

**INCH-POUND**

**MIL-DTL-32082**

**1 May 2001**

**SUPERSEDING**

**FQSC/PD 95-03**

**2 June 1995**

## **DETAIL SPECIFICATION**

### **COVERALLS, MECHANICS, COLD WEATHER**

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

#### **1. SCOPE**

1.1 Scope. This specification covers requirements for a coverall made from camouflage printed cotton/nylon twill cloth intended to be worn by mechanics in the department of the Army as a protective garment over cold weather clothing.

1.2 Classification. The coverall will be furnished in the following types and sizes:

Type I- Woodland Camouflage Print

Type II- Desert Camouflage Print

Sizes: The coveralls will be furnished in sizes Small, Medium and Large.

#### **2. APPLICABLE DOCUMENTS**

2.1 General. The documents listed in this section are specified in sections 3 and 4. This section does not include documents cited in other sections or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements and documents cited in sections 3 and 4, whether or not they are listed.

**Beneficial comments, (recommendations, additions, deletions) and any data which may be of use in improving this document should be addressed to: Defense Supply Center Philadelphia, Clothing and Textiles Directorate, Attn: DSCP-COCT, 700 Robbins Avenue, Philadelphia, PA 19111-5096 by using the self addressed Standardization Document improvement proposal (DD form 1426) appearing at the end of this document or by letter.**

AMSC N/A

FSC 8415

DISTRIBUTION STATEMENT A. *Approved for public release; distribution is unlimited.*

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## 2.2 Government documents

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

### FEDERAL

A-A-55634 Fasteners, Slide Interlocking  
 A-A-55126 Fastener Tape, Hook and Loop, Synthetic  
 A-A-50199 Thread, Polyester Cotton, Rayon or Polyester core covered  
 A-A-55243 Tape, Textile, Nylon or Polyester (for name tapes)

### MILITARY

MIL-C-44031 Cloth, Camouflage pattern, Woodland, Cotton and Nylon  
 MIL-C-44034 Cloth, Twill, Camouflage pattern, Cotton and Nylon for Desert Uniform  
 MIL-W-5664 Webbing, Textile, Elastic

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

2.3 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).

ANSI/ASQC Z1.4 Sampling Procedures and Tables for Inspection of Attributes.

(Application for copies should be addressed to American National Standards Institute, 11 West 42nd Street, New York, NY 10036-8002)

ASTM-D-6193 Standard Practice for Seams and Stitches  
 ASTM-D-5034 Breaking Strength and Elongation of Textile Fabrics

### AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) PUBLICATION

(Application for copies should be addressed to American Society for Testing and Materials, 100 Barr Harbour Drive, West Conshohocken, PA 19428)

2.4 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.

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### 3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection in accordance with 4.2.

3.2 Description. The coveralls shall be a one-piece, unlined garment with a slide fastener front fly closure with heavy duty plastic front slide fastener with double sliders, underarm ventilation slide fasteners with thongs, reinforced knee, elbow and seat patches. The front shall have slanted front chest pockets, right chest loop fastener name plate, front patch pockets with pass throughs, 1 inch wide nylon tape on left chest for pens/small clip tools. Hook and loop fastener tape adjustment tabs for the waist, ankles and leg bottoms. The waistband shall have elastic webbing in the center back tunnel. Other pockets include hip pockets with hook and loop closures and a bellowed utility pocket with hook and loop flap closure on left sleeve.

3.3 Material.

3.3.1 Basic Material. The basic cloth shall be a woodland camouflage printed cotton/nylon twill cloth conforming to Class I of MIL-C-44031 for type I and desert camouflage printed cotton/nylon twill cloth conforming to Class 3 of MIL-C-44034 for type II. Use of fabric seconds or ground shade cloth is acceptable for inside the waistband, the front side pass thru pieces and penholder reinforcement piece only.

3.3.2 Thread. Cotton-covered polyester thread conforming to A-A-50199 shall be used in the following thread sizes: 30 and 50, 3-ply for 301 stitch type; and 70, 2-ply for overedging.

3.3.3 Slide fastener thong. All slide fasteners shall have a thong tied to the pull consisting of black, or camouflage green, 3/8 inch wide, plain weave nylon tape with a breaking strength of 200 pounds when tested in accordance with ASTM D-5034. As an alternate the thong can be made from basic material with all sides and ends turned in or otherwise clean finished.

3.3.4 Pen holder. The left front pen/small clip tool holder shall consist of nylon tape, olive drab green for type I and tan 380 for type II, 1 inch wide by 4 inches long (finished size), conforming to type I of A-A-55243 placed as marked on pattern, the ends of the tape shall be turned under, the tape shall be reinforced with a 5 inches minimum by 2-1/4 inch piece of basic fabric, sewn on the underside of the coverall.

3.3.5 Fastener Tape. The hook and loop tape conforming to A-A-55126 shall be woodland CG 483 for type I or Tan 380 for Type II cut ultrasonically or with a hot knife.

3.3.6 Elastic Webbing. The elastic webbing for the waistband section shall be 1-1/2 inches wide, conforming to Type II of MIL-W-5664. Colorfastness requirements shall not apply. The elastic shall be completely covered on the inside of the coverall with a tunnel of basic material. The elastic shall be caught in the stitching at both ends, but not in the stitching forming the top and bottom of the tunnel. The elastic shall be cut to the following Lengths:

Small-14-1/2    Medium-16-1/2    Large -18-1/2    Tolerance  $\pm$  1/2

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3.3.7 Slide Fastener. The slide fasteners shall conform to the requirements of A-A-55634 and to tables II of this document. The tape of the slide fasteners shall be 3/4 inch wide, high temperature resistant polyamide, and shall approximately match the color of the basic material. Lengths of slide fasteners in Table III shall be measured from stop to stop.

Table III. Slide fasteners

Location	Quantity	Type	Style	Size	Length (inches)	Direction of slide fastener to close
Front opening	1	I	15	10	Small-27-1/2 Med. 28-1/2 Large 29-1/2	Top slider upward and bottom slider downward
Slanted chest pockets	2	I	3	8	7	Downward (toward the center)
Ventilation underarm	2	I	3	8	10	Downward (toward body)

3.4 Labels. Each coverall shall have a size label, an identification label, and a care label. The size and identification labels or the identification and care labels may be combined. The identification label shall contain the size, NSN, item nomenclature, contract number and fiber content. The inscription shall have a minimum font size of 10 points. The inscription legibility, label, and label attachment shall last the expected life of the coveralls. The labels shall be stitched flat on all four sides on the inside center back of the garment approximately 1 inch below the collar. The care or the combination label shall include the following information:

1. Coveralls may be worn over intermediate layer of the cold, dry combat uniform.
2. **WARNING:** Launder with slide fasteners and hook and loop fasteners engaged. Do not use iron on hook and loop fasteners.
3. Pockets are designed to accommodate operation equipment and personal effects.
4. Launder in accordance with laundry formula E in fixed laundries of laundry formula I in field laundries.
5. **DO NOT USE STARCH OR BLEACH.**
6. **DO NOT REMOVE THIS LABEL.**

3.4.1 Barcode tag. Each item shall be individual bar-coded, clearly legible and readable by scanner. The bar coding element shall be a 13 digit national stock number (NSN). The bar code type shall be medium to high code density and shall be located so that it is completely visible on the item when it is folded and/or packaged as specified. The label shall be attached without using adhesive or without piercing the fabric to prevent damage to the item.

3.5 Patterns. The government shall furnish a complete set of patterns or a master pattern with grade rules, to maintain uniformity and consistency in manufacturing. The government patterns shall be used to create the contractor's working patterns. Minor pattern modifications are permitted to accommodate manufacturing procedures, however the design and finished

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measurements must be obtained. Pattern grainlines shall not be modified. Adhesive patterns are prohibited.

Table IV. List of pattern parts

<u>Pattern piece</u>	<u>Cut parts</u>
1. Sleeve tab	4
2. Leg tab	4
3. Sleeve pocket divider	1
4. Sleeve pocket flap	1
5. Front side pass thru	2
6. Sleeve pocket	1
7. Hip pocket flap	2
8. Hip pocket	2
9. Seat patch	2
10. Elbow patch	2
11. Breast patch pocket	2
12. Knee patch	2
13. Front patch pocket	2
14. Collar	2
15. Breast patch pocket slide fastener cover	2
16. Sleeve slide fastener welting	4
17. back belt	1
18. Upper left front	1
19. Upper right front	1
20. Sleeve	2
21. Upper back	1
22. Lower right front	1
23. Lower left front	1
24. Lower back	2

3.6. Construction. Seams and stitching are as specified in Table I and ASTM-D-6193. If not specified, seaming shall be accomplished by Stitch Type 301. Drill holes when used shall be covered. The outer edges of the breast and thigh pockets shall be caught in the side seams. All raw edges shall be overedged. All double stitching shall be 1/4 inch gage, with the first row 1/16 to 1/8 inch from the edge. There shall be 8-10 stitches per inch. Gage of stitching for the hook and loop fastener tape shall be 1/8 to 3/16 inch from the edges.

Table III. Construction

	<u>Component</u>	<u>Stitch Type</u>	<u>Seam type</u>
1.	Shoulder, armhole and underarm seam, side seam, inseam, waist seam, crotch and seat seam shall be double lapped double stitched, 1/4 inch gage. As an alternate, join sleeves to armhole and overedge raw edges, turn seam toward body and raise stitch 3/16 to 1/4 inch from the edge.	301 or 401	LSc-2 or LSbm-3
2.	Pocket flaps, ankle and sleeve tabs, and collar: single topstitch, 1/4 inch gage.	301	Sse-2
3.	Knee, elbow, and seat patches shall be double stitched 1/4 inch gage.	301 or 401	LSd-2

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Table III. Construction

4.	Sleeve hem and bottom leg hem, stitch approximately 1 inch from the edge; sleeve pocket opening, stitch 5/8 inch from edge.	301	EFb-1
5.	Left front pen holder reinforcement (edges shall be overedge stitched)	301 or 401	SSa-1
6.	Left front pen holder (tape), four bartacks full width of tape, with tape ends turned under and tacked close to edge.	Bartack	Min. 20 stitches
7.	Back waist elastic tunnel	301	SSat-2
8.	The slide fastener closures for the chest pocket and underarm ventilation shall have welting (without cording) that are flush with each other when the slide fastener is closed. The slide fastener tape shall be secured to the coverall with double stitching, 1/4 inch gage.	301	OSf-1
9.	All pockets shall be double stitched to the coverall, 1/4 inch gage, except the utility pocket to sleeve shall be single stitched 1/16 to 1/8 inch from edge of pocket. The utility sleeve pocket shall have bellows on the sides and a pencil pocket stitched to the inside, as marked on pattern.	301	LSd-2 LSd-1
10.	The double welt pass through inside the pocket shall be double stitched 1/2 inch gage with the facing edges turned under.	301	SSa-2
11.	Front opening slide fastener tape shall be double stitched to coverall 1/4 inch gage.	301	SSa-2
12.	Edge of front facing shall be turned and edge stitched to the coverall.	301	LSd-1
13.	Outer edge of front facing shall be topstitched 1/4 inch from the edge.	301	OSf-1
14.	Bartacks (3/8 to 1/2 inch) Front opening- One horizontal at each side of top slide fastener, near neck through all plies (through right facing)	22 stitches	Bartack
15.	Two horizontal bartacks one at each end of left front through all plies to secure bottom of slide fastener facing.	22 stitches	Bartack
16.	Side pockets- at top, on waist seam through all plies.	22 stitches	Bartack
17.	One at each leg bottom side seam (horizontal), no more than 3/8 inch from bottom of leg.	22 stitches	Bartack
18.	One at each sleeve bottom across the under arm seam (horizontal), no more than 3/8 inch from the bottom of the sleeve.	22 stitches	Bartack
19.	One horizontal bartack on each side of the back pocket opening at the top through all plies.	22 stitches	Bartack
20.	One horizontal bartack through each side of back pocket flap, attaching flap to coverall, through all plies.	22 stitches	Bartack
21.	Sleeve pocket (horizontal) on each side of flap, in line with stitching attaching flap to coverall.	22 stitches	Bartack
22.	Vertical one at bottom of each side pocket opening, on side seam, through all plies.	22 stitches	Bartack

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Table III. Construction

23.	Vertical one at each corner of leg and sleeve tabs.	22 stitches	Bartack
24.	Vertical one at each corner of waist tunnel through all plies.	22 stitches	Bartack
25.	Vertical one at each side at bottom of sleeve pocket, through all plies.	22 stitches	Bartack

3.8 Finished measurements. The finished coveralls shall conform to the measurements shown in Table VI.

Table IV. Finished Measurements in Inches

Sizes	Small	Medium	1/2 Thigh circ.	Tolerance
Back <u>1/</u>	18	19	20	$\pm 3/4$
1/2 Chest <u>2/</u>	23	25	27	$+ 1/2$
1/2 Waist <u>3/</u>	19-1/2	21-1/2	23-1/2	$\pm 3/4$
Sleeve length <u>4/</u>	22-1/2	22-1/2	22-1/2	$\pm 1/2$
Sleeve width <u>5/</u>	6-3/4	7	7-1/4	$\pm 1/2$
Leg inseam <u>6/</u>	32	32	32	$\pm 1/2$
Ankle width <u>7/</u>	10-1/4	10-3/4	11-1/4	$\pm 1/2$
Overall length <u>8/</u>	64-1/2	65-1/2	66-1/2	$\pm 1/2$
Back elastic cut length	14-1/2	16-1/2	18-1/2	$\pm 1/2$

1/ Measure across back, from back arm seam to back arm seam.

2/ Measure across chest, with front opening closed, from bottom of armhole to bottom of armhole.

3/ Measure across front at waist, from folded edge to folded edge with elastic fully stretched.

4/ Measure along inseam from armhole seam to bottom of sleeve.

5/ Measure bottom width of sleeve from folded edge to folded edge.

6/ Measure leg inseam from crotch joining seam to bottom of leg.

7/ Measure bottom width of ankle from folded edge to folded edge.

8/ Measure from base of neck along center back to bottom of leg.

Note: Sleeve pockets shall measure 4-1/2 inches in width (taken across the top of the pocket including the slide fastener cover) and 5-3/4 inches in length (taken along the side) for all sizes.

## 4. VERIFICATION

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

1. First article inspection (see 4.2).
2. Quality conformance inspection (see 4.3).

4.2 First Article inspection. The first article, submitted in accordance with 3.1, shall be inspected for compliance with design, configuration, workmanship and dimensional requirements. The presence of any defect shall be cause for rejection of the first article.

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4.3 Quality conformance inspection. Sampling for inspection shall be performed in accordance with ANZI/ASQC Z1.4, except where otherwise indicated.

4.3.1 Webbing and lanyard cord. The cord shall be tested for breaking strength in accordance with ASTM-D-5035.

4.4 Visual examination. Coveralls shall be examined for the defects listed below.

TABLE V. Defects

	Major Minor	
<b>Material defects</b>		
Outside-Any hole, cut, tear, or weakening defect such as smash, multiple float, needle chew, loose slub, fabric cut on wrong side, stamping marks, color not as specified.	101	
-Visible mend, broken or missing yarn, misweave, thin place, shade part/bar greater than 1/4 inch.	102	
-No printed dye penetration- up to 1/4 inch		201
-No printed dye penetration- more than 1/4 inch	103	
- Poor printed dye penetration- up to 1/4 inch		202
- Poor printed dye penetration- more than 1/4 inch	104	
Inside- Defects listed above not affecting the performance serviceability and Appearance.		203
<b>Cutting and marking</b>		
-Any component part not cut in accordance with the grainline	105	
-Any component part not cut in accordance with patterns that effects the design or finished dimensions	106	
-Corrosive metal fastening device or sewn on ticket or adhesive	107	
<b>Construction</b>		
-Any operation not performed as specified.	108	
<b>Seams and stitching</b>		
-End of stitching not caught in other seams or not securely backstitched	109	
-2 Broken stitches		204
-More than 2 broken stitches	110	
-2 skipped stitches		205
-More than 2 skipped stitches	111	
-Loose tension resulting in loose seam	112	
-Thread breaks not securely overstitched for a 1/2 inch distance	113	
-Seams which are twisted, or pleated		206



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-Puckering-Double lapped seams with a rating of 2 in accordance with AATCC-88B effecting a major portion of a seam.		207
-Puckering-Double lapped seams with a rating of 1 in accordance with AATCC- 88B.	114	
- Puckering-Single needle seams with a rating of 2 in accordance with AATCC- 88B effecting a major portion of a seam.		208
- Puckering-Single needle seams with a rating of 1 in accordance with AATCC- 88B.	115	
-Edges not properly forced out		209
-Any joining seams staggered by 1/2 inch or more	116	
-Open seam 1/2 inch or more	117	
-Open seam less than 1/2 inch		210
-Any raw edges 1/4 inch or more on outside of coverall	118	
-Any raw edges 1/4 inch or more on inside of coverall		211
-Any loose, missing or misplaced bartacks	119	
-Looper thread on outside of garment		212
-Edges of slide fastener covers overlapping or gapping more than 1/16 inch		213
-Thread ends not trimmed or removed		214
-Gage of stitching or stitches per inch irregular		215
<b>Components</b> -Any component part omitted, twisted, not specified size, missing, misplaced, poorly shaped, reversed or not cut in accordance with patterns effecting dimensions, design or finished dimensonson.	120	
<b>Metal components</b> -Any slide fastener not entirely covered by respective flap	121	
-Slide fastener buckling, causing rippling effect	122	
<b>Fronts</b> -Uneven in length when slide fastener is closed by 1 inch or more	123	
-Uneven in length when slide fastener is closed (up to 1 inch)		216
-Thong not between 3 and 3-1/2 inches long.		217
<b>Collar</b> -Collar edges not forced out	124	
<b>Pockets</b> -Any pocket 1/2 inch or more out of horizontal or vertical alignment	125	
-Any pocket 3/8 to 1/2 inch out of horizontal or vertical alignment		218

## 5. PACKAGING

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**5.1 PACKAGING.** For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materials is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Points packaging activity within the Military Departments Systems Command. Packaging data retrieval is available from the managing Military Department or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

## 6. NOTES

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

**6.1 Acquisition requirements.** Acquisition documents must specify the following:

- a. Title, number and date of this document
- b. Types, classes and sizes required (see 1.2)
- c. Issue of DoDISS to be cited in the solicitation
- d. When first article is required (see 3.1, 4.2 and 6.2)
- e. Packaging Requirements (see 5.1)
- f. AQL and sampling provisions

**6.2 First article.** When a first article is required, it will be inspected and approved under the appropriate provisions of FAR 52.209. The first article will 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 will include specific instruction in all acquisition document regarding arrangements for selection, inspection, and approval of the first article.

**6.3 Subject term (key word) listing.**

Clothing

**MILITARY INTERESTS:**

Custodians:

Army - GL

Review Activities:

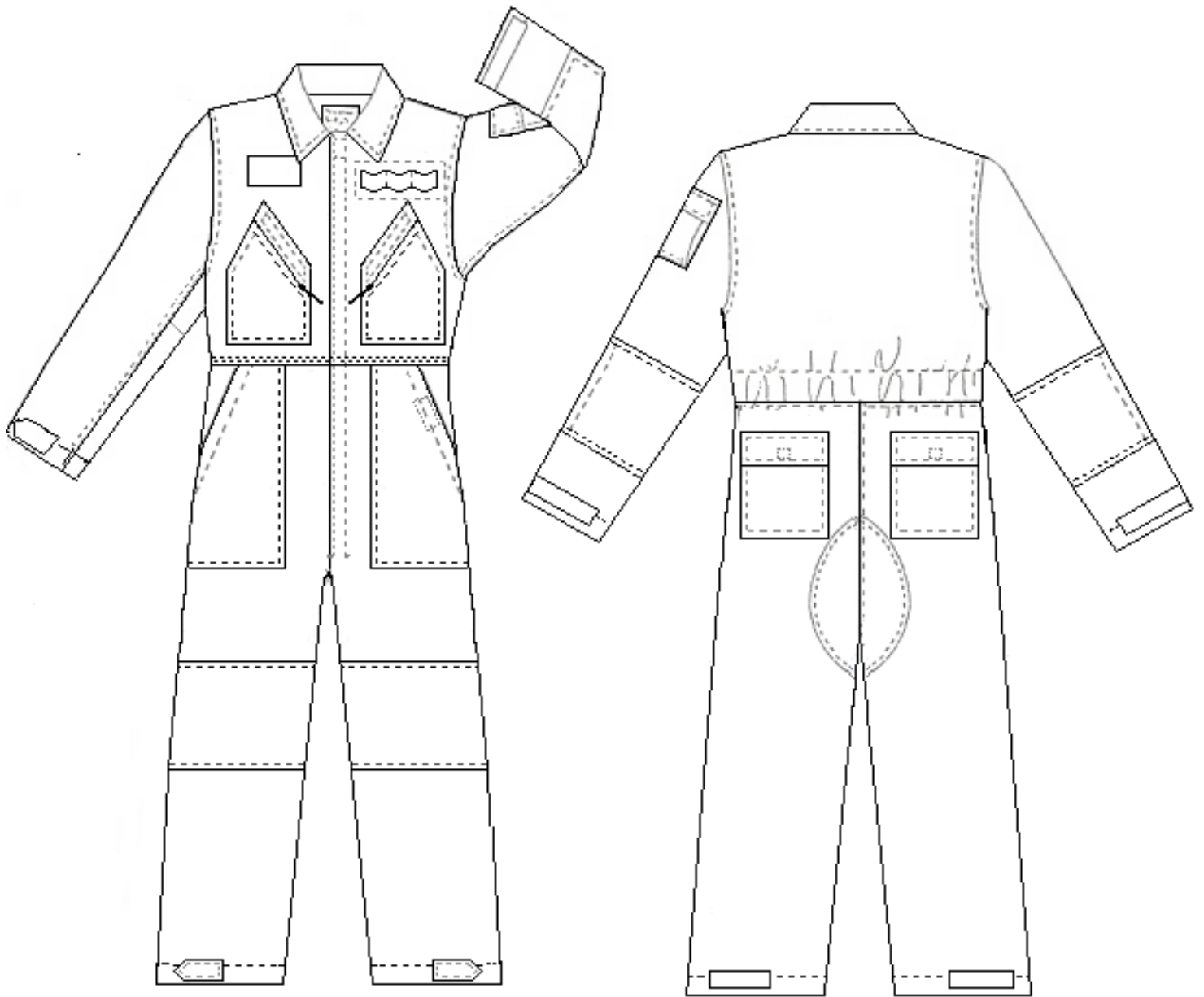
Army - MD

Preparing Activity:

DLA - CT

Project No. 8415-0207

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Coveralls, Mechanics

## STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

## INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7, and send to preparing activity.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

## I RECOMMEND A CHANGE:

1. DOCUMENT NUMBER  
MIL-DTL-32082

2. DOCUMENT DATE (YYYYMMDD)  
20010501

3. DOCUMENT TITLE COVERALLS, MECHANICS, COLD WEATHER

4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

## 5. REASON FOR RECOMMENDATION

## 6. SUBMITTER

a. NAME (Last, First, Middle Initial)

b. ORGANIZATION

c. ADDRESS (Include Zip Code)

d. TELEPHONE (Include Area Code)  
(1) Commercial  
(2) AUTOVON  
(if applicable)

7. DATE SUBMITTED  
(YYYYMMDD)

## 8. PREPARING ACTIVITY

a. NAME DEFENSE SUPPLY CENTER PHILADELPHIA  
DSCPCOCT

b. TELEPHONE (Include Area Code)  
(1) Commercial (2) AUTOVON

c. ADDRESS (Include Zip Code)  
700 ROBBINS AVE (Bldg. 6, C&T)  
PHILADELPHIA, PA 19111-5092

IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:  
Defense Standardization Program Office (DLSCLM)  
8725 John J. Kingman Road, Suite 2533 Ft. Belvoir, VA 22060-  
2533  
Telephone (703) 767-6888 AUTOVON 427-6888