

INCH-POUND

NAWC PD 4631-04-4B
CAGE CODE:30003
06 February 2023
SUPERSEDING
NAWC PD 4631-04-04A
24 October 2012

DRAWERS, COLD WEATHER, MEN’S, HEAVYWEIGHT, CWU-98/P

This purchase description is approved for use by the Department of the Navy, NAVAIR, and is available for use by all departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This purchase description covers the requirements for one type of men’s cold weather, heavyweight aramid fleece drawers.

1.2 Classification.

1.2.1 Sizes. The drawers will be furnished in the following sizes as specified (see 6.2).

- | | |
|----------------|-----------------|
| XSmall-Short | Large-Short |
| XSmall-Regular | Large-Regular |
| XSmall-Long | Large-Long |
| Small-Short | XLarge-Short |
| Small-Regular | XLarge-Regular |
| Small-Long | XLarge-Long |
| Medium-Short | XXLarge-Short |
| Medium-Regular | XXLarge-Regular |
| Medium-Long | XXLarge-Long |

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AMSC N/A

FSC 8415

Distribution Statement A: Approved for public release: distribution is unlimited.

- 1.2.2 Classes. The drawers will be furnished in the following class as specified (see 2).
Class 1: Black 3239

2. APPLICABLE DOCUMENTS

2.1. General. The documents listed in this section are specified in sections 3 and 4 of this purchase description. This section does not include documents cited in other sections of this purchase description 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 of documents cited in sections 3 and 4 of this purchase description, whether or not they are listed.

2.2. Government documents.

2.2.1. Specifications and standards. 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 cited in the solicitation or contract (see 6.2).

COMMERCIAL ITEM DESCRIPTIONS

A-A-55217 - Thread, Aramid, Spun Staple

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-DTL-32075 - Label: For Clothing, Equipage, and Tentage (General Use)
MIL-PRF-32717 - Cloth, Knitted, Silk Weight, Stretch, Flame Resistant

(Copies of these documents are available online at <http://assist.daps.dla.mil/quicksearch/>)

2.2.2. Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation contract.

NAVAL AIR SYSTEMS COMMAND

NAWC PD 4631-04-02 - Cloth, Knitted, Fleece, Velour, Flame Resistant

(Copies of this document are available from Defense Supply Center Philadelphia, Clothing and Textiles Directorate, Attn: DSCP-FQSAB, (Bldg. 3), 700 Robbins Avenue, Philadelphia, PA 19111-5092.)

ENVIRONMENTAL PROTECTION AGENCY (EPA)

ENVIRONMENTAL PROTECTION AGENCY EPA chemicals-and-toxics-topics
Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).

(Copies are available online at: <https://www.epa.gov/environmental-topics/chemicals-and-toxics-topics>.)

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 are those listed cited in the solicitation or contract (see 6.2).

AMERICAN SOCIETY FOR QUALITY

ASQ-Z1.4 - Procedures, Sampling and Tables for Inspection by Attributes

(Copies of this document are available from or <http://www.asq.org>

AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS (AATCC)

AATCC 20A - Fiber Analysis: Quantitative

AATCC 135, I, II, A - Dimensional Changes of Fabrics after Home Laundering.

(Copies of this document are available from <http://www.aatcc.org>

ASTM INTERNATIONAL

ASTM D276 FTIR Analysis – Standard Test Method for Identification of Fiber Textiles.

ASTM D1777 - Standard Test Method for Thickness of Textile Materials.

ASTM D2594 - Standard Test Method for Stretch Properties of Knitted Fabrics Having Low Power.

ASTM D 3375 - Standard TEST Method for Column Capacity of Parachute Mixed Bed Ion Exchange Materials.

ASTM D3774 - Standard Test Method for Width of Textile Fabrics.

ASTM D3776/D3776M - Standard Test Method for Mass per Unit Area (Weight) of Fabric.

ASTM D5034 - Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test).

ASTM D6193 - Stitches and Seams, Standard Practices for

ASTM D6413 - Standard Test Method for Flame Resistance of Textiles (Vertical Test)

(Copies of these documents are available from <http://www.astm.org>

INFORMA HEALTHCARE

Repeat Insult Patch Test, Modified Draize Method, Principles and Methods of Toxicity.

(copies of this document are available from; <http://www.crcpress.com>

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.

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. Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

3.3. Design. The drawers shall be a pull-on style with elastic waistband and brief style fly. The legs shall be one-piece straight legs with cuffs and leg insets. The legs shall be even in length. See Figures 1,2, 3 and 4.

3.4. Materials and components. The materials and components shall conform to applicable specifications, patterns, and drawings and shall be specified herein. Equivalent materials and parts shall require approval by the Naval Air Warfare Center Aircraft Division, Code 4.6.7.3, Patuxent River, Maryland 20670-1906 (see 6.3).

3.4.1. Basic material. The material for the drawers shall be flame resistant knitted velour conforming to NAWC PD 4631-04-02. The color shall match the standard sample for shade and its color will be specified in contract (see 6.2).

3.4.1.1. Drawers fly and inseam inset material. The drawers fly and inset material shall be a flame resistant, moisture management multi-directional stretch circular knitted silk weight cloth conforming to MIL-PRF-32717, Types I or II. The color shall match the sample for MIL-PRF-32717 for shade.

3.4.1.2. Cuff material. The cuff material shall be an aramid 1x 1 rib knit conforming to SSM style #45624 or equal and conform to the requirements in Table I. The color shall be a good match to the basic material (3.4.1 and 6.4.2).

TABLE I: Cuff requirements

Characteristic	Requirement
Width	30 (\pm ½) inches tubular
Fiber Content	100% Nomex Type 450
Weight	10.09 (\pm 0.05) ounce/linear yard

3.4.2. Webbing.

3.4.2.1. Waistband. The webbing for the waistband shall be 1-1/4inch wide cotton or polyester elastic, natural in color, encased in the waistband, with a drawstring embedded in the center of the elastic conforming to Table II. There shall be a 1/2inch buttonhole positioned on the inside of the front center of the waistband. The webbing shall be cut in lengths to construct (see operation 6) and conform to the finished waist measurement in Table VI.

3.4.2.2. Drawcord. The drawcord shall be a polyester cord. The drawcord shall be pulled through the buttonhole on front center of the waistband on the inside of the waistband and finish as one piece, not cut, and knotted at the end forming a loop approximately 1 to 2 inches inch from end. The cord shall face the inside of the garment (see Figure 4). The color of the drawcord shall be a good approximation of the basic material. The elastic webbing and drawcord shall conform to these requirements and those listed in Table II.

TABLE II – Waistband - Elastic with Drawcord

Material	Characteristic	Requirement
Elastic Webbing	Material Identification	Cotton and/or Polyester
	Color	Natural-Unbleached
	Width, inches	1 1/4 +/- 1/16
	Thickness, inches (min)	
	a. Elastic only	0.050
	b. Elastic with Drawcord	0.095
	Weight oz/linear yd. (min)	0.731
	Yarn Count (min)	
	a. Entire Width (Warp)	17
	b. Picks per inch	25
	Rubber Count Webbing, Visual: Ends	16
Elongation % (max)	95%	
Breaking Strength, lb. (min)		
a. Initial	70	
b. After 5 Laundry Cycles	60	
Weave Identification, Visual Elastic	Knit, Warp, Interlock	
Drawcord	Material Identification	Polyester
	Weave Identification Visual	Braid, 6 ends

3.4.3. Thread. The thread for stitching the drawers shall be size Tex 40 conforming to type I of A-A-55217 and shall be a good match to the basic material (see 3.4.1).

3.4.4. Buttonhole. The buttonhole for the waistband shall be double barred, straight style. The finished cut length of the buttonhole shall be 9/16 inch. (+/- 1/16). The byte of the thread for the buttonhole shall be 1/16 inch (+1/16/-0). The stitching shall be securely caught in the fabric, and the ends shall be securely tacked. The buttonhole shall be cut clean and all loose threads shall be trimmed to within 1/8 inch of the tack. Loose threads (floats) in the buttonhole shall be prohibited.

3.5. Labels.

3.5.1. Identification/instruction label. Each drawer shall have a combination identification/instruction label conforming to Type IV or VI, class 15 of MIL-DTL-32075. The size of the label shall be 2 inches wide by 2-3/4 inches long ($\pm 1/8$ inch). When Type IV is used, the printing shall be black and the label background shall be white. The printing shall show fastness to laundering and shall bear the following inscription:

NOMENCLATURE: DRAWERS, COLD WEATHER, MEN'S, HEAVYWEIGHT, CWU-98/P

PD NUMBER: NAWC PD 4631-04-04

FIBER CONTENT: 100% COTTON (EXAMPLE)

CONTRACT NUMBER: SPM1C1-00-C-0000

(EXAMPLE) ID: _____

NAME OF CONTRACTOR: LMN MANUFACTURERS (EXAMPLE)

LAUNDERING INSTRUCTIONS:

MACHINE WASH COLD,
LINE DRY OR AIR TUMBLE-DRY.
DO NOT USE BLEACH OR FABRIC SOFTENERS.
FOR BEST RESULTS LAUNDRER SEPARATELY.
OR
FOLLOW SHIPBOARD WASH FORMULA III

3.5.1.1 Size label. Each drawer shall have a size label conforming to type IV or VI, class 2 of MIL-DTL-32075. The size of the label shall be 1-3/4 inches wide by 1-inch long ($\pm 1/8$). The inscription shall be as stated below.

S-SH (Example)

NSN 8405-00-000-0000 (Example)

3.5.1.2 Bar code label. Each item shall be individually bar-coded with a paper tag for personal clothing items. The paper used for the tags shall be a standard bleached sulfate having a basis weight of 100 pounds with a smooth finish to accept thermal transfer and direct printing. The tags shall have a hole and be attached to each item by a fastener, clearly legible and readable by scanner. The bar code element shall be a 13 digit national stock number (NSN). There shall be a twelve-digit Universal Product Code (UPC) assigned for all NSNs by the Government. The initials "UPC" shall appear beneath code. The bar codes for NSN and UPC shall be a medium to high density and shall be located so that they are completely visible on the item when it is folded and or packaged as specified. The label's location shall cause no damage to the item.

3.5.1.3 Commercial manufacturer labels. Sewn in manufacturer and attached labels shall be allowed to identify brands of materials and the product manufacturer (see Figure 4). When commercial labels are attached, there shall be no conflict between the information on the commercial label and the information on the government labels.

3.6 Hanger tape. The hanger tape shall be a good match to the basic material color and conform to Table III (see 6.4.3).

TABLE III. Tape requirements

Characteristic	Requirement
Width	½ (± 1/16) inch
Fiber Content	100% spun polyester
Weight	6 (min) lbs/ 1000 linear yards
Length	3 ¾ +/- 1/8

3.7. Figures. Figures 1, 2, 3 and 4 are furnished for information purposes only. When inconsistencies exist between the written specification and the figures, the written specification shall govern.

3.8. Patterns. Standard patterns will be furnished to the contractor for use in cutting working patterns (see 6.3). The standard patterns shall not be altered in any way and are to be used as a guide for making the contractor's working patterns. Minor modifications of the working patterns are permitted when using automated equipment or to meet a manufacturer's process but the alterations shall not affect the serviceability, dimensions or appearance of the drawers. Patterns provide for a 3/8 inch seam allowance unless otherwise specified.

3.8.1. List of pattern parts. The component parts of the drawers shall be cut from the materials specified in accordance with Table IV.

TABLE IV. Pattern parts

Material	Pattern Nomenclature	Computer Nomenclature ¹	Cut Parts
Cloth, Fleece (3.4.1)	Leg	MHD-LEG	2
Cloth, Knitted Silkweight (3.4.2)	Fly	MHD-FLY	2
	Inseam inset	MHD-INSM INSET	2
Cloth, Rib Knit (3.4.3)	Cuff	MHD-CUFF	2

¹MHD stands for Men's Heavyweight Drawers

3.9. Construction.

3.9.1. Stitches, seams, and stitching. Stitches, seams and stitch types specified in Table III shall conform to ASTM-D6193. Whenever two or more methods, seams, or stitches are given for the same part of an operation, any one of them may be used. Seam allowances shall be maintained with seam sewn so that no raw edges, run-offs, pleats, puckers, or open seams occur. Ends of all stitching when not caught in other seams or stitching shall be backstitched not less than ½-inch. Thread tension shall be maintained so there will be no loose stitching resulting in a loose bottom or top thread or no excessively tight stitching resulting in puckering of the materials sewn. Unless otherwise specified edge stitching shall be 1/16 (± 1/64) inch.

3.9.1.2. Repair of stitching.

a. When thread breaks or bobbin run-outs occur during sewing for stitch type 301, the stitching shall be repaired by restarting a minimum of 1/2 inch back of the end of the stitching.

b. Thread breaks (all stitch types) or two or more consecutive skipped or run-off stitches noted during inspection shall be repaired by over-stitching. Any chain stitch repair shall start one inch above the repair area and continue the entire length of the seam. The stitching for all other types of stitches shall start a minimum of 1/2 inch 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 tight stitching shall be repaired by removing the defective stitching without damaging the material and re-stitching in the required manner. The ends of stitching are not required to be backstitched when making the above repairs.

3.9.2. Bar tacks. A 5/8 ($\pm 1/16$) inch long by 1/8 ($\pm 1/32$) inch wide bar tack shall have 28 stitches minimal and a 3/8 ($\pm 1/16$) inch long by 1/8 ($\pm 1/32$) inch wide bar tack shall have 17 stitches minimum. Unless otherwise specified, bar tacking shall be 5/8 inch. Bar tacks shall be free from thread breaks and loose stitching (see 4.4.6).

3.10. Manufacturing operations requirements. The drawers shall be manufactured in accordance with all operations specified in Table V. The contractor is not required to follow the exact sequence of operations.

TABLE V. Manufacturing operations.

No.	Manufacturing Operations Requirements	Stitch Type	Seam Type	Stitches per inch
1.	<u>Cut drawers.</u> The drawers shall be cut in strict accordance with the patterns. All component parts shall be cut lengthwise in machine direction unless otherwise indicated on patterns.			
2.	<u>Replacement of damaged parts.</u> Care shall be exercised during the spreading, cutting and manufacturing operations to assure that material defects and damages as classified in Table VI are excluded and replaced with non-defective material.			
3.	<u>Marking.</u>			
	a. Mark or bundle cut parts of the drawers to insure a uniform size, uniform of shade, and proper assembly throughout fabrication.			
3.	b. Any method of marking may be used except: (1) Metal fastening devices. (2) Sew-on tickets. (3) Adhesive type tickets which leave traces of adhesive on the material after removal of the tickets			
4.	<u>Make Fly.</u>			

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	a. Hem edge of fly opening between notches.	605	EFa-1	10-14
	b. Set inseam inset to front side of leg.	607	FSa-1	10-14
	c. Set fly pieces to front of body leaving a 7 inch ($\pm 1/4$) opening.	607	FSa-1	10-14
5.	<u>Close inseams and seat seam.</u>			
	a. Close cuff and leg inseams matching back of leg to inseam inset at notches.	607	FSa-1	10-14
	b. Sew seat seam catching the end tail of the fly and matching the notches.	607	FSa-1	10-14
	c. Fold cover stitch tail at bottom of cuff to inside and bartack to secure.	Bartack	Bartack	Bartack
6.	<u>Attach cuff.</u> Fold cuff material in half. Stitch cuff to bottom of legs.	LSa-2	LSa-2	10-14
7.	<u>Set Waistband</u>			
	a. Take the ends of the webbing and overlap the ends 1/4 to 3/8 inch on itself. Stitch the webbing closed on all four sides with a box stitch 1/16 to 1/8 from the edges of the webbing.	301	LSa-1	10-14
	b. Place one side of the waistband webbing flat to the top edge of the waistband and stitch 1/8 to 1/4 inch from edge, starting and stopping at the center back seat seam. The box stitch shall be placed at the back seam.	607	LSa-1	10-14
	c. Place a vertical buttonhole centered on the free end of the waistband at center front of the drawers waistband (see 3.3.3). The finished cut length of the buttonhole shall be 9/16 inch centered on the inside of the waistband when finished. The buttonhole shall be stitched to the inside portion of the waistband only. Pull the drawcord through the buttonhole and knot the drawcord approximately 1 1/2 inches from the bottom forming a loop. The drawcord shall hang on the inside of the drawers. <u>NOTE: Do not cut the drawcord. Leave as one-piece. (See Figure 3).</u>	Buttonhole	Buttonhole	44-46 spi Buttonhole including tack.
	d. Fold the waistband down, with the webbing attached, to the inside and stitch to the drawers with two rows of stitching 1/4 inch apart, forming a covered waistband. The first row of stitching shall be 1/8 inch from the bottom edge of the waistband. The waistband shall finish 1 1/4 to 1 5/16 inches wide. <u>NOTE: The labels may be attached at the time the waistband is sewn down. (see oper.7 and Figure 4 for placement).</u>	401	SSa-2	10-14
	e. Topstitch the top of the waistband including the webbing with one row of stitching 3/16 to 1/4 inch from top folded edge of the waistband. <u>NOTE: Be careful not to catch the drawcord in the stitching.</u>	401	SSa-1	10-14
8.	<u>Labels.</u>			

	a. Stitch the warning label to outside front right leg and top edge of label aligned with bottom edge of waistband 1 inch ($\pm 1/16$) from side and $1/2 (\pm 1/16)$ inch down from waistband. Stitch $1/16$ to $1/8$ inch from all sides.	301	LSbj-1	10-14
	b . The size label shall be positioned on the inside and caught in the bottom of the stitched waistband, approximately 1 inch from center back seam on the left side as worn. (See Figure 4). If the label is directly printed on the drawers, the label shall be placed in the same area	401	SSj-1	10-14
	c. Identification/Instruction label. Place the identification/instruction label directly next to the size label on the left back of the drawers as worn and caught in the bottom of the stitched waistband. (See Figure 3). If the label is directly printed on the drawers, the label shall be placed in the same area.	401	SSj-1	10-14
	d. Commercial manufacturers labels. The optional commercial manufacturers labels shall be stitched on the right inside back as worn, approximately 1 inch from seat seam as worn and caught in the bottom of the waistband.	301	SSa-1	10-14
9.	<u>Attach hanger tape.</u> Turn under ends of hanger tape. Bar tack hanger tape to outside center back seam $1/2$ -inch ($\pm 1/16$) below waistband seam. Hanger loop opening shall be 3-inches ($\pm 1/8$) between the bar tacks.	Bartack	Bartack	
10.	<u>Cleanliness.</u> Trim all thread ends and remove all loose threads, spot and stains.			

3.11. Finished garment measurements. The finished garment measurements shall be as shown in Table VI and shall be measured in accordance with 4.4.5.

TABLE VI. Finished garment measurements (inches).

Size	1/2 Waist <u>A/</u>	Inseam <u>B/</u>			11/2 Leg Opening at Cuff <u>C/</u>	Back Gusset Location <u>D/</u>
		Short	Regular	Long		
	All lengths	Short	Regular	Long	All lengths	All lengths
X-Small	12	26-1/4	28-1/4	30-1/4	4	6
Small	14	26-7/8	28-7/8	30-7/8	4	6
Medium	16	27-1/2	29-1/2	31-1/2	4	6
Large	18	28-1/4	30-1/4	32-1/4	4-3/8	6
X-Large	20	29	31	33	4-3/8	6
XX-Large	22	29-3/4	31-3/4	33-3/4	4-3/8	6
Tolerance	$\pm 1/4$	± 1	± 1	± 1	$\pm 1/4$	$\pm 1/2$

3.12. Toxicity. The finished drawers shall not present a health hazard and shall show compatibility to with prolonged direct skin contact when tested as specified in 4.4.6.. Chemicals recognized by the Environmental Protection Agency (EPA) as human

carcinogens shall not be used.

3.13 Workmanship. The finished drawers shall be uniform in quality and free from loose thread, foreign matter, and irregular defects that can affect form, fit or function or those specified in Table VIII.

4. VERIFICATION

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

- a. First article inspection (see 4.2).
- b. Conformance inspection (see 4.3)

4.2. First article inspection. First article inspection shall consist of the examinations and tests specified in 4.2.1, 4.4.2, 4.4.3, and 4.4.4.

4.2.1. First article samples. Unless otherwise specified in the contract or purchase order (see 6.2), the number of samples for first article inspections shall be one pair of drawers for each sized ordered. The sample unit shall be one pair of drawers and the lot size shall be expressed in units of pairs of drawers.

4.3. Conformance inspection. Conformance testing shall consist of the examinations specified in 4.4.1, 4.4.2, 4.4.3, 4.4.4 and 4.4.5.

4.3.1. Conformance inspection samples. Sampling for inspection shall be performed in accordance with ASQ-Z1.4. The sample unit shall be one pair of drawers and the lot size shall be expressed in units of pairs of drawers.

4.4. Inspection methods.

4.4.1. In-process examination. Visual and dimensional examinations of the drawers and its components or optional items shall be made at any point or during any phase of the manufacturing process to determine whether construction details which cannot be examined in the finished product are in accordance with requirements specified in Section 3. Materials and components, which can be classified, as a defect in accordance with Table VI shall be removed from production.

4.4.2. Component and material examinations and tests. In accordance with 4.1, components and materials shall be examined and tested in accordance with the specified examinations and tests of Table VII.

TABLE VII. Component and material examinations and tests.

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Material	Characteristic	Reference	Test Method
Fleece	Material identification	3.4.1	All examinations and tests specified in NAWC PD 4631-04-02
Cloth, silk weight	Material identification	3.4.1.1	All examinations and tests specified in MIL-PRF-32717
Rib knit	Fiber identification Width Weight	3.4.1.2 and TABLE I	AATCC TM 20A ASTM D3774 ASTM 3776
Webbing	Material identification	3.4.2.1 and TABLE 2	ASTM D276 FTIR Analysis
	Width inches	3.4.2.1 and TABLE II	ASTM D3774
	Thickness, inches (min) a. Elastic only b. Elastic with Drawcord	3.4.2.1 and TABLE II	ASTM D1777 ASTM D1777
	Weight oz/linear yd. (min)	3.4.2.1 and TABLE II	ASTM D3776/D3776M
	Yarn Count (min) a. Entire Width (Warp) b. Picks per inch	3.4.2.1 and TABLE II	ASTM D3375 ASTM D3375
	Rubber Count Webbing Ends	3.4.2.1 and TABLE II	Visual
	Elongation % (max)	3.4.2.1 and TABLE II	ASTM D2594-20 Fabric Stretch @ 5lbs. (Loose Fitting)
	Breaking Strength, lb. (min) a. Initial b. After 5 Laundry cycles	3.4.2.1 and TABLE II	ASTM D5034 AATCC 135 I, II, A
	Weave identification, Elastic: Knit, Warp, Interlock	3.4.2.1 and TABLE II	Visual
	Drawcord	Material Identification	3.4.2.2 and Table II
Weave Identification		Table II	Visual
Thread	Material identification	3.4.5	All examinations and tests specified in A-A-55217
Labels	Material identification	3.4.6	All examinations and tests specified in MIL-DTL-32075
Hanger tape	Fiber identification Weight Width	3.6	AATCC TM 20A ASTM 3776, Option D Dimensional ¹ / ₁

¹One test specimen 12 inches long shall be examined for dimensional conformance. One measurement shall be taken. Any suitable measuring device shall be acceptable. The results shall be recorded as pass or fail.

4.4.3. Classification of end item defects. The end items shall be visually examined and measured for the defects listed in Table VIII.

TABLE VIII. Classification of end item defects

Examine	Defect	Classification	
		Major	Minor
General	Any hole, run, scissor or knife cut, tear, mend, burn, or weakening defect such as multiple floats, slubs, skips, needle chew or abraded area	101	
	Any spot or stain (compound, oil, dirt, including marks) clearly visible	102	
	Color of any component not as specified. dye streaks, shade variation within a part or between parts	103	
Component and Assembly	Any defective component or defect that will affect the form, fit or function of the assembly	104	
	Any component part not as specified or required operation improperly performed	105	
	Any component part not cut in accordance with the patterns	106	
	Any component distorted, full, tight, broken or twisted, not properly forced out having folds.	107	
	Any component part caught in any unrelated stitching.	108	
	Any operation not performed as specified or improperly performed or omitted	109	
	Inseams not even more than ½ inch with each other.	110	
	Any component part omitted.	111	
Seams and Stitching	Any open seam	112	
	Any seam or attachment of any component twisted, puckered, pleated or caught in any unrelated operation or stitching that is not properly forced out or contained in a fold more than 1/8 inch.	113	
	End of stitching not securely backstitched for at least ½ inch when not caught in other seams or stitching.	114	
	Thread breaks, skips and run-offs not securely overstitched for at least ½ inch.	115	
	Any stitching irregular or unevenly gauged (greater than 50% of the seam length or 4 inches, whichever is less).	116	
	Seams and Stitching	Not specified seam or stitch type.	117

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Examine	Defect	Classification	
		Major	Minor
	Loose tension resulting in a loose seam or tight tension resulting in breaking of stitches when normal pull is applied.	118	
Labels, identification, instruction, size, bar code	Label missing, information illegible or incorrect	119	
	Label misplaced by more than 1 inch		201
	Bar code label omitted, incorrect, illegible, not attached where specified; bar codes not readable by scanner; human- readable interpretation (HRI) omitted or illegible; bar code not visible on folded, packaged item: bar code attachment causes damage to the item.	120	
Buttonholes	Buttonhole, omitted, misplaced, not completely stitched	121	
	Buttonhole measures more or less than 5/8 inches by more than 1/8 inch	122	
	Byte more than 1/8 inch or less than 1/16.		202
Waistband	Twisted, not secured to drawers	123	
	Elastic measures more or less than 1 ¼ inches by no more than 1/8 inch.		203
Drawcord	Facing outside in lieu of inside of waistband.		
	Cut, not one piece.	124	
	Not knotted. Did not form loop near end of drawcord.		204
Dimensional	Any finished garment dimensions not within the specified tolerance	125	
	Any finished garment with greater than 1/2 inch difference in leg length between each leg.	126	
Cleanliness	Any thread not trimmed to 1/16 inch or thread scraps not removed.		205

4.4.4. End item dimensional examination. The end item shall be examined for conformance to the dimensions specified in Table V.

4.4.5. Method of measuring. The heavyweight drawer shall be placed relaxed flat upon a table and measured as follows (see Figures 1 and 2):

A/ Half waist. The 1/2 waist measurement shall be taken flat across the front, from folded

edge to folded edge of the waistband elastic.

B/ Inseam. The inseam measurement shall be taken from the bottom of the cuff to the center of the fly seam.

C/ Half leg opening at Cuff. The 1/2 leg opening at cuff shall be taken from inside edge to inside edge at the bottom of the leg. (See Figure 1).

D/ Gusset. The gusset location shall be measured from the top of the gusset insert to the top of the elastic at the center back.

4.5. Toxicity test. Unless otherwise specified (see 6.2), an acute dermal irritation study and a skin sensitization study shall be conducted on laboratory animals. When the results of the studies indicate the finished cloth is not a sensitizer or irritant, a Repeat Insult Patch Test shall be performed in accordance with the Modified Draize Procedure (see 2.3). If the toxicity requirement (see 3.12) can be demonstrated with historical use data, toxicity testing may not be required (see 6.2)

4.6. Visual shade matching. The color and appearance of the (item) shall match the standard sample when viewed using the AATCC EP 9, Option C, (see 6.6) with a primary light source simulating the spectral quality of average daylight, CIE Illuminant D65, with a color temperature of 6500 (± 200) Kelvin (K) illumination of 100 (± 20) foot candles. Alternatively, the color and appearance of the (item) shall match the standard sample with a primary light source simulating artificial daylight, CIE Illuminant D75, with a color temperature of 7500K (± 200) illumination of 100 (± 20) foot candles in lieu of D65. (See 6.5.1). The (item) shall also be a good match to the standard sample with a secondary source simulating the spectral quality of incandescent lamplight, CIE Illuminant A, with a color temperature of 2856K (± 200).

5. PACKAGING

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 material is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by Inventory Control Point's packaging activity within the Military Service or Defense Agency, or within the military service's system commands. Packaging data retrieval is available from the managing Military Department's 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 is not mandatory.)

6.1. Intended use. The drawers covered by this purchase description are intended for use in cold weather operations. When layered with other components, the drawers become part of the Multi Climate Protection clothing system.

- 6.2. Acquisition documents. Acquisition documents must specify the following:
- a. Title, number, and date of this purchase description, including any amendments.
 - b. Applicable Government including any revisions and non-government documents cited under Section 2.
 - c. Size, quantity and class desired (see 1.2).
 - d. National stock number.
 - e. Applicable Government patterns, including revisions.
 - f. First article and conformance inspection requirements (see 4.2 and 4.3).
 - g. Name and address of the first article inspection facility; and the name and address of the Government activity responsible for conducting the first article inspection program.
 - h. Packaging requirements (see 5.1).
 - i. Toxicity Testing. (see 3.12 and 4.5).

6.3. Pattern/Information requests. For access to information such as patterns, drawings, standard shade samples of cloth etc. go to Defense Supply Center Philadelphia's website for their Specification/Pattern/Drawing Request form, <http://www.dscpl.dla.mil/portal/sreqfrm.aspx>. Complete the request form and then submit. Requests to use equivalent materials and/or components or to make changes to the pattern should be sent to the contracting officer for approval by the military services.

6.4. Sources.

6.4.1. Silk Weight cloth knit. Deer Creek Knitting, Style 3231 with 3% Lycra, has been known to meet the requirements of paragraph 3.4.2. Deer Creek can be reached at 509 Glenbrook Road, Stamford, CT 06906, <http://www.deercreekfabrics.com>.

6.4.2. Rib knit. SSM Style #45624 has been known to meet the requirements of paragraph 3.4.3. SSM Industries, 211 Ellis Avenue, Spring City, TN 37381, <http://www.ssmind.com>.

6.4.3. Hanger tape. Lea and Sachs, Inc., ½-inch, 4056 polyester tape, has been known to meet the requirements of paragraph 3.4.7. Lea and Sachs can be reached at P.O. Box 1667, Des Plaines, IL 60017-1667, <http://www.leasachs.com>

6.5. Toxicity. Further information on chemicals recognized by the Environmental Protection Agency (EPA) as human carcinogens may be found at <http://www.epa.gov/eftpages/pollutants.html>.

6.6. NOTE: In 2017, Option A of AATCC Evaluation Procedure 9, Visual Assessment of Color Difference of Textiles was changed to Option C. NOTE: In case of confusion, the viewing geometry should be “The specimen plane and illumination source will be parallel to

each other and aligned so that the light flux is incident at the center of the specimen plane, which is set at a $35 (\pm 5^\circ)$ angle relative to the horizontal. The observer will view the specimens at a 90° angle, relative to the plane of the specimens”.

6.6.1. In 2022, the U.S. Military (All Services) accepted D65 as the new preferred light source for visual shade matching due to the supply chain issues with D75.

6.7. Subject terms (key word) listing.

Aramid
Fleece Heavyweight Multi
Climate Protection
Covered waistband with drawcord

CONCLUDING MATERIAL

Custodian

Navy-AS

Preparing Activity:

Navy - AS

Review Activity

Navy-NU

DLA-CT

AF

CG

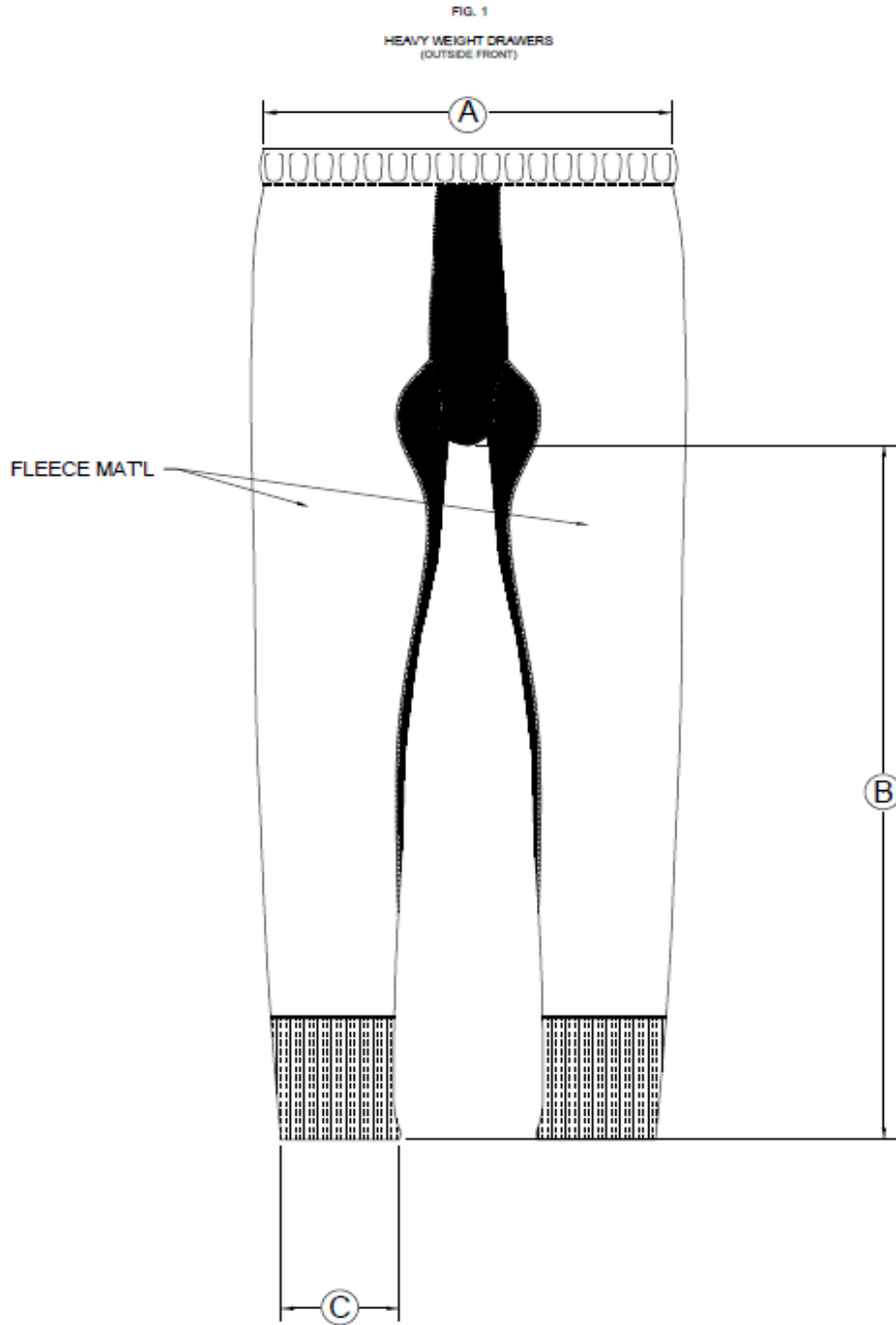


Figure 1 – Outside Front – Men’s Drawers, Heavyweight.

FIG. 2
HEAVY WEIGHT DRAWERS
(OUTSIDE BACK)

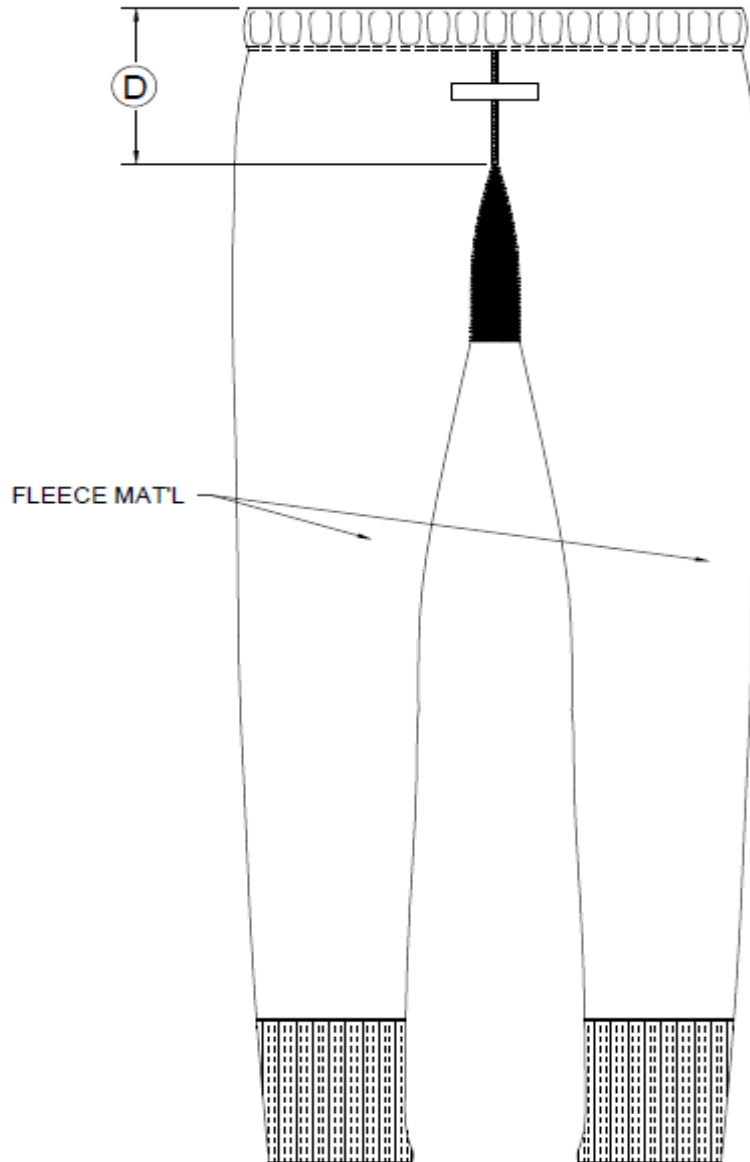


Figure 2 – Outside Back – Men’s Drawers, Heavyweight.

FIG. 3

HEAVY WEIGHT DRAWERS
(INSIDE FRONT WAISTBAND
WITH DRAW CORD)

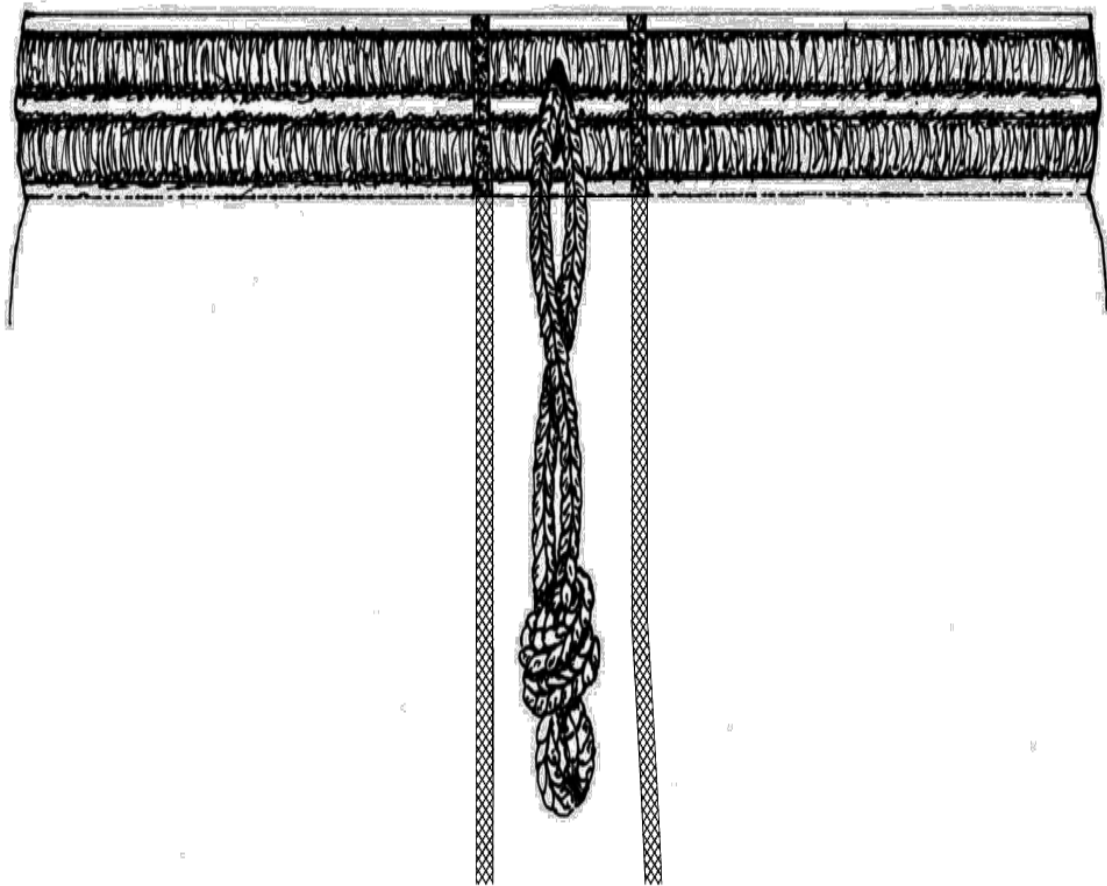


Figure 3 – Inside Front Waistband with Drawcord – Men’s Drawers, Heavyweight.

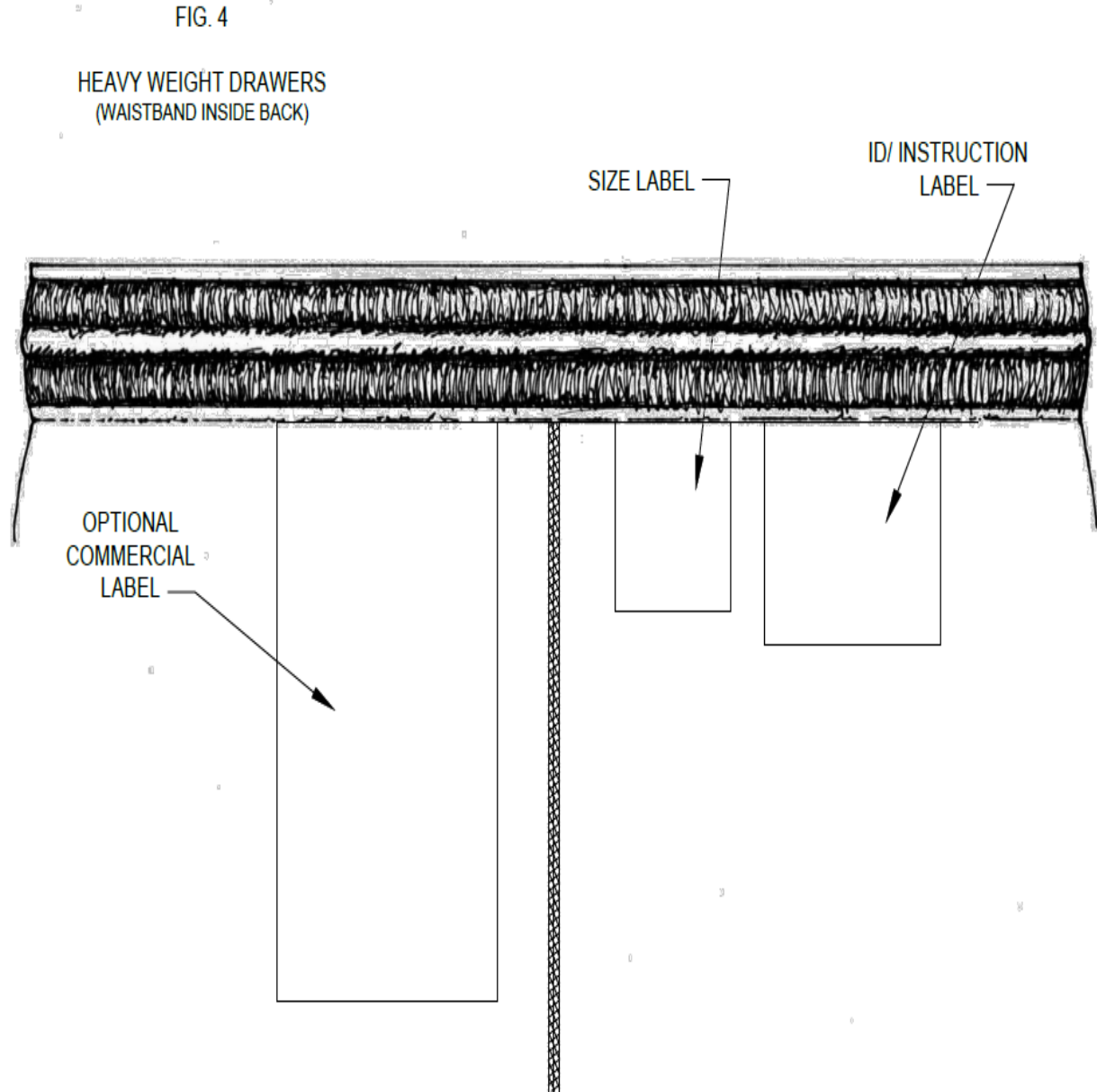


Figure 4 – Waistband Inside Back with Label Placement. Men’s Drawers, Heavyweight.