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# MANUFACTURING DATA FOR TROUSERS, WET WEATHER, MULTICAM®

## 1.0 SCOPE

### 1.1 Scope

This Manufacturing Data covers the materials, design and construction requirements for the Trousers, Wet Weather, MULTICAM® for use by the Canadian Special Operations Forces Command (CANSOFCOM).

### 1.2 Intended Use

The Trousers, Wet Weather, MULTICAM® is worn with the Jacket, Wet Weather, MULTICAM®.

### 1.3 Classification

The Trousers will be supplied in one (1) of the following types as specified in the Contract:

- (a) Type I - Trousers, Wet Weather, MULTICAM® - Cloth, Nylon, Trilaminate, Waterproof Moisture Vapour Permeable (WMVP), MULTICAM®; and
- (b) Type II - Trousers, Wet Weather, MULTICAM®, Government Supplied Material.

## 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 to 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-80-001-055/SF-001 Specification for Label, Clothing and Equipment
- D-83-001-005/SF-001 Fastener, Slide, Interlocking
- D-80-001-028/SF-001 Cord, Plaited, Spun Synthetic Fibre
- D-LM-008-002/SF-001 Specification for Marking for Storage and Shipment

DND Drawings (provided upon request)

- CS-149 Socket, Fastener
- CS-150 Studs, Fastener
- CS-151 Eyelet, Fastener
- CS-153 Button, Fastener

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

- CAN/CGSB-4.131-M Cotton-Covered or Polyester-Covered, Polyester Thread
- CAN/CGSB-54.1-M Stitches and Seams, Parts I and II

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

- A-A-55126B Commercial Item Description - Fastener Tapes, Hook and Loop, Synthetic
- FED-STD-595C - Colors Used in Government Procurement

**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 shall 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:

- (e) Specification for Cloth, Nylon, Trilaminate, Waterproof Moisture Vapour Permeable (WMVP), MULTICAM®; and
- (f) Specification for Cloth, Nylon, Polyurethane Coated, MULTICAM®.

## 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.
Hook and Loop Fastener	A fastening consisting of two strips of nylon fabric, one having hooked threads and the other a coarse surface, that form a strong bond when pressed together, trademarked under the name VELCRO®.
MULTICAM®	A proprietary design for a computer generated digital camouflage pattern patented by Crye Precision Ltd.
Slide Fastener	A fastener for locking together two toothed edges by means of a sliding tab, commonly referred to as a zipper.

## 2.5 Layout Sketches

Schematic layout sketches for the Trousers are included as part of this Annex. The sketches are designed to provide a general layout of the Trousers 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 View;
- (b) Figure 2: Details of Garment Components;
- (c) Figure 3: Inside Views; and
- (d) Figure 4: Care and Marking Label

## 2.6 Patterns

DND will provide patterns as follows:

- (a) Sealed pattern: CANSOFCOM - Trousers, Wet Weather, MULTICAM® (Sealed for construction and design only); and
- (b) Paper patterns - DSSPM paper patterns for all sizes under Style Code THWWAS13 - Converged Trousers, Hot/Wet Weather, Windbreaker, Static Dissipative. Size 7034 (Regular/Medium) will be used for tendering purposes.

Note: The paper patterns for the Converged Trousers, Hot/Wet Weather, Windbreaker, Static Dissipative are to be used for the construction of the Trousers, Wet Weather, MULTICAM®. The paper patterns have the following deviations:

- The slide fasteners on the bottom leg suppressions must be water resistant; and
- The reflector tape assemblies at the knees have been removed.

### 3.0 REQUIREMENTS

#### 3.1 Design

The design must be in accordance with Sealed Patterns and must incorporate the following features:

- (a) Two pass-through pockets;
- (b) Elasticized waistband with front fly and slide fastener closure;
- (c) Nylon reinforcement patches at knee;
- (d) Gusseted leg with slide fastener closure;
- (e) Channel tab leg hem suppression with hook and loop closure; and
- (f) Four belt loops with snap fastener closures.

Note: Unless otherwise specified, these garments must be governed by the Scale of Measurements at Appendix 2.

#### 3.2 Materials

The following applies:

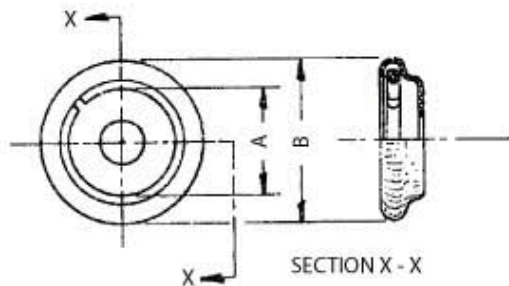
- (a) Shell Material - The following applies:
  - i. The shell material for Type I must be Cloth, Nylon, Trilaminate, Waterproof Moisture Vapour Permeable (WMVP), MULTICAM®; and
  - ii. The shell material for Type II must be Government Supplied Material;
- (b) Knee Reinforcement Patch - The material must be Cloth, Nylon, Polyurethane Coated, MULTICAM®;
- (c) Sealing Tape - The sealing tape must be commercially available tape compatible with the shell material. The tape must be a non-florescent earth tone colour to match the MULTICAM® camouflage pattern;
- (d) Hook and Loop Fastener Tape - The hook and loop fastener tape must:
  - i. Be plain backed Type I, Class 1 100% nylon in accordance with A-A-55126B;
  - ii. Be a non-florescent earth tone colour to match the MULTICAM® camouflage pattern; and
  - iii. Available in the following widths:
    - a. 18 mm (0.75 in);
    - b. 25 mm (1 in); and
    - c. 50 mm (2 ins);
- (e) Slide Fasteners - The slide fasteners must be as follows:
  - i. Front fly:
    - a. Be Class 3, Type 13 monofilament (coil) chain type without stops and a regular pull; and
    - b. Have automatic lock sliders and 100% polyester tape with a polyurethane (PU) coating not less than 2.5 mils thick in accordance with D- 83-001-005/SF-001;
  - ii. Pass-through pockets:

- a. Be Class 3, Type 1 monofilament (coil) chain type without stops and a regular pull; and
- b. Have automatic lock sliders and 100% polyester tape with a polyurethane (PU) coating not less than 2.5 mils thick in accordance with D- 83-001-005/SF-001;
- iii. Bottom leg suppressions:
  - a. Be Class 3, Type 1 monofilament (coil) chain type without stops and a regular pull; and
  - b. Have automatic lock sliders and 100% polyester tape with a polyurethane (PU) coating not less than 2.5 mils thick in accordance with D- 83-001-005/SF-001;
- iv. Be a non-florescent earth tone colour to match the MULTICAM® camouflage pattern;

Note: These items are known to be available from YKK Canada Inc. (3939 boul. Thimens, Ville St-Laurent Quebec H4R 1X3). Any other commercial equivalents are acceptable.

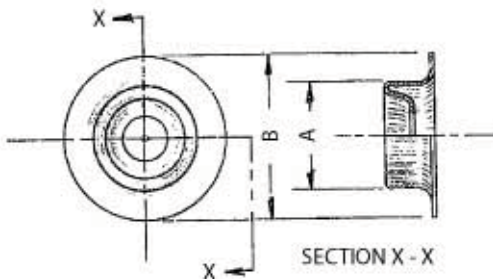
- (f) Herringbone Twill Tape - The herringbone twill tape must be:
  - i. Commercially available 100% polyester woven edge twill tape, herringbone weave; and
  - ii. A non-florescent earth tone colour to match the MULTICAM® camouflage pattern;
- (g) Drawcord - The drawcord must:
  - i. Be commercially available cord, plaited, spun synthetic fiber conforming to Type I of D- 80-001-028/SF-001; and
  - ii. Be a non-florescent earth tone colour to match the MULTICAM® camouflage pattern;
- (h) Snap Fasteners - Snap fasteners must be black finish with a phosphor bronze spring as detailed in the following drawings:

Drawing 1: CS-149 - Socket Fastener



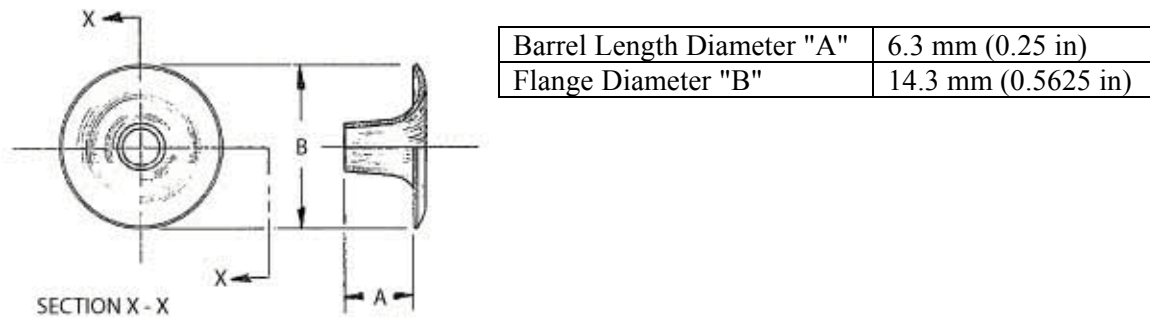
Inside diameter "A"	8.7 mm (0.3425 in)
Outside diameter "B"	14.3 mm 0.5625 in)

Drawing 2: CS-150 - Stud Fastener

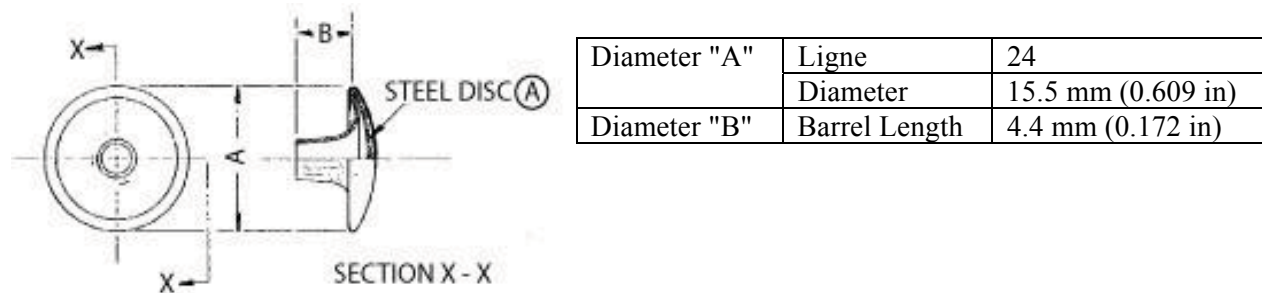


Diameter "A"	9.5 mm (0.375 in)
Diameter "B"	14.3 mm 0.5625 in)

Drawing 3: CS-151 - Eyelet Fastener



Drawing 4: CS-153 - Button Fastener



- (i) Elastic - The elastic must:
  - i. Commercially available, preshrunk, knitted polyester/lycra with an elongation of 125% (tolerance  $\pm 5\%$ ); and
  - ii. Be black or white in colour;
- (j) Thread - The following applies:
  - i. The thread for seaming, stitching, buttonholes and bartacks must:
    - a. Be cotton-covered or polyester-covered, polyester thread (R50 Tex) conforming to CAN/CGSB-4.131-M; and
    - b. Be a non-florescent earth tone colour to match the MULTICAM® camouflage pattern;
- (k) All material must be sourced and supplied by the Contractor.

### 3.3 Sizing

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

Inseam (in)	Waist (in)					
	26	30	34	38	42	46
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

Size	Type I - NSN
6426	8415-20-011-7301
6430	8415-20-011-7302
6434	8415-20-011-7303
6730	8415-20-011-7304
6734	8415-20-011-7305
6738	8415-20-011-7306
6742	8415-20-011-7307
7030	8415-20-011-7308
7034	8415-20-011-7309
7038	8415-20-011-7310
7042	8415-20-011-7311
7046	8415-20-011-7312
7330	8415-20-011-7313
7334	8415-20-011-7314
7338	8415-20-011-7315
7342	8415-20-011-7316
7346	8415-20-011-7317
7634	8415-20-011-7318
7638	8415-20-011-7319
7642	8415-20-011-7320
7646	8415-20-011-7321

The Trousers must also be available in custom sizes where the above sizes are not suitable.

#### 3.4 Cutting

The following applies:

- (a) The Trousers 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 Trousers;

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

- (b) The shell parts of the Trousers must:

- i. Be cut and used in accordance with best commercial standards;
- ii. Be cut in the direction of the warp as shown on the paper patterns; and
- iii. Be cut from the same piece of shell material with the exception of the gusset pieces, channel and tab assemblies, leg facing pieces and belt loops, which may be cut from separate lays of ends of shell material.

### 3.5 Sewing

The following applies:

- (a) Seams must be as follows:
  - i. Conform to CAN/CGSB-54.1-M; and
  - ii. Be a minimum of 9.5 mm (0.375 in) wide unless otherwise specified;
- (b) Stitching must be as follows:
  - i. Be either lock stitched Type 301 or chain stitch Type 401 (unless otherwise specified) conforming to CAN/CGSB-54.1-M, having not less than eight (8) nor more than ten (10) stitches per 2.5 cm (1 in);
  - ii. Ends of all lock stitched seams and stitching, also breaks in thread, securely backstitched; and
  - iii. Present a regular even appearance without fabric pucker and be free from skips that may result from faulty machine thread tension or other stitching malfunctions;
- (c) Where seaming, turning and stitching is specified, the edges must be properly worked out before stitching;
- (d) Buttonholes must:
  - i. Be gimp reinforced eyelet type with not less than 22 stitches per 2.5 cm (1 in);
  - ii. Have ends fishtailed or bartacked; and
  - iii. Unless otherwise specified, only the eyelet of the buttonhole is to be cut for extrusion of the drawcord;
- (e) Hook and loop fastener tape must:
  - i. Be stitched around all edges 3.2 mm (0.125 in) gauge, taking care to ensure stitching is formed into the hook and loop portion of the tape;
  - ii. For tapes wider than 2.5 cm (1 in) stitched around all edges and through the centre or have a 'X' enclosed in the box; and
  - iii. For best results, a ball point needle, size 110 (#18) should be used;
- (f) Bartacks, unless specified otherwise, must be 12.7 mm (0.5 in) long and must have not less than twenty (20) cover stitches.

### 3.6 Snap Fasteners

When inlaying snap fasteners, reinforcement under the shell material may be added as required. Careful consideration must be given to the attaching force of the snap fastener machine to ensure that all parts of the snap fastener will remain attached and functional for the life of the garment.

### 3.7 Seam Sealing

When specified, seams must be sealed in a manner which will ensure the integrity of the waterproof barrier layer in the garment. The following requirements must be met:

Table 1: Requirements for Seams, Ends and Joins, Drill Holes and Stitching Lines, and Seamed Areas



Construction Details	Unacceptable Faults
Seams	<ul style="list-style-type: none"> <li>– Tape which is not centered across the width of the seam;</li> <li>– Delamination along edges of tape, over seam allowance and stitching or across the width of the tape;</li> <li>– Bubbling;</li> <li>– Blistering;</li> <li>– Puckering;</li> <li>– Melting; and/or</li> <li>– Ends of threads which have not been trimmed.</li> </ul>
Ends and Joins	<ul style="list-style-type: none"> <li>– Loose ends and corners which have not bonded;</li> <li>– Rough edges or beads at the ends; and</li> <li>– An overlap at a join of less than 19.1 mm (0.75 in).</li> </ul>
Drill Holes and Stitching Lines (Not in Seams)	<ul style="list-style-type: none"> <li>– Left uncovered without a designated exception.</li> </ul>
Stiffness of Seamed Area	<ul style="list-style-type: none"> <li>– Marked increase of stiffness.</li> </ul>

### 3.8 Marking and Care Label

The Trousers must include two (2) Care and Marking Labels (see Figure 4), one in French and the other in English, as follows:

- (a) Positioned side by side on the inner Trouser back and stitched into the waistband seam only;
- (b) Light sand 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) Care symbols in accordance with CAN/CGSB-86.1-2003 including the following:
  - i. Table 1 – Washing – symbol 6;
  - ii. Table 2 – Bleaching – symbol 3;
  - iii. Table 3 – Drying – symbol 3;
  - iv. Table 4 – Ironing/Pressing – symbol 5; and
  - v. Table 5 – Professional Textile Care – symbol 3;
- (d) Marking label in accordance with D-80-001-055/SF-001 including the following:
  - i. The abbreviated nomenclature:
 

TROUSERS, WET WEATHER  
PANTALONS, IMPERMEABLE
  - ii. NATO Stock Number as required for each size;
  - iii. Size by height and waist;
  - iv. NATO size designation;
  - v. Contract Number;
  - vi. Name of Contractor and/or Sub-Contractor as applicable (no logos or trademarks);
  - vii. Month/Year of manufacture; and

- viii. Care Symbols (in black ink);
- (e) Include a bar code in accordance with D-LM-008-002/SF-001, Appendix 3 that identifies the NATO stock number.

### 3.9 Construction

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

- (a) **Waist** - The Trouser must have an elasticized waist as follows:
  - i. Consists of an elasticized waistband and two (2) waistband extension pieces;
  - ii. Elasticized waistband as follows:
    - a. Constructed from one (1) ply of shell material and a 5.0 cm (2 in) wide elastic band;
    - b. Include two (2) buttonholes for the drawcord ends, reinforced with a layer of shell material, are placed on the inside of the elasticized waistband piece as indicated on the paper patterns;
    - c. The elasticized waistband measuring is to be constructed on an automatic elasticized waistband machine with the needles set apart at 12.7 mm (0.5 in) creating four (4) channels; and
    - d. The drawcord is inserted into the second channel from the top and protrudes from each buttonhole for 12.7 cm (5 in), with the ends of the drawcord sealed and tied in a knot to prevent unraveling;
  - iii. Waistband extensions on either end of the elasticized waistband as follows:
    - a. Constructed from one (1) ply of shell material; and
    - b. With the raw edge folded 3.2 mm (0.25 in), stitched at 3.2 mm (0.125 in) gauge to the end of the elasticized waistband;
  - iv. Attached to the trousers as follows:
    - a. Bottom edge of the elasticized waistband with extensions is seamed to the trousers with the marking and care caught in the seam and positioned on the inner centre back; and
    - b. Seam turned towards the trouser and stitched at 1.6 mm (0.0625 in) gauge such that the finished width of the waistband is 5.7 cm (2.25 in);
  - v. Have a center front fly as follows:
    - a. Have a two-way water resistant slide fastener;
    - b. Have a right side as follows:
      - 1. Fly curtain plies seamed together across the top and along the front edge, turned and stitched 3.2 mm (0.125 in) gauge;
      - 2. The raw edge of the waistband extension folded 6.4 mm (0.25 in), and along with the right half of the slide fastener and the back edge of the curtain, seamed, turned and stitched 1.6 mm (0.0625 in) gauge to the right fly opening; and
      - 3. End of the slide fastener tape to be included in the above stitching;
    - c. Have a left side as follows:
      - 1. Include an under slide fastener fly shell piece made of one (1) ply of shell material;
      - 2. Left side of the slide fastener (polyurethane coat side facing inside) positioned as indicated on the paper patterns and sewn 6.4 mm (0.25 in) gauge to the back side of the under slide fastener fly shell piece;
      - 3. The right edge of the under slide fastener fly shell piece folded 6.4 mm (0.25 in) and sewn at 3.2 mm (0.125 in) gauge to the front following the curve of the pattern piece at the bottom; and

4. The remaining edges of the left waistband extension folded 6.4 mm (0.25 in) and sewn to the front at 3.2 mm (0.125 in) gauge with the end of the slide fastener tape included in the seam;
  - d. Include a bartack placed across the bottom of the fly opening; and
  - e. All seams to be sealed;
  - vi. Include two (2) male snap fasteners and two (2) female snap fasteners inlaid on the fly curtain and facing of the trousers, effecting proper closure at the waist; and
  - vii. Have belt loops with snap fastener closures as follows:
    - a. Have four (4) belt loops made of shell material as follows:
      1. One (1) end of each belt loop folded under 2.5 cm (1 in) and stitched across the end such that the finished width is 15.8 mm (0.625 in); and
      2. Include a female snap fastener centered and inlaid on the outside of the fold;
    - b. Positioned as shown on the paper patterns and sewn on after the waistband has been completed;
    - c. Top of the belt loops bartacked in place across the full width;
    - d. Include four (4) male snap fasteners as follows:
      1. Inlaid on the trouser, effecting proper closure with the belt loops; and
      2. The area in which the snap fasteners are inlaid sealed beforehand;
    - e. Have a finished effective length of 15.8 mm (0.625 in);
- (b) **Seams** - The Trousers must have seams as follows:
- i. The crotch seamed as follows:
    - a. Fronts joined at the crotch below the fly opening; and
    - b. Seam allowance pressed towards the left side and stitched to the bottom portion of the fly curtain 1.6 mm (0.0625 in) gauge and 6.4 mm (0.25 in) gauge then sealed;
  - ii. The trousers joined together at the seat, turned and topstitched at 1.6 mm (0.0625 in) then sealed;
  - iii. The backs and fronts seamed together along the side then turned towards the back and sealed; and
  - iv. The front and back joined along the inseams, turned towards the back and sealed
- (c) **Pockets** - The Trousers must have front pass-through pockets as follows:
- i. Include a slide fastener closure of approximately 17.8 cm (7 in);
  - ii. With the slide fastener on the inner side of the shell, the stopper at the top and the raw edges of the pass-through openings folded under, the slide fastener is then stitched around all edges at 1.6 mm (0.0625 in) and 6.4 mm (0.25 in) gauge; and
  - iii. Secure the top and bottom of the slide fastener tape with lockstitch, backstitched three or four times;
- (d) **Knee Reinforcement Patches** – The Trousers must have knee reinforcement patches as follows:
- i. Nylon reinforcement patches sewn to the front of each knee with the bottom flush to the top leg portion bottom seam, as indicated on the paper patterns, and stitched 1.6 mm (0.0625 in) and 6.4 mm (0.25 in) gauge, or double-needle stitched, then sealed; and
  - ii. The bottom hem of the top leg portion and the knee reinforcement patch turned up 9.5 mm (0.375 in) and seamed 3.2 mm (0.125 in) gauge with a stay stitch to secure patch for ease of sewing;
- (e) **Leg Facings** - The Trousers must have leg facings as follows (see Figure 3):
- i. Leg facing pieces as follows:

- a. Constructed from one (1) ply of shell material; and
    - b. The exterior face of the leg facing pieces made from the nylon or polyester tricot lining fabric (inside face of fabric);
  - ii. Join leg facings and top and bottom leg portions as follows:
    - a. With raw edges together, the leg facing, top and bottom leg portions seamed at 6.4 mm (0.25 in) gauge through all plies then sealed; and
    - b. With right sides of the fabric together, the lower edge of the leg facing stitched to the lower edge of the top leg shell at 3.2 mm (0.125 in) gauge all around;
  - iii. Include a closure for each leg facing as follows:
    - a. A piece of loop fastener tape measuring 2.5 cm (1 in) long by 19.1 mm (0.75 in) wide positioned on the leg facing fabric, as indicated on the paper patterns, and stitched around all edges; and
    - b. A corresponding piece of hook fastener tape measuring 2.5 cm (1 in) long by 19.1 mm (0.75 in) wide on the leg of the trousers and stitched around all edges affecting proper closure with the facing;
- (f) **Leg bottom** - The Trousers must have bottom leg portions with a leg suppression system as follows (see Figure 2):
- i. Include a gusset as follows:
    - a. Constructed from one (1) ply of shell material; and
    - b. Sewn at 6.4 mm (0.25 in) gauge to the bottom leg portion and sealed;
  - ii. Include a slide fastener placket (cover) as follows:
    - a. Placket folded in half, right sides together, seamed along the side edges and turned inside out;
    - b. Slide fastener tape sewn to the left and right edges of the slide fastener plackets at 9.5 mm (0.375) gauge; and
    - c. Slide fastener inverted so that the opening is at the bottom hem;
  - iii. Include a channel and tab bottom closure suppression system as follows:
    - a. The channel and the tab each constructed from one (1) ply of shell material;
    - b. Tab as follows:
      - 1. A piece of hook fastener tape measuring 8.9 cm (3.5 in) long by 19.1 mm (0.75 in) wide is positioned on the tab, as shown on the paper patterns, and stitched around all edges;
      - 2. The tab is then folded in half, right sides together, seamed along the side edges, turned inside out and stitched at 1.6 mm (0.0625 in) gauge along the side edges leaving one end open for the insertion of the elastic;
      - 3. A piece of elastic tape measuring 2.5 cm (1 in) wide by 9.5 cm (3.75 in) in length is inserted in the open end of the tab and double stitched 3.2 mm (0.125 in) from the edge;
    - c. Channel as follows:
      - 1. One (1) edge of the channel turned under 5.0 cm ( in) and seamed at 3.2 mm (0.125 in) gauge;
      - 2. At the other end, the edge of the fabric is folded 9.5 mm (0.375 in), the raw edge of the elastic is centered and encased, and the end is stitched 6.4 mm (0.25 in) from the edge; and
      - 3. With the end of the tab extending from the edge of the channel, the channel is stitched around the three (3) sides at 3.2 mm (0.125 in) gauge to the front side bottom hem of the each trouser leg;
    - d. A piece of loop fastener tape measuring 16.2 cm (6.375 in) long by 19.1 mm (0.75 in) wide is stitched around all edges to the back side bottom hem of each trouser leg to affect closure with the hook fastener tape on the tab;

- iv. The front and back of the bottom leg seamed together along the side seams;
- v. The slide double-needle stitched along the outer edges including a row of stitching through the placket to secure the top of the slide fastener;
- vi. The bottom of each leg turned up, the raw edge folded under and stitched at 3.2 mm (0.125 in) gauge to form a finished hem of 2.5 cm (1 in) wide; and
- vii. All seams sealed.

## APPENDIX 1 LAYOUT SKETCHES

Figure 1: Front and Back View

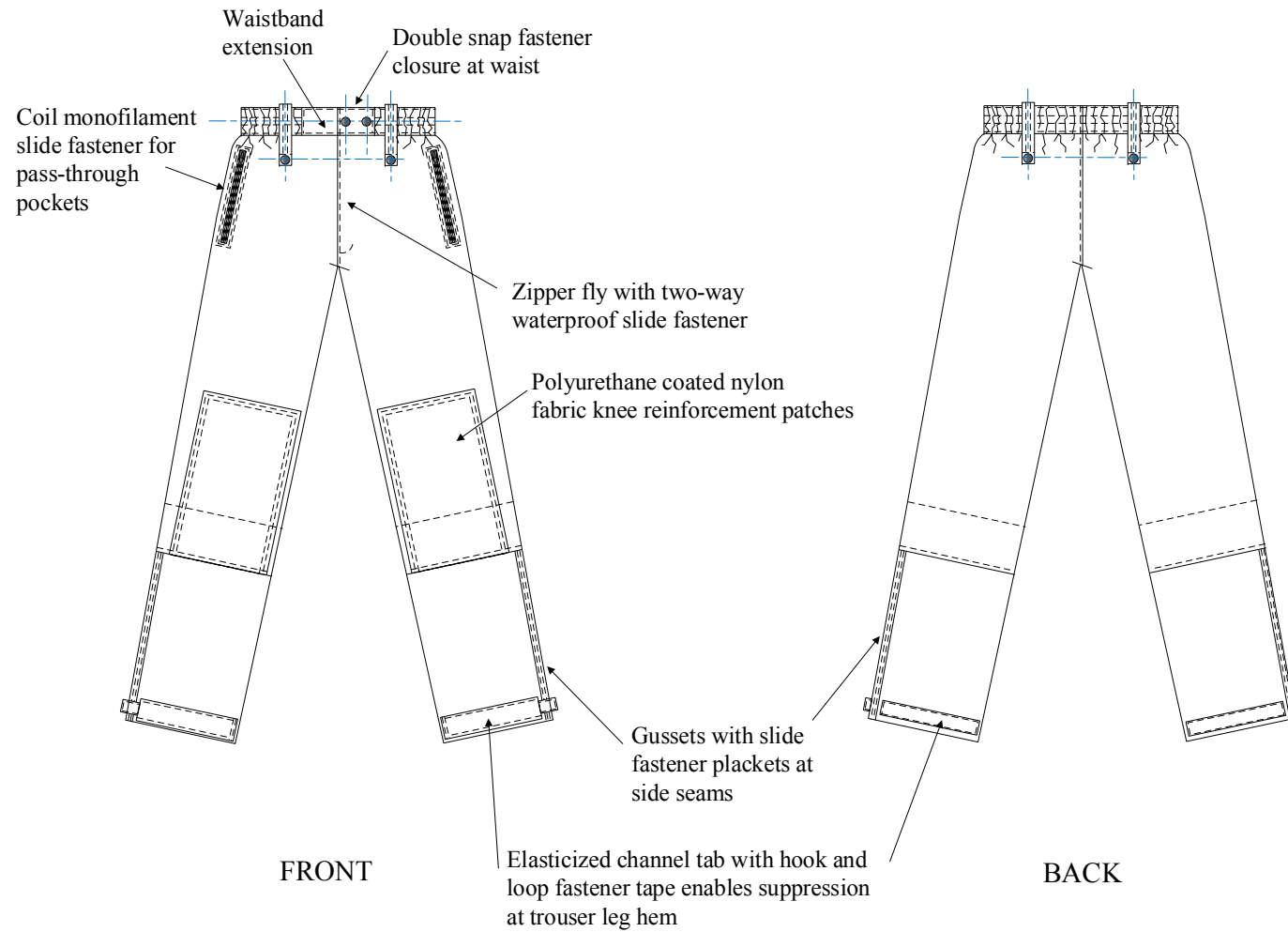


Figure 2: Details of Garment Components

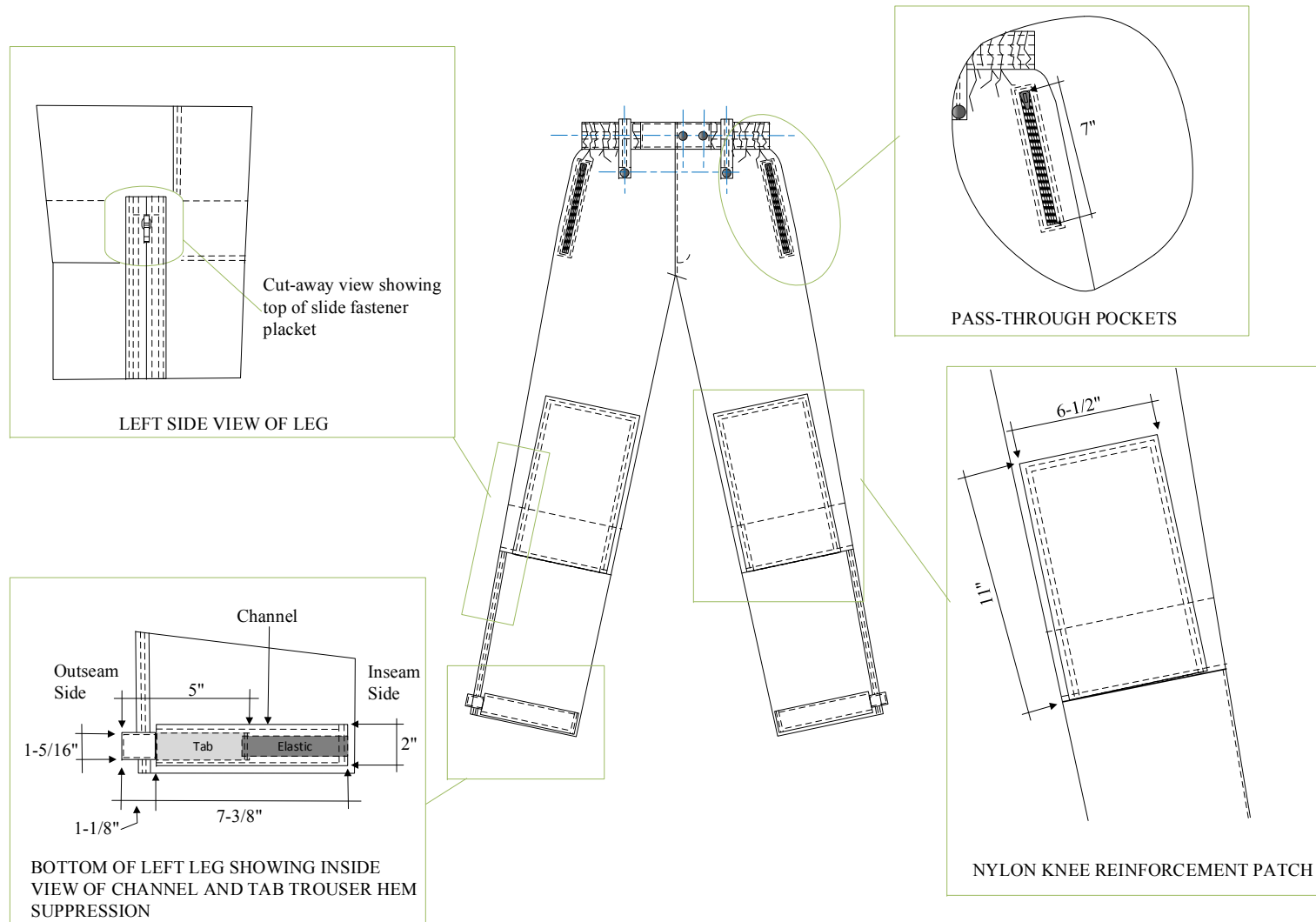


Figure 3: Inside Views

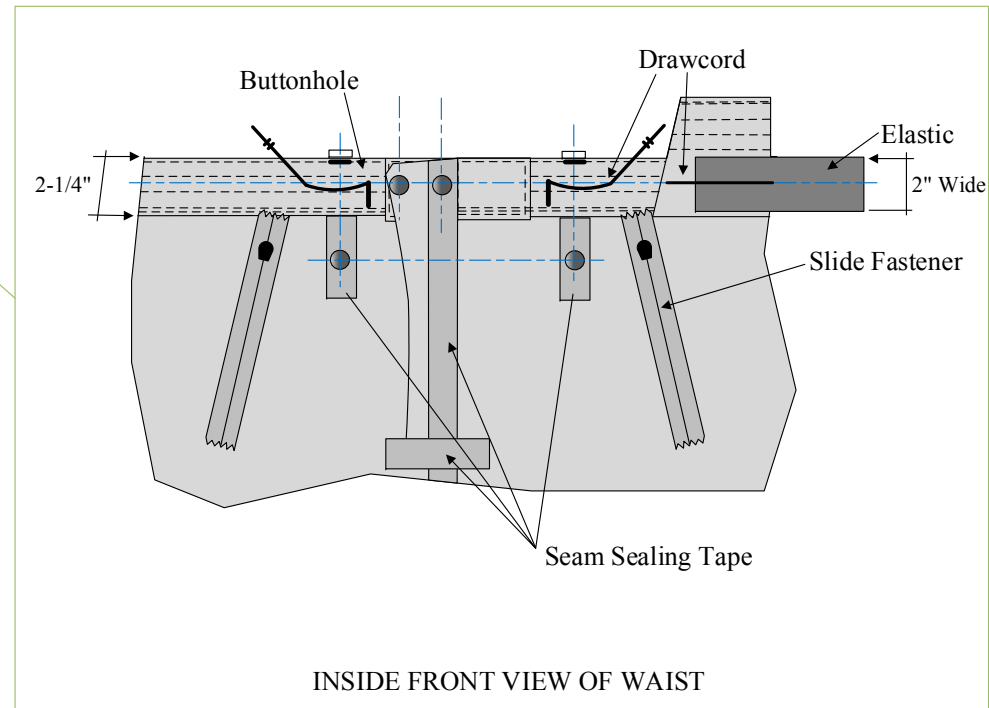
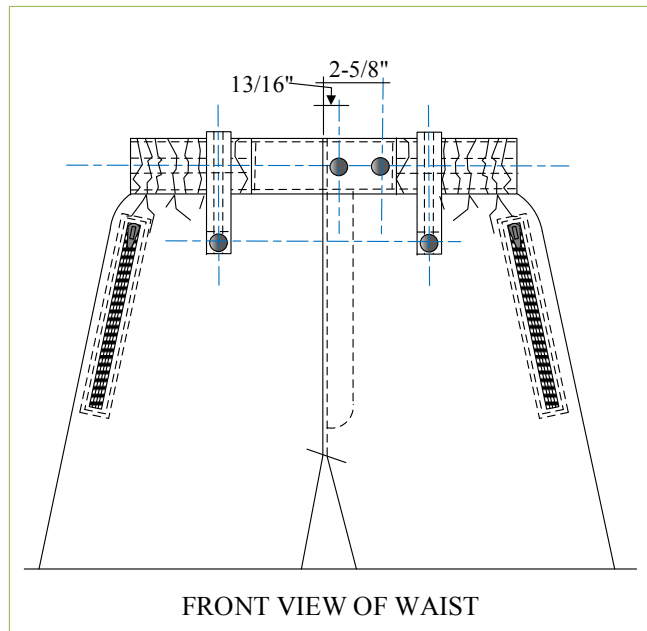
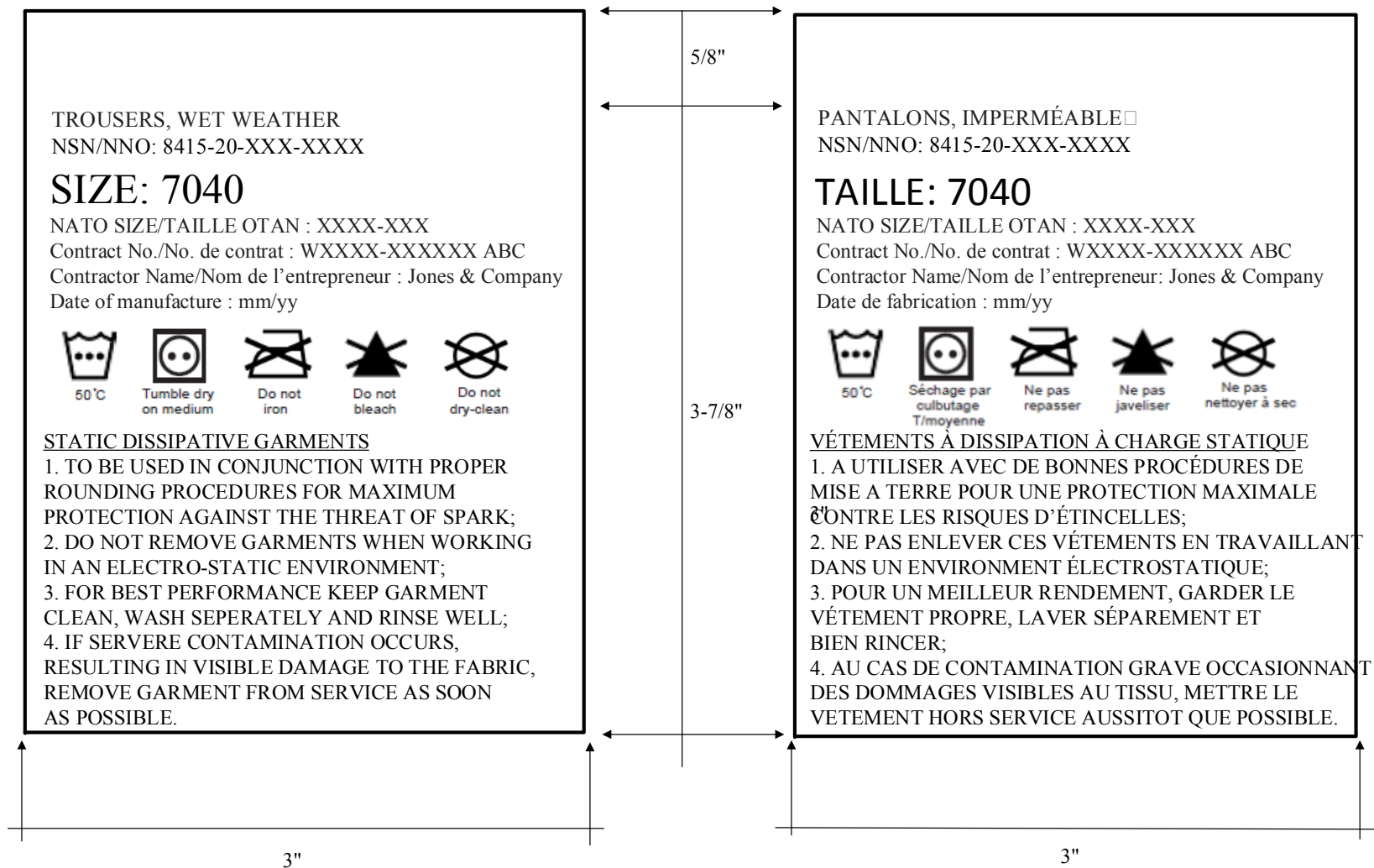




Figure 4: Care and Marking Label



**APPENDIX 2      SCALE OF MEASUREMENTS**

MEASUREMENTS OF BODY					MEASUREMENTS OF GARMENT									
SIZES BY HEIGHT AND WAIST	HEIGHT WITHOUT SHOES		WAIST	NATO SIZES	WAIST FULLY EXTENDED	WAIST RELAXED	SEAT 10" DOWN FROM TOP OF WAISTBAND	OUTSEAM FINISHED	INSEAM FINISHED	WIDTH AT BOTTOM OF KNEE EX-TENSION	WIDTH AT BOTTOM OPEN	WIDTH AT BOTTOM CLOSED	SLIDE FASTENER LENGTH AT BOTTOM OF LEG	SLIDE FASTENER LENGTH AT FRONT FLY
6426	5' 1" to 5' 3-1/2"	X-SHORT	23 - 26	7075-6070	34	24	42	37	26 1/2	20	26	20	12	6
6430			27 - 30	7075-7080	38	28	46			21	26 1/2	20 1/2		
6434			31-34	7075-8090	42	32	50			22	27	21		
6730	5'4" to 5' 6 1/2"	SHORT	27-30	7580-7080	38	28	46	40	28 1/2	21	26 1/2	20 1/2	13	7
6734			31-34	7580-8090	42	32	50			22	27	21		
6738			35-38	7580-9000	46	36	54			23	27 1/2	21 1/2		
6742			39-42	7580-0010	50	40	58			24	28	22		
7030	5'7" to 5'9 1/2"	REG.	27-30	8085-7080	38	28	46	43	30 1/2	21	26 1/2	20 1/2	14	8
7034			31-34	8085-8090	42	32	50			22	27	21		
7038			35-38	8085-9000	46	36	54			23	27 1/2	21 1/2		
7042			39-42	8085-0010	50	40	58			24	28	22		
7046			43-46	8085-1020	54	44	62			25	28 1/2	22 1/2		
7330	5'10" to 6'1/2"	TALL	27-30	8590-7080	38	28	46	46	32 1/2	21	26 1/2	20 1/2	15	9
7334			31-34	8590-8090	42	32	50			22	27	21		
7338			35-38	8590-9000	46	36	54			23	27 1/2	21 1/2		
7342			39-42	8590-0010	50	40	58			24	28	22		
7346			43-46	8590-1020	54	44	62			25	28 1/2	22 1/2		
7634	6'1" to 6'3 1/2"	X-TALL	31-34	9095-8090	42	32	50	49	34 1/2	22	27	21	16	9 1/2
7638			35-38	9095-9000	46	36	54			23	27 1/2	21 1/2		
7642			39-42	9095-0010	50	40	58			24	28	22		
7646			43-46	9095-1020	54	44	62			25	28 1/2	22 1/2		
TOLERANCE PLUS OR MINUS					1/2	3/4	3/4	3/4	1/2	1/2	1/2	1/2	0	0