



Jacket, Bomber & Fleece Unisex

Purchase Description



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PROTECTION • SERVICE • INTEGRITY

PURCHASE DESCRIPTION

JACKET, BOMBER & FLEECE, UNISEX

1. SCOPE

This purchase description describes the requirement for materials, design, construction and inspection of a water resistant, unisex fit bomber style jacket and removable Fleece liner to be used by Border Service Officers (BSO) within the Canada Border Services Agency (CBSA).

2. GENERAL REQUIREMENTS

- 2.1. **DESIGN** - The bomber jacket shall be a loose fitting, waist length jacket designed to be worn in conjunction with a removable fleece jacket. The shell is constructed from a 3-layer material with a WMVP (waterproof moisture vapour permeable) membrane. The jacket shall be waterproof with all seams permanently seam sealed unless otherwise stated. The removable fleece liner can be worn alone or as an insulator for the jacket shell. The liner shall be constructed from a double velour fleece with woven elbow and shoulder patches. The jacket and liner shall be designed in accordance to the attached scale of measurements and drawings which are integral parts of this specification.
- 2.2. All articles or materials covered by this purchase description shall be free from imperfections or blemishes such as may affect its appearance or serviceability.
- 2.3. In the event of any inconsistency in the contract documents, purchase description, drawings, or sealed samples. The aforementioned shall prevail in the following order:
 - Contract
 - Purchase Description
 - Drawings
 - Sealed Sample

3. SEALED SAMPLE

A sealed sample, identified by the purchase description number noted in the contract, will be supplied to the successful tenderer when available. This will constitute the standard in regards to any properties not identified within. Variation from the purchase description may appear in the sample in which case the purchase description shall govern unless otherwise identified on the sealed sample tag.

The sealed sample will be sent "prepaid" and is to be returned "prepaid".

The sealed sample is to be returned to CBSA in the same condition as received by the manufacturer. Lost or damaged sealed samples shall be replaced by an identical item or the CBSA shall be reimbursed for the cost of an acceptable replacement.

4. APPLICABLE SPECIFICATIONS

- 4.1. CAN/CGSB, 4.2, Textile Test Methods.
- 4.2. CAN/CGSB 4.131-93, Thread, Polyester, Polyester or Cotton Covered.
- 4.3. FED-STD-191A, Federal Standard, Textile Test Methods.
- 4.4. ASTM, American Society for Testing and Materials, Method D 3776-96, D2097-69 (1980), D 3886-99, D 413 and F 392-93.
- 4.5. AATCC-135, American Association of Textile Chemists and Colorists - Technical Manual.
- 4.6. BS 3424-26:1990, Method 29A, British Standards Institution.
- 4.7. CAN/CGSB-86.1-M91, Care Labelling of Textiles.
- 4.8. CBSA Purchase Description, CBSA/ASFC-2013-08-128, Shoulder Insignia.
- 4.9. CBSA Line Description, Reflective Tape with Printed Letters, CBSA/ASFC-2013-08-129.

5. DETAILED REQUIREMENTS

5.1. MATERIALS

5.1.1. Shell Material (Jacket) :

Meeting testing outlined in TABLE I

- 100% Nylon
- Colour: Dark blue
- DWR (Durable Water Repellant) finish

5.1.2. Water Moisture Vapour Permeable (WMVP) Membrane (Jacket) :

Meeting testing outlined in TABLE II (after lamination)

- Water resistant and breathable
- 3-layer laminated membrane
 - Outer later - shell material
 - Middle layer - membrane
 - Inside layer - black, 100% nylon warp tricot, 61 g/m² (max)
- All layers laminated together with a combined weight of no more than 205 g/m²

5.1.3. Seam Sealing Tape (Jacket) :

Meeting requirements outlined in Table II (after lamination)

- 3 layer seam sealing tape

Note: Any sealed seams showing any form of delamination or any non-bonded or peeling seams will be a cause for rejection.

5.1.4. Pocketing (Jacket) :

- Nylon or polyester warp knit mesh
- 62g/m² ± 6g/m²
- Colour: Black

5.1.5. Fleece (Removable Liner) :

- 100% Polyester knit fleece
- Double Velour with DWR finish
- 252 g/m²
- 152cm wide
- Colour: Dark blue to match Jacket Shell
- Polartec Classic 200 with Water Repellency made by Malden Mills

- 5.1.6. **Lining Material (Jacket & Removable Liner):**
- 100% Polyester
 - Colour Dark blue to match the Fleece and Jacket shell
 - World Class Polyester with a durable water repellant finish
- 5.1.7. **Edge Binding - Sleeve Cuffs (Removable Liner) :**
- 88% Polyamide 12% Spandex (Hafner Inc. style# HL 4016)
 - 240 +25 g/m²
 - 1cm ± 2mm wide finished
 - Colour: Dark blue or black
- 5.1.8. **Dome Fasteners (Jacket & Removable Liner) :**
- 24 Ligne
 - Standard brass dome fastener
 - 15mm matte black with a powder coated cap
- 5.1.9. **Elastic (Jacket & Removable Liner) :**
- Colour: Black
 - Preshrunk polyester
 - Side Seam Strap - double layer, 2.5cm wide woven elastic
 - Cuffs - 3-4cm wide knitted elastic
- 5.1.10. **Elastic Drawcord - Hem (Detachable Hood, Jacket & Removable Liner) :**
- Colour: Black
 - 3.3mm round elastic
- 5.1.11. **Hook and Loop Tape (Jacket & Removable Liner):**
- Colour: Black
 - Woven Nylon
 - Length-wise shear strength: (combined performance)
Initially (not less than): 8 P.S.I
After 1000 cycles: 4 P.S.I
 - Peel strength: (combined performance)
Initially (not less than): 1 P.I.W
After 1000 cycles: .5 P.I.W
- 5.1.12. **Thread (meeting CAN/CGSB 4.131-93) (Jacket & Liner):**
- Polyester core, polyester wrap
 - Class B, Type 1 Soft
 - R50 Tex
 - Colour: Matching shell and fleece material

5.1.13. Ribbon (Jacket & Removable Liner) :

- Colour: Black
- Commercially available gross grain ribbon
- Hem Cord Lock - 1cm - 1.5cm wide
- Coat Hanger - 1cm - 1.5cm wide, 6cm total finished length
- Microphone Strap - 2-2.5cm wide, 5cm total finished length
- Sleeve Tabs - 2-2.5cm wide 5-6cm total length (open position)

5.1.14. Eyelets (Jacket & Removable Liner):

- Colour: Black
- 5-6mm diameter hole
- Brass, aluminum or thread

5.1.15. Cordlocks (Jacket & Removable Liner):

- Colour: Black
- Commercially available
- Nylon composition
- Detachable Hood - oval, two-holed, spring loaded
- Hem - flat cord lock with loop, spring loaded

Note: Due Emme Thermoplastic Components available from Zagozewski Agencies, Winnipeg Manitoba, Part #BZA66 is known to meet.

5.1.16. Slide Fastener Ribbon Pulls (Jacket & Liner) :

- Colour: Black
- Commercially available ribbon pull

5.1.17. Twill Tape :

- Used on shoulder seams
- 6mm wide
- 100% polyester
- Colour: black

5.1.18. Reflective stripes :

- 2.5cm wide
- Sewn-on silver retroreflective tape

5.1.19. Slide Fasteners (Jacket): Colour Black for all

Location	Type/Description	Part #
Jacket Front	<ul style="list-style-type: none"> Open-end separator Injection molded DA Automatic slider 	Vison® YKK 5VS
Jacket Inside Front	<ul style="list-style-type: none"> Open-end separator Injection molded Reversible slider Right inside front - <u>retaining box & slider</u> Left inside front - <u>insert pin</u> 	Vison® YKK 5VS
Jacket Front Pockets	<ul style="list-style-type: none"> Closed end Coil type DF non-lock slider Long pull tabs 	YKK CNFC 51L 5/8
Jacket Upper Sleeve Pocket	<ul style="list-style-type: none"> Closed end Coil type DF non-lock slider Wide pull tabs 	YKK CNFC 51W 5/8
Jacket Side Seam	<ul style="list-style-type: none"> Water repellent Polyurethane coated back Closed end Double sliders - head-to-head 	Aqua Guard YKK CNT4MC 56 LHD-LHD-LHD-TOP-BTM #37330
Jacket & Liner Inside Pockets	<ul style="list-style-type: none"> Woven-in style Closed end, Coil type DA automatic slider 	YKK 45 CF, CFC 456½ BTM-2
Liner Front	<ul style="list-style-type: none"> Open-end separator Injection molded Reversible slider Right inside front - <u>insert pin</u> Left inside front - <u>retaining box & slider</u> 	Vison® YKK 5VS
Liner Front Pockets & Inside Pockets	<ul style="list-style-type: none"> Closed end separator Coil type 45CF CH 9/16 Round pull tabs Tape facing outside of garment 	YKK CFC 451 DFBWO E 9/16 *TBO*GAP-0*REV* or 45 CF CH 9/16*200MTS/RL* with 45 CF DFBWO E
Liner Side Seam	<ul style="list-style-type: none"> Open-end separator DFBW Sliders - round black enamel 2 sliders head-to-head; 1 opening from bottom Tape facing outside of garment 	YKK CNFMC 51/1/1 DFBW E 5/8 * BB - HH * GAP-0 * T-B-0 * REV * or 5 CNF CH 5/8 *200MTS/RL with 5 CN DFBW E

5.1.20. Slide Fastener - Length - Measurements in Inches

Height	Sizes	Jacket Front	Jacket Inside Front, and Liner Front	Jacket & Liner Side Seam	Jacket Sleeve Pocket	Jacket Chest Pocket	Jacket & Liner Lower Front Pocket	Jacket Inside Pocket
X Short 4'11"-5'2" 150 cm - 157.5cm	XX Small	17½"	13½"	13"	7"	5"	5½"	7"
	X Small	18½"	14½"	13"	7"	5"	5½"	7"
	Small	19"	15"	13"	7"	5½"	5½"	7"
	Medium	20"	15½"	14"	7"	5½"	5½"	7"
	Large	21"	16½"	14"	7"	6"	5½"	7"
	X Large	21½"	17½"	15"	7"	6"	5½"	7"
	2X Large	22½"	18"	15"	7"	6"	5½"	7"
	3X Large	23"	19"	15"	7"	6"	5½"	7"
	4X Large	24"	20"	16"	7"	6"	5½"	7"
	5X Large	25"	20½"	16"	7"	6"	5½"	7"
Short 5'3" - 5'6" 160cm - 167.5cm	XX Small	19½"	15½"	15"	7"	5"	6½"	7"
	X Small	20½"	16"	15"	7"	5"	6½"	7"
	Small	21"	17"	15"	7"	5½"	6½"	7"
	Medium	22"	18"	16"	7"	5½"	6½"	7"
	Large	23"	18½"	16"	7"	6"	6½"	7"
	X Large	23½"	19½"	17"	7"	6"	6½"	7"
	2X Large	24½"	20"	17"	7"	6"	6½"	7"
	3X Large	25"	21"	17"	7"	6"	6½"	7"
	4X Large	26"	22"	18"	7"	6"	6½"	7"
	5X Large	27"	22½"	18"	7"	6"	6½"	7"
Regular 5'7" - 5'10" 170cm - 177.5cm	XX Small	21½"	17½"	17"	8"	5"	8"	7"
	X Small	22½"	18"	17"	8"	5"	8"	7"
	Small	23"	19"	17"	8"	5½"	8"	7"
	Medium	24"	20"	18"	8"	5½"	8"	7"
	Large	25"	20½"	18"	8"	6"	8"	7"
	X Large	25½"	21½"	19"	8"	6"	8"	7"
	2X Large	26½"	22"	19"	8"	6"	8"	7"
	3X Large	27"	23"	19"	8"	6"	8"	7"
	4X Large	28"	24"	20"	8"	6"	8"	7"
	5X Large	29"	24½"	20"	8"	6"	8"	7"
Tall 5'11" - 6'2" 180.5cm - 188cm	XX Small	23½"	19½"	19"	8"	5"	8"	7"
	X Small	24½"	20"	19"	8"	5"	8"	7"
	Small	25"	21"	19"	8"	5½"	8"	7"
	Medium	26"	22"	20"	8"	5½"	8"	7"
	Large	27"	22½"	20"	8"	6"	8"	7"
	X Large	27½"	23½"	21"	8"	6"	8"	7"
	2X Large	28½"	24"	21"	8"	6"	8"	7"
	3X Large	29"	25"	21"	8"	6"	8"	7"
	4X Large	30"	25½"	22"	8"	6"	8"	7"
	5X Large	31"	26"	22"	8"	6"	8"	7"

X Tall 6'3" - 6'6" 190.5cm - 198cm	XX Small	25½"	21½"	21"	8"	5"	8"	7"
	X Small	26½"	22"	21"	8"	5"	8"	7"
	Small	27"	23"	21"	8"	5½"	8"	7"
	Medium	28"	24"	22"	8"	5½"	8"	7"
	Large	29"	24½"	22"	8"	6"	8"	7"
	X Large	29½"	25½"	23"	8"	6"	8"	7"
	2X Large	30½"	26"	23"	8"	6"	8"	7"
	3X Large	31"	27"	23"	8"	6"	8"	7"
	4X Large	32"	27½"	24"	8"	6"	8"	7"
	5X Large	32½"	28½"	24"	8"	6"	8"	7"
XX Tall 6'7" - 6'10" 200.5cm - 208cm	XX Small	27½"	23½"	23"	8"	5"	8"	7"
	X Small	28½"	24"	23"	8"	5"	8"	7"
	Small	29"	25"	23"	8"	5½"	8"	7"
	Medium	30"	25½"	24"	8"	5½"	8"	7"
	Large	31"	26½"	24"	8"	6"	8"	7"
	X Large	31½"	27"	25"	8"	6"	8"	7"
	2X Large	32"	28"	25"	8"	6"	8"	7"
	3X Large	33"	29"	25"	8"	6"	8"	7"
	4X Large	34"	29½"	26"	8"	6"	8"	7"
	5X Large	34½"	30½"	26"	8"	6"	8"	7"

5.1.21. **Reflective Tape with Printed Letters** : CBSA Line Description CBSA/ASFC-2013-08-129, Government Supplied Materials.

5.1.22. **Shoulder Insignia** : CBSA Purchase Description, CBSA/ASFC-2013-08-128, Shoulder Insignia, Government Supplied Materials.

6. GENERAL CONSTRUCTION:

6.1.1. Stitching :

- **Jacket :**
 - Lockstitch
 - No less than three or more than five stitches per centimetre
 - All seams and points where stitching penetrates the shell materials shall be permanently sealed on the inside with the appropriate seam-sealing tape as per para.5.1.3.

Note: Care shall be taken to ensure that the tape cross-over points where seams join are doubly covered and bonded securely so as to ensure water-resistance. Any sealed seams showing any form of delamination or any non-bonded or peeling seams shall be a cause for rejection.
- **Removable Liner :**
 - Lockstitch Type 301 or lockchain stitch type 401
 - No less than three or more than four stitches per centimetre
 - The beginning and ending of all stitching shall be securely backstitched
 - Armhole and underarm seams - stitched and serged

7. CONSTRUCTION - JACKET:

7.1. Body (Jacket) :

7.1.1. Back & Back Yoke (Jacket) :

- Made from shell material
- "beaver tail" style back extension
- Back yoke faced with lining (para.5.1.6)
- Large dropdown identification patch complete with reflective patch (para.5.1.21)
- Construction equivalent to the sealed sample and drawings

7.1.2. Back Hem Channel (Jacket) :

- Hem facing made from shell material, sewn face side out to create a channel for the elastic drawcord
- Eyelet (para.5.1.14) applied 4cm from left sideseam
- Cordlock (para.5.1.15) with gross grain ribbon (para.5.1.13) applied through the loop ribbon ends sewn into back channel seam above eyelet
- Elastic drawcord (para.5.1.10) attached at the right side seam, threaded through the channel outside the eyelet into the cordlock and knotted (end must be finished to prevent fraying)
- Construction equivalent to the sealed sample and drawings

7.1.3. Front (Jacket) :

- Made from shell material
- Two storm flaps, made from shell material
- Center front slide fastener (para.5.1.19); lengths (para.5.1.20)
- Four front pockets, 2 lower and 2 upper chest with slide fasteners
- Small dropdown identification patch complete with reflective patch (para.5.1.21) under right upper pocket
- Name tag holder tir8.5cm x 2.5 cm piece of loop tape (para.5.1.11) sewn above right upper chest pocket
- 2.5cm x 5cm ribbon (para.5.1.13) for the microphone loop sewn to right and left upper fronts and seamsealed
- Construction equivalent to the sealed sample and drawings

7.1.4. Upper Chest Pockets (Jacket) :

- Made from shell material (outer parts)
- Right and left chest pockets with slide fasteners (para.5.1.19) slide fastener lengths (para.5.1.20)
- Slider shall be in a position closest to the center front when closed
- The upper pocket flap with dome fastener (para.5.1.8) created from the upper yoke
- Lined with mesh pocketing material (para.5.1.4)
- 2 additional inside pockets made from mesh pocketing (para.5.1.4) with slide fasteners (para.5.1.19) slide fastener lengths (para.5.1.20)
- Identification and Cleaning instructions label sewn to the inside left pocket bag
- Construction equivalent to the sealed sample and drawings

7.1.5. Lower Pockets (Jacket) :

- Made from shell material (outer parts)
- 2 lower front pockets with slash openings and flaps
- Compete with slide fasteners (para.5.1.19) slide fastener lengths (para.5.1.20) applied so that the slider is in an upright position when the pocket is closed
- Lined with mesh pocketing material (para.5.1.4)
- Construction equivalent to the sealed sample and drawings

7.1.6. Front Storm Flaps (Jacket) :

- Two front storm flaps; made from shell material
- Two injection molded slide fasteners (para.5.1.19) for closure slide fastener lengths (para.5.1.20) one for the front closure and one for the attachment of the removable liner
- Center Front slide fastener (left front) - retaining box and slider
- Center Front slide fastener (right front) - insert pin
- Right Inside Facing - ½ (half) slide fastener, retaining box and slider applied 2cm below collar seam for all sizes
- Left Inside Facing - ½ (half) slide fastener, insert pin, sewn 2cm below collar seam for all sizes
- Ribbon pulls (para.5.1.16) on all slide fasteners tabs
- Left storm flap 5 dome fasteners (para.5.1.8) female portion
- Right storm flap 5 dome fasteners (para.5.1.8) male portion
- External pen pocket - sewn between right slide fastener and storm flap
- Construction equivalent to the sealed sample and drawings

7.1.7. Side Seams (Jacket) :

- 2 water-resistant slide fasteners (para.5.1.19) slide fastener lengths (para.5.1.20) on right and left side seams, underarm to hem
- 3 sliders, two closest to the underarm should be in a head to head position. Third slider opening from the bottom upwards
- Ribbon pulls (para.5.1.16) on all slide fasteners tabs
- Elastic (para. 5.1.9) closure strap 8cm ± .5cm when finished sewn to lower back side seam flipping towards front with female dome fastener (para.5.1.8). Corresponding male dome fastener applied to front of jacket hem
- Construction equivalent to the sealed sample and drawings

7.1.8. Collar (Jacket) :

- Made from shell material
- Continuous piece of reflective stripe (para.5.1.18) sewn on the backside of the collar
- 3 dome fasteners (para.5.1.8) - male portion applied for the attachment of the detachable hood
- Construction equivalent to the sealed sample and drawings

7.1.9. Detachable Hood (Jacket) :

- Made from shell material
- All sewn seams to be seam-sealed with tape (para.5.1.3)
- Elastic drawcord (para.5.1.10) and cordlock (para.5.1.15) for adjustment
- Secured to collar with 3 dome fasteners (para.5.1.8), female portion
- Label identifying hood size sewn to inside hood back
- Construction equivalent to the sealed sample and drawings

7.1.10. Sleeve & Sleeve Cuffs (Jacket) :

- Made from shell material
- 3 piece sleeve with upper sleeve pocket
- All sleeve seams except underarm seam shall be topstitched at 2mm
- Sleeve tabs - double layer of gross grain ribbon (para.5.1.13) with dome fastener (para.5.1.8) for liner attachment
- 4cm wide cuff with 12cm x 2.5cm piece of loop tape (para.5.1.11) to attach the cuff adjustment strap
- 9cm cuff adjustment strap with 4.5cm x 2.5cm hook tape (para.5.1.11)
- Cuff partially elasticized with elastic (para. 5.1.9) top stitching to anchor elastic
- Construction equivalent to the sealed sample and drawings

- 7.1.11. **Shoulder Straps (Jacket) :**
- Made from two layers of shell material
 - Sewn into sleeve head secured to jacket with dome fastener (para.5.1.8)
 - Construction equivalent to the sealed sample and drawings
- 7.1.12. **Upper Sleeve Pocket (Jacket) :**
- Made from shell material with slide fastener (para.5.1.19) lengths (para.5.1.20)
 - Slider facing shoulder when in closed position
 - Ribbon pulls (para.5.1.16) on all slide fasteners tabs
 - Applied to left and right sleeves
 - Top stitched to sleeve and seam sealed to ensure waterproofness
 - Construction equivalent to the sealed sample and drawings
- 7.1.13. **Dropdown Identification Patches (Jacket) :**
- Single layer of shell material folded in half with raw edges sewn and turned inside
 - Front dropdown finished length to fit reflective tape (para. 5.1.21)
 - Back dropdown finished length to fit reflective tape (para. 5.1.21)
 - Loop tape (para.5.1.11) applied to the back side of the patch
 - Construction equivalent to the sealed sample and drawings
- 7.1.14. **Shoulder Insignia (Jacket) :**
- Shoulder insignia (para.5.1.22) sewn through layer of upper sleeve pocket only (NOT THROUGH SLEEVE)
 - Insignia to be centered on sleeve head 2.5cm below sleeve-head seam
 - Do not seam seal on the inside of shoulder insignia
 - Construction equivalent to the sealed sample and drawings
- 7.1.15. **Coat Hanger (Jacket) :**
- Made from ribbon (para.5.1.13)
 - 6cm long, centered at back neckline
 - Construction equivalent to the sealed sample and drawings
- 7.1.16. **Instruction Sheet (Jacket) :** Each completed jacket shall have an instruction sheet folded and inserted into the inside chest pocket bag, with the information included in Appendix 'B' English and French, forming a part of this specification.

8. CONSTRUCTION - REMOVABLE LINER :

8.1. Body (Removable Liner) :

8.1.1. Back & Back Yoke (Removable Liner) :

- Made from fleece material (para.5.1.5)
- Back yoke made with lining material (para. 5.1.6) applied to upper back and topstitched
- Large reflective tape identification patch (para.5.1.21) sewn to back
- Construction equivalent to the sealed sample and drawings

8.1.2. Back Hem Channel (Removable Liner) :

- Hem facing made from lining material (para. 5.1.6), sewn face side out to create a channel for the elastic drawcord
- Eyelet (para.5.1.14) applied 4cm from left sideseam
- Cordlock (para.5.1.15) with gross grain ribbon (para.5.1.13) applied through the loop ribbon ends sewn into back channel seam above eyelet
- Elastic drawcord (para.5.1.10) attached at the right side seam, threaded through the channel outside the eyelet into the cordlock and knotted (end must be finished to prevent fraying)
- Construction equivalent to the sealed sample and drawings

8.1.3. Front (Removable Liner) :

- Made from fleece material (para.5.1.5)
- Front yokes made with lining material (para. 5.1.6) applied to upper front and topstitched
- Center front slide fastener (para.5.1.19); lengths (para.5.1.20) reversible slider and retaining box sewn to the left front; insert pin portion of slide fastener sewn to the right front
- Two front pockets with slide fasteners (para.5.1.19); lengths (para.5.1.20) with ribbon pulls (para.5.1.16)
- Two inside pockets with slide fasteners (para.5.1.19); lengths (para.5.1.20)
- Outer right front yoke, 8.5cm x 2.5cm piece of loop tape (para.5.1.11) for Name tag holder
- Small reflective identification patch (para.5.1.21) sewn to right front yoke above name tag holder
- 2.5cm x 5cm ribbon (para.5.1.13) for the microphone loop sewn to right and left upper fronts
- Construction equivalent to the sealed sample and drawings

8.1.4. Side Seams (Removable Liner) :

- 2 slide fasteners (para.5.1.19) slide fastener lengths (para.5.1.20) on right and left side seams, underarm to hem
- 3 sliders, two closest to the underarm should be in a head to head position. Third slider opening from the bottom upwards
- Ribbon pulls (para.5.1.16) on all slide fasteners tabs
- Elastic (para. 5.1.9) closure strap 8cm ± .5cm when finished sewn to lower back side seam flipping towards front with female dome fastener (para.5.1.8). Corresponding male dome fastener applied to front of liner hem
- Construction equivalent to the sealed sample and drawings

8.1.5. Collar (Removable Liner) :

- Made from fleece material (para.5.1.5)
- Coat hanger Loop, 6cm long lining material (para.5.1.6) or twill tape (para.5.1.17) sewn to the inside of the collar at the neck seam
- Construction equivalent to the sealed sample and drawings

8.1.6. Sleeve & Sleeve Hem (Removable Liner):

- Made from fleece material (para.5.1.5)
- Equipped with shoulder Insignia (para.5.1.22) sewn 1.5cm below sleeve head
- Bottom edges of sleeves bound with edge binding (para.5.1.7)
- Loop of lining material (para.5.1.6) or twill tape (para.5.1.17) 3cm long, sewn to the inside of the sleeve at underarm used for attachment to jacket shell
- Construction equivalent to the sealed sample and drawings

8.1.7. Shoulder Straps (Jacket) :

- Made from two layers of interfaced lining material (para.5.1.6)
- Sewn into sleeve head secured to jacket with dome fastener (para.5.1.8)
- Construction equivalent to the sealed sample and drawings

9. LABELING (Jacket & Removable Liner) :

- 9.1. All labeling must be in a bilingual format. The text on all labels shall be of permanent inks of a contrasting colour which shall remain visible and withstand a minimum of 40 washes.

9.2. Identification Labels (2 labels sewn separately)

- 1 blank name label
- 1 containing the following:
 - a. Size Designation (as referenced in the contract documents)
 - b. Fibre Content
 - c. Manufacturers' Name & Contract #
 - d. Material Master Number (reference contract documents)

9.3. Cleaning Instructions (Jacket)

- a. Machine wash - warm (40°C)
- b. Do not bleach
- c. Tumble dry - low
- d. Do not use Fabric Softeners or Dryer Sheets

9.4. Cleaning Instructions (Removable Liner)

- e. Machine wash - cold (30°C)
- f. Do not bleach
- g. Lay flat to dry
- h. Do not use Fabric Softeners or Dryer Sheets

10. TECHNICAL INSPECTION

The contractor shall be responsible for the performance of all inspections and tests necessary to demonstrate that the material and services being supplied conform to the requirements of this purchase description. This may be accomplished by performing the test specified in this purchase description or by demonstrating to the satisfaction of the CBSA, Technical Authority that conformity to the purchase description and manufacturing process is assured. The contractor may use any independent, ISO 9001 certified and ISO 17025 "Textile" certified testing facilities acceptable to the CBSA Technical Authority. Certification documents will be required.

The CBSA Technical Authority reserves the right to perform any inspection considered necessary to ensure the material and services conform to the specified requirements. For the purpose of inspection, a portion of each delivery not exceeding two percent or two out of any number delivered fewer than 100 may be put to tests that could destroy the articles. If found to be inferior or not in accordance with this specification, all articles so destroyed shall be replaced by

others of proper quality at the expense of the contractor. The entire delivery may also be rejected if it is found that articles previously rejected, due to non-repairable defects, are redelivered for inspection.

The contractor will be promptly notified when any articles are not accepted and such articles will be returned at the contractor's risk and expense.

11. DELIVERY, PACKING & MARKING OF CONTAINERS

It is the responsibility of the manufacturer to ensure that goods are packaged in a suitable manner to be delivered in an undamaged condition. Any goods received in a damaged condition will be returned to the manufacturer for replacement at his full cost.

Packing and marking of shipping containers shall be as specified in the invitation to tender.

A packing slip shall be enclosed showing the contents of each shipment.

The contractor shall also identify clearly on the outside of each package (box) the following items

- Size
- Material Master Number
- Quantity of each size contained in the box
- Contract Number

12. APPENDICES

TABLE I - Shell Material Properties

TABLE II - Properties of Shell Material after Lamination

APPENDIX A - TEST PROCEDURES - WMVP MEMBRANE

APPENDIX B - Care Instructions

SCALES OF MEASUREMENTS

APPENDIX C - Drawings

TABLE I
Shell Material Properties

	REQUIREMENT	TESTED BY CAN/CGSB-4.2
Colour	Dark Blue to match swatch sealed sample	
Fiber Content	100% nylon, Type 6.6	
Weave	Plain	
Mass	90 g/m ² (min.)	Method 5.1
Width	150 cm (min.)	Method 4.1
Yarns per 10 cm	Warp 440 (min.) Weft 285 (min.)	Method 6 Method 6
Breaking Strength	Warp 550 Newton (min.) Weft 550 Newton (min.)	Method 9.2 Grab Method 9.2 Grab
Tearing Strength	Warp 20 Newton (min.) Weft 20 Newton (min.)	Method 12.1
Colour Fastness		
To Light	Equal to AATCC Standard L5 or better	Method 18.3-97
To Crocking, Dry and Wet	Grey scale 4 or better	Method 22
To Washing	Grey scale 4 or better	Method 19.1 Test 2A (50°C - 45 min.)

Laminated Shell Material (3 layer WMVP membrane)		
Finish	REQUIREMENT	TESTED BY CAN/CGSB-4.2
DWR (durable water repellent)	- 100 spray rating. Initial - 80 spray rating. After 5 Permanent Press washing cycles (Washing Temp. 49°C ± 3°C) - Tumble Dry - Permanent Press for 30 minutes as per (AATCC Method 135-2000)	Method 26.2

TABLE II
PROPERTIES OF SHELL MATERIAL AFTER LAMINATION
 (With WMVP membrane & tricot backing)

Test	Test Method	Duration	Min. Value
Resistance of Materials to Water Vapour Diffusion	CAN CGSB 4.2 Method 49-M99, Option 1 *See page 21, test procedure #1*	- Initial - After 5 launderings - After ageing (70°C & 95% RH for 168 hrs)	13 mm max.
Hydrostatic Resistance	CAN CGSB 4.2 Method 26.5 *See page 21, test procedure #2*	- Initial - After 5 launderings	1240.2 kPa
Low Pressure Water Permeability	CAN CGSB 4.2 Method 26.3 * See page 21, test procedure #3*	- Initial	No Leakage
	ASTM D 2097-69 (1980) * See page 21, test procedure #4*	- After Cold Flex Warp Fill	No Leakage
	AATCC 135-1992/Test procedure 6 * See page 22, test procedure #5*	- After 100 hours of Continuous Wet Flex (Agitation)	No Leakage
High Pressure Water Permeability	BS 3424: Part 26: 1990 Method 29A * See page 22, test procedure #6*	- Initial	No Leakage
	BS 3424: Part 26: 1990 Method 29A * See page 22, test procedure #7*	- After Unleaded Gasoline	No Leakage
	BS 3424: Part 26: 1990 Method 29A * See page 22, test procedure #7*	- After DEET Insect Repellent	No Leakage
	BS 3424: Part 26: 1990 Method 29A * See page 22 & 23, test procedure #8*	- After Synthetic Perspiration	No Leakage
Abrasion Resistance	ASTM D 3886-99 Procedure: use No. 0 Emery Polishing Paper * See page 23, test procedure #9*	- 2500 Cycles	No failure

SEAMS			
Seam Tape Durability	CAN CGSB 4.2 Method 26.3 * See page 24, test procedure #10*	- Initial	No Leakage
	CAN CGSB 4.2 Method 26.3 ANSI/AATCC 135 *See page 24, test procedure #11*	- After 10 laundry cycles	No Leakage
	CAN CGSB 4.2 Method 26.3 *See page 24, test procedure #12*	- After 10 dry-clean cycles	No Leakage
Delamination	Visual	- During and after the above procedures in this table	No Delamination
Peel Strength N/23 mm	ASTM D 413		8 N/23mm minimum

NOTE: It will be the responsibility of the manufacturer to provide test data from a single certified independent testing facility meeting the approval of the CBSA in order to show compliance of their products to the requirements listed in Table II of this specification.

Testing for each Table shall:

- Be performed in its entirety on the same garment and/or piece of material after laminating as indicated.
- Adhere to all specified test methods and conditions.
- Contain test performed dates not predating the latest specification or amendment date with the exception of multiple contracts which may include different garments using the same fabric(s), at the discretion of the CBSA.
- Any amendments affecting Table II and Appendix 'A' requires new test data containing the same received dates and not predating the newest amendment date specific to these tables.
- If amendments to the specification do not affect Table II and/or Appendix 'A' the last specification date and/or amendment date would be acceptable provided they meet the above requirements.

The fabric should not show any visible signs of delamination*** or loss of film during the garment's useful life, (approximately 5 years). The fabric shall be capable of having its sewn seams, seam-sealed with an appropriate tape, in a waterproof, durable fashion. The tape on the sealed seams shall not peel off and/or wear during the projected life span of the garment. Not meeting these requirements will be a probable cause for rejection. ***Delamination is defined as any irreparable separation of the bonded layers of the Laminated Shell Material(s).

APPENDIX "A"

TEST PROCEDURES - WMVP MEMBRANE

1. The knit side of the laminated cloth shall face the water. The tests shall be completed as outlined in CAN/CGSB 4.2 Method 49-99, Option #1. The samples shall be conditioned at $21^{\circ}\text{C} \pm 1^{\circ}\text{C}$ ($69.8^{\circ}\text{F} \pm 2^{\circ}\text{F}$) and relative humidity shall be $65 \pm 2\%$. The test specimen shall be placed approximately equidistant between the dry airflow and the water cell. Four specimens shall be tested per condition. The tests shall be completed initially, after 5 launderings according to ISO 6330-1984 (E) Method 2B-E and after ageing according to ASTM F392-93.
2. The water pressure shall be applied to the knit side of the laminated cloth. A taffeta fabric restraint conforming to MIL-C-21852F-TYPE III-CLASS1 PART#WJAAGNA should be placed on top of the sample against the face side of the laminated cloth.
3. The knit side of the laminated cloth shall contact the water. The hydrostatic head shall be 13.78 kPa (2.0 psi) and shall be held for 3 minutes. Leakage is defined as the appearance of water any place within the 11.43 cm (4.5") diameter test area. The test may be performed using any device which tests the same specimen area at the equivalent pressure. In case of dispute, the apparatus described in FED-STD-191A Method 5516 shall be used.
4. Ten warp and ten fill specimens 8.26 cm x 11.43 cm (3.25" x 4.5") shall be selected from each sample unit. The 8.26 cm (3.25") dimension is the test direction. Specimens shall be flexed for 20,000 cycles as specified in ASTM-D 2907 and as follows: Mark the knit side of each specimen with two lines 4.32 cm (1.7") apart and perpendicular to the test direction. The area between the lines is the test area and shall be centered on the knit side of the specimen. Wrap the specimens around fully extended pistons with the knit side out. The test area lines shall meet evenly and shall line up with the edges of the pistons. Clamp in place making sure the clamps are not in the test area. Check specimen for smoothness and tautness (wrinkles cause improper flexing). The distance between the pistons shall be 4.32 cm (1.7") in the open position and 1.27 cm (0.5") in the closed position as measured from the bottom of the upper piston and top of the lower piston. Place the test apparatus with mounted specimens in a test chamber at $-31.67^{\circ}\text{C} \pm 1^{\circ}\text{C}$ ($-25^{\circ}\text{F} \pm 2^{\circ}\text{F}$) for a one hour conditioning period and then flex in the test chamber at $-31.67^{\circ}\text{C} \pm 1^{\circ}\text{C}$ ($-25^{\circ}\text{F} \pm 2^{\circ}\text{F}$). After flexing, test for water permeability as in test procedure #3 except that the orifice of the tester shall be modified to accommodate the smaller specimen size.

5. One 35.56 cm (14") by full width specimen shall be selected from each sample unit. The specimens shall be agitated using the 'normal' cycle in an automatic home laundering as specified in AATCC 135-1992, except that the machine shall be capable of continuous agitation. The water level shall be maintained at $72.74\text{ l} \pm 4.55\text{ l}$ (16 + 1 gallons), and the water temperature shall be $32^{\circ}\text{C} \pm 9^{\circ}\text{C}$. The load shall be $.91\text{ kg} \pm .09\text{ kg}$ (2 lbs + 0.2 lbs). The specimen shall be removed from the washer after 100 hours of continuous agitation. The specimen shall be air dried and then tested for water permeability at three sites across the width of the specimen according to test procedure #3.
6. The water pressure shall be applied to the knit side of the laminated cloth from below the test specimen. The maximum pressure of 172.25 kPa (25 psi) shall be attained in 2 minutes \pm 20 seconds and shall be applied for 5 minutes. Leakage is defined as the appearance of water any place within the test area.
7. Place a 15.24 cm x 15.24 cm (6" x 6") piece of blotting paper on a flat surface and cover with a 25.4 cm x 25.4 cm (10" x 10") test specimen with the face side up. Weigh out $2.0\text{ gm} \pm 0.1\text{ gm}$ (.07 oz \pm .004 oz) of solid contaminant or pipette 2.0 ml (.07 f.oz) of a liquid contaminant. Place the contaminant on the center of the specimen and cover with a 15.24 cm x 15.24 cm (6" x 6") piece of glassine paper. Place a 1.81 kg (4 lbs) weight on the glassine paper directly over the contaminated area. Allow the weight to remain on the specimen for 30 minutes. Remove the weight and glassine paper and allow the specimen to sit undisturbed for an additional 30 minutes. Wipe off any excess contaminant using a fresh piece of blotting paper and test for water permeability as per procedure #6 except that the water pressure shall be applied for 3 minutes.
8. One specimen per sample unit shall be tested for water permeability after exposure to synthetic perspiration. The specimen shall be not less than 15.24 cm (6") in diameter. The test cups shall accommodate this size specimen and shall have a depth of at least 2.5 cm (1"). The cups shall be sealed to prevent leakage. The solution shall contact the knit side of the laminate.

Synthetic perspiration shall be prepared by stirring the following ingredients into 500 ml of distilled water:

- 3 grams sodium chloride
- 1 gram predigested protein
- 1 gram n-propyl propionate
- 0.5 gram lecithin (phosphatidyl choline)

The predigested protein shall contain the following amino acids:

Ingredient	Milligrams (mg)
Lysine	82.5
Histidine	27.5
Arginine	40.0
Aspartic acid	72.5
Threonine	42.5
Serine	50.0
Glutamic acid	197.5
Proline	92.5
Glycine	22.5
Alanine	28.7
Cystine	4.7
Valine	66.2
Methionine	30.0
Isoleucine	53.8
Leucine	87.5
Tyrosine	51.3
Phenylalanine	48.8
Tryptophane	18.8

The solution shall be stirred continuously and heated to 50 ± 1 °C, then covered and cooled to approximately 35 °C.

The solution shall be stirred such that any solid particles are suspended in solution and poured into the test cup. The cup shall be inverted to allow the synthetic perspiration to evaporate through the specimen.

After the solution has evaporated through the specimen, such that no more than .32 cm (0.125") of solution remains, the specimen shall be removed from the cup, rinsed in warm water, dried and tested for water permeability as specified in test procedure #6 except that the water pressure shall be applied for 3 minutes.

9. Method ASTM D 3886-99 Procedure: Use No. 0 Emery Polishing Paper. Side abraded shall be the knit side, with a multidirectional abrasion motion. Change abradant after each 300 cycles or specimen failure. The air pressure under the diaphragm should be 4 psi, and the load on the abradant plate should be 1 lb. Failure is determined by breaking of the electrical contact.

10. A minimum of 3 straight seams and 2 cross-over seams shall be tested prior to laundry cycle testing and remain waterproof (no leakage) when tested at 13.78 kPa (2 psi) for 3 minutes with the seam tape side facing up, away from the water challenge. Leakage is defined as the appearance of water any place within the 11.43 cm (4.5") diameter test area since the seam tape process can damage the fabric adjacent to the tape. Test for water permeability as in procedure #3 except the face fabric shall face the water challenge.
11. A minimum of 3 straight seams and 2 cross-over seams shall be tested after ten (10) home laundry cycles and remain waterproof (no leakage) when tested at 13.78 kPa (2 psi) for 3 minutes with the seam tape side facing up, away from the water challenge. Leakage is defined as the appearance of water any place within the 11.43 cm (4.5") diameter test area since the seam tape process can damage the fabric adjacent to the tape. Test for water permeability as in procedure #3 except the face fabric shall face the water challenge. Laundry testing should be performed in accordance with procedure specified in Machine Cycle 3, Wash Temperature 111, and Drying Procedure Aiii of ANSI/AATCC 135.
12. A minimum of 3 straight seams and 2 cross-over seams shall be tested after ten(10) dry clean cycles and remain waterproof (no leakage) when tested a 13.78 kPa (2 psi) for 3 minutes with the seam tape side facing up, away from the water challenge. Leakage is defined as the appearance of water any place within the 11.43 cm (4.5") diameter test area since the seam tape process can damage the fabric adjacent to the tape. Test for water permeability as in procedure #3 except the face fabric shall face the water challenge.

APPENDIX "B"

CARE INSTRUCTIONS – BOMBER JACKET

This garment is designed to be both waterproof and water repellent. The best way to maintain its performance is to **keep it clean by washing it regularly.**

- DO NOT COMMERCIAL LAUNDRER
- DO NOT USE FABRIC SOFTENER OR DRYER SHEETS
- DO NOT USE BLEACH
- DO NOT USE LIQUID DETERGENTS (ie. Woolite, Zero, Liquid Tide, Liquid Cheer)
- DO NOT WASH FUR

Machine Wash:

Close all zippers, fasteners and Velcro before washing.

Wash in warm water separately, without detergent.

If heavily soiled, a small amount of powdered detergent or specialty wash products for waterproof garments may be used. **Do not use fabric softener.**

At the end of the final rinse cycle, re-adjust the garment in the washer, and put it through an additional rinse cycle. This will assure complete rinsing of detergent that may have been trapped during washing, therefore preserving water repellency.

Drying:

Close all zippers, fasteners and velcro before drying.

Tumble dry separately on a warm setting for 50 minutes to reactivate the durable water repellency (DWR.)

If necessary, touch up with steam iron at low temperature.

Dry Cleaning:

If dry cleaned, request clear distilled solvent rinse and DWR spray repellent.

Long Term Care:

After extended use (when the water no longer beads up and rolls off) the use of a water based, solvent free, nonflammable DWR product (ie. Revivex™ or Nikwax Tx-Direct™) will restore the water repellency.

INSTRUCTIONS D'ENTRETIEN

Ce vêtement est conçu pour être imperméable et hydrofuge. La meilleure façon de l'entretenir est de le **maintenir propre à l'aide de lavages réguliers.**

- NE PAS LAVER DANS UNE BUANDERIE COMMERCIALE
- NE PAS UTILISER D'AGENT ADOUCISSANT OU D'ASSOUPLISSANT EN FEUILLES
- NE PAS UTILISER D'AGENT DE BLANCHIMENT
- NE PAS UTILISER DE DÉTERGENT LIQUIDE (c.-à-d. Woolite, Zero, Tide Liquide, Cheer Liquide)
- NE PAS LAVER LA FOURRURE

Lavage à la machine :

Fermer toutes les fermetures, attaches et velcro avant de laver.

Laver séparément à l'eau tiède, **sans** détergent.

Si le vêtement est très sale, une petite quantité de détergent en poudre ou un produit spécifique conçu pour l'entretien du vêtement imperméable et hydrofuge peut être utilisée. **Ne pas utiliser d'agent adoucissant.**

À la fin du dernier cycle de rinçage, réajuster le vêtement dans la machine et entreprendre un autre cycle de rinçage, afin d'éliminer complètement le détergent qui peut être resté durant le lavage et de préserver les propriétés hydrofuges.

Séchage :

Fermer toutes les fermetures, attaches et velcro avant de faire sécher.

Sécher par culbutage, à basse température pendant 50 minutes, afin de réactiver les propriétés hydrofuges.

Au besoin, repasser légèrement à basse température.

Nettoyage à sec :

Si nettoyé à sec, demander un rinçage avec un solvant distillé clair et un traitement à l'aide d'un produit hydrofuge en aérosol.

Soin à long terme :

Après un usage prolongé (lorsque l'eau ne perle plus) utiliser un produit commercial à base d'eau, sans solvant et ininflammable (c.-à-d. Revivex™ ou Nikwax Tx-Direct™) pour restaurer les propriétés hydrofuges.

SIZE DESIGNATION		BODY MEASUREMENTS		JACKET, BOMBER, UNISEX											
GARMENT MEASUREMENTS (Dimensions shown in centimetres)															
Height	Size	Chest		Chest Width (½ only)	Bottom Width (½ only)	Front Length (top of collar to hem)	Side Seam Length (underarm to hem)	Full Shoulder Width (Shoulder point to shoulder point at armhole)	Sleeve Length		Cuff Width (Relaxed) (½ only)	Elbow Width (½ only)	Back Length (Bottom of collar at back to hem)	Back Width	Collar Length (zipper to zipper)
		Inches	cm						Overarm (Shoulder seam to cuff)	Underarm (Underarm seam to cuff)					
X Short 4'11" - 5'2" 150cm - 157.5cm	XXS	31" - 33"	79 - 84	54.5	48.25	48	20	14	51	50	12	22.25	56	39.5	47
	XS	34" - 36"	86 - 91	58.25	52	50	21	15	53	51	12.5	23.5	58	42.5	49
	S	37" - 39"	94 - 99	62	55.75	52	22	16	55	52	13	24.75	60	45.5	51
	M	40" - 42"	102 - 107	65.75	59.5	54	23	17	57	53	13.5	26	62	48.5	53
	L	43" - 45"	109 - 114	69.5	63.25	56	24	18	59	54	14	27.25	64	51.5	55
	XL	46" - 48"	117 - 122	73.25	67	58	25	19	61	55	14.5	28.5	66	54.5	57
	2XL	49" - 51"	124 - 129	77	70.75	60	26	20	63	56	15	29.75	68	57.5	59
	3XL	52" - 54"	132 - 137	80.75	74.5	62	27	21	65	57	15.5	31	70	60.5	61
	4XL	55" - 57"	140 - 145	84.5	78.25	64	28	22	67	58	16	32.25	72	63.5	63
	5XL	58" - 60"	147 - 152	88.25	82	66	29	23	69	59	16.5	33.5	74	66.5	65
Short 5'3" - 5'6" 160cm - 167.5cm	XXS	31" - 33"	79 - 84	54.5	48.25	53	25	14	55	54	12	22.25	61	39.5	47
	XS	34" - 36"	86 - 91	58.25	52	55	26	15	57	55	12.5	23.5	63	42.5	49
	S	37" - 39"	94 - 99	62	55.75	57	27	16	59	56	13	24.75	65	45.5	51
	M	40" - 42"	102 - 107	65.75	59.5	59	28	17	61	57	13.5	26	67	48.5	53
	L	43" - 45"	109 - 114	69.5	63.25	61	29	18	63	58	14	27.25	69	51.5	55
	XL	46" - 48"	117 - 122	73.25	67	63	30	19	65	59	14.5	28.5	71	54.5	57
	2XL	49" - 51"	124 - 129	77	70.75	65	31	20	67	60	15	29.75	73	57.5	59
	3XL	52" - 54"	132 - 137	80.75	74.5	67	32	21	69	61	15.5	31	75	60.5	61
	4XL	55" - 57"	140 - 145	84.5	78.25	69	33	22	71	62	16	32.25	77	63.5	63
	5XL	58" - 60"	147 - 152	88.25	82	71	34	23	73	63	16.5	33.5	79	66.5	65
MEASUREMENT LOCATION				A	B	C	D	E	F	G	H	J	K	L	M
TOLERANCES±				2 cm	2 cm	2 cm	1.5 cm	1 cm	1.5 cm	1.5 cm	1 cm	1.5 cm	2 cm	1 cm	1 cm

SIZE DESIGNATION		BODY MEASUREMENTS		JACKET, BOMBER, UNISEX											
GARMENT MEASUREMENTS (Dimensions shown in centimetres)															
Height	Size	Chest		Chest Width (½ only)	Bottom Width (½ only)	Front Length (top of collar to hem)	Side Seam Length (underarm to hem)	Full Shoulder Width (Shoulder point to shoulder point at armhole)	Sleeve Length		Cuff Width (Relaxed) (½ only)	Elbow Width (½ only)	Back Length (Bottom of collar at back to hem)	Back Width	Collar Length (zipper to zipper)
									Overarm (Shoulder seam to cuff)	Underarm (Underarm seam to cuff)					
Regular 5'7" - 5'10" 170cm - 178cm	XXS	31" - 33"	79 - 84	54.5	48.25	58	30	14	59	58	12	22.25	66	39.5	47
	XS	34" - 36"	86 - 91	58.25	52	60	31	15	61	59	12.5	23.5	68	42.5	49
	S	37" - 39"	94 - 99	62	55.75	62	32	16	63	60	13	24.75	70	45.5	51
	M	40" - 42"	102 - 107	65.75	59.5	64	33	17	65	61	13.5	26	72	48.5	53
	L	43" - 45"	109 - 114	69.5	63.25	66	34	18	67	62	14	27.25	74	51.5	55
	XL	46" - 48"	117 - 122	73.25	67	68	35	19	69	63	14.5	28.5	76	54.5	57
	2XL	49" - 51"	124 - 129	77	70.75	70	36	20	71	64	15	29.75	78	57.5	59
	3XL	52" - 54"	132 - 137	80.75	74.5	72	37	21	73	65	15.5	31	80	60.5	61
	4XL	55" - 57"	140 - 145	84.5	78.25	74	38	22	75	66	16	32.25	82	63.5	63
	5XL	58" - 60"	147 - 152	88.25	82	76	39	23	77	67	16.5	33.5	84	66.5	65
Tall 5'11" - 6'2" 180.5cm-188cm	XXS	31" - 33"	79 - 84	54.5	48.25	63	35	14	63	62	12	22.25	71	39.5	47
	XS	34" - 36"	86 - 91	58.25	52	65	36	15	65	63	12.5	23.5	73	42.5	49
	S	37" - 39"	94 - 99	62	55.75	67	37	16	67	64	13	24.75	75	45.5	51
	M	40" - 42"	102 - 107	65.75	59.5	69	38	17	69	65	13.5	26	77	48.5	53
	L	43" - 45"	109 - 114	69.5	63.25	71	39	18	71	66	14	27.25	79	51.5	55
	XL	46" - 48"	117 - 122	73.25	67	73	40	19	73	67	14.5	28.5	81	54.5	57
	2XL	49" - 51"	124 - 129	77	70.75	75	41	20	75	68	15	29.75	83	57.5	59
	3XL	52" - 54"	132 - 137	80.75	74.5	77	42	21	77	69	15.5	31	85	60.5	61
	4XL	55" - 57"	140 - 145	84.5	78.25	79	43	22	79	70	16	32.25	87	63.5	63
	5XL	58" - 60"	147 - 152	88.25	82	81	44	23	81	71	16.5	33.5	89	66.5	65
MEASUREMENT LOCATION				A	B	C	D	E	F	G	H	J	K	L	M
TOLERANCES±				2 cm	2 cm	2 cm	1.5 cm	1 cm	1.5 cm	1.5 cm	1 cm	1.5 cm	2 cm	1 cm	1 cm

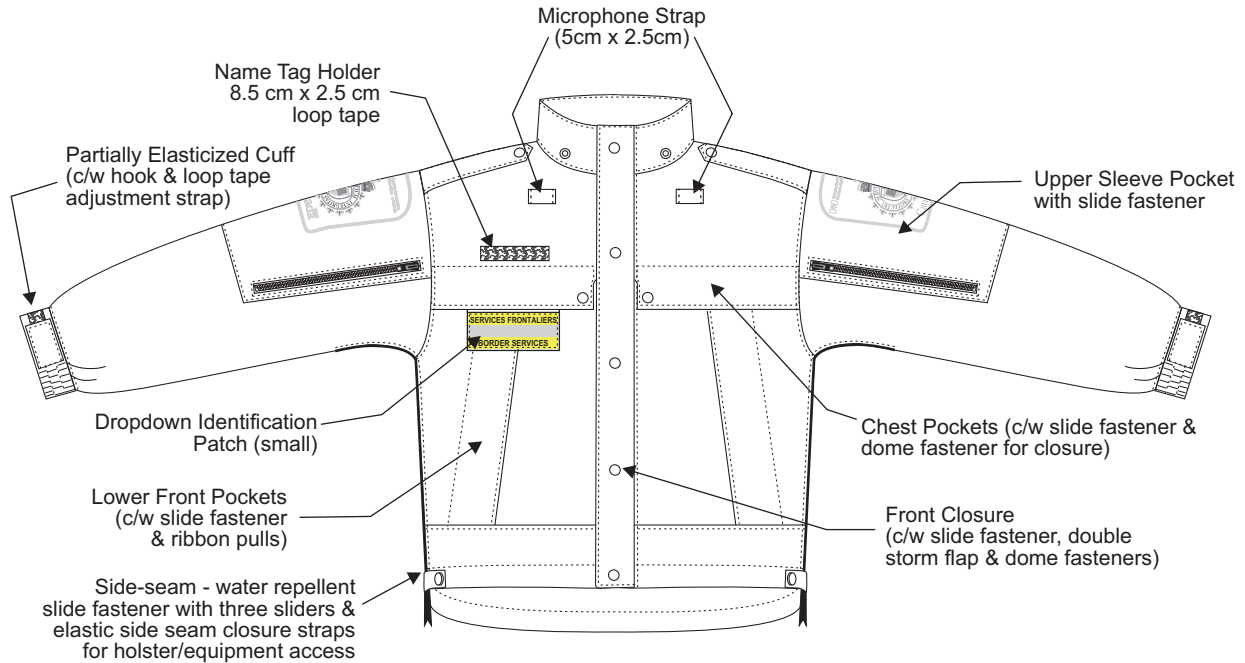
SIZE DESIGNATION		BODY MEASUREMENTS		JACKET, BOMBER, UNISEX											
GARMENT MEASUREMENTS (Dimensions shown in centimetres)															
Height	Size	Chest		Chest Width (½ only)	Bottom Width (½ only)	Front Length (top of collar to hem)	Side Seam Length (underarm to hem)	Full Shoulder Width (Shoulder point to shoulder point at armhole)	Sleeve Length		Cuff Width (Relaxed) (½ only)	Elbow Width (½ only)	Back Length (Bottom of collar at back to hem)	Back Width	Collar Length (zipper to zipper)
		Inches	cm						Overarm (Shoulder seam to cuff)	Underarm (Underarm seam to cuff)					
X Tall 6'3" - 6'6" 190.5cm - 198cm	XXS	31" - 33"	79 - 84	54.5	48.3	68	40	14	67	66	12	22.3	76	39.5	47
	XS	34" - 36"	86 - 91	58.3	52	70	41	15	69	67	12.5	23.5	78	42.5	49
	S	37" - 39"	94 - 99	62	55.8	72	42	16	71	68	13	24.8	80	45.5	51
	M	40" - 42"	102 - 107	65.8	59.5	74	43	17	73	69	13.5	26	82	48.5	53
	L	43" - 45"	109 - 114	69.5	63.3	76	44	18	75	70	14	27.3	84	51.5	55
	XL	46" - 48"	117 - 122	73.3	67	78	45	19	77	71	14.5	28.5	86	54.5	57
	2XL	49" - 51"	124 - 129	77	70.8	80	46	20	79	72	15	29.8	88	57.5	59
	3XL	52" - 54"	132 - 137	80.8	74.5	82	47	21	81	73	15.5	31	90	60.5	61
	4XL	55" - 57"	140 - 145	84.5	78.3	84	48	22	83	74	16	32.3	92	63.5	63
5XL	58" - 60"	147 - 152	88.3	82	86	49	23	85	75	16.5	33.5	94	66.5	65	
XX Tall 6'7" - 6'10" 200.5cm - 208.5cm	XXS	31" - 33"	79 - 84	54.5	48.3	73	45	14	71	70	12	22.3	81	39.5	47
	XS	34" - 36"	86 - 91	58.3	52	75	46	15	73	71	12.5	23.5	83	42.5	49
	S	37" - 39"	94 - 99	62	55.8	77	47	16	75	72	13	24.8	85	45.5	51
	M	40" - 42"	102 - 107	65.8	59.5	79	48	17	77	73	13.5	26	87	48.5	53
	L	43" - 45"	109 - 114	69.5	63.3	81	49	18	79	74	14	27.3	89	51.5	55
	XL	46" - 48"	117 - 122	73.3	67	83	50	19	81	75	14.5	28.5	91	54.5	57
	2XL	49" - 51"	124 - 129	77	70.8	85	51	20	83	76	15	29.8	93	57.5	59
	3XL	52" - 54"	132 - 137	80.8	74.5	87	52	21	85	77	15.5	31	95	60.5	61
	4XL	55" - 57"	140 - 145	84.5	78.3	89	53	22	87	78	16	32.3	97	63.5	63
5XL	58" - 60"	147 - 152	88.3	82	91	54	23	89	79	16.5	33.5	99	66.5	65	
MEASUREMENT LOCATION				A	B	C	D	E	F	G	H	J	K	L	M
TOLERANCES±				2 cm	2 cm	2 cm	1.5 cm	1 cm	1.5 cm	1.5 cm	1 cm	1.5 cm	2 cm	1 cm	1 cm

SIZE DESIGNATION		BODY MEASUREMENTS		REMOVABLE LINER, BOMBER, UNISEX										
				FINISHED GARMENT MEASUREMENTS										
Height	Size	Chest		Chest Width including zippers (½ only)	Bottom Width including zippers (½ only)	Front Length (Bottom of collar to hem)	Side Seam Length (Underarm to Hem)	Full Shoulder Width (Shoulder point to shoulder point at armhole)	Sleeve Length		Cuff Width Relaxed	Back Length (bottom of collar at back to hem)	Back Width	Neckline Length (Edge to edge)
		Inches	cm						Overarm (Shoulder seam to cuff)	Underarm (Underarm seam to cuff)				
X Short 4'11" - 5'2" 150cm - 157.5cm	XXS	31" - 33"	79 - 84	50	46.75	36.5	20	14	51.5	47.5	19.25	50.5	41	42
	XS	34" - 36"	86 - 91	53.75	50.5	38.5	21	15	53.25	48.5	20	52.5	43	43.5
	S	37" - 39"	94 - 99	57.5	54.25	40.5	22	16	55	49.5	20.75	54.5	45	45
	M	40" - 42"	102 - 107	61.25	58	42.5	23	17	56.75	50.5	21.5	56.5	47	46.5
	L	43" - 45"	109 - 114	65	61.75	44.5	24	18	58.5	51.5	22.25	58.5	49	48
	XL	46" - 48"	117 - 122	68.75	65.5	46.5	25	19	60.25	52.5	23	60.5	51	49.5
	2XL	49" - 51"	124 - 129	72.5	69.25	48.5	26	20	62	53.5	23.75	62.5	53	51
	3XL	52" - 54"	132 - 137	76.25	73	50.5	27	21	63.75	54.5	24.5	64.5	55	52.5
	4XL	55" - 57"	140 - 145	80	76.75	52.5	28	22	65.5	55.5	25.25	66.5	57	54
	5XL	58" - 60"	147 - 152	83.75	80.5	54.5	29	23	67.25	56.5	26	68.5	59	55.5
Short 5'3" - 5'6" 160cm - 167.5cm	XXS	31" - 33"	79 - 84	50	46.75	41.5	25	14	55.5	51.5	19.25	55.5	41	42
	XS	34" - 36"	86 - 91	53.75	50.5	43.5	26	15	57.25	52.5	20	57.5	43	43.5
	S	37" - 39"	94 - 99	57.5	54.25	45.5	27	16	59	53.5	20.75	59.5	45	45
	M	40" - 42"	102 - 107	61.25	58	47.5	28	17	60.75	54.5	21.5	61.5	47	46.5
	L	43" - 45"	109 - 114	65	61.75	49.5	29	18	62.5	55.5	22.25	63.5	49	48
	XL	46" - 48"	117 - 122	68.75	65.5	51.5	30	19	64.25	56.5	23	65.5	51	49.5
	2XL	49" - 51"	124 - 129	72.5	69.25	53.5	31	20	66	57.5	23.75	67.5	53	51
	3XL	52" - 54"	132 - 137	76.25	73	55.5	32	21	67.75	58.5	24.5	69.5	55	52.5
	4XL	55" - 57"	140 - 145	80	76.75	57.5	33	22	69.5	59.5	25.25	71.5	57	54
	5XL	58" - 60"	147 - 152	83.75	80.5	59.5	34	23	71.25	60.5	26	73.5	59	55.5
MEASUREMENT LOCATION				A	B	C	D	E	F	G	H	J	K	L
TOLERANCES ±				2 cm	2 cm	2 cm	1 cm	1 cm	1.5 cm	1.5 cm	1 cm	2 cm	1 cm	1 cm

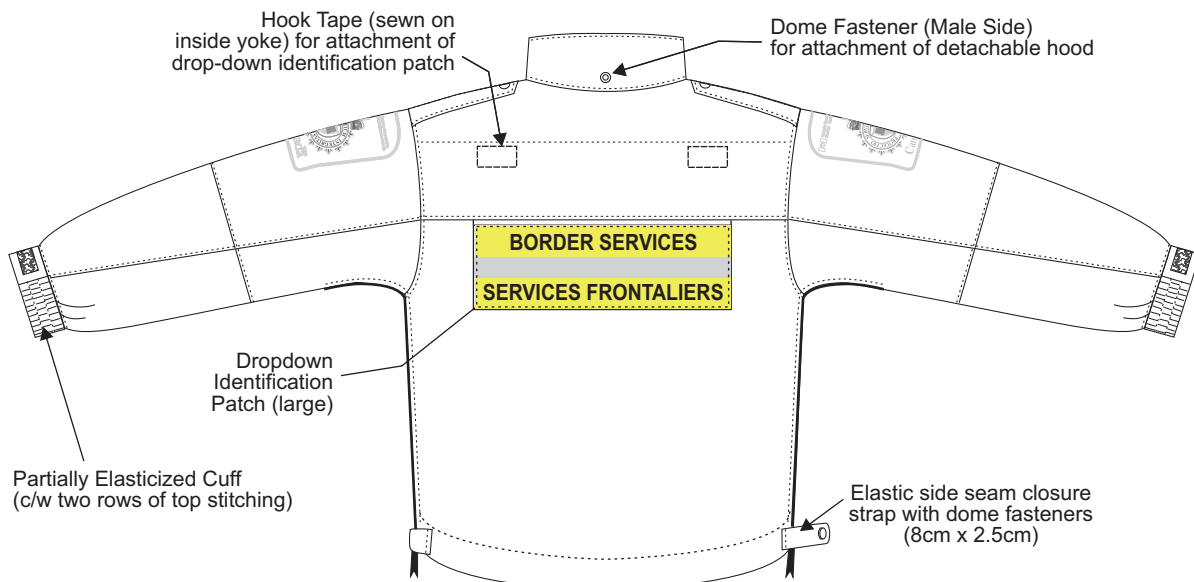
SIZE DESIGNATION		BODY MEASUREMENTS		REMOVABLE LINER, BOMBER, UNISEX										
FINISHED GARMENT MEASUREMENTS														
Height	Size	Chest		Chest Width including zippers Inches cm (½ only)	Bottom Width including zippers (½ only)	Front Length (Bottom of collar to hem)	Side Seam Length (Underarm to Hem)	Full Shoulder Width (Shoulder point to shoulder point at armhole)	Sleeve Length		Cuff Width Relaxed	Back Length (bottom of collar at back to hem)	Back Width	Neckline Length (Edge to edge)
									Overarm (Shoulder seam to cuff)	Underarm (Underarm seam to cuff)				
Regular 5'7" - 5'10" 170cm - 177.5cm	XXS	31" - 33"	79 - 84	50	46.75	46.5	30	14	59.5	55.5	19.25	60.5	41	42
	XS	34" - 36"	86 - 91	53.75	50.5	48.5	31	15	61.25	56.5	20	62.5	43	43.5
	S	37" - 39"	94 - 99	57.5	54.25	50.5	32	16	63	57.5	20.75	64.5	45	45
	M	40" - 42"	102 - 107	61.25	58	52.5	33	17	64.75	58.5	21.5	66.5	47	46.5
	L	43" - 45"	109 - 114	65	61.75	54.5	34	18	66.5	59.5	22.25	68.5	49	48
	XL	46" - 48"	117 - 122	68.75	65.5	56.5	35	19	68.25	60.5	23	70.5	51	49.5
	2XL	49" - 51"	124 - 129	72.5	69.25	58.5	36	20	70	61.5	23.75	72.5	53	51
	3XL	52" - 54"	132 - 137	76.25	73	60.5	37	21	71.75	62.5	24.5	74.5	55	52.5
	4XL	55" - 57"	140 - 145	80	76.75	62.5	38	22	73.5	63.5	25.25	76.5	57	54
5XL	58" - 60"	147 - 152	83.75	80.5	64.5	39	23	75.25	64.5	26	78.5	59	55.5	
Tall 5'11" - 6'2" 180.5cm - 188cm	XXS	31" - 33"	79 - 84	50	46.75	51.5	35	14	63.5	59.5	19.25	65.5	41	42
	XS	34" - 36"	86 - 91	53.75	50.5	53.5	36	15	65.25	60.5	20	67.5	43	43.5
	S	37" - 39"	94 - 99	57.5	54.25	55.5	37	16	67	61.5	20.75	69.5	45	45
	M	40" - 42"	102 - 107	61.25	58	57.5	38	17	68.75	62.5	21.5	71.5	47	46.5
	L	43" - 45"	109 - 114	65	61.75	59.5	39	18	70.5	63.5	22.25	73.5	49	48
	XL	46" - 48"	117 - 122	68.75	65.5	61.5	40	19	72.25	64.5	23	75.5	51	49.5
	2XL	49" - 51"	124 - 129	72.5	69.25	63.5	41	20	74	65.5	23.75	77.5	53	51
	3XL	52" - 54"	132 - 137	76.25	73	65.5	42	21	75.75	66.5	24.5	79.5	55	52.5
	4XL	55" - 57"	140 - 145	80	76.75	67.5	43	22	77.5	67.5	25.25	81.5	57	54
5XL	58" - 60"	147 - 152	83.75	80.5	69.5	44	23	79.25	68.5	26	83.5	59	55.5	
MEASUREMENT LOCATON				A	B	C	D	E	F	G	H	J	K	L
TOLERANCES ±				2 cm	2 cm	2 cm	1 cm	1 cm	1.5 cm	1.5 cm	1 cm	2 cm	1 cm	1 cm

SIZE DESIGNATION		BODY MEASUREMENTS		REMOVABLE LINER, BOMBER, UNISEX										
FINISHED GARMENT MEASUREMENTS														
Height	Size	Chest		Chest Width including zippers Inches cm (½ only)	Bottom Width including zippers (½ only)	Front Length (Bottom of collar to hem)	Side Seam Length (Underarm to Hem)	Full Shoulder Width (Shoulder point to shoulder point at armhole)	Sleeve Length		Cuff Width Relaxed	Back Length (bottom of collar at back to hem)	Back Width	Neckline Length (Edge to edge)
									Overarm (Shoulder seam to cuff)	Underarm (Underarm seam to cuff)				
X Tall 6'3" - 6'6" 190.5cm - 198cm	XXS	31" - 33"	79 - 84	50	46.75	56.5	40	14	67.5	63.5	19.25	70.5	41	42
	XS	34" - 36"	86 - 91	53.75	50.5	58.5	41	15	69.25	64.5	20	72.5	43	43.5
	S	37" - 39"	94 - 99	57.5	54.25	60.5	42	16	71	65.5	20.75	74.5	45	45
	M	40" - 42"	102 - 107	61.25	58	62.5	43	17	72.75	66.5	21.5	76.5	47	46.5
	L	43" - 45"	109 - 114	65	61.75	64.5	44	18	74.5	67.5	22.25	78.5	49	48
	XL	46" - 48"	117 - 122	68.75	65.5	66.5	45	19	76.25	68.5	23	80.5	51	49.5
	2XL	49" - 51"	124 - 129	72.5	69.25	68.5	46	20	78	69.5	23.75	82.5	53	51
	3XL	52" - 54"	132 - 137	76.25	73	70.5	47	21	79.75	70.5	24.5	84.5	55	52.5
	4XL	55" - 57"	140 - 145	80	76.75	72.5	48	22	81.5	71.5	25.25	86.5	57	54
5XL	58" - 60"	147 - 152	83.75	80.5	74.5	49	23	83.25	72.5	26	88.5	59	55.5	
XX Tall 6'7" - 6'10" 200.5cm - 208cm	XXS	31" - 33"	79 - 84	50	46.75	61.5	45	14	71.5	67.5	19.25	75.5	41	42
	XS	34" - 36"	86 - 91	53.75	50.5	63.5	46	15	73.25	68.5	20	77.5	43	43.5
	S	37" - 39"	94 - 99	57.5	54.25	65.5	47	16	75	69.5	20.75	79.5	45	45
	M	40" - 42"	102 - 107	61.25	58	67.5	48	17	76.75	70.5	21.5	81.5	47	46.5
	L	43" - 45"	109 - 114	65	61.75	69.5	49	18	78.5	71.5	22.25	83.5	49	48
	XL	46" - 48"	117 - 122	68.75	65.5	71.5	50	19	80.25	72.5	23	85.5	51	49.5
	2XL	49" - 51"	124 - 129	72.5	69.25	73.5	51	20	82	73.5	23.75	87.5	53	51
	3XL	52" - 54"	132 - 137	76.25	73	75.5	52	21	83.75	74.5	24.5	89.5	55	52.5
	4XL	55" - 57"	140 - 145	80	76.75	77.5	53	22	85.5	75.5	25.25	91.5	57	54
5XL	58" - 60"	147 - 152	83.75	80.5	79.5	54	23	87.25	76.5	26	93.5	59	55.5	
MEASUREMENT LOCATION				A	B	C	D	E	F	G	H	J	K	L
TOLERANCES ±				2 cm	2 cm	2 cm	1 cm	1 cm	1.5 cm	1.5 cm	1 cm	2 cm	1 cm	1 cm

JACKET



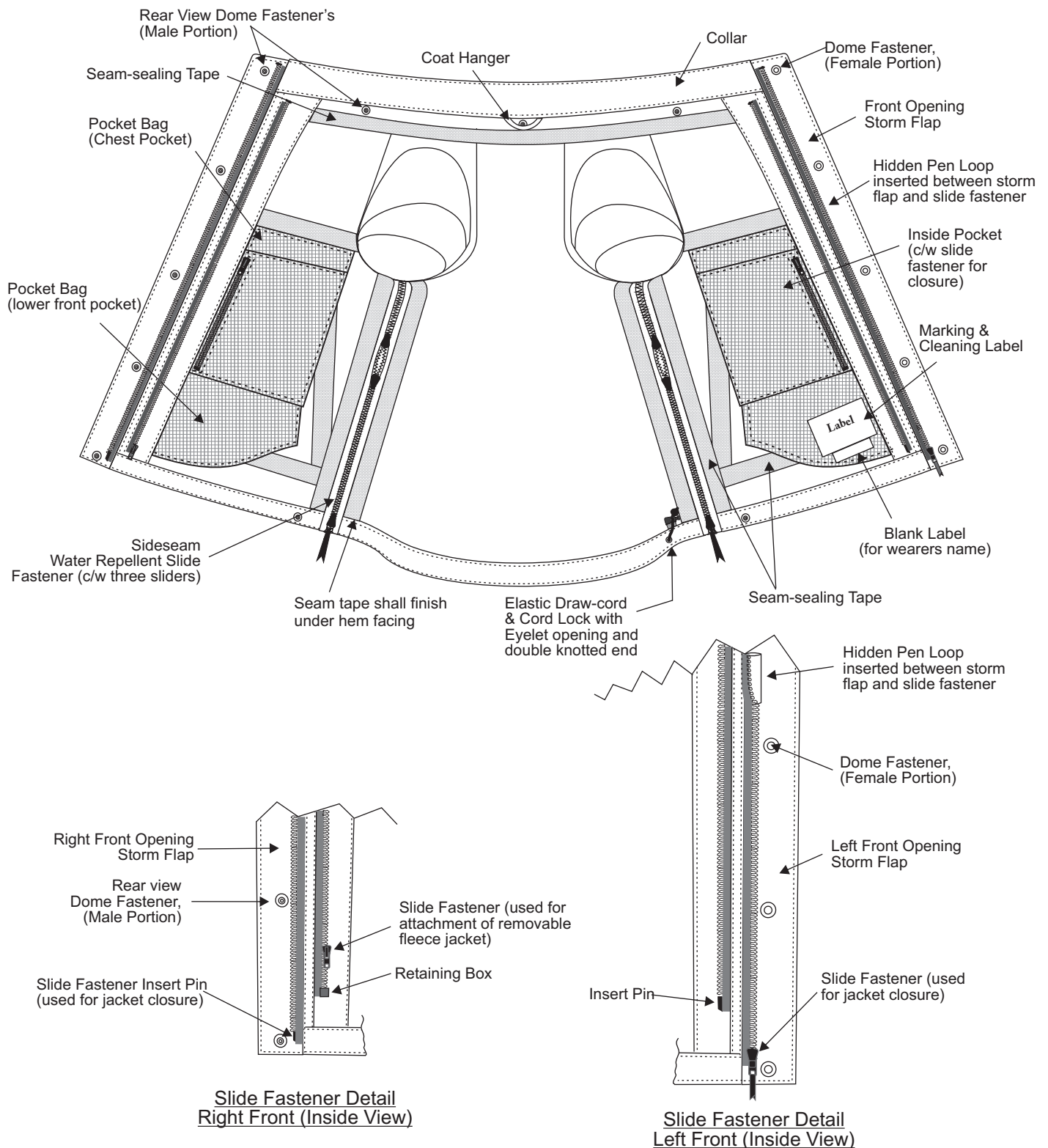
Front View



Rear View

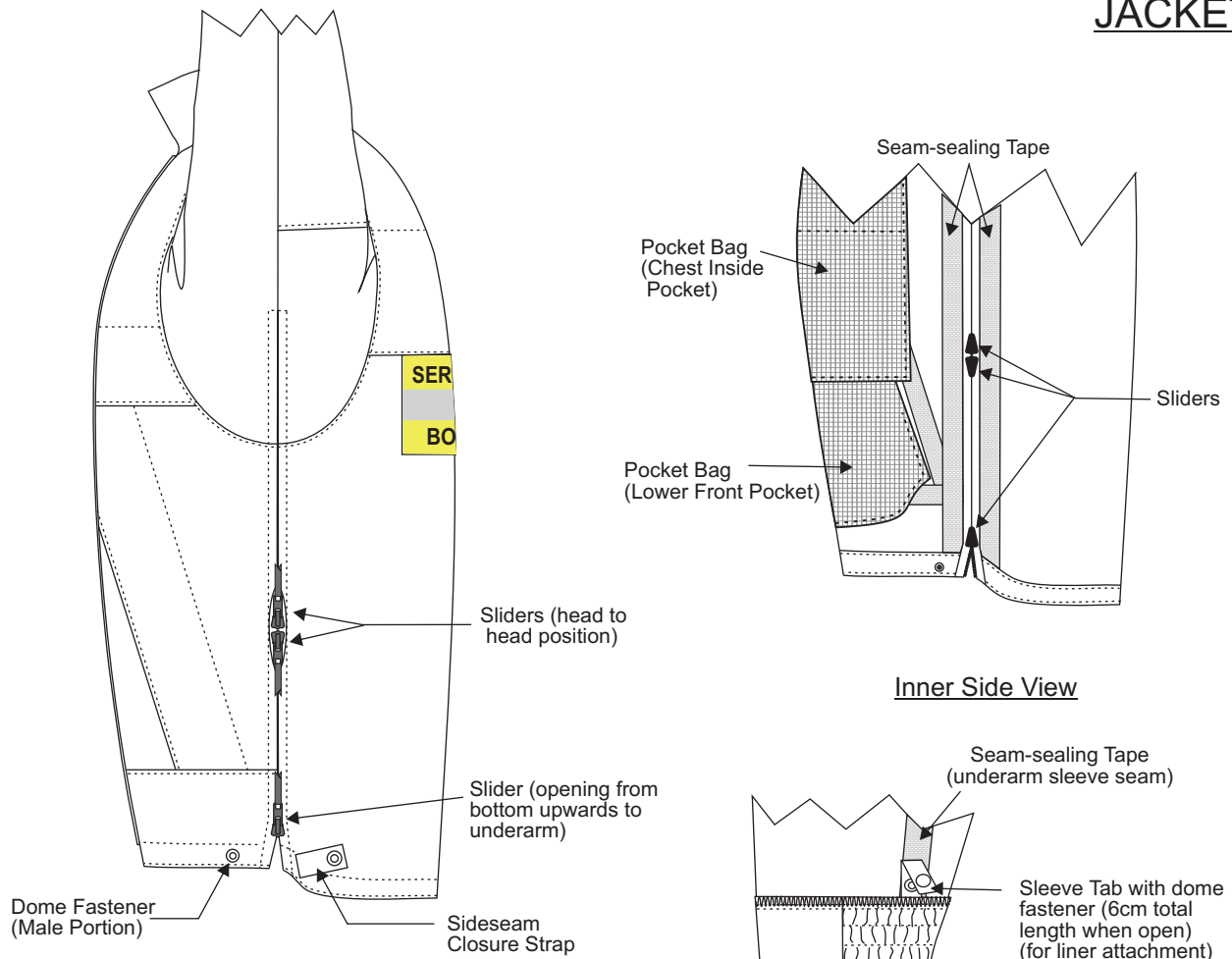
NOT TO SCALE

JACKET



NOT TO SCALE
All measurements are shown in centimeters.
± 0.5cm tolerance acceptable unless otherwise indicated.

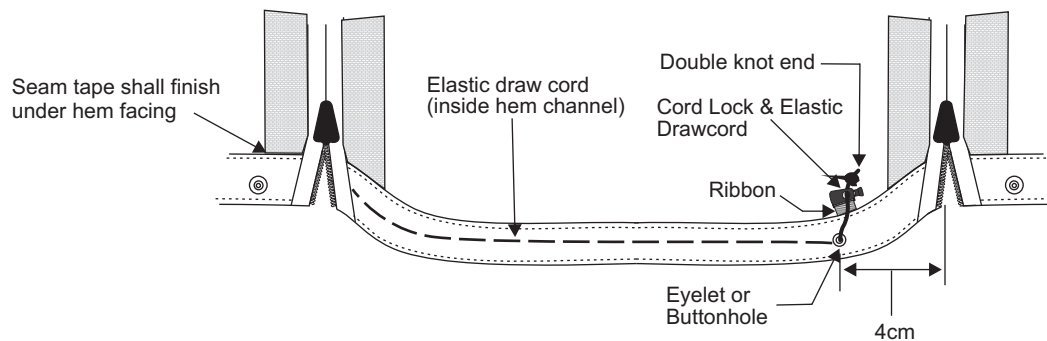
JACKET



Outer Side View

Inner Side View

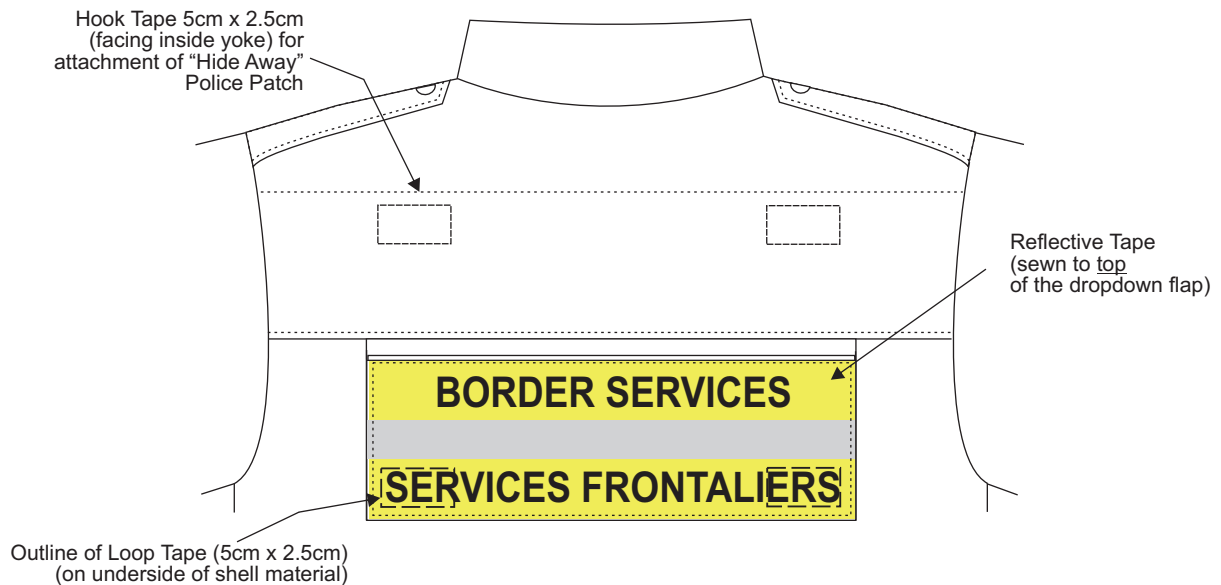
Inside Cuff Detail



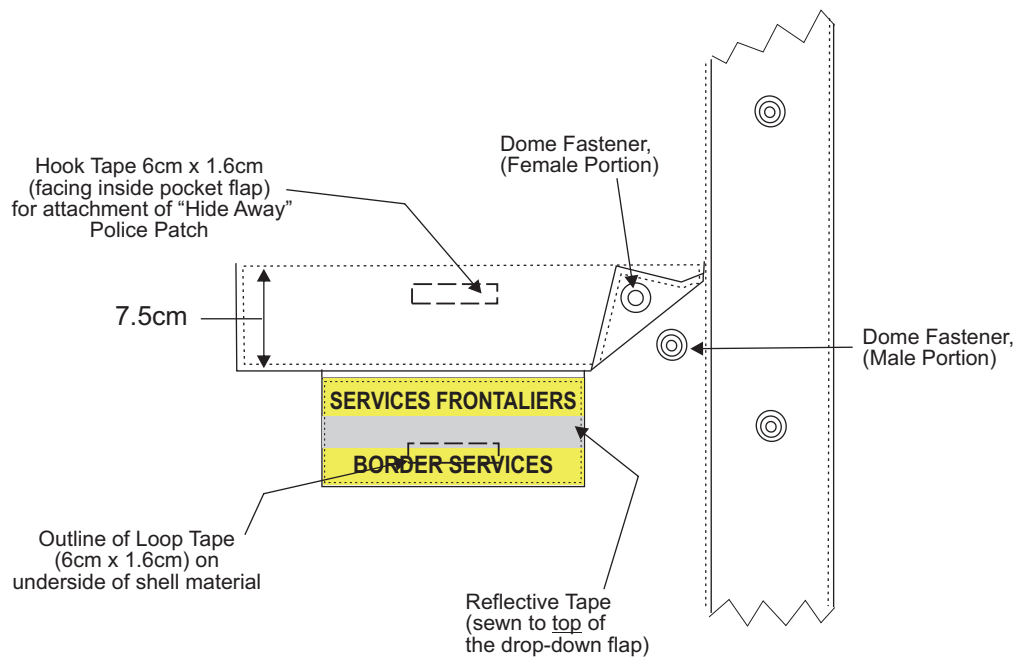
Back Hem Channel - Inside View

NOT TO SCALE
All measurements are shown in centimeters.
± 0.5cm tolerance acceptable unless otherwise indicated.

JACKET



Large Dropdown Identification Patch



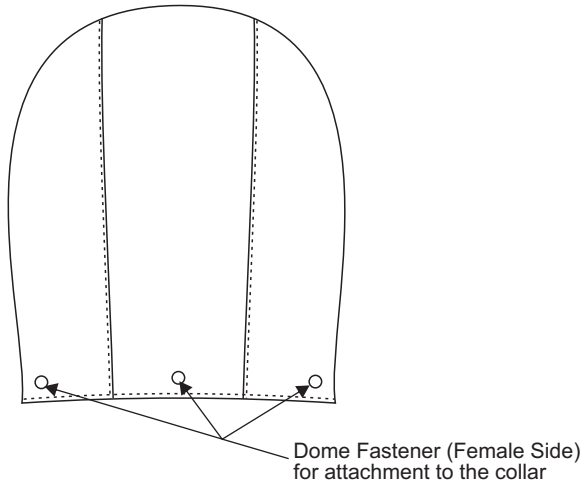
Chest Pocket Detail shown with corner folded up

NOT TO SCALE

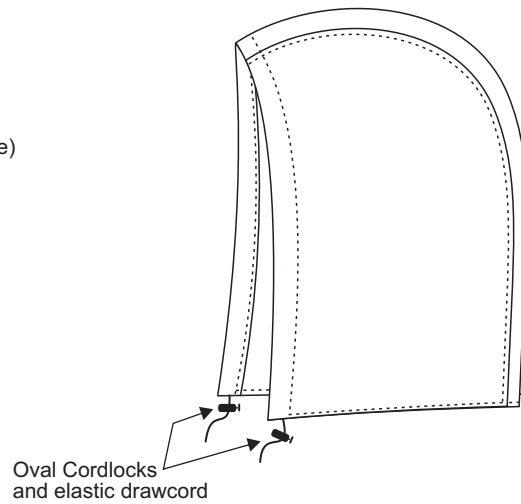
All measurements are shown in centimeters.

± 0.5cm tolerance acceptable unless otherwise indicated.

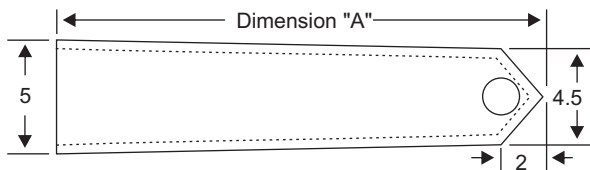
JACKET



Detachable Hood (rear view)



Detachable Hood (side view)



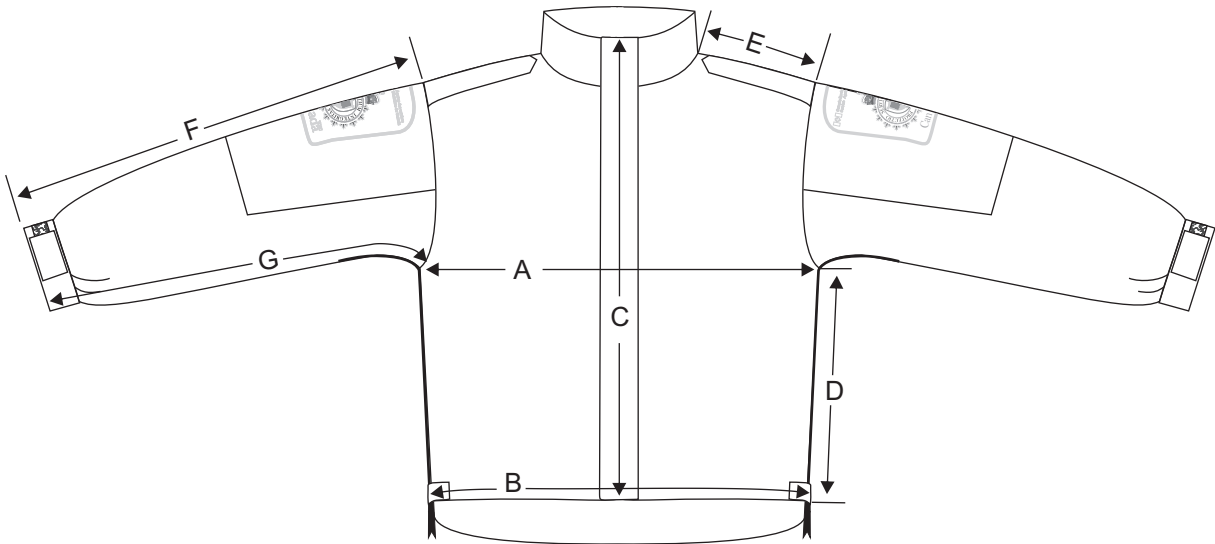
Shoulder Strap Detail

Jacket Size (All Heights)	Dimension "A"
X-Small	14.25
Small	15.25
Medium	16.25
Large	17.25
X-Large	18.25
2X-Large	19.25
3X-Large	20.25
4X-Large	21.25
5X-Large	22.25

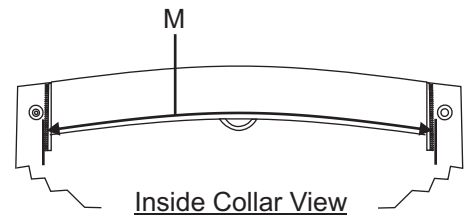
TABLE I
Shoulder Strap Length
(Finished)

NOT TO SCALE
All measurements are shown in centimeters.
± 0.5cm tolerance acceptable unless otherwise indicated.

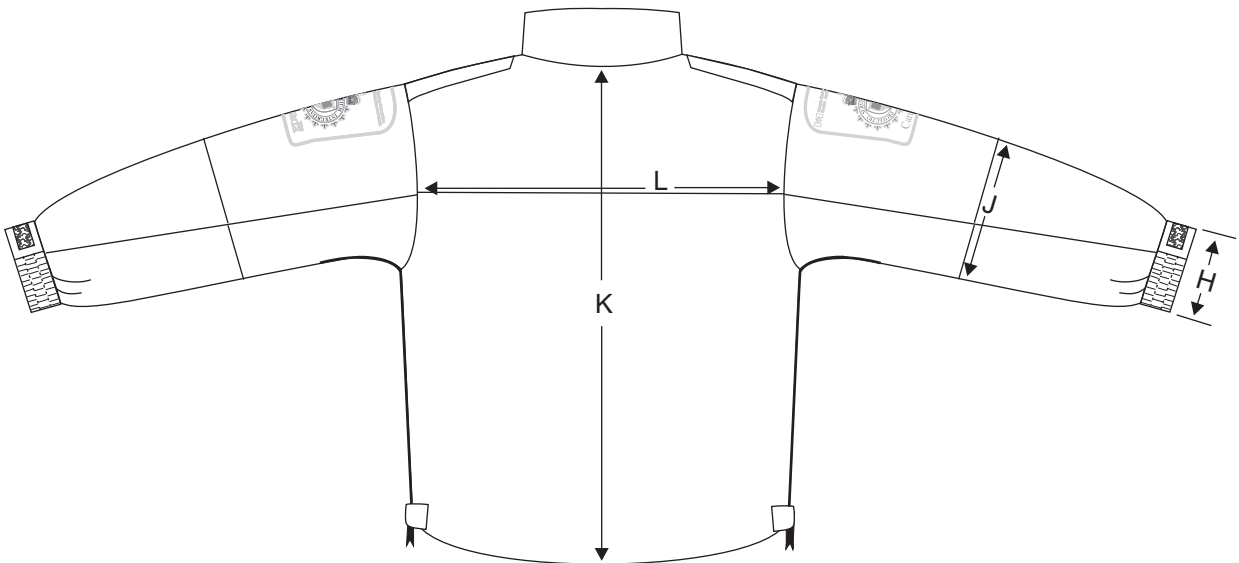
JACKET



Front View



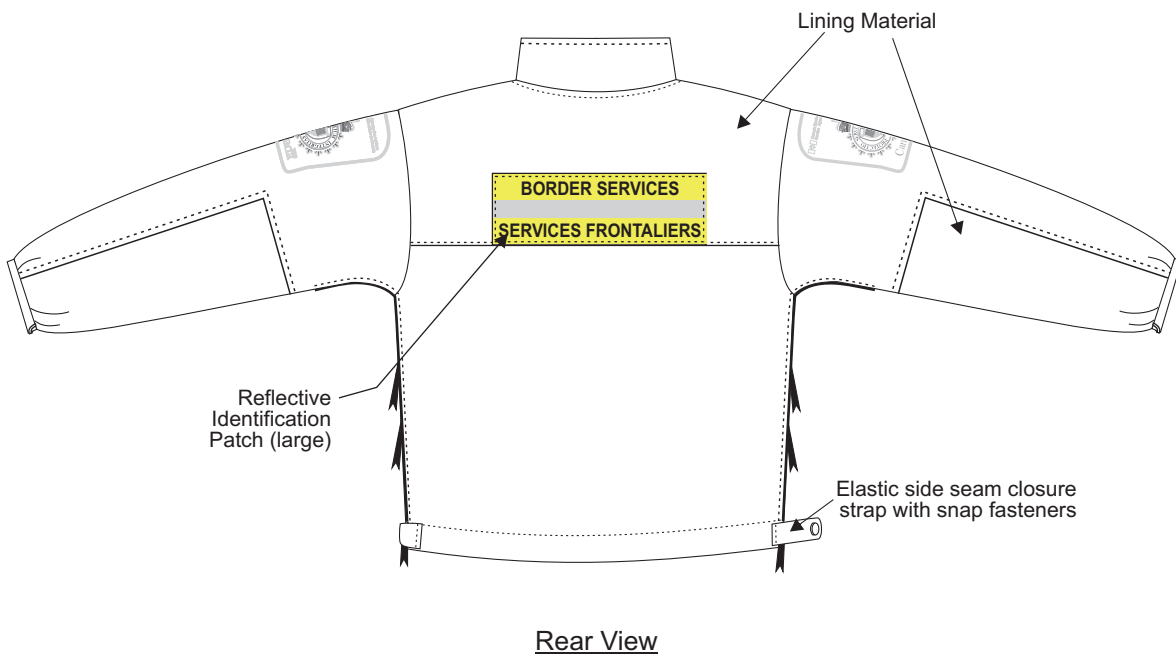
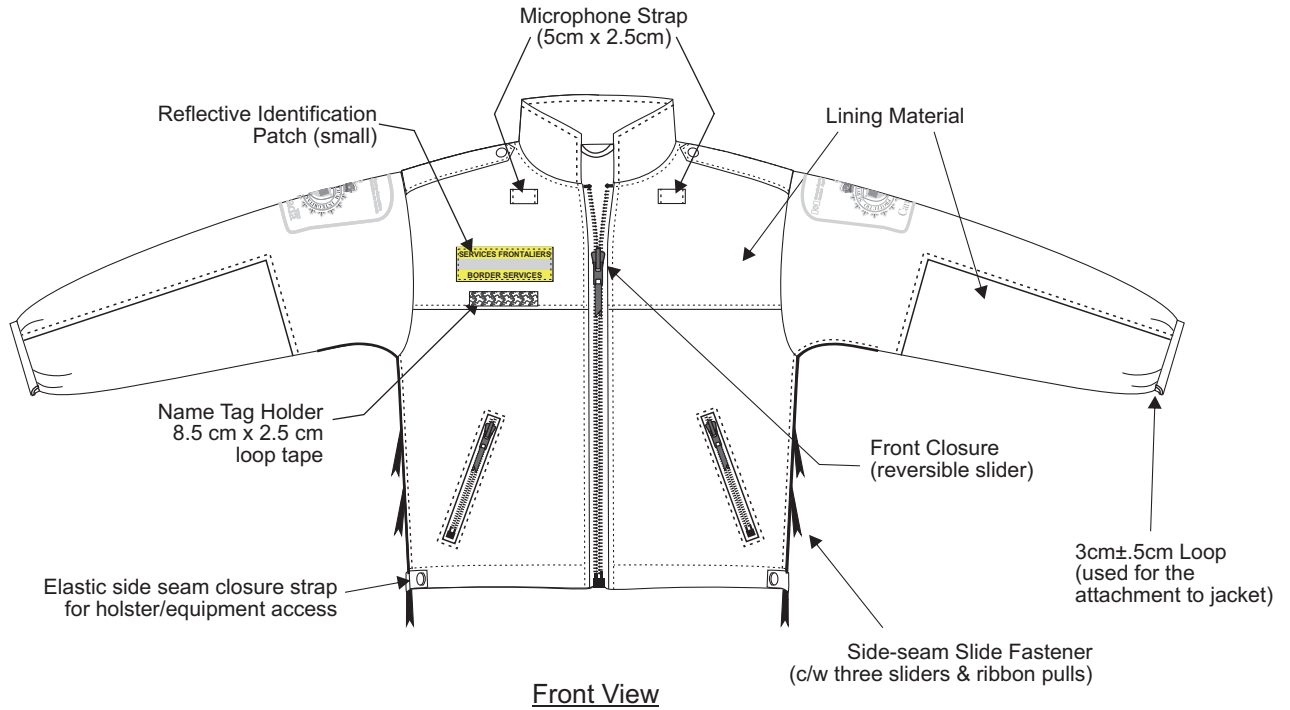
Inside Collar View



Rear View

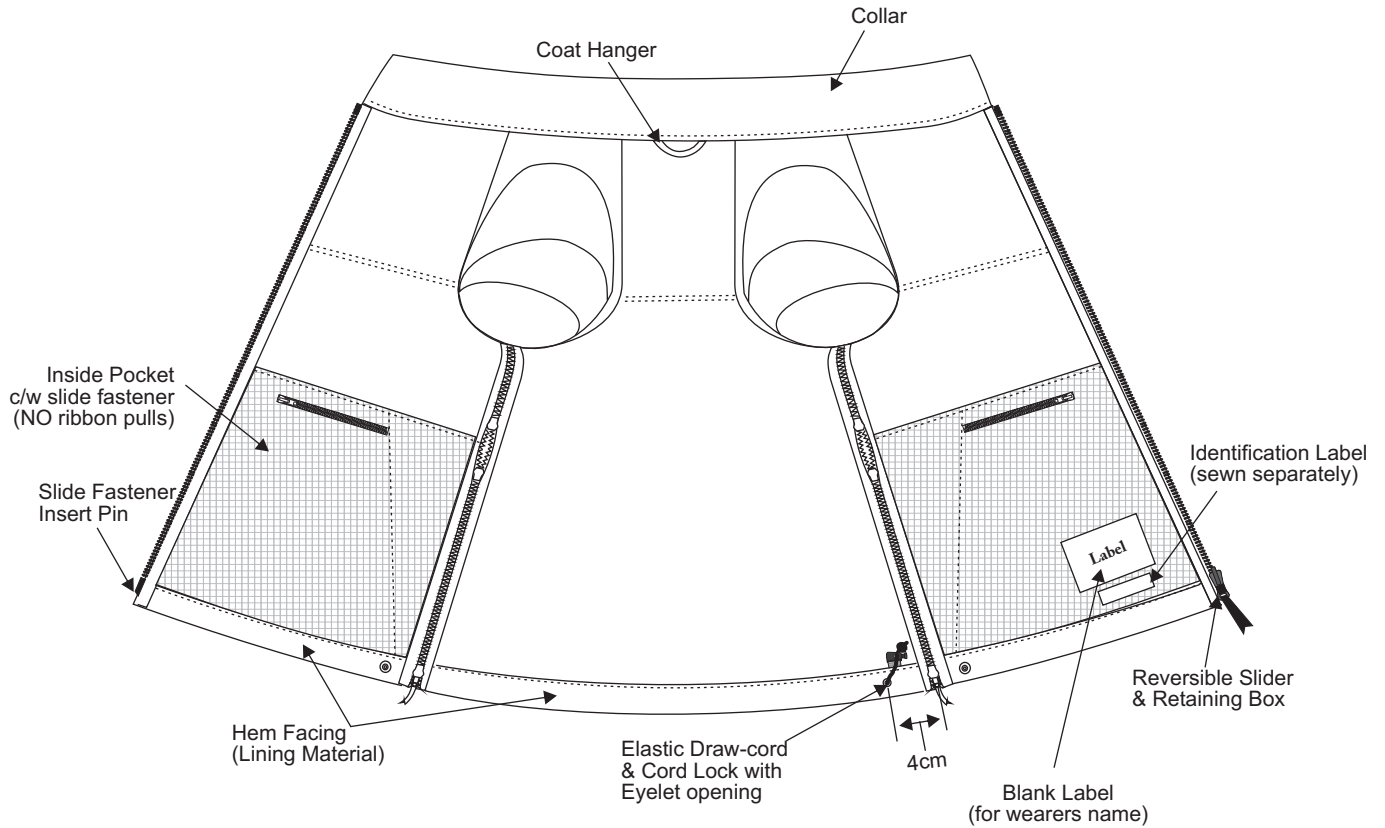
NOT TO SCALE

REMOVABLE LINER

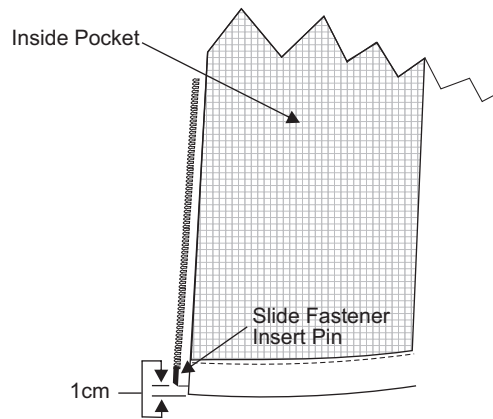


NOT TO SCALE

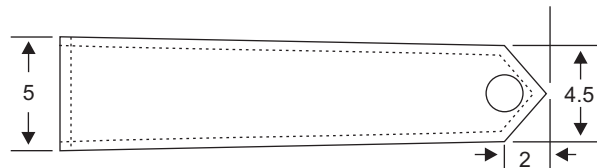
REMOVABLE LINER



Inside Jacket View

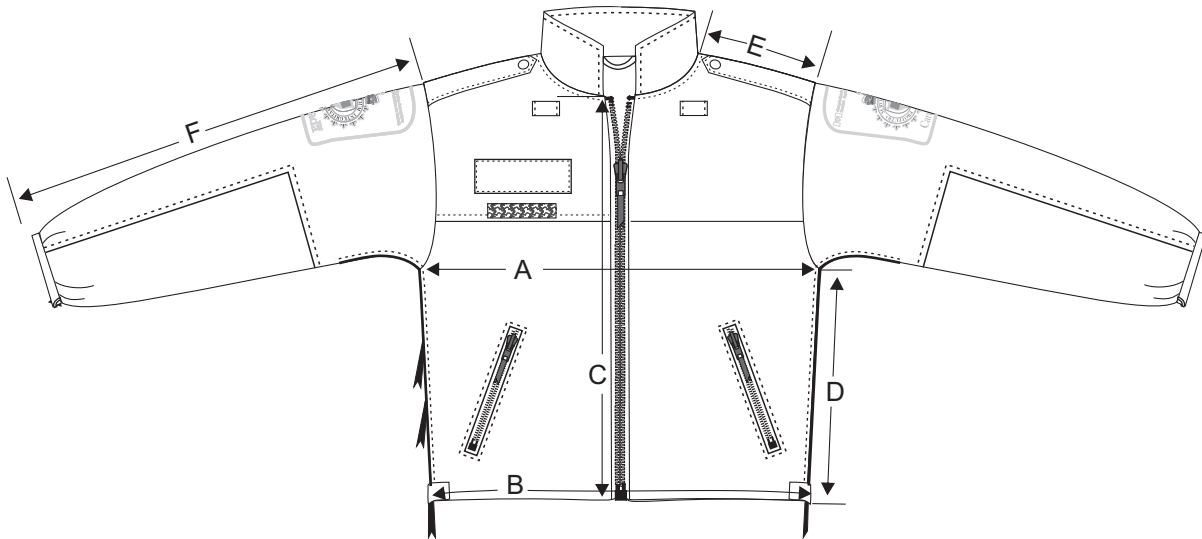


Slide Fastener Detail
Right Front (Inside View)

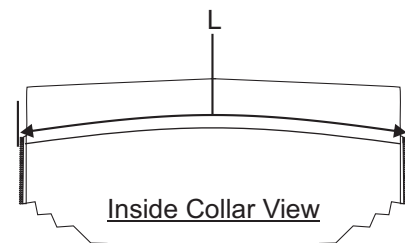


Shoulder Strap Detail

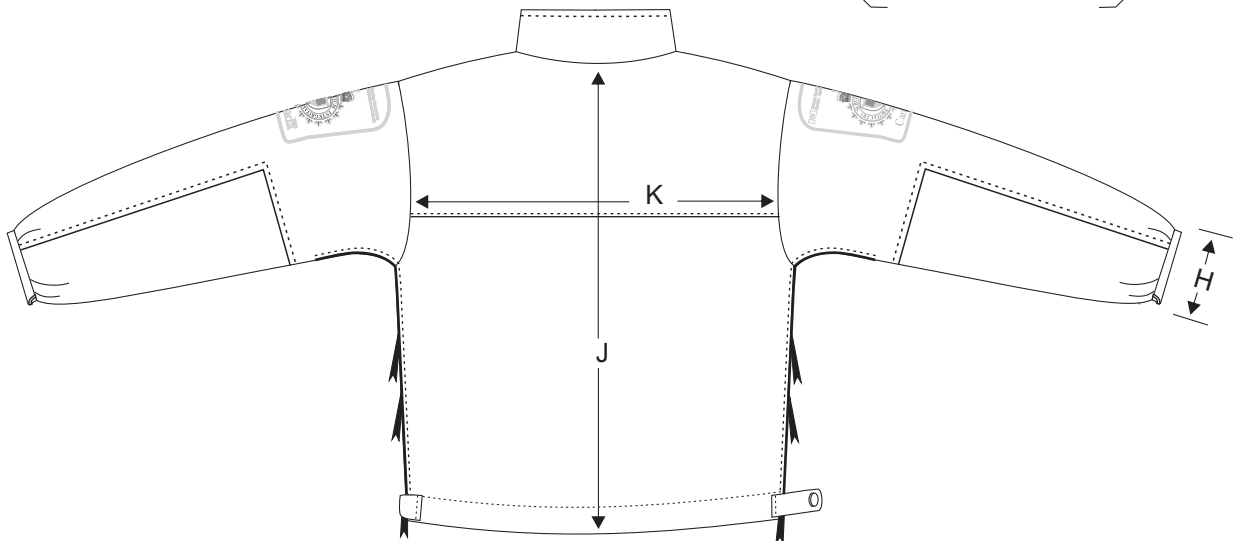
REMOVABLE LINER



Front View



Inside Collar View



Rear View

NOT TO SCALE