

INCH-POUND

MIL-S-44110B

10 January 1991

SUPERSEDING

MIL-S-44110A

21 April 1987

## MILITARY SPECIFICATION

## SLACKS, MATERNITY, UTILITY WORK UNIFORM

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

## 1. SCOPE

1.1 Scope. This specification covers maternity slacks made of cotton poplin cloth, woodland camouflage pattern.

1.2 Classification. The slacks shall be one of the following sizes (see 6.2):

Schedule of sizes

<u>Short</u>	<u>Regular</u>	<u>Long</u>
6	6	6
8	8	8
10	10	10
12	12	12
14	14	14
16	16	16
18	18	18
20	20	20
22	22	22

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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.

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AMSC N/A

FSC 8410

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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-203 - Paper, Kraft, Untreated
- 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)
- DDD-L-20 - Label: For Clothing, Equipage, and Tentage (General Use)
- PPP-B-636 - Boxes, Shipping, Fiberboard

## MILITARY

- 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

## STANDARDS

## FEDERAL

- FED-STD-191 - Textile Test Methods
- FED-STD-595 - Colors Used in Government Procurement
- FED-STD-751 - Stitches, Seams, and Stitchings

## MILITARY

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

(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.)

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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 ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS (AATCC)

Photographic Replica for Seams

(Application for copies should be addressed to the American Association of Textile Chemists and Colorists, Research Triangle Park, P.O. Box 12215, Durham, NC 27709.)

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.)

THE COLOR ASSOCIATION OF THE UNITED STATES

Standard Color Card of America

Department of Defense Standard Color Card for Sewing Threads

Department of Defense Standard Shades for Buttons

(Application for color cards should be addressed to the Color Association of the United States, 343 Lexington Avenue, New York, NY 10016-0927. If color cards are not available from the Color Association, individual color samples may be obtained from the contracting activity or as directed by the contracting activity.)

(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.

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3.2 Guide sample. Guide 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.

3.3.1 Basic material. The basic material shall be wind resistant cotton poplin cloth dyed in a woodland camouflage pattern conforming to type III of MIL-C-43468.

3.3.2 Stretch nylon cloth. The material for the front stretch panel shall be a 1 x 1 rib knit made from a stretch nylon yarn. The tubular cloth shall be scoured, dyed, slit, and heat treated. The finished cloth shall conform to the requirements specified below when tested as specified in 4.4.1.

	<u>Minimum</u>	<u>Maximum</u>
Weight, oz. per sq. yd.	4.0	
Texture:		
Wales per inch	20	---
Courses per inch	36	---
Bursting strength, pounds	100	---
Stretch, percent:		
Lengthwise	100	165
Widthwise	225	290
pH	5.0	8.5
Dimensional stability:		
Shrinkage, percent	---	3
Elongation, percent	---	3

3.3.2.1 Color. The color of the stretch nylon cloth shall be an acceptable commercial match approximating standard shade sample Army Green 429 or approximating Dark Green 355.

3.3.2.2 Colorfastness. The finished stretch nylon cloth shall show fastness to laundering, crocking, and perspiration equal to or better than the standard sample. When no standard sample is available, the cloth shall show "good" colorfastness to laundering and perspiration and shall show an AATCC Chromatic Transference Scale rating for crocking not lower than 3.5 when tested as specified in 4.4.1.

3.3.3 Elastic waistband stabilizer. The elastic waistband stabilizer shall be BAN-ROL XL-92 or equal (see 6.6), and shall be  $3/4 \pm 1/16$  inch in width.

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3.3.4 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 Olive Green BP Cable 62016.

3.3.5 Thread and gimp.

3.3.5.1 Thread. The thread for seaming and stitching shall be Camouflage Green 483 approximating color chip 34094 of FED-STD-595, polyester core, cotton- or polyester-covered, ticket Nos. 30, 2 or 3 ply, 50, 2 ply, 70, 2 ply conforming to A-A-50199.

3.3.5.2 Gimp. The cotton gimp for reinforcing buttonholes shall be Camouflage Green 483 approximating color chip 34094 of FED-STD-595 and shall conform to type I or II, size No. 8 of A-A-50198.

3.3.5.3 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.

3.3.6 Labels. Each pair of slacks shall have a size label (class 2) and either a combination identification and instruction label (class 15) or separate identification (class 1) and instruction (class 3) labels conforming to type VI of DDD-L-20. The labels shall show fastness to laundering. The color of the finished labels shall be medium green and shall approximate cable number 70034, 30130, or 70131 of the Standard Color Card of America. The following information shall be included in the printing required by DDD-L-20:

Item description:

SLACKS, MATERNITY, UTILITY WORK UNIFORM

Body of instructions:

1. Machine washing. Use Permanent Press Cycle. Wash in warm water with mild detergent.
2. Hand washing. Wash in warm water using mild detergent. DO NOT WRING OR TWIST. Rinse in clean warm water.
3. DO NOT USE CHLORINE BLEACH OR STARCH.
4. 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

3.4 Design. The slacks shall have an elasticized waist, a front stretch panel, and a right and a left leg side pocket with flap.

3.5 Figure. Figure 1 is furnished for information only. If there are inconsistencies between the written document and the figure, the written document shall control.

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3.6 Patterns. Standard patterns, which provide a seam allowance of 1/2 inch for outseams, seat seams, crotch seams, and inseams and 3/8 inch allowance for all other seams, 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 pattern. The working patterns shall be identical to the standard patterns.

3.6.1 List of pattern parts. The component parts of the slacks shall be cut from materials as specified below in accordance with pattern parts indicated.

List of pattern parts

Material	Nomenclature	Cut parts
Basic material	Front	2
	Back	2
	Side pocket patch	2
	Side pocket flap	2
Stretch nylon cloth	Front stretch panel	1

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 slacks. Unless otherwise specified, double needle stitching shall be 3/16 to 1/4 inch gage with outer row of stitching 1/16 inch from edge on outside of slacks. The gage of stitching for safety stitch construction shall be 3/8 inch. The guides and knives on the safety 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.

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 material sewn.

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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 and 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 101, 401, 503, 504, 515, 516 or 517 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.

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

3.7.3 Buttonholes. The buttonholes in the side pocket flaps shall be eyelet-end tapered bar type worked over the gimp specified in 3.3.5.2 with not less than four tacking stitches at bar end catching gimp end (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 I. The buttonholes shall be clean-cut with the stitching securely caught in the fabric.

3.7.4 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.

3.8 Manufacturing operations requirements. The slacks shall be manufactured in accordance with the operation requirements specified in table I. 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 slacks.

3.9 Use of automated apparel equipment. Automated apparel equipment may be used to perform any of the operations specified in table I, 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 I. MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D																	
					NEEDLE	BOBBIN/ LOOPER	COVER															
1.	<p><u>Cut slacks.</u></p> <p>a. Cut slacks 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. Side pockets may be cut in either the warp or filling direction.</p> <p>c. Cut front stretch panel from stretch nylon cloth in accordance with patterns furnished.</p> <p>d. Cut elastic waistband stabilizer in the following lengths for the corresponding sizes:</p> <table><tr><td><u>Size</u></td><td><u>Length (inches)</u></td></tr><tr><td>6</td><td>24</td></tr><tr><td>8</td><td>25</td></tr><tr><td>10</td><td>26</td></tr><tr><td>12</td><td>27-1/2</td></tr><tr><td>14</td><td>29</td></tr><tr><td>16</td><td>30-1/2</td></tr><tr><td>18</td><td>32-1/2</td></tr></table>	<u>Size</u>	<u>Length (inches)</u>	6	24	8	25	10	26	12	27-1/2	14	29	16	30-1/2	18	32-1/2					
<u>Size</u>	<u>Length (inches)</u>																					
6	24																					
8	25																					
10	26																					
12	27-1/2																					
14	29																					
16	30-1/2																					
18	32-1/2																					



NO.	TABLE I. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D								
					NEEDLE	BOBBIN/ LOOPER	COVER						
1.	<p>Cut <u>slacks</u>. (cont'd)</p> <table><tr><th><u>Size</u></th><th><u>Length (inches)</u></th></tr><tr><td>20</td><td>34-1/2</td></tr><tr><td>22</td><td>36-1/2</td></tr></table> <p>The tolerance shall be +1/4, -0 for all sizes.</p>	<u>Size</u>	<u>Length (inches)</u>	20	34-1/2	22	36-1/2						
<u>Size</u>	<u>Length (inches)</u>												
20	34-1/2												
22	36-1/2												
2.	<p><u>Replacement of defective components.</u></p> <p>During the spreading, cutting, and manufacturing process, components having material defects or damages that are classified as defects in 4.4.2.1 shall be removed from production and replaced with non-defective and properly matched components.</p>												
3.	<p><u>Marking.</u></p> <p>a. Mark, ticket or bundle all component parts of the slacks to insure correct size, proper assembly, and uniform shade throughout the slacks.</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>												

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NO.	TABLE I. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN/ LOOPER	COVER
3.	<u>Marking.</u> (cont'd)  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 slacks.						
4.	<u>Make pockets and flaps.</u>  a. Fold flap with raw edges even (fabric face to face) and stitch side raw edges.  b. Turn flap right side out, force out corners and edges, and edge stitch bottom and side edges 3/16 to 1/4 inch from edge.  c. Make vertical buttonhole in each flap as indicated by pattern, with the end of the buttonhole 3/8 to 1/2 inch from bottom folded edge.  d. Hem top of each pocket, as indicated on pattern, and stitch 1/16 to 1/8 inch from edge.	301   301  Buttonhole  301	SSe-2(a)  SSe-2(b) and OSf-1  EFb-1	10-14  10-14  52-56 per buttonhole  10-14	50  50  30  50	50  50  50  50	
5.	<u>Join crotch seam.</u>  Join crotch seam with double-lapped, double-stitched seam. The crotch seam may lap in either direction.	401	LSc-2	10-14	30	50	

NO.	TABLE I. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN/ LOOPER	COVER
6.	<p><u>Join stretch panel.</u></p> <p>a. Join the stretch panel to front with 3/8 inch seam.</p> <p>b. Overedge stitch the raw edges of the seam together.</p> <p>or</p> <p>c. As an alternate, operations 6.a. and b. may be performed in one operation.</p>	<p>401</p> <p>503 or 504</p> <p>515 or 516 or 519</p>	<p>SSa-1</p> <p>EFd-1</p> <p>SSa-2</p>	<p>10-12</p> <p>8-10</p> <p>10-14</p>	<p>30</p> <p>30</p> <p>50 50</p>	<p>50</p> <p>50</p> <p>50 70</p>	
7.	<p><u>Join outseams.</u></p> <p>Finished appearance. The outseam shall be carefully joined with notches matching, free of twists, puckers, pleats, and raw edges. The seams shall start and finish evenly.</p> <p>Join outseams with double-lapped and double-stitched seams with backs lapping the fronts.</p>	<p>301 or 401</p>	<p>LSc-2</p> <p>LSc-2</p>	<p>10-14</p> <p>10-14</p>	<p>50</p> <p>50</p>	<p>50</p> <p>70</p>	
8.	<p><u>Sew on side pockets and flaps.</u></p> <p>Finished appearance. Pockets shall be uniformly stitched and properly positioned with the top corners of pocket opening covered by the flap.</p> <p>a. Mark position of side pockets and flaps, as indicated on patterns.</p>						

NO.	TABLE I. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN/ LOOPER	COVER
8.	<u>Sew on side pockets and flaps.</u>						
	b. Turn in side and bottom seam allowance of pocket and stitch to slacks with one row of stitching 1/16 to 1/8 inch from edge.	301	LSd-1	10-14	50	50	
	c. Bartack back and front edges of pocket opening with vertical bartacks in line with pocket, stitching through pocket and slacks.	Bartack		28 per bartack	50	50	
	d. Position edges of flap above pocket opening as indicated on pattern, and join to slacks 1/8 to 3/16 inch from edges. Turn flap down and raise stitch 3/16 to 1/4 inch from turned edge making sure to bury edges within seam.	301 or	LSbl-2(a)	10-14	50	50	
		401 and	LSbl-2(a)	10-14	50	70	
		301	LSbl-2(b)	10-14	50	50	
	or						
	e. Turn in top edge of flap, 1/8 to 3/16 inch and position on slacks as indicated on pattern. Double-stitch burying edges within seam.	301	LSd-2	10-14	50	50	
9.	<u>Join seat seam.</u>						
	Join seat seam with double-lapped, double-stitched seam. The seat seam may lap in either direction.	401	LSc-2	10-14	30	50	

NO.	TABLE T. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN/ LOOPER	COVER
10.	<p><u>Stitch waistband and labels.</u></p> <p>Finished appearance. The waistband shall finish <math>1 + 1/8</math> inch wide and shall be uniform in width. The labels shall be positioned side by side on center of back with the size label on the left side. The stitching shall not be through the label printing.</p> <p>a. Overlap the ends of the elastic waistband stabilizer <math>1/2</math> inch and box-stitch or bartack with two bartacks <math>1/8</math> inch from the raw edges.</p> <p>b. Fold the edge of the slacks over, forming a <math>1-1/4</math> inch hem and enclosing the elastic webbing. Stitch the hem with a single row of stitching <math>1/4</math> inch from the edge, forming a 1 inch tunnel for the elastic webbing. Either the combination identification and instruction label or the identification label and the instruction label shall be caught in the stitching.</p>	301 or Bartack	SSa-1	10-12 28 per bartack	50 50	50 50	
		301	EFb-1	10-12	50	50	
11.	<p><u>Join inseams.</u></p> <p>Join inseams in one continuous operation with a double-lapped and double-stitched seam with the fronts lapping the backs.</p>	301 or 401	LSc-2 LSc-2	10-14 10-14	50 50	50 70	
12.	<p><u>Finish leg bottoms.</u></p> <p>Pink or overedge stitch leg bottoms. The overedge stitching or pinking operation may be accomplished prior to the joining of the inseams and outseams.</p>	502 or 503	EFd-1	6-10	50	50	

NO.	TABLE I. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN/ LOOPER	COVER
13.	<u>Sew on buttons.</u>  Sew button on each side pocket to correspond to eyelet end of buttonhole on pocket flap.	101 or  301	---	14-16 per button 14-16 per button	30  30	  30	
14.	<u>Cleaning.</u>  Trim all ends of outside stitching and remove loose threads from the slacks. Remove all spots, stains, and all shade and size markings.						

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3.10 Finished measurements. The finished measurements shall be as shown in table II. All tolerances shall be  $\pm 1/2$  inch, except that the tolerance for the inseam shall be  $\pm 3/4$  inch.

TABLE II. Finished measurements (inches)

	6	8	10	12	14	16	18	20	22
1/2 Waist relaxed <u>1/</u>	11-3/4	12-1/4	12-3/4	13-1/2	14-1/4	15	16	17	18
1/2 Hip <u>2/</u>	19-3/4	20-1/4	20-3/4	21-1/2	22-1/4	23	24	25	26
Outseam <u>3/</u> :									
Short	42-1/4	42-1/2	42-3/4	43	43-1/4	43-1/2	43-3/4	44	44-1/2
Regular	44-1/2	44-3/4	45	45-1/4	45-1/2	45-3/4	46	46-1/4	46-1/2
Long	46-1/2	46-3/4	47	47-1/4	47-1/2	47-3/4	48	48-1/4	48-1/2
Inseam <u>4/</u> :									
Short	32	32	32	32	32	32	32	32	32
Regular	33-1/2	33-1/2	33-1/2	33-1/2	33-1/2	33-1/2	33-1/2	33-1/2	33-1/2
Long	35	35	35	35	35	35	35	35	35

1/ Taken from folded edge to folded edge at center of waistband in relaxed position.

2/ Taken from folded edge to folded edge of slacks along bottom of stretch panel.

3/ Taken from top of waistband along seam to bottom of slacks.

4/ Taken from crotch seam along inseam to bottom of slacks.

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 and point values.

#### 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.

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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 must 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 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. Where certificates of compliance are submitted, the Government reserves the right to inspect such items to determine the validity of the certification.

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

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

4.3 First article. When a first article is required (see 3.1 and 6.2), it shall be examined for the defects specified in 4.4.2.1 and 4.4.2.2.

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 document. In addition to testing provisions contained in subsidiary specifications, testing shall be performed on the component listed in table III for characteristics noted. Unless otherwise indicated, testing shall be conducted in accordance with FED-STD-191. All test reports shall contain the individual values utilized in expressing the final result. The lot shall be unacceptable if one or more sample units fail to meet any of the test requirements specified. The lot size and sample size shall be in accordance with the following:



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<u>Lot size yards</u>	<u>Sample size (sample units)</u>
800 or less	2
801 up to and including 22,000	3
22,001 and over	5

The sample unit shall be 2 yards full width of the nylon stretch cloth.

TABLE III. Component tests

<u>Component</u>	<u>Characteristic</u>	<u>Requirement paragraph</u>	<u>Test method</u>
Nylon stretch cloth	Material identification	3.3.2	<u>1/</u>
	Weight	3.3.2	5041
	Texture	3.3.2	5070
	Stretch (percent):		
	Lengthwise	3.3.2	<u>2/</u>
	Widthwise	3.3.2	<u>2/</u>
	pH	3.3.2	2811
	Dimensional stability	3.3.2	5556 <u>3/</u>
	Bursting strength	3.3.2	5120 <u>4/</u>
	Colorfastness to:		
	Laundering	3.3.2.2	5610
	Crocking	3.3.2.2	5651
	Perspiration	3.3.2.2	5680

1/ A certificate of compliance shall be submitted and will be acceptable for the stated requirement.

2/ Stretch of the cloth shall be measured on an inclined plane type of machine (IP4 or similar type) with a suitable autographic recording device. Five 4-by 6-inch specimens shall be cut from the sample unit with the long direction of the specimens parallel to the direction to be tested. The five specimens shall be cut such that no two specimens contain the same wales or courses. One-inch clamps, placed 2 inches apart shall be used with the specimen placed in the clamp jaws without tension or slack. The machine shall run through ten complete cycles, proceeding to its maximum depression so as to exert a 5-pound tension. Individual recorded stretch graphs shall

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be used for each of the five specimens. The stretch of each specimen shall be measured at the peak of last recorded cycle, in a line perpendicular to the horizontal zero axis. The percent stretch for each specimen shall be calculated as follows:

$$\text{Percent stretch} = \frac{\text{Elongation dimension} - \text{Original dimension}}{\text{Original dimension}} \times 100$$

The stretch of the sample unit shall be the average of the results obtained from the five specimens tested and shall be reported to the nearest 1 percent.

3/ The cotton laundering procedure shall be followed.

4/ It may be necessary to clamp the 1 x 1 rib material in a prestretched state before testing.

4.4.1.1 Component and material certification. A certificate of compliance may be acceptable as evidence that the waistband stabilizer conforms to the requirements specified in 3.3.3.

4.4.2 Point count inspection (see 6.5).

4.4.2.1 End item visual examination. The end item shall be examined for the defects listed in table IV and the assessment of penalty points shall be as indicated therein. Sampling and acceptance criteria shall be as specified in 4.4.2.1.1.

TABLE IV. End item visual defects

Defect	Point value
<u>I. MATERIAL DEFECT AND DAMAGE</u>	
a. Any hole, cut, tear, smash, burn, drill hole <u>1/</u> , scorched area, multiple float, or open place:	
1. On outside (longest dimension in any direction):	
(a) - up to 1/4 inch inclusive	2
(b) - more than 1/4 inch	3
2. On inside (longest dimension in any direction):	
(a) - up to 1/4 inch inclusive	1
(b) - more than 1/4 inch	2
b. Knot or slub	1
c. Misweave, area of poor dye penetration, dyestreak, broken and missing section of yarn, visible mend, thin place, or shade bar (largest dimension in any direction)	1
d. Loose yarn or coarse yarn on outside	1
e. Woven in waste on outside	1

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

Defect	Point value
II. <u>SHADED PART</u>	
a. On outside: Variation in shade within a part or between parts	1
III. <u>CLEANNESS</u>	
a. Any spot or stain on outside visible at 3 feet (largest dimension in any direction)	1
b. Thread ends (on outside): Not trimmed to 1/2 inch or less throughout	1
c. Thread end caught for a distance or more than 1/4 inch in line of stitching on outside	1
d. Two or more shade or size tickets or loose threads not removed	1
e. Any size or shade marking or residue on outside, score as spot or stain	1
IV. <u>COMPONENT AND ASSEMBLY</u>	
a. Any component part or operation omitted (unless otherwise classified herein)	3
b. Any component not as specified	3
c. Any component part tight, twisted, distorted, pleated, or full (unless otherwise classified herein)	2
d. Any operation not as specified (unless otherwise classified herein)	1
e. The edge of any component part required to be forced out having folds of more than 1/8 inch (unless otherwise classified herein)	1
V. <u>CUTTING</u>	
a. Any component part not cut in accordance with specified pattern or directional lines on patterns, or not in accordance with document requirements	3
VI. <u>SEAMS AND STITCHING</u>	
a. Accuracy of seaming:	
1. Seam irregular, twisted, pleated, or wavy	1
2. Seam puckered (score only when on major portion of seam) 2/	1

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

Defect	Point value
VI. <u>SEAMS AND STITCHING</u> (cont'd)	
3. Any part of slacks caught in an unrelated operation or stitching (unless otherwise specified)	2
4. End of stitching when not caught in other seams or stitching not backstitched as specified	1
5. Thread break secured by stitching back of the break less than 1/2 inch	1
6. Ends of continuous line of stitching overlapped less than 1/2 inch	1
7. Not specified color thread used on outside	1
b. Gage of stitching and seam allowance:	
1. Gage irregular or not within range specified or varies more than 1/16 inch when no range is specified	1
2. Edge or raised stitching sewn too close to edge, resulting in damage to cloth	2
3. Seam allowance not as specified or varies more than 1/8 inch (score only when on major portion of seam)	2
c. Open seam:	
On all seams except leg bottoms	
(a) - up to 1/2 inch (inclusive)	1
(b) - more than 1/2 inch up to 3/4 inch	2
(c) - more than 3/4 inch	3
NOTE: One or more broken stitches or two or more continuous skipped or runoff stitches on joining seam constitute an open seam. On double stitched seams, a seam is considered open when one or both sides of seam is open.	
d. Runoff:	
1. On joining seam, score as open seam	
2. Edge or raise stitching	2
e. Raw edge:	
1. On outside:	
(a) - up to 3/4 inch inclusive	1
(b) - more than 3/4 inch	2
2. On inside:	
- 1 inch or more	1
3. On overedge edge:	
(a) - 1 inch to 3 inches inclusive	1
(b) - more than 3 inches	2

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

Defect	Point value
VI. <u>SEAMS AND STITCHING</u> (cont'd)	
f. Seam and stitch type:	
1. Not specified seam or stitch type	2
2. Looper thread of 401 stitch type on outside	3
3. Any line of stitching omitted	3
4. Any line of stitching not beginning or ending where specified (unless otherwise classified herein)	1
g. Broken, missing, or skipped stitches on edge or raised stitching (when seam is seamed, turned, and stitched) more than 1/4 inch	1
h. Stitch tension:	
1. Loose tension resulting in a loose seam:	
(a) - up to 1/2 inch inclusive	1
(b) - more than 1/2 inch up to 3/4 inch inclusive	2
(c) - more than 3/4 inch	3
2. Loose tension on raised or edge stitching resulting in exposed loose thread	1
3. Tight tension (stitches break when normal strain is applied in the direction of the seam or stitching):	
(a) Seat seam:	
(1) - both rows of stitching break at same place	3
(2) - both rows of stitching break at different places	2
(3) - stitches break in one row of stitching	1
(b) All other seams	3
i. Stitches per inch (to be scored only when the condition exists on the major portion of seam or stitching):	
1. Less than the minimum	2
2. More than the maximum	1
VII. <u>BUTTONHOLES</u>	
a. Omitted, added, not specified type, or not finished as specified	2
b. Misplaced resulting in bulge or twist when buttoned	2
c. Gimp omitted, uncut buttonhole, end of gimp not pulled through to underside, incomplete stitching, or stitching not securely caught in fabric	1
d. Ragged edge, broken stitch, or two or more skipped stitches	1
e. Buttonhole stitching extending beyond bartack or stitches per buttonhole not as specified	1

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

Defect	Point value
VII. <u>BUTTONHOLES</u> (cont'd)	
f. Finished cut length not as specified	1
g. Purling not on side specified	1
h. Buttonhole not vertically positioned on pocket flap	2
i. Buttonhole constructed with purling on the under-side of pocket flap	1
VIII. <u>BUTTON</u>	
a. Missing, broken, defective, misplaced, not as specified, or insecurely sewn	1
b. Button not corresponding with eyelet end of buttonhole, causing pocket to be pulled up, or flap to bulge or twist when buttoned	1
c. Stitching not locked at end of cycle (tug at loose end of thread, when accessible, to determine whether it will ravel)	1
IX. <u>BARTACK OR TACK</u>	
a. Missing, insecure, misplaced, not serving intended purpose	2
b. Loose stitch tension	1
X. <u>WAISTBAND</u>	
a. Width of finished waistband not as specified	1
b. Construction not as specified	2
c. Length of elastic in waistband not as specified	2
XI. <u>POCKET OR FLAP</u>	
a. Pocket of flap out of alignment by (at any point when measured from the waistband seam) more than 1/2 inch	2
b. Raw edge of pocket hems not turned in	2
c. Pocket flap tight, causing fullness, twisting or curling of pocket flap	2
d. Pocket placed 1/2 inch or more from location indicated on pattern	1
e. Poorly shaped, not uniform shape or size by more than 1/4 inch, or set on crookedly	2
f. Fullness or tightness at opening	1
g. Edge of pocket opening not stitched as specified	1

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

Defect	Point value
XI. <u>POCKET OR FLAP</u> (cont'd)	
h. Pocket flap not uniform in shape and size by more than 1/4 inch	1
i. Pocket flap not completely covering pocket opening by:	
(a) - more than 3/8 inch	3
(b) - more than 3/16 inch up to 3/8 inch inclusive	1
j. Edges of pocket pleated or twisted in stitching	1
XII. <u>LEG BOTTOM</u>	
a. Not finished as specified	1
XIII. <u>LABELS</u>	
a. Not attached as specified, misplaced, or stitching through the printing	1
b. Missing, incorrect, or illegible:	
1. Size label, instruction label, or combination label	3
2. Identification label	1
XIV. <u>STRETCH PANEL</u>	
a. Fullness, pleats, gathers, or twists in side or bottom seams of panel	2

1/ Drill hole - This defect should not be scored when visible on the inside of the slacks, provided that the component as attached to outside of slacks fully covers the drill hole.

2/ Seams suspected of being puckered shall be examined at a distance of 3 feet in comparison with the AATCC photographic comparative rating (see 2.2) for seams. Puckering on a major portion of the suspected seam that equals or is worse than rating 3 for single needle seams or double needle seams shall be scored as a puckered seam.

4.4.2.1.1 Sampling and acceptance for visual examination. The sampling and acceptance criteria shall be as specified in table V and 4.4.2.1.4. The lot size unit and the sample unit shall be one pair of slacks. The lot shall be unacceptable if:

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a. The point value of 3- and 2- point defects exceeds the applicable maximum acceptable point value.

or

b. The point value for total (3-, 2- and 1- point) defects exceeds the applicable maximum acceptable point value.

TABLE V. Sampling and acceptance criteria for visual examination

	Lot size	Sample size	Maximum acceptable point values	
			3 & 2 point defects	3, 2 & 1 point defects
Normal inspection	Up thru 500	50	13 points	25 points
	501 thru 1200	80	19 points	31 points
	1201 thru 3200	125	27 points	43 points
	3201 thru 10,000	200	38 points	63 points
	10,001 and over	315	58 points	93 points
Tightened inspection	Up thru 500	50	7 points	16 points
	501 thru 1200	80	12 points	25 points
	1201 thru 3200	125	18 points	37 points
	3201 thru 10,000	200	28 points	57 points
	10,001 and over	315	41 points	85 points
Reduced inspection	Up thru 1200	32	7-14 points $\frac{1}{2}$	24 points
	1201 thru 3200	50	12-18 points $\frac{1}{2}$	30 points
	3201 thru 10,000	80	16-21 points $\frac{1}{2}$	38 points
	10,001 and over	125	23-28 points $\frac{1}{2}$	43 points

1/ If the first value is exceeded but the second value has not been exceeded, accept the lot but reinstate normal inspection (see 4.4.2.1.4.4b). The second value is the maximum acceptable point value.

4.4.2.1.2. Initiation of inspection. Normal inspection shall be used at the start of inspection unless otherwise directed by the responsible procurement quality assurance element administering the contract.

4.4.2.1.3 Continuation of inspection. Normal, tightened, or reduced inspection shall continue unchanged on successive lots except where switching procedures in 4.4.2.1.4 require a change.



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4.4.2.1.4 Switching procedures.

4.4.2.1.4.1 Normal to tightened. When normal inspection is in effect, tightened inspection shall be instituted when two out of five consecutive lots have been rejected on original inspection (i.e., ignoring resubmitted lots for this procedure).

4.4.2.1.4.2 Tightened to normal. When tightened inspection is in effect, normal inspection shall be instituted when five consecutive lots have been considered acceptable on original inspection.

4.4.2.1.4.3 Normal to reduced. When normal inspection is in effect, reduced inspection shall be instituted providing that all of the following conditions are satisfied:

a. The preceding 10 lots have been on normal inspection and none have been rejected on original inspection; and

b. The total number of points for 3- and 2- point defects in the samples from the preceding 10 lots is equal to or less than 60 percent of the total maximum acceptable point values for 3- and 2- point defects from the preceding 10 lots; and

c. The total number of points for 3-, 2-, and 1- point defects in the sample from the preceding 10 lots is equal to or less than 75 percent of the total maximum acceptable point values for 3-, 2-, and 1- point defects from the preceding 10 lots; and

d. Production is at a steady rate; and

e. Reduced inspection is considered desirable by the procurement quality assurance element administering the contract.

4.4.2.1.4.4 Reduced to normal. When reduced inspection is in effect, normal inspection shall be instituted if any of the following occur on original inspection:

a. A lot is rejected; or

b. A lot is considered acceptable but exceeds the applicable first value (see 1/ to table V); or

c. Production becomes irregular or delayed; or

d. Other conditions warrant that normal inspection be instituted.

4.4.2.2 Dimensional examination. The appropriate number of slacks as specified below shall be examined for conformance to the finished measurement requirements specified in 3.10. When a measurement deviates from a dimension

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and tolerance specified, the slacks shall be penalized one point. The lot shall be unacceptable if the total point value resulting from this examination exceeds the maximum acceptable point value specified below. Each size of slacks present in the lot shall be represented in the sample selected for this examination.

<u>Lot size</u>	<u>Sample size</u>	<u>Maximum acceptable point values</u>
Up thru 500	8	0
501 thru 3,200	13	1
3,201 thru 35,000	20	2
35,001 and over	32	3

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

<u>Examine</u>	<u>Defect</u>
Markings (exterior and unit pack)	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application.
Materials	Any component missing, damaged, or not as specified.
Workmanship	Inadequate application of components, such as: incomplete sealing or closure of container flap, improper taping, loose strapping, or inadequate stapling. Bulged or distorted container.
Content	Number per container is more or less than required.

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

<u>Examine</u>	<u>Defect</u>
Finished dimensions	Length, width, or height exceeds specified maximum requirement.
Palletization	Pallet pattern not as specified. Load not bonded as specified.
Weight	Exceeds maximum load limits.

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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 slacks with inseams meeting, shall be folded from the leg bottom up toward the waistband to an overall length of approximately 23 inches. For the larger sizes it may be necessary to adjust the seat area to achieve the desired width of approximately 14-1/2 inches. Ten pairs of folded slacks of one size only shall be neatly stacked in a bundle with the waistbands alternated and securely tied 4 inches in from each end with cotton tape or twine.

5.1.2 Commercial preservation. Slacks 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. Fifty pairs of slacks of one size only, preserved as specified in 5.1, shall be packed in a fiberboard shipping container conforming to style RSC-L, grade V2s of PPP-P-636. The inside of each fiberboard container shall be fitted with a box liner conforming to type CF, class weather-resistant, variety DW, grade V15c of PPP-B-636. Level A unit packs shall be packed flat, five in depth within a shipping container. Inside dimensions of each shipping container shall approximate 23-1/2 inches in length, 15 inches in width, and 15 inches in depth. Approximate dimensions are furnished as a guide only. Each container shall have the contents completely covered on the top and bottom with a sheet of 30-pound basis weight kraft paper conforming to A-A-203. Each fiberboard container shall be closed in accordance with method III, waterproofed in accordance with method V, and reinforced in accordance with the appendix of PPP-B-636, except the inspection shall be in accordance with 4.4.3. 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. Fifty pairs of slacks of one size only, preserved as specified in 5.1, shall be packed in a fiberboard shipping container conforming to style RSC-L, type CF (variety SW) or SF, class domestic, grade 275 of PPP-B-636. The inside of each fiberboard container shall be fitted with a box liner conforming to class domestic, variety DW, grade 275 of PPP-B-636. Level A unit packs shall be packed flat, five in depth within a shipping container. Inside dimensions of each shipping container shall approximate 23-1/2 inches in length, 15 inches in width, and 15 inches in depth. Approximate dimensions are furnished as a guide only. Each container shall have the contents completely

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covered on the top and bottom with a sheet of 30-pound minimum basis weight kraft paper conforming to A-A-203. Each shipping container shall be closed in accordance with method II as specified in the appendix of PPP-B-636, except the inspection shall be in accordance with 4.4.3.

5.2.2.1 Weather-resistant fiberboard container. When specified (see 6.2), the shipping container shall be a grade V3c, V3s, or V4s fiberboard box fabricated in accordance with PPP-B-636 and closed in accordance with method III in the appendix of PPP-B-636, except the inspection shall be in accordance with 4.4.3.

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

5.3 Palletization. When specified (see 6.2), slacks packed as specified in 5.2.2 or 5.2.3 shall be palletized on a 4-way pallet in accordance with load type Ia of MIL-STD-147. Pallet type 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, unit packs, shipping containers, and palletized unit loads shall be marked in accordance with MIL-STD-129 or ASTM D 3951, as applicable.

## 6. NOTES

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

6.1 Intended use. The slacks are for wear by female military personnel of the Department of Defense as part of a maternity work uniform.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification.
- b. 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).

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

6.4 Samples. For access to sample slacks and shade samples of the material address the contracting activity issuing the invitation for bids.

6.5 Point count system. This specification contains the requirements for a point count system for sampling and inspection of the end item. For the visual examination, point values 1, 2 or 3 are assigned to the listed defects depending on severity. The higher point values are assigned to those defects having a more detrimental effect on the appearance or serviceability of the items.

6.6 Equal item. Prior to the use of an "or equal item", the supplier shall submit the item with supporting data to the contracting officer for subsequent approval or disapproval by the responsible military agency.

6.7 Subject term (key word) listing.

Female  
Woman  
Woodland camouflage pattern

6.8 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians:

Army - GL  
Air Force - 11

Preparing activity:

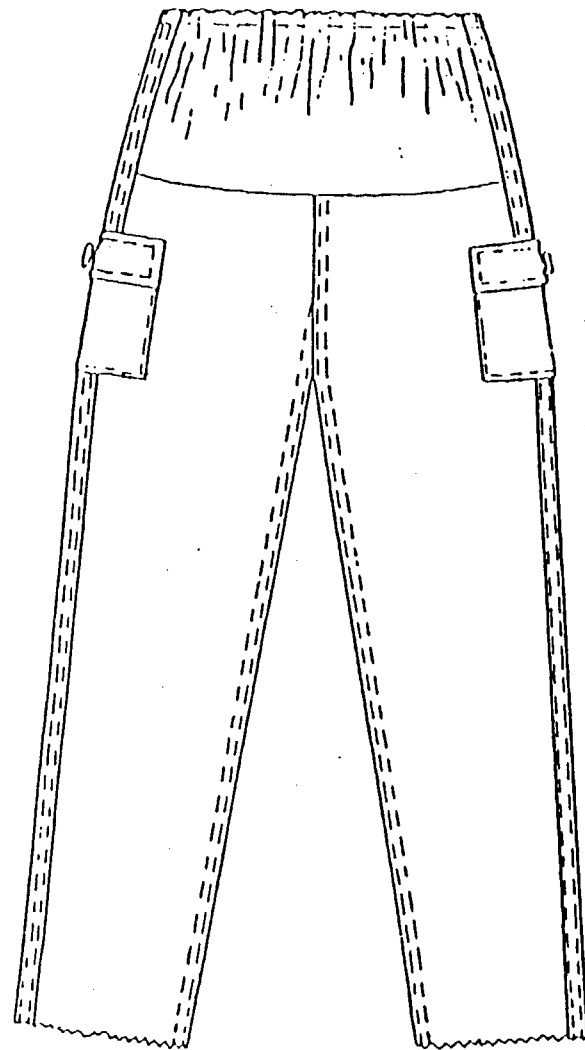
Army - GL  
(Project 8410-0733)

Review activities:

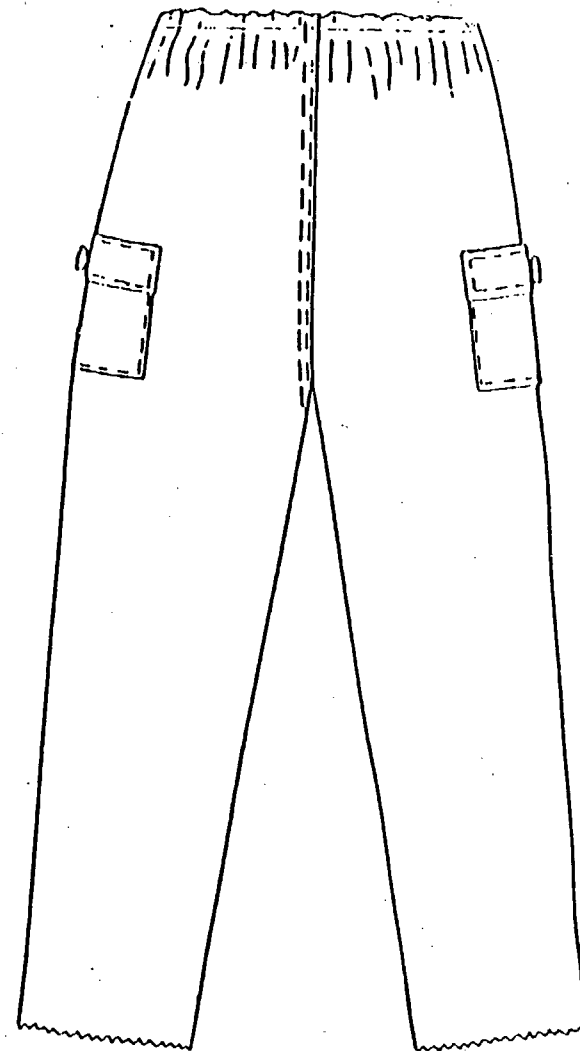
Army - MD  
Air Force - 82, 99  
DLA - CT

User activity:

Air Force - 45



FRONT



BACK

FIG. 1 SLACKS, MATERNITY WORK UNIFORM