



**RETURN BIDS TO:  
RETOURNER LES SOUMISSIONS À:**

**Bid Receiving - PWGSC / Réception des  
soumissions - TPSGC**  
**11 Laurier St./ 11, rue Laurier**  
**Place du Portage, Phase III**  
**Core 0B2 / Noyau 0B2**  
**Gatineau, Québec K1A 0S5**  
**Bid Fax: (819) 997-9776**

**REQUEST FOR PROPOSAL  
DEMANDE DE PROPOSITION**

**Proposal To: Public Works and Government  
Services Canada**

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

**Proposition aux: Travaux Publics et Services  
Gouvernementaux Canada**

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

**Comments - Commentaires**

**Vendor/Firm Name and Address**

**Raison sociale et adresse du  
fournisseur/de l'entrepreneur**

**Issuing Office - Bureau de distribution**

Clothing and Textiles Division / Division des vêtements et  
des textiles  
11 Laurier St./ 11, rue Laurier  
6A2, Place du Portage  
Gatineau, Québec K1A 0S5

<b>Title - Sujet</b> Tactical Flight Suits	
<b>Solicitation No. - N° de l'invitation</b> W6399-17JC50/A	<b>Date</b> 2017-10-03
<b>Client Reference No. - N° de référence du client</b> W6399-17JC50	
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$\$PR-735-73518	
<b>File No. - N° de dossier</b> pr735.W6399-17JC50	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2017-11-20</b>	<b>Time Zone</b> <b>Fuseau horaire</b> Eastern Standard Time EST
<b>F.O.B. - F.A.B.</b> <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input checked="" type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Swanson, Manon	<b>Buyer Id - Id de l'acheteur</b> pr735
<b>Telephone No. - N° de téléphone</b> (819) 420-2945 ( )	<b>FAX No. - N° de FAX</b> ( ) -
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> Delivery Destination within 200 km of the National Capital Region and will be identified at the contract stage	

**Instructions: See Herein**

**Instructions: Voir aux présentes**

<b>Delivery Required - Livraison exigée</b> See Herein	<b>Delivery Offered - Livraison proposée</b>
<b>Vendor/Firm Name and Address</b> <b>Raison sociale et adresse du fournisseur/de l'entrepreneur</b>	
<b>Telephone No. - N° de téléphone</b> <b>Facsimile No. - N° de télécopieur</b>	
<b>Name and title of person authorized to sign on behalf of Vendor/Firm</b> <b>(type or print)</b> <b>Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>

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## **PART 1 - GENERAL INFORMATION**

### **1.1 Security Requirement**

There is no security requirement associated with this bid solicitation.

### **1.2 Requirement**

The Department of National Defence has a requirement for flame resistant, two pieces flight suits to be worn by DND's Tactical Helicopter Crews in training and operations. The requirement is detailed at Annex "A" of this request for proposal

### **1.3 Debriefings**

Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days from receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

### **1.4 Trade Agreements**

The requirement is subject to the provisions of the Canadian Free Trade Agreement (CFTA)

### **1.5 Canadian Content**

The requirement is subject to a preference for Canadian goods and/or services.

## **PART 2 - BIDDER INSTRUCTIONS**

### **2.1 Standard Instructions, Clauses and Conditions**

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the *Standard Acquisition Clauses and Conditions Manual* (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The 2003 (2017/04/27) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

Delete: 60 days

Insert: 120 days

#### **2.1.1 SACC Manual clauses**

A9130T

2014/11/27

Controlled Goods Program - Bid

## 2.2 Submission of Bids

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated on page 1 of the bid solicitation.

## 2.3 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than seven (7) calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by Bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) is eliminated, and the enquiry can be answered to all Bidders. Enquiries not submitted in a form that can be distributed to all Bidders may not be answered by Canada.

## 2.4 Applicable Laws

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Ontario.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the Bidders.

## 2.5 Samples

Sample may be viewed (by appointment only) at the following offices:

**Public Works & Government Services  
Canada**  
Supply Directorate  
6th floor  
1550 ave D'Estimauville  
Quebec, Que. G1J 0C7  
TEL: 418-649-2714  
FAX: 418-648-2209  
Attention: Micheline Naud  
([micheline.naud@tpsgc-pwgsc.gc.ca](mailto:micheline.naud@tpsgc-pwgsc.gc.ca))

**Public Works & Government Services  
Canada**  
Place Bonaventure, South-East Portal  
800 de La Gauchetière Street West  
7th Floor  
Montreal, Quebec H5A 1L6  
TEL: 514-496-3404  
FAX: 514-496-3822  
Attention: Viviane Rouhault  
([viviane.rouhault@tpsgc-pwgsc.gc.ca](mailto:viviane.rouhault@tpsgc-pwgsc.gc.ca))

**Public Works & Government Services  
Canada**

Suite 480, 33 City Centre Drive  
Mississauga, Ont. L5B 2N5  
TEL: 905-615-2070  
FAX: 905-615-2023  
Attention: Rosy Gupta  
([rosy.gupta@tpsgc-pwgsc.gc.ca](mailto:rosy.gupta@tpsgc-pwgsc.gc.ca))

**Public Works & Government Services  
Canada**

Telus Plaza North  
10025 Jasper Avenue, 5th Floor  
Edmonton, AB T5J 1S6  
TEL: (780) 497-3517  
FAX: (780) 497-3510  
Attention: Nicole Boucher (wst-pa-  
edm@tpsgc-pwgsc.gc.ca)

**Public Works & Government Services  
Canada**

Suite 100, 167 Lombard Avenue  
P.O. Box 1408  
Winnipeg, Manitoba R3C 2Z1  
TEL: 204-983-3774  
FAX: 204-983-7796  
Attention: Bev Laurin ([bev.laurin@tpsgc-pwgsc.gc.ca](mailto:bev.laurin@tpsgc-pwgsc.gc.ca))

**Public Works & Government Services  
Canada**

Pacific Region, SOSB, Industrial &  
Commercial Products  
219 - 800 Burrard Street  
Vancouver, B.C V6Z 0B9  
TEL: 778-788-0237 (Tamana Makhni) OR  
TEL: 604-658-2799 (Betty Chan)  
FAX: 604-775-7526  
Attention: Tamana Makhni  
([tamana.makhni@tpsgc-pwgsc.gc.ca](mailto:tamana.makhni@tpsgc-pwgsc.gc.ca))  
OR  
Attention: Betty Chan ([betty.chan@tpsgc-pwgsc.gc.ca](mailto:betty.chan@tpsgc-pwgsc.gc.ca))

**2.6 Technical Data**

In order to receive Technical Data Packages against this solicitation, Bidders must send their request by email to [manon.swanson@tpsgc-pwgsc.gc.ca](mailto:manon.swanson@tpsgc-pwgsc.gc.ca) and provide the following details:

- Company Name
- Complete mailing & physical address (p.o. box numbers not acceptable)
- Area code and telephone number
- Contact name
- E-mail address
- Solicitation Number & Closing Date

It is imperative that the request be done as soon as possible to ensure timely receipt. Notwithstanding Canada must not be held responsible for untimely release of the technical data.

## **2.7 Specifications and Standards**

### **2.7.1 Canadian General Standards Board (CGSB) – Standards**

A copy of the CGSB Standards referred to in the bid solicitation is available and may be purchased from:

Canadian General Standards Board  
Place du Portage III, 6B1  
11 Laurier Street  
Gatineau, Québec  
Telephone: (819) 956-0425 or 1-800-665-CGSB (Canada only)  
Fax: (819) 956-5740  
E-mail: [ncr.cgsb-ongc@pwgsc-tpsgc.gc.ca](mailto:ncr.cgsb-ongc@pwgsc-tpsgc.gc.ca)  
CGSB Website: <http://www.tpsgc-pwgsc.gc.ca/ongc-cgsb/index-eng.html>

## **2.8 Transportation Costs Information**

The Bidder is requested to provide the following information concerning transportation costs for the delivery of the units to destination:

- (a) shipping weight by unit; \_\_\_\_\_
- (b) number of items by unit; \_\_\_\_\_
- (c) cubic measurement by unit; \_\_\_\_\_
- (d) number of units per shipment: \_\_\_\_\_
- (e) name of shipping point; \_\_\_\_\_
- (f) recommended method of shipment and carrier \_\_\_\_\_
- (g) Unit cost: \_\_\_\_\_
- (h) Total cost \$ \_\_\_\_\_

## **PART 3 - BID PREPARATION INSTRUCTIONS**

### **3.1 Bid Preparation Instructions**

Canada requests that bidders provide their bid in separately bound sections as follows:

Section I: Technical Bid ( 3 hard copies)  
Section II: Financial Bid ( 1 hard copy)  
Section III: Certifications (1 hard copy)  
Section IV: Additional Information (1 hard copy)

Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.

Canada requests that Bidders follow the format instructions described below in the preparation of their bid:

- (a) use 8.5 x 11 inch (216 mm x 279 mm) paper;
- (b) use a numbering system that corresponds to the bid solicitation;

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process Policy on Green Procurement (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>). To assist Canada in reaching its objectives, bidders should:

1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and

2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

3) Green Initiatives (for PWGSC information only)

Bidders are requested to provide details of their policies and practices in relation to the following initiatives:

- environmentally responsible manufacturing;
- environmentally responsible waste disposal;
- waste reduction;
- packaging;
- re-use strategies;
- recycling.

### **Section I: Technical Bid**

In their technical bid, Bidders should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work (reference Part 4, Evaluation Procedures, 4.1.1 Technical Evaluation).



## **Section II: Financial Bid**

Bidders must submit their financial bid in accordance with the Basis of Payment.

### **3.1.1 Electronic Payment of Invoices – Bid**

If you are willing to accept payment of invoices by Electronic Payment Instruments, complete Annex G” Electronic Payment Instruments, to identify which ones are accepted.

If Annex “G” Electronic Payment Instruments is not completed, it will be considered as if Electronic Payment Instruments are not being accepted for payment of invoices.

Acceptance of Electronic Payment Instruments will not be considered as an evaluation criterion.

### **3.1.2 Exchange Rate Fluctuation**

C3011T      2013/11/06      Exchange Rate Fluctuation

## **Section III: Certifications**

Bidders must submit the certifications and additional information required under Part 5.

## **Section IV: Additional Information**

### **3.1.3 Origin of Work**

For each line item, bidders must identify the name(s) of the country or countries where the apparel goods are cut (or knit to shape) and sewn, regardless of whether the work is to be performed by the Bidder or one of its subcontractor(s).

The following information must be provided for each location where any of the goods are cut (or knit to shape) or sewn:

Line Item number\_\_\_\_\_

Country: \_\_\_\_\_

(Bidders must add additional lines if there is more than one manufacturer or one country per line item.)

Bidders must immediately inform Canada in writing of any and all changes affecting the information provided under this clause during the entire bid validity period.

## **PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION**

### **4.1 Evaluation Procedures**

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.
- (c) The evaluation team will determine first if there are two or more bids with a valid Canadian Content certification. In that event, the evaluation process will be limited to the bids with the certification; otherwise, all bids will be evaluated. If some of the bids with a valid certification are declared non-responsive, or are withdrawn, and less than two responsive bids with a valid certification remain, the evaluation will continue among those bids with a valid certification. If all bids with a valid certification are subsequently declared non-responsive, or are withdrawn, then all the other bids received will be evaluated.

#### **4.1.1 Technical Evaluation**

##### **4.1.1.1 Mandatory technical Criteria**

###### **Pre-Award Samples and Supporting Documentation**

As part of the technical evaluation, to confirm a Bidder's capability of meeting the technical requirements, the pre-award samples and supporting documentations detailed at Annex "F" must be included with the bid.

The Bidder must ensure that the required pre-award samples are manufactured in accordance with the technical requirement and are fully representative of the bid submitted. Rejection of the pre-award samples will result in the bid being declared non-responsive

The Bidder must deliver the required pre-award samples and supporting documentation at no charge to Canada and must ensure they are received with the bid at time and place of bid closing. The samples submitted by the Bidder will remain the property of Canada.

If a supporting documentation is not submitted with the bid, the Contracting Authority will inform the Bidder in writing and provide the Bidder with two (2) working days from the request to submit the supporting documentation. Failure to comply with the request within the specified timeframe will result in the bid being declared non-responsive.

The requirement for a pre-award samples and supporting documentation will not relieve the successful bidder from submitting samples and supporting documentation as required by the contract terms or from strictly adhering to the technical requirement of this Request for Proposal and any resultant contract.

## **4.1.2 Financial Evaluation**

### **4.1.2.1 Mandatory Financial Criteria**

- a. The Bidder must submit firm unit prices in Canadian dollars, applicable taxes are excluded, DDP (within 200 kilometres of the National Capital Region) Incoterms 2000, transportation costs included, all applicable Customs Duties and Excise taxes included.
- b. The Bidder must submit firm unit pricing for all items, including options and "as and when requested" quantities for special sizes...

### **4.1.2.2 SACC MANUAL CLAUSE**

A9033T 2012/07/16 Financial Capability

### **4.1.2.3 Financial Evaluation Methodology**

The evaluated price will be established using the firm quantities for all items and 100% of the option quantities and 100% of the "as and when requested" quantities. The unit prices for the options will be averaged.

## **4.2 Basis of Selection**

A bid must comply with all requirements of the bid solicitation and meet all mandatory technical and financial evaluation criteria to be declared responsive. The responsive bid with the lowest aggregate price will be recommended for award of a contract (1 contract only)

## **4.3 Contract Financial Security**

1. If this bid is accepted, the Bidder must be required to provide contract financial security, after the bid closing date and within 10 calendar days from receipt of a written request from the Contracting Authority.
  - (a) a security deposit as defined in clause "Security Deposit Definition" in the amount of up to ten percent (10%) of the contract price.
2. Security deposits in the form of government guaranteed bonds with coupons attached will be accepted only if all coupons that are unmaturing, at the time the security deposit is provided, are attached to the bonds. The Contractor must provide written instructions concerning the action to be taken with respect to coupons that will mature while the bonds are pledged as security, when such coupons are in excess of the security deposit requirement.
3. If Canada does not receive the required financial security within the specified period, Canada may, as its discretion, accept another offer, issue a new bid solicitation, award a contract or reject all the bids.

#### 4.4 Security Deposit Definition

1. "security deposit" means
  - (a) a bill of exchange that is payable to the Receiver General for Canada, and certified by an approved financial institution or drawn by an approved financial institution on itself; or
  - (b) a Government guaranteed bond; or
  - (c) an irrevocable standby letter of credit, or
  - (d) such other security as may be considered appropriate by the Contracting Authority and approved by Treasury Board;
2. "approved financial institution" means
  - (a) any corporation or institution that is a member of the Canadian Payments Association;
  - (b) a corporation that accepts deposits that are insured by the Canada Deposit Insurance Corporation or the "Régie de l'assurance-dépôts du Québec" to the maximum permitted by law;
  - (c) a credit union as defined in paragraph 137(6) the *Income Tax Act*;
  - (d) a corporation that accepts deposits from the public, if repayment of the deposits is guaranteed by Canadian province or territory; or
  - (e) the Canada Post Corporation.
3. "government guaranteed bond" means a bond of the Government of Canada or a bond unconditionally guaranteed as to principal and interest by the Government of Canada that is:
  - (a) payable to bearer;
  - (b) accompanied by a duly executed instrument of transfer of the bond to the Receiver General for Canada in accordance with the *Domestic Bonds of Canada Regulations*;
  - (c) registered in the name of the Receiver General for Canada.
4. "irrevocable standby letter of credit"
  - (a) means any arrangement, however named or described, whereby a financial institution (the "Issuer"), acting at the request and on the instructions of a customer (the "Applicant"), or on its behalf,
    - (i) will make a payment to or to the order of Canada, as the beneficiary;
    - (ii) will accept and pay bills of exchange drawn by Canada;
    - (iii) authorizes another financial institution to effect such payment, or accept and pay such bills of exchange; or
    - (iv) authorizes another financial institution to negotiate, against written demand(s) for payment, provided that the conditions of the letter of credit are complied with.
  - (b) must state the face amount which may be drawn against it;
  - (c) must state its expiry date;
  - (d) must provide for sight payment to the Receiver General for Canada by way of the financial institution's draft against presentation of a written demand for payment signed by the authorized departmental representative identified in the letter of credit by his/her office;
  - (e) must provide that more than one written demand for payment may be presented subject to the sum of those demands not exceeding the face amount of the letter of credit;
  - (f) must provide that it is subject to the International Chamber of Commerce (ICC) Uniform Customs and Practice (UCP) for Documentary Credits, 2007 Revision, ICC Publication No. 600. Pursuant to the ICC UCP, a credit is irrevocable even if there is no indication to that effect; and
  - (g) must be issued (Issuer) or confirmed (Confirmer), in either official language, by a financial institution that is a member of the Canadian Payments Association and is on the letterhead of the Issuer or Confirmer. The format is left to the discretion of the Issuer or Confirmer.

## PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

Bidders must provide the required certifications and additional information to be awarded a contract.

The certifications provided by Bidders to Canada are subject to verification by Canada at all times. Unless specified otherwise, Canada will declare a bid non-responsive, or will declare a contractor in default if any certification made by the Bidder is found to be untrue whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply and to cooperate with any request or requirement imposed by the Contracting Authority will render the bid non-responsive or constitute a default under the Contract.

### 5.1 Certifications Required with the Bid

Bidders must submit the following duly completed certifications as part of their bid.

#### 5.1.1 Integrity Provisions - Declaration of Convicted Offences

In accordance with the Integrity Provisions of the Standard Instructions, all bidders must provide with their bid, **if applicable**, the declaration form available on the [Forms for the Integrity Regime](http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html) website (<http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html>), to be given further consideration in the procurement process.

#### 5.1.2 Additional Certifications Required with the Bid

##### 5.1.2.1 Canadian Content Certification

###### 5.1.2.1.1 SACC Manual clause A3050T (2014/11/27) Canadian Content Definition

#### Rules of Origin – Apparel

With reference to the Canadian Content Certification clause, apparel goods are considered to be Canadian goods according to the North American Free Trade Agreement Rules of Origin as follows:

Apparel goods classified in Chapters 61 and 62 of the Harmonized System that are both cut (or knit to shape) and sewn in Canada will be considered Canadian goods.

## Canadian Content Certification

This procurement is conditionally limited to Canadian goods.

Subject to the evaluation procedures contained in the bid solicitation, bidders acknowledge that only bids with a certification that the good(s) offered are Canadian goods, as defined in clause A3050T, may be considered.

Failure to provide this certification completed with the bid will result in the good(s) offered being treated as non-Canadian goods.

The Bidder certifies that:

( ) the good(s) offered are Canadian goods as defined in paragraph 1 of clause A3050T.

## Plant Location

Items will be manufactured at: \_\_\_\_\_

## 5.2 Certifications Precedent to Contract Award and Additional Information

The certifications and additional information listed below should be submitted with the bid, but may be submitted afterwards. If any of these required certifications or additional information is not completed and submitted as requested, the Contracting Authority will inform the Bidder of a time frame within which to provide the information. Failure to provide the certifications or the additional information listed below within the time frame provided will render the bid non-responsive.

### 5.2.1 Integrity Provisions – Required Documentation

In accordance with the section titled Information to be provided when bidding, contracting or entering into a real procurement agreement of the Ineligibility and Suspension Policy (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Bidder must provide the required documentation, as applicable, to be given further consideration in the procurement process.

### 5.2.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list available at the bottom of the page of the Employment and Social Development Canada (ESDC) - Labour's website (<https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#>).

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list at the time of contract award.

## **5.2.3 Additional Certifications Precedent to Contract Award**

### **5.2.3.1 Samples and Production Certification**

The Bidder certifies that:

- ( ) the manufacturer that produced the pre-award sample(s) will remain unchanged for the pre-production sample(s) and full production of the contract quantity.

## PART 6 - RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from the bid Solicitation.

### 6.1 Security Requirements

6.1.1 There is no security requirement applicable to the Contract.

### 6.2 Requirement

The Contractor must provide the items detailed under "the Statement of work" at Annex"A", requirement and in accordance with the bid dated\_\_\_\_\_.

### 6.3 Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the Standard Acquisition Clauses and Conditions Manual (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

#### 6.3.1 General Conditions

2030 (2016/04/04), General Conditions - Goods (Higher Complexity), apply to and form part of the Contract.

### 6.4 Term of Contract

#### 6.4.1 Delivery - Firm Quantity –(desirable)

##### a) Tactical Helicopter Crew Shirt

The complete delivery should be made **within 90 days** from the written notice of approval of the pre-production sample. The quantity delivered must be **300 units**

##### b) Tactical Helicopter Crew Trousers

The complete delivery should be made within **90 calendar days** from the written notice of approval of the pre-production sample. The quantity delivered must be **300 pairs**.

Should the requested delivery indicated above be impossible to meet, the supplier is to offer their very best delivery schedule:

#### Delivery – Firm Quantity – Phased

The first delivery must be made within \_\_\_\_\_ calendar days from the date of the written notice of approval of the pre-production samples. The quantity delivered must be \_\_\_\_\_ each. The balance must be delivered at the rate of \_\_\_\_\_ each weekly after the first delivery until completion of the Contract.



## **Delivery - Option Quantity**

### **a) Tactical Helicopter Crew Flight Shirt**

Delivery of the option quantity must be negotiated if and when the option is exercised and must be complete no later than **90 calendary days** after the option is exercised

### **b) Tactical Helicopter Crew flight Trousers**

Delivery of the option quantity must be negotiated if and when the option is exercised and must be complete no later than **90 calendary days** after the option is exercised

#### **6.4.1.2 Preparation for Delivery**

The Contractor must prepare all items for delivery in accordance with the latest issue of the Canadian Forces Packaging Specification D-LM-008-036/SF-000, DND Minimum Requirements for Manufacturer's Standard Pack.

The Contractor must package all items as specified in Annex A, Section 3.3 and 3.4.

#### **6.4.1.3 Bulk Shipments**

For bulk shipments, all cartons must be shipped on 40" x 48" pallets shrink-wrapped or equivalent with overall height not to exceed 42".

#### **6.4.1.4 Shipping Instructions - Delivery at Destination**

1. Goods must be consigned to the destination specified in the Contract and delivered:

- (a) Delivered Duty Paid (DDP) (within 200km of the National Capital Region) Incoterms 2000 for shipments from commercial contractor.

#### **6.4.1.5 SACC Manual Clauses**

<u>A9131C</u>	2014/11/27	Controlled Goods Program – Contract
<u>B4060C</u>	2011/05/16	Controlled Goods
D5545C	2010/08/16	ISO 9001:2008 - Quality Management Systems - Requirements (QAC C)

## **6.5 Authorities**

### **6.5.1 Contracting Authority**

The Contracting Authority for the Contract is:

Manon Swanson  
Public Services and Procurement Canada  
6A2, Portage III, 11 Laurier  
Acquisitions Branch  
Commercial and Consumer Products Directorate (CCPD)  
Clothing & Textiles Division  
Place du Portage, Phase III, 6A2  
11 Laurier Street  
Gatineau, Quebec K1A 0S5  
Telephone : 819-420-2945  
E-mail address: [manon.swanson@tpsgc-pwgsc.gc.ca](mailto:manon.swanson@tpsgc-pwgsc.gc.ca)

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

### **6.5.2 Technical Authority**

The Technical Authority for this Contract is:

Mailing/Shipping Address  
101 Colonel By Drive  
Ottawa, Ontario  
K1A 0K2  
Attn: (to be advised at contract stage)

The Technical Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Technical Authority, however the Technical Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

### **6.5.3 Procurement Authority**

Mailing/Shipping Address  
101 Colonel By Drive  
Ottawa, Ontario  
K1A 0K2  
Attn: (to be advised at contract stage)

The Procurement Authority is the representative of the department or agency for whom the Work is being carried out under the Contract. The Procurement Authority is responsible for the implementation of tools and processes required for the administration of the Contract. The Contractor may discuss administrative matters identified in the Contract with the Procurement Authority however the Procurement Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of Work can only be made through a contract amendment issued by the Contracting Authority.

#### **6.5.4 Contractor's Representative**

The person responsible for:

##### **General enquiries**

Name: \_\_\_\_\_

Telephone No.: \_\_\_\_\_

Facsimile No.: \_\_\_\_\_

E-mail address: \_\_\_\_\_

##### **Delivery follow-up**

Name: \_\_\_\_\_

Telephone No.: \_\_\_\_\_

Facsimile No.: \_\_\_\_\_

E-mail address: \_\_\_\_\_

#### **6.6 Payment**

##### **6.6.1 Basis of Payment - Firm Unit Price**

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm unit price, as specified in Annex "E" for a cost of \$ (amount to be inserted at contract award). Customs duties are included and Applicable Taxes are extra.

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work, unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

##### **6.6.2 SACC Manual Clauses**

H1001C 2008/05/12 Multiple Payments

### 6.6.3 Electronic Payment of Invoices – Contract

The Contractor accepts to be paid using any of the following Electronic Payment Instrument(s): (to be advised at contract)

The Contractor accepts to be paid using any of the following Electronic Payment Instrument(s):

- a. Visa Acquisition Card;
- b. MasterCard Acquisition Card;
- c. Direct Deposit (Domestic and International);
- d. Electronic Data Interchange (EDI);
- e. Wire Transfer (International Only);
- f. Large Value Transfer System (LVTS) (Over \$25M)

### 6.7 Invoicing Instructions

1. The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions. Invoices cannot be submitted until all work identified in the invoice is completed.
2. Invoices must be distributed as follows:
  - a) One (1) copy must be forwarded to the following address :

National Defence Headquarters  
MGen George R. Pearkes Building  
101 Colonel By Drive  
Ottawa, ON K1A 0K2

Attn: 4

Email: \_\_\_\_\_ (to be inserted at contract award)

(b) One (1) copy must be forwarded to the Contracting Authority identified under the section entitled "Authorities" of the Contract.

(c) The original and one (1) copy must be forwarded to the consignee for certification and payment.

### 6.8 Certifications and Additional Information

#### 6.8.1 Compliance

Unless specified otherwise, the continuous compliance with the certifications provided by the Contractor in its bid or precedent to contract award, and the ongoing cooperation in providing additional information are conditions of the Contract and failure to comply will constitute the Contractor in default. Certifications are subject to verification by Canada during the entire period of the Contract.

## **6.8.2 Federal Contractors Program for Employment Equity - Default by the Contractor**

The Contractor understands and agrees that, when an Agreement to Implement Employment Equity (AIEE) exists between the Contractor and Employment and Social Development Canada (ESDC)-Labour, the AIEE must remain valid during the entire period of the Contract. If the AIEE becomes invalid, the name of the Contractor will be added to the "[FCP Limited Eligibility to Bid](#)" list. The imposition of such a sanction by ESDC will constitute the Contractor in default as per the terms of the Contract.

## **6.8.3 SACC Manual Clauses**

A3060C 2008/05/12 Canadian Content Certification

## **6.9 Applicable Laws**

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Ontario.

## **6.10 Priority of Documents**

If there is a discrepancy between the wordings of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

- a) the Articles of Agreement;
- b) the general conditions 2030 (2016/04/04), General Conditions - Goods (Higher Complexity);
- c) Annex "A", Statement of work;
- d) Annexes "B" and "C" Manufacturing data;
- e) Annexe "D" TECHNICAL REQUIREMENTS FOR CLOTH, PLAIN WEAVE, FLAME RESTISTANT, ARAMID, 185 g/m<sup>2</sup>
- f) Annex "E" Basis of Payment
- g) the Contractor's bid dated \_\_\_\_\_ (If the bid was clarified or amended, insert at time of contract award: ", as clarified on \_\_\_\_\_ " or ", as amended on \_\_\_\_\_ " and insert date(s) of clarifications or amendment(s)).

## **6.11 Defence Contract**

SACC Manual clause [A9006C](#) (2012/07/16) Defence Contract

## **6.12 SACC Manual Clauses**

C2801C 2014/11/27 Priority Rating - Canadian-based Contractors

## **6.13 Materials: Contractor Total Supply**

The Contractor will be responsible for obtaining all materials required in the manufacture of the item(s) Specified. The delivery stated for the item(s) allows the necessary time to obtain such materials.

#### 6.14 Procedures for Design Change/Deviations

The Contractor must follow these procedures for any proposed design change/deviation to contract specifications.

The Contractor must complete Part 1 to 12B the Design Change/Deviation form DND 675 and forward \_\_\_\_\_ (\_\_\_\_\_) copies (officer to insert the no. of copies) to the Technical Authority and one (1) copy to the Contracting Authority.

The Contractor will be authorized to proceed upon receipt of the design change/deviation form signed by the Contracting Authority. A contract amendment will be issued to incorporate the design change/deviation in the Contract.

#### 6.15 Plant Closing

The Contractor's plant closing for Christmas and Summer holidays are as follows. During this time there will be no shipments.

Year 2017/2018

Christmas Holiday	FROM _____	TO _____
Summer Holiday	FROM _____	TO _____

Year 2018/2019

Christmas Holiday	FROM _____	TO _____
Summer Holiday	FROM _____	TO _____

Year 2019/2020

Christmas Holiday	FROM _____	TO _____
Summer Holiday	FROM _____	TO _____

Year 2020/2021

Christmas Holiday	FROM _____	TO _____
Summer Holiday	FROM _____	TO _____

#### 6.16 Plant Location

Items will be manufactured at: \_\_\_\_\_

## **6.17 Subcontractor(s)**

The following subcontractor(s) will be utilized in the performance of the contract.

Name of Company: \_\_\_\_\_

Location: \_\_\_\_\_

Value of subcontract: \$ \_\_\_\_\_

Nature of subcontracting work performed: \_\_\_\_\_

Subcontractors, other than those listed above, may not be utilized without the written permission of Canada.

## **6.18 Origin of Work - Disclosure of Information**

1. For each line item, the Contractor must specify the name(s) of all countries where the apparel goods are cut (or knit to shape) or sewn, regardless of whether the work is to be performed by the Contractor or one of its subcontractor(s).
2. The Contractor agrees that Canada may publicly disclose the information provided with respect to the countries of origin.
3. The Contractor must immediately inform Canada in writing of any and all changes affecting the information provided under this clause during the entire contract period.

## **6.19 Overshipment**

Overshipment will not be accepted unless prior approval is obtained from the Contracting Authority.

## **6.20 Pre-Production Samples**

The Contractor must provide pre-production samples in accordance with Section 3.1 Annex A

### **6.20.1 Certificate of Compliance – Definition**

A Certificate of Compliance is a written statement from an appropriate official of the component Manufacturer (as listed At Annex "A") attesting the full compliance of the product to the Contract specification, or portion of the specification, referenced. The Certificate of Compliance must be on official company stationery. It must be dated within six months of the request for proposal posting date. It must make reference to the applicable specification and have the original signature of the company's designated representative. Canada reserves the right to verify the statements made in the Certificate of Compliance. Full laboratory test results, demonstrating the product's compliance, will be accepted in lieu of a Certificate of Compliance.

## **6.21 Sealed/Patterns - Guidance Only**

The sealed/viewing patterns are representative of the required item but is are not part of the technical requirement. The sealed patterns may not meet the technical requirement in all respects and must be used for guidance only during production.

## **6.22 Sealed Patterns- Return to Sender**

The sealed patterns which may have been sent to the Contractor, are to be returned to the sender upon completion of Contract.

The sealed patterns are not to be mutilated or cut, and must be returned in the same condition as sent to the Contractor.

## **6.23 Specifications and Standards**

### **6.23.1 Canadian General Standards Board (CGSB) – Standards**

A copy of the CGSB Standards referred to in the Contract is available and may be purchased from:

Canadian General Standards Board  
Place du Portage III, 6B1  
11 Laurier Street  
Gatineau, Québec  
Telephone: (819) 956-0425 or 1-800-665-CGSB (Canada only)  
Fax: (819) 956-5740  
E-mail: [ncr.cgsb-ongc@pwgsc-tpsgc.gc.ca](mailto:ncr.cgsb-ongc@pwgsc-tpsgc.gc.ca)  
CGSB Website: <http://www.tpsgc-pwgsc.gc.ca/ongc-cgsb/index-eng.html>

## **6.24 Financial Security**

1. Canada may convert the security deposit to the use of Canada if any circumstance exists which would entitle Canada to terminate the Contract for default, but any such conversion will not constitute termination of the Contract.
2. Where Canada so converts the security deposit:
  - (a) the proceeds will be used by Canada to complete the Work according to the conditions of the Contract, to the nearest extent that it is feasible to do so and any balance left will be returned to the Contractor on completion of the warranty period; and
  - (b) if Canada enters into a Contract to have the Work completed, the Contractor will:
    - (i) be considered to have irrevocably abandoned the Work; and
    - (ii) remain liable for the excess cost of completing the Work if the amount of the security deposit is not sufficient for such purpose. "Excess cost" means any amount over and above the amount of the Contract Price remaining unpaid together with the amount of the security deposit.
3. If Canada does not convert the security deposit to the use of Canada before completion of the contract period, Canada will return the security deposit to the Contractor within a reasonable time after such date.
4. If Canada converts the security deposit for reasons other than bankruptcy, the financial security must be reestablished to the level of the amount stated above so that this amount is continued and available until completion of the contract period.



**ANNEX A  
STATEMENT OF WORK  
FOR THE  
TACTICAL HELICOPTER CREW FLIGHT SUIT - FLAME RESISTANT**

**1.0 SCOPE**

**1.1 Purpose**

The purpose of this Statement of Work is to define the scope and requirements for provision of the Tactical Helicopter Crew Flight Suit - Flame Resistant (FR) to the Department of National Defence (DND).

**1.2 Background**

DND has a requirement for a flame-resistant two-piece flight suit to support training and operations where standard Canadian Armed Forces clothing is unsuitable. The flight suit will be constructed from a flame-resistant material printed with the MULTICAM® camouflage pattern and will consist of one pair of trousers and one shirt.

**1.3 Applicable Documents**

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

- Canadian General Standards Board (CGSB) CAN/CGSB-43.22-2001 Corrugated Fibreboard Products

**2.0 DELIVERABLES**

The Contractor must deliver the following:

- (a) Pre-production samples in accordance with Section 3.1
- (b) Garments in accordance with the Performance and Technical Specifications at Annex B (Shirt) and Annex C (Trousers), or the approved pre-production samples if applicable, in the quantities in Table 1 within ninety (90) days of the waiver or approval of the pre-production samples;
- (c) Garments in special sizes on an "as and when requested basis" in accordance with Section 3.2;
- (d) The modified shirt patterns that incorporate the deviation from the supplied patterns for a high flat collar as follows:
  - i. Quantity three (3) hard copies of each size printed on a heavy grade of cardboard or printed on paper; and
  - ii. Quantity one (1) electronic copy (.dxf file) of each size in a format that is compatible with the Gerber Accumark apparel software;
- (e) Technical Data as detailed at Section 2.1.

Table 1: Quantities

Item	Firm Quantity	Estimated Quantity
		Special Sizes
Tactical Helicopter Crew Flight Suit (FR) Shirts	300	30
Tactical Helicopter Crew Flight Suit (FR) Trousers	300	30

## 2.1 Technical Data

The Contractor must provide to the DND Technical Authority (TA), in English, the following information for each garment type (PDF or Word format, mailed by disk or by email to the TA):

- (a) Item Name;
- (b) NCage, if applicable;
- (c) Manufacturer Part Number (MPN);
- (d) Price;
- (e) Weight; and
- (f) Shelf Life (if applicable);

## 2.2 Contract Kickoff Meeting

The Contractor shall hold a contract kickoff meeting at its production facility or by teleconference, as arranged with Procurement Authority, within 4-6 weeks of contract award. This meeting will be used to introduce the DND project team and to discuss production timelines, QA processes, and delivery options and locations.

### 3.0 REQUIREMENTS

#### 3.1 Pre-production Samples

Within sixty (60) days of Contract Award, unless waived in writing by DND, the Contractor must submit for DND approval pre-production samples of each of the two garments that are manufactured in accordance with the technical requirements specified in Annexes B, C and D as follows:

- A Quantity one (1) Tactical Helicopter Crew Flight Suit (FR) Shirt in size 7040;
- B Quantity one (1) Tactical Helicopter Crew Flight Suit (FR) Trousers in size 7034; and
- C Quantity one (1) meter full-width fabric sample from the first production lot of fabric to be used in garment production.

##### 3.1.1 Evaluation of Pre-Production Samples

Final quantity production must not commence until the pre-production samples have been waived or approved by DND, as applicable. The pre-production samples must be fully compliant to the technical requirement of this Contract and must be completely representative of the final production, being made from parts and material as specified in Annexes B, C and D and by equipment and processes that will be used in final quantity production. The pre-production evaluation will be done through a technical verification performed by a team of DND Subject Matter Experts (SMEs) for the quality of workmanship and for conformance to materials and designs as specified in Annex B. In addition, the conformance to specified materials (see Section 3.1.3) will be proven by the Contractor submitting test results from accredited independent laboratories familiar with textile testing or certification from the material manufacturer. Testing carried out by university textile testing laboratories will also be acceptable. Should a non-accredited laboratory be required for specific tests, approval must be sought and received in writing from the DND TA in advance. A maximum of three (3) pre-production evaluation rounds will be conducted with each round to take no more than thirty (30) days to complete from time of DND identifying required changes to delivery of the next pre-production samples by the Contractor. Following each evaluation, the DND TA will arrange for mutually convenient time at the Contractor's facility to discuss any required changes.

##### 3.1.2 Quality Assessment

The material of the pre-production sample garments must be free of imperfections or blemishes that may adversely affect its appearance, quality or serviceability. For inspection purposes, imperfections and blemishes must be considered defects when clearly visible at a normal inspection distance of approximately 1 m (3.3 ft) under day light conditions. Good commercial standard practices must apply throughout, with the following being considered poor commercial standard practice:

- A Any hole, cut, tear, mend, drop stitch, loose knit, miss knit, streak, knitted-in-waste, permanent fold, pleat or crease;
- B Any spot or stain, discoloration or colour not as specified; and
- C Any shaded part or any objectionable odor.

### 3.1.3 Material Certification

The Contractor must provide laboratory test reports, or certification from the component/fabric manufacturer, for the following:

- a Slide Fasteners (Annex B, Section 3.1(b) and Annex C, Section 3.1(b)): Certificate of compliance that all slide fasteners are fire resistant and comply to to CAN/CGSB-155.1-2001 at the pre-production stage;
- b Hook and Loop Fastener Tape (Annex B, Section 3.1(c) and Annex C, Section 3.1(c)): Certificate of compliance that all hook and loop fastener tape have a flame retardant finish in accordance with A-A-55126A;
- c Piping Cord (Annex B, Section 3.1(d)): Certificate of compliance that all piping cord is commercially available #20 cotton piping cord;
- d Webbing (Annex C, Section 3.1(d)): Certificate of compliance that all webbing is Type II, Class 1 with a flame retardant finish in accordance with A-A-55126A;
- e Cord (Annex, C Section 3.1(e)): Certificate of compliance that all cord is Plaited, Spun Synthetic Fibre, Type I in accordance with D-80-001-028/SF-001;
- f Buttons (Annex C, Section 3.1(f)): Certificate of compliance that all buttons are nylon, slotted type button, 30-ligne, in accordance with CF-B-854 and Drawing 373118;
- g Map clips (Annex C, Section 3.1(g)): Certificate of compliance that all map clips are in accordance with Drawing 391335; and
- h Thread (Annex B, Section 3.1(e) and Annex C, Section 3.1(i)): Certificate of compliance that the thread is Aramid, Spun Staple, in accordance with Type II of A-A-55217.

### 3.2 Special Sizes

The term "special size garments" is defined as garments whose sizes are outside the Scale of Measurements in the manufacturing data (Annex B). Special size garment is in essence tailor fit to an individual using body measurements provided by DND. With the exception of size the Contractor must make Special Size garments in full compliance with the technical requirements of Annex B, or in accordance with the approved pre-production samples as applicable. Special size garments are to be delivered to the location specified on the delivery order within thirty (30) days of receipt of the order by the Contractor. DND will supply to the Contractor the following body measurements for every special size order:

- a Height without shoes;
- b Chest / bust circumference;
- c Waist circumference;
- d Hip circumference (women only);
- e Neck circumference;
- f Sleeve length; and
- g Inseam.

### 3.3 Packaging – Individual

Each garment must be folded and packaged individually. The package shall consist of a polyethylene (or other transparent film) bag or envelope, made of material not less than one (1) mil thickness. The bags shall be taped or stapled to effect closure and shall be legibly marked (labeled) as follows (only required if the garment's identification markings are not clearly visible through the bag):

- a NATO Stock Number (NSN) and/or Manufacturer Part Number;
- b Item Name; and
- c Size.

### 3.4 Packaging – Quantity

For standard sizes, individual garment packages of the same size shall be packed into a corrugated fiberboard box as follows:

- a Box construction and closure conforms to CAN/CGSB-43.22-2001;
- b Overall inside dimensions (length, width and depth added) shall not exceed 1.5 meters (59 inches) and the box size and content quantity shall remain the same for the duration of the contract;
- c Maximum weight of the box and contents shall not exceed 18 kg (40 pounds);
- d Stenciling or labelling on one end of each box, in legible figures as large as practicable in relation to the space available, the following information:
  - i. NATO Stock Number (NSN) or Manufacturer Part Number;
  - ii. Item Name/Nomenclature (in bilingual format);
  - iii. Quantity (per box);
  - iv. Gross Weight (nearest kg); and
  - v. Contract Serial Number - As specified on contract.

### 3.5 Quality Assurance Program

#### 3.5.1 General

The Contractor shall be responsible for the performance of all inspections and tests necessary to demonstrate that the material submitted to DND for acceptance conform to the requirements of the contract. The Contractor may utilize its own inspection and test equipment, or that of any other facility acceptable to the National Defence Quality Assurance Region (NDQAR). The NDQAR Authority reserves the right to perform any verification of the activities deemed necessary to confirm that the material conforms to contract requirements.

Solicitation No. - N° de l'invitation

W6399-17JC50/A

Client Ref. No. - N° de réf. du client

W6399-17JC50

Amd. No. - N° de la modif.

File No. - N° du dossier

pr735.W6399-17JC50

Buyer ID - Id de l'acheteur

pr735

CCC No./N° CCC - FMS No./N° VME

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## **Annex B**

### **MANUFACTURING DATA FOR SHIRT, TACTICAL HELICOPTER CREW, FLAME RESISTANT (FR)**

**(see attached document)**

Solicitation No. - N° de l'invitation

W6399-17JC50/A

Client Ref. No. - N° de réf. du client

W6399-17JC50

Amd. No. - N° de la modif.

File No. - N° du dossier

pr735.W6399-17JC50

Buyer ID - Id de l'acheteur

pr735

CCC No./N° CCC - FMS No./N° VME

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### **Annex C**

## **MANUFACTURING DATA FOR TROUSERS, TACTICAL HELICOPTER CREW, FLAME RESISTANT (FR)**

**(see attached document)**

**ANNEX D**  
**TECHNICAL REQUIREMENTS**  
**FOR CLOTH, PLAIN WEAVE, FLAME RESISTANT, ARAMID, 185 g/m<sup>2</sup>**

NOTICE



This documentation has been reviewed by the technical authority and does not contain controlled goods. Disclosure notices and handling instructions originally received with the document shall continue to apply.

AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

### 1.1 Scope

This Specification covers the technical requirements for 185 g/m<sup>2</sup>, plain weave, aramid, flame resistant fabrics with comfort properties.

***Note: The GL-PD 10-13 A2CU Cloth (Class 10) distributed by 1947 LLC ([www.1947llc.com](http://www.1947llc.com)) fully meets the requirements within this specification.***

### 1.2 Applicable Documents

The following documents form part of this specification to the extent specified, and are supportive of this specification 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 specification, then the contents of this specification must take precedence:

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

- CAN/CGSB-4.2-M Textile Test Methods
- CAN/CGSB-54.1-M Part 2 - Textiles - Seam Types - Classification and Terminology
- CAN/CGSB-155.20 Workwear for Protection Against Hydrocarbon Flash Fire

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

- 191A Federal Standard for Textile Test Methods

American Association of Textile Chemists and Colorists Standards ([www.aatcc.org](http://www.aatcc.org))

- AATCC Test Method 16 Colourfastness to Light
- AATCC Test Method 81 pH of the Water-Extract from Wet Processed Textiles
- AATCC Test Method 112 Formaldehyde Release from Fabric

American Society for the Testing of Materials ([www.astm.org](http://www.astm.org))

- ASTM D2165 Standard Test Method for pH of Wood and Similar Animal Fibers



Association of the Non-Woven Fabrics Industry ([www.inda.org](http://www.inda.org))

- INDА Standard Test Method 10.1 Absorption - Liquid Absorption Time, Capacity and Wicking Rate

## **2.0 REQUIREMENTS**

### **2.1 Fabric**

The cloth must be 1x1 plain weave. When tested in accordance with the specified test methods, the finished fabric must comply with the performance requirements of Table 2. The finished fabric must be free from oil stains and spots of any kind, all residue of any processing textile chemical auxiliaries must be removed. The finished fabric must have a full flexible hand.

### **2.2 Workmanship**

The material covered by the Specification must be free of imperfections or blemishes such as may adversely affect its appearance or serviceability. For inspection purposes, imperfections and blemishes will be considered defects when clearly visible at a normal inspection distance of approximately 1 meter (3.3 ft) under good, preferably North light, lighting conditions.

### **2.3 Yarns and Fibre Content**

Yarns in both warp and weft must be aramid, 2-ply spun yarn with a balanced twist. Fibre content must be minimum 92% meta-aramid. A maximum of five percent para-aramid may be added as necessary to meet the specified performance requirements (Table 2). Up to three percent carbon fibre must be added to meet the static dissipation performance requirements. *Fibre content must be reported, however, laboratory results are not required.*

### **2.4 Dyeing and Printing**

The finished fabric must be printed with the certified MULTICAM® camouflage pattern. The fabric colour may be obtained by using solution dyed or dope dyed aramid fibres. The fabric may also be dyed using an appropriate class of dyes that will give the required degree of colour fastness and a uniform, good penetration of colour in the fibres and fabric. Dyed fabric that does not visibly meet the colour penetration requirements will be rejected.

### **2.5 Finish**

A durable finish to provide enhanced wicking performance and moisture control must be applied to the fabric for wearer comfort purposes. Since additives may adversely affect the burning behaviour, care must be taken in finishing to ensure that add-ons are sufficient to provide comfort enhancement and shape retention, but are kept to the minimum necessary.

**Table 2: Finished Cloth**

Property	Test Method	Specified Requirement	Minimum Acceptable	Maximum Acceptable
Fibre Content		93 % meta-aramid 5 % para-aramid 2 % carbon	92 % meta-aramid 1 % carbon	99 % meta-aramid 5 % para-aramid 3 % carbon
Mass (g/m <sup>2</sup> )	CAN/CGSB-4.2 Test 5.1	185	180	215
Resistance to Pilling	CAN/CGSB-4.2 Test 51.1		3.5	
Breaking Strength (N) (grab)	CAN/CGSB-4.2 Test 9.2		Warp: 800 Weft: 450	
Tearing Strength (N) (trapezoid)	CAN/CGSB-4.2 Test 12.2		Warp: 100 Weft: 65	
Air permeability (cm <sup>3</sup> /cm <sup>2</sup> /s)	CAN/CGSB-4.2 Test 36		30	100
Dimensional Stability (after 3 wash-dry cycles)	CAN/CGSB-4.2 Test 58 (III.E3) (permananet press dry cycle)			Warp: 3.0% Weft: 3.0%
Colourfastness to Laundering	CAN/CGSB-4.2 Test 19.1 (#2)			Colour change and staining: Grey Scale 4
Colourfastness to Light - Xenon	AATCC Test Method 16 Option 3		Grey Scale 4 after 20 AATCC Fading Units.	
Colourfastness to Crocking	CAN/CGSB-4.2 Test 22 (6.1 & 6.2)			Colour change and staining: Dry: Grey Scale 4 Wet: Grey Scale 3
Wicking - As received and - After 25 washes	INDA 10.1-92 Para 10  CAN/CGSB-4.2 Test 58 (III.E3) (permananet press dry cycle)			60 seconds
Formaldehyde release	AATCC Test Method 112			100 ppm

Property	Test Method	Specified Requirement	Minimum Acceptable	Maximum Acceptable
pH of Aqueous Extract	AATCC Test Method 81 or ASTM D2165		6.5	7.5
Flame Resistance (edge ignition) - As received and After 10 washes <sup>1</sup>	CAN/CGSB-4.2 Test 27.10  CAN/CGSB-4.2 Test 58 (III.E3) (permananet press dry cycle)			Average damaged length: Warp: 100mm Weft: 100mm Average afterflame: 2 .0 seconds
Thermal Protective Performance (TPP) with spacer	CAN/CGSB-4.2 Test 78.1 Spacer test		10	
Thermal Shrinkage Resistance (at 260°C for 5 minutes)	CAN/CGSB-155.20 Section 7.3.1			3%
Static Decay - As received (new) - After 10 washes <sup>1</sup>	FED-STD 191A Method 5931 Test at 20°C & 20% RH; Test warp and weft; Charge to +5000V and - 5000V; Report results for each direction.	Fabric must charge to at least $\pm 4000V$ ; Less than 0.5 second overall average time to decay, no single measurement greater than 0.5 seconds.		
Seam Efficiency	FED-STD 191A Method 5110 and Note 1		80%	

Note 1: Seam Efficiency - The fabric must be tested for seam efficiency according to Federal Test Methods Standard 191A Method 5110. The thread used must be flame resistant (eg. Kevlar, Nomex or Kermel). The size must be that which is specified in the applicable garment specification or that which best suits the sewing operation involved and the equipment used for the operation. The seam used must be seam type 2.04.03 as specified in CAN/CGSB 54.1. There must be 10 to 12 stitches per inch (2.5 cm) in the seams. Seam efficiency is a function of both the fabric construction/stability and the seam construction. Because seam construction is critical to the results for this test, it is recommended that the seams be constructed and this testing coordinated by the garment manufacturer rather than the fabric producer.

Annex E  
Basis of payment

1. ADDRESSES

Destination Address	Invoicing Address
(within 200 kilometers of the National Capital Region) To be advised at Contract Award.	Departement of National Defence CANSOFCOM COS FD 101 Colonel By Drive Ottawa, Ontario K1A OK2 A/DLP 6-2-3

**2. DELIVERABLES**

**2.1 Firm Quantity**

Item	Description	Firm Quantity	Unit of Issue	Firm Unit Price, DDP, Transportation costs included, Applicable taxes extra
1	Tactical Helicopter Crew Flight Suit (FR) Shirts	300	Each	\$ _____
2	Tactical Helicopter Crew Flight Suit (FR) Trousers	300	pair	\$ _____

**2.2 “As and When Requested” Quantity**

**2.2.1 Special sizes**

Item	Description	Estimated Quantity for 4 years	Unit of Issue	Firm Unit Price, DDP, Transportation costs included, Applicable taxes extra
3	Tactical Helicopter Crew Flight Suit (FR) Shirts	30	Each	\$ _____
4	Tactical Helicopter Crew Flight Suit (FR) Trouser	30	pair	\$ _____

## 2.3 OPTION

Item	Description	Estimated Quantity per year (for evaluation purposes only)	Unit of Issue	Firm Unit Price, DDP, Transportation costs included, Applicable taxes extra
5	Tactical Helicopter Crew Flight Suit (FR) Shirts	100	ea	Year 1 \$ _____ Year 2 \$ _____ Year 3 \$ _____ Year 4 \$ _____
6	Tactical Helicopter Crew Flight Suit (FR) Trousers	100	pair	Year 1 \$ _____ Year 2 \$ _____ Year 3 \$ _____ Year 4 \$ _____

**Year 1: ordered within 12 months from contract award**

**Year 2: ordered within 13-24 months from contract award**

**Year 3: ordered within 25-36 months from contract award**

**Year 4: ordered within 37-48 months from contract award**

### 3“AS AND WHEN REQUESTED” QUANTITIES - Items 3 and 4

Under this Contract, the Contractor is required to provide items 3 and 4 to Canada on an “as and when requested” basis. Except as expressly provided in this Contract, Canada is not obliged to request any such goods under this Contract and this Contract does not represent a commitment to purchase such goods exclusively from the Contractor.

DND may issue orders for “as and when requested” quantities directly to the Contractor detailing the exact quantities of goods being ordered and the delivery date during the effective period and in accordance with the predetermined conditions.

Order for “as and when requested” quantities will be made on PWGSC-TPSGC Form 942.

The quantity of “as and when requested” goods specified under items 3 and 4 are only an approximation of requirements.

The period for placing “as and when requested” orders will be 48 months from contract award

DND is requesting that delivery of the "as and when requested" quantity be made within **30 calendar days** after receipt of order document

Deliveries made against orders of the “as and when requested” quantities will be inspected by the Consignee at destination.

## Financial Limitation

The total cost to Canada resulting from orders of "as and when requested" quantities must not exceed the sum of \$ \_\_\_\_\_ (to be established at contract), applicable taxes extra, unless otherwise authorized in writing by the Contracting Authority. The Contractor must not be obligated to perform any work or services or supply any articles in response to orders which would cause the total cost to Canada to exceed the said sum, unless an increase is so authorized.

## **4. OPTION QUANTITIES - Identified as items 5 and 6**

The Contractor grants to Canada the irrevocable option to acquire the goods described under item 5 and 6 under the same terms and conditions and at the prices stated in the Contract.

The option may only be exercised by the Contracting Authority for up to a maximum of 800 items for all amendment in total and will be evidenced through a contract amendment.

Multiple amendments may result.

A size roll will be provided if and when the option is exercised.

## **Annex F**

### **PROPOSAL REQUIREMENTS AND BID EVALUATION PLAN FOR THE TACTICAL HELICOPTER CREW FLIGHT SUIT - FLAME RESISTANT**

#### **1.0 GENERAL**

##### **1.1 Purpose**

This document outlines the proposal requirements and the bid evaluation process for the Tactical Helicopter Crew Flight Suit - Flame Resistant (FR).

#### **1.0 PRE-AWARD SAMPLES**

The Bidder must provide the following samples with the bid:

- a) Shirt - Tactical Helicopter Crew Flight Suit (FR), in size 7040, manufactured in accordance with the Manufacturing Data at Annex B;
- b) Trousers - Tactical Helicopter Crew Flight Suit (FR), in size 7034, manufactured in accordance with the Manufacturing Data at Annex C;
- c) Fabric Requirement: One (1) meter full-width fabric sample as per specifications defined at Annex

The Bidder must ensure that the required pre-award samples are manufactured in accordance with the technical requirement, including use of the MULTICAM™ color scheme, and are fully representative of the bid submitted. In the event that a component (i.e. hook and loop fastener, webbing, etc.) required to make the garment (shirt, trouser), excluding the fabric requirements at Annex D, is not available to the Bidder in a time frame to manufacture the pre-award samples, the Bidder may use a similar substitute component. In this event, the Bidder must include a letter explaining the substitution submitted with the pre-award sample(s), together with a statement that, should the Bidder be awarded the contract, all materials will be strictly in accordance with the technical requirement.

## EVALUATION

### 3.1 Instructions

Bidders will be assessed in accordance with the instructions and criteria as detailed within this document. The following instructions apply to the Bidder evaluation:

- (a) Mandatory requirements are identified by the word "must". All mandatory requirements must be met in order to meet compliance with the requirements; and
- (b) Documentation provided with the bid must:
  - i. Be type written (hand written submissions will not be considered); and
  - ii. Be either hard copy or in electronic format (PDF or Word).

### 3.2 Bid Documentation

The Bidder must provide the following documentation:

- a) A completed Compliance Matrix (Table 3); and
- b) Proof of compliance and Written Confirmation as specified in the Proof of Compliance column of Table 3. For the purposes of this RFP, a Written Confirmation is a written statement from the Bidder, signed by an authorized company representative, guaranteeing it will fully comply with the requirement identified in the "Requirement" column of Table 3. Canada reserves the right to verify the statements made in the Written Confirmation;
- c) Where test results are requested, the Bidder must provide a laboratory analysis of the product offered showing complete test results, or a summary of the complete test results, that confirms that the material meets the standards specified. Testing must be performed by an independent accredited laboratory. Test report(s) must be dated within six (6) months of the solicitation posting date; and
- d) Where a third part certification is required, the certification must be from the component or fabric manufacturer that certifies that the component or fabric fully meets or exceeds the stated requirement. This document must be on official company stationery; it must be dated after the Request for Proposal posting date; it must make reference to the applicable specification and have the original signature of the Company's designated representative. Canada reserves the right to verify the statements made in the third part certification.



Table 3: Compliance Matrix

Item #	Reference Para	Requirement	Proof of Compliance	Compliant (Y/N)
1	N/A	<b>Expertise and Proven Design</b> The Bidder must be an experience military uniform manufacturer by having been in the business of manufacturing military uniforms for a minimum of five (5) years and having sold a minimum of five hundred (500) uniforms to an American, British, Canadian or Australian (ABCA) military force in the last five (5) years.	The Bidder must provide: (1) Details of work experience demonstrating their experience of manufacturing military uniforms for a minimum of five (5) years; AND (2) Contract number(s), award dates, model and quantities delivered that demonstrates sales of a minimum of five hundred (500) uniforms to an ABCA military force in the last five (5) years. Cumulative sales over multiple contracts is acceptable.	
2	Annex B 3.2	The Shirts must be available in the sizes specified in Annex B Section 3.2.	The Bidder must provide Written Confirmation that the Shirts will be available in the sizes specified.	
3	Annex C 3.2	The Trousers must be available in the sizes specified in Annex C Section 3.2.	The Bidder must provide Written Confirmation that the Trousers will be available in the sizes specified.	
4	Annex A 2.0(c)	The garments must be available in custom sizes.	The Bidder must provide Written Confirmation that custom sizing of garments will be available.	
5	Annex B	The Shirts must be manufactured in accordance with Annex B.	The Bidder must provide Written Confirmation that the Shirts will be manufactured in accordance with Annex B1.	
6	Annex C	The Trousers must be manufactured in accordance with Annex C.	The Bidder must provide Written Confirmation that the Trousers will be manufactured in accordance with Annex C.	
7	Annex D	Cloth, Plain Weave, Flame Resistant, Aramid, 185 g/m <sup>2</sup>	The Bidder must provide full test results and/or third party certification that confirms that the material meets the standards specified.	

**ANNEX "G"**  
**to PART 3 OF THE BID SOLICITATION**

**ELECTRONIC PAYMENT INSTRUMENTS**

The Bidder accepts any of the following Electronic Payment Instrument(s):

- ☐ ( ) VISA Acquisition Card;
- ☐ ( ) MasterCard Acquisition Card;
- ☐ ( ) Direct Deposit (Domestic and International);
- ☐ ( ) Electronic Data Interchange (EDI);
- ☐ ( ) Wire Transfer (International Only);
- ☐ ( ) Large Value Transfer System (LVTS) (Over \$25M)

NOTICE



This documentation has been reviewed by the technical authority and does not contain controlled goods. Disclosure notices and handling instructions originally received with the document shall continue to apply.

AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

**MANUFACTURING DATA  
FOR  
SHIRT, TACTICAL HELICOPTER CREW, FLAME RESISTANT (FR)**

**1.0 SCOPE**

**1.1 Scope**

This Manufacturing Data covers the material, design, construction and inspection requirements for the Shirt, Tactical Helicopter Crew, Flame Resistant (FR). The Shirts will have an outer finish in MULTICAM®.

**1.2 Intended Use**

The Shirts are worn with the tactical helicopter crew trousers (in accordance with Manufacturing Data at Annex C) by authorized tactical helicopter crew members.

**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-80-001-055/SF-001 Specification for Label, Clothing and Equipment
- D-83-001-005/SF-001 Specification for Fasteners, Slide, Interlocking
- CFTPO-GENERAL

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

- CAN/CGSB-54.1-M Stitches and Seams, Parts I and II
- CAN/CGSB-86.1-2003 Care Labelling of Textiles

- CAN/CGSB-155.1-2001 Fire Fighters Protective Clothing for Protection against Heat and Flame

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

- A-A-55126A Commercial Item Description - Fastener Tapes, Hook and Loop, Synthetic
- A-A-55217 Thread, Aramid, Spun Staple

#### 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 Definitions

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.
No-melt no-drip, fire resistant materials	Fabrics that will not ignite or fuse to the skin when exposed to flame, and will self-extinguish when the ignition source is removed.
Slide Fastener	A fastener for locking together two toothed edges by means of a sliding tab, commonly referred to as a zipper.

#### 2.4 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 View;
- (b) Figure 2: Dimensions of Garment Components;
- (c) Figure 3: Dimensions of Pockets; and
- (d) Figure 4: Care and Marking Label.

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## 2.5 Patterns

DND will provide patterns as follows:

- (a) Sealed pattern: DSSPM 109-02 - Shirt, Tactical Helicopter Crew, Flame Resistant (FR) (Sealed for construction and design); and
- (b) Paper patterns - Paper patterns for all sizes under Style Code STHC06. Size 7040 (regular/medium) will be used for tendering purposes.

Note: Sealed Pattern DSSPM 109-02 has the following deviation:

- The collar design and patterns are for an open collar shirt and this specification calls for a high flat collar. The bidder must modify the patterns accordingly.

## 3.0 **REQUIREMENTS**

### 3.1 Material

The following applies:

- (a) Shell Material - The shell material must be in accordance with the specification for Cloth, Plain Weave, Aramide 185 g/m<sup>2</sup> at Annex D;
- (b) Slide Fasteners - All slide fasteners must:
  - i. Be Class 3;
  - ii. Have Long Pulls;
  - iii. Have metal (brass) chains;
  - iv. Be fire resistant in accordance with CAN/CGSB-155.1-2001, para 5.1.2;
  - v. Have brass interlocking members with automatic locking sliders conforming to D-83-001-005/SF-001;
  - vi. Have metal components with a dull or antique finish; and
  - vii. Have tapes as follows:
    - a. Made with flame resistant fibres;
    - b. Woven using a twill weave; and
    - c. Be Light Sand in colour;
- (c) Hook and Loop Fastener Tape - The hook and loop fastener tape must:
  - i. Be Type II, Class 1 with a flame retardant finish in accordance with A-A-55126A; and
  - ii. Be Light Sand in colour;
- (d) Piping Cord - The piping cord for centre front reinforcement and slide fastener cover must:
  - i. Be commercially available #20 cotton piping cord; and
  - ii. Be Light Sand in colour;
- (e) Thread - The thread for seaming, stitching, buttonholes, bartacks and serging must:
  - i. Be Thread, Aramid, Spun Staple, in accordance with Type II of A-A-55217;
  - ii. Have a size appropriate to the operation and materials being sewn; and
  - iii. Be Light Sand in colour;
- (f) All material must be sourced and supplied by the Contractor.

### 3.2 Sizing

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

Height (cm)	Chest (cm)									
	34	36	38	40	42	44	46	48	50	52
67	X	X	X	X	X	X	X			
70	X	X	X	X	X	X	X	X	X	X
73		X	X	X	X	X	X	X	X	X
76		X	X	X	X	X	X	X	X	X

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

### 3.3 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 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 of the warp as shown on the paper patterns;
  - iii. Be cut from the same piece of shell material with the exception of the fly curtain which may be cut from separate lay or ends of shell material; and
  - iv. Be cut in the opposite direction of the shell components where the shell fabric is used as an interlining.

### 3.4 Sewing

The following applies:

- (a) Seams must be as follows:
  - i. Conform to CAN/CGSB-54.1-M;
  - ii. Be a minimum of 9.5 mm (0.375 in) wide unless otherwise specified;
  - iii. Double-lapped seams conform to numerical designation 2.04.03 of CAN/CGSB-54.1-M, either lock or chain stitched with the needles set 6.4 mm (0.25 in) apart.
- (b) Stitching must be as follows:
  - i. Be either lockstitched Type 301 or chain stitch Type 401 (unless otherwise specified) conforming to CAN/CGSB-54.1-M, having not less than nine (9) nor more than eleven (11) stitches per 2.5 cm (1 in);
  - ii. For double-needle stitched, needles set 6.4 mm (0.25 in) apart;
  - iii. Ends of all lockstitched seams and stitching, also breaks in thread, securely backstitched;
  - iv. Present a regular even appearance without fabric pucker and be free from skips that may result from faulty machine tension or other stitching malfunctions;

- (c) Where seaming, turning and stitching is specified, the edges must be properly worked out before stitching;
- (d) When serging, all exposed raw edges must be finished with any 500 series, with not less than ten (10) stitches per 2.5 cm (1 in);
- (e) Where seaming and serging is specified, this may be done in one or two operations;
- (f) 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;
- (g) Bartacks, unless specified otherwise, must be 12.7 mm (0.5 in) long and must have not less than twenty (20) cover stitches;
- (h) Pockets must:
  - i. Have all edges serged; and
  - ii. Have pocket assemblies positioned as indicated on paper pattern and stitched 3.2 mm (0.125 in) and 6.4 mm (0.25 in) gauge;
- (i) Slide fastener covers on pockets must:
  - i. Be constructed of a piece of shell material folded in three, as indicated on the paper pattern, and free edge stitched at 3.2 mm (0.125 in) gauge; and
  - ii. Positioned over the slide fastener covering the other half of the chain and stitched 6.4 mm (0.25 in) gauge.

### 3.5 Label

The Shirts must include a Care and Marking Label (see Figure 4) as follows:

- (a) Positioned on the inside of the left front, behind the breast pocket and stitched around all edges at 3.2 mm (0.125 in) gauge;
- (b) Light tan 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 label in accordance with CAN/CGSB-86.1-2003 including the following:
  - i. Table 1 – Washing – symbol 11;
  - ii. Table 2 – Bleaching – symbol 3;
  - iii. Table 3 – Drying – symbol 2;
  - iv. Table 4 – Ironing/Pressing – symbol 1; 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. Abbreviated Nomenclature (Shirt, Tac Hel, FR / Chemise hel tac, FR);
  - ii. NATO Stock Number;
  - iii. Size by height and chest;
  - iv. NATO size designation;

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- v. Contract Number;
- vi. Contractor Name. No initials, logos or trademarks shall be used;
- vii. Date of Manufacture; and
- viii. Fibre content (aramid/FR viscose, etc.);
- ix. The following care instructions:

SHIRT, TAC HEL, FR

WASH NEW GARMENTS BEFORE WEARING.

LAUNDER GARMENTS SEPARATELY IN WARM WATER. A SECOND CLEAN WATER RINSE IS RECOMMENDED. DO NOT USE CHLORINE BLEACH. DO NOT USE LIQUID FABRIC SOFTENER.

CHEMISE, HEL TAC, FR

LAVER LES VÊTEMENTS NEUFS AVANT DE LES PORTER.

LAVER LES VÊTEMENTS SÉPARÉMENT DES AUTRES AVEC DE L'EAU TIÈDE. DEUX RINÇAGES SONT RECOMMANDÉS. NE PAS UTILISER D'AGENTS DE BLANCHIMENT CHLORÉS. NE PAS UTILISER D'ASSOUPLEISSANT LIQUIDE.

3.6 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;
- (b) **Collar** - The Shirts must have a high flat collar that rises 5-6.5 cm (2-2.5 in) above the shoulders as follows:
  - i. Be made of two (2) pieces of shell material;
  - ii. Have an undercollar constructed of two (2) layers of shell material, stitched diagonally across the width of the collar; and
  - iii. Have collar ends double-needle stitched;
- (c) **Seams** - The Shirts must have seams as follows:
  - i. The back seamed as follows:
    - a. Fitted with two (2) darts, folding toward the centre back, and a yoke made of two (2) layers of shell material; and
    - b. Finished bottom edge of the back yoke topstitched over the back panel 1.6 mm (0.0625 in) gauge through all layers;
  - ii. Shoulders as follows:
    - a. Seam allowances folded to the back and the finished seams top stitched through all plies 1.6 mm (0.0625 in) gauge; and
    - b. Shoulder straps as follows:
      - 1. Made from one ply of shell material;
      - 2. Seam centred, and topstitched 6.4 mm (0.25 in) gauge; and
      - 3. Hook fastener tape as follows:
        - a. Stitched on the underside of the strap;
        - b. 2.5 cm (1 in ) wide; and
        - c. 2.5 cm (1 in) long;
  - iii. Sleeves as follows:
    - a. Two-piece, set-in sleeve;
    - b. Joined to their respective armhole with a double-lapped seam with the body overlapping the sleeve on the outside; and



- c. Shoulder straps centred on the shoulder seam and included in the armhole stitching with a loop tape fastener as follows:
      - 1. Positioned on the shoulder seam, so that the straps lie flat when the hook fastener tape on the shoulder strap is engaged;
      - 2. 2.5 cm (1 in ) wide; and
      - 3. 2.5 cm (1 in) long;
    - iv. Side seams as follows:
      - a. Front and back joined together with a double-lapped seam along the side seams and underarm of the sleeve in one continuous operation; and
      - b. Back overlaps the fronts on the outside;
- (d) **Front Closure** - The Shirts must have a front closure with a self-covered slide fastener, piping cord reinforcement and fly curtain as follows:
  - i. Left and right edges serged, turned under with piping cord inserted in the fold and stitched close to the cord with a single row of stitching, as per sealed sample;
  - ii. Right side as follows:
    - a. Placed to overlap half of the slide fastener chain and double-needle stitched 12.7 mm (0.5 in) gauge through all plies from the top of the collar to the bottom of the shirt; and
    - b. Curtain made of one (1) piece of shell material and stitched 1.6 mm (0.0625 in) gauge along the top and folded edge, with the back serged together;
  - iii. Left side placed to overlap the opposing half of the slide fastener chain and double-needle stitched 12.7 mm (0.5 in) gauge through all plies from the top of the collar to the bottom of the shirt; and
  - iv. Slide fastener as follows:
    - a. Type 4;
    - b. Length: Top of the collar to the bottom of the shirt;
    - c. Close upward; and
    - d. Cover in accordance with Section 3.3(i);
- (e) **Pockets** - The Shirt must have pockets as follows:
  - i. **Front Chest Pockets** - An external flat patch pocket on each upper front chest as follows:
    - a. Constructed from one (1) ply of shell material
    - b. Positioned and applied in accordance with Section 3.4(h); and
    - c. Slide fastener as follows:
      - 1. Type 15;
      - 2. 14.6 cm (5.75 in) in length;
      - 3. Close toward the armhole seam; and
      - 4. Cover in accordance with Section 3.3(i);
  - ii. **Sleeve Pockets** - A bellow type pocket on each upper exterior portion of each sleeve as follows:
    - a. Constructed from one (1) ply of shell material as follows:
      - 1. Positioned and applied in accordance with Section 3.4(h); and
      - 2. Joined along the elbow seam with a double-lapped seam, with the upper sleeve overlapping the under sleeve on the outside;
    - b. Slide fastener as follows:
      - 1. Type 15;
      - 2. 14.6 cm (5.75 in) in length;
      - 3. Close upwards towards the shoulder; and
      - 4. Cover in accordance with Section 3.3(i);

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- (f) **Hook and Loop Fastener Tape Patches** - The Shirt must have hook and loop fastener tape patches as follows:
- i. Trade Badge Patches - A piece of loop fastener tape as follows:
    - a. Positioned on the upper front chest above the pockets as indicated on paper patterns, and stitched around all edges; and
    - b. 5 cm (2 in) wide by 9.5 cm (3.75 in) long;
  - ii. Shoulder Flag Insignia - A piece of loop fastener tape as follows:
    - a. Centred on the left sleeve head at 12.7 cm (0.5 in) below the shoulder seam; and
    - b. 2.5 cm (1 in) wide by 5.1 cm (2 in) long;
- (g) **Cuffs** - The Shirt must have cuffs as follows:
- i. Two (2) 12.7 mm (0.5 in) pleats at the bottom of each sleeve as per paper pattern, both folded toward the point of the cuff;
  - ii. Cuff made of one piece of shell material as follows:
    - a. Topstitched 1.6 cm (0.0625 in) and 6.4 mm (0.25 in) gauge along the top, bottom and pointed end; and
    - b. Square end of the cuff stitched to the inside of the cuff 5.7 cm (2.25 in) behind the point;
  - iii. Include hook and loop fastener cuff closure as follows:
    - a. 2.5 cm (1 in) square hook patch centered on adjustment tab; and
    - b. 2.5 cm (1 in) wide by 6.4 cm (2.5 in) long loop patch on cuff;
- (h) **Bottom Hem** - The bottom edge of the shirt, including the fly curtain, must be turned and stitched 1.6 mm (0.0625 in) gauge to form a finished hem of 6.4 mm (0.25 in).

APPENDIX 1 LAYOUT SKETCHES

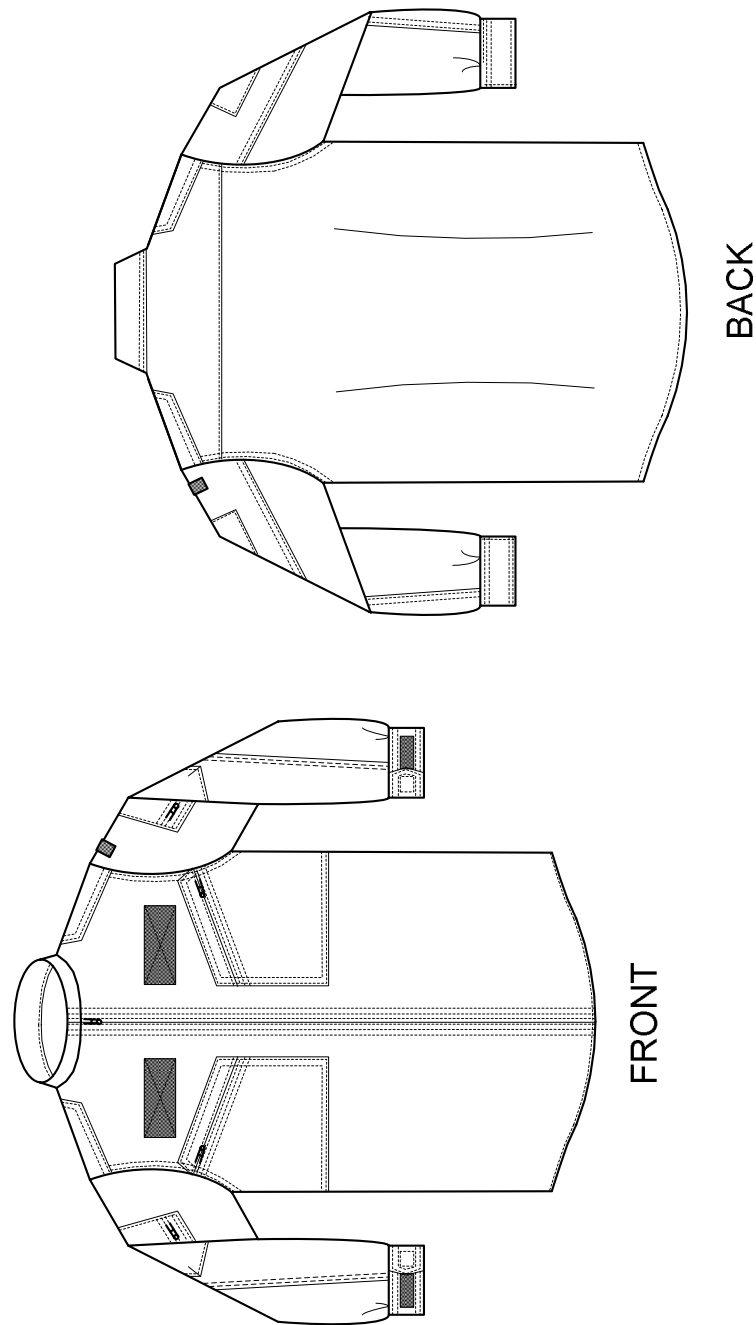


Figure 1: Front and Back View

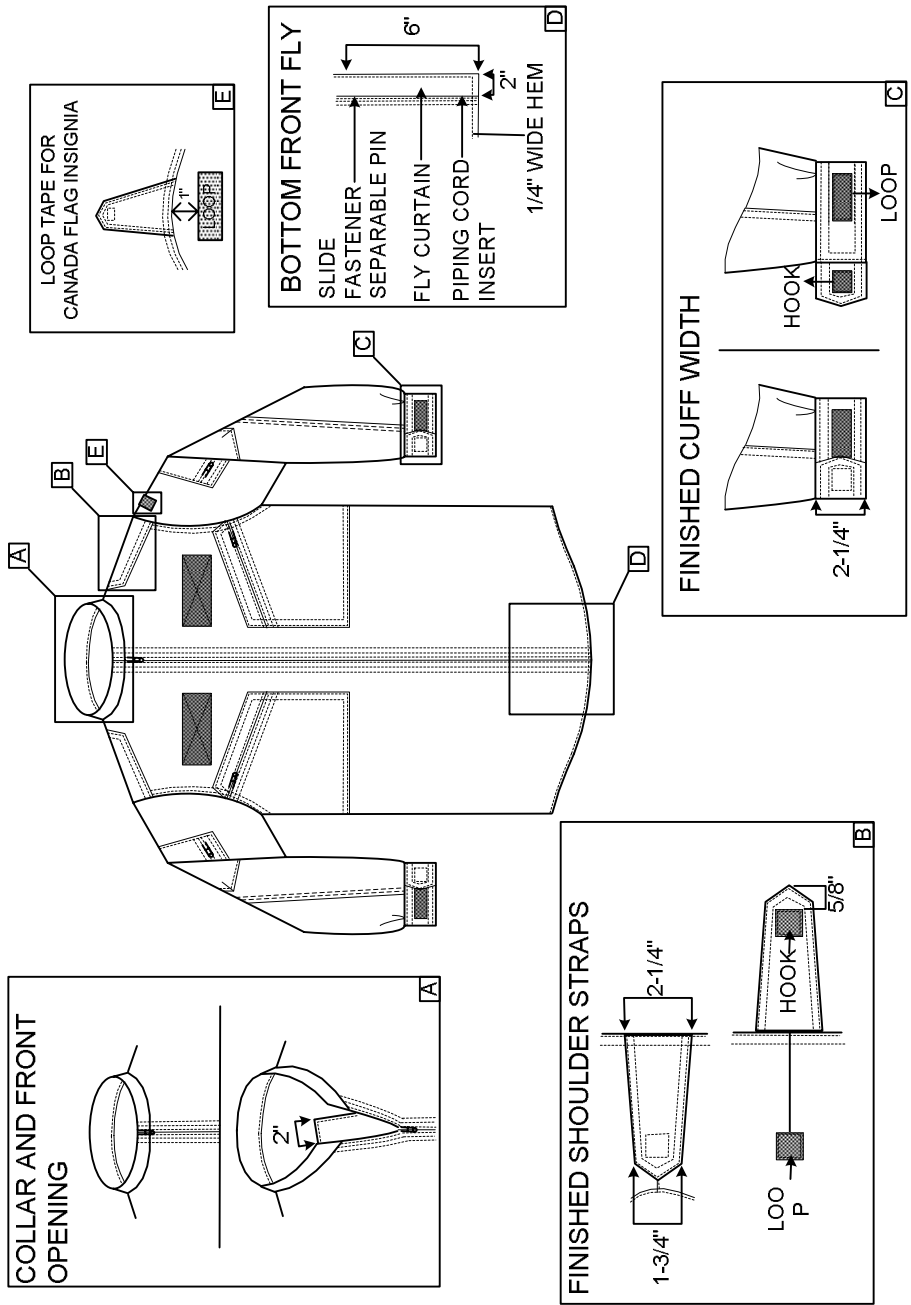


Figure 2: Dimensions of Garment Components

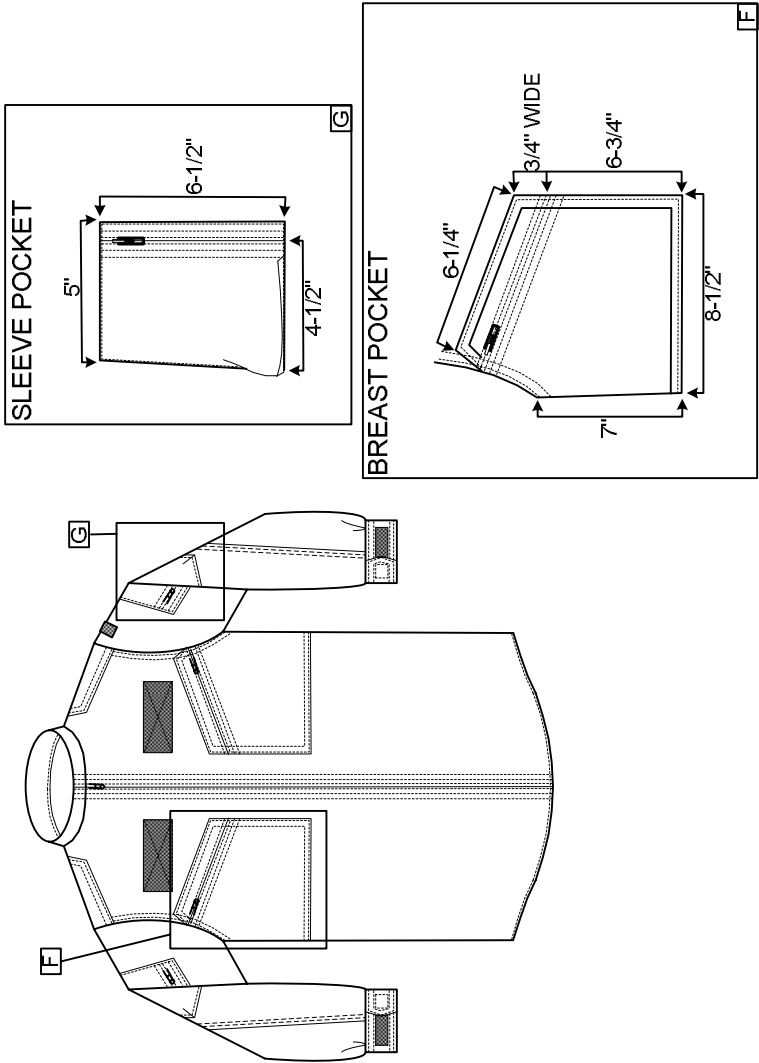


Figure 3: Dimensions of Pockets






ITEM & CONTRACT INFO	ARTICLE ET INFO SUR LE CONTRAT	SHIRT, TACTICAL HELICOPTER CREW, FR CHEMISE, ÉQUIPAGE D'HELICOPTER TACTIQUE, FR NSN/INO: 8415-20-XXX-XXXX	
CARE SYMBOLS	SYMBOLS D'ENTRETIEN	<div>SIZE/TAILLE : 7040</div> <div>NATO SIZE / TAILLE OTAN : XXXX-XXX</div> <div>CONTRACT NO. / NO. DE CONTRAT: WXXXX-XXXXX</div> <div>CONTRACTOR NAME/NOM D'ENTREPRENEUR: Jones &amp; Company</div> <div>DATE OF / DE MANUFACTURE: MM/YY</div> <div>FIBRE CONTENT / TENEUR DE FIBRES: XXXXXXXXXXXXX</div> <div><div> 40°C</div><div> Tumble dry or line dry. Séchage par rotlage ou battage</div><div> Do not bleach. / Ne pas blanchir.</div><div> Do not iron. / Ne pas repasser.</div><div> Do not dry-clean / Ne pas nettoyer à sec.</div></div>	
CARE INSTRUCTIONS	CONSIGNES D'ENTRETIEN	<div>1. WASH GARMENTS BEFORE WEARING.</div> <div>2. WASH GARMENTS IN WARM WATER. A SECOND, CLEAN WATER RINSE IS RECOMMENDED. DO NOT USE CHLORINE BLEACH. DO NOT USE LIQUID FABRIC SOFTENER.</div> <div>1. LAVER LES VÊTEMENTS NEUFS AVANT DE LES PORTER.</div> <div>2. LAVERS LES VÊTEMENTS À L'EAU TIÈDE. DEUX RINÇAGES SONT RECOMMANDÉS.</div> <div>NE PAS UTILISER D'AGENTS DE BLANCHIMENT CHLORÉS.</div> <div>NE PAS UTILISER D'ASSOUPLISSANT LIQUIDE.</div>	
USER ID	ID DE L'UTILISATEUR	I.D. _____	

Figure 4: Care and Marking Label

**APPENDIX 2 SCALE OF MEASUREMENTS**

MEASUREMENTS OF GARMENT													
HEIGHT AND CHEST		HEIGHT WITHOUT SHOES		CHEST	GIRTH MEASUREMENTC SLIDE FASTENER CLOSED			FULL LENGTH FROM NECK SEAM		SLEEVE			
					CHEST	WAIST	BOTTOM	CENTER FRONT	BACK	LENGTH AT UNDERARM SEAM INCLUDING CUFF	WIDTH AT SCYE	CUFF CIRC.	COLLAR LENGTH (along neck seam)
6734	5'4" to 5' 6 1/2"	SHORT	33-34	41	35	40	28 1/2	32	16 1/2	19	17 1/2	9 1/2	14 3/4
6736			35-36	43	37	42			17		18	10	15 1/4
6738			37-38	45	39	44			17 1/2		18 1/2	10	15 3/4
6740			39-40	47	41	46			18		19	10 1/2	16 1/4
6742			41-42	49	43	48			18 1/2		20	11	17 1/4
6744			43-44	51	45	50			19		20 1/2	11	17 3/4
6746	5' 7" to 5' 9 1/2"	REG	45-46	53	47	52	30 1/2	34	19 1/2	20	20 1/2	11	17 3/4
7034			33-34	41	35	40			16 1/2		18	9 1/2	14 3/4
7036			35-36	43	37	42			17		18 1/2	10	15 1/4
7038			37-38	45	39	44			17 1/2		19	10	15 3/4
7040			39-40	47	41	46			18		19 1/2	10 1/2	16 1/4
7042			41-42	49	43	48			18 1/2		20	10 1/2	16 3/4
7044	5' 10" to 6' 1/2"	TALL	43-44	51	45	50	32 1/2	36	19	21	20 1/2	11	17 1/4
7046			45-46	53	47	52			19 1/2		21	11	17 3/4
7048			47-48	55	49	54			20		21 1/2	11 1/2	18 1/4
7050			48-50	57	51	56			20 1/2		22	11 1/2	18 3/4
7052			51-52	59	53	58			21		22 1/2	12	19 1/4
7336			35-36	43	37	42			17		19	10	15 1/4
7338	5' 10" to 6' 1/2"		37-38	45	39	44	32 1/2	36	17 1/2	21	19 1/2	10	15 3/4
7340			39-40	47	41	46			18		20	10 1/2	16 1/4
7342			41-42	49	43	48			18 1/2		20 1/2	10 1/2	16 3/4
7344			43-44	51	45	50			19		21	11	17 1/4
7346			45-46	53	47	52			19 1/2		21 1/2	11	17 3/4
7348			47-48	55	49	54			20		22	11 1/2	18 1/4
7350	6' 1/2" to 6' 3 1/2"	X-TALL	48-50	57	51	56	34 1/2	38	20 1/2	22	22 1/2	11 1/2	18 3/4
7352			51-52	59	53	58			21		23	12	19 1/4
7636			35-36	43	37	42			17		19 1/2	10	15 1/4
7638			37-38	45	39	44			17 1/2		20	10	15 3/4
7640			39-40	47	41	46			18		20 1/2	10 1/2	16 1/4
7642			41-42	49	43	48			18 1/2		21	10 1/2	16 3/4
7644	TOLERANCE PLUS OR MINUS		43-44	51	45	50	1/2	1/2	19	1/2	21 1/2	11	17 1/4
7646			45-46	53	47	52			19 1/2		22	11	17 3/4
7648			47-48	55	49	54			20		22 1/2	11 1/2	18 1/4
7650			48-50	57	51	56			20 1/2		23	11 1/2	18 3/4
7652			51-52	59	53	58			21		23 1/2	12	19 1/4

NOTICE



This documentation has been reviewed by the technical authority and does not contain controlled goods. Disclosure notices and handling instructions originally received with the document shall continue to apply.

AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

**MANUFACTURING DATA  
FOR  
TROUSERS, TACTICAL HELICOPTER CREW, FLAME RESISTANT (FR)**

**1.0 SCOPE**

**1.1 Scope**

This Manufacturing Data covers the material, design, construction and inspection requirements for the Trousers, Tactical Helicopter Crew, Flame Resistant (FR). The Trousers will have an outer finish in MULTICAM®.

**1.2 Intended Use**

The Trousers are worn with the tactical helicopter crew shirt (in accordance with Manufacturing Data at Annex B) by authorized tactical helicopter crew members.

**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)**

- CF-B-854 Specification for Buttons, Nylon (45 and 50 Ligne)
- D-80-001-028/SF-001 Specification for Cord, Plaited, Spun Synthetic Fibre
- D-80-001-101/SF-001 Specification for Webbing, Cotton, Water and Rot Resistant
- D-80-001-055/SF-001 Specification for Label, Clothing and Equipment
- D-83-001-005/SF-001 Specification for Fasteners, Slide, Interlocking

**DND Drawings (provided upon request)**



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- 373118 Button, Nylon, Slotted, 30-ligne
- 391335 Clip, Map, Black
- 8790166 Strap and Button Argt, 30-ligne, Type I

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

- CAN/CGSB-54.1-M Stitches and Seams, Parts I and II
- CAN/CGSB-86.1-2003 Care Labelling of Textiles
- CAN/CGSB-155.1-2001 Fire Fighters Protective Clothing for Protection against Heat and Flame

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

- A-A-55126A Commercial Item Description - Fastener Tapes, Hook and Loop, Synthetic
- A-A-55217 Thread, Aramid, Spun Staple

### 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 Definitions

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.
No-melt no-drip, fire resistant materials	Fabrics that will not ignite or fuse to the skin when exposed to flame, and will self-extinguish when the ignition source is removed.
Slide Fastener	A fastener for locking together two toothed edges by means of a sliding tab, commonly referred to as a zipper.

### 2.4 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: Dimensions of Garment Components;
- (c) Figure 3: Thigh Pocket Systems;
- (d) Figure 4: Dimensions for Bottom Leg Components; and
- (e) Figure 5: Back Hip Pocket; and
- (f) Figure 6: Care and Marking Label.

## 2.5 Patterns

DND will provide patterns as follows:

- (a) Sealed pattern: DSSPM 110-02 - Trousers, Tactical Helicopter Crew, Flame Resistant (FR) (Sealed for construction and design); and
- (b) Paper patterns - Paper patterns for all sizes under Style Code TTHC013. Size 7034 (reg/med) will be used for tendering purposes.

Note: Sealed Pattern DSSPM 110-02 has the following deviation:

- The material used for the bottom leg reinforcement is incorrect, the shell material is to be used.
- The raw edges of the pockets are not serged.

## 3.0 **REQUIREMENTS**

### 3.1 Material

The following applies:

- (a) Shell Material - The shell material must be in accordance with the specification for Cloth, Plain Weave, Aramide 185 g/m<sup>2</sup> at Annex D;
- (b) Slide Fasteners - All slide fasteners must:
  - i. Be Class 3;
  - ii. Have Long Pulls;
  - iii. Have metal (brass) chains;
  - iv. Be fire resistant in accordance with CAN/CGSB-155.1-2001, para 5.1.2;
  - v. Have brass interlocking members with automatic locking sliders conforming to D-83-001-005/SF-001;
  - vi. Have metal components with a dull or antique finish; and
  - vii. Have tapes as follows:
    - a. Made with flame resistant fibres;
    - b. Woven using a twill weave; and
    - c. Be Light Sand in colour;
- (c) Hook and Loop Fastener Tape - The hook and loop fastener tape must:
  - i. Be Type II, Class 1 with a flame retardant finish in accordance with A-A-55126A; and
  - ii. Be Light Sand in colour;
- (d) Webbing - The webbing for the pencil pockets and map clip holders, must:

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- i. Be cotton webbing with water and rot resistance in accordance with Type I of D-80-001-101/SF-001;
  - ii. Be Light Sand in colour;
- (e) Cord - The cord for the slide fastener pulls and knife loop must:
- i. Be Cord, Plaited, Spun Synthetic Fibre, Type I in accordance with D-80-001-028/SF-001; and
  - ii. Be Light Sand in colour;
- (f) Buttons - The buttons (one (1) per pair of Trousers) must:
- i. Be nylon, slotted type button, 30-ligne, in accordance with CF-B-854 and Drawing 373118; and
  - ii. Be Light Sand in colour;
- (g) Map Clips - The map clips must:
- i. Be in accordance with Drawing 391335; and
  - ii. Be Black in colour;

Suggested sources of supply for the map clip are:

Integrated Plastic Inc. 170 Commander Blvd Agincourt, Ontario M1S 3C8	Texfast Group Ltd. 88 Tycos Drive Toronto, Ontario M6B 1V9
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- (h) Writing Surface - The writing surface must:
- i. Be made of two plies of plastic as follows:
    - a. One (1) ply white polystyrene, 0.05 mm (0.020 inch) thick; and
    - b. One (1) ply clean transparent vinyl, 0.05 mm (0.020 inch) thick;
  - ii. Measure 15 cm (6 in) long by 11.4 cm (4.5 in) wide; and
  - iii. Have rounded corners with a 6.4 mm (0.25 in) radius;
- (i) Thread - The thread for seaming, stitching, buttonholes, bartacks and serging must:
- i. Be Thread, Aramid, Spun Staple, in accordance with Type II of A-A-55217;
  - ii. Have a size appropriate to the operation and materials being sewn; and
  - iii. Be Light Sand in colour;
- (j) All material must be sourced and supplied by the Contractor.

### 3.2 Sizing

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

Inseam (cm)	Waist (cm)									
	28	30	32	34	36	38	40	42	44	46
67	X	X	X	X	X	X	X			
70	X	X	X	X	X	X	X	X	X	X
73		X	X	X	X	X	X	X	X	X
76		X	X	X	X	X	X	X	X	X

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

### 3.3 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 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 front fly facing, back pocket jettings, pocket stays and button strap which may be cut from separate lay or ends of shell material.

### 3.4 Sewing

The following applies:

- (a) Seams must be as follows:
  - i. Conform to CAN/CGSB-54.1-M;
  - ii. Be a minimum of 9.5 mm (0.375 in) wide unless otherwise specified;
  - iii. Double-lapped seams conform to numerical designation 2.04.03 of CAN/CGSB-54.1-M, either lock or chain stitched with the needles set 6.4 mm (0.25 in) apart.
- (b) Stitching must be as follows:
  - i. Be either lockstitched Type 301 or chain stitch Type 401 (unless otherwise specified) conforming to CAN/CGSB-54.1-M, having not less than nine (9) nor more than eleven (11) stitches per 2.5 cm (1 in);
  - ii. For double-needle stitched, needles set 6.4 mm (0.25 in) apart;
  - iii. Ends of all lockstitched seams and stitchings, also breaks in thread, securely backstitched;
  - iv. Present a regular even appearance without fabric pucker and be free from skips that may result from faulty machine tension or other stitching malfunctions;
- (c) Where seaming, turning and stitching is specified, the edges must be properly worked out before stitching;
- (d) When serging, all exposed raw edges must be finished with any 500 series, with not less than ten (10) stitches per 2.5 cm (1 in);
- (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;

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- (f) Bartacks, unless specified otherwise, must be 12.7 mm (0.5 in) long and must have not less than twenty (20) cover stitches;
- (g) Buttonholes must:
  - i. Be gimp reinforced eyelet type, with not less than 22 stitches per 2.5 cm (1 in); and
  - ii. Have ends bartacked;
- (h) Slotted buttons must be attached with a strap in accordance with Drawing 8790166 as follows:
  - i. Either seam type numerical designation 8.06.02 or 8.19.01, in accordance with CAN/CGSB-54.1-M;
  - ii. Have not less than ten (10) stitches nor more than twelve (12) stitches per 2.5 cm (1 in); and
  - iii. Have all exposed raw edges serged;
- (i) Pockets must:
  - i. Have all edges serged; and
  - ii. Have pocket assemblies positioned as indicated on paper pattern and stitched 3.2 mm (0.125 in) and 6.4 mm (0.25 in) gauge;
- (j) Slide fastener covers on pockets must:
  - i. Be constructed of a piece of shell material folded in three, as indicated on the paper pattern, and free edge stitched at 3.2 mm (0.125 in) gauge; and
  - ii. Positioned over the slide fastener covering the other half of the chain and stitched 6.4 mm (0.25 in) gauge.

### 3.5 Label

The Trousers must include a Care and Marking Label (see Figure 6) as follows:

- (a) Centered on the outside ply of the left back pocket bag, 5 cm (2 in) below the waistband seam, and stitched 3.2 mm (0.125 in) gauge around all edges;
- (b) Light tan 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 label in accordance with CAN/CGSB-86.1-2003 including the following:
  - i. Table 1 – Washing – symbol 11;
  - ii. Table 2 – Bleaching – symbol 3;
  - iii. Table 3 – Drying – symbol 2;
  - iv. Table 4 – Ironing/Pressing – symbol 1; 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. Abbreviated Nomenclature (Trousers, Tac Hel, FR / Pantelons hel tac, FR);
  - ii. NATO Stock Number;
  - iii. Size by height and chest;
  - iv. NATO size designation;
  - v. Contract Number;
  - vi. Contractor Name. No initials, logos or trademarks shall be used;
  - vii. Date of Manufacture; and
  - viii. Fibre content (aramid/FR viscose, etc.);

- ix. The following care instructions:

TROUSERS, TAC HEL, FR

WASH NEW GARMENTS BEFORE WEARING.

LAUNDRER GARMENTS SEPARATELY IN WARM WATER. A SECOND CLEAN WATER RINSE IS RECOMMENDED. DO NOT USE CHLORINE BLEACH. DO NOT USE LIQUID FABRIC SOFTENER.

PANTALON, HEL TAC, FR

LAVER LES VÊTEMENTS NEUFS AVANT DE LES PORTER.

LAVER LES VÊTEMENTS SÉPARÉMENT DES AUTRES AVEC DE L'EAU TIÈDE. DEUX RINÇAGES SONT RECOMMANDÉS. NE PAS UTILISER D'AGENTS DE BLANCHIMENT CHLORÉS. NE PAS UTILISER D'ASSOUPLEISSANT LIQUIDE.

3.6 Construction

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

- (a) **Waist** - The Trouser must have a waist as follows:

- i. Be a cut-on waistband as follows:
  - a. Each half of the waistband finished with a facing that is turned to the inside and turned under; and
  - b. Topstitched 3.2 mm (0.125 in) gauge along the top and bottom;
- ii. Have crotch and seat seam raw edges serged;
- iii. Have a center front fly as follows:
  - a. Have a Type 1 slide fastener with a length in accordance with the Scale of Measurements at Appendix 2;
  - b. Have a right side as follows:
    1. Fly curtain plies seamed together across the top and along the front edge, turned and stitched 1.6 mm (0.0625 in) gauge. and the back edge serged;
    2. Front fly opening serged; and
    3. Right half of the slide fastener and the back edge of the curtain stitched 3.2 mm (0.125 in) gauge to the right fly opening with the top stop of the slide fastener 3.8 cm (1.5 in) below the top edge of the waistband;
  - c. Have a left side as follows:
    1. Fly opening finished with a facing with the back edge of the facing serged;
    2. Left side of the slide fastener double needle stitched to the facing with the end of the tape folded under and secured in this operation;
    3. Facing sewn to the fly opening, turned and top stitched through all layers 3.2 mm (0.125 in) gauge along the front and across the top;
- iv. Have a 30-ligne button and strap assembly as follows:
  - a. Centred in height on the outside of the right waistband;
  - b. Placed vertically in such a manner that when the button assembly is fully extended, the button will be centred over the slide fastener; and
  - c. Buttonhole positioned on the left side to effect proper closure with the button assembly on the right side;
- v. Have belt loops as follows:
  - a. Have seven (7) belt loops as follows:
    1. Two (2) centred along the front waistband;
    2. Two (2) placed over the side seams;
    3. Two (2) centred along the back waistband; and

4. One (1) placed over the back seat seam;
- b. Seamed, turned and stitched 6.4 mm (0.25 in) gauge;
- c. Each positioned on the waistband with the ends turned under and bartacked in place across the full width; and
- d. Have a finished effective length of 5 cm (2 in);

**Note:** *the front fly must lay flat, without pulling or bunching when the waistband is fully extended.*

(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;
  - b. Seam allowance pressed towards the left side and stitched 3.2 mm (0.125 in) through all plies;
  - c. Fly curtain and the front facing secured with a tack along the bottom of the fly opening;
  - d. Fly facing stitched to the front 4.5 cm (1.25 in) from the front edge at the top and following the curve of the facing at the bottom, and continue along the crotch seam to the inseam 6.4 mm (0.25 in) gauge; and
  - e. Bartack placed across the bottom of the fly opening;
- ii. The seat seamed as follows:
  - a. Seamed together twice at the seat seam;
  - b. Seam 9.5 mm (0.375 in) at the crotch and widen gradually to 3.8 cm (1.5 in) at the top; and
  - c. Top corners of the seat seam allowance stitched or bartacked to the back waistband through all layers;
- iii. The backs and fronts joined at the inseam with a continuous double-lapped seam with the back overlapping the front on the outside; and
- iv. The front and back must be seamed together as follows:
  - a. Along the side seam with a double lapped seam;
  - b. Back edge of the side pocket, map clip and message pad pocket included in the seam; and
  - c. Front overlapping the back on the outside;

(c) **Pockets** - The Trousers must have pockets as follows:

- i. **Waist front quarter cut side pockets** - An internal flat pocket on each front hip below the waistband as follows:
  - a. Constructed from the shell material;
  - b. Pocketing as follows:
    1. Folded in half and seamed along the bottom, turned and stitched 6.4 mm (0.25 in) gauge;
    2. Front stitched to the pocket, turned and stitched 3.2 mm (0.125 in) and 6.4 mm (0.25 in) gauge; and
    3. Seamed back dart, pressed towards the centre, e located at the top of each back;
  - c. Pocket opening as follows:
    1. Opening 17.7 cm (7 in) in length;
    2. Stitched 3.2 mm (0.125 in) and 6.4 mm (0.25 in) gauge;
    3. Bartacked at each end;
- ii. **Back hip pocket** - A single jetted pocket with flap on each rear hip centered on each leg as follows:
  - a. Pocketing as follows:

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1. Pocket jetting as follows:
  - a. Seamed across both ends and stitched 6.4 mm (0.25 in) gauge;
  - b. Topstitched 1.6 mm (0.0625 in) gauge along the opening; and
  - c. Finish at 3.8 cm (1.5 in) wide;
2. Pocket opening bartacked at each end;
- b. Flaps as follows:
  1. Stitched 6.4 mm (0.25 in) gauge; and
  2. Close with hook and loop fastener tape as follows:
    - a. 2.5 cm (1 in) wide by 7.6 cm (3 in) long;
    - b. In accordance with the sealed sample; and
    - c. Positioned on the pocket to effect proper closure with the flap;
- iii. Left front thigh outer patch pocket with map clip holder - An external pocket on the left outer thigh centered between the waist and the knee as follows:
  - a. Pocketing as follows:
    1. Pocket and pocket stay seamed together along the pocket opening, turned and topstitched 3.2 mm (0.125 in) gauge; and
    2. Pocket opening edge placed over the slide fastener covering half of the teeth and stitched 6.4 mm (0.25 in) gauge to the slide fastener tape;
  - b. Slide fastener as follows:
    1. Type 15;
    2. 19.7 cm (7.75 in) in length;
    3. Close toward the top; and
    4. Cover in accordance with Section 3.3(j);
  - c. Map clip assembly as follows:
    1. Constructed from webbing material as follows:
      - a. Each end of the webbing turned under and stitched across the fold 6.4 mm (0.25 in) gauge;
      - b. Bottom end folded up 8.9 cm (3.5 in);
      - c. Two (2) rows stitched parallel to the sides at 12.7 mm (0.5 in) gauge; and
      - d. Map clip inserted and the remaining 2.5 cm (1 in) of webbing folded over the top edge of the map clip;
    2. Placed on the left front thigh outer patch pocket as follows:
      - a. Seamed twice around all edges 3.2 mm (0.125 in) gauge; and
      - b. Top corners of the bottom webbing reinforced with vertical bartacks;
- iv. Left front thigh inner knife pocket - An external bellows style knife pocket on the left front inner thigh next to the left front thigh outer patch pocket as follows:
  - a. Constructed from the shell material with a flap across the top;
  - b. Slide fastener as follows:
    1. Type 15;
    2. 15.2 cm (6 in) in length;
    3. Close toward the top; and
    4. Cover by jettings and stitched at 3.2 mm (0.125 in) and 6.4 mm (0.25 in) gauge;
  - c. Loop of shell material as follows:
    1. Measure 15.2 cm (6 in) long, folded in half;
    2. Placed under the pocket assembly, along the top edge, 2.5 cm (1 in) from pocket opening and stitched in place; and
    3. Functional length of the loop 6.4 cm (2.5 in);



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- v. Right front thigh message pad pocket - An external pocket on the right outer thigh centered between the waist and the knee as follows:
  - a. Constructed from one (1) ply of shell material folded in half;
  - b. Pocketing as follows:
    - 1. Pocket and pocket stay seamed together along the pocket opening, turned and topstitched 3.2 mm (0.125 in) gauge;
    - 2. Pocket opening edge placed over the slide fastener covering half of the teeth and stitched 6.4 mm (0.25 in) gauge to the slide fastener tape; and
    - 3. Curved top bridge must be at the top of the pocket;
  - c. Have a see-through window as follows:
    - 1. Cut as indicated on the paper pattern;
    - 2. Positioned on the patch pocket as indicated on paper pattern, with the raw edges turned under and stitched 3.2 mm (0.125 in) and 6.4 mm (0.25 in) gauge; and
    - 3. Finished opening topstitched 3.2 mm (0.125 in) and 6.4 mm (0.25 in) gauge;
  - d. Slide fastener as follows:
    - 1. Type 15;
    - 2. 19.7 cm (7.75 in) in length;
    - 3. Close toward the top; and
    - 4. Cover in accordance with Section 3.3(j);
  - e. Hook and loop tape closure as follows:
    - 1. 1.9 cm (0.75 in) wide by 10.2 cm (4 in) long; and
    - 2. Loop positioned at the top of the inside of the window, and the hook positioned on the patch pocket to effect proper closure with the window pocket;
- vi. Lower leg pocket - An external patch pocket on each lower outer side calf above the cuff as follows:
  - a. Constructed from the shell material;
  - b. Positioned as per the paper pattern;
  - c. Pocketing as follows:
    - 1. Top raw edge of the pocket turned under and stitched 3.2 mm (0.125 in) gauge;
    - 2. Folded edge placed over the slide fastener tape covering half of the slide fastener teeth and stitched 6.4 mm (0.25 in) gauge to the slide fastener tape, with the curved end of the slide fastener closest to the side seam;
    - 3. Lower edge of the pocket turned up 17.7 cm (7 in) and a row of stitching made down the centre of the pocket starting 4.4 cm (1.75 in) from the top edge of the flap, creating a safety flap; and
    - 4. Safety flap to have three (3) vertical bartacks at the top of the rows of stitching, one at the centre and one at each side edge;
  - d. Slide fastener as follows:
    - 1. Type 15;
    - 2. 21.6 cm (8.5 in) in length;
    - 3. Close back to front; and
    - 4. Cover in accordance with Section 3.3(j);
  - e. Hook and loop tape closure as follows:
    - 1. 2.5 cm (1 in) wide by 5.1 cm (2 in) long; and
    - 2. Loop positioned 2.5 cm (1 in) from the top edge and the hook over the turned edge;
  - f. Pencil pockets as follows:

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1. Positioned on each bottom leg pocket and stitched 3.2 mm (0.125 in) gauge, twice, around all edges;
  2. Constructed from webbing measuring 5 cm (2 in) wide by 40.6 cm (16 in) long;
  3. Top end of the webbing folded under 12.7 mm (0.5 in) and stitched 3.2 mm (0.125 in) gauge; and
  4. Other end of the webbing folded up 12.7 mm (0.5 in) and stitched 3.2 mm (0.125 in) gauge;
- g. Flashlight pocket (inside left lower leg pocket only) as follows:
1. Positioned on the left bottom leg in accordance with the paper pattern;
  2. Constructed from the shell material;
  3. Top edge turned and stitched 3.2 mm (0.125 in) gauge to form a finished hem 12.7 mm (0.5 in) deep;
  4. Bellow cuts at the corners and seamed; and
  5. Raw edges turned under and stitched 1.6 mm (0.0625 in) gauge;
- (d) **Leg bottom** - The Trousers must have cuffed leg bottoms as follows:
- i. Leg bottom turned up 5 cm (2 in), double-needle stitched to form a finished hem of 6.3 cm (1.5 in) deep;
  - ii. Leg suppressions as follows:
    - a. Zip cover and slide fastener assembly opened and positioned at the bottom of each leg to form an inverted “V”;
    - b. Raw edges turned under 15.8 mm (0.625 in) and double needle stitched along sides and top edge with bottom ends of the slide fastener tapes folded under and included in this operation;
    - c. Slide fastener as follows:
      1. Type 1;
      2. 30.5 cm (12 in) in length;
      3. When open, the slider stopper at the top; and
      4. Cover as follows:
        - a. Cover folded in three, as indicated on paper pattern, and free edge stitched at 3.2 mm (0.125 in) gauge;
        - b. Positioned over each side of the slide fastener covering half the chain; and
        - c. Top edge of the covers folded down over the slide fastener tape;
    - d. Bottom leg reinforcement as follows:
      1. Bottom of each pant leg interlined with one layer of shell material; and
      2. Reinforcement piece positioned on the inside of each leg and stitched 3.2 mm (0.125 in) and 6.4 mm (0.25 in) gauge along the top edge.

## APPENDIX 1 LAYOUT SKETCHES

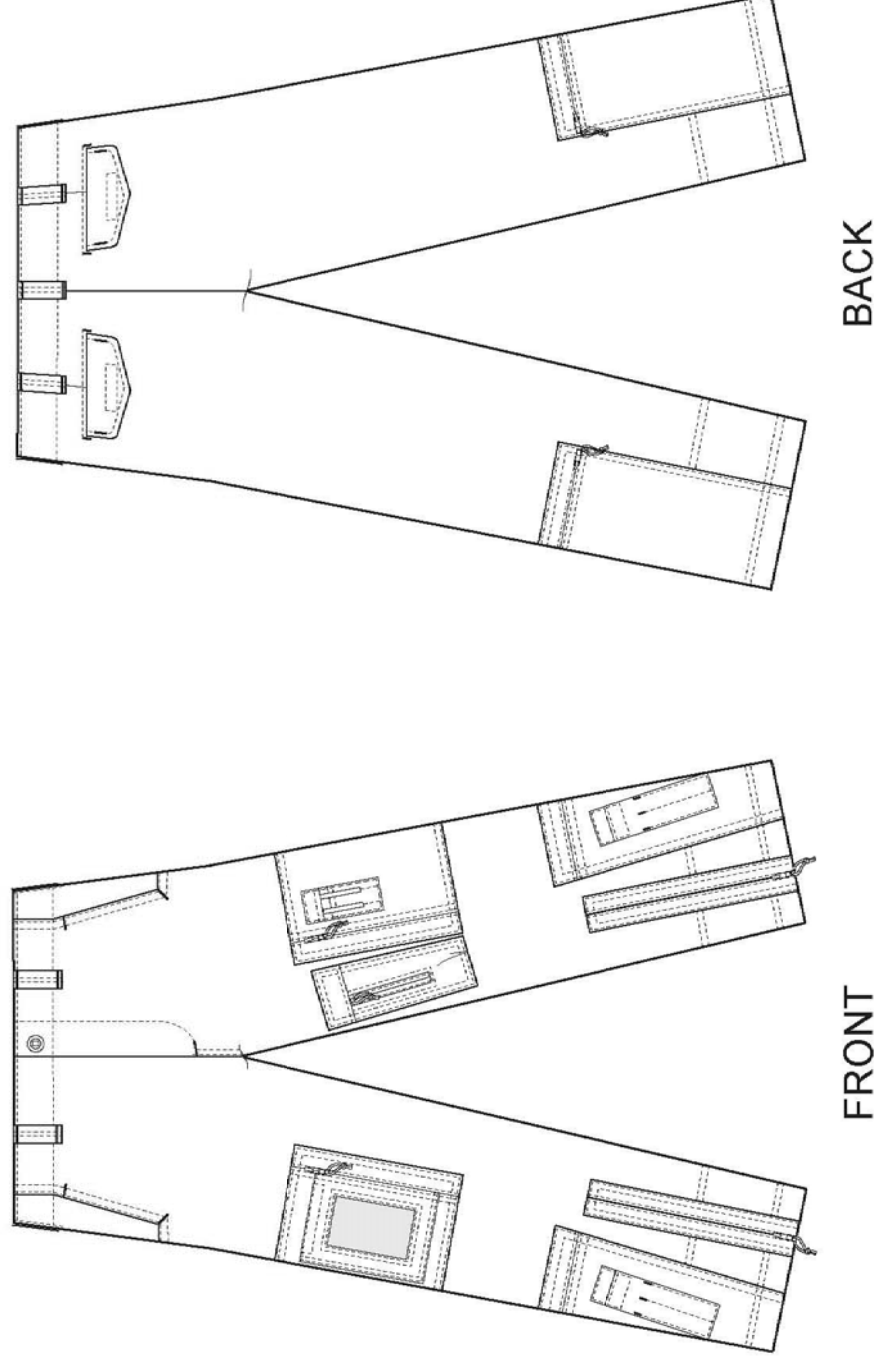


Figure 1: Front and Back View

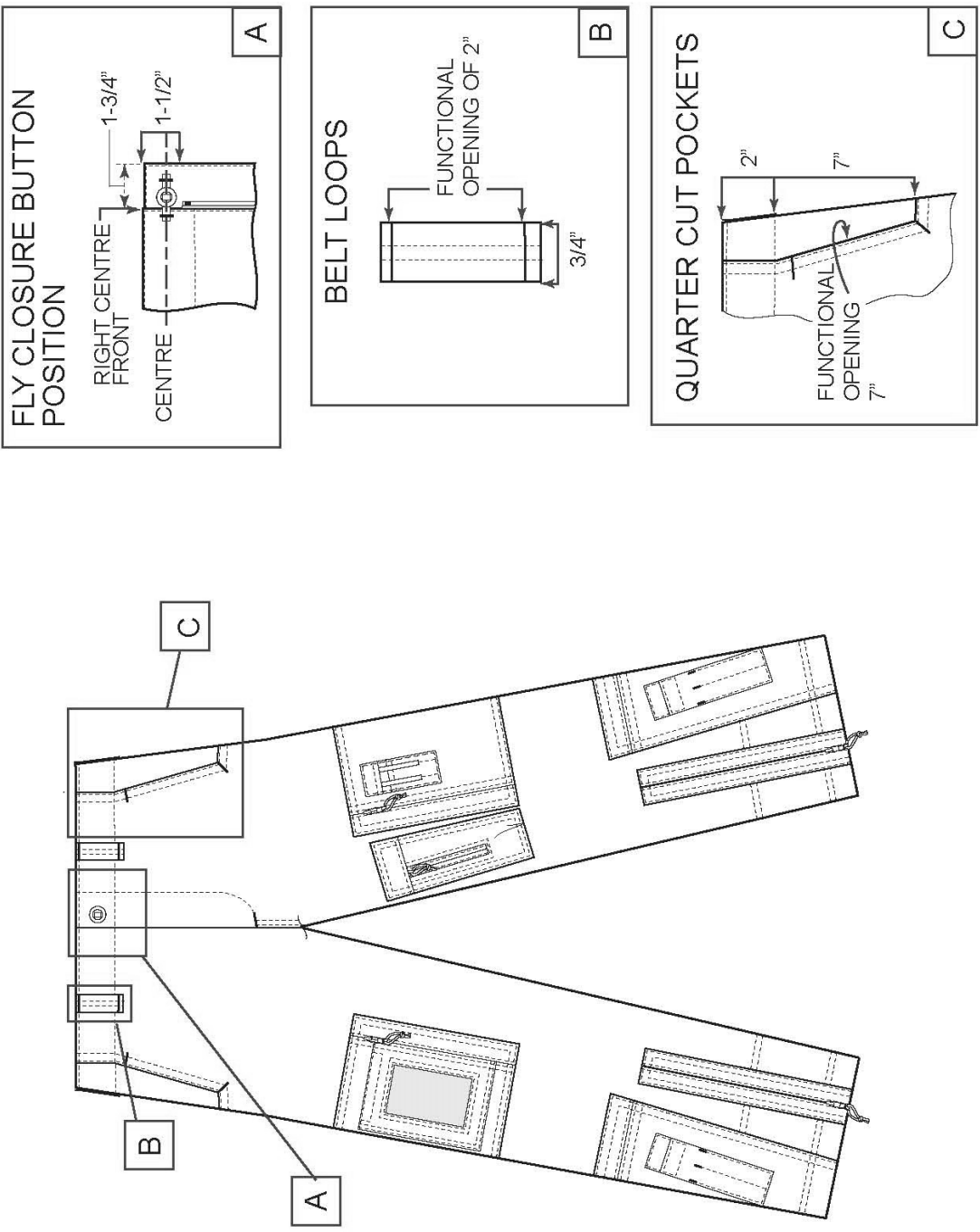


Figure 2: Dimensions of Garment Components

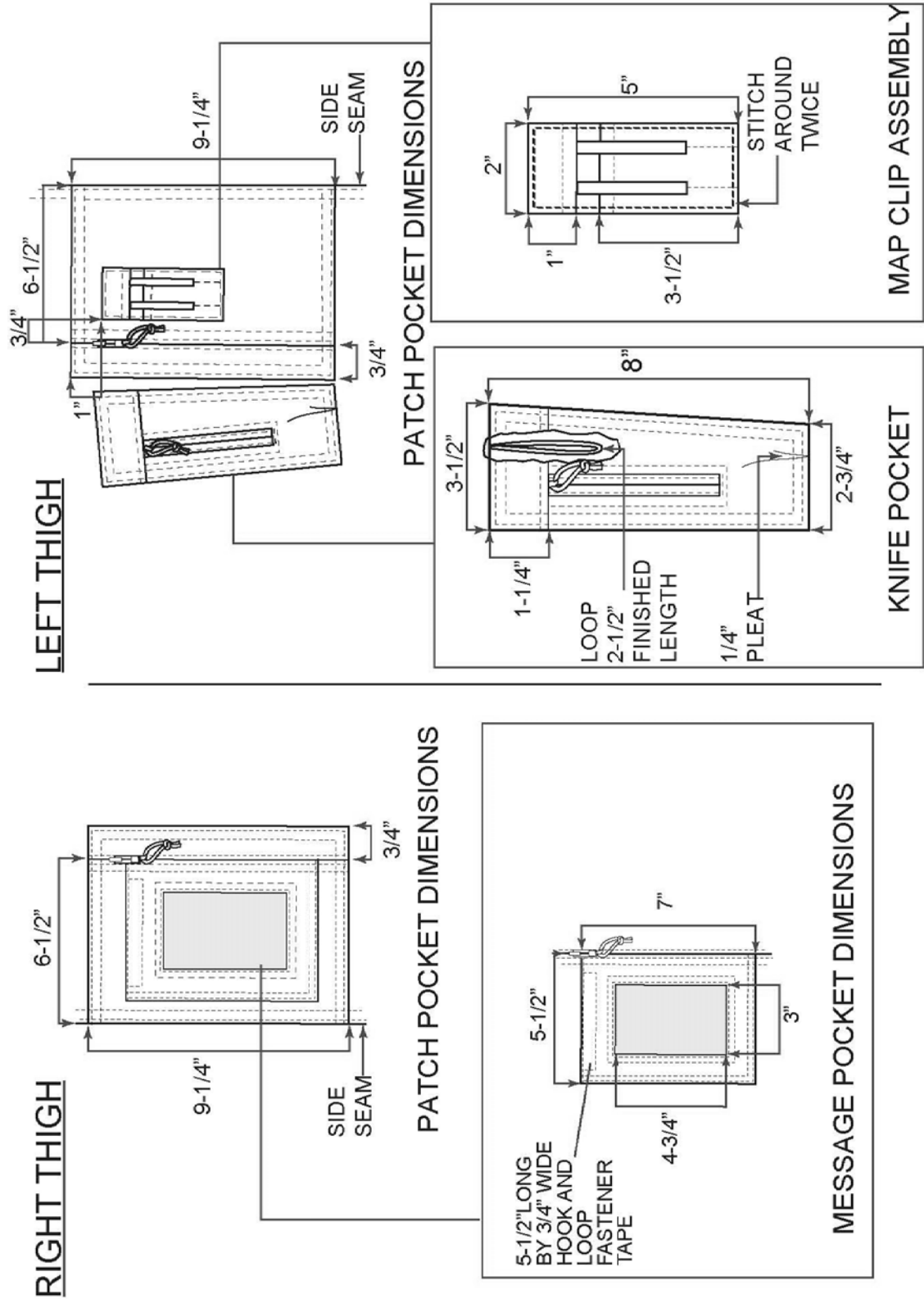


Figure 3: Thigh Pocket Systems

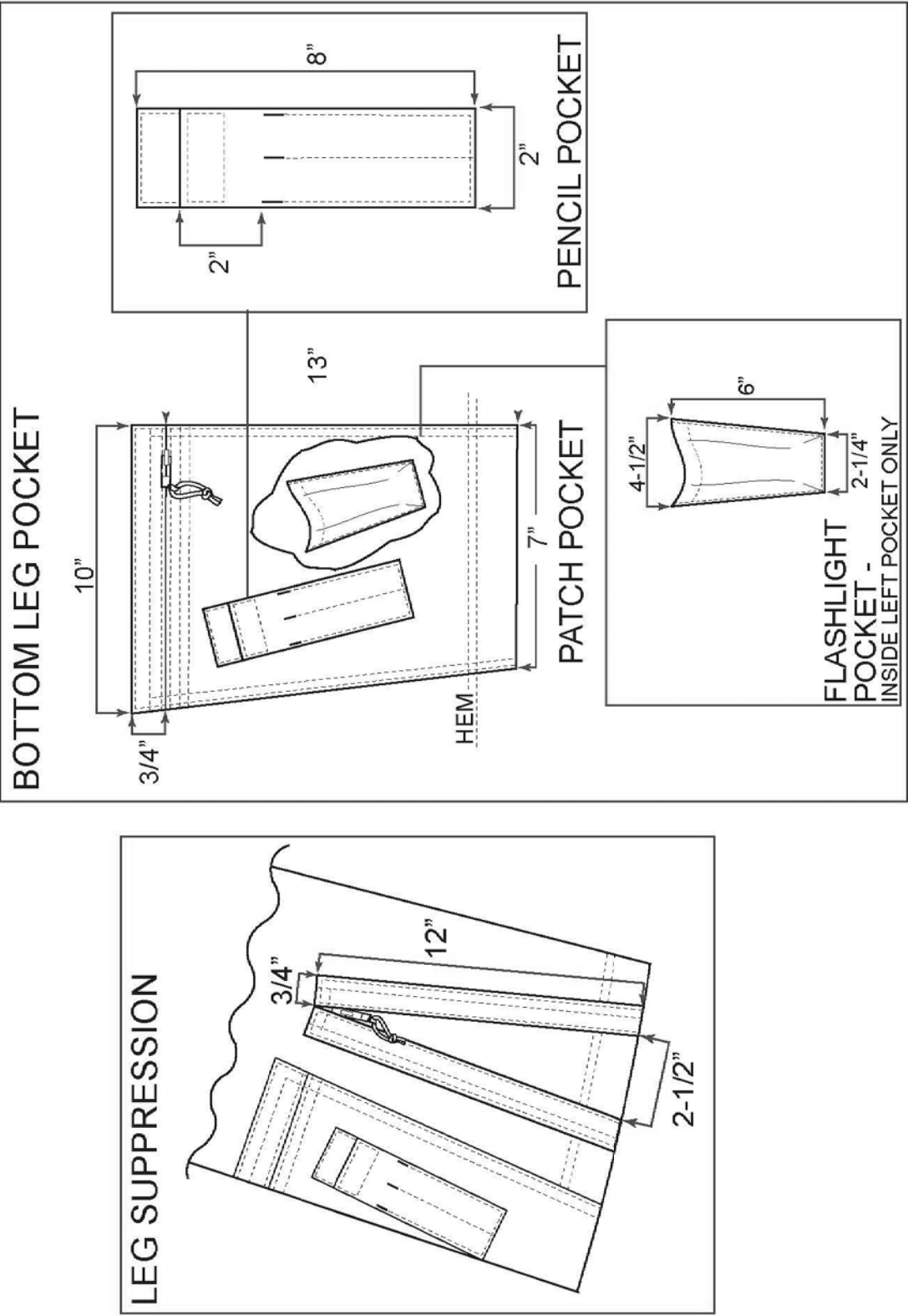


Figure 4: Dimensions for Bottom Leg Components

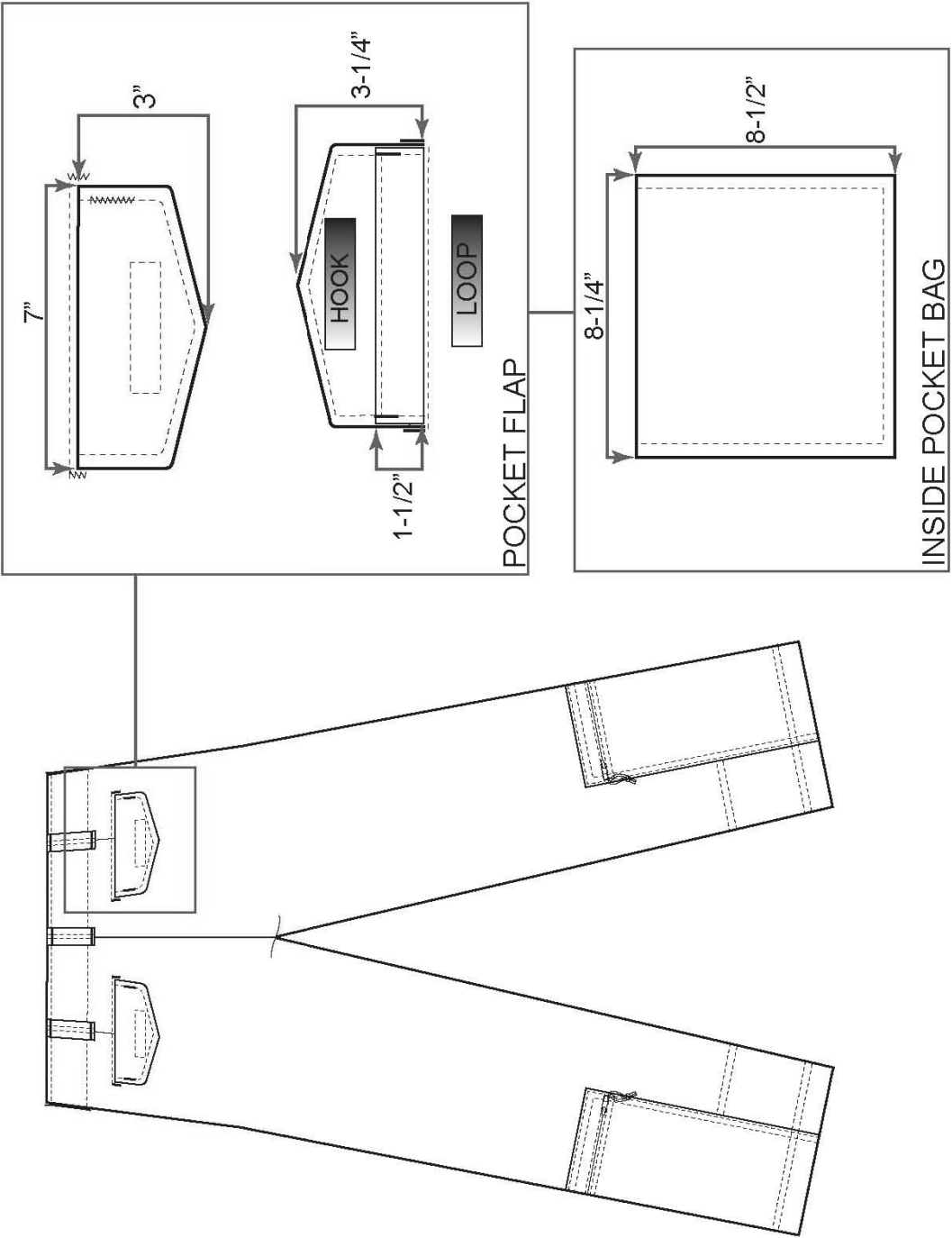


Figure 5: Back Hip Pocket


ITEM & CONTRACT INFO	ARTICLE ET INFO SUR LE CONTRAT	<p>TROUSERS, TACTICAL HELICOPTER CREW, FR PANTALONS, ÉQUIPAGE D'HELICOPTER TACTIQUE, FR NSN/NNO: 8415-20-XXX-XXXX</p> <p><b>SIZE/TAILLE: 7034</b></p> <p>NATO SIZE / TAILLE OTAN: XXXX-XXX CONTRACT NO. / NO. DE CONTRAT: WXXXX-XXXXXX CONTRACTOR NAME/NOM D'ENTREPRENEUR: Jones &amp; Company DATE OF / DE MANUFACTURE: MM/YY FIBRE CONTENT / TENEUR DE FIBRES: XXXXXXXXXXXXXXXX</p>	
CARE SYMBOLS	SYMBOLS D'ENTRETIEN	<div><div> Permanent press Medium heat / Pressage permanent Température moyenne</div><div> Non-chlorine bleach as needed / Blanchissement non-chlorine si nécessaire</div><div> Iron at medium temperature / Repasser à une température moyenne</div><div> Dryclean/solvents other than trichloroethylene / Nettoyage à sec avec des solvants autres que le trichloroéthylène</div></div>	
CARE INSTRUCTIONS	CONSIGNES D'ENTRETIEN	<p>1. WASH GARMENTS BEFORE WEARING. 2. WASH GARMENTS IN WARM WATER. A SECOND, CLEAN WATER RINSE IS RECOMMENDED. DO NOT USE CHLORINE BLEACH. DO NOT USE LIQUID FABRIC SOFTENER.</p> <p>1. LAVER LES VÊTEMENTS NEUFS AVANT DE LES PORTER. 2. LAVERS LES VÊTEMENTS À L'EAU TIÈDE. DEUX RINÇAGES SONT RECOMMANDÉS. NE PAS UTILISER D'AGENTS DE BLANCHIMENT CHLORES. NE PAS UTILISER D'ASSOUPLISSANT LIQUIDE.</p>	
USER ID	ID DE L'UTILISATEUR	I.D. _____	

Figure 6: Care and Marking Label



## APPENDIX 2 SCALE OF MEASUREMENTS

HEIGHT AND WAIST	MEASUREMENTS OF BODY			MEASUREMENTS OF GARMENT					FLY ZIPPER
	HEIGHT WITHOUT SHOES	WAIST	HIP (in line with bottom of fly)	WAIST (top edge)	OUTSEAM (including waistband)	INSEAM	KNEE (1/2 inseam length)	BOTTOM	
6728	5' 4" to 5'6 1/2"	27-28	40	28	40	28 1/2	20	17 1/2	7 1/2
6730		29-30	42	30			21	18	
6732		31-32	44	32			21	18	
6734		33-34	46	34			22	18 1/2	
6736		35-36	48	36			22	18 1/2	
6738		37-38	50	38			23	19	
6740		39-40	52	40			23	19	
7028	5' 7" to 5' 9 1/2"	27-28	40	28	43	30 1/2	20	17 1/2	8 1/2
7030		29-30	42	30			21	18	
7032		31-32	44	32			21	18	
7034		33-34	46	34			22	18 1/2	
7036		35-36	48	36			22	18 1/2	
7038		37-38	50	38			23	19	
7040		39-40	52	40			23	19	
7042	5' 10" to 6' 1/2"	41-42	54	42	46	32 1/2	24	19 1/2	9 1/2
7044		43-44	56	44			24	19 1/2	
7046		45-46	58	46			25	20	
7330		29-30	42	30			21	18	
7332		31-32	44	32			21	18	
7334		33-34	46	34			22	18 1/2	
7336		35-36	48	36			22	18 1/2	
7338	6' 1" to 6' 3 1/2"	37-38	50	38	49	34 1/2	23	19	10
7340		39-40	52	40			23	19	
7342		41-42	54	42			24	19 1/2	
7344		43-44	56	44			24	19 1/2	
7346		45-46	58	46			25	20	
7630		29-30	42	30			21	18	
7632		31-32	44	32			21	18	
7634	TOLERANCE PLUS OR MINUS	33-34	46	34	3/4	1/2	22	18 1/2	0
7636		35-36	48	36			22	18 1/2	
7638		37-38	50	38			22	18 1/2	
7640		39-40	52	40			23	19	
7642		41-42	54	42			23	19	
7644		43-44	56	44			24	19 1/2	
7646		45-46	58	46			25	20	