1/2$
Knee: <u>5/</u>						
X-short	20-1/2	21-3/4	23	-----	-----	$\pm 1/2$
Short	20-1/2	21-3/4	23	23-7/8	25-3/8	$\pm 1/2$
Regular	20-1/2	21-3/4	23	23-7/8	25-3/8	$\pm 1/2$
Long	20-1/2	21-3/4	23	23-7/8	25-3/8	$\pm 1/2$
X-long	-----	21-3/4	23	23-7/8	-----	$\pm 1/2$

Method of measuring. The waistband and fly shall be buttoned and trousers placed flat upon a table and measured as follows:

- 1/ Measure along center of waistband from folded edge to folded edge.
- 2/ Measure inseam of trousers from crotch seam to bottom edge of trouser leg.
- 3/ Measure from top edge of waist to bottom of leg along outseam.

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- 4/ Measure across bottom of leg. Multiply by two.
- 5/ Measure across leg from side edge to side edge in line with outside folded edges of pleats. Multiply by two.

3.11 Workmanship. The end item shall conform to the quality of product established by this specification and the occurrence of defects shall not exceed the applicable acceptable quality levels.

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the government. The Government reserves the right to perform any of the inspections set forth in this specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.1.2 Responsibility for dimensional requirements. Unless otherwise specified in the contract or purchase order, the contractor is responsible for ensuring that all specified dimensions have been met. When dimensions cannot be examined on the end item, inspection shall be made at any point, or at all points in the manufacturing process necessary to ensure compliance with all dimensional requirements.

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

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

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

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4.3 First article inspection. When a first article is required (see 3.1 and 6.2), it shall be examined for the defects specified in MIL-STD-1488.

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

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

4.4.2 Certification. When printed or dyed seconds are used, the contractor shall furnish a certificate of compliance indicating that they meet the requirements of 3.3.2.

4.4.3 Daily preproduction testing (types I, III and V trousers only). The tests listed in table IV shall be performed each day prior to the start of production.

TABLE IV. Daily preproduction tests

Characteristics	Requirement	Test procedure
Fusing press settings	3.3.3.1	4.4.3.1
Actual fusing temperature	3.3.3.1	4.4.3.2
Bonding strength	MIL-C-44296	4.4.3.3

4.4.3.1 Fusing press settings. Before production begins each day, visually check all fusing machine settings for temperature, pressure, and dwell time for conformance with manufacturers recommendations. Nonconforming settings shall be adjusted accordingly. Actual setting shall be recorded in the first column of figure 2.

4.4.3.2 Actual fusing temperature. One swatch of outershell material, 8 inches in the warp direction and 11 inches in the filling direction, shall be cut from material to be used in the first of the days production. At the same time, one swatch of fusible interlining cloth material, 8 inches in the machine direction and 11 inches in the cross-machine direction, shall be cut from material to be used in the first of the days production. All test swatches shall be cut into three equal parts of approximately 3.6 inches by 8 inches. The fusible test swatches may be cut slightly smaller in size to avoid fusing belt or head contamination. Sandwich a temperature strip (see 6.7) face down between one specimen of outershell material placed face down and a specimen of fusible interlining cloth material placed on top with the adhesive side down. The temperature strip shall be placed slightly within the fusible starter strip. All fusing tests shall have an approximate 1 inch

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by full width starter strip or non-fused area incorporated into the top portion of any given bond strength samples. This can be accomplished by placing a thin, non-adhesive material between the fusible interlining cloth material and outershell before fusing, or by folding the fusible onto itself. This sample shall be placed in the center of the fusing press conveyor or head with the outershell material down. Prepare two additional samples as described above using fusible interlining cloth material and place them on the left and right sides of the fusing head or conveyor belt with the outershell material face down. After the fusing press is fully warmed up, run all samples through the fusing press, take the temperature of the strip specimens, determine the average of the three readings, and record the results in column 2 of figure 2. Retain each individual temperature reading in an organized, self-developed worksheet format. If the average falls outside of the fusible manufacturers recommended range, or if there is a variance in excess of 10°F or 6°C between lanes, determine the cause, correct the problem, and repeat the testing process. Actual temperature and time shall be recorded in Chart A of figure 2.

4.4.3.3 Bonding strength. To determine bonding strength, trim all fusible interlining cloth swatches from the actual fusing temperature test to 1 inch by 8 inch strips. Pinking shears shall not be used to cut strips. The outershell fabric of each shall be clamped at the top, and the fusible material pulled from the starter strips downwards in a vertical direction in a steady, continuous motion. A constant-rate-extension (CRE), or a constant-rate-traverse (CRT), or calibrated spring scale type tester may be used. If a spring scale type tester is used, it shall be calibrated once weekly. Any calibration procedure used shall assure an accuracy of 1/4 ounce or better, and the date of calibration shall be entered on figure 2. Average the three bonding strength readings in an organized self-developed worksheet format and record the averages on Chart A of figure 2. If any individual reading fails to meet minimum bonding strength requirements, then cause must be determined, corrections made, and the material retested until the problem is resolved before commencing production. In case of bonding strength dispute see 6.6.

4.4.3.4 In-process fusing press maintenance and representative production testing (types I, III and V trousers only). In-process tests listed in table V shall be performed. Actual fusing temperature and bonding strength testing shall be performed after every 4 hours of fusing production time. Pressure evenness and dwell time maintenance testing shall be performed once weekly. All representative production testing shall be performed on outershell, and fusible interlining cloth materials, sampled from component lots to be consumed in the next 1000 units of end item production. Sample size, and acceptance/rejection criteria shall be as specified in the applicable test procedure. Tests shall include appearance before laundering and appearance and bonding strength after three launderings.

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TABLE V. In-process fusing maintenance and representative production tests

Characteristic	Requirement	Test procedure
Fusing press maintenance:		
Actual fusing temperature	3.3.3.1	4.4.3.2
Bonding strength	MIL-C-44296	4.4.3.3
Pressure evenness	3.3.3.1	4.4.3.5
Dwell time	3.3.3.1	4.4.3.5
Representative production:		
Appearance (before and after 3 launderings)	3.3.3.1	4.4.3.6
Laundered bonding strength	3.3.3.1	4.4.3.6

4.4.3.5 Pressure evenness and dwell time. Cut five strips, 8 inches in the warp direction by 2 inches in the filling direction, of outershell material and slightly smaller sized fusible interlining cloth material. Place each of the fusible strips, with the adhesive side down, on the top of the outershell material with the face side down and with a fusible starter strip (see 4.4.3.2). Arrange the five specimens on the fusing press conveyor belt alongside each other in five different lanes, consisting of extreme left, middle left, center, middle right, and extreme right. For head press equipment, place a specimen in each corner and one in the middle. Run the specimens through the fusing press and using a stop watch, mark the time elapsed between the time the leading edge of one of the specimens comes under pressure contact and the time it is released from the pressure contact. Enter the dwell time on figure 2. Remove the strips from the fusing machine when adequately cooled, cut fused outershell/fusible laminate to 1 inch in the filling direction, and perform the bonding test in 4.4.3.3 on all five specimens, recording the results for each specimen on figure 2. The dwell time should be consistent with the machine speed ratings. The fusible manufacturers recommended range and all five specimens should meet the minimum initial requirement for bond strength. Any variations shall be investigated for cause, corrections made, and the testing process repeated.

4.4.3.6 Laundered appearance and bonding strength. For testing, prepare an 8 inch in the warp by an 11 inch in the filling, outershell material specimen representative of each 1000 unit production end item lot. Prepare a slightly smaller sized fusible interlining cloth specimen and fuse in accordance with 4.4.3.1. Launder the fused sample three times in accordance with MIL-C-44296 requirements, except launder for a minimum of 10 minutes and do not condition to equilibrium under standard conditions. Examine the test swatch for bubbling, delamination, or strike through and record observations on Chart B of figure 2. Trim the swatch into three 1 inch by 8 inch strips

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and perform bonding strength tests using the bonding strength procedure in the preproduction testing in 4.4.3.2. Retain each individual bonding strength reading in an organized, self-developed worksheet format and record averages on Chart B of figure 2. Any evidence of bubbling, delamination, or strike through, or bonding strength not meeting the requirements of MIL-C-44296 shall be investigated for cause, corrections made, and retesting performed before continuing production of the 1000 end items represented by the sample. At the conclusion of all tests, authorized initials shall be written in to verify contractor results.

4.4.4 End item visual examination. The end items shall be examined for trousers "U" visual defects in accordance with the provisions of MIL-STD-1488.

4.4.5 End item dimensional examination. The end items shall be examined for dimensional defects in accordance with provisions of MIL-STD-1488.

4.4.6 Packaging examination. The fully packaged end items shall be examined in accordance with the provisions of MIL-STD-1488.

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

<u>Examine</u>	<u>Defect</u>
Finished dimension	Length, width, or height exceeds specified maximum requirement.
Palletization	Pallet pattern not as specified. Load not bonded as specified.
Weight	Exceeds maximum load limits.
Marking	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application.

## 5. PACKAGING

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

5.1.1 Level A preservation. Each pair of trousers, with inseams meeting, shall be folded from the leg bottom up toward the waistband to an overall length of approximately 23-1/2 inches. Before folding the regular and long trousers to the required length, the leg bottoms shall first be folded over

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approximately 4 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. Each pair of trousers shall be placed in its own plastic bag in accordance with A-A-50083.

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

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

\* 5.2.1 Level A packing. Thirty pairs of trousers of one size only, for types I and IV and thirty five pairs of trousers of one size only for types III and V, preserved as specified in 5.1, shall be packed in a snug-fitting fiberboard shipping container conforming to style RSC-L, grade V2s of PPP-B-636. The inside of each shipping container shall be fitted with a box liner conforming to type CF, class weather-resistant, variety DW, grade V15c of PPP-B-636. Trousers shall be packed flat, six in depth for types I and IV and seven in depth for types III and V within a shipping container. The inside dimensions of each container shall approximate 23-1/2 inches in length, 15 inches in width, and 15 inches in depth. Approximate dimensions are furnished as guides only. Each shipping container shall be closed in accordance with method III, waterproofed in accordance with method V and reinforced as specified in the appendix of PPP-B-636, except that the inspection shall be in accordance with 4.4.6. Shipping containers shall be arranged in unit loads in accordance with MIL-L-35078 for the type and class of load specified (see 6.2). Strapping shall be limited to nonmetallic strapping, except for type II, class F loads.

\* 5.2.2 Level B packing. Thirty pairs of trousers of one size only for types I and IV and thirty five pairs of trousers of one size only for types III and V, preserved as specified in 5.1, shall be packed in a snug-fitting fiberboard shipping container conforming to style RSC-L, type CF (variety SW) or SF, class domestic, grade 275 of PPP-B-636. The inside of each shipping container shall be fitted with a box liner conforming to type CF, class domestic, variety DW, grade 275 of PPP-B-636. Trousers shall be packed flat, six in depth for types I and IV and seven in depth for types III and V within a shipping container. The inside dimensions of each container shall approximate 23-1/2 inches in length, 15 inches in width, and 15 inches in depth. Approximate dimensions are furnished as guides only. Each shipping container shall be closed in accordance with method II as specified in the appendix of PPP-B-636, except that the inspection shall be in accordance with 4.4.6.

5.2.2.1 Weather-resistant fiberboard shipping containers. When specified (see 6.2), shipping containers shall be grade V3c, V3s, or V4s fiberboard box fabricated in accordance with PPP-B-636 and closed in accordance with method III as specified in the appendix of PPP-B-636, except that the inspection shall be in accordance with 4.4.6.

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

5.3 Palletization. When specified (see 6.2), trousers packed as specified in 5.2.2 or 5.2.3, shall be palletized on a 4-way entry pallet in accordance with load type Ia of MIL-STD-147. Pallet types shall be type I (4-way entry), type IV, or type V in accordance with MIL-STD-147. Pallets shall be fabricated from wood groups I, II, III, or IV of MIL-STD-731. Each prepared load shall be bonded with primary and secondary straps in accordance with bonding means C and D or film bonding means F or G. Pallet pattern shall be number 3 in accordance with appendix of MIL-STD-147.

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

## 6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The trousers are for wear by military personnel of the Department of Defense as an outer garment: type I in foliated areas, types IV and V in desert areas and type III in hot humid areas.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification.
- b. Type and size required (see 1.2).
- c. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2.).
- d. When a first article is required (see 3.1, 4.3, and 6.3).
- e. Levels of preservation and packing (see 5.1 and 5.2).
- f. Type and class of unit load required (see 5.2.1).
- g. When weather-resistant grade fiberboard shipping containers are required for level B packing (see 5.2.2.1).
- h. When palletization is required (see 5.3).

6.3 First article. When a first article is required, it shall be inspected and approved under the appropriate provisions of FAR 52.209-4. The first article should be a preproduction sample. The contracting officer should specify the appropriate type of first article and the number of units to be furnished. The contracting officer should also include specific instructions in acquisition documents regarding arrangements for selection, inspection, and approval of the first article.

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6.4 Samples. For access to samples address the contracting activity issuing the invitation for bids or request for proposal.

6.5 International standardization agreements. Certain provisions of this document are the subject of international standardization agreement as cited in NATO, STANAG No. 2333. When amendment, revision, or cancellation of this document is proposed which will affect or violate the international agreement concerned, the preparing activity will take appropriate reconciliation action through international standardization channels including departmental standardization offices, if required.

6.6 Bonding strength dispute procedure. In case of a dispute, the average of the first 3 inches of the five highest bonding strength peaks from a chart recording on a CRE tensile tester, running at 12 inches per minute shall determine the bonding strength. If splitting is observed, then just the highest peak shall be regarded as the bonding strength.

6.7 Temperature strip. Suggested sources for temperature strips are as follows:

MRCINC, Reatec Division, telephone number (215) 687-4300  
Paper Thermometer Co., telephone number (603) 547-2034

Also, each fusible manufacturer supplies their own brand of temperature strips.

6.8 Supersession data. The type II desert camouflage pattern (6 color), cotton/nylon twill trousers has been deleted as it is no longer required.

6.9 Subject term (key word) listing.

Battle dress uniform  
Clothing  
Desert  
Pants  
Tropical  
Utility  
Woodland

6.10 Changes from previous issue. The margins of this specification 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 to evaluate the requirements of this document based on the entire content as written, irrespective of the marginal notations and relationship to the last previous issue.

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Custodians:

Army - GL  
Navy - NU  
Air Force - 11

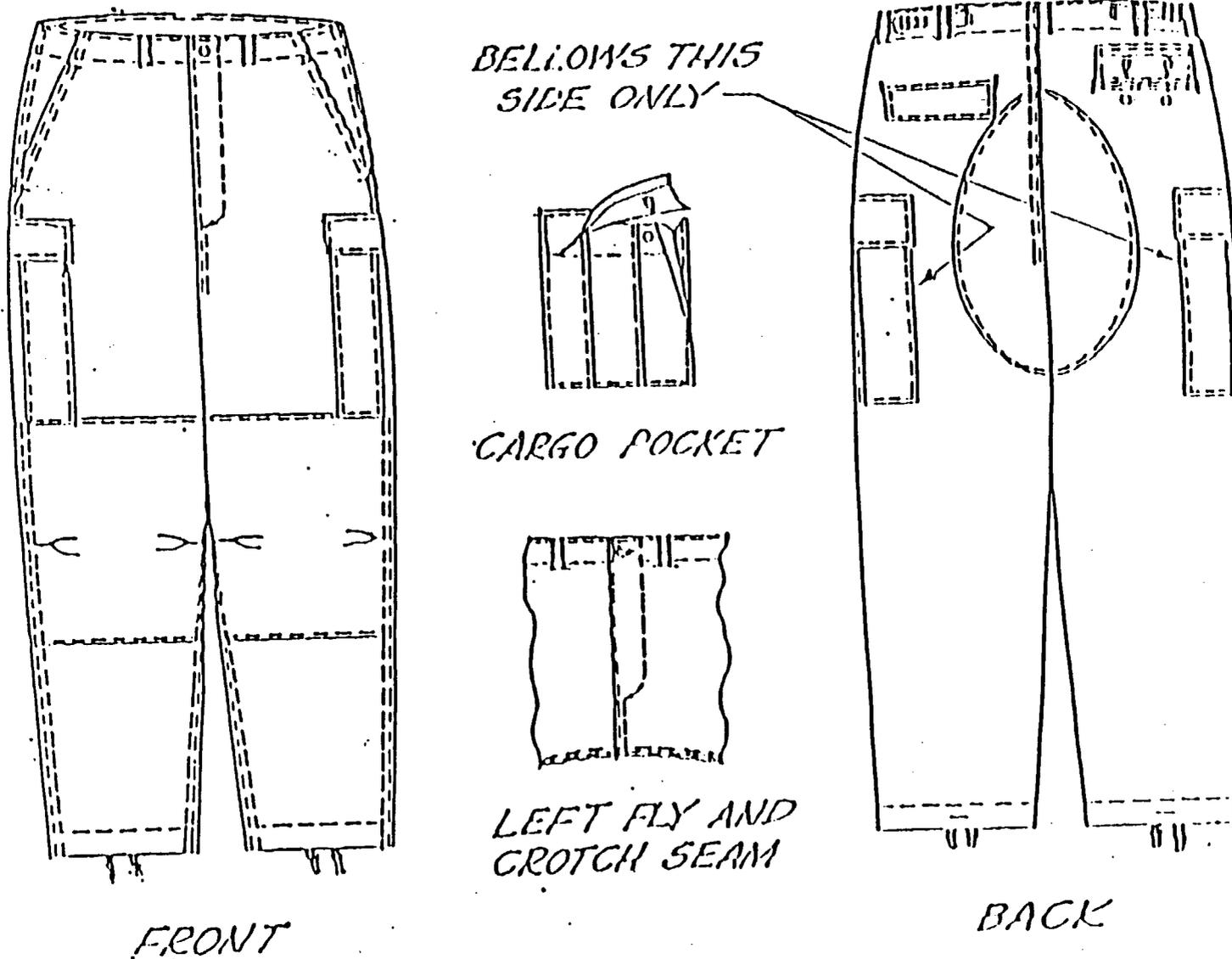
Preparing activity:

Army - GL  
(Project 8415-0823)

Review activities:

Army - MD  
Navy - MC  
Air Force - 82, 99  
DLA - CT

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FIGURE 1 - TROUSERS, CAMOUFLAGE PATTERN COMBAT (TYPES I, III AND V)

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CONTRACT # - \_\_\_\_\_  
 CONTRACTOR - \_\_\_\_\_  
 QAR NAME \_\_\_\_\_

FUSING PRESS SETTINGS  
 RECOMMENDED BY FUSIBLE  
 MFG. \_\_\_\_\_  
 STYLE NO.: \_\_\_\_\_

TEMPERATURE, °F (°C) \_\_\_\_\_  
 PRESSURE, PSI (BAR) \_\_\_\_\_  
 DWELL TIME, SEC \_\_\_\_\_

CHART A

CHART B

DATE DD/MM/YY	INITIAL DAILY TEST (AFTER MACHINE WARM UP)	(4 HOURS LATER)	FUSING PRESS CLEANLINESS (ONCE DAILY)
MS MT - P - DT / /	T TE BS 	T TE BS 	T AI: _____
MS MT - P - DT / /	T TE BS 	T TE BS 	T AI: _____
MS MT - P - DT / /	T TE BS 	T TE BS 	T AI: _____
MS MT - P - DT / /	T TE BS 	T TE BS 	T AI: _____
MS MT - P - DT / /	T TE BS 	T TE BS 	T AI: _____
MS MT - P - DT / /	T TE BS 	T TE BS 	T AI: _____

MIN RQMT: 2 LBS. (907 GMS) / INCH OR SPLIT

PRESSURE EVENNESS, BONDING STRENGTH  
 TEST QCS WEEKLY

DATE: / / AI \_\_\_\_\_

DWELL TIME, SEC.  
 TEST QCS WEEKLY

DATE: / / MACHINE SETTING STOP WATCH READING AI \_\_\_\_\_

SPRING SCALE CALIBRATION  
 TEST QCS WEEKLY

DATE: / / AI \_\_\_\_\_

REPRESENTATIVE PRODUCTION UNITS/1,000	DATE DD/MM/YY	PROD. LOT #	BS AFTER 3 LAUNDR.	APPEAR AFTER 3 LAUNDR	AI
1 - 1,000	/ /				
1,001 - 2,000	/ /				
2,001 - 3,000	/ /				
3,001 - 4,000	/ /				
4,001 - 5,000	/ /				
5,001 - 6,000	/ /				
6,001 - 7,000	/ /				
7,001 - 8,000	/ /				
8,001 - 9,000	/ /				
9,001 - 10,000	/ /				

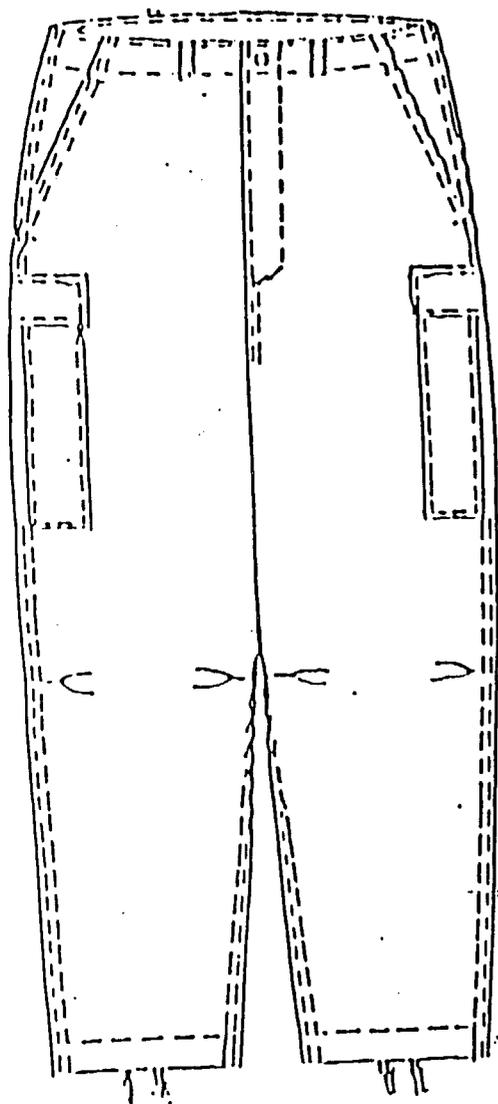
MIN RQMT: 1.5 LBS. (680 GMS) / INCH OR SPLIT GOOD

KEY:

- AI - AUTHORIZED INITIALS TO VERIFY CONTRACTOR TESTS
- BS - BONDING STRENGTH/ IN., AVE.
- DT - DWELL TIME
- MS - MACHINE SETTING
- MT - MACHINE TEMPERATURE
- P - PRESSURE
- T - TIME
- TE - TEMPERATURE STRIP READING, AVE.
- APPEAR - APPEARANCE

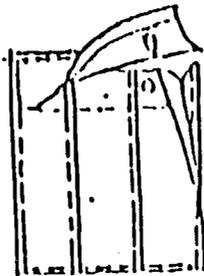
FIGURE 2. FUSING PRESS MAINTENANCE/BONDING STRENGTH  
 CHECK CHARTS - ONE WEEK PRE-PRODUCTION  
 (CHART A) - REPRESENTATIVE PRODUCTION (CHART B)

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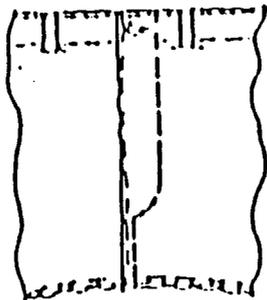


FRONT

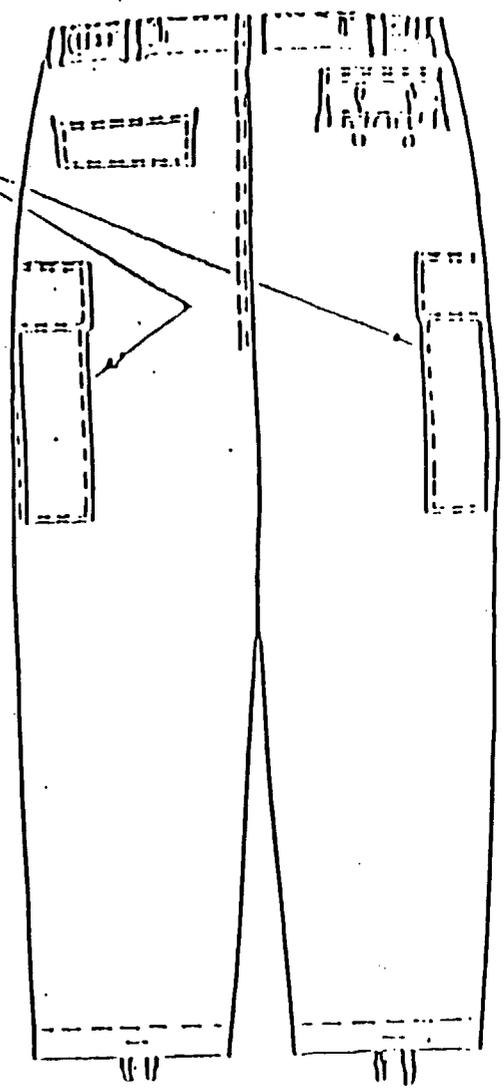
BELLOW'S THIS SIDE ONLY



CARGO POCKET



LEFT FLY AND CROTCH SEAM



BACK

FIGURE 3. TROUSERS, CAMOUFLAGE PATTERN, COMBAT (TYPE IV)

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