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 SUPERSEDING
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MILITARY SPECIFICATION

SWEATER, MAN'S, OLIVE DRAB

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

1. SCOPE

1.1 Scope. This document covers the requirements for a knitted pullover man's sweater, made of a modacrylic/wool blend.

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

Schedule of sizes

| | | | | | |
|--------------------|------------------|-------------------|------------------|--------------------|---------------------|
| X Small (30-32) | Small (34-36) | Medium (38-40) | Large (42-44) | X Large (46-48) | XX Large (50-52) |
|--------------------|------------------|-------------------|------------------|--------------------|---------------------|

2. APPLICABLE DOCUMENTS

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

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: U.S. Army Natick Research and Development Center, Natick, MA 01760-5014 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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SPECIFICATIONS

FEDERAL

- V-B-871 - Button, Sewing hole, and Button, Staple, (Plastic)
- V-T-276 - Thread, Cotton
- V-T-280 - Thread, Gimp, Cotton, Buttonhole
- DDD-L-20 - Label; for Clothing, Equipage, and Tentage (General Use)
- DDD-T-86 - Tape, Textile, Cotton, General Purpose
- PPP-B-636 - Boxes, Shipping, Fiberboard

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- MIL-C-326 - Cloth, Silesia, Cotton
- MIL-T-43548 - Thread, Polyester, Cotton-Covered and Rayon Covered
- MIL-C-43665 - Cloth Wool: Mothproofing Treatment of
- MIL-C-43718 - Cloth, Twill, Polyester, Polyester and Cotton; Polyester and Rayon

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-147 - Palletized Unit Loads
- MIL-STD-1491 - Glossary of Knitting Imperfections

(Copies of documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity).

OTHER GOVERNMENT DOCUMENTS

U.S. DEPARTMENT OF AGRICULTURE

Methods of Test for Grade of Wool

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(Application for copies should be addressed to the U.S. Department of Agriculture, Agricultural Marketing Service, Washington, DC 20402.)

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

AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS (AATCC)

Chromatic Transference Scale

AATCC Photographic Comparative Rating of Single and Double Needle Seams
(Method 88B, two photos)

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

COLOR ASSOCIATION OF THE UNITED STATES, INC.

Department of Defense Standard Shades for Sewing Thread

Department of Defense Standard Shades for Buttons

(Application for copies should be addressed to the Textile Color Association of the United States, Inc., 343 Lexington Avenue, New York, NY 10016.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D 3951 - Standard Practice for Commercial Packaging

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

(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 shall take precedence.

3. REQUIREMENTS

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

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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 Materials.

3.3.1 Modacrylic. The modacrylic fibers shall be 3 to 5 inch variable cut staple length with an irregular, off-round cross-section (see 4.2.1).

3.3.2 Wool. The wool fibers shall be from fleece or pulled sheep's wool or a combination of both, not lower in grade than 54's U.S. Standard. The use of reprocessed, reused or waste wool is prohibited. The wool shall be moth-proofed in accordance with MIL-C-43665 (see 4.2.1). The wool grade shall be tested in accordance with 4.2.1.1.

3.3.3 Yarn. The yarn for knitting and for cover sewing shall be a blend of 70 percent \pm five percent modacrylic with the remaining percentage of wool as specified in 4.2.5.

3.3.4 Knitted fabrics. The knitted component parts of the sweater shall be constructed as specified in 3.3.4.1 and 3.3.4.2 and shall conform to the construction requirements indicated below when tested as specified in 4.2.5.

Construction requirements of knitted fabrics

| Component Parts | Stitch Type | Wales per inch (min) | Courses per inch (min) |
|-----------------|-------------|----------------------|------------------------|
| Body | Baby shaker | 6 | 10 |
| Sleeves | Baby shaker | 6 | 10 |
| Cuffs | 2x2 rib | 6 | 14 |
| Skirt | 2x2 rib | 6 | 14 |
| Collar and yoke | 1x1 rib | 12 | 20 |

3.3.4.1 Body and skirt. The body and skirt shall be knit in one continuous piece to the required body width. When full body width is not possible, two side seams shall be permitted. The skirt shall finish not less than 4 1/4 nor more than 4 3/4 inches in height with a non-ravelling bottom edge.

3.3.4.2 Sleeves and cuffs. The sleeves and cuffs shall be knit in one continuous piece. The cuff shall finish not less than 4 1/4 nor more than 4 3/4 inches in height with a non-ravelling bottom edge.

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3.3.5 Color. The color of the dyed and finished knitted fabric shall match Olive Drab 3721.

3.3.5.1 Matching. The finished knitted fabric shall match the standard sample when viewed under filtered tungsten lamps which approximate artificial daylight having a correlated color temperature of 7000 ± 500 K, with illumination of 100 ± 20 foot candles, and shall be a good match to the standard sample under incandescent lamplight at 2300 ± 100 K.

3.3.5.2 Colorfastness. The finished knitted fabrics shall show colorfastness to light, laundering, dry cleaning, perspiration, and crocking equal to or better than the standard sample when tested as specified in 4.2.5. When no standard sample is available, the finished knitted fabrics shall show a minimum of "good" fastness to light, laundering, dry cleaning, perspiration and shall show no more crocking than an AATCC Chromatic Transference Scale rating of 3.5.

3.3.6 Finish.

3.3.6.1 Nonfibrous material. The finished knitted fabrics shall contain not more than 3.0 percent chloroform soluble material when tested as specified in 4.2.5.

3.3.6.2 pH. The pH value of the water extract of the finished knitted fabrics shall be not less than 4.0 nor more than 8.0 when tested as specified in 4.2.5.

3.3.6.3 Shrinkage. The finished sweater shall not shrink or elongate more than 5 percent in length or width when tested as specified in 4.2.5.

3.3.6.4 Bursting strength. The finished sweater shall show a minimum bursting strength of 80 pounds when tested as specified in 4.2.5.

3.3.7 Tape, reinforcement. The tape for reinforcing the shoulders and bottom of armhole shall be cotton, 1/2 inch in width, conforming to type II, class 3, of DDD-T-86, except the minimum filling yarns per inch may be 58. The tape shall be dyed to approximate the shade of the knitted fabric.

3.3.8 Cloth, reinforcement. The cloth used for reinforcing the buttons and buttonholes shall be cotton silesia conforming to types, I, II or III, of MIL-C-326 or cloth, twill, polyester and cotton conforming to class 1 of MIL-C-43718, except that the yarn shall contain not more than 68 percent polyester. The color shall be black or approximate the shade of the outer knitted fabric.

3.3.9 Thread. The thread used for seaming and stitching shall be cotton conforming to type IA3, ticket no. 40 and 50, 3 ply of V-T-276. A cotton-covered polyester thread, ticket no. 40 and 50, 2 or 3 ply conforming to MIL-T-43548 may be substituted for the cotton thread. The thread shall be dyed to

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approximate the shade of the knitted fabric or dyed to match Olive Drab S-1, CA 66022 or Olive Drab T-1, C.A. 66023.

3.3.9.1 Colorfastness. The dyed thread shall show colorfastness to laundering, wet-dry cleaning, and perspiration equal to or better than the standard sample. When no standard sample is available, the dyed thread shall show a minimum of "good" fastness to laundering, wet-dry cleaning, and perspiration.

3.3.10 Gimp. The gimp used for reinforcing the eyelet end buttonholes shall be cotton, conforming to types I or II, size no. 8, of V-T-280. The cotton gimp shall be dyed to approximate the shade of the knitted fabric or dyed to match Olive Drab S-1, C.A. 66022 or Olive Drab T-1, C.A. 66023. Gimp is not required in the straight double barrel (no eyelet) buttonholes.

3.3.11 Buttons. The buttons shall conform to type II, class D, style 26, line 30, of V-B-871. The color of the button shall match shade Olive Green BP, Cable 62016 and shall have a dull finish.

3.3.12 Label. Each sweater shall have a combination label listing identification, size, and instruction data conforming to type VI, classes 1, 2, and 3 of DDD-L-20. The color of the label cloth shall be Medium Green (see 6.4). The label shall bear the following inscription and shall show fastness to laundering:

SWEATER, MAN'S, OD
 CONTRACT NO: DSA-100-00-0-0000 (EXAMPLE)
 STOCK NO: 8405-00-000-0000 (EXAMPLE)
 SIZE: LARGE (42-44) (EXAMPLE)
 NAME OF CONTRACTOR:

LAUNDERING INSTRUCTIONS
 WASH IN WARM WATER 120°F, KNIT CYCLE.
 TUMBLE DRY, LOW HEAT, REMOVE PROMPTLY.
 DO NO USE CHLORINE BLEACH.

3.4 Design. The sweater is a pull-over type with a convertible collar, five button V-style front yoke opening and long sleeves.

3.4.1 Figure. Figure 1 is furnished for information only. In the event of any inconsistencies between the figure and the written document, the written document shall govern.

3.5 Patterns. Standard patterns will be furnished by the contractor and approved by the Government.

3.6 Stitches, seams, and stitchings. The stitch and seam types specified in table I shall conform to the requirements of FED-STD-751. Where the looper (lower thread) forms a chain effect, the looper shall be on the inside of the

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sweater. Caution should be taken to insure that the bight of all 504 and 505 overedge (serging) stitching be maintained at 1/4 inch to 5/16 inch for the entire length of the seams. Also, the gage for the type 402 and 406 cover stitch shall be 1/4 inch to 5/16 inch.

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

3.6.2 Thread breaks and ends of seams. Ends of all seams and stitchings when not caught in other seams or stitchings shall be back-tacked or overstitched not less than 1/2 inch. Thread breaks (all stitch types) shall be secured by starting the repair stitch 1/2 inch in back of the break. Skipped stitches or thread breaks in 300 or 400 stitch type seams may be repaired by using 301 stitch type.

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

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

- a. Corrosive metal fastening devices.
- b. Sew-on tickets.
- c. Adhesive type tickets which leave traces of adhesive on the material after the removal of the tickets.

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| NO. | Table I MANUFACTURING OPERATIONS REQUIREMENTS | STITCH TYPE | SEAM AND STITCHING TYPE | STITCHES PER INCH | T H R E A D | |
|-----|---|----------------|-------------------------------|-------------------------|-------------|-------------------------|
| | | | | | NEEDLE | BOBBIN/ LOOPER COVER |
| 1. | <p><u>Cutting.</u></p> <p>Cut the component parts of the sweater in accordance with the contractor's patterns. All component parts shall be cut from the same piece of material with the length of the part running in the (wale) direction.</p> | | | | | |
| 2. | <p><u>Replacement of defective components.</u></p> <p>During the 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>Attach yoke reinforcement pieces for buttons and buttonholes.</u></p> <p>a. Each yoke shall be reinforced with material specified in 3.4.8, cut the full length of the yoke at the center fold line and not less than 2 inches wide.</p> <p>b. Position reinforcement piece on inside back of yoke with lengthwise edge of reinforcement piece aligned with center fold line of yoke. Stitch lengthwise along inner edge of reinforcement piece 1/8 to 3/8 inch from raw edge thru back side of yoke. When yoke pieces are folded in half the row of reinforcement piece stitching shall finish on the underside of yoke.</p> | 301 | LSbj-1 | 8-12 | 40/3 | 40/3 |

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| NO. | Table I (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS | STITCH TYPE | SEAM AND STITCHING TYPE | STITCHES PER INCH | T H R E A D | | |
|-----|--|----------------|-------------------------------|-------------------------|-------------|-------------------|-----------------------|
| | | | | | NEEDLE | BOBBIN/ LOOPER | COVER |
| 4. | <p><u>Make body and skirt.</u></p> <p>a. The body of sweater shall be fabricated with one of the following options:</p> <p>(A) No side seams, tubular</p> <p>(B) Two side seams</p> <p>b. Option B (two side seams) - Separate front and back body panels shall be cut equally in width and joined together at each side.</p> <p>c. For option B turn under stitching chain at bottom of side seams and stitch a 3/8 to 1/2 inch long bartack across the width of seam 1/8 to 1/4 inch from bottom edge of body, or 2-1/2 to 3 inches of stitching chain may be buried in the closing seam by back latch tacking using a chain off thread back tacking attachment Juki-2015 or equivalent. The loose end of the skirt must be tacked to the skirt.</p> | 504 or 505 | SSa-1 | 10-14 | 40/3 | 40/3 | 2 ply wool cover yarn |
| 5. | <p><u>Join shoulders.</u></p> <p>a. Join front and back along shoulder edges.</p> | 504 or 505 | SSf-3(a) | 10-14 | 40/3 | 40/3 | 2 ply wool cover yarn |

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| NO. | Table I (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS | STITCH TYPE | SEAM AND STITCHING TYPE | STITCHES PER INCH | T H R E A D | | |
|-----|--|--|-------------------------------|-------------------------|--------------|-------------------|--|
| | | | | | NEEDLE | BOBBIN/ LOOPER | COVER |
| 5. | <u>Join shoulders.</u> (cont'd) b. Stitch a reinforcement tape specified in 3.3.7 over each shoulder seam of sufficient length to be securely caught in yoke and armhole seams. As an alternate, each shoulder reinforcement tape may extend beyond yoke to collar seam. The distance between the two rows of parallel stitching shall be 5/16 to 3/8 inch. | 301 or 401 | SSf-3(b) | 10-14 | 40/3 40/3 | 40/3 50/3 | |
| 6. | <u>Join collar to yoke.</u> Join collar to curved (top edge) of each yoke with the stitch catching the top of the yoke reinforcement material. (silesia) | 504 or 505 | SSa-1 | 10-14 | | 40/3 | 2 ply wool cover yarn |
| 7. | <u>Join collar and yoke assembly to body.</u> a. Fold the collar and yoke assembly in half, lengthwise. b. Align face to face, the raw edge of the yoke and collar assembly with the V-neck opening of the body and join simultaneously, catching the reinforcement material silesia for the buttons and buttonholes. c. Cover stitch back of neck from shoulder seam to shoulder seam. | 504 or 505 402 or 406 | SSH-2(a) SSH-2(b) | 10-14 10-14 | 40/3 | 40/3 | 2 ply wool cover yarn 2 ply wool cover yarn |

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| NO. | Table I (cont'd) MANUFACTURING OPERATIONS REQUIREMENTS | STITCH TYPE | SEAM AND STITCHING TYPE | STITCHES PER INCH | T H R E A D | | |
|-----|---|----------------|-------------------------------|-------------------------|-------------|-------------------|--------------------------------|
| | | | | | NEEDLE | BOBBIN/ LOOPER | COVER |
| 8. | <u>Make sleeves.</u> | | | | | | |
| | a. Close sleeves at inseams. | 504 505 | SSa-1 | 10-14 | 40/3 | 40/3 | 2 ply wool cover yarn |
| 9. | b. Turn under stitching chain at bottom of sleeve in-seams, and stitch a 3/8 to 1/2 inch long bartack across the width of seam 1/8 to 1/4 inch from bottom edge of sleeve (cuff). | Bartack | | 28-42 per bartack | 40/3 | 40/3 | |
| | or 2-1/2 to 3 inches of stitching chain may be buried in the closing seam by back latch tacking using a chain off thread backtacking attachment Juki-2015 or equivalent. | | | | | | |
| 9. | <u>Attach sleeves</u> | | | | | | |
| | Stitch sleeves to armhole with edges even catching a 4 inch long reinforcement tape centered over side seams at base of armhole. | 504 or 505 | SSa-1 and SSab-1 | 10-14 | 40/3 | 40/3 | 2 ply wool cover yarn |

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| NO. | MANUFACTURING OPERATIONS REQUIREMENTS | Table I (cont'd) | STITCH TYPE | SEAM AND STITCHING TYPE | STITCHES PER INCH | T H R E A D | | |
|-----|---|------------------|-------------|-------------------------|-------------------------------------|--------------|---------------|-------|
| | | | | | | NEEDLE | BOBBIN/LOOPER | COVER |
| 10. | <u>Make buttonholes.</u> Make five horizontal 7/8 to 1 inch long cut-after, straight, double barred (no eyelet) type buttonholes on the left yoke. The front inside edge of buttonhole shall be 1/2 to 3/4 inch from folded edge of left yoke. The buttonholes shall be equally spaced with the top buttonhole 3/8 to 5/8 inch from collar seamline and the bottom 3/4 to 1 1/4 inches above bottom of yoke. The purling of the buttonhole shall finish on the outside of the sweater. | Buttonhole | | | 40-50 per buttonhole including tack | 40/3 | 40/3 | |
| 11. | <u>Attach buttons.</u> Sew five buttons on the right yoke to correspond with buttonholes on left yoke. | 101 or 301 | | | 14-16 per button | 40/3 40/3 | 40/3 | |
| 12. | <u>Attach label.</u> Position label on the inside of center back just below the collar seamline. Allowing approximately 1/2 inch slack in the label, stitch each end of label to sweater 1/8 to 1/4 inch from label edge. | 301 | | | 10-14 | 40/3 | 40/3 | |
| 13. | <u>Cleaning.</u> a. All ends of thread shall be trimmed and loose threads removed. b. Remove all spots and stains. | | | | | | | |

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3.8 Measurements. The sizes and measurements of the finished sweater shall conform to the dimensions specified in table II. All measurements and tolerances are expressed in inches.

Table II - Finished measurements

| Size | A | B | C | D | E 1/ | F 1/ | G | H | J |
|----------------|-------|--------|---------------|----------------------------|------------------|-------------------|---------------|----------------|-----------------|
| | Chest | Length | Neck Width | Front Opening Length | Sleeve Length | Armhole Length | Cuff Width | Skirt Width | Sleeve Width |
| X-Small 30-32 | 14 | 24 | 6 1/4 | 9 | 21 | 8 | 2 1/4 | 8 | 5 1/2 |
| Small 34-36 | 16 | 25 | 7 | 9 1/4 | 22 | 8 1/2 | 3 | 9 | 6 |
| Medium 38-40 | 18 | 26 | 7 1/2 | 9 1/4 | 22 1/2 | 9 | 3 | 10 | 6 |
| Large 42-44 | 20 | 27 | 8 | 9 1/2 | 23 | 9 1/2 | 3 1/2 | 11 | 6 1/2 |
| X-Large 46-48 | 22 | 28 | 8 | 9 1/2 | 23 1/2 | 9 1/2 | 3 1/2 | 12 | 7 |
| XX-Large 50-52 | 24 | 29 | 8 1/2 | 9 1/2 | 24 | 10 | 3 1/2 | 13 | 7 |
| Tolerance | + 1 | + 1 | + 1/2 | - 1/2, + 1 | - 1/2 + 1 | + 1/2 | + 1/4 | + 1 | - 0, + 1/2 |

NOTE: Refer to figure 1 for measurements A thru J. The sweater shall be fully buttoned and placed smooth and flat.

- A. Measure across front, approximately 1 inch below armhole seams, folded edge to folded edge.
 - B. Measure down front from shoulder seam at collar to bottom edge of sweater.
 - C. Measure across neck opening from shoulder seam to shoulder seam of collar.
 - D. Measure along folded edge of left front yoke from yoke seamline at bottom to collar seamline at top.
 - E. Measure along the top folded edge of sleeve, from the intersection of the armhole seam and shoulder seam to the bottom edge of cuff.
 - F. Measure from the intersection of the armhole and shoulder seam at top on a straight line to the intersection of the armhole and inseam at bottom.
 - G. Measure on a straight line across center, from folded edge to folded edge.
 - H. Measure on a straight line across center, from folded edge to folded edge.
 - J. Measure across width of sleeve from folded edge to sleeve seam at a point 10 inches from bottom of armhole along sleeve seam.
- 1/ The tolerances for the armhole lengths and sleeve lengths shall be consistent. A plus tolerance in one measurement and a minus tolerance in another, will not be permitted.

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3.9 Weights. The weights of the finished sweaters shall be as follows when tested as specified in 4.2.5. All weights are expressed in pounds.

| | <u>Size</u> | | | | | |
|-----------------|-------------|--------|--------|--------|---------|----------|
| | X-Small | Small | Medium | Large | X-Large | XX-Large |
| Wgt/dozen, min. | 9 | 10 1/2 | 12 | 13 1/2 | 15 | 16 1/2 |

3.10 Workmanship. The finished sweater shall conform to the quality established by this document. 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, the contractor is responsible for the performance of all inspection requirements 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 the document where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

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

4.2.1 Component and material inspection. In accordance with 4.1 above, components and material shall be tested in accordance with all the requirements of referenced documents unless otherwise excluded, amended, modified, or qualified in this document or applicable acquisition document. A certificate of compliance shall be submitted for the modacrylic fiber requirements of 3.3.1 and the wool fiber requirements of 3.3.2 (except for wool grade).

4.2.1.1 Wool grade. The wool shall be visually examined for grade in top form by comparison with the applicable U.S. Standard. In the event of a dispute, the wool grade shall be determined by the width method (wedge). The sample unit shall be 1 pound of untreated top. The number of sample units shall be in accordance with table III. The results from each sample unit shall be reported separately. The lot shall be unacceptable if a single sample unit fails to meet the required grade (see 3.3.2).

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Table III - Sample size

| <u>Lot size</u> | <u>Number of sample units</u> |
|-----------------|-------------------------------|
| 800 or less | 2 |
| 801 thru 22,000 | 3 |
| 22,001 and over | 5 |

4.2.2 In-process inspection. Inspection shall be made at any point or during any phase of the manufacturing process to determine if specified material and manufacturing operations are being adhered to. The Government reserves the right to exclude from consideration for acceptance any material for which in-process inspection has indicated non-conformance.

4.2.2.1 Alkali solubility. The wool shall be tested for alkali solubility in accordance with Method 2800 of FED-STD-191 in the form in which it was given the shrink resistant treatment. The sample unit and the basis for lot size shall be as expressed below. The sample size shall be in accordance with table III. The inspection level shall be S-1 and the acceptable quality level (AQL), expressed in terms of defects per hundred units shall be 4.0.

| <u>Form of sample</u> | <u>Lot size expressed in</u> | <u>Sample unit (untreated and treated material)</u> |
|-----------------------|------------------------------|---|
| Top | Pounds | 1 yard |
| Yarn | Spool, cone, or tube | 50 yards |

4.2.3 End item visual examination. The end item shall be examined for the defects listed below. The lot size shall be expressed in units of sweaters. The sample unit shall be one sweater. The inspection level shall be I and the AQL, expressed in terms of defects per hundred units, shall be 2.5 for major defects and 6.5 for total (major and minor combined) defects.

| <u>Defects</u> | <u>Classification</u> | |
|----------------|-----------------------|--------------|
| | <u>Major</u> | <u>Minor</u> |

I MATERIAL DEFECTS AND WORKMANSHIP DAMAGES (See Note:)

- | | |
|--|---|
| a. Any hole, cut, tear, mend, or burn. | X |
| b. Any drop stitch or run. | X |

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| Defects | Classification | |
|--|----------------|-------|
| | Major | Minor |
| I MATERIAL DEFECTS AND WORKMANSHIP DAMAGES (See Note:) (cont'd) | | |
| c. Heavy yarn or slub more than twice the size of the normal diameter of the yarn. | | X |
| d. Any knot or untrimmed ends of knot on outside. | | X |
| e. Any float. | | X |
| f. Barre or crack marks. | | X |
| g. Any pulled or snagged yarn on outside. | | X |
| h. Burrs or embedded foreign matter on outside exceeding 3 inches in longest direction. | X | |
| i. Any permanent distortion (cockled fabric) | X | |
| j. Broken yarn, both plies severed. | X | |
| NOTE: Refer to MIL-STD-1491 for definitions of knitting imperfections. | | |
| II CLEANNESS | | |
| a. Spot or stain on outside measured in longest direction. (1) up to 1/4 inch inclusive. | | X |
| (2) more than 1/4 inch. | X | |
| b. Thread ends not trimmed or loose thread not removed on outside, three or more. | | X |
| c. One or more shade or size markings not removed. | | X |
| d. Removable foreign matter on outside. | | X |
| III COMPONENTS AND ASSEMBLY | | |
| a. Any component part or required operation omitted or not as specified (unless otherwise classified herein). | X | |
| b. Any component part twisted, distorted, pleated, tight, too full, or damaged (unless otherwise classified herein). | X | |
| IV CUTTING | | |
| Any part not cut to conform to the design features of figure 1. | X | |
| V COLOR OR SHADE | | |
| a. Other than specified. | X | |
| b. Variation in shade between two or more parts. | X | |
| c. Variation in shade within a part. | | X |

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| Defects | Classification | |
|--|----------------|-------|
| | Major | Minor |
| VI SEAM(S) AND STITCHING(S) | | |
| a. Accuracy of seaming. | | |
| 1. Any part of sweater caught in unrelated stitching operation. | X | |
| 2. Seam irregular, twisted or puckered (score only when condition exists on more than 1/2 the length of seam). | | X |
| 3. Ends of all seams and stitchings when not caught in other seams or stitching backtacked or overstitched less than 1/2 inch | | X |
| 4. Thread breaks not secured or repair stitching starts less than 1/2 inch in back of break. | | X |
| 5. Seam pleated. | | X |
| 6. Line of stitching irregular, unevenly gauged or not uniform (score only when condition exists on more than 1/2 the length of seam). | | X |
| b. Open seams or runoffs (See Note:) | | |
| 1. Up to 1/4 inch inclusive. | | X |
| 2. More than 1/4 inch. | X | |
| NOTE: One or more broken stitches or two or more consecutive skipped or runoff stitches constitutes an open seam. On double rows of stitching both rows must be effected to score. | | |
| c. Seam and stitch types. | | |
| 1. Not specified seam or stitch type. | X | |
| 2. Any required line of stitching omitted. | X | |
| 3. Any line of stitching not beginning or ending where specified (unless otherwise classified herein.) | | X |
| d. 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 |

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| Defects | Classification | |
|--|----------------|-------|
| | Major | Minor |
| VI SEAMS(S) AND STITCHING(S) (cont'd) | | |
| e. Stitches per inch (score only when condition exists on more than 1/2 the length of seam): | | |
| 1. One stitch less than the minimum specified. | | X |
| 2. Two or more stitches less than the minimum specified. | X | |
| VII BARTACK(S) | | |
| a. Any missing, insecure, misplaced or not serving intended purpose. | | X |
| b. Length less than 3/8 inch. | | X |
| VIII BUTTON(S) | | |
| a. Not specified size, type or color. | | X |
| b. Missing, broken, defective, misplaced, not positioned as specified, or insecurely attached. | | X |
| IX BUTTONHOLE(S) | | |
| a. Any omitted, added incompletely stitched or any size not as specified. | X | |
| b. Not type specified or uncut. | | X |
| c. Not securely caught in fabric. | X | |
| d. Broken stitch or two or more skipped stitches in two or more buttonholes. | | X |
| e. Stitches per buttonhole less than minimum specified by: | | |
| 1. Two to four stitches. | | X |
| 2. More than four stitches. | X | |
| f. Tacking at ends omitted or not serving intended purpose. | | X |
| g. Cut length less than 7/8 inch or more than 1 inch. | X | |
| h. Positioned less than 1/2 inch or more than 3/4 inch from folded edge of left front yoke. | X | |
| i. Top buttonhole located less than 3/8 inch or more than 5/8 inch from collar seamline to center of buttonhole. | X | |

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| Defects | Classification | |
|---|----------------|-------|
| | Major | Minor |
| IX BUTTONHOLE(S) (cont'd) | | |
| j. Bottom buttonhole located less than 3/4 inch or more than 1 1/4 inches from finished bottom edge of left front yoke to center of buttonhole. | X | |
| k. Any of the three remaining buttonholes measured from center to center of buttonhole unequally spaced by 1/4 inch or more between the top and bottom buttonholes. | X | |
| l. Purling of buttonhole not on outside of sweater. | | X |
| X LABEL | | |
| a. Missing, incorrect, or illegible. | | X |
| b. Misplaced. | | X |
| c. Attached without 1/2 inch slack allowance. | | X |
| d. Color not as specified. | | X |
| XI FRONT CLOSURE | | |
| Button(s) and buttonhole(s) not aligned, causing a bulge or twist on front when buttoned. | | X |

4.2.4 End item dimensional examination. The end item shall be examined for the defects listed below. The lot size shall be expressed in units of sweaters. The sample unit shall be one sweater. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 4.0.

- a. Any sweater dimension deviating from the measurements specified in table II.
- b. Sleeve lengths unequal in length by 1/2 inch or more.
- c. Armhole lengths unequal in length by 1/2 inch or more.
- d. Skirt or cuffs less than 4 1/4 inches or more than 4 3/4 inches in height.
- e. Collar at center back less than 3 inches or more than 3 1/2 inches in height.
- f. Left side yoke overlapping the right side yoke at the bottom by less than 1 1/2 or more than 2 inches.
- g. Width of yoke at shoulder seam less than 7/8 inch or more than 1 1/8 inches wide.
- h. Length or width of cuff on sweater shall not vary more than 1/4 inch.

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4.2.5 End item testing. When applicable the method of testing specified in FED-STD-191 shall be used. The end item shall be tested for the characteristics specified in table IV. The lot size shall be expressed in units of sweaters. With the exception of weight per dozen, the sample size for testing shall be as specified in table III. The sample unit for testing shall be as follows:

For Weight - Three sweaters of each size in the lot regardless of lot size.

All other tests - One sweater.

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

Table IV - End item tests

| Characteristic | Requirement paragraph | Test Method |
|--------------------------------|-----------------------|----------------|
| Fiber content yarn | 3.3.3 | 2102 |
| Knitted fabrics: | | |
| Wales per inch for each part | 3.3.4 | 5070 |
| Courses per inch for each part | 3.3.4 | 5070 |
| Modacrylic content | 3.3.1 | |
| Wool content | 3.3.2 | 2101 |
| Colorfastness to: | | |
| Light | 3.3.5.2 | 5660 |
| Laundering | 3.3.5.2 | 5614 |
| Dry-Cleaning | 3.3.5.2 | 5621 |
| Crocking | 3.3.5.2 | 5651 |
| Perspiration | 3.3.5.2 | 5680 |
| Nonfibrous content | 3.3.6.1 | 2611 |
| pH | 3.3.6.2 | 2811 |
| Bursting strength | 3.3.6.4 | 5120 |
| Shrinkage | 3.3.6.3 | 5556 <u>1/</u> |
| Weight per dozen | 3.9 | <u>2/</u> |

1/ Except that the water temperature shall be maintained at 120° throughout.

2/ The three sweaters of each size 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 with the weight obtained projected over a whole dozen. The entire lot of the applicable size shall be rejected if the weight per dozen is below the minimum weight specified in 3.9.

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4.2.6 Packaging inspection. An inspection shall be made to determine that the preservation, 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 packaged. The lot size shall be the number of shipping containers in the inspection lot. 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 closure of container flaps, improper taping, loose strapping, or inadequate stapling. Open and non-continuous heat sealed seams of polyethylene bag. Bulged or distorted container. |
| Content | Number of sweaters per shipping container is more or less than specified. Size shown on one or more sweaters not same as specified on shipping container. <u>1/</u> |

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

4.2.7 Palletization inspection. An inspection shall be made to determine that the palletization complies with the section 5 requirements. Defects shall be scored in accordance with the list below. The sample unit shall be one palletized unit load fully packaged. The lot size shall be the number of palletized unit loads in the inspection lot. 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 requirements. |

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ExamineDefect

Palletization

Pallet pattern not as specified.
 Interlocking of loads not as specified.
 Load not bonded with required straps 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. Each sweater shall be neatly folded to measure approximately 14 1/2 inches in length by 11 inches in width and inserted into a snug fitting clear polyethylene film bag of 0.0015 inch thickness (+ 20 percent tolerance). The 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 seal made as close as possible to the open end. A 1/4 inch diameter hole shall be made at one corner of the bag to allow excess air to escape. As an alternate, the bag may be fabricated from polyethylene tubing and the final closure may be accomplished by means of a tuck or reverse flap.

5.1.2 Commercial. Sweaters 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. Twenty sweaters of one size only, preserved as specified in 5.1, shall be packed in a fiberboard shipping container conforming to style RSC-L, grade V2s of PPP-B-636. The inside of each fiberboard container shall be fitted with a box liner conforming to type CF, class weather-resistant, variety DW, grade V15c of PPP-B-636. Level A unit packs shall be packed flat, two in length, one in width, and ten in depth within a shipping container. Inside dimensions of each shipping container shall approximate 23 1/2 inches in length, 15 inches in width and 15 inches in depth. Approximate dimensions are furnished as a guide only. Each fiberboard container shall be closed in accordance with method III, waterproofed in

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accordance with method V, and reinforced in accordance with the appendix of PPP-B-636, except the inspection shall be in accordance with 4.2.6. Toward the end of the contract or when there are 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 packing. Twenty sweaters of one size only, preserved as specified in 5.1, shall be packed in a fiberboard shipping container conforming to style RSC-L type CF (variety SW) or SF, class domestic, grade 275 of PPP-B-636. The inside of each fiberboard container shall be fitted with a box liner conforming to class domestic, variety DW, grade 275 of PPP-B-636. Level A unit packs shall be packed flat two in length, one in width, and ten in depth within a shipping container. Inside dimensions of each shipping container shall approximate 23 1/2 inches in length, 15 inches in width, and 15 inches in depth. Approximate dimensions are furnished as a guide only. Each shipping container shall be closed in accordance with method II as specified in the appendix of PPP-B-636, except the inspection shall be in accordance with 4.2.6. Toward the end of the contract or when there are 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, V3s or V4s fiberboard box fabricated in accordance with PPP-B-636 and closed in accordance with method III as specified in the appendix of PPP-B-636 except that the inspection shall be in accordance with 4.2.6.

5.2.3 Consumer packing. Sweater preserved as specified in 5.1 shall be packed in accordance with ASTM D 3951.

5.3 Palletization. When specified (see 6.2), sweaters packed as specified in 5.2, 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 III, type IV or type V in accordance with MIL-STD-147. Each prepared load shall be bonded with primary and secondary straps in accordance with bonding means K and L or film bonding means O and P. Pallet pattern # 3 shall be used in accordance with the appendix of MIL-STD-147. Interlocking of loads shall be effected by reversing the pattern of each course.

5.4 Marking. 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.

5.4.1 Polyethylene bagged unit packs. Polyethylene bagged unit packs shall have the following information 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:

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STOCK NUMBER
SWEATER, MAN'S, OLIVE DRAB
SIZE
QUANTITY

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

6. NOTES

6.1 Intended use. The sweaters are intended for use by male military personnel in cold weather.

6.2 Ordering data. Acquisition documents should specify the following:

- a. Title, number, and date of this document.
- b. Sizes required (see 1.2).
- c. Selection of applicable levels of preservation and packing required (see 5.1 and 5.2).
- d. When weather-resistant grade fiberboard shipping containers are required for Level B packaging (see 5.2.2.1).
- e. When palletization is required (see 5.3).

6.3 Samples. For access to samples, address the contracting activity issuing the invitation for bids.

6.4 Color of label. The following cable members of the standard Color Card of America are furnished for information and guidance as to the intensity of the shade of "Medium Green" desired for the labels specified (see 3.3.12):

Cable No. 70034
Cable No. 70130
Cable No. 70131

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

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Custodians:

Army - GL
Air Force - 99

Review activities:

Army - MD
DLA - CT
Air Force - 45

User activities:

Air Force - 11

Preparing activity:

Army - GL

Project No. 8405-0003

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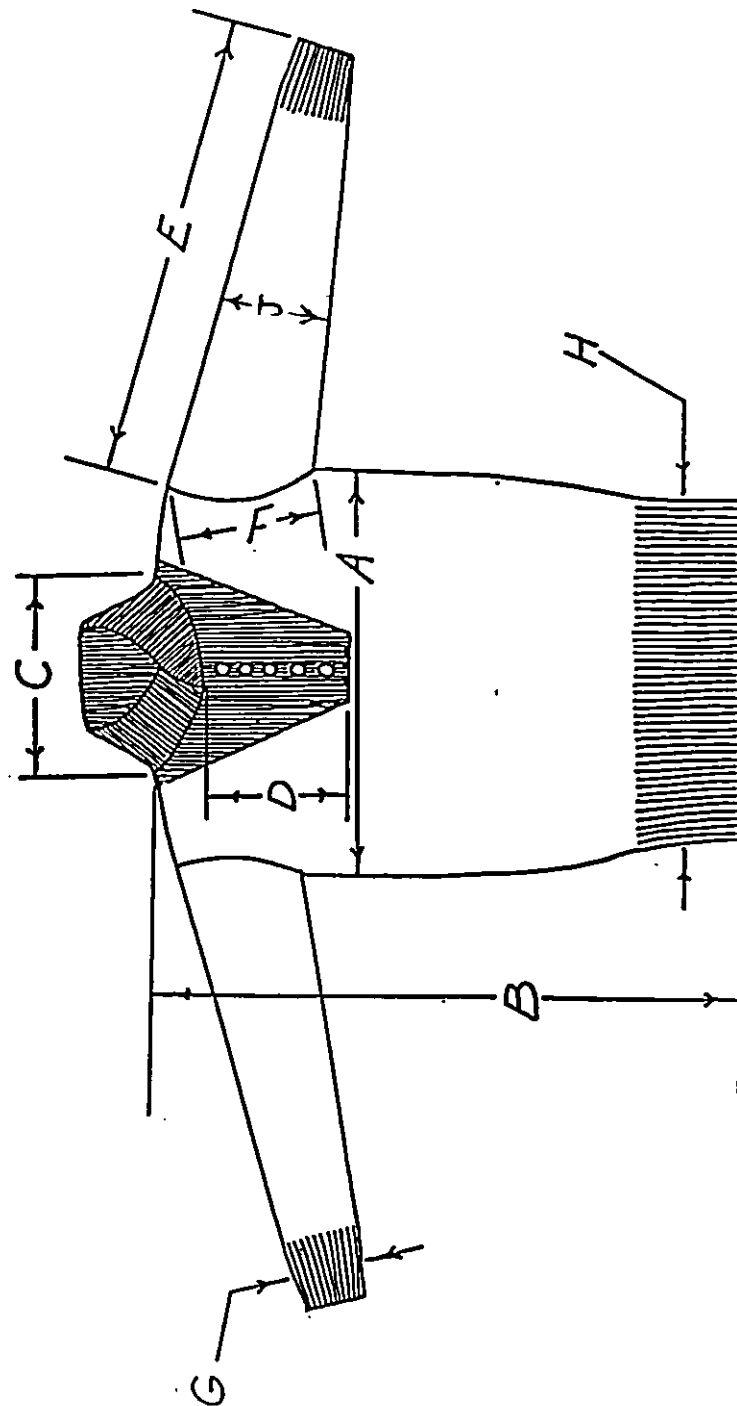


FIGURE 1 - SWEATER, MAN'S, MODACRYLIC, OLIVE DRAB

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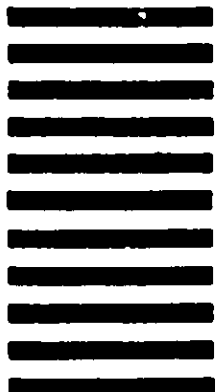
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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

| | | | |
|---|--|---|--|
| 1. DOCUMENT NUMBER MIL-S-3007J | | 2. DOCUMENT TITLE SWEATER, MAN'S, OLIVE DRAB | |
| 3a. NAME OF SUBMITTING ORGANIZATION | | 4. TYPE OF ORGANIZATION (Mark one) | |
| b. ADDRESS (Street, City, State, ZIP Code) | | <input type="checkbox"/> VENDOR | |
| | | <input type="checkbox"/> USER | |
| | | <input type="checkbox"/> MANUFACTURER | |
| | | <input type="checkbox"/> OTHER (Specify): _____ | |
| 5. PROBLEM AREAS | | | |
| a. Paragraph Number and Wording: | | | |
| b. Recommended Wording: | | | |
| c. Reason/Rationale for Recommendation: | | | |
| 6. REMARKS | | | |
| 7a. NAME OF SUBMITTER (Last, First, MI) - Optional | | b. WORK TELEPHONE NUMBER (Include Area Code) - Optional | |
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