

MIL-S-29138A(NU)  
18 August 1981  
 SUPERSEDING  
 MIL-S-29138(NAVY)  
 5 December 1974

## MILITARY SPECIFICATION

### SWEATER, WOMAN'S, ACRYLIC

This specification is approved for use by the Navy Clothing and Textile Research Facility, Department of the Navy and is available for use by all Departments and Agencies of the Department of Defense.

#### 1. SCOPE

1.1 Scope. This specification covers the requirements for a woman's knitted acrylic sweater.

1.2 Classification. The sweater shall be of one type only, and in the following sizes (see 6.2):

#### Schedule of sizes

S(30-32), M(34-36), L(38-40), XL(42-44)

#### 2. APPLICABLE DOCUMENTS

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

#### SPECIFICATIONS

##### FEDERAL

V-B-871	- Button, Sewing hole, and Button, Staple (Plastic)
V-T-276	- Thread, Cotton
DDD-L-20	- Label; for Clothing, Equipage, and Tentage (General Use)

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Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Navy Clothing & Textile Research Facility, 21 Strathmore Road, Natick, MA 01760 By using the self-addressed standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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FSC 8410

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- MIL-B-17757 - Boxes, Shipping, Fiberboard (Modular Sizes)
- MIL-T-43548 - Thread, Polyester, Cotton-covered

STANDARDS

FEDERAL

- FED-STD-191 - Textile Test Methods
- FED-STD-751 - Stitches, Seams, and Stitchings

MILITARY

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-129 - Marking for Shipment and Storage
- MIL-STD-1491 - Glossary of Knitting Imperfections

LAWS AND REGULATIONS

U.S. POSTAL SERVICE MANUAL

(Copies of the manual may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.)

(Copies of specifications, standards, drawings, and publications 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 date of invitation for bids or request for proposal shall apply

NATIONAL MOTOR FREIGHT TRAFFIC ASSOCIATION, INC., AGENT

National Motor Freight Classification

(Application for copies shall be addressed to the American Trucking Association, Inc., ATTN: Traffic Department, 1616 P Street, N. W., Washington, D.C. 20036.)

AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS TECHNICAL MANUAL

AATCC Test Method 135-1973 Dimensional changes in automatic home laundering of durable press woven or knit fabrics

(Copies may be obtained from: American Association of Textile Chemists and Colorists, P. O. Box 12215, Research Triangle Park, NC 27709.)

## UNIFORM CLASSIFICATION COMMITTEE, AGENT

## Uniform Freight Classification

(Application for copies shall be addressed to the Uniform Classification Committee, Room 1106, 222 South Riverside Plaza, Chicago, Illinois 60606.)

## 3. REQUIREMENTS

3.1 Guide sample. Samples, when furnished, are solely for guidance and information to the contractor (see 6.3). Variation from this specification may appear in the sample, in which case this specification shall govern.

3.2 Standard sample. The finished sweater shall match the standard sample for shade, and shall be equal to or better than the standard sample with respect to all characteristics for which the standard sample is referenced (see 6.3).

3.3 First article. When specified, (see 6.2), the contractor shall furnish sample unit(s) for first article inspection and approval (see 4.3).

3.4 Materials.

3.4.1 Yarn. The yarn for knitting and for the sewing (lower, cover) thread, when applicable, shall consist of a blend of 6 denier bicomponent acrylic fiber and 6 denier acrylic homofiber. The bicomponent constituent of the blend shall range from 60-70 percent, and the homofiber not more than 40 percent (See 4.4.1 and 6.4).

3.4.2 Knitted fabrics. The component parts of the sweater, constructed as specified in 3.4.2.1 through 3.4.2.3, shall conform to the physical requirements shown in table I when tested as specified in 4.5.

Table I - Physical requirements of knitted fabrics

Component	Stitch type	Wales per inch	Courses per inch
		Minimum	Minimum
Body	Jersey	8	11
Skirt	2x2 rib	-	15
Sleeves	Jersey	8	11
Cuffs	2x2 rib	-	15
Border/neck, front	1x1 flat rib	11	16

3.4.2.1 Body and skirt. The body and skirt shall be circular knit continuously together, two ends per feed, constructed with or without side seams. When not made to body width, two side seams shall be made (see table II, operation 7). The skirt shall finish not less than 2 1/2 inches nor more than 3 inches in height (wale direction).

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\* 3.4.2.2 Sleeves and cuffs. The sleeves and cuffs shall be circular knit continuously together, two ends per feed. The cuffs shall finish not less than 2 1/2 inches nor more than 3 inches in height (wale direction).

3.4.2.3 Border. The border at neck and front edges shall be flat knit, two ends per feed, to finish 1 1/4 (+ 1/8) inch in width (course direction).

\* 3.4.2.4 Color. The color of the finished sweater shall match Blue shade 3346, obtained by package dyeing of the specified yarn (see 3.4.1).

\* 3.4.2.4.1 Matching. The color shall match the standard sample under artificial daylight having a color temperature of 7500 degrees Kelvin, and shall be a good approximation to the standard sample under incandescent lamplight at 2800 degrees Kelvin.

3.4.2.4.2 Colorfastness. The finished sweater shall show fastness to light, laundering, perspiration, and crocking equal to or better than the standard sample. When a standard sample is not available, the finished sweater shall show a minimum of "good" fastness to light, laundering, and perspiration, and shall show a Munsell Value for crocking not lower than 8.5. Testing shall be performed as specified in 4.4.1 and 4.5.

3.4.2.5 pH. The pH value of the water extract of the finished sweater shall be not less than 5.0 nor more than 8.5 when tested as specified in 4.4.1 and 4.5.

\* 3.4.2.6 Dimensional stability. The finished sweater shall not shrink more than 6.0 percent nor elongate more than 4.0 percent in either the length, (wale direction), or width, (course direction), after being subjected to five launderings. Testing shall be performed as specified in 4.4.1 and 4.5.

3.4.3 Buttons. The buttons for the front closure shall conform to type II, class D, style 20 or 21, size 30 line, of V-B-871. The buttons shall be dyed to match Black BT, Cable No. 62001.

\* 3.4.4 Thread. The thread for seaming and stitching the sweater shall be either cotton-covered polyester, conforming to size 30 or 36; 2- or 3-ply of MIL-T-43548, or cotton, conforming to type IC2; ticket no. C or B; 3-ply; of V-T-276. The color of the thread shall be Black AA, cable no. 66043.

\*3.4.5 Combination label. Each finished sweater shall have a cloth combination identification, size and instruction label conforming to type I, classes 1, 2 and 3 of DDD-L-20, except that the inscription may be either single-faced or double-faced on the label (identification and size on one side, and laundering instructions on the opposite side), and with the height of the characters as shown below. The size of the label shall not be more than 2 1/4 inches in height and 2 1/2 inches in length. The printing on the label shall run in the length direction, and shall show fastness to laundering only.

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SWEATER, WOMAN'S, ACRYLIC	1/8 inch
CONTRACT NO: DLA 100-00-0-0000 (EXAMPLE)	1/16 inch
STOCK NO: 8410-00-000-0000 (EXAMPLE)	1/16 inch
SIZE: M(34-36) (EXAMPLE)	1/8 inch
NAME OF CONTRACTOR:	1/16 inch

MACHINE WASH IN WARM WATER, "WASH	1/16 inch
AND WEAR" SETTING, USING A MILD SOAP	1/16 inch
OR SYNTHETIC DETERGENT. TUMBLE DRY	1/16 inch
AT LOW TEMPERATURE. DO NOT IRON	1/16 inch

OR

HAND WASH IN WARM WATER, USING	1/16 inch
A MILD SOAP OR SYNTHETIC DETERGENT	1/16 inch
RINSE IN CLEAR WARM WATER. DO NOT	1/16 inch
WRING OR TWIST. RESHAPE AND DRY	1/16 inch
FLAT AWAY FROM HEAT. DO NOT IRON.	1/16 inch

3.5 Design. The sweater shall be of a "V" neckline, cardigan style, with a one piece rib-knit border around the neckline and down the fronts; rib-knit skirt; set-in sleeves with rib-knit cuffs; and five buttons down the front (see figure 1). The skirt and cuffs shall be an integral part of the body and sleeves (not seamed or looped).

3.5.1 Figure. Figure 1 is furnished for information purposes only. To the extent of any inconsistencies between the written specification and the figure, the written specification shall govern.

3.6 Pattern. The patterns for cutting all parts of the sweater shall be furnished by the contractor, and shall be of the proper proportions to provide good fitting sweaters conforming to finished measurements specified in table III.

### 3.7 Construction.

3.7.1 Stitches, seams, and stitchings. The stitch and seam types specified in table II shall conform to FED-STD-751. Whenever two stitch types are shown, either type may be used. Seam allowances shall be maintained with seams properly sewn so that no raw edges, runoffs, twists, pleats, or open seams will result.

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

3.7.3 Thread breaks and ends of seams. Ends of all seams and stitching, when not caught in other seams or stitching, shall be securely tacked or backstitched not less than 1/4 inch. Thread breaks (all stitch types), shall be secured by stitching back of the break not less than 1/2 inch.

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3.8 Manufacturing operations requirements. The sweater shall be manufactured in accordance with operation requirements specified in table II. The contractor is not required to follow the exact sequence of operations shown, provided the finished sweater is identical to that produced by following the sequence as shown in table II.

3.8.1 Shape and size marking. The component parts of the sweater shall be shade and size marked to insure a uniform shade and size throughout the garment. Any method of marking may be used except:

- a. Corrosive metal fastening devices.
- b. Sew-on shade tickets.
- c. Adhesive type tickets which discolor or adhere to the material upon removal of the tickets.

Table II - Construction of the sweater

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch	Needle	Thread Bobbin or Looper/Cover
1.	<p><u>Cutting</u></p> <p>a. Cut the cloth component parts of the sweater in strict accordance with the contractor's patterns, which shall show size, shape, and directional lines for proper assembly and applicable matching of all parts.</p> <p>b. The continuously knitted body and skirt, sleeves and cuffs, and the flat knit border shall be each cut from the same respective piece of material, with the length of the part running in the wale direction.</p>					
2.	<p><u>Replacement of damaged parts</u></p> <p>During the spreading, cutting, and manufacturing process, components having material defects or damages that are classified as defects in Section 4, shall be removed from production and replaced with non-defective and properly matched components.</p>					
3.	<p><u>Shade and size marking (see 3.8.1)</u></p> <p>All component parts shall be marked, ticketed, or banded to insure a uniform shade, size, and proper assembly throughout the sweater.</p>					
*4.	<p><u>Join shoulders</u></p> <p>Join fronts to back along shoulder edges.</p>	504	SSa-1	10-12	30 or 36	30 or 36 / 2-ply acrylic yarn (see 3.4.1)

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Table II - Construction of the sweater (cont'd)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch	Thread	
					Needle	Bobbin or Looper/Cover
5.	<p><u>Close sleeves</u></p> <p>a. Close sleeves and cuffs at inseams.</p> <p>b. Turn the stitching chain at the bottom end of each cuff to the inside and secure with a 1/2 or 5/8 inch bartack or distance of straight stitching backstitched over itself, positioned parallel to the seam ending approximately 1/8 inch from the bottom edge of the cuff.</p> <p>c. Back latching - Pull the stitching chain back through each cuff seam approximately 3/4 to 1 inch with a knitting needle or any other suitable device, secure to seam and trim.</p> <p>OR</p> <p>Back latching - Pull the stitching chain back through each cuff seam approximately 3/4 to 1 inch with a knitting needle or any other suitable device, secure to seam and trim.</p>	504  Bar-tack or 301  Hand	SSa-1	10-12  28 or 42 per bartack, or 10-12	30 or 36  30 or 36	30 or 36/ 2-ply acrylic yarn (see 3.4.1)  30 or 36
*6.	<p><u>Attach sleeves to armholes</u></p> <p>Set and stitch the sleeves to armholes</p>	504	SSa-1	10-12	30 or 36	30 or 36/ 2-ply acrylic yarn (see 3.4.1)
*7.	<p><u>Side seams (optional) - see 3.4.2.1</u></p> <p>a. Join sides and undersleeves in one continuous operation.</p> <p>b. Turn the stitching chain at the bottom end of each side of skirt to the inside and secure with a 1/2 or 5/8 inch bartack or distance of straight stitching backstitched over itself, positioned parallel to the seam, ending approximately 1/8 inch from the bottom edge of the cuff and skirt.</p>	504  Bartack or 301	SSa-1	10-12  28 or 42 per bartack, or 10-12	30 or 36  30 or 36	30 or 36/ 2-ply acrylic yarn (see 3.4.1)  30 or 36



Table II - Construction of the sweater (cont'd)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch	Thread	
					Needle	Bobbin or Looper
7.	Side seams (optional) - see 3.4.2.1 (cont'd)  OR c. Back latching - Pull the stitching chain back through each skirt seam approximately 3/4 to 1 inch with a knitting needle or any other suitable device, secure to seam and trim.	Hand				
*8.	Attach border a. Join border to front edges and around the neckline in one continuous operation, commencing and ending at the bottom edges of skirt, simultaneously inserting and catching the double-faced combination label, when applicable, centered in the neck border seam on inside of sweater (see 3.4.5). The label shall finish with the top line of the inscription toward the top of the sweater. The face side of the label inscription (identification and size) shall be clearly visible with no evidence of the stitching through the printing. When the label is pulled up and towards the back of the sweater, the back side of the label inscription (laundering instructions) shall be clearly visible with no evidence of the stitching through the printing. When the single-faced inscribed label is applicable, it shall be attached as specified in operation 11. The border at front edges shall extend unfinished 1/2 to 3/4 inch beyond the bottom edge of skirt.	406	LSa-1	10-12	30 or 36	30 or 36
	b. Continue stitching the border extensions along the length and across the bottom.	406	EFd-1	10-12	30 or 36	30 or 36

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Table II - Construction of the sweater (cont'd)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch	Thread	
					Needle	Bobbin or Looper
*8.	<p><u>Attach border (cont'd)</u></p> <p>c. Turn under the border extensions at front edges, and stitch along both side edges.</p> <p>d. The border shall finish flat and smooth, and the folded edges shall align with the bottom edge of skirt.</p>	301	SSa-1	10-12	30 or 36	30 or 36
*9.	<p><u>Make buttonholes</u></p> <p>Make five vertical buttonholes, straight style <math>3/4</math> (+ <math>1/16</math>) inch in length and centered + <math>3/32</math> inch on the right front border, positioned as shown below. The ends of the buttonholes shall be tacked with a minimum of 4 tacks.</p> <p>a. Center of top buttonhole shall be placed on a straight line with the underarm seam, + <math>1/2</math> inch tolerance.</p> <p>b. Bottom buttonhole from the finished bottom edge of the sweater to center of buttonhole, shall be not less than <math>3/4</math> inch nor more than <math>1 1/4</math> inches.</p> <p>c. Remaining buttonholes shall be equally spaced between the top and bottom buttonholes.</p>	Button-hole		54 per buttonhole including tacks (minimum)	30 or 36	30 or 36
*10.	<p><u>Attach buttons</u></p> <p>Sew five buttons on left front border to correspond with buttonholes. When buttoned, the right front border shall cover and extend slightly beyond left front border.</p>	101 or 301		14 to 16 per button	30 to 36	30 or 36

Table II - Construction of the sweater (cont'd)

No.	Description of Operation	Stitch Type	Seam and Stitching Type	Stitches Per Inch	Thread	
					Needle	Bobbin or Looper
*11	<p><u>Attach single-faced label</u></p> <p>a. When single-faced label is used (see 3.4.5), position it on inside of sweater 1/2 (+ 1/4) inch below neck border seam, and stitch vertically along both ends not less than 1/4 inch from the ends of label adjusting slack so that the material under the label may stretch fully when worn.</p>	301	.	10-12	30 to 36	30 to 36
12	<p>b. Tack each corner of the label.</p> <p>OR</p> <p><u>Cleaning</u></p> <p>a. All ends of thread shall be trimmed and loose thread removed from sweater.</p> <p>b. Remove all spots and stains.</p> <p>c. Remove all shade tickets.</p>	304	-	10 per tack	30 to 36	30 to 36
*13	<p><u>Pressing.</u></p> <p>Press the sweater at normal steam temperature to remove wrinkles and improve its overall appearance.</p>					

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\* 3.9 Measurements. The sizes and measurements of the finished sweater shall conform to the dimensions specified in table III. All measurements and tolerances are expressed in inches, and shall be made with the sweater fully buttoned and placed smooth and flat.

Table III - Finished measurements

Measurement	Size				Tolerance
	S(30-32)	M(34-36)	L(38-40)	XL(42-44)	
Bust (A)	32	36	40	44	+ 1
Bottom width at skirt (B)	26	30	34	38	+ 1
Length (C)	24	24	25	25	+ 1, - 1/2
Sleeve inseam (D)	18	18	19	19	+ 1
Sleeve width (E)	6	6 1/4	6 1/2	6 3/4	+ 1/4
Width across shoulders (F)	14 1/2	15	15 1/2	16	+ 1/2
Cuff width (G)	2 3/4	2 3/4	2 3/4	2 3/4	+ 1/4

NOTE: A through G refer to figure 1.

- A. Twice the measurement taken across front, approximately 1 inch below armhole seams, folded edge to folded edge. When side seams are used, measure from seam to seam.
- B. Twice the measurement taken on a straight line at center, folded edge to folded edge. When side seams are used, measure from seam to seam.
- C. Measurement taken from center bottom of neck border to bottom edge of the sweater (wale direction).
- D. Measurement taken along the sleeve seam, from the intersection of the armhole seam to the bottom edge of cuff.
- E. Measurement taken at right angle across width of sleeve from a point 1 inch from bottom of armhole.
- F. Measurement taken across shoulders where armhole seams and shoulder seam meet.
- G. Measurement taken on a straight line at center of cuff.

\* 3.10 Weights. The weights of the finished sweaters shall be in accordance with table IV when tested as specified in 4.5.

Table IV Weights of finished sweaters

	SIZE			
	S(30-32)	M(34-36)	L(38-40)	XL(42-44)
Wgt/dozen (min.)	5 lb 12 oz	7 lb 0 oz	8 lb 0 oz	9 lb 12 oz
conditioned lbs.				

3.11 Workmanship. The finished sweater shall conform to the quality established by this specification. The occurrence of defects shall not exceed the applicable acceptable quality levels.

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order (see 6.2), the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or 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 the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Certificate of compliance. Where certificates of compliance are submitted, the Government reserves the right to check test such items to determine the validity of the certification.

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

1. First article inspection (see 4.3).
2. Quality conformance inspection (see 4.4).

4.3 First article inspection. When required, the first article, submitted in accordance with 3.3, shall be inspected as specified in 4.4.2.1 and 4.4.2.2 for compliance with design, construction, workmanship and dimensional requirements.

4.4 Quality conformance inspection. Sampling for inspection shall be performed in accordance with MIL-STD-105, except where otherwise indicated herein.

\* 4.4.1 Component and material inspection. In accordance with 4.1 above, components and material shall be tested in accordance with all the requirements of referenced specifications, drawings, and standards unless otherwise excluded, amended, modified, or qualified in this specification or applicable purchase document. In addition, the contractor shall submit a certificate of compliance for all required characteristics for yarn utilized in knitting and sewing applications (see 3.4.1).

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4.4.2 Examination of the end item. The defects found during the examination of the end item shall be classified in accordance with 4.4.2.1 and 4.4.2.2. The applicable inspection levels and acceptable quality levels (AQL's) shall be as indicated in 4.4.2.3. The lot size shall be expressed in units of sweaters. The sample unit shall be one finished sweater.

4.4.2.1 Visual examination.

Defect	Classification	
	Major	Minor
<u>Material Defects and Damages</u>		
a. Hole, cut, tear, smash, burn, needle chew, drop stitch, or open place	X	
b. Missing yarn, broken yarn, loose yarn, knot protruding from surface, thin place or uneven knitting, barre or cockled (ridgy) fabric, slubby yarn more than twice the size of the normal diameter of the yarn, knitted-in waste, visible mend, pulled thread or yarn, shade bar, dye streak, area of no dye penetration; more than 1/2 inch (largest dimensions in any direction) on outside		X
NOTE: For knitted fabric defect definitions, see MIL-STD-1491		
<u>Cleanness</u>		
a. Any spot or stain on outside		X
b. Thread or yarn ends on outside not trimmed or loose thread or yarn ends not removed		X
c. Any marking exposed or visible on outside		X
d. Two or more shade or size tickets not removed		X
<u>Shaded parts</u>		
a. Any part shaded or variation in shade within a part, on outside		X
<u>Components and Assembly</u>		
a. Any component part or operation omitted (unless otherwise classified herein)	X	
b. Any component not as specified	X	
c. Any component part tight, twisted, distorted, pleated, or full (unless otherwise classified herein)		

Defect	Classification	
	Major	Minor
<u>Seams and Stitching</u>		
a. Accuracy of seaming:		
1. Seam puckered		X
2. Seam irregular, twisted, pleated, or wavy		X
3. Any part of sweater caught in an unrelated operation	X	
4. Ends of seams or stitching, when not caught in other seams or stitching, backtacked less than 1/4 inch		X
5. Thread breaks not secured or stitching back of the break less than 1/2 inch		X
b. Gage of stitching:		
1. Irregular, varies more than 1/16 inch (score only when the condition exists on more than 1/2 the length of seam)		X
c. Seam and stitch type:		
1. Not specified seam or stitch type		X
2. Any line of stitching omitted	X	
3. Any line of stitching misplaced or not beginning or ending where specified		X
d. Any open seam	X	
NOTE: The seam shall be classified open when one or more stitches joining a seam are broken or when two or more continuous skipped or runoff stitches occur.		
e. Stitch tension		
1. Loose tension resulting in a loose seam	X	
2. Tight tension (stitches break when normal strain is applied in the direction of the seam or stitching)	X	
f. Stitches per inch more or less than specified		X
g. Bartack or straight stitched tack		
1. Any omitted	X	
2. Any insecure, not as specified, or misplaced		X
3. Any having one or more skipped or broken stitches		X
4. Straight stitched tacks not backstitched		X

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Defect	Classification	
	Major	Minor
<u>Buttonholes</u>		
a. One or more omitted, or added	X	
b. Not type specified, incomplete stitching, ragged edges, or uncut	X	
c. Not securely caught in right front border, causing stitches to pull away from fabric	X	
d. One or more broken or more than two skipped stitches in one or more buttonholes		X
e. Any buttonhole cut less than 11/16 inch or more than 13/16 inch in length	X	
f. Tacking on one or both ends omitted or insecure in:		
1. One buttonhole		X
2. Two or more buttonholes	X	
*g. Center of top buttonhole out of horizontal alignment with underarm seam more or less than 1/2 inch	X	
h. Bottom buttonhole located less than 3/4 inch or more than 1 1/4 inches from finished bottom edge of right front border to center of buttonhole	X	
i. Any of the three (3) remaining buttonholes measured from center to center of buttonholes, unequally spaced by 1/4 inch or more	X	
<u>Buttons (one or more)</u>		
a. Omitted, broken, or defective	X	
b. Misplaced, loose, not positioned or attached as specified		X
c. Stitching on button not locked at end of cycle (tug at loose end of the thread when accessible to determine whether it will ravel)		X
<u>Combination label</u>		
a. Omitted, incorrect, or illegible	X	
b. Misplaced, not attached as specified, or stitched through the printing		X
c. Letters not of required size or color		X
d. Finished dimensions of label not as specified		X
<u>* Alignment of buttons and buttonholes</u>		
Incorrectly aligned, causing a noticeable bulge when buttoned or misalignment at bottom of sweater		X



4.4.2.2 Dimensional examination. The sweater shall be examined for defects in dimensions in accordance with the following:

- a. Any measurement deviating from nominal dimensions and tolerances specified in table III, shall be scored as a size measurement defect.
- b. Sleeve lengths unequal in length by 1/2 inch or more shall be scored as a size measurement defect.
- c. Sleeve widths unequal in width by 1/2 inch or more shall be scored as a size measurement defect.
- d. Finished length (wale direction) of skirt less than 2 1/2 inches or more than 3 inches, shall be scored as a size measurement defect.
- \*e. Finished length (wale direction) of cuffs less than 2 1/2 inches or more than 3 inches, shall be scored as a size measurement defect.
- \*f. Finished width (course direction) of border less than 1 1/8 inch or more than 1 3/8 inches, shall be scored as a size measurement defect.

4.4.2.3 Inspection levels and acceptable quality levels (AQL's). The inspection levels and the acceptable quality levels, expressed in defects per 100 units for visual and dimensional examination, shall be as follows:

	Inspection level	AQL's	
		Major	Total
For defects applicable to 4.4.2.1	I	2.5	6.5
For defects applicable to 4.4.2.2	S-4	-	4.0

4.4.3 Examination of packaging requirements. An examination shall be made to determine that packaging, packing, and marking comply with the Section 5 requirements. Defects shall be scored in accordance with the list below. The sample unit shall be one shipping container fully prepared for delivery except that it need not be closed. Defects of closure listed below shall be examined on shipping containers fully prepared for delivery. The lot size shall be the number of shipping containers in the end item inspection lot. The inspection level shall be S-2 and the AQL shall be 2.5 defects per 100 units.

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<u>Examine</u>	<u>Defect</u>
Marking (exterior and interior)	Omitted, incorrect, illegible, or 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 closure of container flaps, improper taping, loose strapping, inadequate stapling, bulging or distortion of container, open and noncontinuous heat sealed seams of polyethylene bag, or incorrectly fabricated bag.
Content	Number of packages per container is more or less than specified.

4.5 Testing of the end item. The methods of testing specified in FED-STD-191 whenever applicable, and as listed in table VI, shall be followed. The physical and chemical values specified in Section 3 apply to the average of the determinations made on a sample unit for test purposes as specified in the applicable test methods. All test reports shall contain the individual values utilized in expressing the final results. The lot size shall be expressed in units of one (1) sweater per unit. The sample unit for weight determination shall be three (3) sweaters of each size in the lot regardless of lot size. For all other tests, the sample unit shall be three (3) sweaters and the number of sample units required shall be as specified in table V.

Table V - Sample size

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

The lot shall be unacceptable if one or more sample units fail to meet any of the test requirements specified.

Table VI - End item tests

<u>Characteristic</u>	<u>Requirements paragraph</u>	<u>Test method</u>
Knitted fabrics:		
Stitch type for each part	Table I	Visual <u>1/</u>
Wales per inch for each part	Table I	5070
Courses per inch for each part	Table I	5070
Colorfastness to:		
Light	3.4.2.4.2	5660
Laundering	3.4.2.4.2	5614 <u>4/</u>
Perspiration	3.4.2.4.2	5680 <u>4/</u>
Crocking	3.4.2.4.2	5651
pH	3.4.2.5	2811
*Dimensional stability	3.4.2.6	7550 <u>2/</u> and AATCC TM 135-1973 <u>5/</u>
Weight per dozen	3.10	<u>3/</u>

- 1/ One determination shall be performed on each part, and the results reported as "pass" or "fail".
- 2/ The test specimens shall be prepared and evaluated as specified, except that only the bust measurements (A) and the length measurement (C) specified in table III, shall be considered.
- 3/ The three sweaters of each size encompassing the sample unit for testing, shall be allowed to reach equilibrium under standard conditions as defined in FED-STD-191. When under standard conditions, the sweaters shall be weighed as a unit to the nearest 1.0 ounce, and the weight per dozen shall be calculated by multiplying by 4. The entire lot of the applicable size shall be rejected if the weight per dozen is below the minimum weight specified.
- 4/ Only the stain on the acrylic portion of the transfer cloth shall be evaluated.
- 5/ Method I (105° ± 5°F), Drying procedure B (tumble) shall be used.

## 5. PACKAGING

5.1 Preservation packaging. Packaging shall be level A or C (commercial) as specified (see 6.2).

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\* 5.1.1 Level A. Each fully-buttoned sweater shall be folded to measure approximately 14 1/2 inches in length by 11 1/2 inches in width. The folded sweater shall be inserted into a snug-fitting, flat-style, clear polyethylene film bag of 0.00125 inch thickness (+ 25 percent tolerance). The polyethylene bag shall be formed with heat sealed seams that are straight, continuous and parallel to each other and the formed edges of the bag. The final closure of the bag shall be heat-sealed with the heat seal made as close as possible to the open end. The bag may be fabricated from polyethylene film tubing or sheeting. A 1/4 inch diameter hole shall be made at one corner of each polyethylene bag to allow excess air to escape. Alternatively, the final closure of the bag may be accomplished by means of a tuck or reverse flap, in which case, a heat-seal closure and corner hole are not required.

5.1.2 Commercial. Sweaters shall be packaged to afford adequate protection against physical damage during shipment from the contractor to the first receiving activity. The package and the quantity per package shall be the same as that normally used by the contractor for retail distribution.

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

\* 5.2.1 Level A. Thirty-six (36) sweaters of one size only, packaged as specified in 5.1, shall be packed in a fiberboard shipping container, assembled, closed and reinforced, conforming to type SF, class weather-resistant, grade V2s, size 3 of MIL-B-17757. Level A packages shall be packed front up, with their overall lengths parallel to the end panels of the container, and two in length, one in width and eighteen in depth. Toward the end of the contract or when there is less than the required amount per container of the same size, mixed sizes may be packed within the same shipping container.

\* 5.2.2 Level B. Thirty-six (36) sweaters of one size only, packaged as specified in 5.1, shall be packed in a fiberboard shipping container, assembled and closed, conforming to type CF, class domestic, grade 275, size 3 of MIL-B-17757. Level A packages shall be packed front up, with their overall lengths parallel to the end panels of the container, two in length, one in width and eighteen in depth. Toward the end of the contract, or when there is less than the required amount per container of the same size, mixed sizes may be packed within the same shipping container.

5.2.2.1 Weather-resistant fiberboard container. When specified (see 6.2), the shipping container shall be a grade V3c, W5c, or W6c fiberboard box fabricated in accordance with MIL-B-17757 and closed in accordance with the appendix of the box specification.

5.2.3 Commercial. Sweaters packaged as specified in 5.1, shall be packed in a manner to insure carrier acceptance and safe delivery at destination at the lowest transportation rate for such deliveries. The quantity per shipping container shall be the same as that normally used by the contractor for retail distribution. Containers shall comply with the U.S. Postal Service Manual, Uniform Freight Classification Rules, or National Motor Freight Classification Rules, as applicable.

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5.3 Marking. In addition to any special marking required by the contract or order, shipping containers shall be marked in accordance with MIL-STD-129.

5.3.1 Polyethylene bagged packages. Polyethylene bagged packages shall have the required information listed below, legibly printed or stamped in black directly on the bag across the center face or on a white paper label inserted within the bag, so as to permit ready identification:

SWEATER, WOMAN'S, ACRYLIC  
STOCK NO: 8410-00-000-0000 (EXAMPLE)  
SIZE: M(34-36) (EXAMPLE)  
QUANTITY: ONE(1)

5.3.2 Labels, mixed sizes. Each shipping container packed with mixed sizes shall have securely attached to the end and sides, directly under the printing or stenciling a white paper label 5 by 4 inches with the words "MIXED SIZES" plainly stamped or printed thereon, and under these words shall be legibly stamped or printed the correct quantity of sizes contained therein.

## 6. NOTES

6.1 Intended use. The sweaters are intended for use by female military personnel.

6.2 Ordering data. Procurement documents should specify the following:

- a. Title, number and date of this specification
- b. Size required (see 1.2)
- c. Whether first article sample is required (see 3.3)
- d. Selection of applicable levels of packaging and packing (see 5.1 and 5.2)
- e. When weather-resistant grade fiberboard shipping containers are required for level B packing (see 5.2.2.1)

6.3 Samples. For access to samples, address the procuring office issuing the invitation for bids.

6.4 Yarn. Satisfactory results have been obtained by using a yarn of Wintuk-12 1/ designation, a blend of 60 percent type 21 Orlon bicomponent fiber and 40 percent type 42 Orlon homofiber, with a finished yarn size of 2/24's (worsted count).

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1/ DuPont Certification Mark for yarns meeting its fiber content specification.

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\* 6.5 Changes from previous issue. The margins of this specification are marked with asterisks to indicate where changes (additions, deletions, modifications, corrections) from the previous issue were made. This is done as a convenience only, and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire context, irrespective of the marginal notations and relationship to the last previous issue.

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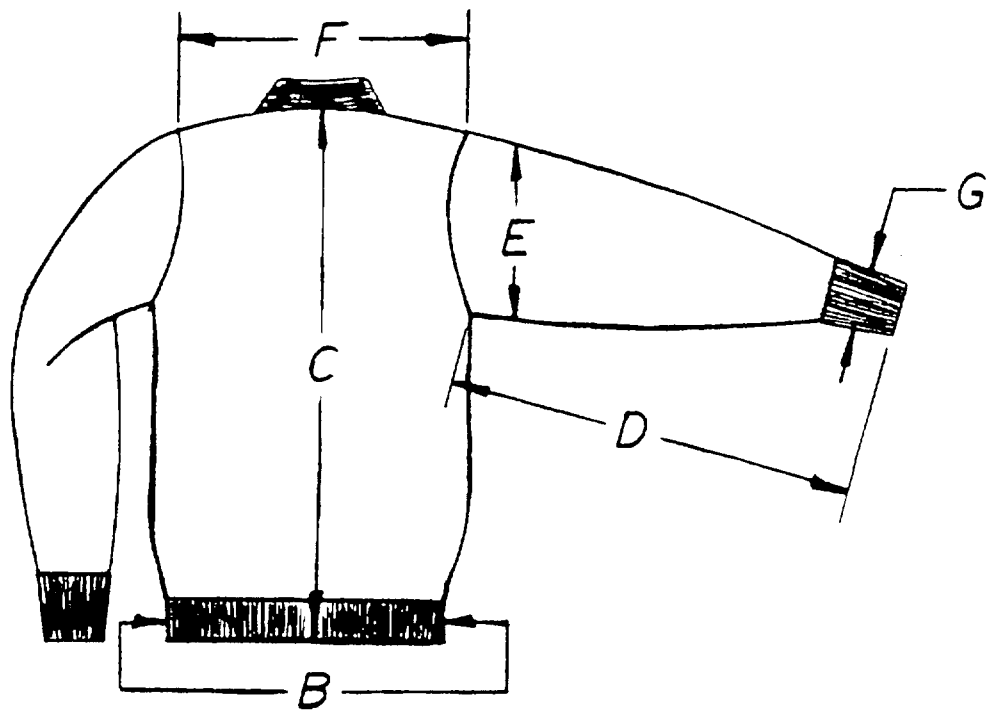
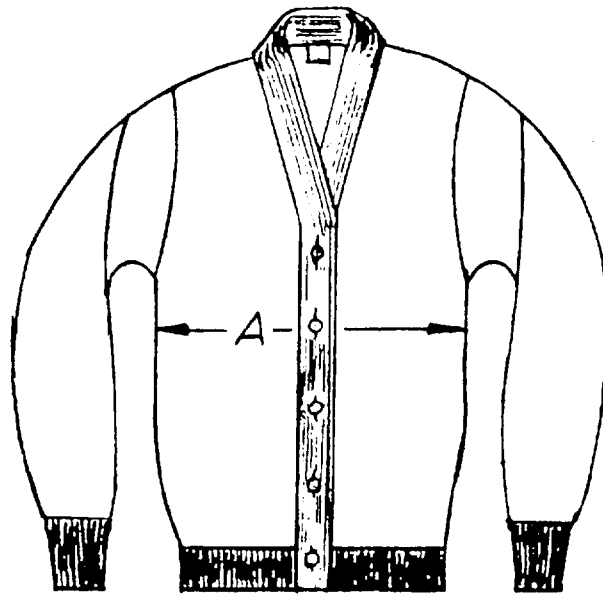


FIGURE 1 SWEATER, WOMAN'S





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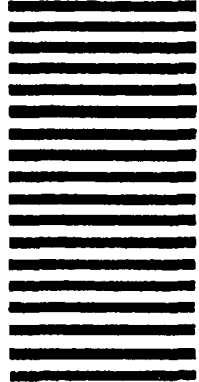


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