

INCH-POUND

DDD-A-1466C
January 10, 1991
SUPERSEDING
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April 5, 1988

FEDERAL SPECIFICATION

APRON, CONSTRUCTION WORKER'S

This specification is approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers aprons to be used by construction workers.

1.2 Classification. The aprons shall be of the following types and classes, as specified (see 6.2):

Type I - Waist type

Class 1 - Camouflage Green 483

Type II - Bib type

Class 1 - Camouflage Green 483

Class 2 - Unbleached

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. Unless otherwise specified, the following documents of the issue in effect on the date of invitation for bids or request for proposal form a part of this specification to the extent specified herein.

Federal Specifications:

- A-A-203 - Paper, Kraft, Untreated
- V-T-285 - Thread, Polyester
- CCC-C-419 - Cloth, Duck, Unbleached, Plied-Yarns, Army and
Numbered
- CCC-D-950 - Dyeing and Aftertreating Processes for Cotton Cloths
- DDD-L-20 - Label: For Clothing, Equipage, and Tentage, (General
Use)
- PPP-B-636 - Boxes, Shipping, Fiberboard

Federal Standards:

- FED-STD-123 - Marking for Shipment (Civil Agencies)
- FED-STD-595 - Colors Used in Government Procurement
- FED-STD-751 - Stitches, Seams, and Stitchings

(Activities outside the Federal Government may obtain copies of Federal specifications, standards, and commercial item descriptions as outlined under General Information in the Index of Federal Specifications, Standards, and Commercial Item Descriptions. The Index, which includes cumulative bimonthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.)

(Single copies of this specification and other Federal specifications, standards, and commercial item descriptions required by activities outside the Federal Government for bidding purposes are available without charge from General Services Administration Business Service Centers in Boston, MA; New York, NY; Philadelphia, PA; Washington, DC; Atlanta, GA; Chicago, IL; Kansas City, MO; Fort Worth, TX; Denver, CO; San Francisco, CA; Los Angeles, CA; and Seattle, WA.)

(Federal Government activities may obtain copies of Federal Standardization documents and the Index of Federal Specifications, Standards, and Commercial Item Descriptions from established distribution points in their agencies.)

Military Specifications:

- MIL-F-411 - Fasteners Belt: Clips, End, Strap, with Hook: and
Keepers, Slide
- MIL-L-3851 - Loops, Slide (For Equipage)
- MIL-W-4088 - Webbing, Textile, Woven Nylon

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MIL-W-27265 - Webbing, Textile, Woven Nylon Impregnated
 MIL-L-35078 - Loads, Unit: Preparation of Semiperishable
 Subsistence Items; Clothing, Personal Equipment and
 Equipage; General Specification For
 MIL-T-43566 - Tape, Textile, Cotton or Polyester, General Purpose,
 Natural or in Colors

Military Standards:

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

(Copies of military specifications and standards required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless a specific issue is identified, the issue in effect on the date of invitation for bids or request for proposal shall apply.

American Society for Testing and Materials (ASTM)

B 633 - Electrodeposited Coatings of Zinc or Iron and Steel

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.)

(Technical society and technical association documents are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

2.3 Order of precedence. In the event of a conflict between the text of this 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 Standard sample. The finished apron shall match the standard sample and shall be equal to or better than the standard sample with respect to all characteristics for which the standard sample is referenced (see 6.4).

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3.3 Regulatory requirements. The offeror/contractor is encouraged to use recovered material in accordance with Public Law 94-580 to the maximum extent practicable.

3.3.1 Basic material. The basic material for the aprons shall be cotton duck, type I, No. 10 hard texture conforming to CCC-C-419. The duck for the types I and II, class 1 aprons shall be dyed Camouflage Green 483 approximating color chip 34094 of FED-STD-595 in accordance with CCC-D-950 and shall be mildew and water repellent treated in accordance with type I, class B, inhibitor (d) or (e) of CCC-D-950. The duck for the type II, class 2 shall be shade natural and when specified (see 6.2) shall be mildew and water repellent treated in accordance with class B, inhibitor (d) or (e) of CCC-D-950.

3.3.2 Thread. The thread shall be polyester and shall conform to type I or II, class 1, subclass A, size F of V-T-285. For the type I and type II, class 1 aprons, the thread shall be dyed Camouflage Green 483 approximating color chip 34094 of FED-STD-595 and for the type II, class 2 aprons shall be natural color.

3.3.2.1 Colorfastness. The dyed thread shall show colorfastness to laundering equal to or better than the standard sample (see 6.4). When no standard sample is available, the thread shall show "good" colorfastness to laundering.

3.3.3 Tape. The tape shall be cotton, 2 inch wide for the waist belt of the type I apron and 5/8 or 3/4 inch wide for the neck and tie tapes and 3/4 inch wide for the binding of type II aprons. For the type I and type II, class 1 aprons, the tape shall be dyed Camouflage Green 483 approximating color chip 34094 of FED-STD-595 and shall conform to type I, class 4 of MIL-T-43566. For the type II, class 2 aprons the tape shall conform to type I, class 1a of MIL-T-43566.

3.3.4 Fasteners, belt. The fastener for the waist belt on the type I aprons shall consist of a male and female connection, conforming to type I, style 2 of MIL-F-411, or Waterbury Buckle Co. (see 6.5) 2 inch clasp, No. 3056, or equal (see 6.6), except that the steel clasp assembly shall be given a phosphate treated zinc plate conforming to ASTM B 633 and finished with black baked phenol or urea formaldehyde enamel.

3.3.5 Loops, slide. The tape belt on the type I aprons shall be equipped with four slide loops conforming to class 1, 2 or 3, style 2 (construction A), size 2 inches of MIL-L-3851, or Waterbury Buckle Co. (see 6.5) No. 22 slide, or equal (see 6.6), except that the steel slide shall be given a phosphate treated zinc plate conforming to ASTM B 633 and finished with black baked phenol or urea formaldehyde enamel.

3.3.6 Labels. Each apron shall have an identification label conforming to type IV, class 5 of DDD-L-20. The colorfastness to laundering requirements of DDD-L-20 shall apply.

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3.3.7 Resin impregnating agent. The resin agent used for dipping or impregnating end of belt on type I aprons shall be cellulose acetate or cellulose acetate butyrate (see operation 7.a of table II).

3.3.8 Webbing. Each type II apron shall have a hammer holder made of nylon webbing conforming to type VIII, class 2, of MIL-W-4088. The webbing shall be resin impregnated in accordance with class R of MIL-W-27265. The color of the webbing shall be Camouflage Green 483 approximating color chip 34094 of FED-STD-595.

3.4 Design.

3.4.1 Type I. The type I apron is a waist type with two reinforced box style pockets and a belt of tape. The belt is equipped with four metal slide loops, which may be adjusted to form compartments to accommodate tools and is fastened by a male and female connection (see figure 1).

3.4.2 Type II. The type II apron is a bib type with a bib pocket divided into three sections, a web loop for holding a hammer, and a swinging waist pocket divided into two sections (see figure 2).

3.5 Figures. Figures 1 and 2 are furnished solely for guidance and information. Should variation from the written specification appear in the figure, the written specification shall govern.

3.6 Patterns.

3.6.1 Military procurement. Standard patterns which provide a seam allowance of 3/8 inch will be supplied by the Government. The standard patterns shall not be altered in any way and are to be used only as a guide for cutting the supplier's working patterns. The working patterns shall be identical to the standard patterns.

3.6.2 Civil agency procurement. For civil agency procurement, the patterns shall be furnished by the supplier. The finished measurements shall be in accordance with 3.9.

3.6.3 List of pattern parts. The components of the aprons shall be cut from materials specified in accordance with pattern parts indicated in table I.

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TABLE I. Pattern parts

Apron type	Material	Nomenclature	Cut parts
I	No. 10 duck	Apron	1
		Waist pocket	2
II	No. 10 duck	Apron	1
		Bib pocket	1
		Waist pocket	1

3.7 Construction.

3.7.1 Stitches, seams, and stitching. All stitches, seams, and stitching shall conform to FED-STD-751. The type of seam, stitching and stitches per inch shall be as specified in table II. Seam allowances shall be maintained with seams sewn so that no raw edge, run-off, twists, pleats, puckers, or open seams shall occur.

3.7.1.1 Type 301 stitching. Unless otherwise specified, ends of all 301 stitching, except when caught in other seams or stitching, shall be backstitched or overstitched 1/2 inch minimum. Thread tension 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 embedded 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 sewing, 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 runoff or skipped stitches noted during inspection of the item (in-process or end 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 and continue 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.

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3.7.1.2 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.

3.7.1.3 Thread ends. All thread ends shall be trimmed to a length of not more than 1/4 inch.

3.7.1.4 Bartacks. Bartacks shall be 5/8 to 3/4 inch in length. Bartacking shall be free from thread breaks or loose or tight stitching.

3.8 Manufacturing operations requirements. The apron shall be made in accordance with all operations listed in table II. The contractor is not required to follow the exact sequence of operations.

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NO.	TABLE II. 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>Cutting.</u></p> <p>a. Cut aprons in strict accordance with patterns which show placement of pockets and notches for proper assembly of all parts. The parts may be cut either in the warp or in the filling direction.</p> <p>b. Cut as many bib and waist pockets as possible (type II apron) with top of pocket at the selvage edge. When top of pocket does not have selvage edge, sufficient material shall be added for the turnaround (see operations 9.a and 10.a).</p> <p>c. The pockets may be cut from ends, providing the cut parts approximate the shade of the apron body.</p> <p>d. Cut the 2 inch tape for waist belt (type I apron) in sufficient length to conform to finished measurements specified in 3.9.</p> <p>e. Cut the 5/8 or 3/4 inch tape for neck strap and tie tapes (type II apron) in sufficient lengths to conform to finished measurements specified in 3.9.</p> <p>f. Cut one $8 \pm 1/8$ inch length of nylon webbing for hammer holder for type II aprons.</p>						
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 shall be removed from production and replaced with nondefective 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	T H R E A D		
					NEEDLE	BOBBIN/ LOOPER	COVER
3.	<p><u>Labeling.</u></p> <p>a. Type I apron - Apply the identification label to the back of apron body in the lower right corner.</p> <p>b. Type II apron - Apply the identification label to the back of apron body in the lower left corner.</p> <p style="text-align: center;"><u>Type I Apron</u></p>	301	EFb-1	6-8	F		
4.	<p><u>Make two pockets.</u></p> <p>a. Fold top and bottom of each pocket to outside, as indicated by notches; turn in raw edges and stitch 1/16 to 1/8 inch from edge.</p> <p>b. Make dart at each bottom corner of pocket, enclosing raw edges of V-cut in dart stitching. Turn fold of dart toward center of pocket and stitch the two free sides of the triangle to pocket, through all plies.</p> <p>c. Turn and force out corners.</p>	301	OSf-1 and OSE-1	6-8	F	F	
5.	<p><u>Make apron body.</u></p> <p>a. Fold top and bottom of apron to the inside at marks indicated on pattern; turn in raw edges and stitch 1/16 to 1/8 inch from edge.</p> <p>b. Fold side edges as indicated by marks on pattern, turn in raw edges and stitch 1/16 to 1/8 inch from edge.</p>	301	EFb-1	6-8	F	F	

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN/ LOOPER	COVER
5.	<p><u>Make apron body.</u> (cont'd)</p> <p>c. Position tape on back of apron with top edges even and with left end extending $12 \pm 1/4$ inches beyond side of apron. Stitch tape to apron $1/16$ to $1/8$ inch from each edge.</p> <p>d. Box stitch tape to apron at center and each end of waist. The box pattern shall measure $2 \pm 1/4$ inches in length and shall be formed by stitching across the width of the tape and diagonally stitching from corner to corner, crossing at center. Ends of stitching shall be securely tacked. This operation may be performed on an automatic machine with the thread and stitches per inch as specified and with at least 3 overlapping stitches. Two overlapping stitches for patterns measuring $1-7/8 \pm 1/4$ inches in length may be substituted for this operation.</p>	301	SSa-1 and LSbj-1	6-8	F	F	
6.	<p><u>Attach pockets.</u></p> <p>a. Turn under side edges of pockets $1/4$ to $3/8$ inch and stitch sides and bottom edges of pockets to apron with two rows of stitching $1/4$ inch gage, with the outer row $1/16$ to $1/8$ inch from edge. The outer side and bottom of pocket shall be even with side and bottom of apron.</p>	301	SSb-2 and LSD-2	6-8 6-8	F F	F F	
7.	<p><u>Finish belt.</u></p> <p>a. Impregnate or dip right end of waist belt tape to prevent fraying (see 3.3.7).</p>	Bartack		42 per bartack	F	F	

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN/ LOOPER	COVER
7.	<p><u>Finish belt.</u> (cont'd)</p> <p>b. Attach four slide loops to right end of belt tape.</p> <p>c. Thread the treated end of belt through bar of female fastener returning end to back of belt by threading through the four loops.</p> <p>d. Thread left end of belt through bar of male fastener. Fold back 1-1/2 to 1-3/4 inches of tape; turn in raw edge 1/4 to 3/8 inch and box stitch through belt, 1/16 to 1/8 inch from edge. The box pattern shall measure 1/2 to 5/8 inch by 1-3/4 to 1-7/8 inches with diagonal stitching from corner to corner, crossing at center. This operation may be performed on an automatic machine with the thread and stitches per inch as specified and with at least 3 overlapping stitches.</p>	301		6-8	F	F	
8.	<p><u>Type II Apron</u></p> <p><u>Attach tie tapes and neck strap and bind apron body.</u></p> <p>a. Position neck strap and tie tapes on body, so they will be securely fastened under binding. Bind all around the edges of the apron body. Finish ends of binding by overlapping the tape and securing with a bartack.</p> <p>b. Fold neck strap back over binding and bartack each strap to binding.</p> <p>c. With raw edge turned in, fold unfinished ends of tie tapes back 1/2 to 5/8 inch and bartack the width of the tie tape. Fold tie tape back over binding and bartack tapes to binding.</p>	<p>301 Bartack</p> <p>Bartack</p> <p>Bartack and Bartack</p>	BSa-1	<p>6-8 42 per bartack</p> <p>42 per bartack</p> <p>42 per bartack 42 per bartack</p>	F F	F F	

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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.	Attach tie tapes and neck strap and bind apron body. NOTE: As an alternate, tie tapes and neck strap may be attached in accordance with operations 12 and 13.						
9.	Attach <u>bib pocket</u> . a. When top of pocket does not have selvage edge, turn down raw edge 5/16 to 3/8 inch and stitch with two rows of stitching 3/16 inch gage (see operation 1.b). b. Position as indicated by marks on pattern. Turn in raw edge 1/4 to 3/8 inch and stitch to apron with two rows of stitching 3/16 inch gage, with the outside row of stitching 1/8 to 3/16 inch from turned edge. c. Edges of pocket may be pre-hemmed prior to setting. d. Bartack the top of each outside edge of pockets. e. Divide pocket into three compartments by stitching two double rows of stitching, 3/16 inch gage from top to bottom of pocket, 4 \pm 1/8 inches from outside edge of pocket. f. Bartack the top of each double row of stitching. Make <u>waist pocket</u> . a. When top of pocket does not have selvage edge, turn down raw edge 5/16 to 3/8 inch and stitch with two rows of stitching 3/16 inch gage (see operation 1.b).	301	EFa-2	6-8	F	F	
		301	LSd-2	6-8	F	F	
		301	EFa-1	6-8	F	F	
		Bartack		42 per bartack	F	F	
		301	SSv-2	6-8	F	F	
10.		Bartack		42 per bartack	F	F	
		301	EFa-2	6-8	F	F	

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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.	<p><u>Make waist pocket.</u> (cont'd)</p> <p>b. Fold pocket at marks indicated on pattern. Divide pocket into two equal compartments by stitching through center with a double row of stitching 3/16 inch gage. The stitching shall extend beyond the pocket opening to the top of waist pocket.</p> <p>NOTE: This operation may be performed after operation 10.d.</p> <p>c. Bartack across the double line of stitching at the pocket opening, with a horizontal bartack. (Bartack shall be through body of apron.)</p> <p>d. Bind sides and top of waist pocket. Turn back the ends of the bindings 3/4 of an inch at bottom of side edges and bartack with vertical bartacks.</p> <p>e. Bartack the outer edges of the pocket openings through the binding with vertical bartacks.</p>	301	SSv-2	6-8	F	F	
		Bartack		42 per bartack	F	F	
		301 and Bartack	BSa-1	6-8 42 per bartack	F	F	
		Bartack		42 per bartack	F	F	
11.	<p><u>Attach waist pocket.</u></p> <p>a. Position pocket on body of apron at marks indicated on pattern and stitch across top, through binding and apron with two rows of stitching 3/16 inch gage with the top row 1/8 to 3/16 inch from edge.</p> <p>b. Bartack the waist pocket through the apron body at the ends of joining seam with diagonal bartacks.</p> <p>c. Bartack the waist pocket through the apron body, at center of joining seam with a horizontal bartack.</p>	301	LSbj-1	6-8	F	F	
		Bartack		42 per bartack	F	F	
		Bartack		42 per bartack	F	F	

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NO.	TABLE II. (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS	STITCH TYPE	SEAM AND STITCHING TYPE	STITCHES PER INCH	T H R E A D		
					NEEDLE	BOBBIN/ LOOPER	COVER
12.	<p><u>Attach neck strap (if not performed in operation 8).</u></p> <p>Turn back each end of neck strap 5/8 to 3/4 inch. Position the turned ends on each corner of the bib on outside of apron at marks indicated on pattern and bartack with two bartacks through the doubled ends of neck strap and apron. The bartacks shall be 1/4 to 3/8 inch apart and parallel to the edge of the apron.</p>	Bartack		42 per bartack	F	F	
13.	<p><u>Attach tie tapes (if not performed in operation 8).</u></p> <p>a. Turn in one end of each tape, 1/4 to 3/8 inch and stitch. If bartack is used, the bartack shall extend across the width of the tie tape.</p> <p>b. Turn back unfinished ends of the tapes 5/8 to 3/4 inch. Position the turned ends on the outside of apron at marks indicated on pattern and bartack with two bartacks through the doubled end of the tapes and apron. The bartacks shall be 1/4 to 3/8 inch apart and parallel to the edge of apron.</p>	301 or Bartack	EFb-1	4-8 42 per bartack	F F	F F	
14.	<p><u>Trim and inspect aprons.</u></p> <p>a. Trim all thread ends and remove all loose threads.</p> <p>b. Remove all spots and stains.</p>	Bartack		42 per bartack	F	F	
15.	<p><u>Attach hammer holder.</u></p> <p>Sear both ends of the 8 by 1-23/32 inches nylon webbing, then form a looping by folding the webbing upon itself so the seared ends are aligned. With the webbing in the folded position, place the webbing on</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
15.	Attach hammer holder. (cont'd) the apron as shown on the patterns. Attach the wel- bing to the apron using a single box X pattern. The stitch margin shall be 1/8 to 3/16 inch.	301		6-8	P	P	

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3.9 Finished measurements. The finished measurements for types I and II aprons shall conform to the measurements in table III.

TABLE III. Finished measurements (inches)

	Dimension	Tolerance
<u>Type I Apron</u>		
Length of apron	9-1/2	$\pm 3/8$
Width of apron	15-1/2	$\pm 3/8$
Depth of pocket	7	$\pm 1/4$
Width of pocket (from outside edge to outside edge)	7	$\pm 1/4$
Waist belt - left extension (from edge of apron to fold at bar of fastener)	10-1/2	$\pm 1/2$
- right extension (from edge of apron to end of tape, with all hardware removed)	38	$\pm 1/2$
<u>Type II Apron</u>		
Length of apron	21	$\pm 1/2$
Width of apron, at waist	18-1/2	$\pm 1/2$
Width of apron, at bib top (inside of and parallel to top binding)	8-1/4	$\pm 1/2$
Depth of bib pockets	7	$\pm 3/8$
Width of bib side pockets (from outside edge to stitching at center bib pocket)	4	$\pm 1/8$
Width of bib center pocket	1-7/8	$\pm 1/8$
Hammer holder	4	$\pm 1/16$
Depth of waist pockets	7	$\pm 1/4$
Width of waist pockets (from outside of tape binding to center stitching)	9-1/4	$\pm 1/4$
Neck strap (edge of apron to edge of apron)	22-1/2	$\pm 1/4$
Tie tapes (edge of apron to end of tie tapes)	18	$\pm 1/2$

3.10 Workmanship. The finished aprons shall conform to the quality of product established by this specification and the occurrence of defects shall not exceed the applicable acceptable quality levels.

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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).

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 4.4.2 and 4.4.3.

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

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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 document or applicable purchase document.

4.4.1.1 Resin impregnating agent. The cellulose acetate or cellulose acetate butyrate shall be accepted on the basis of supplier's certificate of compliance.

4.4.2 End item visual examination. The end items shall be examined for the defects listed in table IV. The lot size shall be expressed in units of aprons of one type and class only. The sample unit shall be one apron. The inspection level shall be II and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 2.5 for major defects, 6.5 for major and minor A combined defects and 10.0 for total (major, minor A, and minor B) defects.

TABLE IV. End item visual defects

Examine	Defect	Classification	
		Major	Minor A B
<u>General defects:</u>			
Material defects and damages	Any weakening defect such as smash, multiple float, or loose slub	101	
	Hole (except exposed drill hole) cut, tear, or needle chew	102	
	Exposed drill hole		301
	Mends, darns, or patches	103	
	Edges of waistband tape frayed	104	
	Edges of tape scalloped		201
Cleanness	Spot or stain on outside		202
	Thread ends not trimmed or loose threads not removed		302
Component and assembly	Any component part or required operation omitted (unless otherwise classified herein)	105	
	Any component not as specified	106	
Labels	Missing, incorrect or illegible		203
	Not positioned as specified		303

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

Examine	Defect	Classification	
		Major	Minor A B
<u>General defects:</u> (cont'd)			
Seams and stitching			
Accuracy of seaming	Seams twisted, puckered, or pleated		204
	Part of garment caught in unrelated operation		205
	Ends of seams or stitching, when not caught in other seams or stitching, backtacked less than 1/2 inch		304
	Continuous line of stitching overlapped less than 1/2 inch, or less than 3 stitches on labels or when automatic box stitch is used		305
	Thread breaks stitched less than 1/2 inch back of each break		306
	Seam or stitch type not as specified	206	
Gage of stitching and seam allowance (to be scored only when condition exists along major portion of seam)	Irregular, i.e., unevenly gaged or not uniform		307
	Width not as specified or not within range of gage specified		308
Stitch tension (except on bartacks)	Loose, resulting in exposed bobbin or needle thread		309
	Tight (stitches break when tension is applied to seam)	207	
Stitches per inch (to be scored when condition exists on major portion of seam or stitching)	Less than minimum specified by:		
	- one stitch		310
	- two or more stitches	208	
	More than maximum specified		311
Raw edges (except where allowed)	1/4 to 3/4 inch inclusive		312
	Over 3/4 inch	209	

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

Examine	Defect	Classification	
		Major	Minor A B
<u>General defects:</u> (cont'd)			
Seams and stitching (cont'd)			
Run-offs	1/4 to 1/2 inch inclusive Over 1/2 inch	210	313
Stitches broken or missing	Up to 1/2 inch inclusive Over 1/2 inch	211	314
Bartacks	Any bartack omitted or misplaced, not serving intended purpose Less than 5/8 or more than 3/4 inch long (except on loose end of tie tape) When used on loose end of tie tapes, does not extend across width of tie tape Loose tension	107 212	 315 316
<u>Defects applicable to type I aprons:</u>			
Hardware	Broken, malformed, or corroded area Burrs or sharp edges which may cause injury in handling Finish omitted Male or female belt fastener connections set in reverse position, i.e., male fastener connection to right end of belt Misplaced or defective, causing difficulty in effecting secure closure	108 109 110 111	 317
Boxstitching	Incomplete (if not done on automatic machine): - one row of stitching omitted - two or more rows of stitching omitted	 213	 318

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

Examine	Defect	Classification	
		Major	Minor A B
<u>Defects applicable to</u> <u>type I aprons:</u> (cont'd)			
Boxstitching (cont'd)	Dimensions:		
	- on waist tape:		
	- less than full width of tape by more than 1/8 inch		319
	- less than 1-3/4 or more than 2-1/4 inches long		320
	- on belt:		
	- less than full width of tape by more than 1/8 inch		321
	- less than 1/2 or more than 5/8 inch long		322
Belt	Waist belt spliced, i.e., not one continuous length	112	
	Right end of belt not dipped or impregnated across full width of tape	113	
	Right end of belt not threaded back through loops	114	
Apron body	Top edge of body uneven with top edge of waist belt by 1/8 inch or more		323
	Top or bottom hem not turned toward inside of apron	214	
Pockets	Edges of pockets uneven with edges of apron by 1/8 inch or more		324
	Top or bottom hems turned toward inside of pocket	215	
<u>Defects applicable to</u> <u>type II aprons:</u>			
Binding	Puckered, pleated, twisted or loosely applied		325
	End not finished as specified	216	

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

Examine	Defect	Classification	
		Major	Minor A B
<u>Defects applicable to</u> <u>type II aprons:</u> (cont'd)			
Pocket	Bartack at center of waist pocket opening through body of apron	115	
Neck strap	Twisted		217
	Attached to inside of apron		326
Tie tapes	Free end not hemmed		327
	Attached to inside of apron		328
	Edge along length dimension of hammer holder not at right angle to edge at apron		218

4.4.3 End item dimensional examination. The end items shall be examined for conformance to the dimensions specified in table III. The lot size shall be expressed in units of aprons of one type and class only. The sample unit shall be one apron. Any dimension not within the specified tolerance shall be classified as a defect. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 4.0.

4.4.4 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 AQL, expressed in terms of defects per hundred units, shall be 2.5.

<u>Examine</u>	<u>Defect</u>
Marking (exterior and interior)	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 flap, improper taping, loose strapping, or inadequate stapling Bulged or distorted container

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<u>Examine</u>	<u>Defect</u>
Content	Number of aprons per bundle is more or less than specified <u>1/</u> Total aprons per shipping container is more or less than specified

1/ For this defect one bundle from each shipping container in the sample shall be examined.

4.4.5 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
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.

5.1.1.1 Type I, waist type. Each apron shall be laid flat, with the front up. The belt sections shall be placed inside the nearest apron pocket. The apron shall then be folded in half, with pockets face to face, so that the completely folded apron is approximately 9-1/2 by 8-1/2 inches. Five folded aprons shall be neatly stacked to form an even bundle and securely cross tied with cotton tape or twine.

5.1.1.2 Type II, bib type. Each apron shall be laid flat, with the front up. The neck and waist straps shall be placed over the apron. The bib shall be folded down to the open edge of the top pocket and the apron then folded in half the length. The width of the apron shall be folded in half so that the completely folded apron is approximately 9-1/2 by 8-1/2 inches. Five folded aprons shall be neatly stacked to form an even bundle and securely cross tied with cotton tape or twine.

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5.1.2 Commercial preservation. Aprons 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 type I aprons or sixty type II aprons, preserved as specified in 5.1, shall be packed on edge within a fiberboard shipping container conforming to style RSC-L, grade V2s of PPP-B-636. The inside of each 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 bundles of type I aprons shall be packed two in length, three in width, and one in depth. Level A bundles of type II aprons shall be packed two in length, six in width, and one in depth. Inside dimensions of each shipping container shall be approximately 17 inches in length, 14 inches in width, and 10 inches in depth. Approximate dimensions are furnished as a guide only. Each shipping container shall have the contents completely covered on the top and bottom with a sheet of 30-pound minimum basis weight kraft paper conforming to A-A-203. 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 4.4.4. 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 type I aprons or sixty type II aprons, preserved as specified in 5.1, shall be packed on edge within 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 container shall be fitted with a box liner conforming to type CF, variety DW, class domestic, grade 275 of PPP-B-636. Level A bundles of type I aprons shall be packed two in length, three in width, and one in depth. Level A bundles of type II aprons shall be packed two in length, six in width, and one in depth. Inside dimensions of the shipping container shall be approximately 17 inches in length, 14 inches in width, and 10 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 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 that the inspection shall be in accordance with 4.4.4.

5.2.2.1 Weather-resistant fiberboard containers. When specified (see 6.2), the fiberboard shipping container shall be a grade V3c, V3s, or V4s fiberboard box fabricated in accordance with PPP-B-636 and closed in accordance with the appendix of PPP-B-636, except that the inspection shall be in accordance with 4.4.4.

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

5.3 Palletization. When specified (see 6.2), aprons, 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 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 91 in accordance with the appendix of MIL-STD-147.

5.4 Marking.

5.4.1 Civil agencies. 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 FED-STD-123 or ASTM D 3951, as applicable.

5.4.2 Military requirements. 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. Type I apron is a mechanic's apron for holding bolts, nuts, and tools during the erection of surveying towers. Type II apron is a carpenter's apron to be utilized in general construction work.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification.
- b. Types and classes required (see 1.2).
- c. When a first article is required (see 3.1, 4.3, and 6.3).
- d. When mildew and water repellent treatment is required on type II, class 2 aprons (see 3.3.1).
- 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 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 specific instructions in all acquisition instruments regarding arrangements for selection, inspection, and approval of the first article.

6.4 Samples. For access to samples, address the contracting office issuing the invitation for bids.

6.5 Source of supply. Fasteners and slide loops are available from Waterbury Buckle Co., 952 South Main Street, Waterbury, CT 06721.

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.

Carpenter
Construction
Mechanic
Tool holder

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.

MILITARY INTERESTS:

Custodians:

Army - GL
Navy - NU
Air Force - 99

Review activities:

Army - MD
Navy - YD
Air Force - 82
DLA - CT

User activity:

Air Force - 45

CIVIL AGENCY COORDINATING ACTIVITIES:

GSA - FSS
JUS - FPI

PREPARING ACTIVITY:

Army - GL

(Project 8415-0756)

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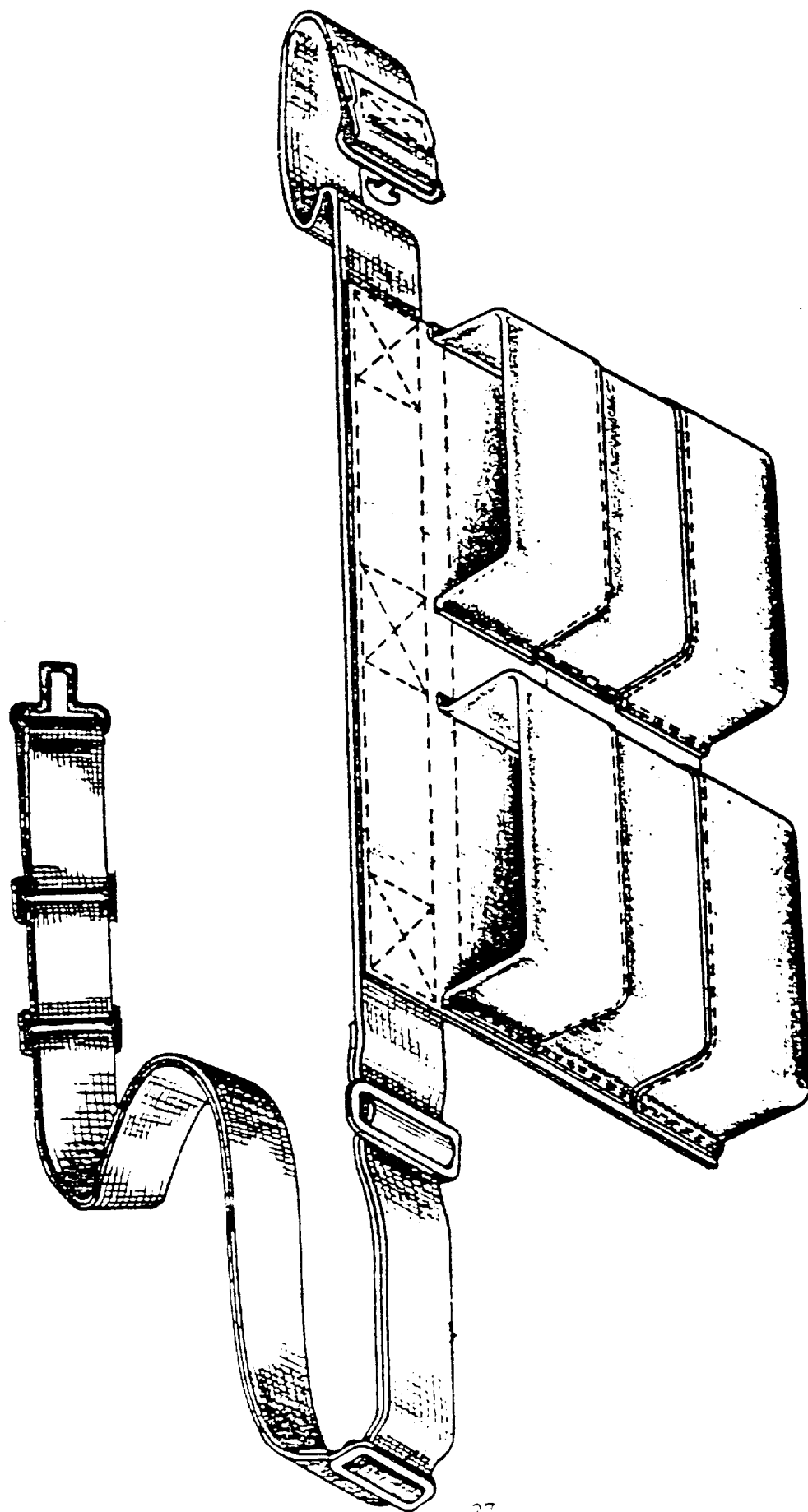


FIGURE 1. Apron, construction workers type I, waist type.

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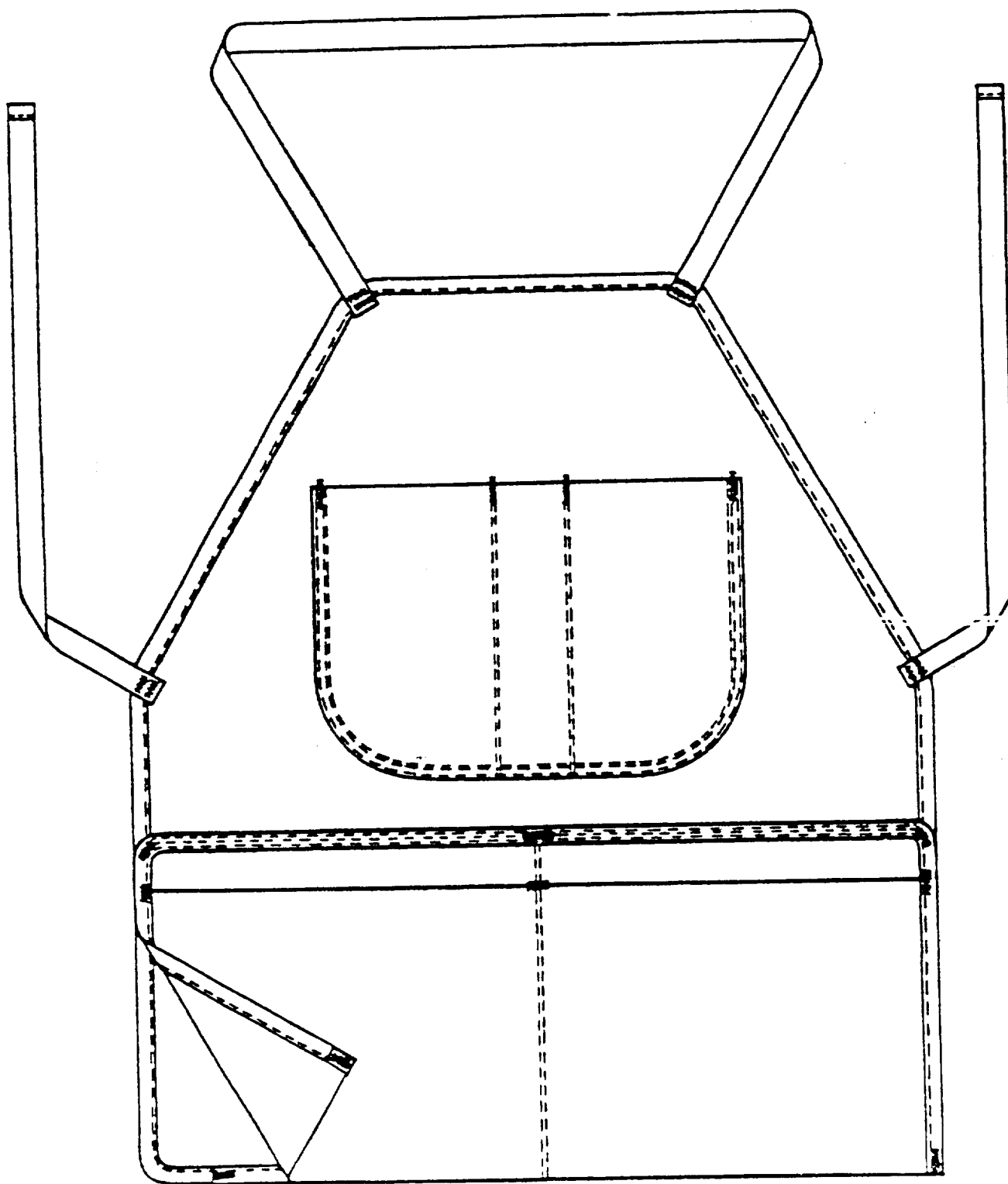


FIGURE 2. Apron, construction workers type II, bib type.

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

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.

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 DDD-A-1466C	2. DOCUMENT DATE (YYMMDD) 1991 January 10
3. DOCUMENT TITLE APRON, CONSTRUCTION WORKER'S			
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 (YYMMDD)
8. PREPARING ACTIVITY			
a. NAME Army Natick RD&E Center		b. TELEPHONE (Include Area Code) (1) Commercial 508-651-4532	(2) AUTOVON 256-4532
c. ADDRESS (Include Zip Code) Commander, U.S. Army Natick RD&E Center ATTN: STRNC-IRT Natick, MA 01760-5019		IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340	