

INCH POUND

MIL-DTL-32184  
January 12, 2005

## DETAIL SPECIFICATION

## PARKA, COLD WEATHER, UNIVERSAL CAMOUFLAGE

This specification is approved for use by all departments and agencies of the Department of Defense.

1.1 Scope. This specification covers the waterproof, moisture-vapor-permeable parka and a detachable (optional) hood for the parka. The parka is a component of the Extended Cold Weather Clothing System (ECWCS).

1.2 Classification. The parka will be of one type in the following sizes as specified (see 6.2).

Size	X-Short	Short	Regular	Long	Hood (Optional)
X-Small	X	X	X	X	X
Small	X	X	X	X	X
Medium	X	X	X	X	X
Large		X	X	X	X
X-Large			X	X	X

Comments, suggestions, or questions on this document should be addressed to: Defense Supply Center Philadelphia, Clothing and Textiles Directorate, Attn: DSCP-COCT (Bldg 6), 700 Robbins Ave., Philadelphia, PA 19111-5092 or emailed to [Colleen.M.Robinson@dla.mil](mailto:Colleen.M.Robinson@dla.mil). Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <http://assist.daps.dla.mil>

AMSC N/A

FSC 8415

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## 2. APPLICABLE DOCUMENTS

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

### 2.1.1 Government documents.

2.1.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the solicitation or contract.

#### FEDERAL SPECIFICATIONS

- A-A-50083 - Bag, Plastic, Folded Garment
- A-A-50186 - Cloth, Buckram, Woven and Non-Woven
- A-A-52110 - Cloth, Plain Weave, Polyester/Cotton
- A-A-55126 - Fastener, Tapes, Hook and Loop, Synthetic
- A-A-55634 - Fasteners, Slide, Interlocking
- A-A-50199 - Thread, Polyester-Core, Cotton- or Polyester-Covered
- A-A-52094 - Thread, Cotton
- JJ-W-155 - Webbing, Textile (Cotton, Elastic)

#### DEPARTMENT OF DEFENSE SPECIFICATIONS

- MIL-C-21852 - Cloth, Taffeta, Nylon
- MIL-DTL-31011 - Cloth, Waterproof and Moisture Vapor Permeable
- MIL-C-43701 - Cord, Elastic, Nylon
- MIL-F-10884 - Fasteners, Snap
- MIL-DTL-32075 - Label: For Clothing, Equipage, and Tentage,  
(General Use)
- MIL-PRF-5038 - Tape, Textile and Webbing, Textile, Reinforcing Nylon
- MIL-T-3530 - Thread and Twine: Mildew Resistant Or Water  
Repellent Treated
- MIL-DTL-32072 - Thread, Polyester

#### DEPARTMENT OF DEFENSE STANDARDS

##### MILITARY

- MIL-STD-129 - Marking for Shipment and Storage

(Unless otherwise indicated, copies of federal and military specifications, standards and handbooks are available from the Standardization Documents Order Desk,

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Bldg. 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.2 Non-Government publications. The following document(s) 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.

#### ASTM INTERNATIONAL

- D 1974-1998 - Boxes, Shipping, Fiberboard
- D2582 - Puncture Propagation Tear
- D3776 - Mass Per Unit Area (Weight) of Woven Fabrics
- D3884 - Abrasion Resistance of Textile Fabrics
- D 3951 - Standard Practice for Commercial Packaging
- D5034 - Breaking Strength of Textile Fabrics
- D5118 - Practice for Fabrication of Fiberboard Shipping Boxes
- D6193 - Stitches and Seams

(Applications for copies are available from [www.astm.org](http://www.astm.org) or American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428.)

#### AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS

- AATCC-8 - Colorfastness to Crocking: AATCC Crockmeter Method
- AATCC-15 - Colorfastness to Perspiration
- AATCC-16 - Colorfastness to Light
- AATCC-22 - Water Repellency: Spray Test
- AATCC-61 - Colorfastness to Laundering, Home and Commercial: Accelerated
- AATCC-96 - Dimensional Changes in Commercial Laundering of Woven and Knitted Fabrics Except Wool
- AATCC-118 - Oil Repellency: Hydrocarbon Resistance Test
- AATCC-119 - Resistance to Frosting
- AATCC-135 - Dimensional Changes in Automatic Home Laundering of Woven and Knit Fabrics Procedure 1 - Gray Scale for Color Change

(Copies of these documents are available from <http://www.aatcc.org> or American Association of Textile Chemists and Colorists (AATCC), P.O. Box 12215, Triangle Park, NC 27709-2215.)

#### AMERICAN NATIONAL STANDARDS INSTITUTE

- ANSI/ASQC Z1.4 – Sampling Procedures and Tables For Inspection  
By Attributes

(For all inquires please contact the American National Standards Institute, 25 West 43<sup>rd</sup> Street, 4<sup>th</sup> Floor, New York, NY 10036). Website address <http://www.ansi.org>

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## TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY (TAPPI)

(Applications for copies of referenced documents should be addressed to TAPPI Press, Technology Park/Atlanta, P.O. Box 105113, Atlanta, GA 30348-5113.)

(Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

### 3. REQUIREMENTS

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

3.2 Guide sample. Samples, when furnished, are solely for guidance and information to the contractor (see 6.2). Variations from this specification may appear in the sample, in which case this specification shall govern.

3.3 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.

3.3.1 Basic material. The basic material for the parka shall be a waterproof and moisture vapor permeable cloth conforming to MIL-DTL-31011, Type III, Class 4. The color of the face side of the base cloth shall be Universal Camouflage. The color of the back side of the base cloth shall be Foliage Green 504.

3.3.2 Upper pocket material. The material for the parka upper pockets shall be made from cloth, plain weave, Foliage Green 504, polyester/cotton conforming to A-A-52110.

3.3.3 Reinforcement material. The reinforcement cloth used in the elbow patches must be Universal Camouflage printed, water repellent treated, resist fraying and conform to the following requirements when tested in accordance with 4.3.1.1.

<u>Characteristics</u>	<u>Requirement</u>
Weight	- 6.0 oz/sq. yd Max
Breaking strength:	
Warp	- 200 lbs. (min)
Fill	- 155 lbs. (min)
Colorfastness to:	

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<u>Characteristic</u>	<u>Requirement</u>
Crocking	- Dry and wet: 3.5 min.
Laundering	- Equal to or better than "3-4" rating on AATCC Gray Scale For Color Change
Light	- Equal to or better than "3-4" rating on AATCC Gray Scale For Color Change
Perspiration	
Alkaline/Acid	- Desert Sand 500 – Good - Urban Gray 501 –Good - Foliage Green 502 -Good
Spray rating:	
Initial	- 100, 100, 90 min.
After 1 Laundering	- 90, 90, 80 min.
Stiffness (cm)	- Warp & Fill 11.0 max.
Puncture	
Propagation Tear	- Warp 7.0 kgf min., Filling 6.0 kgf min.
Resistance to	
Organic liquid	- No wetting by N-Tetradecane
Resistance to	
Frosting	- The test specimen shall show no evidence Of an appreciable change in color. Appreciable change in color means a change that is immediately noticeable on comparison of the test specimen with the original unexposed sample. If closer inspection or a change of angle of light is required to make apparent a slight change of color, the change is not considered appreciable.
Dimensional Stability:	
Warp	- 4.0% (max)
Fill	- 4.0% (max)
Abrasion Resistance	- 800 cycles (min)

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Infrared Spectral Reflectance Requirements

Wavelength, Nanometers (nm)	Reflectance Values (Percent)					
	Desert Sand 500		Urban Gray 501		Foliage Green 502	
	Min	Max	Min	Max	Min.	Max
600	28	40	12	26	8	18
620	30	42	14	26	8	18
640	34	48	14	28	8	20
660	38	56	14	30	10	26
680	44	60	18	34	10	26
700	46	66	24	38	12	28
720	48	68	26	42	16	30
740	48	72	30	46	16	30
760	50	74	32	48	18	32
780	54	76	34	48	18	34
800	54	76	34	50	20	36
820	54	76	36	54	22	38
840	56	78	38	54	24	40
860	56	78	40	56	26	42

3.3.4 Inside collar, parka hood tunnel, optional hood tunnel and facings for lower pocket and wind skirt. The cloth for the inside collar, parka hood tunnel, optional hood tunnel, and lower inside pocket facing and windskirt facing shall be a three layer-knit laminate conforming to the following requirements when tested in accordance with paragraph 4.3.1.1.

<u>Characteristic</u>	<u>Result</u>
Weight, oz/sq. yd.	- 4.0 ± 0.4
Stiffness, cm	- 8.0 Max.
Hydrostatic Resistance, psi	
Initial Taffata Restraint	- 220 Min.
After deet	- 120 Min.
Puncture Propagation Tear, kgf	
Warp	- 3.5 Min.
Fill	- 3.5 Min.
Water permeability	
Initial	- No leakage
After Synthetic Perspiration	- No leakage
Moisture Vapor Transmission	
Rate (g/sq. m/24 hours):	
Procedure B - Initial	- 600 Min.
Procedure BW - Initial	- 5000 Min.
Physical surface appearance after laundering	- No changes after 20 launderings

3.3.5 Reinforcement tape. The reinforcement tape for reinforcing upper pockets to parka and collar eyelet shall be a plain weave cloth – nylon, 2.8 oz. +/- 0.2 per square yard, Foliage

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Green 504, and woven with a minimum of 101 ends per inch and 63 two-ply textured picks per inch. The width of the tape shall be 1" +/- 1/16 inch, length as specified, with polyurethane adhesive not less than 1.5 mils thick. The tape requirements shall be certified in accordance with paragraphs 4.3.1.1 and 4.3.1.2.

3.3.6 Cloth, taffeta, nylon. The material for the parka windskirt shall be a nylon taffeta cloth, Foliage Green 504, conforming to type III, class 2 of MIL-C-21852. The windskirt shall be overedged in accordance with Table II in order to resist fraying after five laundering cycles when tested as specified in 4.3.4.

3.3.7 Interlining. The interlining for the left front flap, attached hood visor and optional hood visor shall be buckram cloth, natural or bleached, conforming to type I of A-A-50186, except that the minimum breaking strength in the warp direction shall be 60 lbs.

3.3.8 Seam sealing tape. The tape for covering and sealing all designated seams and stitching shall be cut in  $1 \pm 1/16$  inch wide strips from the material that is compatible with the back side of the cloth specified in MIL-DTL-31011. As an alternate,  $1-1/2 \pm 1/16$  inch wide strips of tape as specified above may be used on the top and bottom of the sleeve pockets and sleeve flaps.

3.3.9 Hood drawcord tape. The hood draw cord shall be flat 1/2 inch wide nylon tape, Foliage Green 504 conforming to type III, class 2 of MIL-PRF-5038. The cut lengths for the hood draw cord are listed in the following table:

Cut Lengths for Hood Drawcords

Size	Length (inches)
X-Small	33
Small	35
Medium	36
Large	36
X-Large	36
Tolerance	$\pm 1$

3.3.10 Webbing, elastic. The wind skirt elastic webbing shall be 7/8 inch wide, natural unbleached cotton webbing conforming to type I, class 5 of JJ-W-155. As an alternate, polyester elastic webbing may be used and shall conform to all requirements of the type I, class 5 of JJ-W-155 webbing except mildew resistance shall not apply. The cut lengths for the wind skirt elastic webbings are listed in the following table:

Cut Lengths for Wind skirt Elastic

Size	Length (inches)
X-Small	25
Small	29
Medium	33

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Large	37
X-Large	41
Tolerance	$\pm 1$

3.3.11 Waist drawcord. The waist drawcords shall be 3/16 inch in diameter multi-strand rubber elastic with braided nylon or polyester covering, Foliage Green 504 conforming to type II of MIL-C-43701. The cut lengths for the waist draw cords are listed in the following table:

Cut Lengths for Waist Drawcord

Size	Waist Length
X-Small	41-1/2
Small	45-1/2
Medium	49-1/2
Large	53-1/2
X-Large	57-1/2
Tolerance	$\pm 1$

3.3.12 Collar drawcord. The collar draw cord shall be 100 percent synthetic cord with a diameter of  $1/8 \pm 1/64$  inch and a minimum tensile strength of 75 pounds. The color shall be Foliage Green 504. The cut lengths for the parka collar draw cord are listed in the following table:

Cut Lengths for Collar Draw cord

Size	Length (inches)
X-Small	30
Small	31
Medium	31
Large	32
X-Large	32
Tolerance	$\pm 1$

3.3.13 Fastener tape, hook and loop. The nylon fastener tapes shall be Foliage Green 504 conforming to type II, class 1 of A-A-55126 and in the widths specified.

3.3.14 Fastener, slide, interlocking. All slide fasteners shall conform to A-A-55634, lengths shall be as specified, and the color shall be Foliage Green 504. Each slide fastener slider shall be equipped with a thong, Foliage Green 504.

Slide Fastener Lengths

Size	Inches
X-Small-X-Short	25-1/8
X-Small-Short	26-1/8
X-Small-Regular	27-5/8
X-Small-Long	29-1/8



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Small-X-Short	25-5/8
Small-Short	26-5/8
Small-Regular	28-1/8
Small-Long	29-5/8
Size	Inches
Medium-X-Short	26-1/8
Medium-Short	27-1/8
Medium-Regular	28-5/8
Medium-Long	30-1/8
Large-X-Short	26-5/8
Large-Short	27-5/8
Large -Regular	29-1/8
Large -Long	30-5/8
X-Large-Short	27-1/8
X-Large-Short	28-1/8
X-Large -Regular	29-5/8
X-Large -Long	31-1/8
Tolerance	$\pm 1/8$

3.3.14.1 Front entry slide fastener. The front entry slide fastener shall be type IV, style 8, size MH, individual element molded plastic and be supplied with two sliders enabling a 2-way opening. The front entry slide fastener must meet 130 pounds minimum crosswise strength as specified in A-A-55634. Each side of the fastener stringer tape shall be coated on both sides with a polyurethane coating not less than 2.5 mils thick.

3.3.14.2 Underarm slide fastener. The underarm slide fastener shall be type I, style 6, size MS, nylon or polyester continuous coil or ladder type configuration. The underarm slide fastener must meet 175 pounds minimum crosswise strength as specified in A-A-55634. The underarm slide fasteners shall be  $15 \pm 1/8$  inches in length for all parka sizes.

3.3.14.3 Fastener, snap. The stud and post parts of the snap fastener shall be Foliage Green 504, style 2A, finish 2 male and female complete, consisting of stud and eyelet size 1 or 2 with button size 1 or 2, and socket conforming to MIL-F-10884. An uncapped button may be used in areas where the surface will be concealed by a layer of base cloth.

3.3.15 Barrel lock. The barrel locks for the hood, collar and bottom drawcord shall be Foliage Green 504, ITW Nexus Barreloc or equivalent.

3.3.16 Eyelet, metallic. The eyelet for the parka collar shall be Stimpson telescoping eyelet with neck washer, part numbers A1215 and A665 or equal (see 6.7). The metal used shall be brass with a dull Foliage Green 504 chemical finish 1/4 inch inside diameter and a minimum of 4.5 ml thick.

3.3.17 Thread. The thread for all seaming and stitching shall be polyester, size B, 2 or 3 ply, conforming to type I, class 1, subclass B of MIL-DTL-32072. As an alternate, size 40, 2 or 3 ply polyester core thread conforming to A-A-50199 may be used. All thread shall be water-repellent

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treated as specified in MIL-T-3530. The thread color shall be Foliage Green 504. The size 70/2 ply of A-A-5209 shall be used with stitch types 502, 503, or 505 only.

3.3.18 Labels. Each parka shall have a class 1 identification label, class 2 size label, class 3 instruction label, or a class 14 combination size, identification and instruction label conforming to type VI of MIL-DTL-32075. The label color shall be Foliage Green 504. The labels shall show fastness to laundering.

3.3.18.1 Identification label. The identification labels shall read "PARKA, COLD WEATHER, UNIVERSAL CAMOUFLAGE."

3.3.18.2 Size label. The size label shall be as follows:

X-Small X-Short

Height: Up to 63 in.

Chest Mn: Up to 33 in.

Chest Wn: Up to 36 in.

Stock No: 8415-01-526-9168

NATO Size: 5060/7484

Small X-Short

Height: Up to 63 in.

Chest Mn: From 33 to 37 in.

Chest Wn: From 36 to 40 in.

Stock No: 8415-01-526-9174

NATO Size: 5060/8494

Medium X-Short

Height: Up to 63 in.

Chest Mn: From 37 to 41 in.

Chest Wn: From 40 to 44 in.

Stock No: 8415-01-526-9178

NATO Size: 5060/9404

X-Small Short

Height: From 63 to 67 in.

Chest Mn: Up to 33 in.

Chest Wn: Up to 36 in.

Stock No: 8415-01-526-9170

NATO Size: 6070/7484

X-Small Long

Height: From 71 in. and up

Chest Mn: Up to 33 in.

Chest Wn: Up to 36 in.

Stock No: 8415-01-526-9173

NATO Size: 8090/7484

Small Long

Height: From 71 in. and up

Chest Mn: From 33 to 37 in.

Chest Wn: From 36 to 40 in.

Stock No: 8415-01-526-9190

NATO Size: 8090/8494

Small Short

Height: From 63 to 67 in.

Chest Mn: From 33 to 37 in.

Chest Wn: From 36 to 40 in.

Stock No: 8415-01-526-9175

NATO Size: 6070/8494

Medium Short

Height: From 63 to 67 in.

Chest Mn: From 37 to 41 in.

Chest Wn: From 40 to 44 in.

Stock No: 8415-01-526-9180

NATO Size: 6070/9404

Large Short

Height: Up to 67 in.

Chest: From 41 to 45 in.

Stock No: 8415-01-526-9183

NATO Size: 6070/0414

X-Small Regular

Height: From 67 to 71 in.

Chest Mn: Up to 33 in.

Chest Wn: Up to 36 in.

Stock No: 8415-01-526-9172

NATO Size: 7080/7484

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Medium Long

Height: From 71 in. and up  
 Chest Mn: From 37 to 41 in.  
 Chest Wn: From 40 to 44 in.  
 Stock No: 8415-01-526-9182  
 NATO Size: 8090/9404

Large Long

Height: From 71 in. and up  
 Chest: From 41 to 45 in.  
 Stock No: 8415-01-526-9186  
 NATO Size: 8090/0414

Small Regular

Height: From 67 to 71 in.  
 Chest Mn: From 33 to 37 in.  
 Chest Wn: From 36 to 40 in.  
 Stock No: 8415-01-526-9176  
 NATO Size: 7080/8494

Medium Regular

Height: From 67 to 71 in.  
 Chest Mn: From 37 to 41 in.  
 Chest Wn: From 40 to 44 in.  
 Stock No: 8415-01-526-9181  
 NATO Size: 7080/9404

Large Regular

Height: From 67 to 71 in.  
 Chest: From 41 to 45 in.  
 Stock No: 8415-01-526-9184  
 NATO Size: 7080/0414

X-Large Regular

Height: From 67 to 71 in.  
 Chest: From 45 in. and up  
 Stock No: 8415-01-526-9186  
 NATO Size: 7080/1424

X-Large Long

Height: From 71 in. and up  
 Chest: From 45 in. and up  
 Stock No: 8415-01-526-9187  
 NATO Size: 8090/1424

3.3.18.3 Combination identification/size label. A combination identification/size label conforming to type VI, class 4 of MIL-DTL-32075 may be used.

3.3.18.4 Care instruction label. The care instruction label shall be as follows:

PARKA, COLD/WET WEATHER, UNIVERSAL CAMOUFLAGE

WARNING!! DO NOT STARCH, BLEACH, DRY CLEAN OR PRESS THE ECWCS PARKA

A. Home laundering (machine/hand): Permanent press or normal cotton sturdy machine setting or hand washing using a detergent. Rinse thoroughly in warm water. NOTE: Any residual detergent on the parka will decrease the water repellency.

Home drying: Tumble dry on permanent press or cotton sturdy setting, remove immediately from dryer. To drip dry, place on rust proof hanger.

B. Post Laundry: Parka shall be laundered utilizing "Natick Formula I".

C. Field Laundry: Parka shall be laundered utilizing "Formula VIII" of FM 42-414.

Post/Field Drying: Tumble dry at low temperature setting. Remove immediately from dryer.

D. Restoration of Water Repellent Finish. Parka shall be laundered utilizing Natick Formula XI. Dry at temperature not to exceed 150°F.

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3.3.18.5 Label for optional hood. The optional hood shall have a combination identification/size label conforming to type IV, class 14 of MIL-DTL-32075. The information contained shall be as follows:

Size  
Stock No.:  
HOOD, COLD WEATHER, UNIVERSAL CAMOUFLAGE  
Contract No.  
Fabric Content  
Contractor's Name  
SEE PARKA FOR WASHING INSTRUCTIONS

The appropriate Size and Stock number below shall apply to the optional hood label above:

X-Small: 8415-01-421-9283  
Small: 8415-01-425-5368  
Medium: 8415-01-425-5373  
Large: 8415-01-425-5376  
X-Large: 8415-01-425-5379

3.3.18.6 Combination size, identification and instruction label. The identification label, size label, and instruction label may be combined into one label, conforming to type IV class 14 of MIL-DTL-32075. The three labels shall be printed as one continuous label with the size label first and the identification and instruction labels placed below the size label. The size and identification labels may be combined and the contents placed above the instruction label. A space of 1/2 inch minimum shall be maintained between the labels. In addition, a solid line 1/16 inch minimum width shall extend across the entire label, approximately in the middle of the 1/2 inch blank space. The coating requirement shall conform to the class 3 label.

3.3.18.7 Label/tag. Each parka and optional hood shall be individually barcoded with a type VIII, class 17 label/tag of MIL-DTL-32075. The parka label/tag shall be attached to the slide fastener pull tab of the front closure and the optional hood label/tag shall be attached to the right side of the draw cord.

3.3.19 Non-wicking buffer. The non-wicking buffer shall be a polyurethane adhesive, 2 inches wide and a minimum of 4.5 ml thick.

3.4 Design. The parka shall be camouflage, with a drawcord closing hood, two-way closure front entry, slide fastener underarm openings, fastener tape adjustable wrist tabs, elasticized windskirt bottom. The parka is also designed with an optional hood for extreme cold weather, which attaches to parka by hook and pile tape and interfaces with the fur ruff, a component of the ECWCS.

3.5 Patterns. Standard patterns, which provide an allowance of 1/4 inch for all sealed seams and 3/8 inch for all other seams, will be furnished by the Government. The Government patterns shall not be altered in any way and are to be used only as a guide for cutting the contractor's working patterns. The working patterns shall be identical to the Government patterns.

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3.5.1 Pattern parts. The component parts shall be cut from the material specified below and in accordance with the pattern parts indicated in Table I.

TABLE I. List of pattern parts

Material	Nomenclature	Parts
<b>PARKA</b>		
Cloth, laminated	Back	1
	Upper front	2
	Lower front	2
	Pocket flap	2
	Lower outside pocket	2
	Insignia tab <u>1</u> /	2
	Slide fastener flap	2
	Side hood	2
	Upper sleeve	2
	Lower sleeve	2
	Under arm flap	2
	Sleeve pocket	2
	Sleeve pocket flap	2
	Pocket divider	1
	Sleeve tab	2
	Right front flap	1
	Left front flap	1
	Visor	1
	Outside collar	1
	Collar buttonhole or Eyelet reinforcement	1
Cloth, nylon	Sleeve patch	2
Cloth, plain weave	Upper pocket inside	4
Cloth, taffeta, nylon	Windsirt	1
Cloth, cotton, buckram	Visor interlining	1
	Left front flap interlining	2
Cloth, three layer knit	Hood tunnel <u>2</u> /	1
	Inside collar <u>2</u> /	1
	Lower inside pocket facing	2
	Windsirt facing	1
<b>OPTIONAL HOOD</b>		
Cloth, laminated	Side crown	2
	Crown	1
	Hood tunnel <u>3</u> /	1
	Visor	1
	Hood flap	1

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Cloth, cotton buckram

Visor interlining

1

- 
- 1/ Insignia tab may be cut in one piece with seam allowance along one side deducted.  
2/ Cloth, laminated may be substituted.  
3/ Cloth, 3-layer knit may be substituted.

3.6 Construction. The construction shall conform in all respects to the requirements specified in Table II and herein.

3.6.1 Stitches, seams, and stitching. All stitches, seams and stitching shall conform to ASTM-D-6193. The type of seam, stitching and stitches per inch shall be as specified in Table II. Seam allowances shall be maintained with seams sewn so that no raw edges, run-offs, pleats, puckers or open seams occur. When two or more methods of seams or stitches are given for the same operation, any one may be used.

3.6.1.1 Type 301 stitching. Ends of all stitching shall be backstitched or overstitched not less than 1/2 inch except where ends are turned under or caught in other seams or stitching. Ends of a continuous line of stitching shall overlap not less than 1/2 inch. Thread tensions shall be maintained so that there will be no loose stitching resulting in loose bobbin or top thread or excessively tight stitching resulting in puckering of the materials sewn. The lock shall be embedded in the materials sewn. All 301 stitch and bartack thread ends shall be trimmed to a length of not more than 1/4 inch.

3.6.1.1.1 Repairs of type 301 stitching. Repairs of type 301 stitching shall be as follows:

a. When thread breaks, skipped stitches, run-offs, or bobbin runouts occur during sewing, the stitching shall be repaired by restarting the stitching a minimum of 1/2 inch back of the end of the stitching. 1/

b. Except for prestitching, thread breaks or two or more consecutive skipped or run-off stitches noted during inspection of the item shall be repaired by overstitching. The stitching shall start a minimum of 1/2 inch beyond the defective area onto the existing stitching. Loose or excessively tight stitching shall be repaired by removing the defective stitching without damaging the materials, and restitching in the required manner. 1/

1/ When making the above repairs, the ends of stitching are not required to be backstitched.

3.6.1.2 Type 502, 503, 515 or 516 stitching. Thread tension shall be maintained so that there will be no loose stitching. All repairs shall be in accordance with 3.6.1. Thread tension shall be maintained so that there will be no loose or excessively tight stitching resulting in puckering of the materials sewn. All thread ends shall be trimmed to a length not less than 1/4 inch but more than 1/2 inch.

3.6.1.3 Bartacks. Unless otherwise specified, all bartacks shall be  $5/8 \pm 1/32$  inch long and  $1/8 \pm 1/32$  inch wide, and shall contain 21 to 28 stitches. Bartacking shall be free from thread breaks and loose stitching. All thread ends shall be trimmed to a length of not more than 1/4 inch.

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3.6.1.4 Automatic stitching. Automatic machines may be used to perform any of the required stitch patterns provided the requirements for the stitch pattern, stitches per inch, and size and type of thread are met; and at least three tying, overlapping or back stitches are used to secure the ends of the stitching.

3.6.2 Heat sealing. Seams and stitching as indicated in Table II shall be sealed with heat sealing tape on the inside of the parka and optional hood. The entire width of the seam tape shall be uniformly sealed over the seam or stitching. All seam tapes shall be applied without tension and shall be applied so that a minimum of 1/8 inch overlap is on both sides of the sewn seam and the back knit of the laminated fabric adjacent to the seam tape shall not be melted to expose the plastic film layer of the laminated fabric. All seam tapes shall overlap a minimum of 3/4 inch at joining points and all ends of seam tape or taped cross-over areas shall be spot sealed without additional repair tape in accordance with seam tape manufacturer temperature, time and pressure recommendations for application with cross-over heat sealing machine. As an alternate, spot sealing for taped ends can be eliminated if hot air machine can automatically cut and seal ends of seam tape without any loose ends. However, spot sealing for taped cross-over areas shall remain. Sealed seams, cross-over area stitchings shall show no leakage, tape ends shall show no signs of lifting, and the tape, itself, shall show no sign of lifting, curling, bubbling or separation more than 1/8 inch of tape top knit shrinkage such that the tape middle layer is exposed when tested initially and after five laundering cycles as specified in 4.3.4.

3.6.3 Appearance after laundering. After five laundering cycles as specified in 4.3.4, the base fabric and reinforcement fabric shall show colorfastness in the printed areas of the universal camouflage pattern equal to or better than "3-4" rating on the AATCC Gray Scale for evaluating change in color and also shall show no significant change in physical surface appearance when compared to an unlaundered parka in both the base fabric and taped areas. Minor defects not affecting appearance, such as puckering on seam line or creases around taped area due to manufacturing operations are acceptable and shall be used for comparison to laundered sample.

3.7 Manufacturing operations requirements. The parka and optional hood shall be manufactured in accordance with operation requirements specified in Table II. The contractor is not required to follow the exact sequence of operations provided the finished parka is identical to that produced by following the sequence as listed in Table II. Any holding or basting stitch is permissible provided it is removed, does not show on the finished garment, and does not interfere with proper seam taping. Minor modifications are permitted where necessary when using automatic equipment. These modifications shall not alter the dimensional, serviceability or appearance requirements cited in the specification.

3.7.1 Repairs. Repairing the parkas and hoods by mending, patching or darning is not allowed, and at no time is the removal of heat sealing tape permitted. However, up to 25 inches of heat sealing tape may be used for repairing leaking seams, missing yarns in the tricot knit, and for repair areas where the original tape does not overlap sewn seams by the minimum of 1/8 inch on both sides of the inside of parka. Up to five repair areas totaling 25 inches in length will be allowed. No more than five inches of repair using more than two layers of seam sealing tape is permitted, with the exception of the backside area of the sleeve pocket.

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3.8 Use of automated apparel equipment. Automated apparel equipment may be used to perform any of the operations specified in Table II provided that the seam and stitch type are as specified and the finished component conforms to the required configuration.

3.9 Abbreviations in Table of Operations. The abbreviations used in Table II are as follows:

Stch	- Stitch	Btnhl	- Buttonhole
In	- Inch	Incl	- Including
Ndl	- Needle	Dbl	- Double
Bob	- Bobbin		
Lpr	- Looper		
Mchne	- Machine		
Brtck	- Bartack		
Comrcl	- Commercial		
Smlr	- Similar		
Btn	- Button		



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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR												
1.	<p><u>Cutting and marking.</u></p> <p>a. Cut the parka and optional hood in strict accordance with patterns furnished which show directional lines, size, placement for pockets and welt, hook and pile fastener tapes, and marks for proper assembly. The directional lines indicate the warp direction, unless otherwise specified. The directional lines may vary from the warp direction by not more than 2-1/2 inches on both front and back. Measurements shall be taken from top and bottom of directional lines on pattern to selvage edge of the fabric and the difference between the two measurements shall not exceed 2-1/2 inches. Cut all shell parts out of one piece of material except the flap facing, slide fastener flap, pocket divider, hood tunnels visor and inside collar. As an alternate to the slide fastener thong, loops cut from the laminated cloth may be used.</p> <p>b. Cut drawcords and elastic cords with hot wire, length in inches as follows:</p> <p style="padding-left: 40px;"><u>Hood drawcord tape</u></p> <table style="margin-left: 40px; border: none;"> <tr> <td style="padding-right: 20px;"><u>X-Small</u></td> <td style="padding-right: 20px;"><u>Small</u></td> <td><u>Medium</u></td> </tr> <tr> <td style="padding-right: 20px;">33</td> <td style="padding-right: 20px;">35</td> <td>36</td> </tr> <tr> <td><u>Large</u></td> <td></td> <td><u>X-Large</u></td> </tr> <tr> <td>36</td> <td></td> <td>36</td> </tr> </table>	<u>X-Small</u>	<u>Small</u>	<u>Medium</u>	33	35	36	<u>Large</u>		<u>X-Large</u>	36		36				
<u>X-Small</u>	<u>Small</u>	<u>Medium</u>															
33	35	36															
<u>Large</u>		<u>X-Large</u>															
36		36															

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR																																																
1.	<p data-bbox="277 390 662 422"><u>Cutting and marking. (cont'd)</u></p> <p data-bbox="407 464 630 495"><u>Collar drawcord:</u></p> <table data-bbox="277 537 678 674"> <tr> <td><u>X-Small</u></td> <td><u>Small</u></td> <td><u>Medium</u></td> </tr> <tr> <td>30</td> <td>31</td> <td>31</td> </tr> <tr> <td><u>Large</u></td> <td><u>X-Large</u></td> <td></td> </tr> <tr> <td>32</td> <td>32</td> <td></td> </tr> </table> <p data-bbox="367 716 667 747"><u>Drawcord bottom hem:</u></p> <table data-bbox="277 789 678 926"> <tr> <td><u>X-Small</u></td> <td><u>Small</u></td> <td><u>Medium</u></td> </tr> <tr> <td>48</td> <td>52</td> <td>56</td> </tr> <tr> <td><u>Large</u></td> <td><u>X-Large</u></td> <td></td> </tr> <tr> <td>60</td> <td>64</td> <td></td> </tr> </table> <p data-bbox="334 968 699 999"><u>Drawcord windskirt tunnel:</u></p> <table data-bbox="277 1041 688 1178"> <tr> <td><u>X-Small</u></td> <td><u>Small</u></td> <td><u>Medium</u></td> </tr> <tr> <td>41 1/2</td> <td>45 1/2</td> <td>49 1/2</td> </tr> <tr> <td><u>Large</u></td> <td><u>X-Large</u></td> <td></td> </tr> <tr> <td>53 1/2</td> <td>57 1/2</td> <td></td> </tr> </table> <p data-bbox="277 1230 764 1293">Tolerance for all drawcords shall be <math>\pm</math> 1 inch.</p> <p data-bbox="277 1335 756 1482">NOTE: As an alternate to hot wiring, drawcord ends may be dipped or impregnated with cellulose acetate or cellulose butyrate.</p> <p data-bbox="342 1524 691 1556"><u>Windskirt elastic webbing:</u></p> <table data-bbox="277 1598 678 1734"> <tr> <td><u>X-Small</u></td> <td><u>Small</u></td> <td><u>Medium</u></td> </tr> <tr> <td>25</td> <td>29</td> <td>33</td> </tr> <tr> <td><u>Large</u></td> <td><u>X-Large</u></td> <td></td> </tr> <tr> <td>37</td> <td>41</td> <td></td> </tr> </table> <p data-bbox="277 1776 708 1839">Tolerance for all windskirt elastic webbing shall be <math>\pm</math> 1 inch.</p>	<u>X-Small</u>	<u>Small</u>	<u>Medium</u>	30	31	31	<u>Large</u>	<u>X-Large</u>		32	32		<u>X-Small</u>	<u>Small</u>	<u>Medium</u>	48	52	56	<u>Large</u>	<u>X-Large</u>		60	64		<u>X-Small</u>	<u>Small</u>	<u>Medium</u>	41 1/2	45 1/2	49 1/2	<u>Large</u>	<u>X-Large</u>		53 1/2	57 1/2		<u>X-Small</u>	<u>Small</u>	<u>Medium</u>	25	29	33	<u>Large</u>	<u>X-Large</u>		37	41					
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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR																																																		
1.	<p><u>Cutting and marking.</u> (cont'd)</p> <p>c. Underarm slide fasteners shall be of one length of 15 inches.</p> <p>d. Front closure slide fasteners shall be as follows in accordance with size:</p> <table data-bbox="272 716 683 1079"> <tr> <td><u>X-Small</u></td> <td><u>Small</u></td> <td><u>Medium</u></td> <td></td> <td></td> </tr> <tr> <td></td> <td><u>X-Short</u></td> <td></td> <td><u>Large</u></td> <td><u>X-Large</u></td> </tr> <tr> <td>25-1/8</td> <td>25-5/8</td> <td>26-1/8</td> <td></td> <td></td> </tr> <tr> <td></td> <td><u>Short</u></td> <td></td> <td>26-5/8</td> <td>27-1/8</td> </tr> <tr> <td>26-1/8</td> <td>26-5/8</td> <td>27-1/8</td> <td></td> <td></td> </tr> <tr> <td></td> <td><u>Regular</u></td> <td></td> <td>27-5/8</td> <td>28-18</td> </tr> <tr> <td>27-5/8</td> <td>28-1/8</td> <td>28-5/8</td> <td></td> <td></td> </tr> <tr> <td></td> <td><u>Long</u></td> <td></td> <td>29-1/8</td> <td>29-5/8</td> </tr> <tr> <td>29-1/8</td> <td>29-5/8</td> <td>30-1/8</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>30-5/8</td> <td>31-1/8</td> </tr> </table>	<u>X-Small</u>	<u>Small</u>	<u>Medium</u>				<u>X-Short</u>		<u>Large</u>	<u>X-Large</u>	25-1/8	25-5/8	26-1/8				<u>Short</u>		26-5/8	27-1/8	26-1/8	26-5/8	27-1/8				<u>Regular</u>		27-5/8	28-18	27-5/8	28-1/8	28-5/8				<u>Long</u>		29-1/8	29-5/8	29-1/8	29-5/8	30-1/8						30-5/8	31-1/8				
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			30-5/8	31-1/8																																																			
2.	<p><u>Replace damaged parts.</u></p> <p>Care shall be exercised during the spreading, cutting, and manufacturing operations to assure that material, defects, and damages, as classified in 4.4.2 are excluded and replaced with non-defective and properly matched material.</p>																																																						
3.	<p><u>Marking.</u></p> <p>Mark, ticket, or bundle all component parts to insure a correct shade and size throughout the parka and optional hood. Drill holes shall not be used and markings shall not be visible on the outer shell of the parka and optional hood.</p>																																																						

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR
4.	<u>Assemble windskirt.</u>				
	a. Overedge the top and bottom edge of the windskirt (3/16 to 1/4 inch bite).	501 503 or 505	EFd-1	10 -13	70/2 70/2  or B B
	b. With inside (nonface side) up, hem each side angle by folding in 3/4 ± 1/8 inch) fold again 3/4 ± 1/8 inch and stitch 1/16 to 1/8 inch from inside folded edge. Hem shall finish 5/8 to 7/8 inch.	301	EFd-1	10 -13	B B
	c. Hem windskirt by turning bottom edge to the inside 1/4 inch and folding again 1-1/8 to 1-1/4 inches. Place 7/8 inch elastic webbing inside hem and tack both ends in place 1/2 inch from side hem edge. Stitch length of wind-skirt hem 1/16 to 1/8 inch from folded edge taking care not to catch elastic webbing.	301	EFd-1	10 -13	B B
	d. Set snaps at the center angle and bottom of the left side with caps to the hem side of windskirt and set studs to the center angle the bottom of the right side to match caps.				
	e. With windskirt inside up, form tunnel by positioning drawcord 1-1/4 to 1-1/2 inches from top raw edge and folding skirt up around cord. Stitch along edge of cord, back tacking ends of stitching and catching draw cord at back center in stitching. Tunnel shall be no more than 3/8 inch wide and stitching shall not catch cord except where tacked at center. Knot ends of cord.	301	Osf-1	10 -13	B B

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR
4.	<u>Assemble windskirt.</u> (cont'd)				
	f. Fold a piece of 1 inch seam sealing tape over side raw edge of windskirt facing and stitch 1/8 to 1/4 inch from tape edge. Seal entire length of seam sealing tape.	301	BSa-1	8 -10	B B
	g. Position the raw edge of the windskirt and the wind skirt facing with face sides together and stitch edge with a 3/8 inch safety stitch.	515 or 516	SSa-2	10-13	B B
	h. Hold windskirt down and upper part of facing up and top stitch 1/4 inch from the folded edge. Stitching shall be on the top side of windskirt catching the lower part of facing in the stitching.	301	LSbk-2	10-13	B B
	i. Bartack each end of windskirt top edge to the reinforcement tape with a horizontal bartack superimposed over folded edge stitching.	1/2" brtck		28 brtck	B B
5.	<u>Assemble outside collar.</u>				
	a. Place a buttonhole/eyelet reinforcement piece, approximately 3/4 inch wide by 1-1/4 inch long, to the inside of collar, 3/8 inch below top raw edge at center of collar.				
	b. Make one 5/8 inch horizontal buttonhole or attach eyelet in center of top edge, 3/4 inch down from raw edge and centered on the reinforcement piece.	304	Whip or purl btnhl type	42-46/ 70/2 incl tack	70/2 or B B

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR
5.	<u>Assemble outside collar.</u> (cont'd)				
	c. Make bottom hem of collar by folding the bottom edge 1/4 inch and stitch, per marks on pattern, 1/8 to 3/16 inch from folded edge, according to marks on pattern, starting at first notch and ending at the last notch.	301	EFa-1	10-13	B B
	d. Position three strips of 1 inch wide by 2 inch long + 1/4 inch hook fastener tape as indicated on pattern to the non-face side. Stitch all four sides 1/8 to 3/16 inch from edges.	301	LSbj-1	10-13	B B
6.	<u>Assemble slide fastener protective flap.</u>				
	a. With face sides together and edges aligned, stitch 1/4 to 5/16 inch from edge around curve.	301 or 401	SSe-2(a)	10 -13	B B
	b. Turn face side out and edge stitch 1/8 to 3/16 inch from seamed edge.	301	SSe-2(b)	10 -13	B B
7.	<u>Assemble insignia tab.</u>				
	a. Position snap centered at point of tab per marks on pattern with uncap to the inside (non-face side) and set.				
	b. Position tab pieces with face sides together and edges aligned and stitch 1/4 inch from edge around sides and points.	301 or 401	SSe-2(a)	10 -13	B B

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR	
7.	<u>Assemble insignia tab.</u> (cont'd)					
	c. Turn face side out, pushing out corners, and edge stitch 1/16 to 1/8 inch from seamed edges.	301	SSe-2(b)	10-13	B	B
	- or -					
	d. Crease sides of the two piece tab face to face side with creased edges aligned and stitch pointed ends 1/4 inch from edge.	301 or 401	SSa-1	10-13	B	B
	e. Turn tab and force out the pointed corner. Align creased edges and stitch 1/16 inch from edge. Place a second row of stitching 1/8 inch from the first row.	301	SSc-1 or EFn-2	10-13	B	B
8.	<u>Assemble sleeve wrist tabs.</u>					
	a. Position a strip of 1-1/2 inch wide hook fastener tape (length as indicated by marks on pattern $\pm$ 1/4 inch) to face side of tab per marks on pattern. Stitch all four sides 1/8 to 3/16 inch from edges.	301	LSbj-1	10 -13	B	B
	b. Fold tab in half, face side out, and folding side raw edges in 3/8 inch. Stitch 1/16 to 1/8 inch from folded edge, tacking ends.	301	EFn-2	10-13	B	B
	- or -					
	c. Fold tab in half, face sides together, and stitch sides with a 3/8 inch seam.	301 or 401	SSe-2(a)	10 -13	B	B

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR	
8.	<u>Assemble sleeve wrist tabs.</u> (cont'd)					
	d. Turn face side out, pushing out points and edge stitch side 1/16 to 1/8 inch from edge tacking ends.	301	SSe-2(b)	10-13	B	B
9.	<u>Assemble sleeve pocket flaps.</u>					
	a. Position two strips of 1 inch pile fastener tape per(length as indicated on pattern $\pm$ 1/4 inch) to the face side of flap per marks on pattern and stitch on all four sides 1/8 to 3/16 inch from edges.	301	LSbj-1	10-13	B	B
	b. Fold flap in half, face sides together and with edges aligned, stitch both sides 1/4 inch from edge, tacking ends.	301	SSe-2(a)	10-13	B	B
	c. Turn face side out, pushing out points, and edge stitch 1/16 to 1/8 inch from edge around sides and bottom.	301	SSe-2(b)	10-13	B	B
10.	<u>Assemble sleeve pockets and pocket divider.</u>					
	a. Hem the top edge of the pocket divider piece by folding raw edge 1/4 inch down and stitch 1/16 to 1/8 inch from folded edge.	301 or 401	EFa-1	10-13	B	B
	b. Hem the top edge of the sleeve pockets by folding the raw edge 1/2 inch down per marks on the pattern and stitch 1/4 to 3/8 inch from folded edge.	301 or 401	EFa-1	10-13	B	B



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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR	
10.	<u>Assemble sleeve pocket and pocket divider.</u> (cont'd)					
	c. Position two strips of 1 inch hook fastener tape (length as indicated on pattern $\pm 1/4$ inch) to face side of pocket per marks on pattern and stitch on all four sides $1/8$ to $3/16$ inch from edge.	301	LSbj-1	10-13	B	B
	d. Turn the bottom edge of the sleeve pocket by folding the raw edge under $1/4$ inch and stitch $1/16$ to $1/8$ inch from folded edge.	301 or 401	EFa-1	10-13	B	B
11.	<u>Assemble lower pocket flaps.</u>					
	a. Position two strips of 1 inch pile fastener tape (length as indicated on pattern $\pm 1/4$ inch) to face side of flap per marks on patterns, and stitch on all four sides $1/8$ to $3/16$ inch from edges.	301	LSbj-1	10-13	B	B
	b. Fold flap in half, face sides together and with edges aligned, stitch both sides $1/4$ inch from edge, tacking ends.	301 or 401	SSe-2(a)	10-13	B	B
	c. Turn face side out, pushing out points, and edge stitch $3/16$ to $1/4$ inch from edge around sides and bottoms.	301	SSe-2(b)	10-13	B	B
12.	<u>Assemble lower outside pockets.</u>					
	a. Hem the top edge of the lower pockets by folding the raw edge $1/2$ inch down per marks on pattern and stitch $1/4$ to $3/8$ inch from folded edge.	301	EFa-1	10 -13	B	B

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR	
12.	<p><u>Assemble lower outside pockets.</u> (cont'd)</p> <p>b. Position two strips of 1 inch hook fastener tape (length as indicated on pattern <math>\pm</math> 1/4 inch) to the face side of pocket on the edge of hem and per marks on pattern. Stitch all four sides 1/8 to 3/16 inch from edges.</p> <p>c. Position inside pocket facing to outside pocket, face sides together, align at bottom notch and stitch the back side of pocket 1/4 inch from edge. Turn face side out. Notch seam outlet at the extended inside pocket and edge stitch 1/16 inch from top to bottom. (The extended pocket seam outlet shall be turned to the opposite direction).</p>	301	LSbj-1	10-13	B	B
	<p>c. Position inside pocket facing to outside pocket, face sides together, align at bottom notch and stitch the back side of pocket 1/4 inch from edge. Turn face side out. Notch seam outlet at the extended inside pocket and edge stitch 1/16 inch from top to bottom. (The extended pocket seam outlet shall be turned to the opposite direction).</p>	301	SSe-2	10-13	B	B
13.	<p><u>Assemble hood.</u></p> <p>a. Position hood pieces face to face with edges aligned and stitch center seam 1/4 inch from edge.</p> <p>b. With joining seam toward either side, place seaming tape over seam and heat seal.</p> <p>c. Position three strips of 1 inch wide by two inches long (+ 1/4 inch) pile fastener tape as indicated on pattern to the outside bottom of hood and stitch on all four sides 1/8 to 3/16 inch from edges. (The middle strip is to be centered over the hood joining seam).</p>	301	SSa-1	10-13	B	B
	<p>c. Position three strips of 1 inch wide by two inches long (+ 1/4 inch) pile fastener tape as indicated on pattern to the outside bottom of hood and stitch on all four sides 1/8 to 3/16 inch from edges. (The middle strip is to be centered over the hood joining seam).</p>	301	LSbj-1	10-13	B	B

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR	
13.	<p><u>Assemble hood.</u> (cont'd)</p> <p>d. Place heat seaming tape over fastener tape stitching and heat seal.</p> <p>e. Position interlining to inside of visor piece and stitch 1/8 (+1/16) inch at the straight edge of visor.</p> <p>f. Hem ends of hood tunnel by folding the edges in 1/2 inch and stitch 1/4 inch from the folded edge.</p> <p>g. Position drawcord to center of hood tunnel. Fold hood tunnel at center and stitch the raw edges together 3/16 to 1/8 inch from raw edge. Insert drawcord thru hood tunnel. Stitch a vertical tack thru tunnel and drawcord at the center of tunnel.</p> <p>h. Position the preassembled visor piece face to face to the hood and stitch 1/4 inch from the raw edge. Turn ends right side out.</p> <p>i. Position hood tunnel to face side of hood at the front notch and stitch 1/8 inch from the raw edge up to the visor junction, continue stitching on the straight edge of visor, and continue to stitch the tunnel to the front notch.</p>					
		301	SSa-1	10-13	B	B
		301 or 401	EFa-1	10-13	B	B
		301 or 401	EFa-1	10-13	B	B
		301	SSa-1	10-13	B	B
		301	SSa-1	10-13	B	B

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR
13.	<u>Assemble hood.</u> (cont'd)				
	j. Fold the front raw edge of the hood 1/4 inch to the inside and edge stitch 1/8 inch from folded edge. Continue stitching at tunnel joining seam up to the visor join-ing seam, back tack and continue stitching at the top edge of the visor 1/4 inch from edge. Repeat operation same as the other side.	301	EFa-1 and SSe-2(b)	10 -13	B B
	k. Place heat seaming tape over the front edge and tunnel stitching (over the entire hood opening) and heat seal.				
	l. Stitch a vertical backtack thru tunnel and drawcord at the center of tunnel. Set barrel locks to both ends of draw cord, length appropriate to size. Extend drawcord beyond barrel locks and tack drawcord ends to the hood edge stitching, midway between tunnel and collar joining seam.	301	SSv-1	10-13	B B
14.	<u>Assemble inside upper pocket.</u>				
	a. Position combination label to upper pocket, 3-1/4 ( $\pm$ 1/8) inch from pocket top and 2-1/2 ( $\pm$ 1/8) inch from side raw edge (side finishing nearest the slide fastener). Sew label to upper pocket, 1/8 inch from edges.	301	LSbj-1	10 -13	B B
	b. Overedge all front edges (four) of inside upper pocket pieces.	502 503 505 or 516	Efd-1	7 - 9	70/2 70/2 or B B

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR	
14.	<p><u>Assemble inside upper pocket.</u> (cont'd)</p> <p>c. Position one strip of 5/8 inch hook fastener tape (length as indicated by marks on pattern <math>\pm 1/4</math> inch) to the inside of left front pocket opening and one 5/8 inch pile fastener tape to the back pocket opening as marked on pattern, 3/8 inch from overedge stitching and stitch 1/8 to 3/16 inch from edges. Repeat for right upper pocket.</p> <p>d. With face sides together and all edges aligned, stitch around pocket edges (not the front edge) 3/8 inch from edge.</p> <p>e. Attach two 1 x 1 inch reinforcement tapes to each back edge of upper pockets. One tape is to be placed at the top back edge corner and the other tape at the angle corner facing the shell material. Bartack through the pocket and reinforcement tape superimposed on the safety stitch.</p>	301	LSbj-1	10-13	B	B
		515 or 516	SSa-2	10 -13	B	B
		1/2" brtck		28/ brtck	B	B
15.	<p><u>Assemble sleeves.</u></p>	301	LSd-1	10 -13	B	B
	<p>a. Position elbow patches face side up to face side of upper sleeves, according to marks on pattern with bottom and underarm edges aligned. Fold side, diagonal, and top edges under 1/4 inch and stitch 1/8 to 3/16 inch from folded edges.</p>					

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR	
15.	<u>Assemble sleeves.</u> (cont'd)					
	b. Position lower sleeve face to face with upper sleeve. Join with 1/4 inch seam catching bottom edge of elbow patches.	301	LSq-2(a)	10 -13	B	B
	c. Turn lower sleeve down and edge stitch 1/16 to 1/8 inch from upper sleeve.	301	LSq-2(b)	10 -13	B	B
	d. Position a strip of pile fastener tape 1-1/2 inch wide by 5 inches long (+1/4 inch) on lower sleeve as indicated on pattern, and stitch on all four sides 1/8 to 3/16 inch from edge with 1/2 inch overlap stitching.	301	LSbj-1	10 -13	B	B
	e. Position preassembled sleeve tabs to the face side of sleeves per marks on pattern, lined up with fastener tape, and raw edges aligned and stitch 1/8 to 3/16 inch from edge tacking ends.	301	SSa-1	10 -13	B	B
	f. Position prehemmed pocket divider to the left sleeve with face side of pocket divider to face side of sleeve. Stitch left side of divider 1/4 inch from edge on sleeve per marks on patterns with side and bottom of divider 1/4 inch turned in, then turn divider face side out.	301	LSbj-1	10 -13	B	B
	g. Place left sleeve pocket face to face side of sleeve with right raw edge of pocket and right edge of divider superimposed 1/4 inch (pocket under divider). Stitch right raw edge of superimposed	301	LSbj-1	10 -13	B	B

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR	
15.	<p><u>Assemble sleeves.</u> (cont'd)</p> <p>pocket and divider from top to bottom of divider and continue along bottom of divider making sure bottom of divider is turned in 1/4 inch. (Pocket divider on left pocket only).</p> <p>h. Position pockets, according to marks on patterns, (for both sleeves) face side up and turn left and right sides of pockets in 1/4 inch and top stitch 1/16 to 1/8 inch from edge. Continue to top-stitch pockets at prehemmed bottom, stitches to be super-imposed over prehemmed stitching (see 10.d) (with bottom turned in and forming pleat on each side of pocket). Finished pockets are to be centered above elbow patches.</p> <p>i. Position preassembled sleeve pocket flaps to sleeves, per marks on pattern. Stitch 1/4 inch from raw edge from beginning to end of flaps. Fold sleeve pocket flap down and topstitch <math>1/4 \pm 1/16</math> inch.</p> <p>j. Lay heat seaming tape on inside of sleeve, covering all stitching and heat seal.</p>	301	SSb-1	10 -13	B	B
		301	LSbk-2 or LSbl-2	10 -13	B	B

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR	
16.	<p><u>Assemble fronts and attach pockets and flaps.</u></p> <p>a. Position the assembled outside pocket, face up, to the lower front. Align the bottom raw edge of pocket to bottom raw edge of front. Align the front side of pocket to the front raw edge. Align the extended inside pocket piece to the raw edge of waist seam. Stitch all around pocket at waist seam, front and bottom, 1/8 inch from edge.</p> <p>b. Close back of pocket and form a hand opening by stitching back edge of pocket to front starting at the waistseam to within 1/2 to 3/4 inch below top edge of pocket opening and backtack, leaving a 7 inch (+ 3/4, -1/4 inch) opening. Backtack and continue stitching to the bottom hem stitches to be superimposed over pocket edge stitching.</p> <p>c. Bartack top and bottom of hand opening with a horizontal bartack.</p>	301	SSa-1	10 -13	B	B
		301	SSa-1	10 -13	B	B
		Brtck		28/ brtk	B	B



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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR	
16.	<p><u>Assemble fronts and attach pockets and flaps.</u> (cont'd)</p> <p>d. Stitch flaps to lower front waist edge <math>1/8 \pm 1/16</math> inch from raw edge. Flaps shall be positioned 1-1/4 inches from the front raw edge and cover the back edge of pocket. As an option, flaps may be attached during upper and lower front assembly.</p> <p>e. With face sides together position upper front to lower front assembly, edges aligned and seam over pocket flap/pocket overlap.</p> <p>f. Lay heat seaming tape over the stitching attaching the back end of pocket to lower front.</p>	301	SSa-1	10 -13	B	B
17.	<p><u>Assemble under arm flaps.</u></p> <p>a. Fold flaps in half, face sides together and with edges aligned stitch both sides 1/4 inch from edge, tacking ends.</p> <p>b. Turn face side out pushing out points and edge stitch <math>1/4 + 1/16</math> inch from edge around sides and front edge.</p> <p>c. Set snap cap to flap, centered on front edge beyond edge stitching that will match with snap at front.</p>	301 or 401	SSe-2(a)	10 -13	B	B
		301	SSe-2(a)	10-13	B	B

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR	
18.	<p><u>Assemble left and right front flap.</u></p> <p>a. Position left interlining to inside (non-face side) of left front flap stitching 1/8 to 3/16 inch from edge.</p> <p>b. Set two uncovered caps 1-5/8 inches from raw edge of each end of left flap, in accordance with marks on pattern. Set five uncovered caps between top and bottom caps, in accordance with marks on pattern, with caps thru interlining.</p> <p>c. Fold left and right flap length-wise with face sides together and close top and bottom ends with a 1/4 inch seam. Turn corners completely out and edge stitch top, folded side and bottom of flaps 3/16 to 1/4 inch from edge.</p>	301 or 401	LSbj-1	6 - 8	B	B
19.	<p><u>Assemble parka shell.</u></p> <p>a. Position preassembled under-arm flaps to the back of underarm sleeve centered on slide fastener opening and 1-1/4 inch <math>\pm</math> 1/8 inch from the raw edge. The under-arm flaps shall face toward the sleeve front. Stitch 1/8 inch from raw edge of flaps from the beginning to end of flaps. Fold flaps down and top stitch 1/4 <math>\pm</math> 1/16 inch.</p> <p>b. Lay heat seaming tape over underarm flap stitching and heat seal.</p>	301	LSbk-2 or LSbl-2	10 -13	B	B

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR	
20.	<p><u>Assemble parka shell.</u> (cont'd)</p> <p>c. With face sides together, position sleeve to parka back at armhole (right and left respectively), with edges aligned and seam.</p> <p>d. With face sides together, position fronts to sleeve (right and left respectively). Align raw edges and seam.</p> <p>e. With face sides together position lower front over back. Align side seam edges, matching bottoms of lower front and back, underarm seams (with seam allowance toward sleeve), and underarm slide fastener opening, seam beginning from the bottom edge of front and back side seam to underarm slide fastener opening 1/2 inch beyond notch. Start seaming again from 1/2 inch inside notch to sleeve bottom (leave opening for slide fastener).</p> <p>f. Lay the heat seaming tape to the inside over side seams, and sleeve attachment seams and heat seal.</p> <p>g. With face sides together, position outside collar to parka. Stitch collar to parka neckline with front edge aligned and stitch with a 1/4 inch seam to the first notch and backtack. Insert hood and continue on hood (not catching outside collar) across neckline to</p>	301	SSa-1	10 -13	B	B
		301	SSa-1	10 -13	B	B
		301	SSa-1	10 -13	B	B
		301	SSa-1	10 -13	B	B

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR	
20.	<p><u>Assemble parka shell.</u> (cont'd)</p> <p>the other front notch, backtack and continue on the other side of collar to the front edge.</p> <p>h. Stitch left front flap to front with a 1/8 inch seam, 1-1/8 inches from left front edge, 7/8 inch from top raw edge, finishing not less than 1-7/8 inches from bottom. Stitch right flap to front with 1/8 inch seam, 1-1/8 inches from raw edge of right front, 1-1/8 inches from raw edge of top and finishing a minimum of 1-7/8 inches from bottom.</p> <p>i. Fold flaps toward center front and topstitch length of flaps using 1/4 inch gauge. Backtack both ends.</p>	301	LSbl-2(a)	10-13	B	B
21.	<p><u>Set underarm slide fastener.</u></p> <p>a. At each end of slide fastener, clip shell under arm seam at an angle to allow a 3/4 inch opening width.</p> <p>b. Position slide fastener face down to underarm seam outlet in accordance with notches and with back edge of fastener tape even with raw edge of outlet. Stitch <math>1/4 \pm 1/16</math> inch from back edges. Tack top and bottom of the angle clipping (tongue notch) to end of slide fastener tape.</p>	301	SSa-1	10 -13	B	B

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR	
21.	<p><u>Set underarm slide fastener</u> (cont.)</p> <p>c. Turn under slide fastener on right and left side opening to finished position and topstitch underarm seam thru all plies <math>1/8 \pm 1/16</math> inch from folded edge of seam outlets. The slide fastener pull shall be located toward the underarm. Continue stitching across top and bottom ends of slide fastener and backstitch not less than 1/2 inch. Repeat for other sleeve.</p> <p>d. Close ends of underarm flap to cover slide fastener by stitching top and bottom edge of flap to sleeve. Stitching shall be super-imposed over flap top stitch and backtacked.</p> <p>e. Lay heat seaming tape over top, sides and bottom of slide fastener stitching, sleeve seams, front and back seam, left and right front flap stitching and heat seal.</p>	301	SSa-1	10-13	B	B
		301	SSa-1	10-13	B	B
22.	<p><u>Attach front slide fastener.</u></p> <p>a. Lay parka face side up and position slide fastener face down and even with top and front edge. Fold top end of slide fastener tape down and to inside. Stitch <math>3/8</math> inch from the top front edge to the beginning of the upper inside pocket opening. Continue stitching from the lower pocket opening to end of slide fastener tape, catching front edge of outside pocket backstitching all</p>	301	SSa-1	10-13	B	B

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR	
22.	<p><u>Attach front slide fastener.</u> (cont'd)</p> <p>ends. Match end of slide fastener tape with other side at bottom. Repeat operation on the other front. The finished edge of front shall finish 1/4-5/16 inch from inside edge of slide fastener chain.</p> <p>b. Join preassembled slide fastener protective flap to the inside top edge of the left slide fastener and stitch 1/8 inch from the raw edge (large side of flap shall face toward the top).</p> <p>c. Stitch upper inner pocket with hook fastener tape to slide fastener, with a 3/8 inch seam starting at the notch and backstitch ends of seam. Repeat operation for opposite side.</p> <p>d. Stitch upper inner pocket with pile fastener tape to face side of parka, 3/8 inch seam starting at the notch and backstitch ends of seam. Repeat operation for opposite side.</p>					
		301	SSa-1	10 -13	B	B
		301	SSa-1	10 -13	B	B
		301	SSa-1	10 -13	B	B
23.	<p><u>Attach inside collar.</u></p> <p>a. Lay parka face side up and position inside collar, face side up, over wrong side of outside collar. Push front flaps toward sleeves. Wrap side raw edge of inside collar around slide fastener teeth to other side onto slide fastener tape. Stitch over same</p>	301	SSa-1	10 -13	B	B

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR	
23.	<p><u>Attach inside collar.</u> (cont'd)</p> <p>stitch row as slide fastener. Stitch both sides and continue stitching around top edge of collar.</p> <p>b. Insert drawcord with barrel lock attached through the button-hole or eyelet and stitch ends on front slide fastener seam.</p> <p>c. Turn collar and force out corners.</p> <p>d. Topstitch collar on face side 1/16 to 1/8 inch starting one inch below collar joining seam. Stitch sides and across top edge of collar. Stitch a second row of stitching across top edge and 3/4 inch from edge, starting and ending at flap seam and backstitch. Note: Do not catch Drawcord ribbon in stitching.</p> <p>e. Stitch bottom edge of inside collar to hood at neckline, starting at side edge of hood, even with collar seam, and stitch across hood with a 1/4 inch seam. Backtack each end.</p> <p>f. Edge stitch neckline 1/16 to 1/8 inch on outside of collar from edge of hood to front flaps catching inside collar.</p> <p>g. From the inside, seam seal bottom stitching of collar and hood.</p>	301	SSa-1	10 -13	B	B
		301	SSe-2(b) or SSv-1	10 -13	B	B
		301	SSa-1 or LSbj-1	10 -13	B	B
		301	SSa-1	10 -13	B	B

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR	
24.	<p><u>Topstitch front edge of parka.</u></p> <p>a. Topstitch inside pockets (Flash pocket) front edge with a 1/8 inch <math>\pm</math> 1/16 inch seam starting at the inside opening first and then the shell opening.</p> <p>b. Topstitch front with a 1/8 to 3/16 inch seam starting at the bottom edge to within 1/2 inch inside pocket opening and back-tack. Continue stitching with backtack 1/2 inch inside upper pocket opening and stitch up to the collar top stitching.</p> <p>c. Place a backtack at each end of flash pocket opening and at the bottom ends of the front slide fastener tape.</p>	301	LSq-2(b)	10 -13	B	B
		301	LSq-2(b)	10 -13	B	B
		301	SSa-1	10 -13	B	B
25.	<p><u>Apply non-wicking buffer inside bottom of fronts and back and over seams.</u></p> <p>a. Attach (heat seal) a 2 inch wide non-wicking buffer tape 1-3/4 (<math>\pm</math> 1/4) inches from the bottom raw edge of parka, no less than 1/2 inch from front edges.</p>					
26.	<p><u>Hem sleeves.</u></p> <p>a. Turn bottom edge of sleeve 1/4 to 3/8 inch, fold again 1/2 <math>\pm</math> 1/8 inch and stitch 1/16 to 1/8 inch from the folded edge. The hem shall finish 3/8 to 5/8 inch wide.</p>	301	Efb-1	10 -13	B	B



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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR	
27.	<p><u>Hem bottom of parka.</u></p> <p>a. Insert drawcord. Turn bottom edge of parka 1/4 to 3/8 inch, fold again 3/4 ± 1/8 inch and stitch 1/16 to 1/8 inch from the folded edge. The hem shall finish 5/8 to 7/8 inch wide. Set barrel locks to both ends of drawcord and tie with knot.</p>	301	Efb-1	10 -13	B	B
28.	<p><u>Attach assembled windskirt to parka.</u></p> <p>a. Mark inside back for position-ing the assembled windskirt by marking a straight line across back from left front waist seam to the right front waist seam.</p> <p>b. Center assembled along windskirt along waistseam front and stitch raw edge of facing to lower front waistseam outlet adjacent to waistseam. Stitching to within approximately 1 inch from side seam lay back flat, face down and position windskirt facing to mark on back. Stitch windskirt facing 1/4 inch from edge starting at side seam with stitching even at waistseam and stitch across back to side seam. Repeat attaching windskirt to front in the same manner.</p> <p>c. Place heat seaming tape on top of windskirt facing extending 1/2 to 3/4 inch beyond top edge onto waistseam. With seam outlet facing up, on underside of windskirt, heat seal the entire</p>	301	SSa-1 and LSbj-1	10 -13	B	B
	<p>c. Place heat seaming tape on top of windskirt facing extending 1/2 to 3/4 inch beyond top edge onto waistseam. With seam outlet facing up, on underside of windskirt, heat seal the entire</p>	301	SSa-1	10 -13	B	B

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR	
28.	<p><u>Attach assembled windskirt to parka.</u> (cont'd)</p> <p>length of the tape and facing. <b>BUT DO NOT HEAT SEAL</b> to the underside of windskirt facing. Heat seal the entire length of windskirt facing. Place heat seaming tape 1/2 to 3/4 inch extending beyond windskirt facing, with seam outlet facing up and heat seal the extended tape and the entire length of windskirt facing. Trim the corner of the extended heat sealing tape and crossover each end to seal tape to parka.</p>					
29.	<p><u>Attach insignia tab.</u></p> <p>a. Position the raw edge of the preassembled insignia tab to left front flap, 1-1/2 inches above the third snap cap from the top, in the center of the flap, face sides together, point towards hood, and stitch 1/4 inch from raw edge.</p> <p>b. Turn tab down and stitch 1/16 to 1/8 inch from fold with 1/4 inch spaced double row of stitching, tacking ends.</p>	301	LSbk-2(a)	10 -13	B	B
30.	<p><u>Set studs.</u></p> <p>a. Set seven studs to right storm flap to match snap caps on left storm flap. Set one stud to left storm flap to match snap cap on insignia tab. Set one stud to each underarm welt to match snap cap on opposite welt beyond edge stitching.</p>	301	LSbk-2(a)	10 -13	B	B

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR	
31.	<p><u>Heat seal reinforcement tape.</u></p> <p>a. Heat seal all reinforcement tapes positioned on the inside of upper and lower pocket lining to the parka.</p>					
32.	<p><u>Attach thong to slide fastener.</u></p> <p>a. Each slide fastener slider shall be equipped with a thong in accordance with V-F-106. Fold length of braid double lengthwise, insert loop end through end of the pull, pass the two free ends through the loop and pull up tight, knot the two free ends together with an overhand knot. Finished length after the assembly shall be <math>6 \pm 3/4</math> inches.</p> <p style="text-align: center;">- or -</p> <p>As an alternate make stripping for the thong using base fabric, camouflage side up, by folding stripping with the edges abutted at center and stitch with each row of stitching not less than 1/16 inch from edge and covering stitch on the underside. The finished stripping shall measure 5/16 to 3/8 inch wide. Attach stripping to slide fastener, same as above (operation 31.a). Knot free ends of stripping.</p> <p style="text-align: center;">- or -</p> <p>In lieu of knotting the two free ends, bartacking may be used.</p>	<p style="text-align: center;">406</p> <p style="text-align: center;">Brtck</p>	<p style="text-align: center;">EFh-1</p> <p style="text-align: center;">28/brtck</p>	<p style="text-align: center;">10 -13</p>	<p style="text-align: center;">B      B</p> <p style="text-align: center;">B      B</p>	

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont.)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR	
33.	<p><u>Assemble detachable (optional) hood.</u></p> <p>a. Fold bottom edge 1/4 inch from front crown to the dart cut out and topstitch 1/8 to 3/16 inch from folded edge.</p> <p>b. Fold edges of cut out on side crown and stitch dart with 1/4 inch seam, extending the stitching 1/2 inch past end of cut out.</p> <p>c. With face sides together position side pieces to center piece with edges aligned and stitch 1/4 inch from edge.</p> <p>d. With dart seams and joining seams toward center piece, lay heat seaming tape over seams and heat seal, extending seaming tape 1/2 inch past stitching of dart seams.</p> <p>e. Hem the side edge of the crown, and side edge of the dart, and the bottom edge from dart to dart by folding the raw edges 1/4 inch and topstitch 1/8 to 3/16 inch.</p> <p>f. Position three 1 inch wide and 2 inches (<math>\pm</math> 1/4 inch) long pile fastener tape on the inside bottom hem as indicated on pattern and stitch all four sides 1/8 to 3/16 inch from edge.</p>	301	EFa-1	10 -13	B	B
		301	SSa-1	10 -13	B	B
		301	SSa-1	10 -13	B	B
		301	EFa-1	10 -13	B	B
		301	SSa-1	10 -13	B	B

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR	
33.	<u>Assemble detachable (optional) hood.</u> (cont'd)  g. Position three 1 inch wide and 2 inch (+ 1/4 inch) long hook fastener tape to the face side at bottom super imposed over the pile fastener tape and stitch all four sides 1/8 to 3/16 inch from edge.  h. Position two 1 inch wide and 1-1/4 ( $\pm$ 1/4) inch long hook fastener tape to the inside edge opening as indicated on pattern and stitch all four sides 1/8 to 3/16 inch from edge.  i. Position two 1 inch wide and 2 ( $\pm$ 1/4) inch long pile fastener tape to the face side of the right front opening as indicated on pattern and stitch all four sides 1/8 to 3/16 inch from edge.  j. Position interlining to inside of visor piece and stitch 1/8 to 3/16 inch at the straight edge of visor.  k. Hem ends of hood tunnel by folding the inside edge over the face side 1/2 inch and stitch 1/4 inch from folded edge.  l. Fold hood tunnel at center and stitch the raw edges together 3/16 to 1/8 inch from raw edge.	301  301  301  301  301  301	LSbj-1  LSbj-1  LSbj-1  SSa-1  EFa-1  EFu-1	10 -13  10 -13  10 -13  10 -13  10 -13  10 -13	B  B  B  B  B  B	B  B  B  B  B  B

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR	
33.	<p><u>Assemble detachable (optional) hood.</u> (cont'd)</p> <p>m. Position the preassembled visor piece face to face to the hood and stitch 1/4 inch from the raw edge. Turn visor right side out.</p> <p>n. Position hood tunnel to face side of hood at the front notch and stitch 1/4 from the raw edge up to the visor junction, continue stitching on the straight edge of visor, and continue to stitch the tunnel to the front notch.</p> <p>o. Fold the front raw edge of the hood 1/4 inch to the inside and edge stitch 1/8 inch from folded edge, continue 1/8 inch edge stitching at tunnel joining seam up to the visor joining seam, back-tack and continue stitching at the top edge of the visor 1/4 inch from the edge. Continue stitching 1/4 inch from edge and repeat operation same as other side.</p> <p>p. Place heat seaming tape over the front edge and tunnel stitching (over the entire hood opening) and heat seal.</p> <p>q. Set barrel locks to both ends of drawcord, length appropriate to size. Extend drawcord 2 to 2-1/2 inches beyond barrel locks and tack drawcord ends to the hood and pile fastener tape stitching.</p>	301	SSa-1	10 -13	B	B
		301	SSa-1	10 -13	B	B
		301	EFa-1 LSq-2(b)	10 -13	B	B
		301	SSv-1 or Brtck	10 -13	B	B

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TABLE II. MANUFACTURING OPERATIONS REQUIREMENTS (cont'd)

NO.	OPERATION	STCH TYPE	SEAM/ STCH TYPE	STCH IN	THREAD NDL BOB/ LPR	
34.	<u>Assemble hood flap.</u>	301				
	a. Fold hood flap, face side together, and stitch both ends.	or 401	SSe-2(a)	10 -13	B	B
	b. Turn ends right side out and top stitch along folded and stitch-ed edges 1/16 inch from edge.	301 or 401	SSe-2(a) and OSf-1	10 -13	B	B
	c. Position eight strips of 1 inch wide pile fastener tape (length as indicated on pattern $\pm$ 1/8 inch) to flaps as indicated on pattern, and stitch through both layers of flap 1/8 to 3/16 inch from edge on all four sides.	301	LSbj-1	10 -13	B	B
	d. Set nine snap caps to flap as indicated on pattern.					
35.	<u>Set flap to hood.</u>					
	a. Center hood flap on the outside of parka as indicated on pattern with pile fastener tape side facing up and stitch 1/16 to 1/8 inch from edge. The pile fastener tape shall face the front when the flap is attached to the hood.	301	LSbl-2(a)	10 -13	B	B
	b. Turn flap down and top stitch 1/4 $\pm$ 1/16 inch from folded edge. On the inside of the garment, seam seal tape the seam that attaches the flap to the hood.	301	LSbl-2(a)	10 -13	B	B
36.	<u>Combination size, identification and instruction label.</u>					
	The label for the optional hood shall be applied on the inside center of the right side panel.					

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3.9 Finished measurements. The measurements of the parka shall conform to the requirements specified in Table III.

TABLE III. Finished measurements (inches)

	<u>1/2 Chest 1/</u>	<u>Back length 2/</u>	<u>Sleeve length 3/</u>	<u>Optional hood flap length 4/</u>
<u>X-Short</u>				
X-Small	22-1/4	28-1/2	23-1/2	26-1/2
Small	24-1/4	29	23-3/4	27
Medium	26-1/4	29-1/2	24	27-1/2
Large	28-1/4	30	24-1/4	28
X-Large	30-1/4	30-1/2	24-1/2	28-1/2
<u>Short</u>				
X-Small	22-1/4	29-1/2	24	26-1/2
Small	24-1/4	30	24-1/4	27
Medium	26-1/4	30-1/2	24-1/2	27-1/2
Large	28-1/4	31	24-3/4	28
X-Large	30-1/4	31-1/2	25	28-1/2
<u>Regular</u>				
X-Small	22-1/4	31	25	26-1/2
Small	24-1/4	31-1/2	25-1/4	27
Medium	26-1/4	32	25-1/2	27-1/2
Large	28-1/4	32-1/2	25-3/4	28
X-Large	30-1/4	33	26	28-1/2
<u>Long</u>				
X-Small	22-1/4	32-1/2	23-1/2	26-1/2
Small	24-1/4	33	23-3/4	27
Medium	26-1/4	33-1/2	24	27-1/2
Large	28-1/4	34	24-1/4	28
X-Large	30-1/4	34-1/2	24-1/2	28-1/2
<u>Tolerance</u>				
Plus/Minus	3/4	3/4	1/2	1/2

1/ With slide fastener closed and parka smooth and flat, measure 1/2 chest from folded edge to folded edge at base of armhole seams.

2/ Measure center back length from neck seam to bottom of hem.

3/ Measure sleeve length from armhole seam to bottom of sleeve along underarm seam.

4/ Measure seam joining hood flap to hood, from end to end, following the curve of the



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hood.

3.9.1 Slide fastener finished measurements. After stitching, the front slide fasteners shall measure not less than 1/4 inch less than the minimum specified length in Table II., Operation 1.d.

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

#### 4. VERIFICATION

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

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

4.2 First article inspection. The first article, submitted in accordance with 3.2, shall be inspected as specified in 4.3.2 and 4.3.3 for compliance with design, construction, workmanship and dimensional requirements and tested in accordance with 4.3.4.

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

4.3.1 Component and material inspection. In accordance with 4.1 above, components and materials 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 procurement documents.

4.3.1.1 Component testing. The components specified in paragraphs 3.3.3, 3.3.4 and 3.3.5 shall be tested for the characteristics listed in Table IV in accordance with the test method cited.

TABLE IV. Component tests requirement.

<u>Characteristic</u>	<u>Reference Paragraph</u>	<u>Test method</u>
<b>Cloth, Reinforcement</b>		
Weight	3.3.3	ASTM D-3776(Method C)
Breaking strength	3.3.3	ASTM D-5034
Colorfastness to:		
Crocking	3.3.3	AATCC-8
Laundering	3.3.3	AATCC-61-1A
Light	3.3.3	AATCC-16 Opt. A (after 40 fading units) or E (after 75 kilojoules)

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TABLE IV. Component tests requirement. (cont'd)

Characteristic	Reference Paragraph	Test method
Perspiration	3.3.3	AATCC-15
Spray rating initial	3.3.3	AATCC-22
Spray rating after one laundering	3.3.3	AATCC-135 & AATCC-22
Stiffness	3.3.3	TAPPI-T-451 <u>7/</u>
Puncture Propagation		
Tear (kgf)	3.3.3	ASTM D-2582 <u>8/</u>
Resistance to organic liquid	3.3.3	AATCC-118
Resistance to Frosting	3.3.3	AATCC 119
Dimensional stability	3.3.3	AATCC-96 Opt.1C/ AATCC-135
Abrasion Resistance	3.3.3	ASTM-D-3884
Infrared reflectance	3.3.3	<u>9/</u>
<b>Cloth, three-layer knit</b>		
Weight	3.3.4	ASTM D-3776(Method C)
Stiffness	3.3.4	TAPPI -T-451 <u>7/</u>
Hydrostatic Resistance (initial taffata restraint)	3.3.4	ASTM D-751
Hydrostatic Resistance (after deet)	3.3.4	ASTM D-751 <u>1/</u>
Puncture Propagation		
Tear (kgf)	3.3.4	ASTM D-2582 <u>8/</u>
Water permeability		
Initial	3.3.4	AATCC-127 <u>2/</u>
Water Permeability after synthetic perspiration	3.3.4	AATCC-127 <u>3/</u>
Moisture Vapor Tranmission		
Rate (g/m <sup>2</sup> /24 Hrs) (B)	3.3.4	ASTM E-96 <u>4/</u>
(BW)	3.3.4	ASTM E-96 <u>5/</u>
Physical Surface Condition changes after laundering	3.3.4	<u>6/</u>
<b>Reinforcement tape</b>		
Water permeability after seam tape	3.3.5	4.5.2.1 (b)
Weight	3.3.5	ASTM D-3776

1/ Five 4 x 4 inch specimens shall be laid flat, face side up on a glass plate, 4 x 4 inches by 1/4 inch thick. Three drops of diethyltoluamide shall be applied to the center of each specimen. A glass plate shall be placed on each specimen and a four pound weight placed on top. After 16 hours, remove the specimen and test immediately for water permeability.

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- 2/ The water permeability shall be measured as specified in AATCC No. 127, except that a fixed hydrostatic head of 50 centimeters shall be held for 10 minutes, the face side of the test cloth shall contact the water and five specimens shall be tested. The report shall only include measurement of the appearance of water droplets. Leakage is defined as one (1) or more droplets any place within the 4-1/2 inch diameter area.
- 3/ The specimen, 8 inches by 8 inches, shall be cut and exposed to synthetic perspiration as follows: the synthetic perspiration solution shall be made by combining 3.0 grams sodium chloride, 1.0 gram trypticase soy broth powder, 1.0 gram normal propyl propionate, 0.5 gram of liquid lecithin and 500 ml of distilled water. Cover the solution and stir while heating to 50°C until all ingredients are dissolved. Then, cool the solution to 35°C, remove cover and dispense it immediately with a pipette or other suitable measuring device. Dispense 2 ml of perspiration solution at 35°C, onto the center of an 8 inch by 8 inch by 1/4 inch glass plate. Place the specimen on the glass plate with the knit side contacting the glass. Dispense an additional 2 ml of the synthetic perspiration solution onto the center of the specimen. Place second 8 inch by 8 inch by 1/4 inch glass plate on top of the specimen and then place a 4 pound weight on top of and in the center of the assembly. After 16 hours, remove the specimen (do not rinse) and air dry the specimen before testing. Test the specimen for water permeability as specified in AATCC-127.
- 4/ The back side of the test cloth shall face the water, the free stream air velocity shall be  $550 \pm 50$  FPM as measured 2 inches above the fabric specimen. The air flow shall be measured at least 2 inches from any other surface. The specimen cups shall be conditioned in the air stream for not less than 4 hours, nor more than 16 hours, before the initial weighing to start the test. The test shall be run for 24 hours and weight measurements shall be taken at only the start and completion of the test. At the start of the 24 hour test period, the air gap between the water surface and the back of the specimen shall be  $3/4 \pm 1/16$  inch. Five (5) initial specimens shall tested.
- 5/ The back side of the test cloth shall face the water. The free stream air velocity shall be  $550 \pm 50$  FPM as measured two (2) inches from any other surface. The specimen cups shall be inverted such that the water inside each cup contacts the back side of the specimen. The cups shall be examined for water seepage/leakage of the specimen or the cup seal; specimen cups exhibiting water seepage/leakage shall be replaced. The test shall run for two (2) hours and weight measurements shall be taken at the start and completion of the test. Five (5) initial specimens shall be tested. The specimens shall be sealed in any manner which prevents water wicking and/or leaking out of the cup.
- 6/ Conduct 20 laundering and drying cycles in accordance with 4.5.2. Each sample, 48 inches in length by full width shall be cut in half across the width of the cloth. One half of the sample (24 inches in length) shall be laundered and the remaining half retained as the unlaundered portion for the final evaluation, as necessary. After each drying cycle, examine both sides of the cloth for changes in physical surface appearance when compared to the unlaundered sample.
- 7/ Preferred Procedure (1) except that five specimens shall be tested under standard

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textile test conditions as specified in ASTM D-1776.

- 8/ Five warp and five filling specimens shall be tested. Specimen size shall be 8 inches by 8 inches. Only one tear shall be made on a single specimen. The specimen shall be positioned with the face side toward the probe and with the designated yarns of the face fabric at right angles to the direction of the tear. The test shall be conducted using the standard drop height of  $508 \pm 2$  mm. If the tear is not straight on the face side of the specimen, the result shall be considered invalid and another specimen shall be tested. The thickness of the specimen is not measured.

Note: **This test will be performed at least once at the beginning of each new contract.** The government reserves the right to test this characteristic when samples are sent for verification testing.

- 9/ Infrared reflectance data shall be determined on the face side of the material and shall be obtained from 600 to 860 nanometers (nm), at a 20 nm intervals on a spectrophotometer relative to a barium sulfate standard, the preferred white standard. Other white reference materials may be used, provided they are calibrated to absolute white, e.g., magnesium oxide, or vitrolite tiles. The spectral band width shall be less than 26 nm at 860 nm. Reflectance measurements may be made by either the monochromatic or polychromatic mode of operation. When the polychromatic mode is used, the spectrophotometer shall operate with the specimen diffusely illuminated with the full emission of a source that simulates either CIE Source A or CIE Source D65. The specimen shall be measured as a single layer, backed with six layers of the same fabric and shade. Measurements shall be taken on a minimum of two different areas and the data averaged. The measurement areas should be at least 6 inches away from the edges of the finished cloth. The specimen shall be viewed at an angle no greater than 10 degrees from normal, with the specular component included. Photometric accuracy of the spectrophotometer shall be within 1 percent and wavelength accuracy within 2 nm. The standard aperture size used in the color measurement device shall be 1.0 to 1.25 inches in diameter. Any color having infrared reflectance values falling outside the limits at four or more of the wavelength specified shall be considered a test failure.

4.3.1.2 Component and material certification. Unless otherwise specified, a certificate of compliance will be acceptable as evidence that the heat sealing tape conforms to the requirements specified in 3.3.5.

4.3.2 End item visual examination. The end items shall be examined for defects listed in Table V. The lot size shall be expressed in units of parkas or units of hoods. The sample unit shall be one parka and/or one hood. The inspection level shall be II and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 1.5 for major defects and 10 for (major and minor combined) defects.

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TABLE V. End item visual defects.

Examine	Defect	Classification	
		Major	Minor
Material defects and damages	Any smash, multiple float or loose slub	101	
	Cut, tear, mend, burn, needle chew, or hole	102	
	Misweave, area of poor dye penetration, dyestreak, broken or missing yarn, visible mend, thin place, or shade bar <u>1/</u>	103	201
Cleanliness	Any spot, streak, or stain of a permanent nature on any portion of a garment which would be visible when parka or hood is worn		202
	Removable spot, streak, or stain on outside of parka or hood		203
	Thread ends not trimmed throughout parka and hood		204
	Any holding or basting threads visible on outside of the finished parka and hood when applicable		205
Component and assembly	Any defective component <u>1/</u>	104	206
	Any component part omitted	105	
	Any required operation omitted or improperly performed <u>1/</u>	106	207
Drawcord	Any drawcord caught in hem or tunnel stitching restricting use of drawcord	107	
	Any end not heat seared		208
	Any drawcord omitted	108	
	Any end not knotted		209
	Any drawcord insufficient in length	109	
	Any barrel lock omitted		210
	Not caught in center bartack when specified		211
Slide fastener	Any part of slide fastener bent, broken, otherwise defective	110	
	Not closing as specified	111	
	Length not as specified	112	
	Color not as specified		212
	Thong not as specified		213
Snap fastener (Optional hood)	Any part of assembly missing, mismatched, broken, cracked, bent, not securely clinched, affecting function:		
	- two or more snap fasteners	113	
	- one snap fastener		214

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

Examine	Defect	Classification	
		Major	Minor
	One or more clinched too tightly cutting surrounding fabric	114	
	Loose, i.e., socket or stud spins freely or wobbles in connection portions		215
	One or more having rough or sharp edge	115	
Wrist tabs	Missing	116	
	Improperly located <u>1/</u>	117	216
Labels	Missing, illegible, or incorrect	118	
	Incorrectly placed or attached		217
Accuracy of seaming	Seam twisted, pleated, seaming or puckered <u>1/</u>	119	218
	Part of parka, hood caught in any unrelated operation or stitching <u>1/</u>	120	219
	Thread break secured by stitching back of the break less than 1/2 inch		220
Accuracy of seaming (cont'd)	Ends of all seams and stitchings when not caught in other seams or stitching, uneven or backtacked less than 1/2 inch		221
	Color not as specified		222
	Gage of stitching uneven or not as specified		223
	Edge of seam tape less than 1/8 inch from seam allowance	121	
	Seam tape lifting off fabric	122	
	Visible scorching (heat degradation of fabric on the laminate) in excess of 3/16 inch width or 1/2 inch in length at any location along a taped seam	123	
Open seams	More than 1/8 inch up to 1/4 inch		224
	More than 1/4 inch	124	

NOTE: One or more broken or two or more continuous skipped or run-off stitches constitute an open seam. On double stitched seams, a seam is considered open when one or both sides of the seam is open. Raw edge not securely caught in stitching shall be classified as on open seam.

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

Examine	Defect	Classification	
		Major	Minor
Seams and stitchings	Not specified seam or stitch type		225
	Missing, broken or skipped stitches <u>1</u> /	125	226
Stitch tension	Loose tension in any area: - more than 1 inch but not more than 2 inches		227
	- more than 2 inches	126	
	Tight tension (stitches break when normal strain is applied to the seam or stitching)	127	
	Missing, broken, or skipped stitches <u>1</u> /	128	
Stitches per inch (to be scored only when the condition exists on major portion of the seam)	Less than minimum specified: - one stitch		228
	- two or more stitches	129	
	More than maximum specified		229
Pockets and flaps	Flap attached crookedly, i.e., distance between sides of pocket and underside of opened flap varies more than 1/4 inch		230
	Pocket or flap poorly shaped		231
	Flap not covering front or back edge of pocket by 3/16 or more		232
	Insignia tab set crookedly		233
	Pocket divider not properly placed		234
Heat sealed seams and non-wicking buffer	Any seam tape not located as specified		235
	Non-wicking buffer missing	130	
	Non-wicking buffer not properly placed	131	
	Any seam tape not 1/8 inch overlap on each side of sewn seam	132	
	Any seam tape not overlapped 3/4 inch Minimum	133	
	Any required stitching not covered by seam tape		236
	Any needle punctures that have not been repaired using heat sealing tape		237
	Any area of the laminate knit fabric bordering the seam tape that is melted exposing laminate film	134	

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

Examine	Defect	Classification	
		Major	Minor
Repairs	Any heat sealing repairs extending beyond 25 inches in length	135	
	More than five repairs on any one item <u>1/</u>	136	
Seam tape adhesion	Seam tape lifting off fabric within 3/4 inch of seam <u>1/</u>	137	
	Visible scorching (heat degradation of the fabric on the laminate) in excess of 3/16 inch in width or 1/2 inch in length at any location along a taped seam	138	
Shaded part	Variation in shade within an outside part <u>1/</u>	139	238
	Any part required to be cut from one piece of material shaded <u>1/</u>	140	239
	NOTE: Parts suspected as being shaded shall be examined at a distance of 3 feet against the background of the other parts and colors of the garment. When the shade difference is readily discernible under these examining conditions, it shall be scored as a shaded part.		
Fronts			
Length of fronts	Hem uneven by 1/4 inch or more at bottom when fastened		240
	Uneven by 1/4 inch or more at neck when fastened		241
	Flaps uneven by more than 1/4 inch when fastened		242
	Left flap less than 1/4 inch longer at bottom than right flap when fastened		243
Bartacks	Bartack omitted	141	
	Any bartack not in specified location, insecure, or not serving intended purpose: - more than two	142	
	- two or less		244
	Any loose stitching, incomplete or broken		245
	Length or width not as specified		246
Hood flap	Snaps not in locations specified	143	



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	Loop fasteners not in locations specified	144
	Not heat sealed	145
Label/tag	Barcode omitted or not readable by scanner	247
	Human-readable-interpretation (HRI) omitted or illegible	248
	Not attached to location specified	249
	Causes damage to the parka	146
Fastener tape	Not properly placed	147
hook & pile	Not specified length	250

1/ This defect shall be scored as major when seriously affecting serviceability and as a minor when affecting serviceability but not seriously.

4.3.3 End item dimensional examination. The end items shall be examined for conformance to the dimensions specified in Table III. Any dimension not within the specified tolerance shall be classified as a defect. The lot size shall be expressed in units of one parka or one hood. The sample unit shall be one parka (or one hood). The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 2.5.

4.3.4 End item testing. The end items shall be tested as specified in 4.5 for conformance to the requirements for the black print color of the camouflage pattern, fraying resistance of lining, hydrostatic resistance of seam tape, tape end lifting, tape integrity and physical surface appearance changes specified in 3.6.2, and 3.6.3. The lot size shall be expressed in units of parkas or of hoods. The sample unit shall be one parka (or one hood). The inspection level shall be S-2 and the AQL, expressed in terms of defects per hundred units, shall be 4.0 for test failures.

4.3.5 Packaging examination. The fully packaged end items shall be examined for the defects listed below. The lot size shall be expressed in units of shipping containers. The sample unit shall be one shipping container fully packaged. The inspection level shall be S-2 and the AQL, expressed in terms of defects per hundred units, shall be 1.0.

<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, loose strapping, improper taping, inadequate stapling, bulged or distorted container.

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Content	Number of items per shipping container is more or less than required. Size shown on one or more items not as specified on shipping container. 1/
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1/ For this defect, one item from each shipping container in sample shall be examined.

4.3.6 Palletization examination. An examination shall be made to determine that 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 end item, inspected lot. 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 in accordance with ANZ/ASQC Z 1.4.

<u>Examine</u>	<u>Defect</u>
Finished dimensions	Length, width, or height exceeds specified maximum requirements.
Palletization	Pallet pattern not as specified. Interlocking of loads not as specified. 1 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.

#### 4.4 Methods of testing.

4.4.1 Hydrostatic resistance test. The hydrostatic resistance of sealed seam areas of the parka, before and after five laundering cycles (see 4.4.2), shall be tested in accordance with AATCC 127, except for the following: The test specimen need not be conditioned and does not need to be tested in a conditioned environment (ambient conditions may be used). The test may be performed on any device which tests the same specimen area at the equivalent pressure. The hydrostatic head shall be 50 centimeters pressure for 3 minutes. The parka shall be tested at four different locations as follows: one on hood seam, one on juncture of hood and neck seam, one on corner of left sleeve pocket, and one on straight torso seam. The water shall contact the outside of the garment. The sealed seam shall be centered in the 4-1/2 inch diameter test area of the testing machine. Evidence of leakage in one or more seam locations shall be considered a test failure. Leakage is defined as the appearance of one droplet of water anywhere in the 4-1/2 inch diameter test area. In cases of dispute the apparatus described in AATCC 127 shall be used.

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4.4.2 Parka laundering test. Select parkas in accordance with the criteria specified in paragraph 4.3.4. Prior to laundering, one parka shall be retained for use as the unlaundered sample in evaluating the parkas after laundering. Place two (2) parkas, (one parka may be ballast) (approximately 4 pounds total load), in an automatic washing machine set on permanent press cycle, high water level and warm (100 + 10, - 0° F) wash temperature. Taped areas of the parka shall be visually examined prior to laundering for physical surface appearance characteristics and initial tape end and integrity conditions. The slide, hook/loop and snap fasteners of each parka shall be closed with the right side of each parka out during the wash and drying cycles. Place 28 grams of detergent conforming to 1993 AATCC Standard Reference Detergent (non-phosphate) without optical brighteners into the washer. The duration of each laundering cycle shall be 30 to 35 minutes. After laundering, place parkas in an automatic tumble dryer set on permanent press cycle, high heat setting (150-160° F) and run approximately for 45 minutes. Conduct five laundering and drying cycles. After the fifth laundering and drying cycle, test and evaluate the parkas for conformance to the required characteristics in 4.4.2.1. The laundering equipment (washer and dryer) shall be in accordance with AATCC 135.

NOTE: The above test shall be used to launder the optional hood. When hoods are laundered, a 3X5 inch swatch containing black printed areas shall be cut from a hood prior to laundering and retained for comparison with the laundered hoods.

#### 4.4.2.1 Appearance after laundering.

a. Tape ends integrity test. After five laundering cycles, the test parka (or hood) shall be examined for any sign of tape ends lifting, within 3/4 inch of sewn seam; tape ends lifting more than 1/8 inch when tape extends beyond 3/4 inch of the sewn seam, tape curling, bubbling, separation along tape edges or across the tape width, or tape outer layer more than 1/8 inch. The occurrence of any of these defects shall be considered a test failure. Tape ends lifting more than 1/8 beyond 3/4 inch of the sewn seam shall be tested for hydrostatic resistance in accordance with paragraph 4.4.1 and are acceptable with no leakage.

b. Color loss in print areas of universal camouflage pattern. After five laundering cycles, the color loss shall be determined by comparing the test parka (or hood) and the unlaundered sample. Any color change on any area of the parka (or hood) less than the required rating on the AATCC Gray Scale for evaluating change in color shall be considered a test failure. Any physical surface appearance characteristic noted in a taped area on the unlaundered parka (see 4.4.2) shall not be considered a test failure on the laundered parka if there is no adverse change in the characteristic. Puckering and creases within taped areas, not adversely affecting appearance shall not be considered a test failure.

c. Physical surface appearance changes of the laminated fabric. After five laundering cycles, the camouflage printed side of the test parka (or hood) shall be visually examined on all visible pattern parts for any evidence of physical surface appearance changes as compared to the unlaundered sample (see 3.6.3). Any physical surface appearance change shall be considered a test failure. Any physical surface appearance characteristic noted in a taped area on the unlaundered parka, (see 4.3.2) shall not be considered a test failure on the laundered parka (or hood) if there is no adverse change in the characteristic. Puckering and creases within taped areas, not adversely affecting appearance shall not be considered a test failure.

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## 5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel 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 the Inventory Control Point's packaging activities 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 parka and optional hood is intended for use by members of the Department of Defense as a component of the Extended Cold Weather Clothing System.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number and date of this specification.
- b. Issue of DODISS to be cited in the solicitation and, if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2).
- c. When first article inspection is required (see 3.1, 4.2, and 6.3).
- d. Packaging requirements (see 5.1).

6.3 First article. When a first article is required, it shall be inspected and approved under the appropriate provisions of FAR 52.209. The first article should be a preproduction sample. The contracting officer should specify the appropriate type of first article and the number of units to be furnished. The contracting officer should also include specific instructions in acquisition documents regarding arrangements for selection, inspection, and approval of the first article.

6.4 Standard samples. For access to standard samples, address the contracting activity issuing the invitation for bids or request for proposal.

6.5 Subject term (key word) listing.

ECWCS  
Garment  
Outerwear  
Wet/dry

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6.6 Changes from previous issue. Asterisks are not used in this revision to identify changes from the previous issue because they are too extensive to be annotated.

6.7 Or equal. Prior to the use of an "or equal" item, the supplier shall submit the item with supporting data to the contracting officer for subsequent approval or disapproval by the responsible military agency.

Custodians:  
Army - GL

Preparing Activity:  
DLA - CT

Review Activities:  
Army - MD

(Project No. 8415-0280)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <http://assist.daps.dla.mil>