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## MANUFACTURING DATA FOR SHIRT, FLEECE, BROWN

### 1.0 SCOPE

#### 1.1 Scope

This Manufacturing Data covers the materials, design and construction requirements for the Shirt, Fleece, Brown for use by the Canadian Special Operations Forces Command (CANSOFCOM).

#### 1.2 Intended Use

The Shirt, Fleece, Brown is worn with the Pants, Fleece, Brown.

#### 1.3 Classification

Shirts covered by this Manufacturing Data are classified as follows: Shirt, Fleece, Brown.

### 2.0 GENERAL

#### 2.1 Intellectual Property

The information, data, know-how, formulas, algorithms, software, processes, systems, methods, designs, text, works, figures, tables, sketches, photographs, plans, drawings, specifications, samples, reports, names, inventions and/or ideas contained herein (hereinafter "Intellectual Property") is the exclusive property of Her Majesty The Queen in Right of Canada as represented by the Minister of National Defence (hereinafter referred as "DND"). No one has the right to reproduce, disclose, disseminate, or utilize, in any manner or in any form, this Intellectual Property, or any part thereof, without the prior written consent of DND. For further information on the restrictions applicable to this Intellectual Property, or to request consent from DND, please contact the Contracting Authority.

#### 2.2 Applicable Documents

The following documents form part of this Manufacturing Data to the extent specified, and are supportive of this Manufacturing Data when referenced; all other document references are to be considered supplemental information only. In the event of a conflict between the documents referenced and the contents of this Manufacturing Data, then the contents of this Manufacturing Data must take precedence:

#### DND Specifications and Standards (provided upon request)

- D-80-001-028/SF-001 Specification for Cord, Plaited, Spun Synthetic Fiber
- D-80-001-055/SF-001 Specification for Label, Clothing and Equipment

- D-83-001-005/SF-001 Specification for Fastener, Slide, Interlocking
- D-LM-008-002/SF-001 Specification for Marking for Storage and Shipment

CAN/CGSB Standards (email: [ncr.cgsb-ongc@pwgsc.gc.ca](mailto:ncr.cgsb-ongc@pwgsc.gc.ca))

- CAN/CGSB-54.1 Stitches and Seams
- CAN/CGSB-86.1-2003 Care Labelling of Textiles

FED Standards (Download Documents: <http://assist.daps.dla.mil/quicksearch/>)

- FED-STD-595C - Colors Used in Government Procurement
- A-A-50199 - Thread, Polyester Core, Cotton or Polyester-Covered

US Department of Defence (www.everyspec.com)

- Military Specification Sheet MS 27980 Fasteners, Snap, Style 2

2.2.1 Order of Precedence

The order of preference is as follows:

- (a) In the event of inconsistency between contract documents, such as contract, Manufacturing Data, drawing and sealed pattern, the order of precedence must be contract, Manufacturing Data, drawing and sealed patterns;
- (b) In the event of a conflict between the text of this manufacturing data and the references cited herein, the text of this manufacturing data must take precedence;
- (c) In the event of inconsistency within this manufacturing data, the Contracting Authority must be contacted for clarification; and
- (d) Nothing in this document supersedes applicable laws and regulations, unless a specific exemption has been obtained.

2.3 Material Standards

The following material standards are supplemental to this standard:

- (a) Specification for Cloth, Knit, Polyester, Double-Sided Pile (Velour), Brown; and
- (b) Specification for Cloth, Twill, Nylon/Cotton, Brown, Oil and Water Repellent Treated.

2.4 Definitions

Earth Tone	By definition, earth tone is considered a color scheme that draws from a color palette of browns, tans, grays, greens, oranges, whites and some reds. The colors in an earth tone scheme are muted and flat in an emulation of the natural colors found in soils, moss, trees and rocks. For the purpose of this specification, the earth tone color (where specified) must be based on the predominantly brown, tan and gray color series (lusterless) within FED STD-595C, where those colors do not include any elements of orange, red and white.
Slide Fastener	A fastener for locking together two toothed edges by means of a sliding tab,

commonly referred to as a zipper.
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### 2.5 Layout Sketches

Schematic layout sketches for the Shirts are included as part of this Annex. The sketches are designed to provide a general layout of the Shirts only. They are not to scale and are not representative of the style, fit, colour scheme or form of the final garment. The following sketches are included in Appendix 1:

- (a) Figure 1: Front and Back Views; and
- (b) Figure 2: Marking and Care Label.

### 2.6 Patterns

DND will provide patterns as follows:

- (a) Sealed pattern: DSSPM 106-03 - Sweatshirt, Combat, CADPAT™ Temperate Woodland (TW), Integrated Clothing Ensemble (ICE); and
- (b) Paper patterns - Paper patterns for all sizes under Style Code SSIECS06. Size 7040 (Regular/Medium) will be used for tendering purposes.

Note: The patterns for the Sweatshirt, Combat, CADPAT™ Temperate Woodland (TW), Integrated Clothing Ensemble (ICE) are to be used for the construction of the Shirt, Fleece, Brown with the following deviation: The strap for the rank slip-on on the front of the shirt has been deleted. For bidding purposes, bidders are provided with the paper patterns for Size 7040 only. The full set is provided to the successful bidder after contract award and is available in paper as individual sizes or as a graded nest.

## 3.0 **REQUIREMENTS**

### 3.1 Design

The design must be in accordance with Sealed Patterns DSSPM 106-03 and must incorporate the following features:

- (a) Relaxed fit;
- (b) Slide fastener front closure;
- (c) Roll collar;
- (d) Front and back yoke;
- (e) Breast pockets with flap and pencil pocket;
- (f) Elbow patches;
- (g) Band cuffs;
- (h) Elasticized bottom edge;
- (i) Underarm vents with slide fastener closure; and

(j) Brown outer finish.

### 3.2 Materials

The following applies:

- (a) Shell Material - The shell material must be Cloth, Knit, Polyester, Double-Sided Pile (Velour), Brown;
- (b) Reinforcement Patches - The reinforcement patches for the shoulder and elbows must be Cloth, Twill, Nylon/Cotton, Brown, Oil and Water Repellent Treated;
- (c) Slide Fasteners - The slide fasteners must be as follows:
  - i. Front closure:
    - a. Be Class 3, Type 4 with a slider pull 20 mm (0.79 in) long; and
    - b. Have plastic monofilament (coil) interlocking members, automatic lock slider and 100% polyester tape in accordance with D- 83-001-005/SF-001;
  - ii. Underarm closures:
    - a. Be Class 2, Type 11, 2-way, center opening with slider pulls 16.5 mm (0.65 in) long; and
    - b. Have monofilament (coil) interlocking members and 100% polyester tape in accordance with D- 83-001-005/SF-001;
  - iii. Be a non-florescent earth tone colour to match the brown shell material;
- (d) Snap Fasteners - Snap fasteners must be regular wire spring clamp type in brass with a black finish and a phosphor bronze spring, conforming to Style 2, Size 1 of MS 27980;
- (e) Drawcord – The waistband drawcord and the fly slide fastener thong must:
  - i. Be Type I, spun synthetic fiber, plaited cord in accordance with D-80-001-028/SF-001; and
  - ii. Be a non-florescent earth tone colour to match the brown shell material;
- (f) Elastic - The elastic for the bottom edge of the shirt must be:
  - i. 1.3 cm (0.5 in) wide, flat, knotted construction, pre-shrunk with 120% +/-10% stretch; and
  - ii. Be black in colour;
- (g) Thread - The following applies:
  - i. The thread for seaming and stitching must:
    - a. Be polyester-covered, polyester thread (R 45 Tex) conforming to the requirements specified in A-A-50199; and
    - b. Be a non-florescent earth tone colour to match the brown shell material;
  - ii. The thread for serging must:
    - a. Be polyester-covered, polyester thread (R 27 Tex) conforming to the requirements specified in A-A-50199; and
    - b. Be a non-florescent earth tone colour to match the brown shell material;
- (h) All material must be sourced and supplied by the Contractor.

### 3.3 Sizing

The Shirts must be available in the following sizes in accordance with the Scale of Measurements at Appendix 2:

Height (in)	Chest (in)					
	32	36	40	44	48	52
64	X	X	X			
67		X	X	X	X	
70		X	X	X	X	X
73		X	X	X	X	X
76			X	X	X	X

The Shirts must also be available in special/extended sizes where the above sizes are not suitable.

### 3.4 Cutting

The following applies:

- (a) The Shirts must be cut using duplicates of Government supplied paper patterns as follows:
- i. Paper patterns include seam allowance but do not include 'make-up' allowance; and
  - ii. The Contractor is responsible for adding 'make-up' allowance to suit their production methods without changing the design, grade or requirements for the Shirts;

Note: Paper patterns will not be supplied to the Contractor for special/extended sizes.

- (b) The shell parts of the Shirts must:
- i. Be cut and used in accordance with best commercial standards;
  - ii. Be cut in the direction as specified on the paper patterns; and
  - iii. Be cut so there is no variation in shade between pieces cut from like materials.

### 3.5 Sewing

The following applies:

- (a) Seams and stitches must:
- i. Have smooth and regular formed seams with even seam allowances;
  - ii. Have stitching that is accurately and evenly placed from seam edges as specified;
  - iii. Have thread ends trimmed and removed;
  - iv. Have the beginning and end of lock stitched seams and stitching securely backstitched with three (3) to four (4) stitches if there is no other method used to secure the end of the seam; and
  - v. Have thread tension adjusted to ensure balanced and correctly formed stitches. Skips, puckers or stitching malfunctions are not acceptable;
- (b) Unless otherwise specified:
- i. Seams must be in accordance with CAN/CGSB-54.1;
  - ii. Seam allowances must be a minimum of 9.5 mm (0.375 in) wide;
  - iii. Seaming and serging may be done in one (1) or two (2) operations;
- (c) When specified:
- i. Serging must be done with a three thread serger with a minimum of eight (8) stitches per 2.54 cm (1 in);

- ii. When seaming and turning, the edges must be completely worked out;
- iii. Seaming and topstitching must be chain stitch or lock stitch using eight (8) to ten (10) stitches per 2.54 cm (1 in);
- iv. Double-needle stitching must be stitched with the needles set 6.4 mm (0.25 in) apart;
- v. Bartacks must be 12.7 mm (0.5 in) long with not less than twenty (20) cover stitches;
- vi. Cover seaming must be done using six (6) threads including four (4) needle threads, one (1) top looper thread and one (1) bottom looper thread; and
- vii. Zig-zag stitching must be done using three (3) threads with two (2) needle threads and one (1) bottom looper thread;

### 3.6 Marking and Care Label

The Shirt must include a Marking and Care label as follows:

- (a) Label positioned on the inside 5-10 cm (2-4 in) from the center back and stitched around all edges, 1.6 mm (0.0625 in) gauge;
- (b) Light sand or brown in colour with black printing in characters not less than 3.2 mm (0.125 in) nor more than 6.4 mm (0.25 in) in height, with the exception of the size identification which must be twice the height;
- (c) Marking label in accordance with D-80-001-055/SF-001 including the following:
  - i. The abbreviated nomenclature:  
  
SHIRT, FLEECE, BROWN  
CHANDAIL EN MOLLETON, BRUN
  - ii. NATO Stock Number as required for each size;
  - iii. Size by height and chest;
  - iv. NATO size designation;
  - v. Contract Number;
  - vi. Month/Year of manufacture;
  - vii. Fiber Content;
  - viii. Care Symbols; and
  - ix. Care Instructions;
- (d) Care symbols in accordance with CAN/CGSB-86.1-2003 as follows:
  - i. Table 1 – Washing – Symbol 11;
  - ii. Table 2 – Bleaching – Symbol 3;
  - iii. Table 3 – Drying – Symbol 4;
  - iv. Table 4 – Ironing/Pressing – Symbol 5; and
  - v. Table 5 – Professional Textile Care – Symbol 3;
- (e) Include a bar code in accordance with D-LM-008-002/SF-001, Appendix 3 that identifies the NATO stock number.

### 3.7 Construction

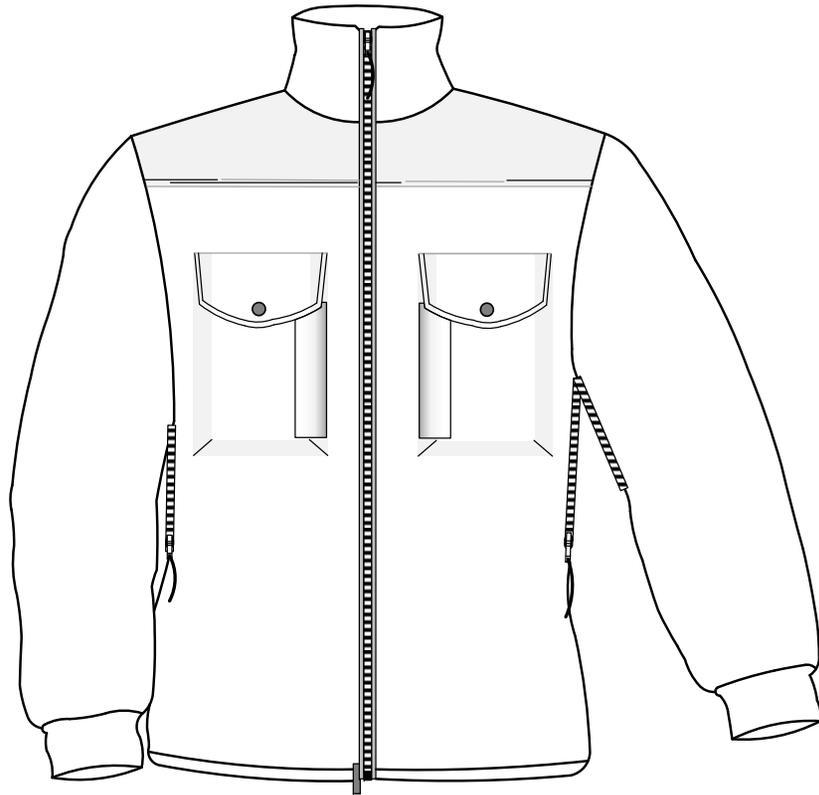
The Shirts are to be manufactured in accordance with the following requirements:

- (a) **General** - The Shirts must consist of a full-length front opening Shirt with full-length arms constructed of the shell material (see Figure 1) with the following:

- i. No raised seams where operational equipment can apply acute pressure on the shoulders, waist and back; and
  - ii. Construction, design, fit, seamage and finishings to withstand regular operational activities carried out by members of the Canadian Forces;
- (b) **Collar, yoke and front closure** - The collar and front closure must have the following:
- i. A collar of one piece of fleece material folded in half;
  - ii. Yoke of twill material extending the full length of the front closure opening; and
  - iii. Slide fastener extending from top of the collar to the shirt bottom with internal fly on the right side;
- (c) **Sleeves** - The Shirts must have one piece full length sleeves with the following:
- i. Elbow reinforcement made of twill material;
  - ii. Underarm Slide Fasteners; and
  - iii. Cuffs made of banding
- (d) **Bottom edge** - The Shirts must have a bottom edge as follows:
- i. A casing with an elastic insert; and
  - ii. A pull tab of twill material secured on the right lower corner of the slide fastener opening.
- (e) **Pockets** - Each front of the Shirt must have a pocket as follows:
- i. A pencil pocket on the anterior edge of each pocket;
  - ii. Bellows at the bottom of each pocket;
  - iii. Pocket flap aligned with top of the pocket stay; and
  - iv. Pocket flaps secured with a snap fastener to effect proper closure.

**APPENDIX 1 LAYOUT SKETCHES**

Figure 1: Front and Back Views



FRONT



BACK

Figure 2: Marking and Care Label

SHIRT, FLEECE, BROWN  
CHANDAIL EN MOLLETON, BRUN  
NSN/NNO: 8415-21-XXX-XXXX

**SIZE/TAILLE 7040**

NATO SIZE/TAILLE OTAN: XXXX-XXX  
Contract No./No. de contrat: WXXXX-XXXXXX  
Date de/of manufacture: mm/yy  
FIBRE CONTENT: 100% POLYESTER



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1. MACHINE WASH IN LUKEWARM WATER (NOT EXCEEDING 40 DEGREES CELSIUS) WITH REDUCES AGITATION.  
2. DO NOT BLECH.  
3. TUMBLE DRY AT LOW TEMPERATURE AND REMOVE ARTICLE AS SOON AS IT IS DRY.  
4. DO NOT IRON OR PRESS.  
5. DO NOT DRY CLEAN.

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1. LAVAGE A L'EAU TIEDE (TEMPERATURE MAXIMALE DE 40 DEGRES CELSIUS) AVEC CADENCE DE BRASSAGE MODEREE.  
2. NE PAS UTILISIER D'AGENTS DE BLANCHMENT CHLORES.  
3. SECHAGE EN MACHINE A TAMBOUR A BASSE TEMPERATURE RETIRER L'ARTICLEDE LA DECHEUSE DES QU'IL EST SEC.  
4. NE PAS REPASSER NI PRESSER.  
5. NE PAS NETTOYER A SEC.

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**APPENDIX 2 SCALE OF MEASUREMENTS**

MEASUREMENTS OF BODY						MEASUREMENTS OF GARMENT							
SIZES BY HEIGHT AND CHEST	NATO Stock Number	NATO SIZE	HEIGHT WITHOUT SHOES		CHEST OVER SHIRT	CHEST	BOTTOM RELAXED	BACK LENGTH FROM NECK SEAM	FRONT LENGTH FROM TOP OF COLLAR	BACK WIDTH AT BOTTOM OF YOKE	WIDTH AT SCYE	LENGTH AT UNDERARM	NECK (CLOSED)
6432	8415-20-011-8072	5060-7585	5' 1" to	X-SHORT	29-32	41	33	24 3/4	26	17 1/2	15	21	17
6436	8415-20-011-8073	5060-8595	5' 3 1/2"		33-36	45	37	24 7/8		18	16		18
6440	8415-20-011-8074	5060-9505			37-40	49	41	25		19 1/2	17		19
6736	8415-20-011-8075	6070-8595	5'4"	SHORT	33-36	45	37	26 3/8	27 1/2	18	17	22	18
6740	8415-20-011-8076	6070-9505	to		37-40	49	41	26 1/2		19 1/2	18		19
6744	8415-20-011-8077	6070-0515	5'6 1/2"		41-44	53	45	26 5/8		21	19		20
6748	8415-20-011-8078	6070-1525			45-48	57	49	26 3/4		22 1/2	20		21
7036	8415-20-011-8079	7080-8595	5'7" to 5'9 1/2"	REGULAR	33-36	45	37	27 7/8	29	18	18	23	18
7040	8415-20-011-8080	7080-9505			37-40	49	41	28		19 1/2	19		19
7044	8415-20-011-8081	7080-0515			41-44	53	45	28 1/8		21	20		20
7048	8415-20-011-8081	7080-1525			45-48	57	49	28 1/4		22 1/2	21		21
7052	8415-20-011-8083	7080-2535			49-52	61	53	28 3/8		24	22		22
7336	8415-20-011-8084	8090-8595	5'10" to 6'1/2"	TALL	33-36	45	37	29 3/8	30 1/2	18	19	24	18
7340	8415-20-011-8085	8090-9505			37-40	49	41	29 1/2		19 1/2	20		19
7344	8415-20-011-8086	8090-0515			41-44	53	45	29 5/8		21	21		20
7348	8415-20-011-8087	8090-1525			45-48	57	49	29 3/4		22 1/2	22		21
7352	8415-20-011-8088	8090-2535			49-52	61	53	29 7/8		24	23		22
7640	8415-20-011-8089	9000-9505	6'1"	X-TALL	37-40	49	41	31	32	19 1/2	21	25	19
7644	8415-20-011-8090	9000-0515	to		41-44	53	45	31 1/8		21	22		20
7648	8415-20-011-8091	9000-1525	6'3 1/2"		45-48	57	49	31 1/4		22 1/2	23		21
7652	8415-20-011-8092	9000-2535			49-52	61	53	31 3/8		24	24		22
TOLERANCE PLUS OR MINUS						1"	1"	3/4	3/4	1/2	1/2	1/2	1/2