Public Works and Government Services Canada | Travaux publics et Services gouvernementaux Canada

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

Title - Sujet
Sniper Concealment Systems

Solicitation No. - N° de l'invitation	**Date**
W8476-195992/A	2019-03-07

Client Reference No. - N° de référence du client
6000454603

GETS Reference No. - N° de référence de SEAG
PW-$$PR-765-76628

File No. - N° de dossier	**CCC No./N° CCC - FMS No./N° VME**
pr765.W8476-195992	

Solicitation Closes - L'invitation prend fin
at - à 02:00 PM
on - le 2019-06-06

Time Zone
Fuseau horaire
Eastern Daylight Saving Time EDT

F.O.B. - F.A.B.
Plant-Usine: ☐ **Destination:** ☐ **Other-Autre:** ☐

Address Enquiries to: - Adresser toutes questions à:	**Buyer Id - Id de l'acheteur**
Dubé, Jonah	pr765

Telephone No. - N° de téléphone	**FAX No. - N° de FAX**
(613) 859-0788 ( )	( ) -

Destination - of Goods, Services, and Construction:
Destination - des biens, services et construction:
DEPARTMENT OF NATIONAL DEFENCE
DGLEPM CAPITAL
101 COLONEL BY DR.
OTTAWA
Ontario
K1A0K2
Canada

Instructions: See Herein

Instructions: Voir aux présentes

Vendor/Firm Name and Address
Raison sociale et adresse du fournisseur/de l'entrepreneur

Delivery Required - Livraison exigée	**Delivery Offered - Livraison proposée**
See Herein	

Vendor/Firm Name and Address
Raison sociale et adresse du fournisseur/de l'entrepreneur

Telephone No. - N° de téléphone
Facsimile No. - N° de télécopieur

Name and title of person authorized to sign on behalf of Vendor/Firm (type or print)
Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)

Signature **Date**

Issuing Office - Bureau de distribution
Clothing and Textiles Division / Division des vêtements et des textiles
L'Esplanade Laurier,
East Tower 7th Floor
Tour est 7e étage
140 O'Connor, rue O'Connor,
Ottawa
Ontario
K1 A 0R5

Canada

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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 “Requirement” is detailed in Annex A of the resulting contract clauses. This Requirement may result in the award of a maximum of four contracts (i.e. a maximum of one contract per sub-system) and a minimum of one contract overall.

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 Epost Connect Service

This bid solicitation allows bidders to use the epost Connect service provided by Canada Post Corporation to transmit their bid electronically. Bidders must refer to Part 2 entitled Bidder Instructions, and Part 3 entitled Bid Preparation Instructions, of the bid solicitation, for further information.

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 (2018/05/22) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

Subsection 5.4 of 2003, Standard Instructions - Goods or Services - Competitive Requirements, is amended as follows:

Delete: 60 days
Insert: 120 days

2.2 Submission of Bids

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

Bid Receiving - PWGSC
11 Laurier St.
Place du Portage, Phase III
Core 0B2
Gatineau, Québec K1A 0S5

Email address for epost Connect service: tpsgc.dgareceptiondessoumissions-abbidReceiving.pwgsc@tpsgc-pwgsc.gc.ca
Facsimile number: 819-997-9776

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 Specifications and Standards

2.5.1 United States Military Specifications and Standards

The Bidder is responsible for obtaining copies of all United States (US) military specifications and standards which may be applicable to the requirement. These specifications and standards are available commercially, or may be obtained by visiting the US Department of Defense Website, at the following address: https://quicksearch.dla.mil/qsSearch.aspx

2.5.2 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
CGSB Website: http://www.tpsgc-pwgsc.gc.ca/ongc-cgsb/index-eng.html

2.6 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 per Destination WB941: $_____ W248A: $_____
(h) Total cost $_____

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

- If the Bidder chooses to submit its bid electronically, Canada requests that the Bidder submits its bid in accordance with section 08 of the 2003 standard instructions. Bidders must provide their bid in a single transmission. The epost Connect service has the capacity to receive multiple documents, up to 1GB per individual attachment.

  The bid must be gathered per section and separated as follows:

  Section I: Technical Bid
  Section II: Financial Bid
  Section III: Certifications
  Section IV: Additional Information

- If the Bidder chooses to submit its bid in hard copies, Canada requests that the Bidder submits its bid in separately bound sections as follows:

  Section I: Technical Bid (3 hard copies and 1 soft copy on USB key)
  Section II: Financial Bid (1 hard copy and 1 soft copy on USB key)
  Section III: Certifications (1 hard copy and 1 soft copy on USB key)
  Section IV: Additional Information (1 hard copy and 1 soft copy on USB key)

  If there is a discrepancy between the wording of the soft copy on electronic media and the hard copy, the wording of the hard copy will have priority over the wording of the soft copy.

  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 (https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32573). 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.

- If the Bidder is simultaneously providing copies of its bid using multiple acceptable delivery methods, and if there is a discrepancy between the wording of any of these copies and the electronic copy provided through epost Connect service, the wording of the electronic copy provided through epost Connect service will have priority over the wording of the other copies.

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

Section I: Technical Bid
Bidders are permitted to bid on any or all sub-systems, i.e. the Concealment Base Layer (CBL), the Sniper Individual Screens (SIS), the Multispectral Scrim (MS) and/or the Sniper Building Kits (SBK). **Bidders must submit a separate bid for each sub-system against which they would like to bid.**

In their technical bid, Bidders should explain and demonstrate how they propose to meet the requirements of the sub-system against which they are bidding and how they will carry out the Work (reference pre-award sample, Part 4, Evaluation Procedures, 4.1.1.1 Mandatory and Pass-Rated Technical Criteria).

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 Attachment 1 - Electronic Payment Instruments, to identify which ones are accepted.

If Attachment 1 - 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
Bidders must provide the name, address and country of manufacturers, subcontractors and suppliers to be utilized in the performance of the contract.

Items will be manufactured at:_____ **(please indicate the complete address of the plant)**.

The following suppliers/subcontractor(s) will be utilized in the performance of the contract:

a. Name and address of supplier/subcontractor: _____
b. Location where work will be _____ **(please indicate the complete address if different from the address provided in a))**
c. Nature of subcontracting work performed: _____
d. Value of subcontract: $_____
(Enter the information for each supplier/subcontractor)

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

The Bidder agrees that Canada may publicly disclose the information provided with respect to the countries of origin.

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.

4.1.1 Technical Evaluation

Bidders will be subjected to a two-phase evaluation process for the CBL sub-system, and a one-phase evaluation process for the SIS, MS and SBK sub-systems, as detailed in Annex G.

At any time during the evaluation process, if any documentation is missing, the Contracting Authority will inform the Bidder in writing and provide the Bidder with two (2) working days from the request to submit the missing documentation. Failure to submit the required bid technical deliverables within the specified timeframe will result in the bid being declared non-responsive.

4.1.1.1 Mandatory and Pass-Rated Technical Criteria

<u>Pre-Award Samples and Supporting Documentation</u>

As part of the technical evaluation, to confirm a Bidder's capability of meeting the technical requirements, the following Pre-Award Sample(s), and all required test results, certificates of conformance and original equipment manufacturer specification sheets must be included with the bid:

SUB-SYSTEM	Pre-Award Sample Requirement
Concealment Base Layer (CBL)	1 x Concealment Base Layer, which must include the CBL Jacket (including hood) and CBL Pants
Sniper Individual Screen (SIS)	2 x Sniper Individual Screens
Multispectral Scrim (MS)	1 x roll (minimum of 20 feet) of EACH of the following colors (total of 5 rolls): • Canadian Average Green; • Light Green; • Brown (Temperate Woodland)

	• Light Sand; and • Dark Sand
Sniper Building Kit (SBK)	1 x Sniper Building Kit, which must include all items (Serial 1 to 21) in the identified quantities IAW Annex F, s.3.4.1

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

The pre-award samples will be evaluated for quality of workmanship and conformance to specified materials and measurements. The samples submitted by Bidders will remain the property of Canada.

The requirement for pre-award samples, test results, certificates of conformance and original equipment manufacturer specification sheets will not relieve the successful bidder from submitting samples, test results and certificates of conformance as required by the contract terms or from strictly adhering to the technical requirement of this Request for Proposal and any resulting contract.

4.1.1.2 EQUIVALENT PRODUCTS

1. Products that are equivalent in form, fit, function and quality to the items specified in the bid solicitation will be considered where the Bidder:

   a) designates the brand name, model and/or part number of the substitute product;
   b) states that the substitute product is fully interchangeable with the item specified;
   c) provides complete specifications and descriptive literature for each substitute product;
   d) provides compliance statements that include technical specifics showing the substitute product meets all mandatory performance criteria that are specified in the bid solicitation; and
   e) clearly identifies those areas in the specifications and descriptive literature that support
   f) the substitute product's compliance with any mandatory performance criteria.

2. Products offered as equivalent in form, fit, function and quality will not be considered if:

   a) the bid fails to provide all the information requested to allow the Contracting Authority to fully evaluate the equivalency of each substitute product; or
   b) the substitute product fails to meet or exceed the mandatory performance criteria specified in the bid solicitation for that item.

3. In conducting its evaluation of the bids, Canada may, but will have no obligation to, request bidders offering a substitute product to demonstrate, at the sole cost of bidders, that the substitute product is equivalent to the item specified in the bid solicitation.

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 (Montreal, Quebec and Edmonton, Alberta) Incoterms 2000, transportation costs included, all applicable Customs Duties and Excise taxes included.

(b) The Bidder must submit firm unit pricing for any item quoted and all destinations including associated optional quantities within the same sub-system. The Bidder is requested to quote firm unit pricing at no more than two decimal points.

4.1.2.2 SACC MANUAL CLAUSE
A9033T 2012/07/16 Financial Capability

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 evaluated aggregate price per sub-system will be recommended for award of a contract (potential for more than 1 contract). Evaluation will be established using the firm quantities for all items in a sub-system, including all destinations, and 100% of the option quantities of the associated sub-system.

4.3 Contract Financial Security

1. If this bid is accepted, the Bidder may 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.
   i. 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 unmatured, 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 website (http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html), to be given further consideration in the procurement process.

5.1.2 Ethical Procurement Certification

The ethical considerations for procurement of apparel certification document attached to this solicitation at Attachment 2 is incorporated by reference into, and forms a binding part of the bid solicitation. The Bidder must comply with the certification.

By submitting a bid in response to this bid solicitation, the Bidder certifies that:

a. it has read and understands the certification attached to this solicitation;
b. it understands that the eight fundamental human and labour rights laid out in the certification document must be complied with or the bid may be declared non-responsive, or Canada may terminate any resulting contract for default.

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 Sample(s) 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

There is no security requirement applicable to the Contract.

6.2 Requirement

The Contractor must provide the items detailed at Annex A.

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 (2018/06/21), General Conditions - Goods (Higher Complexity), apply to and form part of the Contract.

6.4 Term of Contract

6.4.1 Delivery Required (Desirable) - Firm Quantity (Items 1, 5, 7a, 7b, 7c, 7d, 7e and 9)

All firm deliverables are requested complete by December 31, 2019.

CBL SUB-SYSTEM

Delivery - Firm Quantity – Phased (Item 1)

The first delivery must be made within _____ calendar days from the date of the written notice of approval of 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 (Items 2, 3 and 4)

The delivery of the option quantity must commence within _____ calendar days from receipt of the contract amendment and after final delivery of the contract quantity. The quantity delivered must be _____ each. The balance must be shipped at a rate of _____ each weekly after the first delivery until completion of the option quantity.

SIS SUB-SYSTEM

Delivery - Firm Quantity – Phased (Item 5)

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

Delivery - Option Quantity (Item 6)

The delivery of the option quantity must commence within _____ calendar days from receipt of the contract amendment and after final delivery of the contract quantity. The quantity delivered must be _____ each. The balance must be shipped at a rate of _____ each weekly after the first delivery until completion of the option quantity.

MS SUB-SYSTEM

Delivery - Firm Quantity – Phased (Items 7a, 7b, 7c, 7d and 7e)

The first delivery must be made within _____ calendar days from the date of the written notice of approval of 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 (Items 8a, 8b, 8c, 8d and 8e)

The delivery of the option quantity must commence within _____ calendar days from receipt of the contract amendment and after final delivery of the contract quantity. The quantity delivered must be _____ each. The balance must be shipped at a rate of _____ each weekly after the first delivery until completion of the option quantity.

SBK SUB-SYSTEM

Delivery - Firm Quantity – Phased (Item 9)

The first delivery must be made within _____ calendar days from the date of the written notice of approval of 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 (Items 10, and 10a to 10u)
The delivery of the option quantity must commence within _____ calendar days from receipt of the contract amendment and after final delivery of the contract quantity. The quantity delivered must be _____ each/set *(depending on item)*. The balance must be shipped at a rate of _____ each/set *(depending on item)* weekly after the first delivery until completion of the option quantity.

6.4.1.1 Delivery - Appointments
The Contractor must make deliveries to Canadian Forces (CF) Supply Depots by appointment only. The Contractor or its carrier must arrange delivery appointments by contacting the Depot Traffic Section at the appropriate location shown below. The consignee may refuse shipments when prior arrangements have not been made.

(a) 7 CF Supply Depot Lancaster Park
Edmonton, Alta
780-973-4011, ext. 4524

(b) 25 CF Supply Depot Montreal
Montreal, Qué.
514-252-2777, ext. 2363
25dfactrafficrdv@forces.gc.ca

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 in quantities of 100 by package.

6.4.1.3 Shipping Instructions - Delivery at Destination
1. Goods must be consigned to the destination specified in the Contract and delivered:

(a) Delivered Duty Paid (DDP) (Montreal, Quebec, and Edmonton, Alberta) Incoterms 2000 for shipments from commercial contractor.

6.4.1.4 SACC Manual Clauses

D2025C	2017/08/17	Wood Packaging Materials
D5545C	2010/08/16	ISO 9001:2008 - Quality Management Systems - Requirements (QAC C)
D6010C	2007/11/30	Palletization

6.5 Authorities

6.5.1 Contracting Authority
The Contracting Authority for the Contract is:

Jonah Dubé
Public Works and Government Services Canada
Acquisitions Branch
Commercial and Consumer Products Directorate (CCPD)
Clothing & Textiles Division
L'Esplanade Laurier, East Tower 7th Floor
140 O'Connor, Street, Ottawa, Ontario
K1A 0R5 Canada
Telephone : 613-859-0788
E-mail address: Jonah.dube@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 the Contract is:

Name: _____ **(to be advised at contract)**
Title: _____
Organization: _____
Address: _____
Telephone : ___ ___ _____
Facsimile: ___ ___ _____
E-mail address: _____

The Technical Authority named above 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

The Procurement Authority for the Contract is:

Name: _____ **(to be advised at contract)**
Title: _____
Organization: _____
Address: _____
Telephone : ___ ___ _____
Facsimile: ___ ___ _____
E-mail address: _____

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 Prices

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid firm unit prices, as specified in Annex A 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):

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) The original and one (1) copy must be forwarded to the following address for certification and payment

   National Defence Headquarters
   MGen George R. Pearkes Building
   101 Colonel By Drive
   Ottawa, ON K1A 0K2
   Attn: DLP _____
   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) One (1) copy must be forwarded to the consignee.

6.8 Insurance

G1005C (2016/01/28) Insurance - No Specific Requirement

6.9 Certifications and Additional Information

6.9.1 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.

6.10 Applicable Laws

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

6.11 Priority of Documents

If there is a discrepancy between the wording 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 (2018/06/21), General Conditions - Goods (Higher Complexity);
c) Annex A, Requirement;
d) Annex B, Statement of Work;
e) Specifications;
f) the Contractor's bid dated _____.

6.12 Defence Contract

A9006C (2012/07/16) Defence Contract

6.13 SACC Manual Clauses

D2001C 2007/11/30 Labelling

6.14 Materials: Contrator Total Supply

The Contractor will be responsible for obtaining all materials required in the manufacture of the items specified. The delivery stated for the items allows the necessary time to obtain such materials.

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.

2019
Summer Holiday FROM _____ TO _____
Christmas Holiday FROM _____ TO _____

2020
Summer Holiday FROM _____ TO _____
Christmas Holiday FROM _____ TO _____

2021
Summer Holiday FROM _____ TO _____
Christmas Holiday FROM _____ TO _____

2022
Summer Holiday FROM _____ TO _____
Christmas 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 Ethical Apparel

The ethical procurement certification incorporated into the bid solicitation on its closing date is incorporated into, and forms a binding part of the Contract. The Contractor must ensure continuous compliance with the provisions of the ethical procurement certification that was signed during the bidding process throughout the duration of the contract.

The origin of work clause incorporated into the bid solicitation on its closing date is incorporated into, and forms a binding part of the Contract. It is the Contractor's responsibility to ensure continuous accuracy with the origin of work information provided with their bid and must immediately inform Canada in writing of any and all changes affecting the information provided under the origin of work clause during the entire contract period. The certification is subject to verification by Canada at any given time during the period of the contract. If the certification is found to be untrue Canada may declare a bid non-responsive or may declare a contractor in default, whether made knowingly or unknowingly during the bid evaluation period or during the contract period. The continuing obligation to maintaining this certification is a material obligation of the Contract.

6.19 Overshipment

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

6.20 Ownership of Product - CADPAT

All products and materials provided to perform the work and any modifications made by the Contractor are the property of Canada.

Patterns and technical data are patented and copyrighted to Her Majesty the Queen of Canada.

The printed textile and any garments made are for the sole end use of the Department of National Defence. The contractor acknowledges that it must not manufacture, sell or offer for sale goods incorporating the CADPAT pattern and colours to any person or entity other than Canada without the Minister's prior written authorization.

It is an explicit condition of this agreement that any second quality garments or goods produced pursuant to the contract will not be released, sold or offered to be sold, directly or indirectly to any person or corporation other than Canada without the Minister's prior written authorization.

6.21 Request for Design / Change or Deviation-Color

DND may from time to time add or change the color of an item via a Design/Change or Deviation request. The Contractor must deliver the item in the requested color. The Procedure to follow is defined below:

The Department of National Defence will complete Part 1 of the Design Change/Deviation form DND 672 and forward one (1) copy to the Contractor and one (1) copy to the Contracting Authority. A contract amendment will be issued to incorporate the design change/deviation in the Contract.

6.22 Post Contract Award Meeting

A post contract award meeting may be convened within ten (10) calendar days after award of contract. Participants may include representatives of the Contractor, DND Procurement Authority, DND Technical Authority and the Contracting Authority. Other meetings may be convened as required.

The Contractor is responsible for the recording and distribution of the minutes for all contract related meeting. The minutes must be sent to the Procurement Authority for acceptance prior to the distribution to all participants or as otherwise directed in the contract within ten (10) calendar days of the subject meeting. The minutes must be used only as a record of proceedings.

6.23 Pre-Production Samples

1. The Contractor must provide pre-production samples, if applicable, in accordance with Annex B, to the Technical Authority for acceptance within 60 calendar days from date of contract award. All pre-productions samples are provided without charge to Canada, transportation charges prepaid.

2. If the pre-production sample(s) is/are rejected, the Contractor must submit (a) second pre-production sample(s) within 60 calendar days of notification of rejection from the Technical Authority.

3. If the pre-production sample(s) is/are accepted by either full acceptance or conditional acceptance, the Contractor must proceed with production as per the Contract requirements.

4. Rejection by the Technical Authority of the second pre-production sample(s) submitted by the Contractor for failing to meet the contract requirements will be grounds for termination of the Contract for default.

5. The Contractor must carry out all required inspection and tests to verify conformance to the technical requirements of the Contract.

6. The pre-production sample(s) submitted by the Contractor will remain the property of Canada.

7. The Technical Authority will notify the Contractor, in writing, of the full acceptance, conditional acceptance, or rejection of the pre-production sample(s). A copy of this notification will also be provided by the Technical Authority to the Contracting Authority. The notice of the full acceptance or conditional acceptance does not relieve the Contractor from complying with all requirements and conditions of the Contract.

8. The Contractor must not commence or continue with production of the items and must not make any deliveries until the Contractor has received a written notification from the Technical Authority that the pre-production sample(s) is/are fully acceptable or conditionally acceptable. Any production of items before pre-production sample acceptance will be at the sole risk of the Contractor.

9. The pre-production sample(s) may not be required if the Contractor is currently in production. The request for waiver of pre-production sample(s) must be made by the Contractor in writing to the Contracting Authority. The waiving of this requirement will be at the sole discretion of the Technical Authority and will be evidenced through a contract amendment.

6.24 Specifications and Standards

6.24.1 United States Military Specifications and Standards

The Contractor is responsible for obtaining copies of all United States (US) military specifications and standards which may be applicable to the requirement. These specifications and standards are available commercially, or may be obtained by visiting the US Department of Defense Website, at the following address: https://quicksearch.dla.mil/qsSearch.aspx

6.24.2 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
CGSB Website: http://www.tpsgc-pwgsc.gc.ca/ongc-cgsb/index-eng.html

6.25 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
REQUIREMENT

A.1. TECHNICAL REQUIREMENT

The Contractor is required to provide Canada for the Department of National Defence (DND) with the following Sniper Concealment sub-systems, in accordance with Annexes B to F:

- Concealment Base Layer (CBL) sub-system;
- Sniper Individual Screen (SIS) sub-system;
- Multispectral Scrim (MS) sub-system; and
- Sniper Building Kit (SBK)

A.2. ADDRESSES

Destination Address	Invoicing Address
WB941 Department of National Defence 25 CFSD Montreal 6363 Notre Dame St. E. Montreal, Quebec H1N 1V9	**W1941** Department of National Defence CFSD Montreal P.O. Box 4000 Stn K Montreal, Quebec H1N 3R9 Attention: Accounts payable
W248A Department of National Defence 7 CF Supply Depot 195 Ave & 82nd St., Bldg. 236 Edmonton, Alberta T5J 4J5	**W2481** Department of National Defence 7 CF Supply Depot Stn Forces, P.O. Box 10500 Edmonton, Alberta T5J 4J5 Attention: Accounts payable

A.3. DELIVERABLES

CONTRACT QUANTITIES

Firm Quantity – Concealment Base Layer (CBL) sub-system

Item	Description	Unit of Issue	Destination	Firm Quantity	Firm Unit Price, DDP, Transportation costs included, Applicable taxes extra
1	Concealment Base Layer (CBL) sub-system Includes: CBL Jacket, CBL Pants and Spare Hardware Kit	Each	Edmonton	69	$_____
			Montreal	150	$_____

Option Quantities – Concealment Base Layer (CBL) sub-system

Item	Description	Unit of Issue	Destination	Estimated Quantity	Firm Unit Price, DDP, Transportation costs included, Applicable taxes extra*		
					YEAR 1	YEAR 2	YEAR 3
2	Concealment Base Layer (CBL) Jacket	Each	Montreal	220	$ _____	$ _____	$ _____
3	Concealment Base Layer (CBL) Pants	Each	Montreal	220	$ _____	$ _____	$ _____
4	Concealment Base Layer (CBL) Spare Hardware Kit	Each	Montreal	220	$ _____	$ _____	$ _____

Firm Quantity – Sniper Individual Screen (SIS) sub-system

Item	Description	Unit of Issue	Destination	Firm Quantity	Firm Unit Price, DDP, Transportation costs included, Applicable taxes extra
5	Sniper Individual Screen (SIS) sub-system Includes: Two SIS	Pair	Edmonton	69	$_____
			Montreal	150	$_____

Option Quantity – Sniper Individual Screen (SIS) sub-system

Item	Description	Unit of Issue	Destination	Estimated Quantity	Firm Unit Price, DDP, Transportation costs included, Applicable taxes extra*		
					YEAR 1	YEAR 2	YEAR 3
6	Sniper Individual Screen (SIS) Includes: One SIS	Each	Montreal	440	$ _____	$ _____	$ _____

Firm Quantities – Multispectral Scrim (MS) sub-system

Item	Description	Unit of Issue	Destination	Firm Quantity	Firm Unit Price, DDP, Transportation costs included, Applicable taxes extra
7a	Multispectral Scrim (MS), Canadian Average Green	Each	Edmonton	70	$_____
			Montreal	150	$_____
7b	Multispectral Scrim (MS), Light Green	Each	Edmonton	70	$_____
			Montreal	150	$_____
7c	Multispectral Scrim (MS), Brown (Temperate Woodland)	Each	Edmonton	70	$_____
			Montreal	150	$_____
7d	Multispectral Scrim (MS), Light Sand	Each	Edmonton	70	$_____
			Montreal	150	$_____
7e	Multispectral Scrim (MS), Dark Sand	Each	Edmonton	70	$_____
			Montreal	150	$_____

Option Quantities – Multispectral Scrim (MS) sub-system

Item	Description	Unit of Issue	Destination	Estimated Quantity	Firm Unit Price, DDP, Transportation costs included, Applicable taxes extra*		
					YEAR 1	YEAR 2	YEAR 3
8a	Multispectral Scrim (MS) – Canadian Average Green	Each	Montreal	400	$ _____	$ _____	$ _____
8b	Multispectral Scrim (MS) – Light Green	Each	Montreal	400	$ _____	$ _____	$ _____
8c	Multispectral Scrim (MS) – Brown (Temperate Woodland)	Each	Montreal	400	$ _____	$ _____	$ _____
8d	Multispectral Scrim (MS) – Light Sand	Each	Montreal	400	$ _____	$ _____	$ _____
8e	Multispectral Scrim (MS) – Dark Sand	Each	Montreal	400	$ _____	$ _____	$ _____

Firm Quantity – Sniper Building Kit (SBK) sub-system

Item	Description	Unit of Issue	Destination	Firm Quantity	Firm Unit Price, DDP, Transportation costs included, Applicable taxes extra
9	Sniper Building Kit (SBK) Includes items (Serial 1 to 21) in the identified quantities IAW Annex F, s.3.4.1	Each	Edmonton	69	$_____
			Montreal	150	$_____

Option Quantity – Sniper Building Kit (SBK) sub-system

Item	Description	Unit of Issue	Destination	Estimated Quantity	Firm Unit Price, DDP, Transportation costs included, Applicable taxes extra*		
					YEAR 1	YEAR 2	YEAR 3
10	Sniper Building Kit (SBK)	Each	Montreal	220	$ _____	$ _____	$ _____

	Includes items (Serial 1 to 21) in the identified quantities IAW Annex F, s.3.4.1						
10a	SBK, Serial 1 Jute Bundle Tan	Set of 3	Montreal	220	$ _____	$ _____	$ _____
10b	SBK, Serial 2 Jute Bundle Olive Drab	Set of 4	Montreal	220	$ _____	$ _____	$ _____
10c	SBK, Serial 3 Fiber Bundle Dreadlock, Tan	Set of 2	Montreal	220	$ _____	$ _____	$ _____
10d	SBK, Serial 4 Fiber Bundle Hair, Tan	Set of 2	Montreal	220	$ _____	$ _____	$ _____
10e	SBK, Serial 5 Straw Bundle Tan	Set of 2	Montreal	220	$ _____	$ _____	$ _____
10f	SBK, Serial 6 Braided Elastic Bands, Tan	Set of 100	Montreal	220	$ _____	$ _____	$ _____
10g	SBK, Serial 7 Braided Elastic Bands, Green	Set of 100	Montreal	220	$ _____	$ _____	$ _____
10h	SBK, Serial 8 Pruning Shear Kit	Each	Montreal	220	$ _____	$ _____	$ _____
10i	SBK, Serial 9 Textile Scissor	Each	Montreal	220	$ _____	$ _____	$ _____
10j	SBK, Serial 10 Cable Ties, Black, Nylon	Set of 50	Montreal	220	$ _____	$ _____	$ _____
10k	SBK, Serial 11 Paracord Tan	Each	Montreal	220	$ _____	$ _____	$ _____
10l	SBK, Serial 12 Paracord Olive Drab	Each	Montreal	220	$ _____	$ _____	$ _____
10m	SBK, Serial 13 Bungee Cord Olive Drab	Each	Montreal	220	$ _____	$ _____	$ _____
10n	SBK, Serial 14 Mesh Cover Olive Drab	Each	Montreal	220	$ _____	$ _____	$ _____
10o	SBK, Serial 15 Mesh Cover Pine Green	Each	Montreal	220	$ _____	$ _____	$ _____
10p	SBK, Serial 16 Mesh Cover Desert Tan	Each	Montreal	220	$ _____	$ _____	$ _____

10q	SBK, Serial 17 Camo Form® Snow	Set of 2	Montreal	220	$ _____	$ _____	$ _____
10r	SBK, Serial 18 Camo Form® Desert Digital	Set of 2	Montreal	220	$ _____	$ _____	$ _____
10s	SBK, Serial 19 Camo Form® Woodland Digital	Set of 2	Montreal	220	$ _____	$ _____	$ _____
10t	SBK, Serial 20 Camo Form® Mossy Oak Shadowgrass® Blades™	Set of 2	Montreal	220	$ _____	$ _____	$ _____
10u	SBK, Serial 21 Carrying Bag Multicam	Each	Montreal	220	$ _____	$ _____	$ _____

A.4 OPTION QUANTITIES - Identified as Items 2, 3, 4, 6, 8a to 8e, 10, and 10a to 10u

The Contractor grants to Canada the irrevocable option to acquire the goods described under items 2, 3, 4, 6, 8a to 8e, 10, and 10a to 10u, and 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 a minimum of 25% of the estimated quantity(ies) of one or more Items per amendment, up to a maximum of 100% of the estimated quantity(ies) for one or more Items for all amendments in total, and will be evidenced through a contract amendment. For Item 6, the option may be exercised up to a maximum 200% of the estimated quantity for all amendments in total.

The Contracting Authority may exercise the option within 36 months after contract award date by sending a written notice to the Contractor.

Multiple amendments may result.

***NOTE:**
Year 1: unit price if ordered within 12 months from contract award date.
Year 2: unit price if ordered within 13 to 24 months from contract award date.
Year 3: unit price if ordered within 25 to 36 months from contract award date.

ATTACHMENT 1
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)

ATTACHMENT 2
ETHICAL CONSIDERATIONS FOR PROCUREMENT OF APPAREL CERTIFICATION

The Bidder certifies the following:

1. Child labour

The Bidder and its first-tier subcontractors do not employ child labour, i.e. work done by children who are younger than the minimum age for admission to employment indicated in applicable legislation in the country, and no younger than the age at which compulsory schooling has been set in applicable legislation in the country. In any event, children are protected from economic exploitation and from performing any work that is likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral or social development. Employees younger than 18 shall not perform hazardous work, which includes work that may jeopardize their health, safety or morals.

2. Forced labour

The Bidder and its first-tier subcontractors do not use forced labour or compulsory labour in all its forms, including trafficking in persons for the purpose of forced or compulsory labour, namely any work or service that is exacted from any person under the menace of any penalty, and for which that person has not offered himself or herself voluntarily.

3. Abuse and harassment

The Bidder and its first-tier subcontractors treat their employees with dignity and respect. No employees shall be subject to any physical, sexual or verbal harassment, abuse or violence or psychological hazards. Corporal punishment is not used or tolerated in any form.

4. Discrimination

The Bidder and its first-tier subcontractors do not discriminate against their employees in hiring practices or any other term or condition of work (other than legitimate occupational requirements allowed by law) on the basis of race, national or ethnic origin, colour, religion, age, sex, sexual orientation, gender identity or expression, marital status, family status, genetic characteristics, disability or conviction of any offence for which a pardon has been granted or in respect of which a record of suspension has been ordered.

5. Freedom of association and collective bargaining

Where provided for by law, the Bidder and its first-tier subcontractors shall recognize and respect the right of employees to freely associate, organize and bargain collectively with their employer. No employee or worker representative shall be subject to discrimination, harassment, intimidation or retaliation as a result of his or her efforts to freely associate, organize or bargain collectively. Where the right to freedom of association is restricted under law, the Bidder and its first-tier subcontractors must provide workers alternative means of association, including effective means to express and remedy workplace grievances.

6. Occupational safety and health

The Bidder and its first-tier subcontractors provide workers with a safe and healthy work environment and, at minimum, comply with local and national health and safety laws. If residential facilities are provided to workers, they are safe and healthy.

7. Fair wages

The Bidder and its first-tier subcontractors provide wages and benefits which comply with all applicable laws and regulations and which match or exceed the local prevailing wages and benefits in the relevant industry or which constitute a living wage, whichever provides greater wages and benefits. Where compensation does not provide a living wage, the Bidder and its first-tier subcontractors shall ensure that real wages are increased annually to continuously close the gap with living wage.

8. Hours of work

Except in extraordinary circumstances, the Bidder’s and its first-tier subcontractors’ employees are not required to work more than the lesser of (a) 48 hours per week and 12 hours overtime per week, or (b) the limits on regular and overtime hours allowed by the law of the country of manufacture.

ANNEX B

STATEMENT OF WORK

FOR

SNIPER CONCEALMENT SYSTEM

(SCS)

Reference Number: W8476-195992

Prepared by:
DSSPM 9
Technical Authority/Life Cycle Material Manager
National Defence Headquarters
Major General George R. Pearkes Building
Ottawa, Ontario
K1A 0K2

05 March 2019

NOTICE

This documentation has been reviewed by the technical authority and does not contain controlled goods.

AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées.

TABLE OF CONTENTS

Related ANNEXES:

1.0 SCOPE

1.1 Purpose

1.1.1 The purpose of this Statement of Work (SOW) is to outline the requirements for the Sniper Concealment System (SCS) for use by Canadian Armed Forces (CAF) personnel.

1.2 Background

1.2.1 The CAF have a requirement for a modular SCS to reduce detectability in visual and infrared spectrums.

1.3 Intended Use

1.3.1 The SCS is to be used to by CAF snipers to manage their signatures in a wide range of scenarios and environments. To do so requires a variety of equipment and tools to allow adaptation to scenario and environment. Specifically the SCS will consist of four distinctive sub-systems as detailed in paragraphs 1.3.2 to 1.3.5.

1.3.2 Concealment Base Layer (CBL)

1.3.2.1 The CBL will be worn over in-service CAF sniper clothing and will form the base foundation for the attachment of scrim and natural vegetation. Detailed CBL content and technical requirements can be found in Annex C.

1.3.3 Sniper Individual Screens (SIS)

1.3.3.1 The SIS will be compact multipurpose nets used to provide additional concealment of CAF equipment and personnel. They will allow for the attachment of scrim and natural vegetation and the attachment to one another for increased coverage. Detailed SIS content and technical requirements can be found in Annex D.

1.3.4 Multispectral Scrim (MS)

1.3.4.1 MS will be rolls of textile in different colors with near infrared and thermal infrared signature management properties. They will be attached to the CBL and SIS to aid in concealment in conjunction with natural vegetation and other scrim. Detailed MS content and technical requirements can be found in Annex E.

1.3.5 Sniper Building Kit (SBK)

1.3.5.1 The SBK will be a kit containing all the special tooling, equipment and miscellaneous material to allow the CAF sniper to properly camouflage the CBL and SIS. Detailed SBK content and technical requirements can be found in Annex F.

1.4 Acronyms

CA	Contracting Authority
CAF	Canadian Armed Forces

CAGE	Commercial and Government Entity Code
CBL	Concealment Base Layer
DND	Department of National Defence
EHS	Environmental Health and Safety
IAW	In Accordance With
ILS	Integrated Logistics Support
MS	Multispectral Scrim
MSDS	Material Safety Data Sheet
PM	Project Manager
SBK	Sniper Building Kit
SCS	Sniper Concealment System
SIS	Sniper Individual Screen
SOW	Statement of Work
SPTD	Supplementary Provisioning Technical Documentation
TA	Technical Authority

2.0 APPLICABLE DOCUMENTS

2.1 Applicability

2.1.1 The documents listed in Section 2.2 set mandatory standards that apply to and form part of this SOW. The Contractor is responsible for ensuring that it has obtained the most current version of each document. The version of the below identified documents in effect at the time of Contract execution applies to and forms part of this SOW. All other document references contained elsewhere are to be considered supplemental information only. The Contractor must bring to the attention of the Contracting Authority (CA) all perceived inconsistencies between the SOW and referenced documents. In the event of conflict between the content of this SOW and the referenced documents, the content of this SOW must prevail.

2.2 Standards & Documents

2.2.1 Government Furnished Documents and Standards

2.2.1.1 D-LM-008-002/SF-001 Specification for Marking for Storage and Shipment

2.2.1.2 D-LM-008-011/SF-001 Preparation and Use of Packaging Requirements Codes

2.2.1.3 D-01-100-214/SF-000 Preparation of Provisioning Documentation for Canadian Forces Equipment

2.2.2 Commercially Available Documents and Standards

2.2.2.1 ISO 6941 Textile fabrics – Burning behavior – Measurement of flame spread properties of vertically oriented specimens

3.0 System Components

3.1.1 The SCS must be comprised of the following sub-systems/sub-system components that are described in further detail in their respective technical specification annex:

3.1.1.1 The CBL is comprised of:

3.1.1.1.1 One CBL jacket;

3.1.1.1.2 One CBL pants; and

3.1.1.1.3 One spare hardware kit.

3.1.1.2 The SIS is comprised of:

3.1.1.2.1 Two sniper individual screens.

3.1.1.3 The MS is comprised of:

3.1.1.3.1 One roll of Canadian average green scrim;

3.1.1.3.2 One roll of light green scrim;

3.1.1.3.3 One roll of brown (Temperate Woodland) scrim;

3.1.1.3.4 One roll of light sand scrim and

3.1.1.3.5 One roll of dark sand scrim.

3.1.1.4 The SBK is comprised of:

3.1.1.4.1 Thirteen fiber, straw and jute bundles;

3.1.1.4.2 Two hundred braided elastic bands;

3.1.1.4.3 One bypass pruning shear with spare blade and sharpening kit;

3.1.1.4.4 One pair of textile scissors;

3.1.1.4.5 Fifty cable ties;

3.1.1.4.6 Two hundred feet of paracord;

3.1.1.4.7 Twenty feet of bungee cord;

3.1.1.4.8 Three mesh covers; and

3.1.1.4.9 One carrying case.

3.1.2 The documents that are applicable to each sub-system are shown in Table 1.

	Applicable Annexes					
Sub-System	B	C	D	E	F	G
CBL	X	X				X
SIS	X		X			X

MS	X			X		X
SBK	X				X	X

Table 1: Applicable Sub System Documents

4.0 PROJECT MANAGEMENT

4.1 Project Management Program

4.1.1 The Contractor(s) must designate a Project Manager (PM) with the responsibilities to coordinate, execute, and manage the Contractor's project management activities for the Contract.

4.1.2 The Contractor's PM must have the total responsibility for all works required under the Contract.

4.1.3 The Contractor's PM must be the primary point of contact between the Contractor and Canada for all issues related to the Contract.

5.0 INTEGRATED LOGISTICS SUPPORT (ILS)

5.1 Identification Labels

5.1.1 Sub-system and sub-system components that must be delivered with identification labels permanently attached are detailed in their respective Annexes.

5.1.2 The identification label must be a close visual match to the item to which it is being applied.

5.1.3 The identification label must be affixed to the inside or underside of the item to which it is being applied.

5.1.4 The identification label must contain the following information:

5.1.4.1 Bilingual Nomenclature provided by Technical Authority (TA);

5.1.4.2 NATO Stock Number provided by TA;

5.1.4.3 Manufacturers Part Number / Commercial and Government Entity Code (CAGE); and

5.1.4.4 Contract Number.

5.1.5 The Contractor(s) must submit for TA approval the proposed identification label(s), their size, colour and attachment location not later than 10 business days following receipt of information at paragraphs 5.1.4.1 and 5.1.4.2 for approval.

5.2 Instruments, Decals, Data Plates and Warnings

5.2.1 All instruments, decals and data plates must be marked in metric units. Where international symbols are not possible, bilingual markings in English and Canadian French are required.

5.2.2 Warning and precautionary data plates must be provided in English and Canadian French where necessary to protect personnel and equipment.

5.3 Packaging, Labels and Codes

5.3.1 The Contractor(s) must label all packaging IAW D-LM-008-002/SF-001, using D-LM-008-011/SF-001 to prepare the required packaging and preservation codes.

5.3.1.1 The Contractor(s) must provide copies of all packaging labels produced under paragraph 5.3.1 for review and TA approval prior to their production and use.

5.3.1.2 The Contractor(s) must provide a list of all packaging codes resolved under 5.3.1 for TA approval.

6.0 Samples

6.1 Pre-Production Samples

6.1.1 One (1) pre-production sample that fully meets all requirements must be submitted for all items that require the application of an identification label IAW paragraph 5.1. for TA approval prior to commencing production.

7.0 Systems Engineering

7.1 Supplementary Provisioning Technical Documentation (SPTD)

7.1.1 The Contractor must provide SPTD IAW paragraph 3.8 of D-01-100-214/SF-000 and a drawing for all deliverable end items that are being procured to allow Canada to catalogue the end items within the Canadian Government Cataloguing System

7.1.2 All SPDT must be provided at no additional cost to Canada.

7.2 Environmental and Climatic Characteristics

7.2.1 The SCS must meet all performance requirements throughout the temperature range of – 46ºC to at least + 49ºC unless specifically stated otherwise in Annexes B, C, D, E and F.

7.2.2 The SCS components must not warp or deform nor otherwise degrade their performance during shipping and storage within temperature extremes of -51ºC to +71ºC.

7.3 Fire Resistance

7.3.1 SCS sub-system/sub-system components should not propagate fire when tested in accordance with ISO 6941, with a 15-second open flame exposure:

7.3.1.1 A propagation of less than 200 mm on each axis of the SIS is desired.

7.3.1.2 No flame should be present 15 seconds after the flame is removed.

7.3.1.3 No “melting” of materials should occur during and after the 15 seconds exposure to an open flame.

7.4 Functional Safety

7.4.1 Safety of Use

7.4.1.1 The SCS sub-system/sub-system components must not cause injury to the users during normal use.

7.4.2 Ergonomics

7.4.2.1 The deployment and storage of the SCS sub-system/sub-system components must not require the use of special equipment by the user. For example, no tooling and individual protection equipment such as gloves must be required.

7.4.3 Reduction of Probable Causes of Damage

7.4.3.1 The SCS sub-system/sub-system components should reduce as much as possible accidental enmeshment or entanglement of debris such as stones, tree branches or leaves.

7.5 Life Cycle Management

7.5.1 The SCS sub-system/sub-system components must not require special care and maintenance when used in military operations.

8.0 Meetings

8.1 Start of Work

8.1.1 The Contractor must chair a start of work meeting with Canada to review the requirements of the contract and to review SPTD being provided to Canada IAW paragraph 7.1. The start of work meeting may be held via teleconference or at the Contractor's facility at the discretion of the TA.

9.0 ENVIRONMENTAL HEALTH AND SAFETY

9.1 General

9.1.1 Environmental Health and Safety (EHS) consideration must be incorporated and documented into the decision making process for the Work performed under this Contract. EHS documentation must be maintained within the project file throughout the life of this Contract. The Contractor(s) must provide for and allow DND inspection and monitoring of EHS documentation throughout the life of the contract.

9.1.2 Polychlorinated Biphenyls (PCBs), halocarbons (as identified within the Ozone-Depleting Substances Regulations, 1998), and asbestos are not to be incorporated into the design, operation and maintenance of the equipment, and products used in equipment support activities.

9.1.3 The Contractor(s) must identify and report all sources of mercury contained and used within the design, operation and maintenance of the equipment, and products used in equipment support activities.

9.1.4 The Department is committed to the Federal programs to reduce and eliminate emissions from toxic substances. Contractors must

identify and submit justifications for the use of all regulated products and those containing substances identified within the Accelerated Reduction/Elimination of Toxics (ARET, http://www.ec.gc.ca/nopp/aret/en/list.cfm), National Pollutant Release Inventory (NPRI, http://www.ec.gc.ca/pdb/npri/npri_home_e.cfm) and List of Challenge Substances (http://www.chemicalsubstanceschimiques.gc.ca/challenge-defi/list_e.html), and also for products containing heavy metals (heavy metals are those identified within Schedule 1 of the Canadian Environmental Protection Act (CEPA)) to the technical authority for approval.

9.1.5 Canada Labor Code, Part II dictates that the least hazardous materials should be used at the workplace. Therefore, the Contractor is to strive to use the least hazardous product that meets the requisite performance requirements.

9.1.6 The Contractor(s) must incorporate EHS warnings and instructions in direct relation of the EHS risks presented in the contents into documentation.

9.1.7 It is the Contractor's responsibility to ensure that specifications, standards, support documents and test programs are reviewed for EHS compliance.

9.2 Environmental Management System

9.2.1 The Contractor(s) must have a management system in place to control environmental, health and safety impacts resulting from their activities, products and services.

9.2.2 The Contractor(s) must have a formalized set of procedures and control measures in place to achieve conformance with the requirements of this Work, while ensuring environmental, health and safety protection and pollution prevention.

9.2.3 The Contractor(s) must also make reasonable effort to monitor that all subcontractors are in compliance with applicable environmental laws and regulations.

9.3 EHS Packaging Labels and Material Safety Data Sheet (MSDS)

9.3.1 The Contractor(s) must label and ship goods falling within the Hazardous Products Act, R.S.C. 1985, c. H-3 and regulation(s) there under, in accordance with the said Act and regulation(s).

9.3.1.1 The Contractor(s) must ship goods accompanied by the required Material Safety Data Sheet(s) (MSDS), completed in either English or Canadian French or both.

9.3.1.2 The Contractor(s) must clearly identify the contents of the hazardous material with labels, and the MSDS must explain what those hazards are.

9.3.1.3 The Contractor (s) must provide the TA with a copy of all MSDS required under this contract.

ANNEX C

SPECIFICATION

FOR

CONCEALMENT BASE LAYER

(CBL)

Reference Number: W8476-195992

Prepared by:
DSSPM 9
Technical Authority/Life Cycle Material Manager
National Defence Headquarters
Major General George R. Pearkes Building
Ottawa, Ontario
K1A 0K2

23 January 2019

NOTICE

This documentation has been reviewed by the technical authority and does not contain controlled goods.

AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées.

TABLE OF CONTENTS

Related ANNEXES:

1.0 SCOPE

1.1 Purpose

1.1.1 The purpose of this specification is to outline the technical requirements for the Concealment Base Layer (CBL) sub-system as used by Canadian Armed Forces (CAF) personnel.

1.2 Background

1.2.1 The CAF have a requirement for a CBL sub-system designed for individual snipers to reduce detectability in visual and infrared spectrums.

1.3 Intended Use

1.3.1 The CBL sub-system must be used by CAF snipers to reduce detectability using a lightweight and easily removable system, worn over current in-service sniper clothing.

1.3.2 The CBL sub-system must be customizable to allow for effective use in many different environments.

1.3.3 The CBL sub-system must be worn as the outermost layer and form the foundation for the attachment of scrim and natural vegetation.

1.4 Acronyms

CAF	Canadian Armed Forces
CBL	Concealment Base Layer
IAW	In Accordance With
SHK	Spare Hardware Kit
TA	Technical Authority

2.0 APPLICABLE DOCUMENTS

2.1 Applicability

2.1.1 The documents listed in Section 2.2 set mandatory standards that apply to and form part of this specification. The Contractor is responsible to obtain the most current version of each document. The version of the below identified documents in effect at the time of Contract execution applies to and forms part of this specification. All other document references contained elsewhere are to be considered supplemental information only. The Contractor must bring to the attention of the Contracting Authority all perceived inconsistencies between the specification and referenced documents. In the event of conflict between the content of this specification and the referenced documents, the content of this specification must prevail.

2.2 Standards & Documents

2.2.1 Government Furnished Documents and Standards

2.2.1.1 Mil-C-5040H Military Specification Cord, Fibrous, Nylon

3.0 SYSTEM COMPONENTS

3.1.1 The CBL sub-system is comprised of the following components:

3.1.1.1 CBL Jacket;

3.1.1.2 CBL Pants; and

3.1.1.3 Spare Hardware Kit (SHK).

3.1 General Requirement

3.1.1 The CAF sniper must be able to don the CBL Jacket and CBL Pants over in-service clothing and adjust all straps to obtain customized fit in 3 minutes or less.

3.1.2 The CAF sniper must be able to doff the CBL Jacket and CBL Pants in 2 minutes or less.

3.1.3 All CBL components must be commercial off-the-shelf products.

3.1.4 The CBL Jacket and CBL Pants should be in-service with a North Atlantic Treaty Organization or American, British, Canadian, Australian military partner.

3.2 Design Requirements

3.2.1 The CBL sub-system must allow CAF snipers to customize their appearance with scrim and natural vegetation based on environmental requirements.

3.2.2 The CBL Jacket and CBL Pants must consist of two layers permanently attached to each other: a base layer on the inside and a netting layer on the outside of the garments.

3.2.3 The CBL Jacket and CBL Pants must be constructed to endure rigorous field use (repetitive walking, stalking, crawling and crouching) in a variety of environments without sustaining damage.

3.2.4 The CBL Jacket and CBL Pants must have a label attached IAW Annex B paragraph 5.1.

3.3 Compatibility Requirements

3.3.1 The CBL Jacket and CBL Pants must be fit to be worn over the in-service sniper pants, jacket, helmet and modular fighting rig worn by the CAF sniper while on operations.

3.4 Physical Characteristics

3.4.1 CBL Jacket Size

3.4.1.1 The CBL Jacket must be manufactured as an adjustable one size fits all garment.

3.4.1.2 The CBL Jacket must be manufactured IAW the dimensioning identified in Tables 1 so as to permit it to be worn by the majority of the CAF sniper population.

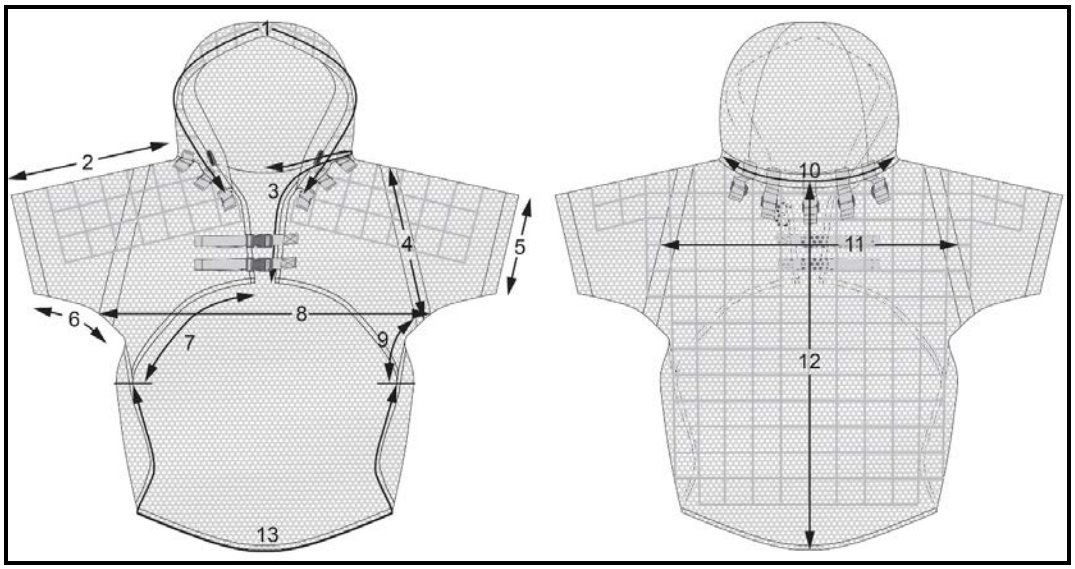

Figure 1. CBL Jacket Measurement Key

Ref.	Measurement	Value (inches)
1	Hood Opening	37 ½ ± 1
2	Shoulder Width	21 ± 1
3	Front length from Centre Back	13 ½ ± 1
4	Sleeve Seam	15 ± 1
5	Cuff Opening	10 ± 1
6	Sleeve Inseam	7 ½ ± 1
7	Bottom Edge to Edge	14 ½ ± 1
8	Chest with jacket closed, where stitching meets short sleeve with straps and buckles closed, and straps suppressed	30 ± 1
9	Side Seam	4 ½ ± ½
10	Hood Bottom Edge to Edge	28 ½ ± 1
11	Back Width	24 ½ ± 1
12	Back Length	34 ± 3
13	Back Bottom Edge to Edge Seam to Seam	52 ½ ± 1

Table 1: CBL Jacket Dimensions and Tolerances

3.4.1.3 The CBL Jacket should be available in an extra-large size to accommodate snipers that are in the top 5 % size envelope.

3.4.2 CBL Pants Size

3.4.2.1 The CBL Pants must be manufactured as an adjustable one size fits all garment.

3.4.2.2 The CBL Pants must be manufactured IAW the dimensioning identified in Tables 2 so as to permit it to be worn by the majority of the CAF Sniper population.

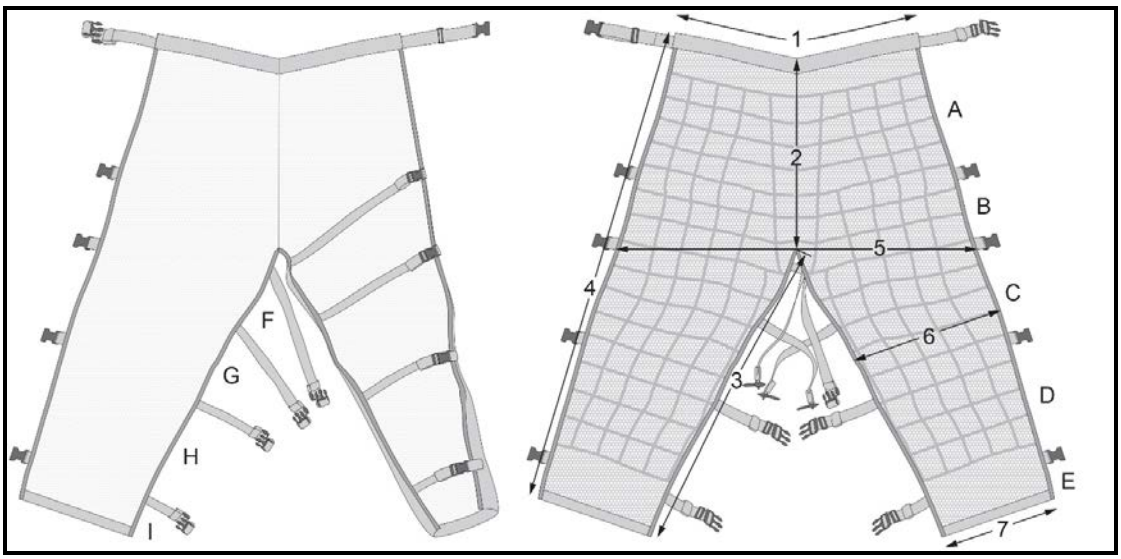

Figure 2. CBL Pant Measurement Key

Ref.	Measurement	Value (inches)
1	Front Edge to Edge	23 ± 1
2	Front Rise	18 ± 1
3	Inseam	27 ½ ± 1
4	Outseam	42 ± 1
5	Hip Inline with Crotch	29 ± 1
6	Knee Edge to Edge	13 ± 1
7	Bottom Edge to Edge	10 ± 1
	Outseam Straps (Female Buckle End)	
A	Space between waist strap and 1st strap	12 ± ½
B	Space between 1st strap and 2nd strap	6 ± ½
C	Space between 2nd strap and 3rd strap	8 ± ½
D	Space between 3rd strap and 4th strap	8 ½ ± ½
E	Space between 4th strap and hem	3 ± ½
	Inseam Straps (Male Buckle End)	
F	Space between 1st strap and 2nd strap	5 ± ½
G	Space between 2nd strap and 3rd strap	6 ½ ± ½

Ref.	Measurement	Value (inches)
H	Space between 3rd strap and 4th strap	8 ± ½
I	Space between 4th strap and hem	3 ± ½
	Strap Adjustment Length	
A	Outseam Strap	2 ±½
B	Outseam Strap	2 ±½
C	Outseam Strap	2 ±½
D	Outseam Strap	2 ±½
E	Outseam Strap	2 ±½
F	Inseam Strap	10 ±½
G	Inseam Strap	10 ±½
H	Inseam Strap	10 ±½
I	Inseam Strap	10 ±½

Table 2: CBL Pant Dimensions and Tolerances

3.4.3 Weight

3.4.3.1 The fully assembled CBL Jacket and hood must not exceed 1 kg in weight.

3.4.3.2 The fully assembled CBL Pants must not exceed 600 g in weight.

3.4.4 Colour

3.4.4.1 CBL Jacket and CBL Pants

3.4.4.1.1 The base material for the CBL Jacket and CBL Pants must be MultiCam®.

3.4.4.2 Netting

3.4.4.2.1 The CBL Jacket and CBL Pants netting colour must be approved by the TA and be a close visual match to one of the base material MultiCam® colors to maximize camouflage properties of the sub-system.

3.4.4.3 Hardware

3.4.4.3.1 The colour of all hardware, and buckles, straps and cord locks must be approved by the TA and be a close visual match to one of the base material MultiCam® colors to maximize camouflage properties of the sub-system.

3.4.4.3.2 All hardware must have a matte non-reflective finish.

3.4.5 Materials

3.4.5.1 CBL Jacket and CBL Pants

3.4.5.1.1 The base material for the CBL Jacket and CBL Pants must be Omega® 100% Polyester Mesh.

3.4.5.2 Netting Layer

3.4.5.2.1 The netting must be Type III paracord IAW Mil-C-5040H.

4.0 TECHNICAL REQUIREMENTS

4.1 CBL Jacket

4.1.1 The CBL Jacket must be a short sleeved jacket to be worn over in-service CAF sniper equipment.

4.1.2 The CBL Jacket must include a detachable hood that can be removed and attached without tools.

4.1.3 The CBL Jacket hood should attach using webbing straps affixed through ladder locks by hook and loop connections.

4.1.4 The CBL Jacket must include acetal double adjustable side release buckles that allow the CAF sniper to adjust the fit of the jacket.

4.1.5 The CBL Jacket must include two acetal double adjustable side release buckles near the chest.

4.1.6 The ends of the webbing straps that pass through all double adjustable side release buckles must be folded and securely box stitched so that they are not easily separated from the buckle.

4.1.7 The CBL Jacket buckles must be easily replaceable requiring no special tools.

4.1.8 The CBL Jacket must be open in the front below the attachment points as of the chest depicted in Figure 3 to limit snagging hazards.

4.1.9 The CBL Jacket must consist of netting permanently affixed to a mesh base layer.

4.1.10 The CBL Jacket netting must consist of a 1.5 inch ± 0.25 inch wide grid pattern that spans the whole base layer as depicted in Figures 1 and 3.

4.1.11 The CBL Jacket netting must allow the CAF sniper to attach scrim and natural vegetation to the jacket in order to reduce detectability in different environments.

4.1.12 The CBL Jacket netting must be bar-tacked through the entire base material to support the weight of scrim and vegetation attached to the jacket.

4.1.13 The CBL Jacket must not require being tied into in-service CAF sniper equipment to achieve functional fit.

4.1.14 The CBL Jacket must have adjustable tensions straps for the chest and hood secured by cord locks.

4.1.15 The CBL Jacket must possess the general shape, proportions and design characteristics as depicted in Figure 3.

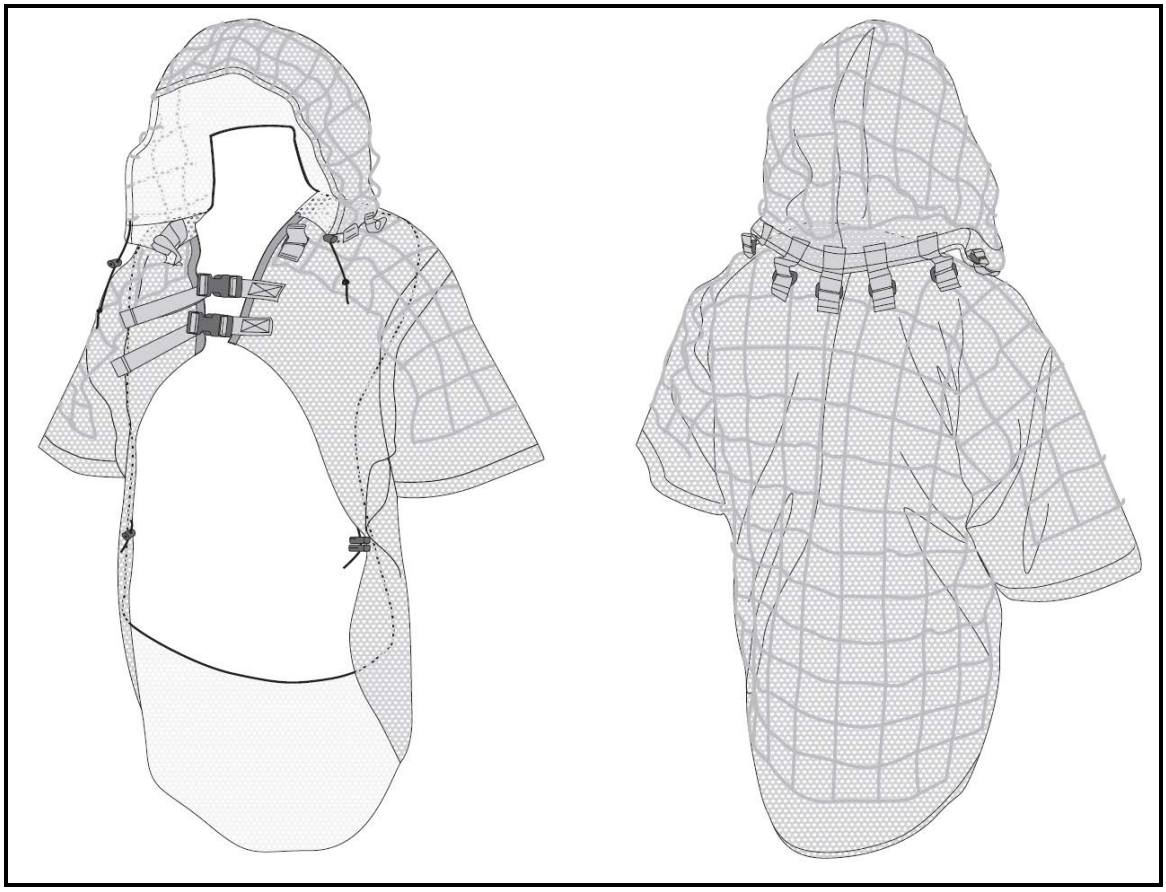

Figure 3. CBL Jacket Shape Proportion and Design Characteristics

4.2 CBL Pants

4.2.1 The CBL Pants must be open in the front and cover the back of the CAF sniper legs when worn.

4.2.2 The CBL Pants must use acetal double adjustable side release buckles that will allow the CAF sniper to change the size of the pants as needed.

4.2.3 The ends of the webbing straps that pass through all double adjustable side release buckles must be folded and securely box stitched so that they are not easily separated from the buckle.

4.2.4 The CBL Pants must have acetal double adjustable side release buckles located at the ankle, mid shin, above the knee, and buckle mid-thigh as identified in Figure 2.

4.2.5 When the CBL Pants is properly adjusted and the CAF sniper is lying face down in a prone position the leg acetal double adjustable

side release buckles must be positioned to the outside of the CAF sniper's leg so that they are not being laid upon.

4.2.6 The CBL Pants buckles must be easily replaceable requiring no special tools.

4.2.7 The CBL Pants must be worn similar to chaps and include an adjustable waist belt.

4.2.8 The CBL Pants must consist of netting permanently affixed to a mesh base layer.

4.2.9 The CBL Pants netting must allow the CAF sniper to attach scrim and natural vegetation to the pants in order to reduce detectability in different environments.

4.2.10 The CBL Pants netting must be bar-tacked through entire base material to support the weight of scrim and natural vegetation attached to the pants.

4.2.11 The CBL Pants must not require being tied into in-service CAF sniper equipment for adequate fit.

4.2.12 The netting of the CBL Pants must consist of a 1.5 inch ± 0.25 inch wide grid pattern that spans the whole base layer covering the back of the CAF sniper legs as depicted in Figure 2.

4.3 Spare Hardware Kit (SHK)

4.3.1 The SHK must consist of the items identified in paragraphs 4.3.1.1 to 4.3.1.4.

4.3.1.1 Buckles

4.3.1.1.1 The SHK must include a Spare Buckle Set consisting of six pairs of male & female acetal double side release buckles matching those used on the CBL Pants and CBL Jacket.

4.3.1.2 Cord Locks

4.3.1.2.1 The SHK must include a Cord Lock Set consisting of eight cord locks matching those used on the CBL Jacket.

4.3.1.3 Ladder Locks

4.3.1.3.1 The SHK must include a Spare Ladder Lock Set consisting six ladder locks if ladder locks are used in the CBL Jacket or CBL Pants design.

4.3.1.3.2 The Ladder Locks must be sized to properly fit the CBL webbing size.

4.3.1.4 Other Hardware

4.3.1.4.1 If any hard plastic parts are used in the construction of the CBL, spare sets for each part must be included with the SHK.

4.3.1.4.2 These spare sets must consist of six of each unique hard plastic component not included in 4.3.1.1 through 4.3.1.3 above.

ANNEX D

SPECIFICATION

FOR

SNIPER INDIVIDUAL SCREENS

(SIS)

Reference Number: W8476-195992

Prepared by:
DSSPM 9
Technical Authority/Life Cycle Material Manager
National Defence Headquarters
Major General George R. Pearkes Building
Ottawa, Ontario
K1A 0K2

23 January 2019

NOTICE

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AVIS

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TABLE OF CONTENTS

Related ANNEXES:

1.0 SCOPE

1.1 Purpose

1.1.1 The purpose of this specification is to outline the technical requirements for the Sniper Individual Screens (SIS) as used by Canadian Armed Forces (CAF) personnel.

1.2 Background

1.2.1 The CAF have a requirement for SIS designed for snipers to reduce detectability in visual and infrared spectrums.

1.3 Intended Use

1.3.1 The SIS will be used for supplemental concealment of CAF snipers and their equipment.

1.3.2 The SIS will be used for:

1.3.2.1 Establishing an observation post;

1.3.2.2 Constructing a hide or tent;

1.3.2.3 Covering the body; and

1.3.2.4 Concealing equipment.

1.3.3 The SIS will be used in a large variety of environments.

1.4 Acronyms

ASTM	American Standard Test Method
CAF	Canadian Armed Forces
IAW	In Accordance With
SCS	Sniper Concealment System
SIS	Sniper Individual Screen
SBK	Sniper Building Kit
TA	Technical Authority

2.0 APPLICABLE DOCUMENTS

2.1 Applicability

2.1.1 The documents listed in Section 2.2 set mandatory standards that apply to and form part of this specification. The Contractor is responsible for ensuring that it has obtained the most current version of each document. The version of the below identified documents in effect at the time of Contract execution applies to and forms part of this specification. All other document references contained elsewhere are to be considered supplemental information only. The Contractor must bring to the attention of the Contracting Authority all perceived inconsistencies between the specification and referenced

documents. In the event of conflict between the content of this specification and the referenced documents, the content of this specification must prevail.

2.2 Standards & Documents

2.2.1 Commercially Available Documents and Standards

2.2.1.1 AMS-STD-595 ™ Colours Used In Government Procurement

2.2.1.2 ASTM D2256 Standard Test Method for Tensile Properties of Yarns by the Single-Strand Method

2.2.1.3 MIL-C-5040H Military Specification Cord, Fibrous, Nylon

3.0 SYSTEM CHARACTERISTICS

3.1 Design

3.1.1 The SIS is a deployable and customizable screen that must allow CAF snipers to reduce their detectability in the visible and infrared spectrums.

3.1.2 The SIS may be deployed individually or attached to other SIS to increase the concealment area.

3.1.3 The SIS must consist of three layers permanently attached to each other; a screen layer, a netting layer and a border assembly to increase the SIS mechanical resistance and to allow the user to attach multiple screens together along both the long and short ends of the SIS.

3.1.4 The SIS must have a label attached In Accordance With (IAW) Annex B paragraph 5.1.

3.2 Physical Characteristics

3.2.1 Size

3.2.1.1 The SIS must be 2.4 m ± 1% in length and 1.2 m ± 1% in width.

3.2.2 Colour

3.2.2.1 SIS Screen Layer

3.2.2.1.1 The SIS Screen Layer must be Multicam®.

3.2.2.2 SIS Netting Layer

3.2.2.2.1 The SIS Netting Layer colour must be Pale Green 34202 or Khaki 30267 IAW AMS-STD-595™ or a close visual match approved by the TA to maximize camouflage properties of the system.

3.2.2.3 SIS Border Assembly

3.2.2.3.1 The SIS border assembly colour must be Pale Green 34202 or Khaki 30267 IAW AMS-STD-595™ or a close visual match approved by the TA to maximize camouflage properties of the system.

3.2.3 Materials

3.2.3.1 The SIS Screen Layer must be constructed using Omega® 100% Polyester Mesh.

3.2.3.2 The SIS Netting Layer must be constructed using Type IIAParacord meeting all requirements outlined in paragraph 4.4.1.

3.2.3.3 The SIS Border Assembly must be made from braided polyester or polyamide.

4.0 TECHNICAL REQUIREMENTS

4.1 SIS Screen Layer

4.1.1 The SIS Screen Layer must consist of dark colour non-reflective matte finish brass grommets wherever there are non-woven holes in the fabric to prevent tearing.

4.2 SIS Netting Layer

4.2.1 The SIS Netting must be permanently attached to the SIS Screen Layer.

4.2.2 The SIS Netting must consist of a 3 inch ± 0.25 in wide grid pattern covering the screen layer as depicted in Figure 1.

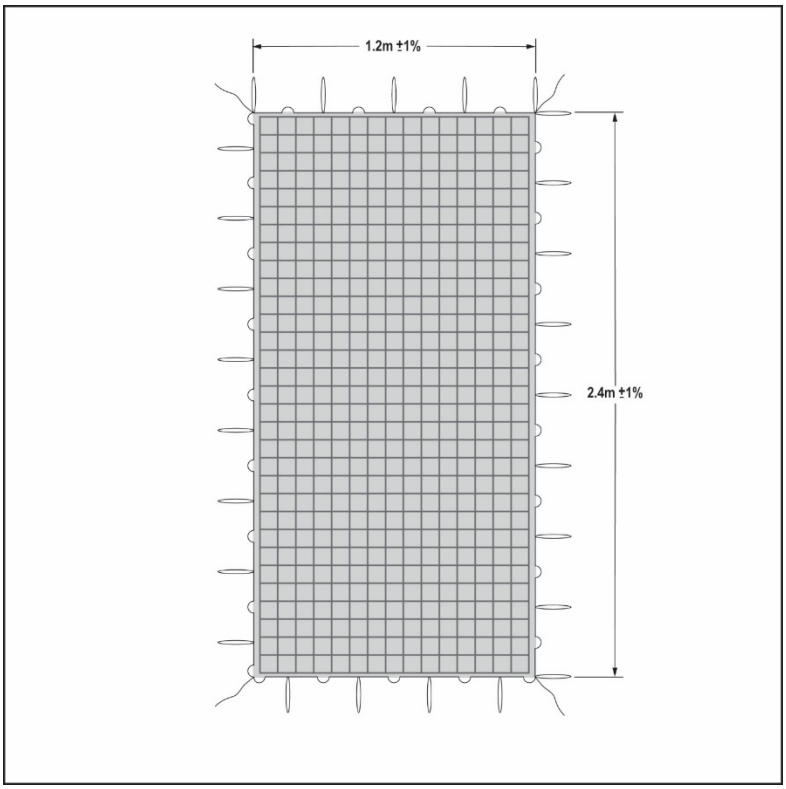

Figure 1: Schematic of 2.4 m by 1.2 m SIS

4.2.3 The SIS Netting must be bar-tacked through the entire base material at all netting cord intersection points to support the weight of scrim and natural vegetation attached to the SIS as depicted in Figure 2.

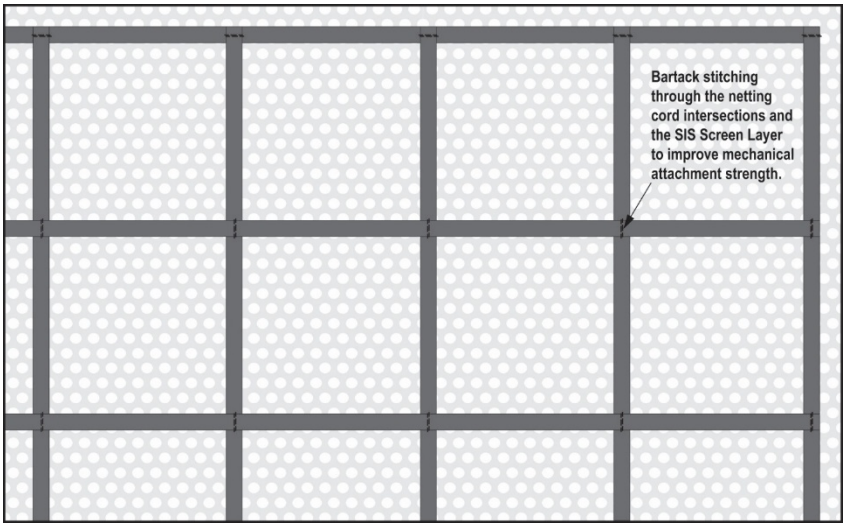

Figure 2: Close Up of the Netting Layer (Grid Size 3” x 3”)

4.3 SIS Border Assembly

4.3.1 Long and short loops of the SIS Border Assembly must be made as illustrated in Figures 1 and 3 to allow for the joining of multiple screens.

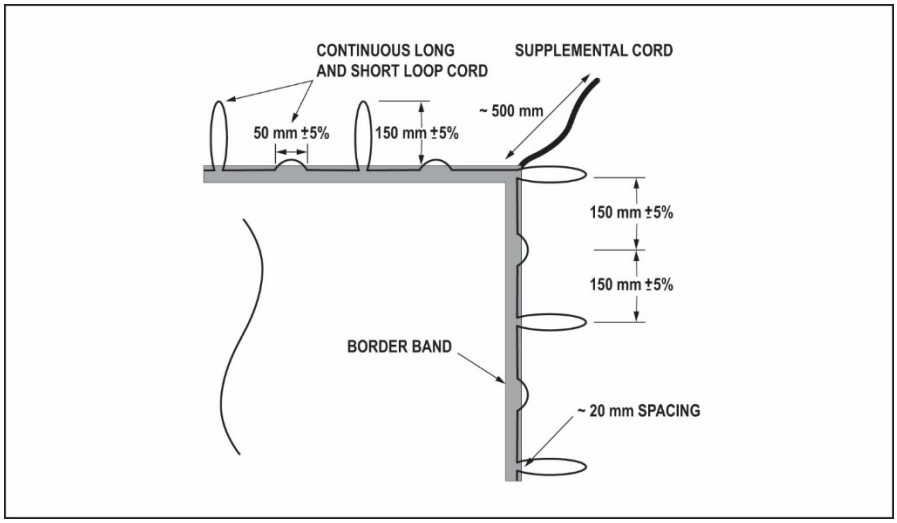

Figure 3: SIS Border Details (One Corner)

4.3.2 A succession of long and short loops must be attached around the perimeter of the border assembly.

4.3.3 The dimensions and tolerances of these long and short loops must conform to Figure 3.

4.3.4 The long and short loop cord must be continuous and be no less than 8 mm and no greater than 11 mm in diameter.

4.3.5 The long and short loop cord colour must be Pale Green 34202 or Khaki 30267 IAW AMS-STD-595™ or a close visual match approved by the TA to maximize camouflage properties of the system.

4.3.6 The long and short loops must allow the SIS to be laced tight together along either the long or short ends of the SIS as depicted in Figure 4.

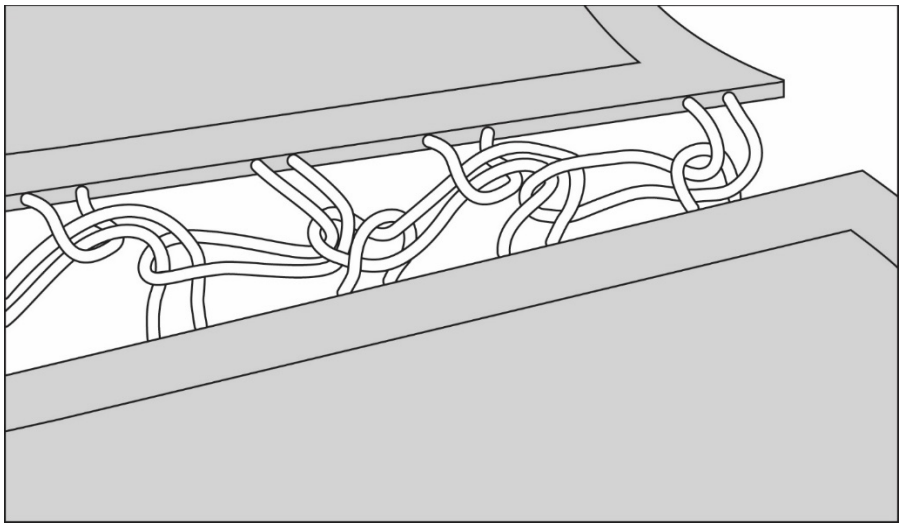

Figure 4: SIS Lacing Process

4.3.7 When the SIS are laced together they must lay flat along the laced ends with no more than .5 inches between the SIS.

4.3.8 A border band must be used in conjunction with the stitching of the long and short loops in order to increase the level of mechanical strength along all the edges of the SIS.

4.3.9 A 500 mm ± 50 mm long supplemental cord must be attached to each of the four corners of the SIS.

4.3.10 The supplemental cord attachment must be strong enough to allow for the SIS with weight of camouflage material to be tied under tension between trees without causing damage to the SIS or the stitching of the supplemental cord into the SIS.

4.3.11 The supplemental cord must be no less than 8 mm and no greater than 11 mm in diameter.

4.3.12 The supplemental cord colour must be the same as the colour of the long and short loop cord IAW paragraph 4.3.5.

4.4 SIS Screen Layer Material Performance Characteristics

4.4.1 SIS Netting Layer Material Performance Characteristics

4.4.1.1 The SIS Netting Layer material must adhere to all requirements outlined in MIL-C-5040H for Type IIA Paracord.

4.4.2 Long and Short Loop and Supplemental Cord Characteristics

4.4.2.1 The Long and Short Loop and Supplemental Cord Material must be made such that it does not unravel or have strands that separate.

4.4.2.2 The Long and Short Loop and Supplemental Cord Material must have a linear density of 175 m/kg ± 12%.

4.4.2.3 The Long and Short Loop and Supplemental Cord Material must have a Minimum Breaking Strength no less than 900 N.

4.4.2.3.1 Measurement of the Minimum Breaking Strength of the Long and Short Loop and Supplemental Cord Material must be performed in accordance with ASTM D2256, Configuration A, Condition 1.

4.4.3 Sewing Thread Characteristics

4.4.3.1 The Sewing Thread used in the SIS must have a Minimum Breaking Strength no less than 50 N.

4.4.3.1.1 The Sewing thread Measurement of the Minimum Breaking Strength of the Sewing Thread must be performed in accordance with ASTM D2256, Configuration A, Condition 1.

ANNEX E

SPECIFICATION

FOR

MULTISPECTRAL SCRIM

(MS)

Reference Number: W8476-195992

Prepared by:
DSSPM 9
Technical Authority/Life Cycle Material Manager
National Defence Headquarters
Major General George R. Pearkes Building
Ottawa, Ontario
K1A 0K2

23 January 2019

NOTICE

This documentation has been reviewed by the technical authority and does not contain controlled goods.

AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées.

TABLE OF CONTENTS

Related ANNEXES:

1.0 SCOPE

1.1 Purpose

1.1.1 The purpose of this specification is to outline the technical requirements for Multispectral Scrim (MS) used by Canadian Armed Forces (CAF) personnel.

1.2 Background

1.2.1 The CAF have a requirement for a multi-component signature management system designed for snipers to reduce detectability in visual and infrared spectrums. The MS is one component of this signature management system.

1.3 Intended Use

1.3.1 The MS will be single colour rolls of textile provided in different colours with visible, near-infrared and thermal infrared signature management properties.

1.3.2 They will be attached to the Concealment Base Layer (Annex C refers) and Sniper Individual Screen (Annex D refers) to aid in concealment in conjunction with natural vegetation and other scrim.

1.3.3 The MS will be used in different colour combinations to adapt to a large variety of environments.

1.4 Acronyms

CAF	Canadian Armed Forces
CBL	Concealment Base Layer
CADPAT™	Canadian Disruptive Pattern
DSSPM	Directorate of Soldier System Program Management’
IAW	In Accordance With
ISO	International Standards Organization
MS	Multispectral Scrim
N	Newton
SIS	Sniper Individual Screens
TA	Technical Authority
μm	micrometer

2.0 APPLICABLE DOCUMENTS

2.1 Applicability

2.1.1 The documents listed in Section 2.2 set mandatory standards that apply to and form part of this specification. The Contractor is responsible to obtain the most current version of each document. The version of the below

identified documents in effect at the time of Contract execution applies to and forms part of this specification. All other document references contained elsewhere are to be considered supplemental information only. The Contractor must bring to the attention of the Contracting Authority all perceived inconsistencies between the specification and referenced documents. In the event of conflict between the content of this specification and the referenced documents, the content of this specification must prevail.

2.2 Standards & Documents

2.2.1 Government Furnished Documents and Standards

2.2.1.1 DSSPM 3-6-80-001 Specification for CADPAT™ (Canadian Disruptive Pattern)

2.2.2 Commercial Furnished Documents and Standards

2.2.2.1 ISO 1421 Rubber- or plastics-coated fabrics – Determination of tensile strength and elongation at break

3.0 SYSTEM CHARACTERISTICS

3.1 General

3.1.1 The MS must be dyed in CADPAT™ colours IAW DSSPM 3-6-80-001.

3.1.2 The MS must be used to garnish the CBL and SIS for environmental adaptation.

3.1.3 The MS must have concealment properties in the visible, near-infrared, and thermal infrared bands.

3.2 Service Life

3.2.1 The in-service life of MS must be no less than 10 years.

3.3 System Components

3.3.1 Each MS roll must be comprised of the following components:

3.3.1.1 Multispectral Scrim;

3.3.1.2 Spool; and

3.3.1.3 Retaining Band.

3.4 Physical Characteristics

3.4.1 Size

3.4.1.1 Each MS roll must be 1 inch ± 1/8 inch in width and 100 feet ± 2 inch in length.

3.4.1.2 The spool around which the MS is wrapped must be 1 inch ± 1/8 inch in width and 1.5 inch ± 1/8 inch in diameter.

3.4.1.3 The retaining band must be sized to apply sufficient tension to the roll to hold the MS in place.

3.4.2 Colour

3.4.2.1 Multispectral Scrim

3.4.2.1.1 The MS must be dyed in one solid colour per roll.

3.4.2.1.2 The MS must be dyed in the five following in-service colors IAW DSSPM 3-6-80-001:

3.4.2.1.2.1 Canadian Average Green;

3.4.2.1.2.2 Light Green;

3.4.2.1.2.3 Brown (Temperate Woodland);

3.4.2.1.2.4 Light Sand; and

3.4.2.1.2.5 Dark Sand.

3.4.3 Material

3.4.3.1 The spool must be made from a rigid material to secure the MS.

4.0 TECHNICAL REQUIREMENTS

4.1 Material Performance Characteristics

4.1.1 The MS must have a Minimum Mechanical Resistance ≥ 250 N in each of the two axes when tested in accordance with ISO 1421, Strip Test Method.

4.2 Visible and Near Infrared Performance Characteristics

4.2.1 Each MS roll must conform to all requirements outlined in DSSPM 3-6-80-001 for their respective colours.

4.3 Thermal Infrared Performance Characteristics

4.3.1 All MS colours must have the following average transmission values:

4.3.1.1 Transmission no greater than 0.50 for mid-wave thermal (3-5 μm); and

4.3.1.2 Transmission no greater than 0.35 for long-wave thermal (8-12 μm).

4.3.2 Each finished MS fabric colour must be tested for the thermal transmission properties outlined in paragraph. 4.3.1 using the following procedure:

4.3.2.1 Cover both the top and bottom ports of the spectrometer with diffuse gold plugs.

4.3.2.2 Record a reference measurement.

4.3.2.3 Insert the MS sample in front of the beam entrance port.

4.3.2.4 Record a measurement for the sample.

4.3.2.5 Calculate the average transmission over the 3-5 μm and the 8-14 μm wavelength intervals.

4.3.2.6 Record and report average transmission results for each specified interval.

4.3.3 The apparatus used for carrying out the procedure outlined in para. 4.3.2 must be an FT-IR Spectrometer with a gold coated integrating sphere using the parameters in Table 1.

Detector	DLATGS
Resolution	16 cm-1
Number of Scans	50
Acquisition Mode	Double Sided, Forward – Backward
Apodization	Happ-Genzel
Phase Correction Mode	Blackman-Harris 3-Term
Level of Zero Filling	2
Aperture	6 mm
Wavelength Range	2-25 µm
Reference	Diffuse Gold

Table 1: IR Spectrometer Parameters

ANNEX F

SPECIFICATION

FOR

SNIPER BUILDING KIT

(SBK)

Reference Number: W8476-195992

Prepared by:
DSSPM 9
Technical Authority/Life Cycle Material Manager
National Defence Headquarters
Major General George R. Pearkes Building
Ottawa, Ontario
K1A 0K2

23 January 2019

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Related ANNEXES:

1.0 SCOPE

1.1 Purpose

1.1.1 The purpose of this specification is to outline the technical requirements for the Sniper Building Kit (SBK) used by Canadian Armed Forces (CAF) personnel.

1.2 Background

1.2.1 The CAF have a requirement for a Sniper Concealment System (SCS) designed for snipers to reduce detectability in visual and infrared spectrums. The SBK is a main component of the SCS.

1.3 Intended Use

1.3.1 The SBK will contain all the tools and equipment necessary to facilitate the proper use and configuration of the Concealment Base Layer (CBL) and Sniper Individual Screens (SIS). It will include ancillary equipment to allow for suite customization.

1.4 Acronyms

ASTM	American Standard Test Method
BPS	Bypass Pruning Shear
CAF	Canadian Armed Forces
CADPAT	Canadian Disruptive Pattern)
CBL	Concealment Base Layer
g/m^2	grams per square meter
DSSPM	Directorate of Soldier Systems Program Management
IAW	In Accordance With
SCS	Sniper Concealment System
SBK	Sniper Building Kit
TA	Technical Authority

2.0 APPLICABLE DOCUMENTS

2.1 Applicability

2.1.1 The documents listed in Section 2.2 set mandatory standards that apply to and form part of this specification. The Contractor is responsible for ensuring that it has obtained the most current version of each document. The version of the below identified documents in effect at the time of Contract execution applies to and forms part of this specification. All other document references contained elsewhere are to be considered supplemental information only. The Contractor must bring to the attention of the Contracting Authority all perceived inconsistencies between the specification and referenced

documents. In the event of conflict between the content of this specification and the referenced documents, the content of this specification must prevail.

2.2 Standards & Documents

2.2.1 Government Furnished Documents and Standards

2.2.1.1 DSSPM 2-2-80-210 Specification for Cloth, Coated, Nylon/Polyurethane, 235 g/m^2;

2.2.1.2 DSSPM 3-6-80-001 Specification for CADPAT (Canadian Disruptive Pattern);

2.2.1.3 Mil-C-5040H Military Specification Cord, Fibrous, Nylon; and

2.2.1.4 MIL-C-5651D Military Specification: Cord, Elastic, Exerciser and Shock Absorber, For Aeronautical Use.

2.2.1.5 Mil-DTL-32439 Detail Specification Cloth, Duck, Textured Nylon

2.2.2 Commercially Available Documents and Standards

2.2.2.1 ISO 6941 Specification for Textile fabrics -- Burning behaviour -- Measurement of flame spread properties of vertically oriented specimens;

2.2.2.2 PIA-C-5040F Specification for Cord, Fibrous, Nylon; and

2.2.2.3 ASTM D3787 Standard Test Method for Bursting Strength of Textiles—Constant-Rate-of-Traverse (CRT) Ball Burst Test.

3.0 SYSTEM CHARACTERISTICS

3.1 General

3.1.1 The SBK must be a kit containing all building tools outlined in paragraph 3.4 to allow for the customization of other SCS components.

3.1.2 All SBK components must be commercial off-the-shelf products.

3.2 Design

3.2.1 The SBK and its components must be made of a lightweight and easily transportable materials.

3.2.2 The SBK and its components must be rugged and durable in design to endure prolonged and rigorous field use in a variety of environments without failing.

3.3 Service Life

3.3.1 The in-service life of all SBK components must be no less than 5 years.

3.4 System Components

3.4.1 The SBK must consist of the following components:

Serial	Description	Colour Details	Quantity
1	Jute Bundle	Tan	3
2	Jute Bundle	Olive Drab	4
3	Fiber Bundle	Dreadlock, Tan	2
4	Fiber Bundle	Hair, Tan	2
5	Straw Bundle	Tan	2
6	Braided Elastic Bands	Tan	100
7	Braided Elastic Bands	Green	100
8	Pruning Shear Kit	-	1
9	Textile Scissor	-	1
10	Cable Ties	Black, Nylon	50
11	Paracord	Tan	1
12	Paracord	Olive Drab	1
13	Bungee Cord	Olive Drab	1
14	Mesh Cover	Olive Drab	1
15	Mesh Cover	Pine Green	1
16	Mesh Cover	Desert Tan	1
17	Camo Form®	Snow	2
18	Camo Form®	Desert Digital	2
19	Camo Form®	Woodland Digital	2
20	Camo Form®	Mossy Oak Shadowgrass® Blades™	2
21	Carrying Bag	Multicam	1

4.0 TECHNICAL REQUIREMENTS

4.1 Bundles

4.1.1 The SBK must include seven Jute Bundles.

4.1.1.1 Three Jute Bundles must contain 1-ply strands that are Tan in colour.

4.1.1.2 Four Jute Bundles must contain 1-ply strands that are Olive Drab in colour.

4.1.2 The SBK must include four Fiber Bundles.

4.1.2.1 Two Fiber Bundles must be Dreadlock Fiber Bundles containing dreadlock-style strands thicker than the Jute strands contained in the Jute Bundles (paragraph 4.1.1) with a discernable texture that are Tan in colour.

4.1.2.2 Two Fiber Bundles must be Hair Fiber Bundles containing hair-style strands with an appearance similar to dead grass that are Tan in colour.

4.1.2.2.1 Hair Fiber Bundle Stands must be thicker than the Jute strands contained in the Jute Bundles (paragraph 4.1.1) but be easily separable into thinner strands that are Tan in colour.

4.1.3 The SBK must include two Straw Bundles.

4.1.3.1 The Straw Bundles must contain Strands that are similar to dry field grass in texture that are Tan in colour.

4.1.4 Each Bundle must be 450 g ± 50 g in weight.

4.1.5 Each Bundle must contain 30 inch ± 2 inch single strands.

4.1.6 All Bundle Strand must require no preparation prior to use.

4.1.7 Each Bundle must be individually packaged in a sturdy clear multiple use bag that is resealed by a Ziploc® style slider closure mechanism.

4.2 Braided Elastic Bands

4.2.1 The Braided Elastic Bands must be made from synthetic or natural rubber compound encased in a single braided cover made of cotton.

4.2.2 The Braided Elastic Bands must be constructed in a ring shape such that the two ends of the bands are brought together to create a loop.

4.2.3 The braids must be spun with yarns from a good grade and stable cotton that must be free of imperfections and impurities.

4.2.4 All Braided Elastic Bands must be braided with a sufficient number of ends such that when the band is elongated to 100% (calculated using the equation in para. 3.3.5) the braid must be tight and prevent dirt from entering between the individual yarns of the braid.

4.2.5 Band elongation must be calculated using the following equation:

$$\%\ elongation = \frac{stretched\ length - resting\ length}{resting\ length} * 100$$

4.2.6 The Braided Elastic Bands must not have a metal joining clip or ferrule.

4.2.7 The Braided Elastic Bands must have a cross-sectional diameter of 1/8'' to 3/16''.

4.2.8 The Braided Elastic Bands, in their relaxed state, must have a diameter no less than 4 cm and no greater than 6 cm.

4.2.9 The Braided Elastic Bands must have an elastic elongation of no less than 150% calculated using the equation in para. 4.2.5.

4.2.10 The minimum breaking strength of the Braided Elastic Band must allow the band to support 20 lbs for no less than 20 seconds when one end is fixed to a vertical surface and the other size supporting a 20 lb weight by a hook.

4.2.11 The braided elastic band must retain its strength properties in temperatures ranging from -40°C to +40°C.

4.2.12 The Braided Elastic Bands must be coloured by using dyed yarn for the cotton braid.

4.2.13 The Braided Elastic Bands must come in two colours:

4.2.13.1 Tan; and

4.2.13.2 Green.

4.3 Pruning Shear Kit

4.3.1 The SBK must include a Pruning Shear Kit that contains the following components:

4.3.1.1 Bypass Pruning Shear (BPS);

4.3.1.2 BPS Replacement Blade; and

4.3.1.3 BPS Sharpening Set.

4.3.2 BPS Specifications

4.3.2.1 The BPS must have a total length between 200 and 225 mm.

4.3.2.2 The BPS must have a blade length between 30 and 50 mm.

4.3.2.3 The BPS must be rated to cut branches and vegetation up to at least 19 mm in diameter.

4.3.2.4 The BPS body must be black, green or brown in colour.

4.3.2.5 The BPS blade must be crafted from hardened or high carbon steel.

4.3.2.6 The BPS blade must be corrosion-resistant and non-stick.

4.3.2.7 The BPS must have asymmetric aluminum handles with a non-slip surface or coating.

4.3.2.8 The BPS must be usable by both left and right handed individuals without modification.

4.3.2.9 The BPS must have adjustable blade tension to ensure blade alignment.

4.3.2.10 The BPS must have a coil to separate the blades.

4.3.2.11 The BPS must have a locking mechanism to secure the blades in a closed position when not in use.

4.3.2.12 The BPS locking mechanism must not interfere with general cutting use when disengaged.

4.3.2.13 The BPS blade and coil spring must be user replaceable.

4.3.3 BPS Replacement Blade

4.3.3.1 The BPS Replacement Blade must be identical to that delivered with the BPS.

4.3.4 BPS Sharpening Set Specifications

4.3.4.1 The BPS Sharpening Set must include one Coarse Sharpener with grit size no less than 40 micron and no greater than 50 micron.

4.3.4.2 The BPS Sharpening Set must include one Fine Sharpener with grit size no less than 20 micron and no greater than 30 micron.

4.3.4.3 The BPS Sharpening Set must include one Extra Fine Sharpener with grit size no less than 8 micron and no greater than 10 micron.

4.3.4.4 All Sharpeners must have stones with a surface size of 65 mm ± 2 mm by 18 mm ± 2 mm to ensure usability in tight fitting spaces.

4.3.4.5 All Sharpeners must be no greater than 180 mm in length, 20 mm in width, and 6 mm in thickness.

4.3.4.6 The tip of all Sharpeners must be no greater than 2 mm in thickness.

4.3.4.7 The sharpening surface of all Sharpeners must be a continuous diamond surface.

4.3.4.8 The BPS Sharpening Set must be in a reusable package/container that can be resealed.

4.4 Textile Scissors

4.4.1 The SBK must include a Textile Scissor for cutting textile materials (Multispectral Scrim, paracord).

4.4.2 The Textile Scissors must have an overall length no less than 175 mm and no greater than 220 mm.

4.4.3 The Textile Scissors must have a blade made from titanium-enhanced stainless steel designed for wear resistance, corrosion resistance and accurate cutting.

4.4.4 The Textile Scissors must have a handle that is asymmetric with the larger side sized to accommodate more than one finger.

4.4.5 The Textile Scissors must have an ambidextrous handle usable by both left and right handed users without modification.

4.4.6 The Textile Scissors must pass the following test:

4.4.6.1 Drop Test: The Textile Scissors must be dropped 4 times from a height of 2 meters onto a concrete floor. After this, the Textile Scissors must meet the requirements of the cut test outlined in para. 4.4.6.2.

4.4.6.2 Cutting Test: The scissors must be tested by cutting a piece of Cloth, Coated, Nylon-Polyurethane, 235 g/m^2 (see textile specification DSSPM 2-2-80-210 for details on material), which must not be kept taut during the test. In doing so, the scissors must be opened as wide as possible and then gradually brought to the closed position. The scissors must cut the cloth neatly without drag or pull, from pinch to tip and the cut portion of the cloth must fall freely from the cutting edge.

4.5 Cable Ties

4.5.1 Design

4.5.1.1 The Cable Ties must be self-locking by means of a ratchet mechanism.

4.5.1.2 The Cable Ties must be made of 6/6 nylon.

4.5.1.3 The Cable Ties must be black.

4.5.1.4 The Cable Ties must be weather-resistant rated for outdoor use.

4.5.2 Dimensions

4.5.2.1 The length of the Cable Ties must be 140 mm ± 10 mm.

4.5.2.2 The width of the Cable Ties must be no greater than 6 mm.

4.5.2.3 The thickness of the Cable Ties must be no greater than 2 mm.

4.5.3 Environmental Factors

4.5.3.1 The Cable Ties must retain their mechanical properties after installation from -40°C to 85°C.

4.5.3.2 The Cable Ties must have a minimum install temperature rating of -20°C

4.5.3.3 The Cable Ties must have some resistance to damaging effects caused by UV radiation.

4.5.4 Tensile Strength

4.5.4.1 The Cable Tie material must have a tensile strength of at least 40 lbf (pound-force) when installed.

4.6 Paracord

4.6.1 The SBK must include one Tan roll of paracord and one Olive Drab roll of Paracord with the TA having final colour approval.

4.6.2 The Paracord must adhere to all requirements outlined in MIL-C-5040H for Type IIA Paracord.

4.6.3 Each roll of paracord must be 100 ft ± 4 inch in length and be wrapped around a spool to facilitate cord management.

4.7 **Bungee Cord**

4.7.1 The Bungee Cord must have an outer diameter of 0.25 inch with tolerances of +0.031 and -0 inches.

4.7.2 The Bungee Cord must adhere to all requirements outlined in MIL-C-5651D for Type III cord.

4.7.3 The yarn of the outer braid of the bungee must be dyed Olive Drab.

4.7.4 The included Bungee Cord must be 20 ft ± 4 inch in length.

4.8 **Mesh Covers**

4.8.1 The Mesh Cover must be made from polyester.

4.8.2 The Mesh Cover must be constructed as a mesh with openings of ½ inch ± 15%.

4.8.3 The Mesh Cover must be 5 ft ± 5% long and 4 ft ± 5% wide in size.

4.8.4 The Mesh Cover must weigh no more than 160 grams.

4.8.5 The Mesh Cover must have a bursting strength of no less than 25 psi when tested in accordance with ASTM D3787.

4.8.6 The Mesh Cover must be less than 0.02 inch in thickness.

4.8.7 The SBK must include three (3) Mesh Covers, one (1) in each of the following colours;

4.8.7.1 Olive Drab;

4.8.7.2 Pine Green; and

4.8.7.3 Desert Tan.

4.9 **Camo Form®**

4.9.1 The SBK must include McNett Tactical Camo Form® Reusable Heavy Duty Fabric Wrap in the following colours:

4.9.1.1 Snow – P/N 19701;

4.9.1.2 Desert Digital – P/N 19413;

4.9.1.3 Woodland Digital – P/N 19412; and

4.9.1.4 Mossy Oak Shadowgrass® Blades™ - P/N 19502

4.10 **Carrying Bag**

4.10.1 The Carrying Bag must have a volume capable of holding all SBK components identified at paragraph 3.4.1 with 20 % additional volume for growth.

4.10.2 The Carrying Bag must not tear or deform when subject to regular loading conditions.

4.10.3 The Carrying Bag must not pierce from tools moving within the bag.

4.10.4 The Carrying Bag must have a hand carry handle with sufficient strength to support carrying a load up to 40 pounds without damage.

4.10.5 The Carrying Bag should be designed in such a way that each Building Tool is quickly and easily accessible directly from transport-ready state.

4.10.6 The Carrying Bag must have a heavy duty YKK zipper that runs the length of the bag to improve access to components.

4.10.7 The Carrying Bag must be capable of carrying a load up to 40 pounds without damage.

4.10.8 The Carrying Bag must be manufactured from Mil-DTL-32439 Type IV Class 2 material printed in Multicam®.

4.10.9 The Carrying Bag must have a label attached IAW Annex B paragraph 5.1

ANNEX G

TECHNICAL EVALUATION REQUIREMENTS

SNIPER CONCEALMENT SYSTEM

BIDDERS INSTRUCTIONS

Reference Number: W8476-195992

Prepared by:
DSSPM 9
Technical Authority/Life Cycle Material Manager
National Defence Headquarters
Major General George R. Pearkes Building
Ottawa, Ontario
K1A 0K2

23 January 2019

NOTICE

This documentation has been reviewed by the technical authority and does not contain controlled goods.

AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées.

TABLE OF CONTENTS

Related ANNEXES:

ANNEX B	Statement of Work for Sniper Concealment System (SCS)
ANNEX C	Specification for Concealment Base Layer (CBL)
ANNEX D	Specification for Sniper Individual Screens (SIS)
ANNEX E	Specification for Multispectral Scrim (MS)
ANNEX F	Specification for Sniper Building Kit (SBK)
ANNEX G	Technical Evaluation Requirements Sniper Concealment System Bidders Instructions

1 Purpose

1.1 The purpose of this document is to describe the methodology that will be used to conduct the technical evaluation of bids made in respect of the Sniper Concealment System (SCS).

2 Guidance To Bidders

2.1 Bidders must comply with the specific guidance contained in this document. Failure to do so could result in their bid submission being considered non-compliant in which case it would be discarded and not evaluated.

3 Acronyms

CBL Concealment Base Layer
DND Department of National Defence
MS Multispectral Scrim
OEM Original Equipment Manufacturer
PAS Pre Award Sample
QA Quality Assurance
SBK Sniper Building Kits
SCS Sniper Concealment System
SIS Sniper Individual Screens

4 Overview

4.1 SCS System Components

4.1.1 The SCS consists of four sub-systems as follows:

4.1.1.1 Concealment Base Layer (CBL);

4.1.1.2 Sniper Individual Screens (SIS);

4.1.1.3 Multispectral Scrim (MS); and

4.1.1.4 Sniper Building Kits (SBK).

4.2 Bid Philosophy

4.2.1 Bidders are permitted to bid on any or all sub-systems identified in paragraphs 4.1.1.1 to 4.1.1.4.

4.2.2 A separate contract will be awarded for each sub-system to the lowest-priced responsive technically compliant bid.

4.2.3 The technical evaluation methodology detailed below will be used to determine all technically compliant bids and also detail how the technical rated requirements if applicable will be scored.

4.2.4 The documents that are applicable to each sub-system are shown in Table 1. Bidders must ensure that they are familiar with all documents associated with a sub-system against which they intend to submit a bid.

	Applicable Annexes					
Sub-System	B	C	D	E	F	G
CBL	X	X				X
SIS	X		X			X
MS	X			X		X
SBK	X				X	X

Table 1: Applicable Sub-System Documents

4.2.5 Bidders must submit a separate bid for each sub-system in paragraph 5.1 against which they would like to bid.

4.3 Outline Concealment Base Layer

4.3.1 The CBL technical bid evaluation will be conducted in two phases (Phases 1 and 2) with compliance being determined at the end of each phase. The successful Bidder will be selected from amongst the Bidders that are assessed as being fully compliant in both phases of the bid evaluation.

4.3.2 Phase 1

4.3.2.1 Phase 1 will be a physical examination of Pre-Award Samples (PAS), and the mandatory technical and documentary evidence provided by Bidders. All bids deemed fully compliant will progress to Phase 2. Non-compliant bids will be removed from further consideration.

4.3.3 Phase 2

4.3.3.1 Phase 2 will be a User Performance Evaluation where soldiers will be required to use the PAS in field conditions in order to assess their performance and then score them against pre-determined criteria and scoring scheme.

4.3.3.2 To be compliant in Phase 2, Bidders must achieve at least two passes for each of the 18 performance criteria being evaluated IAW Annex G Appendix 2 Table 1.

4.3.4 Evaluation Criteria

4.3.4.1 Phase 1 Mandatory Criteria

4.3.4.1.1 Mandatory criteria are identified in the Technical Evaluation Workbook attached as Appendix 1 to Annex G. Failure to meet all of these criteria will render the bid non-compliant and it will be removed from further consideration.

4.3.4.1.2 The Technical Evaluation Workbook attached as Appendix 1 to Annex G contains a separate worksheet for the CBL sub-system (worksheet Annex C CBL refers).

4.3.4.2 Phase 2 Pass Rated Criteria

4.3.4.2.1 Pass rated criteria are identified in Appendix 2 to Annex G

4.3.5 Phase 1 Mandatory Criteria Evaluation

4.3.5.1 Proposal Documentation

4.3.5.1.1 The Bidder's bid should include a signed and dated copy of the Technical Evaluation Workbook (Appendix 1 to Annex G) worksheet, with the self-assessment at Columns 5, 6 and 7 completed, and the required documentary evidence attached. References to external sources and web sites will not be accepted. Instruction for the completion of Columns 5, 6 and 7 are below.

4.3.5.2 Column 5 "Bidder's Self-Assessment"

4.3.5.2.1 This column is the Bidder's self-assessment column where the Bidder should indicate whether it is compliant/non-compliant to each mandatory requirement being evaluated. Each cell contains a drop down menu with two choices from which the bidder should choose either "compliant" or "non-compliant".

4.3.5.3 Column 6 "Evidence Location in Bid Package"

4.3.5.3.1 In this column the Bidder should clearly identify where in the bid binder (document, page and paragraph) the evaluator can find information that supports the Bidder's compliance against the mandatory requirement.

4.3.5.4 Columns 7 " Bidder's Statement and/or Comments"

4.3.5.4.1 In this column the Bidder should provide additional relevant information that they would like to bring to the attention of the evaluator for consideration during his assessment of each of the mandatory requirements.

4.3.5.5 Mandatory Counter

4.3.5.5.1 At the top of the Technical Evaluation Workbook the Bidder can track its rated compliance against the total number of mandatory requirements. The Bidder can also track overall compliance on the "Summary" worksheet.

4.3.6 Phase 2 User Performance Evaluation

4.3.6.1 Performance Evaluation

4.3.6.1.1 Soldiers will trial the Bidders' samples in accordance with the process described in Appendix 2 to Annex G.

4.3.6.2 Evaluators

4.3.6.2.1 Three soldiers will be used to conduct the performance evaluation.

4.3.6.3 Evaluation Score

4.3.6.4 Immediately following the user performance evaluation, the evaluators will be asked to assess the CBL used based on a questionnaire (see Appendix 2 to Annex G). Bid will be allocated a pass or fail for rating for each requirement by each evaluator.

4.3.6.5 Phase 2 Compliance

4.3.6.5.1 To be considered compliant in Phase 2 the Bidder must receive two or more pass ratings for each of the evaluation questionnaire requirements.

4.4 Outline SIS, MS and SBK

4.4.1 The SIS, MS and SBK bid evaluation will be conducted in a single phase (Phase 1) with compliance being determined at the end of the phase. The successful Bidder will be selected from amongst the bids that are assessed as being fully compliant during bid evaluation.

4.4.2 Phase 1

4.4.2.1 Phase 1 will be a physical examination of pre-award samples (PAS) and the mandatory technical and documentary evidence provided by Bidders.

4.4.3 Evaluation Criteria

4.4.3.1 Phase 1 Mandatory Criteria

4.4.3.1.1 Mandatory criteria are identified in the Technical Evaluation Workbook attached as Appendix 1 to Annex G. Failure to meet all of these criteria will render the bid non-compliant and it will be removed from further consideration.

4.4.3.1.2 The Technical Evaluation Workbook attached as Appendix 1 to Annex G contains a separate worksheet for SIS, MS and SBK sub-systems (worksheets Annex D SIS, Annex E MS, Annex F SBK refer).

4.4.4 Phase 1 Mandatory Criteria Evaluation

4.4.4.1 Proposal Documentation

4.4.4.1.1 The Bidder's bid should include a signed and dated copy of the Technical Evaluation Workbook (Appendix 1 to Annex G), with the self-assessment at Columns 5, 6 and 7 completed, and the required documentary evidence attached. References to external sources and web sites will not be accepted. Instruction for the completion of Columns 5, 6 and 7 are below.

4.4.4.2 Column 5 "Bidder's Self-Assessment"

4.4.4.2.1 This column is a Bidder's self-assessment column where a Bidder should to indicate whether he is compliant/non-compliant to each mandatory requirement being evaluated. Each cell contains a drop

down menu with two choices from which the Bidder should choose either “compliant” or “non-compliant”.

4.4.4.3 Column 6 “Evidence Location in Bid Package”

4.4.4.3.1 In this column the Bidder should clearly identify where in the bid binder (document, page and paragraph) the evaluator can find information that supports the Bidder’s compliance against the mandatory requirement.

4.4.4.4 Columns 7 “ Bidder’s Statement and/or Comments”

4.4.4.4.1 In this column the Bidder should provide additional relevant information that they would like to bring to the attention of the evaluator for consideration during his assessment of each of the mandatory requirements.

4.4.4.5 Mandatory Counter

4.4.4.5.1 At the top of the Technical Evaluation Workbook the bidder can track its rated compliance against the total number of mandatory requirements.

5 Bid Deliverables

5.1 Bid Binder

5.1.1 The Bidder should assemble all information required to support the bid in a binder (or binders if required). The first page of the first binder should contain an index detailing where the mandatory documents are contained. Documents within the bid should be separated by sequential numbered flags. Multiple binders should also be numbered.

5.2 Format and Data Requirements

5.2.1 When submitted, Technical/Documentary deliverables must be delivered in accordance with the following requirements:

5.2.1.1 Technical/Documentary deliverables should be clearly identified/labeled as the deliverable pertaining to a particular criterion.

5.2.1.2 Documents must be written in English, French or bilingual English/French.

5.2.1.3 Documents should be delivered both in hard copy and electronic format on CD ROM drive.

5.3 Equivalent Requirements

5.3.1 A number of mandatory requirements allow the Bidder to propose an equivalent for approval by the Technical Authority. The Bidder is encouraged to seek TA approval of the equivalent it is proposing while the requirement is posted on Buy and Sell. If approval is requested while the bid is opened on Buy and Sell and it is not approved by the Technical Authority the Bidder would still have an opportunity to perform the work to ensure that hits bid meets the mandatory requirement. If a Bidder

presents his equivalent for the first time with its bid and it is not approved by the Technical Authority then the Bidder's bid may be considered non-compliant and not be further evaluated. The Bidder should refer to guidance being provided to evaluators in Column 8 Evaluators Instructions in Appendix 1 to Annex G for requirements with an equivalent possibility.

5.4 Bid Test Reports

5.4.1 All required tests must be conducted by accredited independent laboratories, or university laboratories, or government laboratories, all experienced with testing the commodity being delivered.

5.4.2 Testing conducted by any other entities must receive prior written approval from the TA.

5.5 Certificate of Conformance

5.5.1 Numerous mandatory requirements require the bidder to show proof of compliance by submitting various types of documentation. Where documentary compliance is specified in Appendix 1 to Annex G the bidder must provide one or more of the following types of documents: independent third party test report, internal test reports, engineering drawings, QA documentation, OEM material specifications, product specifications in order of precedence. The bidder is encouraged to provide the highest level of documentary compliance proof that is available to prove compliance based on the order of precedence identified above. Where possible more than one document should be submitted to confirm compliance.

5.6 Pre-Award Samples (PAS)

5.6.1 By submitting PAS as specified in Appendix 1 to Annex G, a Bidder certifies that they originate from the same product lots and material lots for which Bid Certificates of Compliance and Bid Test Reports were submitted. The Bidder also certifies that the PAS are equivalent to the specimens featured in the Bid Test Reports, such that if the PAS (or specimens taken from them) were subjected to the same testing, the results would be consistent with those in the Bid Test Reports.

Appendixes

Appendix 1: Technical Evaluation Workbook Sniper Concealment System
Appendix 2: CBL Jacket and Pants Fit and Integration Test Sniper Concealment Systems

APPENDIX 1 TO ANNEX G

TECHNICAL EVALUATION WORKBOOK

SNIPER CONCEALMENT SYSTEM

Reference Number: W8476-195992

Prepared by:
DSSPM 9
Technical Authority/Life Cycle Material Manager
National Defence Headquarters
Major General George R. Pearkes Building
Ottawa, Ontario
K1A 0K2

23-Jan-19

Summary

Worksheets	Mandatory Requirements	Bidder Assed as Compliant	Evaluator Assed as Compliant
Annex C CBL	27	0	0
Annex D SIS	22	0	0
Annex E MS	4	0	0
Annex F SBK	55	0	0
Total	108	0	0

23-Jan-19

Submission Date:	
Bidder Unique ID Number:	
Product:	Sniper Concealment Base Layer
Evaluator:	Arthur Hall TBC TBC

Evaluators Count of Mandatory Reqr

Number of Mandatory Requirements	27
Number of COMPLIANT Mandatory Requirements	0

Bidders Count of Mandatory Reqr Compliance

Number of Mandatory Requirements	27
Number of COMPLIANT Mandatory Requirements	0

				TO BE COMPLETED BY BIDDER			TO BE COMPLETED BY EVALUATOR		
Col 1	**Column 2**	**Column 3**	**Column 4**	**Column 5**	**Column 6**	**Column 7**	**Column 8**	**Column 9**	**Column 10**
Req	**Evaluation Criterion Description**	**Criterion Type**	**Bid Deliverable**	**Bidder's Self Assessment**	**Evidence Location In Bid Package**	**Bidder's Statement and/or Comments**	**Evaluator Instructions**	**Evaluator's Assessment**	**Evaluator's Comments**
Annex C - Sniper Concealment Base Layer									
3.1.1	The CAF sniper must be able to don the CBL Jacket and CBL Pants over in-service clothing and adjust all straps to obtain customized fit in 3 minutes or less.	Mandatory	Pre Award Sample				Have a sniper don the CBL Jacket and CBL Pants and properly adjust all straps. Assess as compliant if the time to don both items totals 3 minutes or less.		
3.1.2	The CAF sniper must be able to doff the CBL Jacket and CBL Pants in 2 minutes or less.	Mandatory	Pre Award Sample				Have a sniper doff the CBL Jacket and CBL Pants. Assess as compliant if the time to doff both items totals 2 minutes or less.		
3.1.3	The CBL Jacket and CBL Pants must consist of two layers permanently attached to each other: a base layer on the inside and a netting layer on the outside of the garments.	Mandatory	Pre Award Sample				Confirm that the base layer and netting layers are permanently attached for both the CBL Jacket and CBL Pants. Assess as compliant if when pulling on the netting it does not separate form the base layer.		
3.4.1.1	The CBL Jacket must be manufactured as an adjustable one size fits all garment.	Mandatory	Pre Award Sample				Have a two soldiers fit the CBL Jacket and confirm that sufficient buckle adjustment exists for both personnel to achieve a proper fit. Assess as compliant if both soldiers can achieve a proper fit.		
3.4.2.1	The CBL Pants must be manufactured as an adjustable one size fits all garment.	Mandatory	Pre Award Sample				Have a two soldier fit the CBL Pants and confirm that sufficient buckle adjustment exists for both personnel to achieve a proper fit. Assess as compliant if both soldiers can achieve a proper fit.		
3.4.3.1	The fully assembled CBL Jacket and hood must not exceed 1 kg in weight.	Mandatory	Pre Award Sample				Weigh the CBL Jacket and assess as compliant if the weight is equal to or less than 1 kg.		
3.4.3.2	The fully assembled CBL Pants must not exceed 600 g in weight.	Mandatory	Pre Award Sample				Weigh the CBL Pants and assess as compliant if the weight is equal to or less than 600 g.		
3.4.4.1.1	The base material for the CBL Jacket and CBL Pants must be MultiCam®.	Mandatory	Certificate of Conformance				Examine the Certificate of Conformance submitted by the bidder and assess as compliant if the bidder can substantiate that the camouflage pattern used in the CBL Jacket and Pants is MultiCam®		
3.4.4.2.1	The CBL Jacket and CBL Pants netting colour must be approved by the TA and be a close visual match to one of the base material MultiCam® colors to maximize camouflage properties of the sub-system.	Mandatory	Pre Award Sample				Assess as compliant if the netting is a close visual match to one of the base material colours in MultiCam®.		
3.4.4.3.1	The colour of all hardware, and buckles, straps and cord locks must be approved by the TA and be a close visual match to one of the base material MultiCam® colors to maximize camouflage properties of the sub-system.	Mandatory	Pre Award Sample				Assess as compliant if the hardware, buckles, straps and cord locks are a close visual match to one of the base material colours in MultiCam® so as to not detract from the overall camouflage properties of the clothing.		
3.4.4.3.2	All hardware must have a matte non-reflective finish	Mandatory	Pre Award Sample				Assess as compliant if all hardware is non reflective.		
3.4.5.1.1	The base material for the CBL Jacket and CBL Pants must be Omega® 100% Polyester Mesh.	Mandatory	Test Report				Examine the Test Report submitted by the bidder and assess as compliant if the Test Report substantiates that the material used in both the CBL Jacket and Pants is Omega® 100% Polyester Mesh.		
3.4.5.2.1	The netting must be Type III paracord IAW Mil-C-5040H.	Mandatory	Test Report				Examine the Test Report submitted by the bidder and assess as compliant if the Test Report substantiates that the netting in the CBL Jacket and Pants is manufactured from is Type III paracord IAW Mil-C-5040H..		
4.1.2	The CBL Jacket must include a detachable hood that can be removed and attached without tools.	Mandatory	Pre Award Sample				Assess as compliant if you can remove the hood from the CBL Jacket and reattach without the use of tools.		

Col 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10
Req	**Evaluation Criterion Description**	**Criterion Type**	**Bid Deliverable**	**Bidder's Self Assessment**	**Evidence Location In Bid Package**	**Bidder's Statement and/or Comments**	**Evaluator Instructions**	**Evaluator's Assessment**	**Evaluator's Comments**
4.1.5	The CBL Jacket must include two acetal double adjustable side release buckles near the chest.	Mandatory	Certificate of Conformance Pre Award Sample				Examine the Certificate of Conformance to confirm that the buckles are acetal double adjustable side release buckles. Confirm that the CBL Jacket has two buckles near the chest. Assess as compliant if both the above requirements are met.		
4.1.6	The ends of the webbing straps that pass through all double adjustable side release buckles must be folded and securely box stitched so that they are not easily separated from the buckle.	Mandatory	Pre Award Sample				Assess as compliant if the buckle webbing is folded and box stitched in a manner that makes it difficult to inadvertently remove the buckle off the webbing.		
4.1.10	The CBL Jacket netting must consist of a 1.5 inch ± 0.25 inch wide grid pattern that spans the whole base layer as depicted in Figures 1 and 3.	Mandatory	Pre Award Sample				Measure the netting and assess as compliant if the maximum grid is 1.5 x 1.5 inch +- 0.25 inches. Latitude is to be provided for areas where the overall design or cut of the base layer does not permit achieving this grid size.		
4.1.11	The CBL Jacket netting must allow the CAF sniper to attach scrim and natural vegetation to the jacket in order to reduce detectability in different environments.	Mandatory	Pre Award Sample				Assess as compliant if you are able to attach scrim to the CBL Jacket.		
4.1.14	The CBL Jacket must have adjustable tensions straps for the chest and hood secured by cord locks.	Mandatory	Pre Award Sample				Assess as compliant if when using the supplied buckles and cord locks you are able to achieve a proper fit of the CBL jacket and hood.		
4.1.11	The CBL Jacket netting must allow the CAF sniper to attach scrim and natural vegetation to the jacket in order to reduce detectability in different environments.	Mandatory	Pre Award Sample				Assess as compliant if the netting allows for the attachment of scrim and natural vegitation to the jacket.		
4.1.15	The CBL Jacket must possess the general shape, proportions and design characteristics as depicted in Figure 3.	Mandatory	Pre Award Sample				Assess as compliant if the Pre Award Sample follows the general shape, proportions and design characteristics of Figure 3.		
4.2.1	The CBL Pants must be open in the front and cover the back of the CAF sniper legs when worn.	Mandatory	Pre Award Sample				Assess as compliant if the CBL Pants are designed so that the CBL pants cover the back of the sniper's body when laying in the face down prone position.		
4.2.3	The ends of the webbing straps that pass through all double adjustable side release buckles must be folded and securely box stitched so that they are not easily separated from the buckle.	Mandatory	Pre Award Sample				Assess as compliant if the buckle webbing is folded and box stitched in a manner that makes it difficult to inadvertently remove the buckle off the webbing.		
4.2.4	The CBL Pants must have acetal double adjustable side release buckles located at the ankle, mid shin, above the knee, and buckle mid-thigh as identified in Figure 2.	Mandatory	Certificate of Conformance Pre Award Sample				Examine the Certificate of Conformance to confirm that the buckles are acetal double adjustable side release buckles. Confirm that double adjustable acetal buckles are located at the ankle, mid shin, above the knee and mid thigh as depicted in Figure 2. Assess as compliant if both the above requirements are met.		
4.2.5	When the CBL Pants is properly adjusted and the CAF sniper is lying face down in a prone position the leg acetal double adjustable side release buckles must be positioned to the outside of the CAF sniper's leg so that they are not being laid upon.	Mandatory	Pre Award Sample				Confirm that when laying down the leg buckles on the CBL Pants are located to the outside of the leg so that they are not under the body when laying face down in the prone position.		
4.2.7	The CBL Pants must be worn similar to chaps and include an adjustable waist belt.	Mandatory	Pre Award Sample				Assess as compliant if the CBL pants has an adjustable waist belt.		
4.2.12	The netting of the CBL Pants must consist of a 1.5 inch ± 0.25 inch wide grid pattern that spans the whole base layer covering the back of the CAF sniper legs as depicted in Figure 2.	Mandatory	Pre Award Sample				Measure the netting and assess as compliant if the grid is 1.5 inch +- 0.25 inches. Latitude is to be provided for areas where the overall design or cut of the base layer does not permit achieving this grid size.		

23-Jan-19

Submission Date:	
Bidder Unique ID Number:	
Product:	Sniper Individual Screens (SIS)
Evaluator:	Arthur Hall TBC TBC

Evaluators Count of Mandatory Reqr

Number of Mandatory Requirements	22
Number of COMPLIANT Mandatory Requirements	0

Bidders Count of Mandatory Reqr Compliance

Number of Mandatory Requirements	22
Number of COMPLIANT Mandatory Requirements	0

				TO BE COMPLETED BY BIDDER			TO BE COMPLETED BY EVALUATOR		
Col 1	**Column 2**	**Column 3**	**Column 4**	**Column 5**	**Column 6**	**Column 7**	**Column 8**	**Column 9**	**Column 10**
Req	**Evaluation Criterion Description**	**Criterion Type**	**Bid Deliverable**	**Bidder's Self Assessment**	**Evidence Location In Bid Package**	**Bidder's Statement and/or Comments**	**Evaluator Instructions**	**Evaluator's Assessment**	**Evaluator's Comments**
Annex D - Specification For Sniper Individual Screens (SIS)									
3.2.1.1	The SIS must be 2.4 m ± 1% in length and 1.2 m ± 1% in width.	Mandatory	Pre Award Sample				Assess as compliant if the SIS is 2.4 m ± 1% in length and 1.2 m ± 1% in width.		
3.2.2.1.1	The SIS Screen Layer must be Multicam®.	Mandatory	Certificate of Conformance				Examine the Certificate of Conformance submitted by the bidder and assess as compliant if the bidder can substantiate that the camouflage pattern used in the SIS Screen Layer is MultiCam®		
3.2.2.2.1	The SIS Netting Layer colour must be Pale Green 34202 or Khaki 30267 IAW AMS-STD-595™ or a close visual match approved by the TA to maximize camouflage properties of the system.	Mandatory	Pre Award Sample				Assess as compliant if the SIS Netting Layer is Pale Green 34202 or Khaki 30267 IAW AMS-STD-595™ or a close visual match approved by the TA to maximize camouflage properties of the system.		
3.2.2.3.1	The SIS border assembly colour must be Pale Green 34202 or Khaki 30267 IAW AMS-STD-595™ or a close visual match approved by the TA to maximize camouflage properties of the system.	Mandatory	Pre Award Sample				Assess as compliant if the SIS Border is Pale Green 34202 or Khaki 30267 IAW AMS-STD-595™ or a close visual match approved by the TA to maximize camouflage properties of the system.		
3.2.3.1	The SIS Screen Layer must be constructed using Omega® 100% Polyester Mesh.	Mandatory	Test Report				Examine the Test Report submitted by the bidder and assess as compliant if the Test Report substantiates that the material used in the SIS Screen Layer is Omega® 100% Polyester Mesh.		
3.2.3.2	The SIS Netting Layer must be constructed using Type IIA Paracord meeting all requirements outlined in paragraph 4.4.1.	Mandatory	Test Report				Examine the Test Report submitted by the bidder and assess as compliant if the Test Report substantiates that the SIS Netting Layer is manufactured from Type IIa paracord IAW Mil-C-5040H.		
3.2.3.3	The SIS Border Assembly must be made from braided polyester or polyamide.	Mandatory	Test Report				Examine the Test Report to confirm that the bidder has substantiated that the materials used in the SIS Border Assembly is made from braided polyester or polyamide.		
4.1.1	The SIS Screen Layer must consist of dark colour non-reflective matte finish brass grommets wherever there are non-woven holes in the fabric to prevent tearing.	Mandatory	Pre Award Sample				If grommets are used in the design assess as compliant if they meet the requirement.		

Col 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10
Req	**Evaluation Criterion Description**	**Criterion Type**	**Bid Deliverable**	**Bidder's Self Assessment**	**Evidence Location In Bid Package**	**Bidder's Statement and/or Comments**	**Evaluator Instructions**	**Evaluator's Assessment**	**Evaluator's Comments**
4.2.2	The SIS Netting must consist of a 3 inch ± 0.25 in wide grid pattern covering the screen layer as depicted in Figure 1.	Mandatory	Pre Award Sample				Measure the netting and assess as compliant if the maximum grid is 3 x 3 inch +- 0.25 inches. Latitude is to be provided for areas where the overall design or cut of the base layer does not permit achieving this grid size.		
4.2.3	The SIS Netting must be bar-tacked through the entire base material at all netting cord intersection points to support the weight of scrim and natural vegetation attached to the SIS as depicted in Figure 2.	Mandatory	Pre Award Sample				Confirm that the SIS Netting layer is permanently attached for both the SIS Screen Layer with bartack stitching at all intersection points IAW figure 2. Assess as compliant if when pulling on the netting it does not separate form the base layer.		
4.3.1	Long and short loops of the SIS Border Assembly must be made as illustrated in Figures 1 and 3 to allow for the joining of multiple screens.	Mandatory	Pre Award Sample				Assess as compliant if the SIS Border Assembly is manufactured IAW Figures 1 and 3 to permit multiple attachments of screens along either the short or long ends of the SIS Screens.		
4.3.5	The long and short loop cord colour must be Pale Green 34202 or Khaki 30267 IAW AMS-STD-595™ or a close visual match approved by the TA to maximize camouflage properties of the system.	Mandatory	Pre Award Sample				Assess as compliant if the long and short loop cord colour is Pale Green 34202 or Khaki 30267 IAW AMS-STD-595™ or a close visual match approved by the TA to maximize camouflage properties of the system.		
4.3.6	The long and short loops must allow the SIS to be laced tight together along either the long or short ends of the SIS as depicted in Figure 4.	Mandatory	Pre Award Sample				Assess as compliant if the screens can be properly laced together IAW Figure 4 .		
4.3.7	When the SIS are laced together they must lay flat along the laced ends with no more than .5 inches between the SIS.	Mandatory	Pre Award Sample				Assess as compliant if when the SIS Screens are laced together they lay flat and are not puckered due to improper placement and sizing of the SIS border assembly and gap between laced ends are no more than .5 inches.		
4.3.8	A border band must be used in conjunction with the stitching of the long and short loops in order to increase the level of mechanical strength along all the edges of the SIS.	Mandatory	Pre Award Sample				Assess as compliant if an SIS Border Band is used in conjunction with the stitching of the long and short loops in order to increase the level of mechanical strength along all the edges of the SIS and to make it look like a properly finished product.		
4.3.9	A 500 mm ± 50 mm long supplemental cord must be attached to each of the four corners of the SIS.	Mandatory	Pre Award Sample				Assess as compliant if a 500 mm ± 50 mm long supplemental cord is attached to each of the four corners of the SIS.		
4.3.10	The supplemental cord attachment must be strong enough to allow for the SIS with weight of camouflage material to be tied under tension between trees without causing damage to the SIS or the stitching of the supplemental cord into the SIS.	Mandatory	Test Report				The bidder is to provide a Test Report which confirms that individual and pairs of SIS can be staked and tied so that the SIS(s) are tensioned parallel to the ground without resulting in damage to the SIS screen or the supplemental cord attachment points. The Test Report must confirn that the screen(s) have been properly weighted to reflect the application of scrim across the complete screen grid and garnish to simulate the prioper operational loading of the SIS.		
4.3.11	The supplemental cord must be no less than 8 mm and no greater than 11 mm in diameter.	Mandatory	Certificate of Conformance				Examine the Certificate of Conformance to confirm that the bidder is able to substantiate that the long and short loop and supplemental cord materials are no less than 8 mm and no more than 11 mm in diameter.		
4.4.2.1	The Long and Short Loop and Supplemental Cord Material must be made such that it does not unravel or have strands that separate.	Mandatory	Pre Award Sample				Assess as compliant if the long and short loop and suplemental cord marerials are treated so that they cannot unravel or separate from the SIS duiring operational use.		
4.4.2.2	The Long and Short Loop and Supplemental Cord Material must have a linear density of 175 m/kg ± 12%.	Mandatory	Test Report				The bidder is to provide a Test Report which confirms that the linear density of the long and short loop and supplemental cord material is 175 m/kg +- 12%.		
4.4.2.3	The Long and Short Loop and Supplemental Cord Material must have a Minimum Breaking Strength no less than 900 N.	Mandatory	Test Report				Assess as compliant if the Test Report confirms that the Measurement of the Minimum Breaking Strength of the Long and Short Loop and Supplemental Cord Material when tested IAW ASTM D2256, Configuration A, Condition 1 is no less than 900 N..		

Col 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10
Req	**Evaluation Criterion Description**	**Criterion Type**	**Bid Deliverable**	**Bidder's Self Assessment**	**Evidence Location In Bid Package**	**Bidder's Statement and/or Comments**	**Evaluator Instructions**	**Evaluator's Assessment**	**Evaluator's Comments**
4.4.3.1	The Sewing Thread used in the SIS must have a Minimum Breaking Strength no less than 50 N.	Mandatory	Test Report				Assess as compliant if the Test Report confirms that the Sewing thread Measurement of the Minimum Breaking Strength of the Sewing Thread when tested IAW ASTM D2256, Configuration A, Condition 1 is no less than 50 N..		

23-Jan-19

Submission Date:	
Bidder Unique ID Number:	
Product:	Multi-Spectral Scrium (MS)
Evaluator:	Arthur Hall TBC TBC

Evaluators Count of Mandatory Reqr

Number of Mandatory Requirements	4
Number of COMPLIANT Mandatory Requirements	0

Bidders Count of Mandatory Reqr Compliance

Number of Mandatory Requirements	4
Number of COMPLIANT Mandatory Requirements	0

				TO BE COMPLETED BY BIDDER			TO BE COMPLETED BY EVALUATOR		
Col 1	**Column 2**	**Column 3**	**Column 4**	**Column 5**	**Column 6**	**Column 7**	**Column 8**	**Column 9**	**Column 10**
Req	**Evaluation Criterion Description**	**Criterion Type**	**Bid Deliverable**	**Bidder's Self Assessment**	**Evidence Location In Bid Package**	**Bidder's Statement and/or Comments**	**Evaluator Instructions**	**Evaluator's Assessment**	**Evaluator's Comments**
Annex E - Multi-Spectral Scrim									
3.4.1.1	Each MS roll must be 1 inch ± 1/8 inch in width and 100 feet ± 2 inch in length.	Mandatory	1 x Pre Award Sample for each of the 5 colours identified is paragraphs 3.4.2.1.2.1 to 3.4.2.1.2.5				Assess as compliant if the bidder provides a roll containing a minimum of 20 feet of MS in each color that fully meet the requirements of Annex E.		
3.4.2.1.2 (subparas 3.4.2.1.2.1 to 3.4.2.1.2.5)	The MS must be dyed in the five following in-service colors IAW DSSPM 3-6-80-001: Canadian Average Green; Light Green; Brown (Temperate Woodland); Light Sand; and Dark Sand.	Mandatory	Test Report(s)				The bidder must provide Standard Council of Canada (SCC), CE or equivalent accredited third party test reports as specified by the requirements outlined in DSSPM 3-6-80-001 Table I in full conformance with all specified test methods for each of the 5 colours. Third party test reports must be performed on the final product.		
4.1.1	The MS must have a Minimum Mechanical Resistance ≥ 250 N in each of the two axes when tested in accordance with ISO 1421, Strip Test Method.	Mandatory	Test Report				Review the Test Report submitted by the bidder and confirm that the Test Report substantiates that the MS Minimum Mechanical Resistance is ≥ 250 N in each of the two axes when tested in accordance with ISO 1421, Strip Test Method.		
4.3.1	All MS colours must have the following average transmission values: Transmission no greater than 0.50 for mid-wave thermal (3-5 µm); and Transmission no greater than 0.35 for long-wave thermal (8-12 µm).	Mandatory	Test Report meeting the requirements in paragraphs 4.3.2 and 4.3.3				Review the Test Report submitted by the bidder and confirm that the Test Report substantiates that the MS meets the mid-wave and long-range thermal transmission values and that the testing was in compliance with the requirement at paragraph 4.3.2 and used the equipment identitfied in 4.4.3.		

23-Jan-19

Submission Date:	
Bidder Unique ID Number:	
Product:	Sniper Building Kit
Evaluator:	Arthur Hall TBC TBC

Evaluators Count of Mandatory Reqr

Number of Mandatory Requirements	55
Number of COMPLIANT Mandatory Requirements	0

Bidders Count of Mandatory Reqr Compliance

Number of Mandatory Requirements	55
Number of COMPLIANT Mandatory Requirements	0

				TO BE COMPLETED BY BIDDER			TO BE COMPLETED BY EVALUATOR		
Col 1	**Column 2**	**Column 3**	**Column 4**	**Column 5**	**Column 6**	**Column 7**	**Column 8**	**Column 9**	**Column 10**
Req	**Evaluation Criterion Description**	**Criterion Type**	**Bid Deliverable**	**Bidder's Self Assessment**	**Evidence Location In Bid Package**	**Bidder's Statement and/or Comments**	**Evaluator Instructions**	**Evaluator's Assessment**	**Evaluator's Comments**
Annex F - Sniper Building Kit									
4.1.1.1	Three Jute Bundles must contain 1-ply strands that are Tan in colour.	Mandatory	Pre Award Sample Item 1 para 3.4.1				Assess as compliant if 3 x 1-ply tan coloured jute bundles have been provided as part of the SBK.		
4.1.1.2	Four Jute Bundles must contain 1-ply strands that are Olive Drab in colour.	Mandatory	Pre Award Sample Item 2 para 3.4.1				Assess as compliant if 4 x 1-ply olive drab coloured jute bundles have been provided as part of the SBK.		
4.1.2.1	Two Fiber Bundles must be Dreadlock Fiber Bundles containing dreadlock-style strands thicker than the Jute strands contained in the Jute Bundles (paragraph 4.1.1) with a discernable texture that are Tan in colour.	Mandatory	Pre Award Sample Item 3 para 3.4.1				Assess as compliant if 2 x fiber bundles in tan colour containing dreadlock style strands which are thicker than the strands in the jute bundles have been provided as part of the SBK.		
4.1.2.2	Two Fiber Bundles must be Hair Fiber Bundles containing hair-style strands with an appearance similar to dead grass that are Tan in colour.	Mandatory	Pre Award Sample Item 4 para 3.4.1				Assess as compliant if 2 x fiber bundles in tan colour containing hair style strands with appearance similar to dead grass have been provided as part of the SBK.		
4.1.3.1	The Straw Bundles must contain Strands that are similar to dry field grass in texture that are Tan in colour.	Mandatory	Pre Award Sample Item 5 para 3.4.1				Assess as compliant if 2 x fiber bundles in tan colour containing straw strands with appearance similar to dry field grass have been provided as part of the SBK.		
4.1.4	Each Bundle must be 450 g ± 50 g in weight.	Mandatory	Pre Award Sample Items 1 to 5 para 3.4.1				Assess as compliant if all bundles weigh 450 g ± 50 g in weight.		
4.1.5	Each Bundle must contain 30 inch ± 2 inch single strands.	Mandatory	Pre Award Sample Items 1 to 5 para 3.4.1				Assess as compliant if all bundles contain strands that are 30 inches ± 2 inches.		
4.1.7	Each Bundle must be individually packaged in a sturdy clear multiple use bag that is resealed by a Ziploc® style slider closure mechanism.	Mandatory	Pre Award Sample Items 1 to 5 para 3.4.1				Assess as compliant if all bundles are in a sturdy clear multiple use bag that is resealed by a Ziploc® style slider closure mechanism.		
4.2.1	The Braided Elastic Bands must be made from synthetic or natural rubber compound encased in a single braided cover made of cotton.	Mandatory	Pre Award Sample Items 6 and 7 para 3.4.1 Original Equipment Manufacturer Specification Sheet				Assess as compliant if the bidder has provided a specification sheet and or technical documentation that confirms this requirement is met.		
4.2.7	The Braided Elastic Bands must have a cross-sectional diameter of 1/8'' to 3/16''.	Mandatory	Pre Award Sample Items 6 and 7 para 3.4.1				Assess as compliant if the Braided Elastic Bands have a cross-sectional diameter of 1/8" to 3/16".		

Col 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10
Req	**Evaluation Criterion Description**	**Criterion Type**	**Bid Deliverable**	**Bidder's Self Assessment**	**Evidence Location In Bid Package**	**Bidder's Statement and/or Comments**	**Evaluator Instructions**	**Evaluator's Assessment**	**Evaluator's Comments**
4.2.8	The Braided Elastic Bands, in their relaxed state, must have a diameter no less than 4 cm and no greater than 6 cm.	Mandatory	Pre Award Sample Items 6 and 7 para 3.4.1				Assess as compliant if the Braided Elastic Bands have diameter of no less than 4 cm and no more than 6 cm.		
4.2.10	The minimum breaking strength of the Braided Elastic Band must allow the band to support 20 lbs for no less than 20 seconds when one end is fixed to a vertical surface and the other size supporting a 20 lb weight by a hook	Mandatory	Pre Award Sample Items 6 and 7 para 3.4.1 Original Equipment Manufacturer Specification Sheet and/or Test Report				Assess as compliant if the Bidder has provided either the OEM specification sheet for the product and or a test report which confirms that the requirement is met.		
4.2.11	The braided elastic band must retain its strength properties in temperatures ranging from -40°C to +40°C.	Mandatory	Pre Award Sample Items 6 and 7 para 3.4.1 Original Equipment Manufacturer Specification Sheet				Assess as compliant if the bidder has provided a specification sheet that confirms this requirement is met.		
4.2.13.1	The Braided Elastic Bands must come in Tan	Mandatory	Pre Award Sample Item 6 para 3.4.1				Assess as compliant if the Braider Elastic Bands are Tan in colour.		
4.2.13.2	The Braided Elastic Bands must come in Green	Mandatory	Pre Award Sample Item 7 para 3.4.1				Assess as compliant if the Braider Elastic Bands are green in colour.		
4.3.2.1	The BPS must have a total length between 200 and 225 mm.	Mandatory	Pre Award Sample Item 8 para 3.4.1				Assess as compliant the BPS measure between 200 and 225 mm in length.		
4.3.2.2	The BPS must have a blade length between 30 and 50 mm.	Mandatory	Pre Award Sample Item 8 para 3.4.1				Assess as compliant if the BPS blade length is between 30 and 50 mm in length.		
4.3.2.3	The BPS must be rated to cut branches and vegetation up to at least 19 mm in diameter.	Mandatory	Pre Award Sample Item 8 para 3.4.1 Original Equipment Manufacturer Specification Sheet and/or Test Report				Assess as compliant if the Bidder has provide the OEM specification sheet that confirms the BPS are rated to cut branches that are 19 mm in diameter. If the specification sheet does not explicitly confirm this requirement the bidder is to provide a test report confirming that the requirement can be met.		
4.3.2.5	The BPS blade must be crafted from hardened or high carbon steel.	Mandatory	Pre Award Sample Item 8 para 3.4.1 Original Equipment Manufacturer Specification Sheet				Assess as compliant if the Bidder has provide the OEM specification sheet for the BPS which confirms this requirement.		
4.3.2.8	The BPS must be usable by both left and right handed individuals without modification.	Mandatory	Pre Award Sample Item 8 para 3.4.1				Assess as compliant if the BPS design allow for ambidextrous use.		
4.3.2.11	The BPS must have a locking mechanism to secure the blades in a closed position when not in use.	Mandatory	Pre Award Sample Item 8 para 3.4.1				Assess as compliant if you can lock the BPS blade in the closed position.		
4.3.3.1	The BPS Replacement Blade must be identical to that delivered with the BPS	Mandatory	Pre Award Sample Item 8 para 3.4.1				Assess as compliant if the BPS reusable blade can be installed onto the BPS.		
4.3.4.1	The BPS Sharpening Set must include one Coarse Sharpener with grit size no less than 40 micron and no greater than 50 micron.	Mandatory	Pre Award Sample Item 8 para 3.4.1 Original Equipment Manufacturer Specification Sheet				Assess as compliant if the Bidder has provided the OEM specification sheet for the sharpening set and that the specification sheet confirms that this requirement is met.		
4.3.4.2	The BPS Sharpening Set must include one Fine Sharpener with grit size no less than 20 micron and no greater than 30 micron.	Mandatory	Pre Award Sample Item 8 para 3.4.1 Original Equipment Manufacturer Specification Sheet				Assess as compliant if the Bidder has provided the OEM specification sheet for the sharpening set and that the specification sheet confirms that this requirement is met.		
4.3.4.3	The BPS Sharpening Set must include one Extra Fine Sharpener with grit size no less than 8 micron and no greater than 10 micron.	Mandatory	Pre Award Sample Item 8 para 3.4.1 Original Equipment Manufacturer Specification Sheet				Assess as compliant if the Bidder has provided the OEM specification sheet for the sharpening set and that the specification sheet confirms that this requirement is met.		
4.3.4.7	The sharpening surface of all Sharpeners must be a continuous diamond surface.	Mandatory	Pre Award Sample Item 8 para 3.4.1 Original Equipment Manufacturer Specification Sheet				Assess as compliant if the Bidder has provided the OEM specification sheet for the sharpening set and that the specification sheet confirms that this requirement is met.		
4.3.4.8	The BPS Sharpening Set must be in a reusable package/container that can be resealed.	Mandatory	Pre Award Sample Item 8 para 3.4.1				Assess as compliant if the BPS Sharpening Set is delivered in a reusable package/container that can be resealed.		
4.4.2	The Textile Scissors must have an overall length no less than 175 mm and no greater than 220 mm.	Mandatory	Pre Award Sample Item 9 para 3.4.1 Original Equipment Manufacturer Specification Sheet				Assess as compliant if the Bidder has provided the OEM specification sheet for the textile scissors and that the specification sheet confirms that this requirement is met.		
4.4.3	The Textile Scissors must have a blade made from titanium-enhanced stainless steel designed for wear resistance, corrosion resistance and accurate cutting.	Mandatory	Pre Award Sample Item 9 para 3.4.1 Original Equipment Manufacturer Specification Sheet				Assess as compliant if the Bidder has provided the OEM specification sheet for the textile scissors and that the specification sheet confirms that this requirement is met.		

Col 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10
Req	**Evaluation Criterion Description**	**Criterion Type**	**Bid Deliverable**	**Bidder's Self Assessment**	**Evidence Location In Bid Package**	**Bidder's Statement and/or Comments**	**Evaluator Instructions**	**Evaluator's Assessment**	**Evaluator's Comments**
4.4.4	The Textile Scissors must have a handle that is asymmetric with the larger side sized to accommodate more than one finger.	Mandatory	Pre Award Sample Item 9 para 3.4.1				Assess as compliant if this requirement is met.		
4.4.5	The Textile Scissors must have an ambidextrous handle usable by both left and right handed users without modification.	Mandatory	Pre Award Sample Item 9 para 3.4.1				Assess as compliant if the Textile Scissor design allow for ambidextrous use.		
4.4.6.1	Drop Test: The Textile Scissors must be dropped 4 times from a height of 2 meters onto a concrete floor. After this, the Textile Scissors must meet the requirements of the cut test outlined in para. 4.4.6.2.	Mandatory	Pre Award Sample Item 9 para 3.4.1				Assess as compliant if after completing this drop test you are able to use the Textile Scissors to perform the cutting test in paragraph 4.4.6.2.		
4.5.1.1	The Cable Ties must be self-locking by means of a ratchet mechanism.	Mandatory	Pre Award Sample Item 10 para 3.4.1				Assess as compliant if this requirement is met.		
4.5.1.2	The Cable Ties must be made of 6/6 nylon.	Mandatory	Pre Award Sample Item 10 para 3.4.1 Original Equipment Manufacturer Specification Sheet				Assess as compliant if the Bidder has provided the OEM specification sheet for the cable ties and that the specification sheet confirms that this requirement is met.		
4.5.1.3	The Cable Ties must be black.	Mandatory	Pre Award Sample Item 10 para 3.4.1				Assess as compliant if the cable ties are black.		
4.5.1.4	The Cable Ties must be weather-resistant rated for outdoor use.	Mandatory	Pre Award Sample Item 10 para 3.4.1 Original Equipment Manufacturer Specification Sheet				Assess as compliant if the Bidder has provided the OEM specification sheet for the cable ties and that the specification sheet confirms that this requirement is met.		
4.5.2.1	The length of the Cable Ties must be 140 mm ± 10 mm.	Mandatory	Pre Award Sample Item 10 para 3.4.1				Assess as compliant if this requirement is met.		
4.5.2.2	The Cable Ties must have a minimum install temperature rating of -20°C.	Mandatory	Pre Award Sample Item 10 para 3.4.1 Original Equipment Manufacturer Specification Sheet				Assess as compliant if the Bidder has provided the OEM specification sheet for the cable ties and that the specification sheet confirms that this requirement is met.		
4.5.4.1	The Cable Tie material must have a tensile strength of at least 40 lbf (pound-force) when installed.	Mandatory	Pre Award Sample Item 10 para 3.4.1 Original Equipment Manufacturer Specification Sheet				Assess as compliant if the Bidder has provided the OEM specification sheet for the cable ties and that the specification sheet confirms that this requirement is met.		
4.6.1	The SBK must include one Tan roll of paracord and one Olive Drab roll of Paracord with the TA having final colour approval.	Mandatory	Pre Award Sample Items 11 and 12 para 3.4.1				Assess as compliant if the rolls of para cord meet with TA approval of colour.		
4.6.2	The Paracord must adhere to all requirements outlined in MIL-C-5040H for Type IIA Paracord.	Mandatory	Pre Award Sample Items 11 and 12 para 3.4.1 Original Equipment Manufacturer Specification Sheet				Assess as compliant if the Bidder has provided the OEM specification sheet for the Bungee Cord and that the specification sheet confirms that this requirement is met.		

Appendix 2 to Annex G

CBL JACKET AND PANTS

USER PERFORMANCE EVALUATION

SNIPER CONCEALMENT SYSTEM

Reference Number: W8476-195992

Prepared by:
DSSPM 9
Technical Authority/Life Cycle Material Manager
National Defence Headquarters
Major General George R. Pearkes Building
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K1A 0K2

23 January 2019

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Related ANNEXES:

ANNEX B Statement of Work for Sniper Concealment System (SCS)
ANNEX C Specification for Concealment Base Layer (CBL)
ANNEX D Specification for Sniper Individual Screens (SIS)
ANNEX E Specification for Multispectral Scrim (MS)
ANNEX F Specification for Sniper Building Kit (SBK)

1 INTRODUCTION

1.1 This appendix sets out the requirements for the Phase 2: Concealment Base Layer (CBL) Jacket and CBL Pant Fit & Integration Test.

2 AIM

2.1 The aim of the CBL Jacket and CBL Pant Fit & Integration Test is to assess the performance of Phase 1 compliant samples submitted by Bidders against the requirements identified in Annex C.

3 Acronyms

3.1 CBL Concealment Base Layer

3.2 CCMFR Close Combat Modular Fighting Rig

3.3 TD Test Director

4 BID EVALUATION TEAM

4.1 The following personnel will be part of the Bid Evaluation Team:

4.1.1 Directorate of Soldier System Program Management System Engineering Manager or the Technical Authority (TA) to act as the Test Director (TD) to run the trial and to produce the final test report.

4.1.2 One trained sniper to instruct and supervise the performance of the identified Activity Routine (Table 2).

4.1.3 Three soldiers selected by the TD to act as Test Evaluators. These soldiers will be selected from the target population for which the CBL Jacket and CBL Pants are intended to fit.

5 BRIEFINGS

5.1 The Bid Evaluation Team will be briefed by the TD prior to the start of the CBL Jacket and CBL Pant Fit & Integration Test.

5.2 The Bid Evaluation Team will be briefed on informed consent prior to the start of the test.

6 SCREENING TEST: PRELIMINARY QUALITATIVE INTEGRATION

6.1 All three Test Evaluators will don the current in-service sniper jacket, sniper pants, combat helmet and Close Combat Modular Fighting Rig (CCMFR).

6.2 The TD will ensure that all the clothing donned at paragraph 6.1 fit the Test Evaluators properly.

6.3 The Test Evaluators will then don the CBL Jacket and CBL Pants.

6.4 The Test Evaluators will make all adjustments necessary to the CBL Jacket and CBL Pants to ensure proper fit for comfort.

6.5 The Test Evaluators will be photographed at various time during the test with relevant photos being included in the final test report.

6.6 Each Test Evaluators will evaluate as “Pass” or “Fail” the CBL Jacket and CBL Pant fit and functionality against the “List of Standard Integration / Protection Problems” (Table 1) after completing all movements outlined in the “Activity Routine” (Table 2).

6.7 To be compliant in Phase 2 the Bidder must receive two or three “Pass” ratings from the Test Evaluators against each of the List of Standard Integration / Protection Problems (serials 1-18) in Table 1.

6.7.1 A “Pass“ for serial 1 would mean that the CAF sniper performing the “Activity Routine (Table 2)” does not believe the CBL Jacket causes him any unnecessary discomfort.

Table 1: CBL - List of Standard Integration / Protection Problems

SERIAL	ISSUE	CONSEQUENCE	PASS/FAIL (2 out of 3 required to pass)			
			Evaluator 1	Evaluator 2	Evaluator 3	Overall
1	The CBL Jacket causes unnecessary discomfort.	Sniper will become distracted by discomfort.				
2	Movements in CBL Jacket is restricted.	Sniper will not be able to perform freely and at full potential.				
3	CBL Jacket snags during operation.	When the sniper crawls, they will need more time to perform the movements, having to unsnag themselves repeatedly.				
4	CBL Jacket sleeves are too short or too long.	CBL Jacket does not offer optimal protection and comfort.				
5	CBL Jacket is too large or too small.	Movement of sniper will be restricted.				
6	CBL Jacket detachable hood snags.	Sniper will need to unsnag hood repeatedly.				
7	CBL Jacket detachable hood becomes loose.	Sniper will have to make multiple adjustments to hood, distracting them from their task.				
8	CBL Jacket detachable hood is difficult to attach/remove.	Sniper will take too much time to attach/remove.				

Table 1: CBL - List of Standard Integration / Protection Problems						
SERIAL	ISSUE	CONSEQUENCE	PASS/FAIL (2 out of 3 required to pass)			
			Evaluator 1	Evaluator 2	Evaluator 3	Overall
9	The CBL Jacket is incorrectly proportioned.	CBL Jacket will be uncomfortable and restrict motion.				
10	Webbing of CBL Jacket is not ideal for attaching vegetation/scrim.	The sniper will not be able to easily customize their CBL Jacket, wasting time as well as potentially increasing their conspicuity.				
11	The CBL Pants causes unnecessary discomfort.	Sniper will become distracted by discomfort.				
12	Movements in CBL Pants is restricted.	Sniper will not be able to perform freely and at full potential.				
13	CBL Pant snags during operation.	When the sniper crawls, they will need more time to perform the movements, having to unsnag themselves repeatedly.				
14	CBL Pant legs are too short or too long.	CBL Pant does not offer optimal fit and comfort.				
15	CBL Pant waste is too large or too small.	CBL Pant does not offer optimal fit and comfort.				
16	CBL Pant becomes loose after adjusting.	Sniper will have to make multiple adjustments to CBL Pant, distracting them from their task.				
17	The CBL Pant is incorrectly proportioned.	CBL Pant will be uncomfortable and restrict motion.				
18	Webbing of CBL Pant is not ideal for attaching vegetation/scrim.	The sniper will not be able to easily customize their CBL Pant, wasting time as well as potentially increasing their conspicuity.				

Table 1: CBL - List of Standard Integration / Protection Problems						
SERIAL	ISSUE	CONSEQUENCE	PASS/FAIL (2 out of 3 required to pass)			
			Evaluator 1	Evaluator 2	Evaluator 3	Overall
OVERALL COMPLIANCE (Circle as appropriate)					YES	NO

Table 1: CBL - List of Standard Integration / Protection Problems

Table 2: Activity Routine		
Activity number	Activity	Duration / minutes
1	Lunge right leg forward and turn head left and right then stand. (3 times, once every 10 seconds). Lunge left leg forward and tilt head forward and Backwards (3 times, once every 10 seconds).	1
2	Walk at a crouch.	1
3	Continue walking at a crouch, and freeze position upon appropriate command from the TD.	1
4	Run in a zig zag pattern, to the left for 5 seconds, then to the right for 5 seconds. Repeat 6 times.	1
5	Get down on hands and feet. Grip rifle in left hand close to chest, in line with the body. Ensure the sling is grasped with the stock. Place right hand ahead, resting weight on left elbow. Once right arm is placed, left arm and rifle are moved. The right leg is then moved ahead follow by the left leg. Repeat 6 times (5 seconds each), then 6 times again with arms alternated (rifle in right hand)	1
6	Get down on forearms and knees. Grip rifle by its hand-stop with right hand, supporting its weight with right forearm. Pull forward with left forearm, and push forward with right leg in a crawl. Then pull forward with right forearm, and push forward with left leg in a crawl. Repeat 10 times (6 seconds each)	1

Table 2: Activity Routine		
Activity number	Activity	Duration / minutes
7	Lie on the ground, as flat as possible with legs together, ankles on the ground, arms to the front and flat on the ground. The head is flat on the ground resting on one cheek. Grasp the rifle by the upper sling swivel, supporting the rifle with the forearm. Extend arms fully, pull the left leg up and push on the ground while pulling with the arms. Alternate movement with right leg. Repeat 10 times (once every 6 seconds)	1
8	In the same position as activity 7, bring the arms back towards the head, and extend the left leg out. Push back with the arms and pull with your leg, to facilitate backwards motion. Alternate movement with right leg. Repeat 10 times (once every 6 seconds). Ensure that the CBL is secure and will not bunch up around shoulders and chest.	1
9	In the same position as activity 7, move the right leg away from the direction of the upper body and close the left leg into the right leg, to achieve a counter-clockwise rotation. Repeat 6 times. Alternate leg movement to achieve clockwise rotation, and repeat 6 times. (once every 5 seconds)	1
10	While lying on the ground, roll with the weapon against the body and the arms straight down along the outside of the weapon. Repeat 6 times (once every 10 seconds).	1
11	Lie prone on the ground, install the veil to the hood and cover the entire face with the veil. Breathe normally and note visibility.	2
		12 minutes

Table 2: Activity Routine

7 REPORTING

7.1 The TD will prepare a test report which will be submitted to Directorate of Land Procurement. The test report will clearly identify by bid whether the offering is assessed as being compliant to the Phase 2 evaluation. The bid report will identify all areas identified as non-compliant.

7.2 Any bids that are assessed as being non-compliant in Phase 2 will be discarded and not evaluated further.

1. Each item of clothing, or matched pair, must be neatly folded in accordance with good commercial practice. Items of clothing with a unit of issue "each" must be packaged individually. All others may be packaged in larger quantities. The package must consist of a polyethylene (or other transparent film) bag or envelope, made of material not less than one (1) mil thickness. The bags must be taped or stapled to effect closure and must be legibly marked (labelled) as follows (only required if the garment's identification markings are not clearly visible through the bag):

   NATO Stock Number (NSN) * - As specified on contract
   Nomenclature (including size) ** - As specified on contract
   Quantity / Unit of Issue - As applicable

2. A quantity of packages, of the same NSN, must be packed into a corrugated fibreboard box conforming to Canadian General Standards Board (CGSB) specification CAN/CGSB-43.22-2001. Overall inside dimensions (length, width and depth added) must not exceed 1.5 metres (59 inches). The maximum weight of the box and contents must not exceed 18 kilograms (40 pounds). The box size and content quantity must be uniform for the duration of the contract.

3. Closure of the corrugated fibreboard box must be in accordance with CGSB specification CAN/CGSB-43.22-2001 (Appendix B).

4. On one end of each corrugated fibreboard box, stencilling or labelling in figures as large as practicable in relation to the space available must legibly mark the following information:

   NATO Stock Number (NSN) * - As specified on contract
   Nomenclature (including size) ** - As specified on contract
   Quantity (per box) / Unit of Issue - As applicable
   Gross Weight (nearest kg) - As applicable
   Contract Serial Number - As specified on contract

5. On one side of each corrugated fibreboard box, stencilling or labelling in figures as large as practicable in relation to the space available must legibly mark the following information:

   Consignee - As specified on contract
   Consignor - Supplier's name or symbol
   Case ___ of ___ cases - As applicable within each shipment

6. The last shipping container of each shipment must have affixed to the side on which the shipping instructions are contained (paragraph 5), an envelope containing the Packing List, Release Note, etc. This water-resistant envelope must be prominently marked "Packing List Enclosed" and must be securely affixed to the outside wall of the container.

7. Shipments must be palletized in uniform loads and strapped/secured on standard 4-way entry, 48-inch by 40-inch wood or fibreboard non-returnable pallets, to be supplied by the contractor. Total height, including pallet, must not exceed 47 inches.

* Marking must be applied using Bar Code Symbology UCC/EAN-128 with AI 7001, including HRI (in accordance with D-LM-008-002/SF-001)

** Bilingual format - English/French

Draftsman H. Fraser	Canadian Forces Transportation Packaging Order	Nomenclature	Date
Checker H. Fraser	CFTPO-GENERAL	As specified on contract	15 Jul 2011
Design Engineer DSCO 5-4-3		Based on	Sheet
Approval Stamp 18		As specified on contract	1 of 2

CF 798

1. Chaque élément de vêtement, ou de paires appariées, doivent être plié soigneusement conformément aux bonnes pratiques commerciales. Les articles d'habillement avec une unité de mesure «chacun» doivent être emballés individuellement. Tous les autres peuvent être emballés dans de plus grandes quantités. Le paquet doit être composé d'un sac ou d'une enveloppe en polyéthylène (ou d'une autre pellicule transparente), dont l'épaisseur est d'au moins un (1) mil. Les sacs doivent être scellés à l'aide d'un ruban adhésif ou d'agrafes, et l'information suivante (inscrite sur une étiquette) doit figurer lisiblement sur chacun (uniquement nécessaire si les marques d'identification du vêtement ne sont pas clairement visibles à travers le sac):

   Numéro de nomenclature OTAN (NNO) * - Selon le contrat
   Nomenclature (comprenant la taille) ** - Selon le contrat
   Quantité / Unité de mesure - Selon le cas

2. Une quantité de paquets, de la même grandeur, doivent être placé dans un conteneur en carton dur ondulé, conformément à la norme CAN/CGSB-43.22-2001 de l'Office des normes générales du Canada (ONGC). Les dimensions générales intérieures (somme de la longueur, de la profondeur et de la hauteur) ne doivent pas dépasser 1,5 m (59 po). Le poids maximal du conteneur, avec son contenu, ne doit pas dépasser 18 kg (40 lb). La taille du conteneur et la quantité contenue doivent demeurer la même pour la durée du contrat.

3. La fermeture du conteneur en carton dur ondulé doit être conforme à la norme CAN/CGSB-43.22-2001 (appendice B) de l'ONGC.

4. Sur une extrémité de chaque conteneur en carton dur ondulé, l'information suivante doit figurer lisiblement en caractères aussi grands que permis par l'espace disponible (inscrite à l'aide d'un pochoir ou sur une étiquette) :

   Numéro de nomenclature OTAN (NNO) * - Selon le contrat
   Nomenclature (comprenant la taille) ** - Selon le contrat
   Quantité (par conteneur) / Unité de mesure - Selon le cas
   Poids brut (arrondir au kg) - Selon le cas
   Numéro de série du contrat - Selon le contrat

5. Sur un côté de chaque conteneur en carton dur ondulé, l'information suivante doit figurer lisiblement en caractères aussi grands que permis par l'espace disponible (inscrite à l'aide d'un pochoir ou sur une étiquette) :

   Destinataire - Selon le contrat
   Expéditeur - Nom ou marque du fournisseur
   Conteneur ___ de ___ - Selon chaque cargaison

6. Le dernier conteneur d'expédition de chaque cargaison, doit porter sur le côté où l'on retrouve les instructions d'envoi (paragraphe 5), une enveloppe contenant le bordereau d'expédition, le bordereau de libération, etc. Cette enveloppe, résistante à l'eau, doit porter clairement les mots «bordereau d'expédition ci-inclus» et doit être bien fixée à la paroi extérieure du conteneur.

7. L'entrepreneur doit fournir des palettes standard de type perdu, en bois ou en carton dur ondulé, accessibles des quatre côtés et mesurant 48 po sur 40 po. Les conteneurs doivent y être disposés uniformément (groupées par NNO) et solidement arrimées. La hauteur totale, y compris la palette, ne doit pas dépasser 47 po.

* Les marques doivent être apposées au moyen de la symbologie code à barres UCC/EAN-128, avec le numéro d'identification d'application IA 7001, y compris la traduction en clair TC (conformément à la D-LM-008-002/SF-001)

** Format bilingue – Anglais/ Français

Commande d'Emballage pour le Transport – Forces canadiennes			
CETFC-GÉNÉRALE			
Dessinatrice *H. Fraser*	Vérificatrice *H. Fraser*	Ingénieur d'études DOCA 5-4-3	Sceau d'approbation 18
Nomenclature Selon le contrat		Date 15 Juil 2011	
Basé sur Selon le contrat		Feuille 2 of 2	

CF 798

National Defence / Défense nationale

Design Change/Deviation
Modification du modèle ou écart autorisé

☐ Design Change / Modification du modèle ☐ Deviation / Écart

Contractor's Serial No. / N° d'ordre de l'entrepreneur	
Contract Demand No. / N° de la demande de contrat	
DSS Contract Serial No. / N° d'ordre du contrat du MAS	
DSS File No. / N° du dossier du MAS	
Design Authority Serial No. / N° d'ordre du bureau technique responsable	

Part - Partie - I

1. Item Affected - Article touché

2. Main Equipment(s) Affected - Matériel touché

3. Description of Departure from Original Technical Data - Description des points qui diffèrent des données techniques

4. Reason for Request - Motif de la demande

5. Will interchangeability be affected? / L'interchangeabilité est-elle réduite?
   Component Parts: - / Organes : - ☐ Yes / Oui ☐ No / Non
   Assemblies: / Ensembles : ☐ Yes / Oui ☐ No / Non

6. Will spare parts schedule be affected? / Le tableau en pièces de rechange est-il modifié?
   ☐ Yes / Oui ☐ No / Non
   (If "YES" state details / (Le cas échéant, donner les détails)

7. Production Data - Renseignements sur la production

7.1 Cost and Delivery / Coût et livraison

7.1.1 Estimated Effect of Delivery / Effet prévu sur la livraison _____

7.1.2 Estimated Added Tooling Cost $ / Coût supplémentaire prévu de l'usinage $ _____

7.1.3 Estimated Surplus Material Value $ / Valeur prévu des matériaux supplémentaires $ _____

7.1.4 Estimated Change in Contract Cost Including Sales Tax and 7.1.2 and 7.1.3 above. (Indicate + or -) $ / Variation prévu du coût stipulé dans le contrat (y compris la taxe de vente et les montants prévu en 7.1.2 et 7.1.3). (Indiquer + ou -) $ _____

7.2 Production Change Point / Introduction de la modification

7.2.1 Estimated Starting Date and Serial No. / Date d'introduction et N° de série prévue _____

7.2.2 Total Number of Units Involved / Nombre total d'unités touchées _____

7.3 Recommendations for Prior Built Units in Service / Recommandations quant aux unités déjà en service

7.3.1 Should prior - built units be modified? / Les unités déjà en service devraient-elles être modifiées? ☐ Yes / Oui ☐ No / Non

7.3.2 Estimated Cost Per Unit - Coût prévu par unité

Cost of Kit / Coût du lot $_____

Cost of Rework / Coût du réusinage $_____

7.3.3 Government Held Spare Parts / Pièces de rechange appartenant à l'État

☐ Use / Utilisez ☐ Rework / Réusinage ☐ Scrap / Mise au rebut

Estimated Cost to Each to Rework or Replace $ / Coût prévu du réusinage ou de remplacement $ _____

8. Originator - Auteur de la demande

Date *(yyaa-mm-dj)*	Signature (if other than Prime Contractor - autre que l'entrepreneur principal)	Date *(yyaa-mm-dj)*	Signature (Prime Contractor - Entrepreneur principal)

DND 672 (7-95) 7530-212-896-6621

Design: Forms Management 613-995-9944
Conception : Gestion des formulaires 613-947-8944

Canada

Part - Partie - II

9. Recommendations of Quality Assurance Representative - Recommandations du représentant de l'assurance de la qualité

Date *(yyaa-mm-dj)*	Designation - Désignation	Signature

10. Recommendations of Design Authority - Recommandations du Bureau technique responsable

Approved:
Approuvé :

☐ Design Change
Modification du modèle

☐ Deviation
Écart

☐ Per Part I
Voir partie I

or
ou

☐ See Remarks
Voir observations

☐ Not Approved
Rejetée

Date *(yyaa-mm-dj)*	Designation - Désignation	Signature

11. Approval of Procurement Authority - Approbation de l'instance d'acquisition

Date *(yyaa-mm-dj)*	Designation - Désignation	Signature

12. References - Documents de référence (Departmental file numbers etc. - Numéros de dossier ministère etc.)

13. Authorized Production Action on this Contract - Mesure de production autorisée pour le présent contrat

a. Design Change
Modifications du modèle

When to take effect:
Prise d'effet : _____

Existing Stock Stock actuel	Complete Units Unités entières	Assemblies Ensembles	Component Parts Organes
Use Utilisez	☐	☐	☐
Rework Réusinage	☐	☐	☐
Scrap Mise au rebut	☐	☐	☐

b. Deviation
Écart ☐

Total Number of Units Involved
Nombres d'unités touchées _____

Serial No.(s)
N°(s) de série _____

14. Form DND 678 Required from Manufacturer
DND 678 exigée du fabricant

☐ Yes
Oui

☐ No
Non

15. Action on Equipment in Stock and Use - Mesure à prendre à l'égard du matériel en stock et en service

16. Action on Spares in Stock - Mesure à prendre à l'égard des pièces de rechange en stock

17. Date *(yyaa-mm-dj)*	Signature (for Department of National Defence pour le ministère de la Défense Nationale)	18. Date *(yyaa-mm-dj)*	Signature (for Department of Supply and Services pour le ministère des Approvisionnements et Services)

19. Distribution List - Liste de diffusion	Copies Exemplaires	Distribution List - Liste de diffusion	Copies Exemplaires

National Defence | Défense nationale

D-01-100-214/SF-000

SPECIFICATION FOR

PREPARATION OF PROVISIONING DOCUMENTATION FOR CANADIAN FORCES EQUIPMENT

(BILINGUAL)

(Supersedes D-01-100-214/SF-000 dated 1991-11-05)

SPÉCIFICATION POUR

LA PRÉPARATION DES DOCUMENTS D'APPROVISIONNEMENT EN MATÉRIEL DES FORCES CANADIENNES

(BILINGUE)

(Remplace la D-01-100-214/SF-000 de 1991-11-05)

Issued on Authority of the Chief of the Defence Staff
Publiée avec l'autorisation du Chef d'état-major de la Défense

OPI: DTICS 3
BPR : DSITC 3

2002-05-01

Canada

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 des marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

National Defence | Défense nationale

D-01-100-214/SF-000
2002-05-01

SUPERSEDES
D-01-100-214/SF-000
1991-11-05

SPECIFICATION

FOR

PREPARATION OF PROVISIONING DOCUMENTATION FOR

CANADIAN FORCES EQUIPMENT

1. SCOPE

1.1 **Introduction.** The Department of National Defence (DND) is required to ensure that maintenance and supply support is available to sustain new weapons systems and equipments (end items) throughout life cycles. Provisioning Documentation (PD), in the form of any or all of Provisioning Parts Breakdowns (PPBs), Recommended Spare Parts Lists (RSPLs), Long Lead Time Item Lists (LLTILs) or Interim Spares Lists (ISLs), as defined in paragraph 3.1, is used by DND to select, procure and distribute a range and quantity of spare parts considered necessary to maintain the end item during an initial period of in-service use. The PD is also used to establish and maintain an automated data base, so that uninterrupted and continuing maintenance/supply support is provided during the entire life cycle.

1.2 **Purpose.** This specification describes all the data elements that may be required for inclusion in any or all of a PPB, RSPL, LLTIL or ISL and how it is to be presented. The procurement instrument will define the actual documentation and specific data elements required.

1.3 **Application.** This specification will apply to all new production contracts for end items, and will be equally binding on both the contractor and vendors/subcontractors, as the contractor is required to impose upon vendors/subcontractors the applicable requirements, terms, conditions and data requirements including Supplementary Provisioning Technical Documentation (SPTD) (refer to paragraph 3.8). Application of this specification to existing contracts will be at the discretion of DND.

1.4 **Method of reference.** This specification will be referenced in the Statement of Work (SOW) and/or will be specified in the procurement document/contract for the end item.

OPI DTICS 3

Issued on Authority of the Chief of the Defence Staff

1.5 **Intended use.** The PD specified in the contract, when prepared in accordance with this specification, will be used by DND as follow:

(a) To identify, select, catalogue and procure a range and depth (quantity) of spare parts considered necessary to maintain the end item during an initial period of in-service use.

(b) To establish a record of the end item configuration for configuration management, as detailed in the PD, on DND computer files. The computer record will form the basis of equipment support publications which are used by Canadian Forces technical and supply personnel.

2. APPLICABLE DOCUMENTS

2.1 **Government documents.** The contractor is to provide the NATO Commercial and Government Entity (NCAGE) codes for each item listed on the Provisioning Documents. The Defence Logistics Information Service (DLIS) web site (www.dlis.dla.mil/cageserv.asp) contains all NCAGE codes and they can also be contacted through this mailing address:

Defence Logistics Information Service
74 Washington Avenue North
Battle Creek MI
49017-3084

2.2 **Standards Council of Canada.** The following publication may be used in conjunction with this specification. The date of issue in effect on the date of invitation to tender will apply to the document.

Standards Council of Canada
270 Albert Street, Suite 200
Ottawa, Ontario, Canada, K1P 6N7

ANSI/IEEE 315-1975 Graphic Symbols for Electrical and Electronic Diagrams

2.3 **Definitions, abbreviations and acronyms.** For the purpose of this specification, the definitions, abbreviations and acronyms listed in Section 6 of this specification apply.

3. REQUIREMENTS

3.1 **Provisioning Documentation (PD).** The generic term used to describe the various types of documentation needed by DND to identify, select, catalogue, procure and distribute initial support spares. The types of PD that will be ordered will be based on the complexity of each system/equipment and the extent of in-service maintenance that will be performed. Based on these parameters, the contractor will be required to provide either a PPB or an RSPL, possibly together with an LLTIL and/or an ISL in support of a new system/equipment and/or its associated support equipment. The actual requirement will be specified in the contract for the end item.

3.1.1 **Provisioning Parts Breakdown (PPB).** The PPB provides a topdown breakdown of the equipment in the configuration in which it is being procured. This breakdown is accomplished by listing all parts included in the end item in a lateral and descending family tree/generation breakdown. In this breakdown, all assemblies, subassemblies and parts are listed in relation to the next higher assembly. This relationship is shown by means of an indention code as illustrated in the topdown breakdown sequence (see Figure 4). For example, an assembly with indention code B must be followed by a detailed breakdown of all the subsequent indention codes pertaining to that assembly before the next indention code B assembly (if any) is, in turn, broken down.

3.1.2 **Recommended Spare Parts List (RSPL).** The RSPL is a list of spare parts deemed necessary, by the contractor, to maintain the equipment and/or, where applicable, its associated support equipment, for a period of 24 months exclusive of any warranty period.

3.1.3 **Long Lead Time Item List (LLTIL).** The LLTIL is a list of items which, because of complexity of design, complicated manufacturing processes or limited production, may violate procurement times so that delivery of spares would be later than the introduction of the end item. It should also include items for which a cost benefit can be realised for procurement concurrent with the manufacture of those same items for inclusion in the end item being procured.

3.1.4 **Interim Spares List (ISL).** The ISL is a list of essential spares which must be acquired in the event that insufficient time or documentation is available to conduct the conventional Initial Provisioning (IP) process prior to the system/equipment entering service with DND.

3.2 **Delivery dates.** The PD defined in the contract shall be delivered to DND within the time frame agreed upon in the terms and conditions specified in the end item contract.

3.3 **Delivery of PD.** The PD shall be delivered to DND under cover of a letter specifying the contract serial number, the end item name and the contractor's name.

3.4 **Transmittal of PD.** The PD shall be prepared electronically in accordance with detailed instructions (refer to paragraphs 3.9 through 3.9.4.19 inclusive) and be provided by the contractor on Compact Discs (CDs) or three and one half inch (3-1/2 in.) floppy diskette formatted in ASCII, MS Excel or other acceptable program.

3.5 **PPBs prepared in accordance with US DoD Military Standards (MIL STDs).** PPBs prepared in accordance with US MIL STD 1388-2A or Interactive Computer and Aided Provisioning System-Personal Computer version (ICAPS-PC) are acceptable to DND. PPBs prepared in accordance with US MIL STD 1552A are also acceptable provided the PPB data is current and reflects the equipment configuration being purchased by DND.

3.6 **Printed hard copy requirement.** PD submitted in CD or diskette format should be accompanied by a printed hard copy of the data.

3.7 **Government Supplied Materiel (GSM).** Materiel provided by DND to a contractor which will be incorporated in, or which may be consumed or expended in the performance of a contract, is referred to as GSM. It includes, but is not limited to, raw and processed materiel, parts, components, assemblies, tools and supplies. GSM, if applicable, shall be included as a single line item in the PPB but shall not be broken down to assembly, subassembly or part level.

3.8 **Supplementary Provisioning Technical Documentation (SPTD)**

3.8.1 **SPTD requirement.** The contractor shall provide SPTD for each item appearing on the PD (first appearance only) as follows:

(a) For PPB verification purposes, the contractor shall provide full assembly drawings with attached parts lists, so that DND can ensure that the PPB reflects the current and complete configuration of the equipment being procured.

(b) For item identification and cataloguing purposes, the technical data supplied for all PD must be sufficiently comprehensive to allow DND to classify and fully describe the item within the NATO codification system and must be cross-referenced to the applicable contract number.

3.8.2 **SPTD provision.** Provision of the SPTD shall be as follows:

(a) SPTD shall not be sent with the PPB but shall be made available for DND use and retention at the Initial Provisioning Conference (IPC).

(b) SPTD shall be submitted to DND with those documents.

3.8.3 **Specifications, standards or engineering drawings.** To satisfy this requirement, the contractor shall furnish for each item an applicable recognized industry specification or standard; or, if a specification or standard does not apply, an engineering drawing, preferably equal to Level 3, but at least equal to Level 2 (refer to definitions in Section 6). Whenever possible, the specification, standard or engineering drawing prepared by the actual manufacturer of the item shall be furnished. Regardless of whether the furnished documentation is a specification, standard or engineering drawing, it shall clearly define all applicable features of the item depicted, including:

(a) configuration;

(b) physical characteristics, such as dimensions, tolerances, materiel, mandatory processes, surface finish, protective coatings, etc.;

(c) electrical characteristics;

(d) performance data, e.g., those physical and functional characteristics under specified operating conditions (load, speeds, etc.) and the environmental conditions under which the item must operate and perform;

(e) mounting requirements; and

(f) special features which contribute to the uniqueness of the item.

Note: The information provided shall include the NATO Commercial and Government Entity (NCAGE) code or the full name and address of the actual manufacturer of the item and the actual manufacturer's part/reference number.

3.8.4 **Specifications, standards or engineering drawings not applicable.** There may be some items listed for which it is not standard industrial practice to produce specifications, standards or engineering drawings. In that case, prior to submitting the PD, the contractor shall forward samples of the proposed SPTD to the DND NATO Cataloguing Authority (DTICS) to provide for NATO cataloguing of those items. Under such special circumstances, catalogues, catalogue descriptions or sketches/photographs with textual descriptive data will be considered. However, the contractor is advised that the data requirements are the same as those specified for specifications, standards and engineering drawings.

3.8.5 **Letters of refusal.** Where a manufacturer refuses to supply the contractor with data requirements for proprietary or other reasons, the contractor is not relieved of the obligation to provide the relevant data. The contractor shall further pursue the matter with the manufacturer to effect one of the following alternatives and shall advise DND of the alternative achieved at the time the PD is submitted. The alternatives are as follows:

(a) the manufacturer will submit the data directly to DND;

(b) the manufacturer will allow a visit to his facility to permit DND representatives to review and capture the data; and

(c) the manufacturer will prescribe an alternative method of furnishing adequate data to enable the provisioning process to be accomplished.

Note: Should the manufacturer still refuse to supply the relevant data requirements, the contractor shall, as a last resort, obtain a letter of refusal stating the manufacturer's specific refusal to both supply the data requirements and satisfy any of the alternatives listed in paragraphs 3.8.5(a) through 3.8.5(c), and shall submit such letter(s) of refusal to DND.

3.8.6 **SPTD not required.** SPTD need not be provided for an item appearing on the PD which is identified as a Canadian or US Government specification and/or a Military Standard which completely describes the item including dimensional, materiel, mechanical and electrical characteristics.

3.8.7 **Release of data.** Data extracted from documentation furnished for NATO cataloguing purposes may be used for National and International governmental transactions. The contractor shall be responsible for advising DND of any restrictions imposed by the documentation source entity on the release of such data. Data categorized by the documentation source entity as Commercial in Confidence will not be released outside government circles without the written consent of the source entity.

3.8.8 **Acceptability of SPTD for NATO cataloguing purposes.** In case of disputes regarding the acceptability of SPTD furnished for NATO cataloguing purposes, the ruling of the DND NATO Cataloguing Authority shall prevail.

3.9 **Detailed instructions for the preparation of the PD**

Note: All definitions and acronyms are listed in Section 6 of this specification.

3.9.1 **Application.** These instructions are applicable to the preparation of the PD.

3.9.2 **Electronically prepared PD.** For CD or diskette submission, all the possible fields required, together with field lengths, are listed at Figure 1. Full descriptions of field content follow in paragraph 3.9.4.

3.9.2.1 The contractor shall specify:

(a) the number of records;

(b) the location of fields on the CD or diskette; and

(c) the number of CDs or diskettes.

3.9.3 **Data fields.** For each item included in the PD called up in the contract and described in detail in paragraph 3.1, up to nineteen (19) data fields are required. The exact fields required for each type of PD will be specified by field number in the Provisioning Documentation Selection Sheet (PDSS), which will form a part of the procurement instrument. An example of the PDSS can be found in Figure 5. The data fields are listed in Figure 1 and described in detail in paragraphs 3.9.4.1 to 3.9.4.19. Each field has been assigned a number and is limited as to the number of characters it can contain. For quick reference purposes, an illustration of the PPB worksheet is presented in Figure 2 with the corresponding fields and an abbreviated description of data element.

3.9.4 **Data elements.** The data elements required for each item listed on the PD are described in the following subsections and are displayed in Figure 2.

3.9.4.1 **Field 1, Item No.** This field has six alphanumeric characters used for line item control. The first item is usually numbered 000100, continuing in numerical sequence in increments of one hundred (100). This permits the addition of new items, e.g., 000101, 000102, 000201 to 000299, etc. by DND.

3.9.4.1.1 Alpha prefixes may be used by the contractor to identify various main groups or assemblies and breakdowns, e.g., A00100 commences the radio receiver breakdown, B00100 commences the radio transmitter breakdown. If alpha prefixes are used, double alphas precede single alphas and single alphas precede numerics in the DND computer sort sequence, e.g., AA0100, A00100, BB0100, B00100, 000100. The letters I or O shall not be used as alpha prefixes.

3.9.4.2 **Field 2, Indention Code (IND).** This field has one alpha character used to indicate the relationship of the line item to its next higher assembly. Attaching parts shall be identified by using the Indention Code Y. Letters I or O shall not be used when completing this field. The following breakdown shall be used and is displayed graphically in Figure 4 of this specification.

Indention Code	Level of Breakdown
A	System/End Item (there shall be only one indent A item)
B	Assembly
Y	Parts used to attach the assembly to a system/end item
C	Subassembly / detailed parts of an assembly
Y	Parts used to attach a subassembly to an assembly
D	Sub-subassembly / detailed parts of a subassembly
Y	The parts used to attach a sub-subassembly to a subassembly
E	Sub-sub-subassembly / detailed parts of a sub-subassembly
Y	Parts used to attach a sub-subassembly to a subassembly

3.9.4.3 **Field 3, Item Name Basic.** This field has a maximum of 19 alphanumeric characters and is used for the item name, with appropriate adjective modifier, when applicable.

3.9.4.4 **Field 4, Manufacturer's Reference Number (MRN).** This field has a maximum of 31 alphanumeric characters and is used to record the part number, drawing number or catalogue number of the original (actual) manufacturer of the line item. If a military specification or standard number exists, e.g., MIL, AN, AS, MS or NAS, it shall be used.

3.9.4.4.1 This field shall not be used to indicate the contractor's part number, control drawing number, company standard number, etc., unless the contractor is the actual manufacturer of the item; or the item as manufactured by the original manufacturer is subsequently modified by the contractor for use on the equipment or assembly procured by DND (refer to paragraph 3.9.4.6).

3.9.4.5 **Field 5, NATO Commercial and Government Entity (NCAGE) Code.** This field has five (5) alphanumeric characters and identifies the NATO number of the manufacturer of the line item whose number appears as the manufacturer's reference number in Block 4 of the PPB worksheet at Figure 2. The codes are listed at the DLIS web site referred to in paragraph 2.1.

3.9.4.5.1 If the manufacturer's NCAGE code is not available, the contractor shall provide the full name and address of the manufacturer, cross-referred to the applicable Line Item Number, on a separate list which shall accompany the PD. In such a case, the NCAGE field should be left blank.

3.9.4.6 **Field 6, Original Equipment Manufacturer's (OEM's) Part Number.** This field has a maximum of 17 alphanumeric characters and is used to reflect the original equipment manufacturer's specification control drawing number, company standards number, part number or catalogue number assigned to the line item, if it is different from the original manufacturer's reference number as entered in Field 4. If there is no difference, this field may be left blank.

3.9.4.7 **Field 7, NATO Stock Number (NSN).** This field has 16 characters consisting of 13 numerics and three dashes or spaces, formatted thus: 9999-99-999-9999 or 9999 99 999 9999. If an NSN exists and is known to the contractor, it should be provided.

3.9.4.8 **Field 8, Quantity per Assembly (QPA).** This field has a maximum of four (4) numeric characters used to record the total number of times the line item is used in the next higher assembly.

3.9.4.9 **Field 9, Standard Unit Price.** This field has six (6) numeric characters and three (3) numeric characters used to record the unit price of a line item. Six (6) numeric characters are used for dollars ($) and three (3) numeric characters are used for cents (¢). Dollars must be right justified (e.g., 25 000 for $25., 1000 for $1., etc.). Three characters must be used for cents, 500 for 50¢, 050 for .05¢, etc. Decimal points, commas, dollar and cent signs are to be omitted. Prices exceeding $999 999.999 shall be displayed as 999999999.

3.9.4.9.1 The prices quoted are for budgetary purposes only and are not contractually binding. The contractor shall enter the best estimated unit price for each line item without regard to quantity per unit pack or minimum buy quantity.

3.9.4.10 **Field 10, Unit of Issue (UOI).** This field has two (2) alpha characters used to reflect the unit of issue code appropriate to each line item. The accepted units of issue and abbreviations are listed at Annex A of this specification.

3.9.4.11 **Field 11, Reparability (REP) Indicator.** This field has one (1) alpha character and applies to repairable items only. The contractor shall indicate by the letter R those items which are considered to be economically repairable. Otherwise, this field is left blank.

3.9.4.12 **Field 12, Government Supplied Materiel.** This field has one (1) alpha character. The contractor shall indicate by the letter G those items which have been/will be supplied as GSM (refer to paragraph 3.7). Otherwise, this field is left blank.

3.9.4.13 **Field 13, Procurement Lead Time (PLT).** This field has three (3) numeric characters used to record the interval (in days) between the time of order of a line item by DND to the time of receipt by DND. The field is right justified, e.g., 005 for five days, 050 for 50 days, etc.

3.9.4.14 **Field 14, Reference Designation.** The field has a maximum of 18 alphanumeric characters for electrical and electronic parts and equipments used to record the following:

(a) The reference designation for electrical and electronic parts and equipments as described in paragraphs 3.9.4.14.1 to 3.9.4.14.10 inclusive.

(b) Mechanical and other types of items or equipments. The contractor may indicate the volume, figure and index number of the publication (Illustrated Parts Book, Maintenance Manual) or the identifying number/symbol reflected in the SPTD. This cross-reference to technical manuals or publications is usually done by recording three alphanumeric groups of characters, separated by commas. As an example, if a basic part indexed No. 5 is illustrated at Figure 4A of the technical volume 2, the reference designation should be recorded as follows:

2,	4A,	5,
Volume No.	Figure No.	Index No.

Note: The sum of alphanumeric characters and commas shall not exceed the 18 character field length.

3.9.4.14.1 Reference designations (reference symbol numbers) used for electrical and electronic parts and equipments are letters or numbers, or both, which uniquely identify discrete items on drawings, diagrams, parts lists and other publications or instructions. They also provide a means of physically locating the parts and divisions of an equipment or assembly, thus facilitating the repair and maintenance of complex electrical and electronic items.

3.9.4.14.2 A reference designation is not a letter symbol, abbreviation or a functional designation for an item. It does not replace other identification numbers such as drawing, part, type or stock number.

3.9.4.14.3 The following four (4) methods of forming and applying reference designations are acceptable:

(a) Unit (Component) Numbering Method;

(b) Location Numbering Method;

(c) Location Coding Method; and

(d) Block Numbering Method.

3.9.4.14.4 The Unit (Component) Numbering Method is preferred by DND because it is more flexible, is universally acceptable and has proven to have significant advantages over the other methods, especially for equipments of new design. A detailed description of this method is provided in paragraphs 3.9.4.14.5 to 3.9.4.14.10 inclusive. A typical example is also provided in Figure 6.

3.9.4.14.5 The contractor shall first assign a number to each unit (component) of a set. Numbers are always assigned sequentially starting with one (1) and shall not be reused even though a unit has been deleted.

3.9.4.14.6 If the unit (component) has assembly(ies) and subassembly(ies), each assembly and each subassembly shall be assigned a letter and a number. The assembly shall have the unit number as its first character, the subassembly shall have the assembly's numbers as its first characters, and so on.

UNIT	ASSEMBLY	SUBASSEMBLY
1	1A1	1A1A1

Note: The combination of letters and numbers shall identify the relationship between a subassembly and its assembly. Numbers are assigned sequentially.

3.9.4.14.7 If the assembly/subassembly has basic part(s), each basic part shall be given a class letter(s) selected from Section 22 of the Standard ANSI/IEEE 315-1975. The class letter(s) shall be followed by a number to differentiate the basic part from all other parts identified in the same class letter(s). Numbers are assigned sequentially.

3.9.4.14.8 If the reference designation number exceeds the 18 character field length, the contractor shall complete the reference designation field for a line item to a logical break-point and shall repeat the same line item immediately following the first entry in order to accommodate the excess characters, e.g., an assembly drawing reflects reference designation 1A1R2, 6, 9, 11, 12, 13, 14, 15, 20-23 for a resistor listed as Item Number 026800. The reference designation number for the first appearance, Identification Number 026800 should read 1A1R2, 6, 9, 11, 12, 13, 14, 15 which is a logical break-point, followed by a second appearance, Identification Number 026900, whose reference designation number should read 1A1R20-23. The Quantity per Assembly (QPA) for each line item should reflect only the number of reference designations on that line (e.g., 1A1R2, 6, 9, 11, 12, 13, 14, 15 equals a QPA of 8, 1A1R20-23 a QPA of 4).

3.9.4.14.9 When recording a reference designation number for a line item, the contractor shall ensure the number of reference designations agree with the Quantity per Assembly (QPA) in Field 8, e.g., if the reference designator is 1A3B1R1-R5, the QPA should read 5.

3.9.4.14.10 There are a number of exceptions to the Unit Numbering Method outlined in paragraphs 3.9.4.14.5 to 3.9.4.14.9. The contractor shall therefore refer to the Standard ANSI/IEEE 315-1975 (see Section 2) whenever reference designation numbers (reference symbol numbers) for electrical and electronic parts and equipments are required.

3.9.4.15 **Field 15, Shelf Life (SL).** This field has two (2) numeric characters used to record shelf life duration, in months, e.g., 06 for six months, 18 for eighteen months. If no shelf life applies, this field is left blank.

3.9.4.16 **Field 16, Usage Rate.** This field has five (5) numeric characters for repairable items and is optional for non-repairable items. It is used to reflect the Mean-Time Between Failure (MTBF) rate for items which are only replaced when they become unserviceable or Mean Time Between Removals (MTBR) for items which are subject to scheduled removals. These rates are normally expressed in hours, e.g., 99000, 00400, to a maximum of 99999, but may also be recorded in kilometers or miles for vehicular components. In instances where the contractor does not provide the usage rate in hours, the convention used, such as kilometers, rounds, etc. must be indicated to DND.

3.9.4.17 **Field 17, Buy Quantity.** This field has eight (8) numeric characters and is used to record the quantities of a line item that the contractor recommends be procured to support the end item for a 24-month period.

3.9.4.18 **Field 18, Source, Maintenance and Recoverability (SMR) Code.** SMR codes are a series of alpha symbols used at the time of provisioning to indicate the source of supply of an item, its maintenance implications and recoverability characteristics.

3.9.4.19 **Field 19, Demilitarization Code (DMC).** This field has one (1) alpha character code employed by the countries to identify each item requiring demilitarization and the type of demilitarization required. The list of codes are contained in Annex B to this specification.

4. QUALITY ASSURANCE PROVISIONS

N/A.

5. PACKAGING

N/A.

6. NOTES

6.1 **Definitions.** For the purpose of this specification, the following definitions apply.

6.1.1 **Assembly.** An item forming a portion of an equipment, that can be provisioned and replaced as an entity and which normally incorporates replaceable parts or groups of parts.

Note: The distinction between an assembly and a subassembly is determined by the individual application. An assembly in one instance may be a subassembly in another where it forms a portion of an assembly.

6.1.2 **Attaching part.** An attaching part is an item used to attach assemblies or parts of an equipment to each other.

6.1.3 **Character.** Characters may be letters, digits, punctuation marks or other symbols that are used for the control or representation of data.

6.1.4 **Component.** A part or combination of parts, having a specified function, which can only be installed or replaced as a whole.

6.1.5 **Configuration.** The functional and/or physical characteristics of hardware/software as set forth in technical documentation and achieved in a product.

6.1.6 **Contract.** A contract is a deliberate engagement, recognised by law, between competent parties upon a legal consideration to do or abstain from doing some act.

6.1.7 **Data element.** A unique collection of data items grouped together on the basis of a single, shared or common functional attribute.

6.1.8 **Data field.** A data field is a specified area used for a particular category of data.

6.1.9 **End item.** An end item is a final combination of end products, component parts and/or materiel which is ready for its intended use, e.g., rifle, recorder, ship tank, mobile machine shop or aircraft.

6.1.10 **Equipment.** Equipment is defined as a combination of parts, assemblies or subassemblies forming a particular article within itself and capable of performing an operational function.

6.1.11 **Family tree.** A family tree is a pictorial hierarchical depiction of an equipment which displays its make-up in terms of components, assemblies and subassemblies, etc. (see Figure 4).

6.1.12 **Functional designation.** Functional designation is defined as words, abbreviations or meaningful number or letter combinations, usually derived from the function of an item, e.g., slew, yaw. It is used on drawings, instructional materiel and equipment to identify an item in terms of its function.

6.1.13 **Group.** A group is a collection of components (units), assemblies or subassemblies which is not capable of performing a complete operational function. A group may be a subdivision of a system or may be designed to be added to or used in conjunction with a system to extend the function or the utility of the system, e.g., antenna group, indicator group.

6.1.14 **Indention (IND).** IND is an alpha character which illustrates a lateral and descending family tree relationship of each line item to and within the end item and its components, assemblies, subassemblies and sub-subassemblies.

6.1.15 **Item name basic.** The item name basic is the noun name of an item as listed in manufacturer's drawings, specifications or catalogue.

6.1.16 **Level 2 engineering drawings.** Drawings prepared to this level shall disclose directly or by reference a design approach suitable to support the manufacture of a production prototype and limited production models.

6.1.16.1 These engineering drawings shall include, as applicable, parts lists, detail and assembly drawings, interface control data, diagrams, performance characteristics, critical manufacturing limits and details of new materiel and processes. Special inspection and test requirements necessary to determine compliance with requirements for the item shall be defined on the engineering drawings or referenced to a document acceptable to DND.

6.1.17 **Level 3 engineering drawings.** Drawings prepared to this level shall provide engineering definition sufficiently complete to enable a competent manufacturer to produce and maintain quality control of item(s) to the degree that physical and performance characteristics interchangeable with those of the original design are obtained without resorting to additional product design effort, additional design data or recourse to the original Design Authority. These engineering drawings shall:

(a) reflect the end product;

(b) provide the engineering data for the support of quantity production; and

(c) provide, in conjunction with other related procurement data, the necessary data to permit competitive procurement of items substantially identical to the original item(s).

6.1.17.1 These engineering drawings shall include: details of unique processes when essential to design and manufacture; details of performance ratings; dimensional and tolerance data; critical manufacturing assembly sequences; tolerance input and output parameters; diagrams; mechanical and electrical connections; physical characteristics, including form and finish; details of materiel identification, inspection, test and evaluation criteria; necessary calibration information; and quality control data.

6.1.18 **Life cycle.** Life cycle is the sequence of events comprising conception or selection, design and specification development, purchasing, manufacturing, delivery, warehousing, maintenance, repair and overhaul, use and disposal of an equipment or a system.

6.1.19 **Line item.** A line item is a valid entry in a record for the purpose of separate identification.

6.1.20 **Manufacturer's Reference Number (MRN).** MRN is a primary identifier comprised of an undetermined number of alphanumeric characters, assigned to an item of production by a manufacturer which controls the design, characteristics and production of the item by means of its engineering drawings, specifications and inspection requirements.

6.1.21 **Military Standard (MIL STD).** MIL STD is a US military term used to categorise a specification which has become a standard for use throughout all US military forces.

6.1.22 **NATO Stock Number (NSN).** A 13 digit number, e.g., 5305-21-111-3333, broken down as follows:

(a) Digits 1-4, e.g., 5305 is the NATO supply classification consisting of Group 53 (which covers all items of hardware) followed by the class within the Group 05 (screws) 06 (bolts), etc., the whole being known as the Supply Class.

(b) Digits 5-6, e.g., 00 US, 21 Canada, 14 France, 99 UK, etc.

(c) Digits 7-13, e.g., 111-3333 the National Item Identification Number, non-significant, but sequentially assigned by each National Codification Bureau to a unique item of supply.

(d) Digits 5-13, e.g., 21-111-3333 the NATO Item Identification Number including both the NATO Code of the National Codification Bureau and its item identification number. This 9-digit number remains with the item throughout its life even though the NATO supply classification may change as a result of reclassification and consequent conversion of stock numbers, e.g., 5305-21-111-2222 converted to 2805-21-111-2222.

6.1.23 **Part.** An item forming part of an assembly of subassembly, which is not normally further broken down.

6.1.24 **Part number.** A part number is any number used to identify an item of production, or used by itself or in conjunction with other reference numbers to identify an item of supply. Reference numbers include manufacturer's part, drawing, model, type or source controlling numbers; manufacturer's trade name; specification or standard numbers and specification or standard part, drawing or type numbers.

6.1.25 **Prime contractor.** The prime contractor is the supplier of the end item and associated support items to DND under the terms of a specific contract.

6.1.26 **Proposal.** The proposal is a tender, bid or offer which may be either unsolicited or submitted in response to an invitation from a contracting authority.

6.1.27 **Provisioning.** The process of determining requirements and initiating procurement.

6.1.28 **Shelf Life (SL).** The length of time during which an item of supply, subject to deterioration or having a limited life which cannot be renewed is considered serviceable while stored.

6.1.29 **Statement of Work (SOW).** A document forming a part of the contract demand/requisition and/or contract which describes and identifies in unequivocal terms every aspect of all the work that must be performed to satisfy the particular requirement.

6.1.30 **Subassembly.** A portion of an assembly, consisting of two or more parts, that can be provisioned and replaced as an entity.

6.1.31 **Subcontractor.** A party who contracts with a prime contractor to perform all or any part of the prime contractor's obligation in a particular prime contract.

6.1.32 **Support items.** Support items are items associated with an end item, e.g., parts, tools, test equipment and sundry materiel, which are required to operate, repair or overhaul an end item.

6.1.33 **Tender.** A tender is a proposal, bid or offer that is submitted in response to an invitation from a contracting authority.

6.1.34 **Unit.** An assembly or any combination of parts, assemblies and subassemblies mounted together normally capable of independent operation in a variety of situations.

6.1.35 **Vendor.** A vendor is a manufacturer or supplier of a component, assembly or part which will be incorporated by the contractor into the end item exactly as procured.

6.1.36 **Vendor item.** A vendor item is an item which is used in or attached to the end item produced by the contractor and is procured by the contractor on the open market or from established sources and for which the contractor is not the Design Authority.

6.2 **Abbreviations/Acronyms.** The following abbreviations/acronyms apply:

(a) ANSI American National Standard Identification
(b) BPI Bytes per Inch
(c) CSA Canadian Standards Association
(d) DND Department of National Defence (Canada)
(e) DoD Department of Defence (US)
(f) DTICS Directorate of Technical Information and Codification Services
(g) EDP Electronic Data Processing
(h) GSCS Government Supply Classification System
(i) GSM Government Supplied Materiel
(j) IND Indention Code
(k) ISL Interim Spares List
(l) LLTIL Long Lead Time Item List
(m) MIL STD Military Standard
(n) MRN Manufacturer's Reference Number
(o) MTBF Mean Time Between Failure
(p) MTBR Mean Time Between Removal
(q) NATO North Atlantic Treaty Organization
(r) NCAGE NATO Commercial and Government Entity
(s) NSN NATO Stock Number
(t) OEM Original Equipment Manufacturer
(u) PDSS Procurement Documentation Selection Sheet
(v) PPB Provisioning Parts Breakdown
(w) PLT Procurement Lead Time

(x) QPA Quantity per Assembly
(y) REP Reparability Indicator
(z) RSPL Recommended Spare Parts List
(aa) SL Shelf Life
(ab) SMR Source, Maintenance and Recoverability
(ac) SOW Statement of Work
(ad) SPTD Supplementary Provisioning Technical Documentation
(ae) UOI Unit of Issue
(af) US United States

6.3 **Technical interpretation of this specification.** NDHQ/Directorate of Technical Information and Codification Services (DTICS) is the final authority for the technical interpretation of this specification. Questions or queries should be addressed to:

National Defence Headquarters
Attention: DTICS
Mgen George R. Pearkes Building
Ottawa, Ontario, Canada, K1A 0K2

Attention: DTICS

Line	Location of Field	Field Name	Field Length
1	1-6	Item Number	6
1	7	Indention Code	1
1	8-26	Item Name Basic	19
1	27-57	Manufacturer's Reference Number (MRN)	31
1	58-62	NATO Commercial and Government Entity (NCAGE) Code	5
1	63-79	OEM's Part Number	17
1	80	Line Number – Value "1"	1
2	1-6	Item Number	6
2	7-10	Filler	4
2	11-26	NATO Stock Number (with dashes or spaces)	16
2	27-30	Quantity per Assembly	4
2	31-38	Filler	8
2	39-47	Standard Unit Price	9 (6, 3)
2	48-49	Unit of Issue (UOI)	2
2	50	Reparability Indicator (REP)	1
2	51	Government Supplied Materiel (GSM)	1
2	52-54	Procurement Lead Time (PLT)	3
2	55-72	Reference Designation	18
2	73-74	Shelf Life (SL)	2
2	75-79	Usage Rate	5
2	80	Line Number – Value "2"	1
3	1-6	Item Number	6
3	7-53	Filler	47
3	54-61	Buy Quantity	8
3	62-79	Filler	18
3	80	Line Number – Value "3"	1
4	1-6	Item Number	6
4	7-22	Filler	16
4	23	Demilitarization Code (DMC)	1
4	24-79	Filler	56
4	80	Line Number – Value "4"	1
5	1-6	Item Number	6
5	7-16	Filler	10
5	17-26	Source, Maintenance and Recoverability (SMR) Code	10
5	27-79	Filler	53
5	80	Line Number – Value "5"	1

Figure 1 Provisioning Parts Breakdown Line Item Field Structure

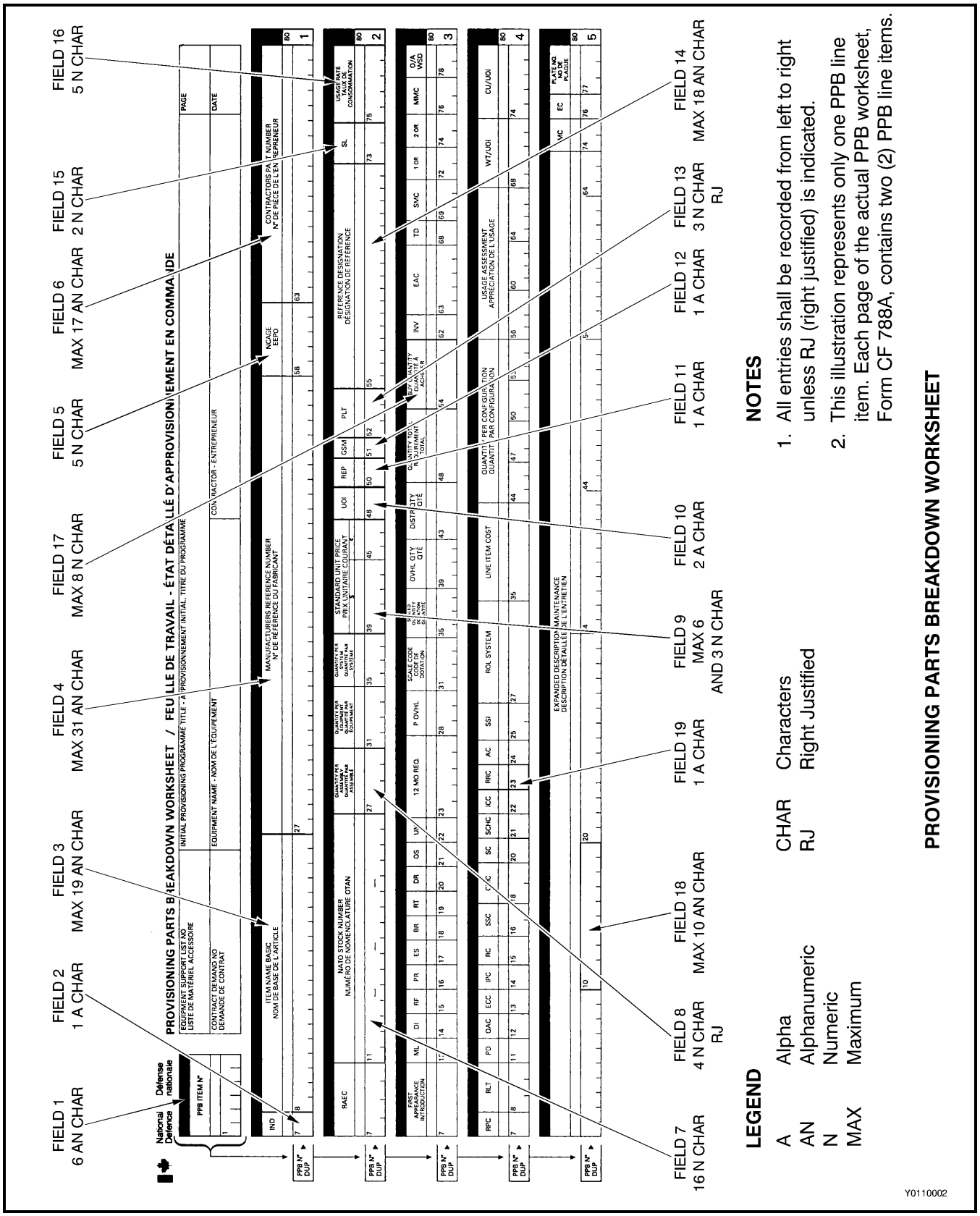


Figure 2 Provisioning Parts Breakdown Worksheet

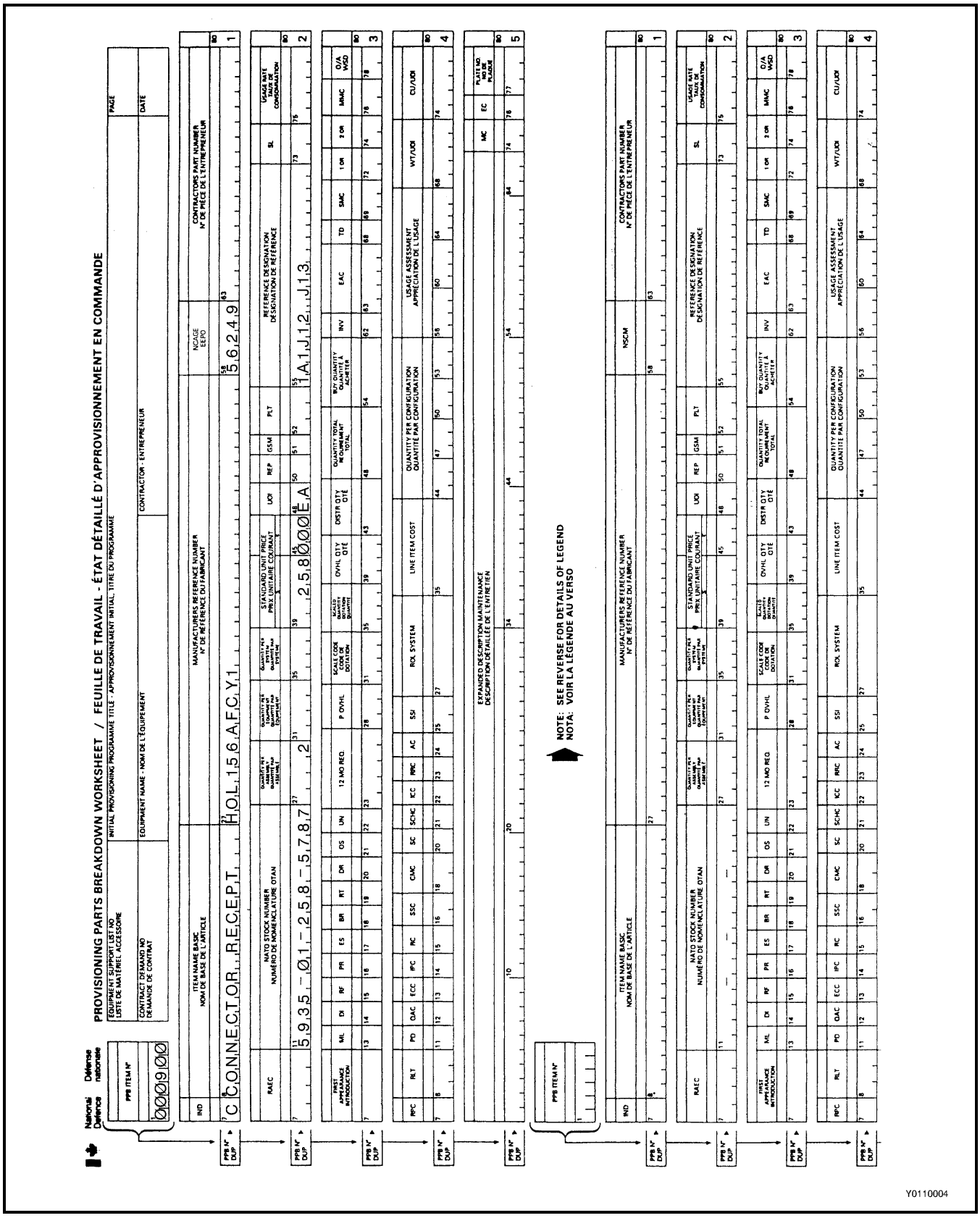
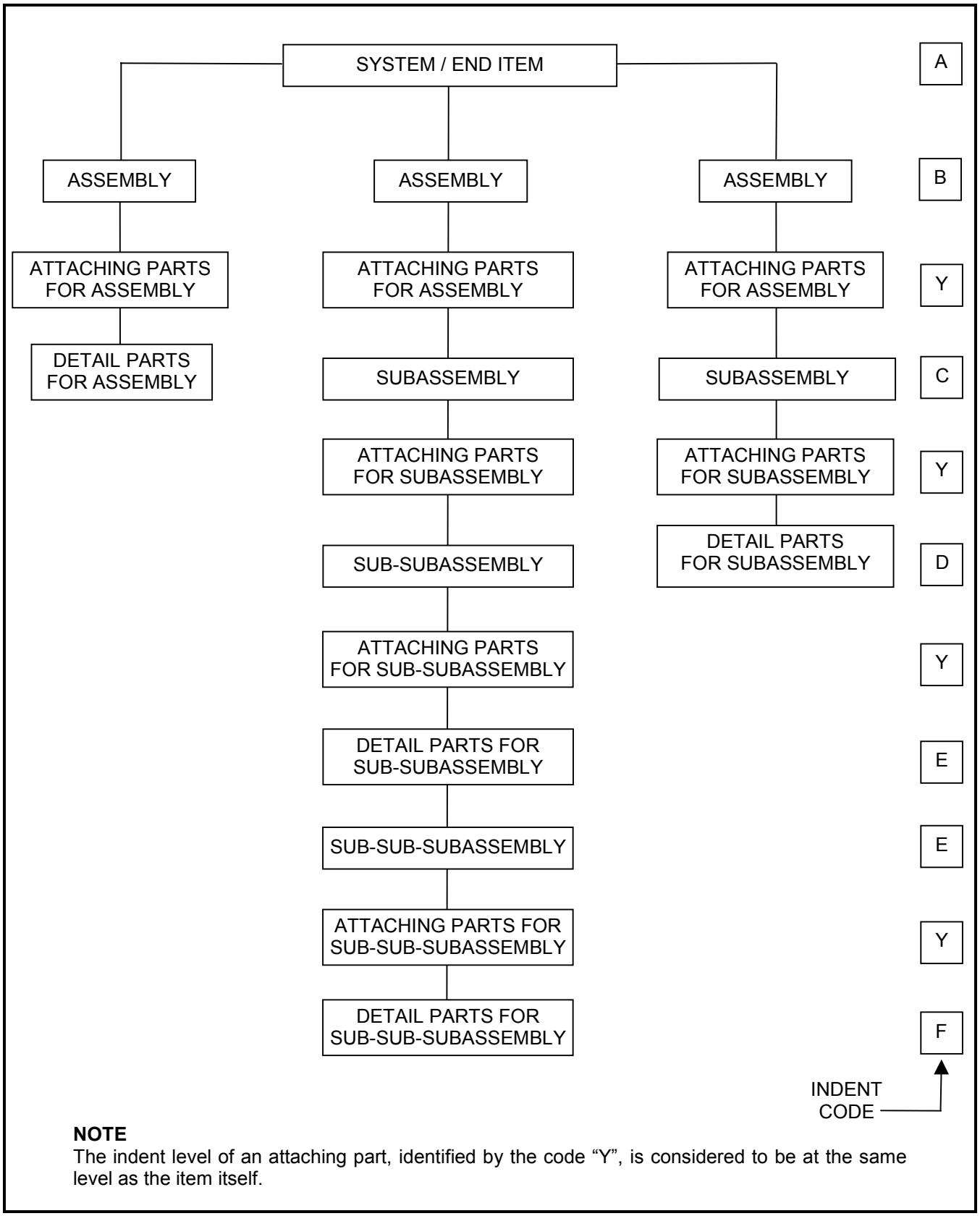


Figure 3 Provisioning Parts Breakdown Worksheet Example



NOTE
The indent level of an attaching part, identified by the code “Y”, is considered to be at the same level as the item itself.

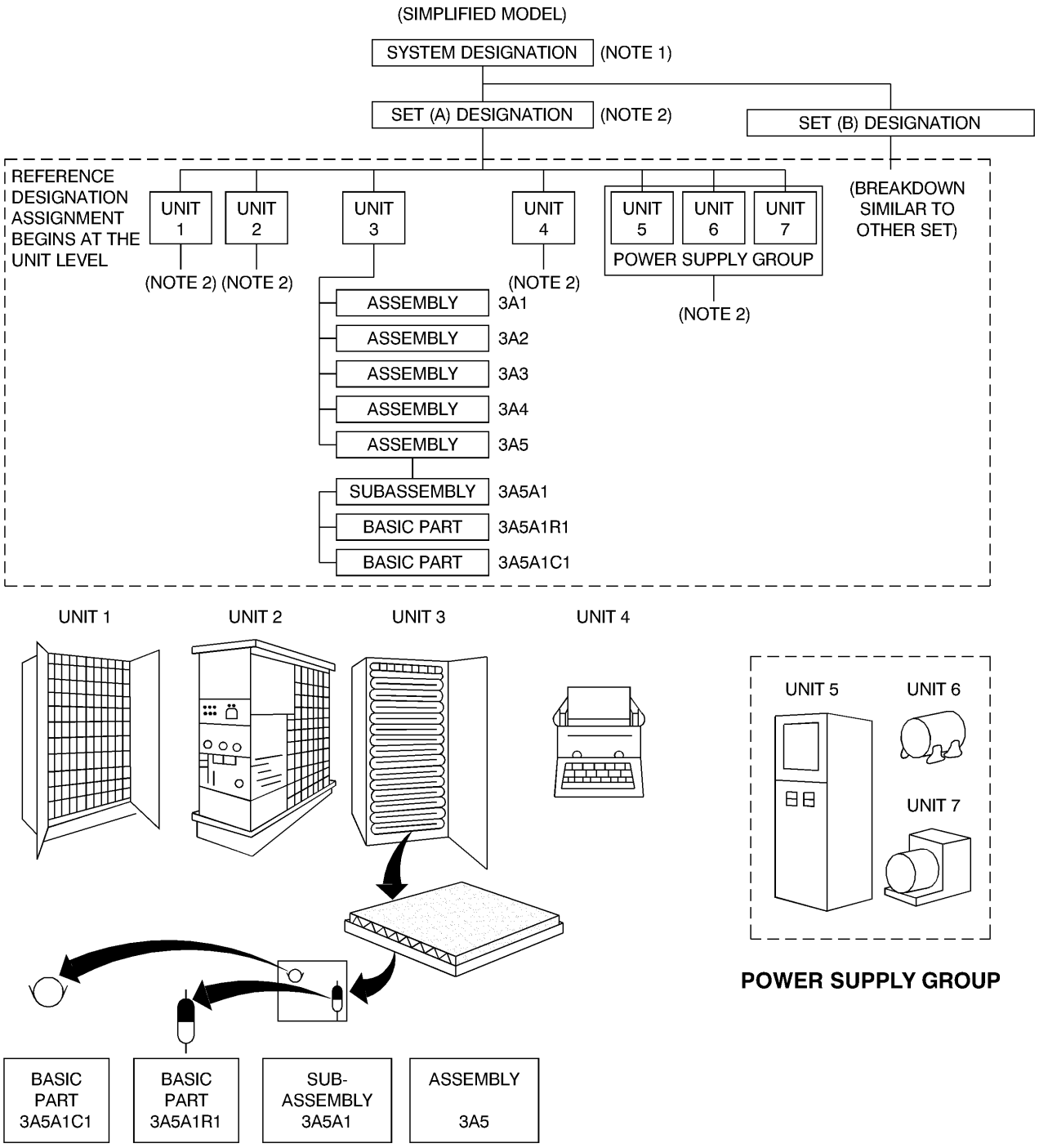
Figure 4 Top Down Breakdown Family Tree Relationship

Provisioning Documentation Selection Sheet		Documents and data to be supplied by the contractor are indicated below			
		PPB	**RSPL**	**LLTIL**	**ISL**
Characters	**Data Fields Required**				
1-6	Item Number	M	M	M	M
7	Indention Code	M	O	O	O
8-26	Item Name Basic	M	M	M	M
27-57	Manufacturers Reference Number (MRN)	M	M	M	M
58-62	NCAGE Code	M	M	M	M
63-79	OEM's Part Number	M*	M*	M*	M*
80-92	NATO Stock Number (NSN)	M*	M*	M*	M*
93-96	Quantity per Assembly	M	M	M	M
97-105	Standard Unit Price	M	M	M	M
106-107	Unit of Issue (UOI)	M	M	M	M
108	Reparability Indicator (REP)	M*	M*	M*	M*
109	Government Supplied Materiel (GSM)	M*	M*	M*	M*
110-112	Procurement Lead Time (PLT)	M	M	M	M
113-137	Reference Designation	M*	M*	M*	M*
138-140	Shelf Life (SL)	M*	M*	M*	M*
141-145	Usage Rate	M*	M*	M*	M*
146-153	Recommended Buy Quantity	NR	M	M	M
154-159	Source, Maintenance and Recoverability (SMR) Code	M*	M*	M*	M*
160-177	Logistics Control Number (LCN)	M*	M*	M*	M*
178-180	Used-on Code	M*	M*	M*	M*

LEGEND

M	Mandatory (field must be completed by contractor)
M*	Mandatory when known (field must be completed by contractor when the contractor is in possession of the necessary information and is left blank when not available)
O	Optional (field to be completed at contractor's option)
NR	Not Required

Figure 5 Provisioning Documentation Selection Sheet



NOTES

1. If reference designations are used to identify systems, sets or groups, an explanation of the method used shall be furnished with the technical data supplied.
2. Further breakdowns not illustrated for simplicity purposes.

Figure 6 Illustration of Reference Designation Using the Unit Numbering Method

Annex A Unit of Issue (UOI)					
Code	**Unit of Issue**	**Code**	**Unit of Issue**	**Code**	**Unit of Issue**
AM	Ampoule	FM	Fathom	PZ	Packet
AT	Assortment	FT	Foot	QI	Quart, Imperial
AY	Assembly	FV	Five of an Item	QT	Quart, US
BA	Ball	FY	Fifty of an Item	RA	Ration
BD	Bundle	GB	Gallon, Imperial	RM	Ream
BE	Bale	GL	Gallon, US	RO	Roll
BF	Board Feet	GM	Gram	SC	Square Centimetre
BG	Bag	GN	Grain	SD	Skid
BK	Book	GP	Group	SE	Set
BL	Barrel	GR	Gross	SF	Square Foot
BM	Bushel, Imperial	HD	Hundred	SH	Sheet
BO	Bolt	HI	Hundredweight, Imperial	SI	Square Inch
BR	Bar	HK	Hank	SK	Skein
BT	Bottle	IN	Inch	SL	Spool
BX	Box	JR	Jar	SM	Square Meter
CA	Cartridge	KG	Kilogram	SO	Shot
CB	Carboy	KM	Kilometre	SP	Strip
CC	Cubic Centimetre	KT	Kit	ST	Short Ton
CD	Cubic Yard	LB	Pound	SX	Stick
CE	Cone	LG	Length	SY	Square Yard
CF	Cubic Foot	LI	Litre	TD	Twenty-four of an Item
CG	Centigram	LT	Long Ton	TE	Ten of an Item
CI	Cubic Inch	MC	Microgram	TF	Twenty-five of an Item
CK	Cake	ME	Meal	TI	Tin
CL	Coil	MG	Milligram	TM	Ton, Metric
CM	Centimetre	ML	Millilitre	TN	Ton (2000 lb)
CN	Can	MM	Millimetre	TO	Troy Ounce
CO	Container	MR	Metre	TS	Thirty-six of an Item
CY	Cylinder	MX	Thousand	TU	Tube
CZ	Cubic Metre	OT	Outfit	VI	Vial (or Phial)
DC	Decagram	OZ	Ounce	YD	Yard
DE	Decimetre	PD	Pad		
DG	Decigram	PG	Package		
DL	Decilitre	PI	Pint, Imperial		
DR	Drum	PM	Plate		
DZ	Dozen	PR	Pair		
EA	Each	PT	Pint, US		

Annex B

Demilitarization Code (DMC)

Note: A code employed by the countries to identify each item requiring demilitarization and the type of demilitarization required.

Code	Explanation
A	Demilitarization not required.
B	Demilitarization not required. Trade Security Controls (TSC) required at disposition.
C	Remove and/or demilitarize installed key point(s) eventually as prescribed in national demilitarization manuals (see below), or lethal parts, components and accessories.
D	Demilitarize by mutilation (total destruction of item and components) by melting, cutting, tearing, scratching, crushing, breaking, punching, neutralising, etc. (as in alternate, burial and deep-water dumping may be used when authorized by DoD or National Demilitarization Program Office).
E	Demilitarization to be furnished by DoD or National Demilitarization Program Office.
F	Demilitarization instructions to be furnished by item/technical manager.
G	Demilitarization required prior to transfer of item to national reutilization and disposition offices. Code normally limited to ammunition, explosives and other dangerous articles.
P	Security Classified Item – Declassification and any other required demilitarization, and removal of any sensitive markings or information, will be accomplished prior to accountability or physical transfer to a DRMO. This code will not be assigned to ammunition. Explosives and dangerous (AEDA) articles.
Q	Demilitarization not required. SLI are non-MLI and are identified and licensed by the US Department of Commerce through the Export Administration Regulations (EAR), 15 CFR, and indicated on the Commerce Control List (CCL), Part 799.1. Each CCL entry is preceded by a 5-digit Export Control Classification Number (ECCN) and those ECCNs ending in the letter “A” or “B” are defined by DoD as SLI. These items are subject to Import Certification and Delivery Verification (IC/DV) control and other Trade Security Controls at disposition.
R	Demilitarization in accordance with item specific instructions, e.g., Ammunition Orders, Technical Orders, Manuals, Publications.
Y	Demilitarization in accordance with special instructions for Crypto materiel.

National Defence | Défense nationale

D-LM-008-002/SF-001
1991-08-01
SUPERSEDES/REMPLACE
D-LM-008-002/SF-001
1987-09-30

SPECIFICATION FOR MARKING FOR STORAGE AND SHIPMENT

SPÉCIFICATION POUR MARQUAGE DES ARTICLES À ENTREPOSER OU À EXPÉDIER

1. SCOPE

1.1 **Scope.** This specification covers the requirements of the Canadian Forces for the uniform marking for storage and shipment of all military supplies and equipment except petroleum products, explosives, and items of subsistence. It supplements but does not supersede any markings contained in commodity specifications or required by regulations governing carriers. Exterior colour, code or other markings not contained herein shall be as specified in packaging specifications or contract.

1.2 **Marking.** Marking in accordance with U.S. Military Standard MIL-STD-129 for items marked in the United States, or in accordance with U.K. Ministry of Defence Specification DEF 1234 for items marked in the United Kingdom, is acceptable in lieu of the requirements of this specification provided that the full NATO stock number, including country of origin of the stock number is used. However, marking in accordance with this specification is acceptable, irrespective of country of origin.

1. PORTÉE

1.1 **Portée.** Cette norme présente les exigences des Forces canadiennes en ce qui a trait au marquage des fournitures et du matériel militaires qui doivent être entreposés ou expédiés, exception faite des produits pétroliers, des explosifs et des vivres. Les marques prescrites ici s'ajoutent à celles que prévoient les spécifications des produits ou les règlements de transport; elles ne s'y substituent pas. Les couleurs extérieures, les codes ou les autres marques non décrits ici seront conformes aux normes d'emballage ou aux dispositions du contrat.

1.2 **Marquage.** Les marques faites aux États-Unis en conformité avec la norme militaire américaine MIL-STD-129 et les marques faites au Royaume-Uni en conformité avec la norme DEF 1234 du ministère de la Défense du Royaume-Uni pourront être acceptées pourvu que le numéro de nomenclature OTAN soit indiqué au long, pays d'origine compris. Les marques prévues ici sont cependant partout acceptables, quel que soit le pays d'origine des articles.

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1.2.1 **Unauthorized markings.** No markings, other than those specified or permitted in this specification, shall be placed on any container unless authorization is obtained from the Quality Assurance/Inspection Authority designated on the contract. Unauthorized markings may be obliterated using paint conforming to Canadian Government Specifications Board (CGSB) Specification 1.47-M89.

1.2.1 **Marques non autorisées.** À moins d'autorisation expresse des instances d'inspection désignées au contrat, nulle autre marque que celles que prévoit ou autorise cette norme ne doit figurer sur un contenant. Les marques non autorisées peuvent être masquées avec une peinture conforme à la norme 1.47-M89 de l'Office des normes générales du Canada (ONGC).

1.2.2 **Standard symbology for bar coding.** Appendix 3 outlines the requirements for bar coding.

1.2.2 **Codes à bâtonnets standard.** Les exigences relatives aux codes à bâtonnets sont présentées à l'appendice 3.

1.2.3 **Dangerous goods.** Interior packages and shipping containers enclosing materials defined as dangerous goods in accordance with the Transportation of Dangerous Goods Act, the Transportation of Dangerous Goods Regulations, Part 1 and/or the Hazardous Products Act, shall be marked in accordance with these acts and regulations.

1.2.3 **Marchandises dangereuses.** Les contenants intérieurs et les contenants d'expédition qui renferment des marchandises dangereuses, au sens qu'en donnent la Loi sur le transport des marchandises dangereuses, le Règlement sur le transport des marchandises dangereuses et la Loi sur les produits dangereux, doivent être marqués en conformité avec les dispositions de ces textes législatifs.

1.2.4 **Classified material.** Marking shall be as specified on the contract when classified material is being shipped.

1.2.4 **Matériel classifié.** Les contenants d'expédition du matériel classifié doivent être marqués conformément aux dispositions des contrats.

1.3 **Abbreviations.** Abbreviations authorized for use in this specification are listed in Appendix 1.

1.3 **Abréviations.** Les abréviations autorisées en vertu de cette norme sont présentées à l'appendice 1.

1.4 **Materials**

1.4 **Matériaux**

1.4.1 **Supplementary specifications.** Any material or method used in connection with this specification shall conform to the requirements of the relevant specification for the material or method as listed in applicable documents. Specifications or information about these materials may be obtained from the Quality Assurance/Inspection Authority.

1.4.1 **Autres normes.** Les matériaux ou les méthodes utilisés dans l'application des exigences de cette norme doivent être conformes aux normes données dans les documents utiles. On pourra obtenir ces normes ainsi que des renseignements sur les matériaux utilisés auprès des instances d'inspection.

1.4.2 **Non-specification materials.** Any material may be used when permitted by the Quality Assurance/Inspection Authority designated on the contract.

1.4.2 **Matériaux ne faisant pas l'objet de normes.** Les matériaux peuvent tous être utilisés, pourvu qu'ils aient été autorisés par les instances d'inspection désignées au contrat.

2. APPLICABLE DOCUMENTS

2. DOCUMENTS PERTINENTS

2.1 **Applicable documents.** The following documents form part of this specification to the extent specified herein.

2.1 **Documents pertinents.** Les documents suivants font partie de la présente description dans la mesure indiquée dans les présentes.

SPECIFICATIONS AND STANDARDS

D-LM-008-001/SF-001	Methods of Packaging
MIL-STD-129	Marking for Shipment and Storage
FED-STD-123	Marking for Domestic Shipment (Civil Agencies)

2.2 **Government documents**

Transportation of Dangerous Goods Act and Transport of Dangerous Goods Regulations, Part 1

Hazardous Products Act

A-A-208	Ink, Marking, Stencil Opaque
A-A-1588	Paint, Stencil
MMM-A-179	Adhesive, Label, Paper
TT-L-26	Lacquer, Clear, Interior and Exterior
49CFR	Code of Federal Regulations (Transportation)

Copies of this specification and the above documents may be obtained from the Department of National Defence, Ottawa, Ontario, K1A 0K2, Attention: DPGS 3-6.

2.3 **Other publications.** The following documents form part of this specification to the extent specified herein.

Canadian Standards Association,
178 Rexdale Boulevard,
Rexdale, Ontario, M9W 1R3

CAN/CGSB-1.47-M89	Paint, Obliterating
1-GP-71	Methods of Testing Paints and Pigments

SPÉCIFICATIONS ET NORMES

D-LM-008-001/SF-001	Méthodes d'emballage
MIL-STD-129	Marquage des articles à expédier ou à entreposer
FED-STD-123	Marquage à des fins de transport intérieur (organismes civils)

2.2 **Documents du gouvernement**

Loi sur le transport des marchandises dangereuses et règlement sur le transport des marchandises dangereuses

Loi sur les produits dangereux

A-A-208	Encre opaque de marquage au pochoir
A-A-1588	Peinture à pochoir
MMM-A-179	Étiquettes de papier adhésives
TT-L-26	Laque, clair, intérieur et extérieur
49CFR	Code de la législation fédérale (transports)

On peut obtenir des copies de la présente description ainsi que les documents cités ci-dessus auprès du ministère de la Défense nationale, Ottawa (Ontario) K1A 0K2, à l'attention de: DSEG 3-6.

2.3 **Autres publications.** Les documents suivants font partie de la présente description dans la mesure indiquée dans les présentes.

Canadian Standards Association,
178 Rexdale Boulevard,
Rexdale, Ontario, M9W 1R3

CAN/ONGC-1.47-M89	Peinture de masquage
1-GP-71	Méthodes d'essai des peintures et des pigments

6.15M	Tags Shipping/Identification	6.15M	Étiquettes volantes d'expédition et d'identification
43-GP-3	Tape, Adhesive, Pressure Sensitive, Water Resistant	43-GP-3	Ruban autocollant imperméable

3. REQUIREMENTS

3.1 Methods of marking

3.2 **Bar code.** Markings in the standard bar code symbology, as described at Appendix 3, shall be applied to unit, intermediate and shipping containers, where required by container marking requirements of this specification.

3.3 Legibility

3.3.1 All markings shall be as large as possible, consistent with the space available, but lettering shall not be over 76 mm (3.0 in.) in height.

3.3.2 Marking shall be accomplished by the use of labels, stamping, stencilling, mechanical printing, typing, or tagging, dependent upon the size of space available.

3.3.3 Lettering shall be applied by stencilling, mechanical printing or typing, dependent upon the size of space available.

3.3.4 When authorized, hand printing in capital letters may be permitted provided that the lettering is uniform and legible.

3.3.5 Printing inks and dyes shall be fade resistant. Markings applied by means of printing inks and dyes shall be clearly legible after 48-hours exposure in a weatherometer, in accordance with Method 122.2 of Specification 1-GP-71.

3.3.6 Colour of markings shall be black except that on surfaces where black is not legible, the colour shall be one which provides a definite contrast. Yellow or white lettering shall be applied over lustreless olive drab colour on metal drums.

3. EXIGENCES

3.1 Méthodes de marquage

3.2 **Code à bàtonnets.** Quand cette norme l'exige, les contenants unitaires, les contenants intermédiaires et les contenants d'expédition doivent porter un code à bâtonnets standard conforme à la description qui en est donnée à l'appendice 3.

3.3 Lisibilité

3.3.1 Les marques doivent être aussi grandes que possible, compte tenu de l'espace disponible. Les lettres ne doivent cependant pas faire plus de 76 mm (3 po) de hauteur.

3.3.2 Le marquage doit se faire à l'aide d'étiquettes ou de timbres, au pochoir, par impression mécanique ou à la machine à écrire, compte tenu de l'espace disponible.

3.3.3 Le lettrage doit se faire au pochoir, par impression mécanique ou à la machine à écrire, compte tenu de l'espace disponible.

3.3.4 On pourra également tracer des lettres majuscules à la main pourvu qu'elles soient uniformes et lisibles et qu'on en ait obtenu l'autorisation.

3.3.5 Les teintures et les encres d'imprimerie doivent résister à la lumière. Les marques faites avec des teintures et des encres d'imprimerie doivent être clairement lisibles après avoir été traitées pendant 48 heures avec un appareil d'exposition aux agents atmosphériques, conformément à la méthode 122.2 de la norme 1-GP-71.

3.3.6 Les marques doivent être de couleur noire, sauf sur les surfaces où le noir ne serait pas lisible, auquel cas on choisira des couleurs contrastées. Sur les barils de métal, le lettrage sera jaune ou blanc, sur fond gris olivâtre mat.

3.3.7 Printing may be utilized at the option of the contractor. Printed markings may be applied on all interior and exterior containers.

3.3.8 Old markings which are not applicable may be obliterated using paint conforming to CAN/CGSB-1.47-M89.

3.4 **Labels**

3.4.1 Markings shall be applied to the label by machine printing, typing or stencilling. Carbon paper impressions will not be permitted.

3.4.2 Labels shall be secured by means of water resistant adhesive conforming to MMM-A-179. Pressure-sensitive labels may be used on containers other than wood.

3.4.3 When labels are secured to scrim-backed materials by means of pressure-sensitive water-resistant transparent tape conforming to 43-GP-3, the tape shall completely encircle the packed item.

3.5 **Stencils**

3.5.1 Stencilling of porous or nonporous surfaces shall be accomplished by brushing, rolling, or spraying a sharply cut stencil with stencilling ink. Surfaces shall be clean and smooth so that the markings will stand out clearly.

3.5.2 Unless otherwise specified, black stencilling ink shall be used for light-coloured surfaces and white stencilling ink for dark-coloured surfaces. Ink shall conform to A-A-208 for porous and nonporous surfaces. Stencil lacquer shall conform to TT-L-26.

3.6 **Tags**

3.6.1 Tags shall conform to 6.15M and shall be mechanically printed or typed.

3.6.2 Tags shall be securely affixed to wooden surfaces by stapling, tacking, or nailing. A minimum of four fasteners shall be used. Staples, tacks, or nails shall not protrude through the container walls.

3.3.7 L'entrepreneur peut également choisir d'imprimer les marques; celles-ci peuvent l'être sur tous les contenants intérieurs et extérieurs.

3.3.8 Les anciennes marques qui sont devenues inutiles peuvent être masquées avec une peinture conforme à la norme CAN/ONGC-1.47-M89.

3.4 **Étiquettes**

3.4.1 Les étiquettes doivent être imprimées mécaniquement ou marquées à la machine à écrire ou au pochoir. L'utilisation de papier carbone n'est pas autorisée.

3.4.2 Les étiquettes doivent être fixées à l'aide d'un adhésif imperméable, conforme à la norme MMM-A-179. Les étiquettes autocollantes ne doivent pas être appliquées sur les contenants de bois.

3.4.3 Si une étiquette est apposée sur un matériau à dos de canevas léger à l'aide d'un ruban autocollant, transparent et imperméable qui est conforme à la norme 43-GP-3, le ruban doit encercler complètement l'article emballé.

3.5 **Pochoirs**

3.5.1 Le marquage au pochoir des surfaces poreuses ou non poreuses doit se faire à la brosse, au rouleau ou au pulvérisateur, avec un pochoir bien découpé et de l'encre à pochoir. La surface doit être propre et lisse, de manière que les marques ressortent bien.

3.5.2 À moins d'indication contraire, on utilisera de l'encre à pochoir noire sur les surfaces pâles et de l'encre à pochoir blanche sur les surfaces foncées. L'encre appliquée sur les surfaces poreuses et non poreuses doit être conforme à la norme A-A-208, et la laque à pochoir, à la norme TT-L-26.

3.6 **Étiquettes volantes**

3.6.1 Les étiquettes volantes doivent être conformes à la norme 6.15M et imprimées mécaniquement ou dactylographiées.

3.6.2 Les étiquettes volantes qui sont appliquées à une surface de bois doivent être fixées avec au moins quatre attaches (agrafes, punaises ou clous). Les attaches ne doivent pas traverser la paroi du contenant.

3.6.3 When the method of affixing tags by stapling, tacking, or nailing is impracticable, tags shall be secured as follows:

(a) Wire ties shall be used when the wires will not cause damage to the item.

(b) Strong twine ties may be used when possible damage to the items would result from the use of wire.

(c) Twine may be used for small identification tags in interior packs.

(d) Tags used in the marking of shipping containers shall be waterproofed after markings have been applied, by spraying or brushing with water-resistant label adhesive or clear lacquer conforming to TT-L-26.

3.7 **Marking of interior containers.** There are four types of required markings:

(a) Identification markings.

(b) Preservation markings.

(c) Shelf life markings.

(d) Special markings.

3.7.1 **Identification markings.** Unless otherwise specified, the following information shall appear on the interior packages (unit packs and intermediate containers) in the order listed (see Figures 1 and 2):

(a) NATO stock number (in standard bar code symbology as per Appendix 3).

(b) Nomenclature, including serial number when applicable.

(c) Quantity/Unit of Issue.

(d) Protection and date markings.

(e) Contract serial number (as shown on the contract; see Appendix 2).

(f) Special markings.

Note: When specified or permitted, identification markings may be omitted from commercially identified items in dispensing containers, eg, shoe polish, baking soda, cleaner.

3.6.3 S'il n'est pas possible de fixer une étiquette volante à un contenant au moyen d'agrafes, de punaises ou de clous, on procédera comme suit:

(a) Utiliser un lien de métal si celui-ci ne risque pas d'endommager l'article.

(b) Utiliser de la ficelle forte si un lien de métal risque d'endommager l'article.

(c) Les petites étiquettes d'identification d'articles protégés par un contenant intérieur peuvent être attachées avec de la simple ficelle.

(d) Les étiquettes volantes utilisées dans le marquage des contenants d'expédition doivent être imperméabilisées, une fois le marquage fait, par pulvérisation ou par application à la brosse d'un adhésif imperméable ou d'une laque transparente, conforme à la norme TT-L-26.

3.7 **Marquage des contenants intérieurs.** Quatre types de marquages requis:

(a) Marquages d'identification.

(b) Marques de préservation.

(c) Durée de conservation.

(d) Marques spéciales.

3.7.1 **Marquages d'identification.** À moins d'indication contraire, les renseignements suivants doivent paraître sur les contenants intérieurs (contenants unitaires et intermédiaires), dans l'ordre indiqué (voir figures 1 et 2):

(a) Numéro de nomenclature OTAN (utiliser un code à bâtonnets standard conforme aux prescriptions de l'appendice 3).

(b) Description et, s'il y a lieu, numéro de série.

(c) Quantité/unité de distribution.

(d) Protection et date.

(e) Numéro de série du contrat (numéro indiqué au contrat, voir l'appendice 2).

(f) Marques speciales.

Nota: Sur demande ou après avoir obtenu l'autorisation, on pourra omettre de faire le marquage d'identification des articles commerciaux qui sont déjà identifiés (cirage à chaussures, bicarbonate de soude, produits de nettoyage, etc).

3.7.2 **Bar code requirement (NATO stock number).** The NATO stock number (NSN), in the standard bar code symbology described in Appendix 3, shall be applied to all unit packs and intermediate containers. The NSN shall be the exact NSN specified on the procurement document. When no NSN is shown on the procurement document, the manufacturer's part number (MFR/PN) or other identification number shall be applied to the package but shall not be bar coded. Space shall be provided immediately above the identification number for the subsequent marking of the NSN. The bar coded NSN shall consist of the basic thirteen data characters. Prefixes and suffixes to the NSN as well as spaces and dashes shall not be bar coded. The human readable interpretation (HRI) of the bar coded NSN shall be located preferably below the bar code marking or optionally above the bar code marking. The HRI shall be an exact interpretation of the bar coded data and will not contain spaces or dashes (see Appendix 3, Figure 15). Bar code markings may be applied either by labels or by direct printing on the package or container, other than wood containers. On wood containers, the bar code markings shall be applied only by the use of labels. On surfaces that absorb, smudge or otherwise distort integrity of printed bar code symbology (eg, a porous material) labels only shall be applied.

3.7.2 **Code à bâtonnets (numéro de nomenclature OTAN).** Le numéro de nomenclature OTAN (NNO) doit être appliqué sur tous les contenants unitaires et intermédiaires, sous la forme d'un code à bâtonnets standard conforme aux prescriptions de l'appendice 3. Le NNO doit être celui qui figure dans le document d'acquisition. Si le document d'acquisition ne donne pas le NNO de l'article, on utilisera le numéro de pièce du fabricant (N° DE PIÈCE DU FAB.) ou un autre numéro d'identification, mais non un code à bâtonnets. On veillera à laisser au-dessus du numéro d'identification l'espace voulu pour que le NNO puisse être ajouté plus tard. Le code à bâtonnets du NNO doit comporter les 13 caractères de base voulus. Les préfixes et les suffixes du NNO ainsi que les espaces et les traits d'union ne doivent pas être codés. L'explication en clair du code à bâtonnets du NNO doit se trouver de préférence sous le code à bâtonnets; sinon, on l'indiquera au-dessus. Elle doit correspondre exactement aux données du code à bâtonnets et ne comporter ni espace ni trait d'union (voir appendice 3, figure 15). Le code à bâtonnets peut être indiqué avec une étiquette ou imprimé directement sur l'emballage ou le contenant, à moins que celui-ci ne soit fait de bois, auquel cas on utilisera une étiquette. De même, on n'utilisera que des étiquettes sur les surfaces où le code risque d'être absorbé, étalé ou déformé (sur les matériaux poreux, par exemple).

3.7.3 **Nomenclature.** The nomenclature shall be the exact nomenclature of the item specified in the contract or order. The serial number, when applicable, shall be shown as part of the nomenclature.

3.7.3 **Description.** La description doit être la description exacte de l'article indiquée dans le contrat ou la commande. S'il y a lieu, le numéro de série de l'article sera indiqué.

3.7.4 **Quantity/unit of issue.** Quantity shall be the number of items contained in each interior package. The abbreviation QTY shall **not** be used. The unit of issue, as specified in the procurement document, shall be included and shall be abbreviated, eg, 1 ea (see Figure 2).

3.7.4 **Quantité/unité de distribution.** La quantité indiquée doit correspondre au nombre d'articles de chaque contenant intérieur. Ne pas utiliser l'abréviation QUANT. Indiquer l'unité de distribution prévue dans le document d'approvisionnement et l'abréger — 1 CH., par exemple (voir figure 2).

3.7.5 **Protection and date markings.** The level, method and date (month and year) of interior packaging shall be shown in that order, eg, A-1A8-12/89 indicates a Level A interior package, Method 1A8 interior packaging, applied in December 1989. Where a level of interior packaging is not shown on the contract or order, the method and date only shall be shown, eg, 1A8-12/89 (see Figure 2).

3.7.5 **Protection et date.** Le niveau, la méthode et la date (mois et année) d'emballage du contenant intérieur doivent être donnés dans cet ordre; par exemple, A-1A8-12/89 correspond à un contenant intérieur de niveau A et à un emballage intérieur fait suivant la méthode 1A8 en décembre 1989. Si le niveau du contenant intérieur ne figure pas dans le contrat ou la commande, on indiquera uniquement la méthode d'emballage et la date — 1A8-12/89, par exemple (voir figure 2).

Note: The words NATO Stock Number, Nomenclature, Quantity/Unit of Issue, Protection and Date Markings, and Special Markings, shall not be made part of the markings.

3.8 **Preservation markings**

3.8.1 **Method II packages.** Each basic or intermediate package, packaged in accordance with Method II of D-LM-008-001/SF-001 shall have the cautionary markings METHOD II PACKAGED — DO NOT OPEN EXCEPT FOR USE OR INSPECTION applied in red letters on the flexible water vapour resistant barrier and on each subsequent wrap or container. The markings may be stencilled on scrim back materials in letters not less than 12 mm (0.50 in.) high. When sufficient space is not available, or the barrier is a metal container, a label conforming to Figure 3 shall be used.

3.9 **Shelf life markings**

3.9.1 There are two types of shelf life, consisting of those items which are considered no longer serviceable after the expiration date has been reached, and those items for which the prescribed storage life can be extended, provided they are inspected and/or repaired in accordance with the pertinent technical specifications and other directives. The following examples of shelf life markings shall be applied where required:

(a) Example I — Non-relifeable items:

Date (manufactured, cured, assembled, packed) _____
(apply one as applicable)

Expires or expiration date _____

(b) Example II — Relifeable items:

Date (manufactured, cured, assembled, packed) _____
(apply one as applicable)

Inspection/test date _____

Nota: Les mots numéro de nomenclature OTAN, description, quantité/unité de distribution, protection et date et marques spéciales ne doivent pas être eux-mêmes marqués.

3.8 **Marques de préservation**

3.8.1 **Emballages faits suivant la méthode II.** Les contenants intérieurs ou intermédiaires qui ont été emballés suivant la méthode II exposée dans le document D-LM-008-001/SF-001 doivent porter l'avertissement EMBALLE SUIVANT LA MÉTHODE II — NE PAS OUVRIR SAUF POUR USAGE OU INSPECTION, qu'on appliquera en lettres rouges sur la barrière souple et imperméable et sur chaque emballage ou contenant ultérieur. Les marques peuvent également être faites au pochoir sur les matériaux à dos de canevas léger, en lettres d'au moins 12 mm (0,5 po) de hauteur. Si l'espace manque ou si la barrière est un contenant de métal, on utilisera une étiquette conforme à la figure 3.

3.9 **Durée de conservation**

3.9.1 Sur le plan de la durée de conservation, on distingue deux types d'articles: ceux qu'on considère inutilisables une fois que la date d'expiration a été atteinte et ceux dont la durée d'entreposage peut être prolongée pourvu qu'ils soient inspectés ou réparés conformément aux normes techniques utiles ou à d'autres directives. On utilisera donc l'un des modèles suivants pour indiquer la durée de conservation:

(a) Exemple I — Articles dont la durée d'entreposage ne peut pas être prolongée:

Date (de fabrication, de vulcanisation, d'assemblage, d'emballage) _____
(utiliser la mention utile)

Date d'expiration _____

(b) Exemple II — Articles dont la durée d'entreposage peut être prolongée:

Date (de fabrication, de vulcanisation, d'assemblage, d'emballage) _____
(utiliser la mention utile)

Date d'inspection ou d'essai _____

3.9.2 When specified (as in contracts, purchase orders or other documents) shelf life markings, date of manufacture, cure, assembly or pack, as applicable, shall be applied to unit packs, intermediate packs and exterior containers or unpacked items.

3.9.3 For all items required to be marked with the date of manufacture, the date shall be applied. For medical items having an expiration date, the date of manufacture shall not be shown. When two or more unit packs of identical items bear different dates of manufacture, the earliest date shall be shown on the shipping container.

3.9.4 For all rubber (or synthetic elastomers) items required to be marked with the cure date, the markings shall be applied using the calendar quarter and year eg, 2Q90 (represents second quarter 1990). When two or more units packs of identical items bear different cure dates the earliest date shall be shown on the shipping container.

3.9.5 For all items required to be marked with the date of assembly, the date shall be applied. When more than one shelf life item is packed in an assembly, the expiration date of the item with the earliest expiration date shall be shown and applied.

3.9.6 For all items required to be marked with the date of pack, the date shall be applied. When two or more packs of identical items bear different dates of pack, the earliest date shall be shown on the shipping container.

3.9.7 The expiration date is only required for non-relifeable shelf life items (an item of supply with a definite nonextendable period of shelf life). For drugs and biological items (potency-dated materials), the expiration date shall be as required by statutes or contract. When the date of the month is included in the expiration date, the month will be designated by the name of the month and **not** by the numerical designation of the month. Cure dated items shall have the expiration date shown by quarter and calendar year eg, 1Q90.

3.9.8 For items of supply with an assigned shelf life which may be extended after completion of prescribed inspection/test/restorative action, the manufacturer or supplier shall apply an inspection/test date, the date shall be shown

3.9.2 Si le contrat, le bon d'achat ou d'autres documents le prévoient, on indiquera la durée de conservation et, selon le cas, la date de fabrication, de vulcanisation, d'assemblage ou d'emballage, selon le cas, sur les contenants unitaires, les contenants intermédiaires, les contenants extérieurs ou les articles non emballés.

3.9.3 Indiquer la date de fabrication de tous les articles dont la date de fabrication doit être indiquée, à moins qu'il ne s'agisse de fournitures médicales comportant une date d'expiration. Si des contenants unitaires d'articles identiques portent des dates de fabrication différentes, indiquer la plus reculée sur le contenant d'expédition.

3.9.4 Indiquer le trimestre et l'année (2T90 pour désigner le deuxième trimestre de 1990, par exemple) de vulcanisation de tous les articles de caoutchouc (ou d'élastomères) dont la date de vulcanisation doit être indiquée. Si des emballages unitaires d'articles identiques portent des dates de vulcanisation différentes, indiquer la plus reculée sur le contenant d'expédition.

3.9.5 Indiquer la date d'assemblage de tous les articles dont la date d'assemblage doit être indiquée. Si les éléments d'un assemblage n'ont pas tous la même durée de conservation, indiquer la date d'expiration de l'article dont la durée de conservation expire en premier.

3.9.6 Indiquer la date d'emballage de tous les articles dont la date d'emballage doit être indiquée. Si des emballages contenant des articles identiques portent des dates d'emballage différentes, indiquer la plus reculée sur le contenant d'expédition.

3.9.7 N'indiquer la date d'expiration que si la durée de conservation d'un article ne peut pas être prolongée. Dans le cas des drogues ou des fournitures biologiques qui portent une date d'efficacité, la date d'expiration doit être celle que prévoit la loi ou le contrat. Si le mois figure dans la date d'expiration, il sera désigné par son nom et **non** par un chiffre. La date d'expiration des articles vulcanisés doit prendre la forme trimestre/année civile (1T90, par exemple).

3.9.8 Les articles d'approvisionnement dont la durée de conservation peut être prolongée une fois que les mesures d'inspection, d'essai ou de remise en état prévues ont été prises doivent porter la date d'inspection/essai prévue

by month and calendar year eg, 12/90. This indicates the date on which shelf life shall expire (unless extended as a result of inspection/test). The manufacturer or supplier shall provide space for additional inspection/test dates. The space shall be used when the initial date is lined out and subsequent inspection/test dates are applied. When two or more unit packs of identical items bear different inspection/test dates, only the earliest date shall be shown on the shipping container.

Note: Items that are nondeteriorative shall not require shelf life markings.

3.10 **Special markings**

3.10.1 Subject to the nature of the material packaged, cautionary markings such as FRAGILE, GLASS, POISON, PERISHABLE, KEEP FROM FREEZING (maintain at temperatures above ...degrees Celsius), or other special handling markings of a similar nature, shall appear on the unit and intermediate containers, as applicable.

3.10.2 When specified, the following additional special markings shall be applied:

(a) Year of manufacture.

(b) Specification number (type, grade, class) of item.

(c) Manufacturer's name.

(d) Manufacturer's part or drawing number.

(e) Manufacturer's batch number.

(f) Qualification number.

(g) Cure date of rubber components.

(h) Date of repair or overhaul.

(j) Name of repair or overhaul contractor.

(k) Modification status.

(m) Other data required by contract or commodity specification.

par le fabricant ou le fournisseur, celle-ci étant indiquée sous la forme mois/année civile (12/90, par exemple). Cette marque correspond à la date à laquelle la durée de conservation de l'article expire (à moins qu'elle n'ait été prolongée par suite d'une inspection ou d'un essai). Le fabricant ou le fournisseur doit laisser l'espace voulu pour qu'on puisse ajouter d'autres dates d'inspection ou d'essai. On utilisera cet espace après avoir biffé la date initiale, pour indiquer des dates d'inspection/essai subséquentes. Si des contenants unitaires d'articles identiques portent des dates d'inspection/essai différentes, on indiquera la plus reculée sur le contenant d'expédition.

Nota: Les articles qui ne se détériorent pas n'ont pas à porter de date de durée de conservation.

3.10 **Marques spéciales**

3.10.1 Compte tenu de la nature des articles emballés, on mettra sur les contenants unitaires et intermédiaires les mentions d'avertissement utiles: FRAGILE, VERRE, POISON, PÉRISSABLE, PROTÉGER CONTRE LE GEL (garder à au moins degrés Celsius), par exemple.

3.10.2 S'il y a lieu, on pourra ajouter les marques spéciales suivantes:

(a) Année de fabrication.

(b) Numéro de spécification (type, qualité, classe) de l'article.

(c) Nom du fabricant.

(d) Numéro de pièce ou de dessin du fabricant.

(e) Numéro de lot du fabricant.

(f) Numéro d'acceptation.

(g) Date de vulcanisation des éléments de caoutchouc.

(h) Date de réparation ou de révision.

(j) Nom de l'entrepreneur en réparation ou révision.

(k) Statut de modification.

(m) Autres données requises en vertu du contrat ou des spécifications du produit.

3.10.3 **Electrostatic discharge sensitive (ESDS) material.** Unit packs containing ESDS electronic components and devices shall be marked with a warning label as shown in Figure 10. The symbol and lettering of each label shall be printed in black on a yellow background.

3.10.4 **Positioning and application of markings.** Position and application of markings shall be as follows:

(a) Rectangular containers shall have markings positioned as illustrated in Figure 4.

(b) Cylindrical containers shall have markings positioned as illustrated in Figure 5.

3.10.5 Markings shall be stencilled or printed directly on the container, or where this is not possible, shall be applied by means of stencilled, printed, or typed labels or tags firmly affixed to containers or unboxed items.

3.10.6 Labels shall be affixed on sealed transparent or opaque barrier bags or wraps in such a manner that they adhere firmly to the exterior surface of the bag or wrap.

3.11 **Marking of shipping containers**

3.11.1 **Identification markings.** The following information shall appear on all shipping containers, palletized unit loads, and unpacked items:

(a) Description of contents, unless otherwise specified, shall show the following information in the order listed:

i NATO stock number.

ii Nomenclature.

iii Quantity/Unit of Issue.

iv Protection and date markings (see 3.11.1(b)).

v Contract serial number (as shown on the contract; see Appendix 2).

vi Special markings (see 3.11.9).

3.10.3 **Articles sensibles aux décharges électrostatiques.** Les contenants unitaires qui contiennent des articles électroniques sensibles aux décharges électrostatiques doivent porter une étiquette d'avertissement conforme au modèle de la figure 10. Le symbole d'avertissement et le message seront imprimés en noir sur fond jaune.

3.10.4 **Position et application des marques:**

(a) Sur les contenants rectangulaires, la position des marques sera conforme à celle de la figure 4.

(b) Sur les contenants cylindriques, la position des marques sera conforme à celle de la figure 5.

3.10.5 Les marques doivent être tracées au pochoir ou imprimées directement sur le contenant; si cela n'est pas possible, elles seront faites au pochoir, imprimées ou dactylographiées sur une étiquette qu'on veillera à bien apposer ou à attacher solidement aux contenants ou aux articles non mis sous boîte.

3.10.6 Les étiquettes apposées sur un sac ou un emballage barrière scellé (transparent ou non) doivent bien adhérer à la surface extérieure du sac ou de l'emballage.

3.11 **Marquage des contenants d'expédition**

3.11.1 **Marques d'identification.** Les contenants d'expédition, les charges unitaires sur palette et les articles non emballés doivent porter les renseignements suivants:

(a) À moins d'indication contraire, la description du contenu doit présenter, dans l'ordre, les renseignements suivants:

i Numéro de nomenclature OTAN.

ii Description.

iii Quantité/unité de distribution.

iv Protection et date (voir 3.11.1(b)).

v Numéro de série du contrat (numéro indiqué au contrat, voir l'appendice 2).

vi Marques spéciales (voir 3.11.9).

Note: All shipping containers enclosing like items of material in both unit packages or intermediate containers shall have the NATO stock number, contract number, quantity/unit of issue, protection and date markings, and quality assurance code applied in the standard bar code symbology described in Appendix 3 (see Figure 18). Shipping containers enclosing mixed items of material shall be marked in accordance with 3.11.1(c).

(b) The level of interior packaging, the level of packing, the method and date of interior packaging (month and year) shall be shown in that order, eg, A B-1A8-12/90 indicates a Level A interior package, a Level B pack, Method 1A8 interior packaging applied in December 1990. Where levels of interior packaging and packaging are not shown on the contract or order, the method and date only shall be shown, eg, 1A8-12/90.

(c) All items shall be identified and the shipping container marked MIXED CONTENTS when unlike items are packed together in a shipping container.

3.11.2 **Shipping instructions.** Shipping instructions shall consist of the following:

(a) Consignee (see note).

(b) Consignor.

(c) Case No. ____ of ____. (Total number cases in shipment.)

Note: If shipment is consigned to a consignee for trans-shipment to ultimate destination, the shipping container shall indicate after consignee FOR (ultimate recipient).

3.11.3 **Contract identification.** Contract identification shall include the contract serial number (see Appendix 2).

3.11.4 **Set or assembly markings.** Set or assembly markings are shown in Figure 6.

3.11.5 When sets or assemblies are packed into two or more shipping containers, each container shall bear a 51 mm (2.04 in.) solid black circle conspicuously placed on the same face of the container as the description of contents markings.

Nota: Les contenants d'expédition qui renferment des contenants unitaires et des contenants intermédiaires d'articles semblables doivent porter le numéro de nomenclature OTAN, le numéro du contrat, la quantité ou l'unité de distribution, les mesures de protection requises et la date ainsi que le code d'assurance de la qualité en code à bâtonnets standard (voir la figure 18 de l'appendice 3). Les contenants d'expédition qui renferment des articles divers doivent être marqués en conformité avec les dispositions du 3.11.1(c).

(b) Le niveau du contenant intérieur, le niveau d'emballage ainsi que la méthode et la date d'emballage intérieur (mois et année) doivent être indiqués dans l'ordre; par exemple, l'inscription A B-1A8-12/90 correspond à un contenant intérieur de niveau A, un emballage de niveau B, un emballage intérieur fait suivant la méthode 1A8, en décembre 1990. Si le niveau du contenant intérieur ou le niveau d'emballage n'est pas prévu dans le contrat ou la commande, indiquer seulement la méthode et la date d'emballage (1A8- 12/90, par exemple).

(c) Si des articles disparates sont réunis dans un contenant d'expédition, on s'assurera que chacun est identifié et que le contenant d'expédition porte l'indication ARTICLES DIVERS.

3.11.2 **Instructions d'expédition.** Les instructions d'expédition doivent présenter les renseignements suivants:

(a) Destinataire.

(b) Expéditeur (voir note).

(c) Boîte ____ de ____ (nombre total de boîtes de l'envoi).

Nota: Si des articles sont envoyés à un destinataire qui doit les faire suivre, on indiquera sur le contenant d'expédition, après le nom du destinataire, le terme POUR (destinataire final).

3.11.3 **Identification du contrat.** L'identification du contrat doit comporter le numéro de série du contrat (voir l'appendice 2).

3.11.4 **Marques de jeu ou d'ensemble.** Les marques de jeu ou d'ensemble sont représentées à la figure 6.

3.11.5 Si des jeux ou des ensembles d'articles sont mis dans plusieurs contenants d'expédition, on prévoira sur chaque contenant un cercle noir de 51 mm (2,4 po), sur la face portant la description du contenu.

3.11.6 The word SET should be stencilled directly under the black circle, followed by the number of the set.

3.11.7 If specified, the serial number of the main equipment will be used instead of the set number.

3.11.8 Two numbers, in the form of a fraction, shall be stencilled under the set number or serial number. The numerator will be the serial number of the container in that particular set, and the denominator will be the total number of containers making up the set.

3.11.9 **Special markings (other than preservation markings)**

3.11.10 Each reusable exterior container shall have the following markings prominently displayed in bilingual English/French format:

REUSABLE CONTAINER DO NOT DESTROY/CONTENANT RÉUTILISABLE, NE PAS DÉTRUIRE

3.11.11 Reusable metal containers of 18 L (4 gal) capacity or greater, and face exceeding 0.28 M^3 (10 cu ft) shall be clearly marked in bilingual English/French format with the additional marking:

CANADIAN FORCES PROPERTY/PROPRIÉTÉ DES FORCES CANADIENNES

3.11.12 If specified, the following additional markings shall be applied on the face of the container bearing the description of contents markings:

(a) Specification number (type, grade, class) of item.

(b) Manufacturer's name.

(c) Manufacturer's part number or drawing number.

(d) Manufacturer's batch number.

(e) Qualification number.

(f) Cure date of rubber components.

(g) Other data required by contract or commodity specification.

(h) Date of repair or overhaul.

3.11.6 Immédiatement sous le cercle noir, on inscrira au pochoir le mot JEU qu'on fera suivre du numéro du jeu.

3.11.7 S'il y a lieu, on utilisera le numéro de série de l'équipement principal au lieu du numéro du jeu.

3.11.8 Deux chiffres seront en outre inscrits au pochoir sous le numéro du jeu ou le numéro de série, sous la forme d'une fraction. Le numérateur correspondra au numéro du contenant du jeu en question, et le dénominateur, au nombre total de contenants formant le jeu.

3.11.9 **Marques spéciales (sauf marques de préservation)**

3.11.10 Les contenants extérieurs réutilisables doivent tous porter la mention suivante, en évidence, sous forme bilingue:

REUSABLE CONTAINER DO NOT DESTROY/CONTENANT RÉUTILISABLE, NE PAS DÉTRUIRE

3.11.11 Les contenants de métal réutilisables d'une capacité d'au moins 18 L (4 gal) et dont la surface fait au moins 0,28 m^3 (10 pi^3) doivent en outre porter, en évidence, la mention suivante, sous forme bilingue:

CANADIAN FORCES PROPERTY/PROPRIÉTÉ DES FORCES CANADIENNES

3.11.12 S'il y a lieu, on ajoutera les marques suivantes sur la face du contenant qui porte la description du contenu:

(a) Numéro de spécification (type, qualité, classe) de l'article.

(b) Nom du fabricant.

(c) Numéro de pièce ou de dessin du fabricant.

(d) Numéro de lot du fabricant.

(e) Numéro d'acceptation.

(f) Date de vulcanisation des éléments de caoutchouc.

(g) Autres données requises en vertu du contrat ou des spécifications du produit.

(h) Date de réparation ou de révision.

(j) Name of repair or overhaul contractor.

(k) Modification status.

(m) Year of manufacture.

3.11.13 **Preservation markings.** When specified, containers with items packaged to any of the methods of unit protection, other than Method III in D-LM-008-001/SF-001, shall have the following markings applied in bilingual English/French format:

CONTAINS METHODS (as applicable) PACK(S)/ CONTIENT DES ARTICLES EMBALLÉS SUIVANT LA MÉTHODE

3.11.14 **Method II packages.** Each shipping container containing one or more Method II packages shall have the following markings applied in bilingual English/French format:

CONTAINS METHOD II PACK(S)/CONTIENT DES ARTICLES EMBALLES SUIVANT LA METHODE II

3.11.15 If the shipping container is an integral part of the Method II package, the following markings shall be applied in bilingual English/French format:

METHOD II PACKAGE DO NOT OPEN EXCEPT FOR USE OR INSPECTION/MÉTHODE II — NE PAS OUVRIR SAUF POUR USAGE OU INSPECTION

3.11.16 **Handling markings.** The handling markings shall be applied in bilingual English/French format (see Figure 7).

3.11.17 **Cautionary markings.** The cautionary markings shall be applied in bilingual English/French format (see Figure 7).

3.11.18 Weight, cube and dimensional data areas follows:

(a) **Outside dimensions.** The outside dimensions shall be shown on all shipping containers, bundles, or palletized unit loads having any single dimension 183 cm (72 inches) or more. Outside dimensions shall be shown in the order of length, width, and height, and shall appear directly under weight and cube markings in addition to the cube.

(j) Nom de l'entrepreneur en réparation ou révision.

(k) Statut de modification.

(m) Année de fabrication.

3.11.13 **Marques de préservation.** Les contenants qui renferment des articles qui ont été protégés suivant une méthode d'emballage autre que la méthode III exposée dans le document D-LM-008-001/SF-001 doivent porter la mention suivante, sous forme bilingue:

CONTAINS METHODS (as applicable) PACK(S)/ CONTIENT DES ARTICLES EMBALLÉS SUIVANT LA MÉTHODE

3.11.14 **Articles emballés suivant la méthode II.** Les contenants d'expédition qui contiennent un ou plusieurs articles emballés suivant la méthode II doivent porter la mention suivante, sous forme bilingue:

CONTAINS METHOD II PACK(S)/CONTIENT DES ARTICLES EMBALLES SUIVANT LA METHODE II

3.11.15 Si un contenant d'expédition forme lui-même un emballage conforme à la méthode II, on y indiquera la mention suivante, sous forme bilingue:

METHOD II PACKAGE DO NOT OPEN EXCEPT FOR USE OR INSPECTION/MÉTHODE II — NE PAS OUVRIR SAUF POUR USAGE OU INSPECTION

3.11.16 **Marques de manutention.** Les marques de manutention doivent être faites sous forme bilingue (voir la figure 7).

3.11.17 **Marques d'avertissement.** Les marques d'avertissement doivent être faites sous forme bilingue (voir figure 7).

3.11.18 Poids, volume et dimensions:

(a) **Dimensions extérieures.** Les dimensions extérieures doivent être indiquées sur les contenants extérieurs, les ballots ou les charges unitaires sur palette dont l'une des dimensions est supérieure à 183 cm (72 po). Les dimensions extérieures doivent être indiquées dans l'ordre longueur-largeur-hauteur et paraître directement sous le poids et le volume.

(b) **Gross weight.** The weight shown on the shipping containers shall be the gross weight, indicated to the nearest kilogram (2.2 lb). The abbreviation WT shall be used.

(c) **Cube.** The cube shall be the cubic displacement of the shipping container, bundle, pallet load, or the item, whichever is the greater, calculated from the extreme overall length, width, and height dimensions. It shall be shown in cubic feet to the nearest 0.003 M^3 (1/10 cu ft), expressed decimally. Irregular, cylindrical, and round items shall be considered as rectangular. The abbreviation CU shall be used.

3.12 **Special markings**

3.12.1 Subject to the nature of the material packed, cautionary markings such as FRAGILE, GLASS, POISON, PERISHABLE, KEEP FROM FREEZING or other cautionary or handling markings of a similar nature, shall appear on the shipping container. Such markings shall not interfere with or obscure other container markings.

3.12.2 Other handling markings shall be applied as required by container or commodity specifications.

3.12.3 **Foreign language markings.** When specified, material packaged for export or air shipment to Service establishments in Europe shall bear (for information of carriers) such markings as weight, handling and storage instructions in whichever of the following languages is deemed appropriate. Suitable precautionary words and phrases are as follows:

(b) **Poids brut.** Le poids donné sur un contenant d'expédition doit être le poids brut; il sera indiqué au kilogramme (2,2 lb) près.

(c) **Volume.** Le volume correspond au déplacement cubique du contenant, du ballot, de la charge palettisée ou de l'article, la valeur la plus importante étant à retenir. Il se calcule à l'aide des dimensions hors tout. L'indiquer en pieds cubes, à 0,1 pi^3 prés (0,003 m^3), en décimales. Les articles de forme irrégulière, cylindriques ou ronds seront assimilés à des articles rectangulaires. Utiliser l'abréviation VOL.

3.12 **Marques spéciales**

3.12.1 Compte tenu de la nature des produits emballés, on mettra sur le contenant d'expédition des mentions d'avertissement suivantes: FRAGILE, VERRE, POISON, PÉRISSABLE, PROTÉGER CONTRE LE GEL, etc. Ces marques ne doivent pas masquer ni couvrir les autres marques.

3.12.2 Les autres marques de manutention seront appliquées en conformité avec les normes relatives au contenant ou les spécifications du produit.

3.12.3 **Marques en langue étrangère.** Les produits qui doivent être exportés ou envoyés par avion à des établissements militaires situés en Europe porteront, s'il y a lieu, des indications (à l'intention des transporteurs) touchant, par exemple, le poids ou les conditions de manutention et d'entreposage, dans les langues jugées utiles. On utilisera à cette fin les mentions suivantes:

ENGLISH	FRENCH/FRANCAIS	GERMAN/ALLEMAND
Weight	Poids	Gewicht
Top	Dessus	Oberseite
Glass	Verre	Glas
Fragile	Fragile	Zerbrechlich
Open Here	Ouvrir ici	Hier Oeffnen
Keep Dry	Garder au sec	Vor Nasse Schuetzen
Handle with Care	Manipuler avec soin	Vorsicht
This Side Up	Cette face en haut	Diesse Seite Oben
Use No Hooks	Maniers sans crampons	Ohne Haken Aufheben

3.13 **Positioning and application.** Positioning and application of markings shall be as follows.

3.13.1 Containers with a volume of up to 0.28 m^3 (10 cu ft) shall have markings positioned as illustrated in Figure 8.

3.13.2 Containers with a volume of 0.28 m^3 (10 cu ft) or more shall have markings positioned as illustrated in Figure 9.

3.13.3 Markings shall be stencilled or printed directly on the shipping container, or, when the design of the container does not permit this, markings shall be applied by means of stencilled, printed or typed labels or tags. Labels shall be securely affixed in place with water-resistant adhesive.

3.13.4 Reusable metal containers marked by means of labelling shall have labels affixed with pressure-sensitive adhesive.

3.13.5 Neat and legible hand printing is acceptable as a means of marking, subject to the approval of the Quality Assurance/Inspection Authority.

3.14 **Size of markings**

3.14.1 **Size of lettering.** As specified herein, lettering for all markings shall be capital letters of equal height, proportional to the available space of the container, and shall not exceed 76 mm (3.0 in.) in height:

(a) **Markings, other than the address on shipping containers.** Lettering for markings other than the address should be not less than 12 mm (0.50 in.) nor more than 25 mm (1.0 in.) in height on interrupted stencil letters and not less than 13 mm (0.52 in.) nor more than 25 mm (1.0 in.) on solid letters. The lettering may be reduced to 6 mm (0.24 in.) in height when the total area, or the available space of the panel to be marked, is not sufficient for the larger size lettering.

(b) **Address.** Lettering for the overseas address shall be not less than 12 mm (0.50 in.) nor more than 76 mm (3.0 in.) except when tags or labels are utilized. When address marking is applied by stencilling, it will be the most conspicuous marking on the container and as large as available space permits.

3.13 **Position et application.** Les marques doivent être placées et appliquées de la manière décrite ci-dessous.

3.13.1 Contenants d'un volume inférieur à 0,28 m^3 (10 pi^3): placer les marques de la manière indiquée à la figure 8.

3.13.2 Contenants d'un volume de 0,28 m^3 (10 pi^3) et plus: placer les marques de la manière indiquée à la figure 9.

3.13.3 Les marques doivent être faites au pochoir ou imprimées directement sur le contenant d'expédition; si la forme du contenant ne le permet pas, les marques seront appliquées au pochoir, imprimées ou dactylographiées sur une étiquette qu'on collera au contenant avec un adhésif imperméable.

3.13.4 Les contenants de métal réutilisables qui sont marqués à l'aide d'étiquettes doivent porter des étiquettes autocollantes.

3.13.5 Les marques peuvent être tracées à la main si les instances d'inspection y consentent et pourvu qu'elles soient claires et lisibles.

3.14 **Taille des marques**

3.14.1 **Taille du lettrage.** Le lettrage doit se faire en majuscules d'égale hauteur et proportionnelles à l'espace disponible sur le contenant. Les lettres ne doivent pas faire plus de 76 mm (3 po) de hauteur:

(a) **Marques autres que l'adresse sur les contenants d'expédition.** Le lettrage des marques autres que l'adresse ne doit pas faire moins de 12 mm (0,5 po) ni plus de 25 mm (1 po) de hauteur s'il est fait au pochoir en lettres brisées, ni moins de 13 mm (0,52 po) et plus de 25 mm (1 po) s'il est fait en lettres pleines. Les lettres peuvent être réduites à une hauteur de 6 mm (0,24 po) si la superficie totale ou l'espace disponible ne conviennent pas à l'utilisation de plus grandes lettres.

(b) **Adresse.** Le lettrage des adresses à l'étranger ne doit pas faire moins de 12 mm (0,5 po) ni plus de 76 mm (3 po), à moins qu'on utilise une étiquette. Si l'adresse est écrite au pochoir, elle devra constituer l'inscription la plus évidente du contenant et occuper le plus d'espace possible.

3.15 Handling and Cautionary markings (see 3.11.16 and 3.11.17) shall be applied in a conspicuous position.

3.16 The contract supply voucher, release note, packing list, etc, shall be enclosed in a water-resistant envelope which shall be securely affixed to one end of the last container in each shipment.

3.16.1 Other documents which may accompany the shipment shall be placed on top of the packed stores in the last container in the shipment and the container shall be marked to indicate the enclosure. The markings shall be on the same face as the envelope referred to 3.16.

3.16.2 **Unboxed and uncrated items.** Identification and contractual information shall be stencilled directly on the base of the item when the design of the item is such as to permit this. Otherwise, markings shall be applied by means of tags which shall be securely attached to a suitable part of the item.

4. QUALITY ASSURANCE PROVISIONS

4.1 Quality conformance inspection shall consist of a visual inspection of the markings for storage and shipment to ensure adherence to the requirements of this specification and that required markings are not omitted, incorrect or illegible.

5. PACKAGING

Not applicable.

6. NOTES

Not applicable.

3.15 Les marques d'avertissement (voir 3.11.16 et 3.11 17) doivent être placées bien en évidence.

3.16 Le bon de commande, le bon de livraison, le bordereau d'expédition, etc. doivent être mis dans une enveloppe imperméable qu'on apposera sur l'une des extrémités du dernier contenant de chaque envoi.

3.16.1 Les autres documents qui peuvent accompagner l'envoi seront mis sur les articles expédiés, dans le dernier contenant de l'envoi, et le contenant sera marqué en conséquence. Les marques doivent être faites sur la face du contenant où a été apposée l'enveloppe dont il est question au paragraphe 3.16.

3.16.2 **Articles non mis sous boîte ou sous caisse.**La désignation de l'article et les renseignements prévus au contrat doivent dans ce cas être marqués directement au pochoir, sur la base de l'article. Si la forme de l'article ne le permet pas, les marques utiles seront portées sur des étiquettes qu'on attachera solidement à l'article.

4. CONTRÔLE DE LA QUALITÉ

4.1 L'inspection de conformitée à la qualitée doit consister d'une inspection visuelle des marques, d'entreposage et d'expédition afin de confirmer l'adhérence aux exigences de cette spécification et de s'assurer que les marques requis ne sont pas oubliéés, incorrectes ou illisibles.

5. EMBALLAGE

Sans objet.

6. REMARGQUES

Sans objet.

NATO STOCK NUMBER/ **NUMÉRO DE NOMENCLATURE DE L'OTAN**	**(or other identification marking)/** ***(ou toute autre marque d'identification)***
DESCRIPTION/ **NOMENCLATURE**	**(including serial number when applicable)/** **(y compris le numéro de série, s'il y a lieu)**
QUANTITY/ **QUANTITÉ**	
PROTECTION AND DATE MARKINGS/ **DATE ET PROTECTION REQUISE**	
CONTRACT SERIAL NUMBER/ **NUMÉRO DE SÉRIE DU CONTRAT**	**(as shown on the contract: see Annex C)** **(tel qu'il figure sur le contrat: voir l'annexe C)**
SPECIAL MARKINGS/ **MARQUES SPÉCIALES**	

Figure 1 Identification Label — Marking Requirements
Figure 1 Étiquette d'identification — marques requises

5925218769219
CIRCUIT BREAKER /DISJONCTEUR
1 EA /1 CH.
A-1A8-12-90
W8463-9-DA3W/01-BG
1990 (YR. OF MFR.)
/(ANNÉE DE FABRICATION)

Figure 2 Identification Label — Complete
Figure 2 Étiquette d'identification — forme réelle

APPENDIX 1

10. ABBREVIATIONS

10.1 **Scope.** This annex lists the authorized abbreviations.

10.2 **Abbreviations.** The following terms for units of issue, quantitative and weights and measures units, cross-referenced to Codes in abbreviated format, are authorized for use. The codes shall be utilized where the requirements for abbreviated markings are specified in this document. Miscellaneous marking and provincial abbreviations are also included. Abbreviations of items description not indicated herein may be permitted when approved by the inspection authority designated in the procurement document.

(a) Terms and applicable Codes are as follows:

APPENDICE 1

10. ABRÉVIATIONS

10.1 **Portée.** Cette appendice présente la liste des abréviations autorisées.

10.2 **Abréviations.** Les termes abrégé des unites de dotation suivant concernant les unités quantitative, de poids, et de mesure qui sont référées aux codes selon la formule abrégée établie sont autorises a être utilisés. Ces codes devront être utiliser lorsque le document exige l'utilisation des marques abrégés.Differentes indications et abréviations provinciales aussi inclus peuvent être utilises selon le besoin. Par ailleur, les abréviations de certaines nomenclature qui ne sont pas établies officiellement pourront être utilisées lorsque permie par l'autoritée d'inspection désignée dans le document d'achat.

(a) Les termes et les codes applicable sont détaillés comme suit:

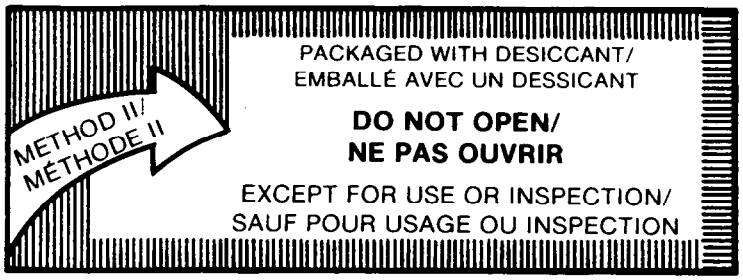


Figure 3 Method II Label
Figure 3 Étiquette de méthode II

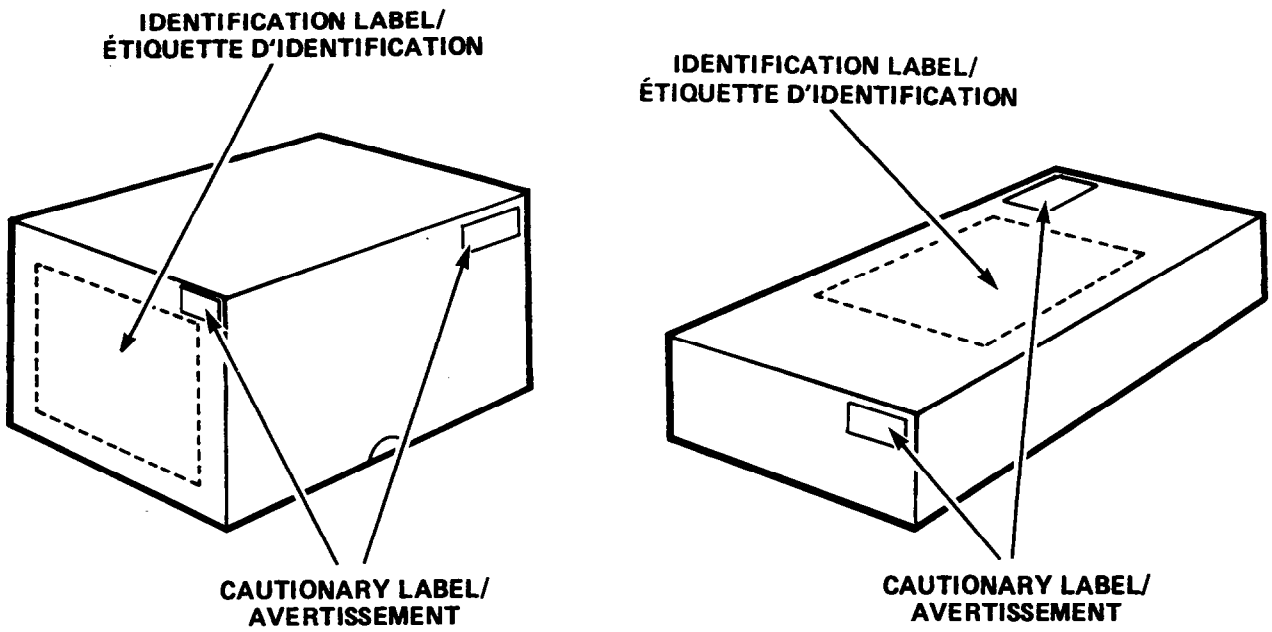


Figure 4 Interior Cartons
Figure 4 Boîtes intérieures

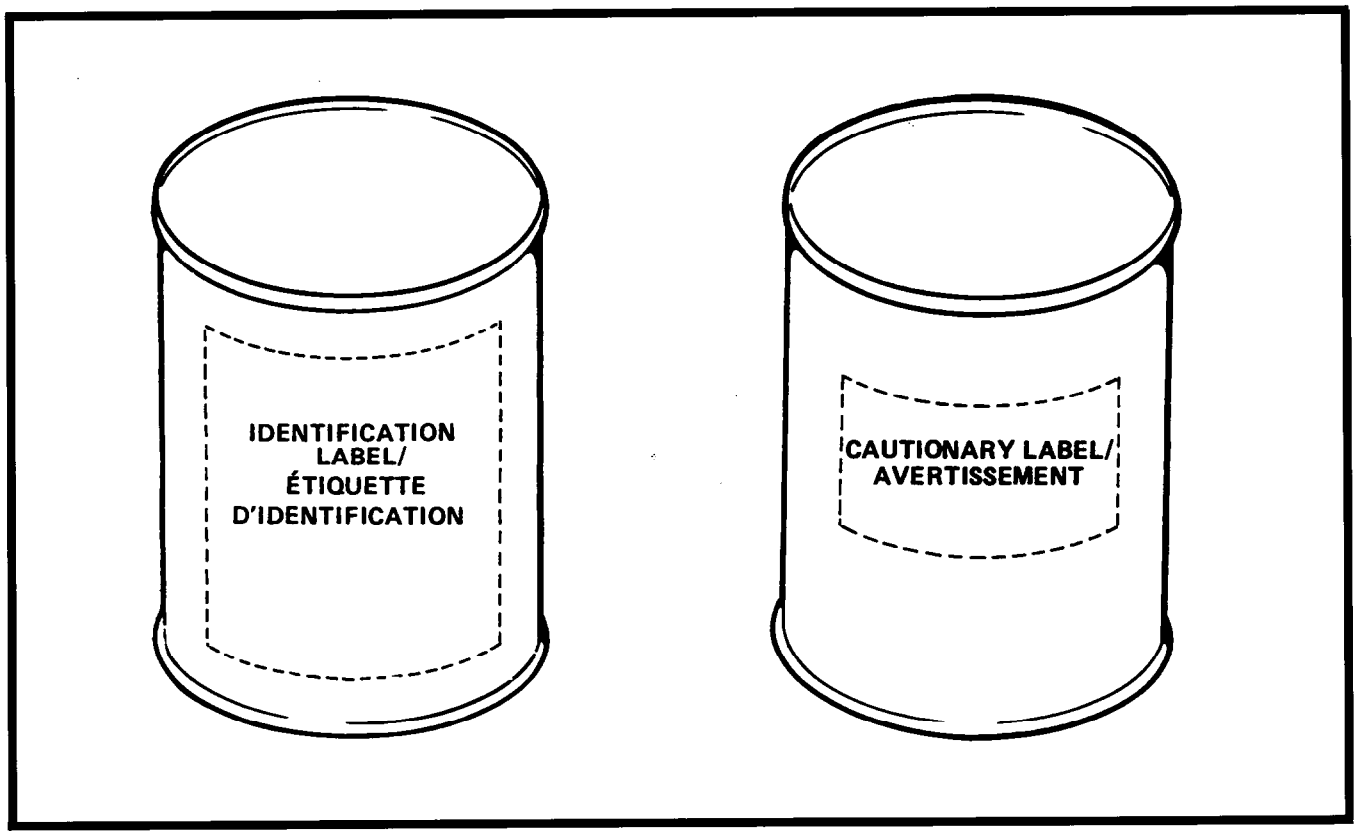


Figure 5 Cans (Interior Packs)
Figure 5 Boîtes de conserve (contenants intérieurs)

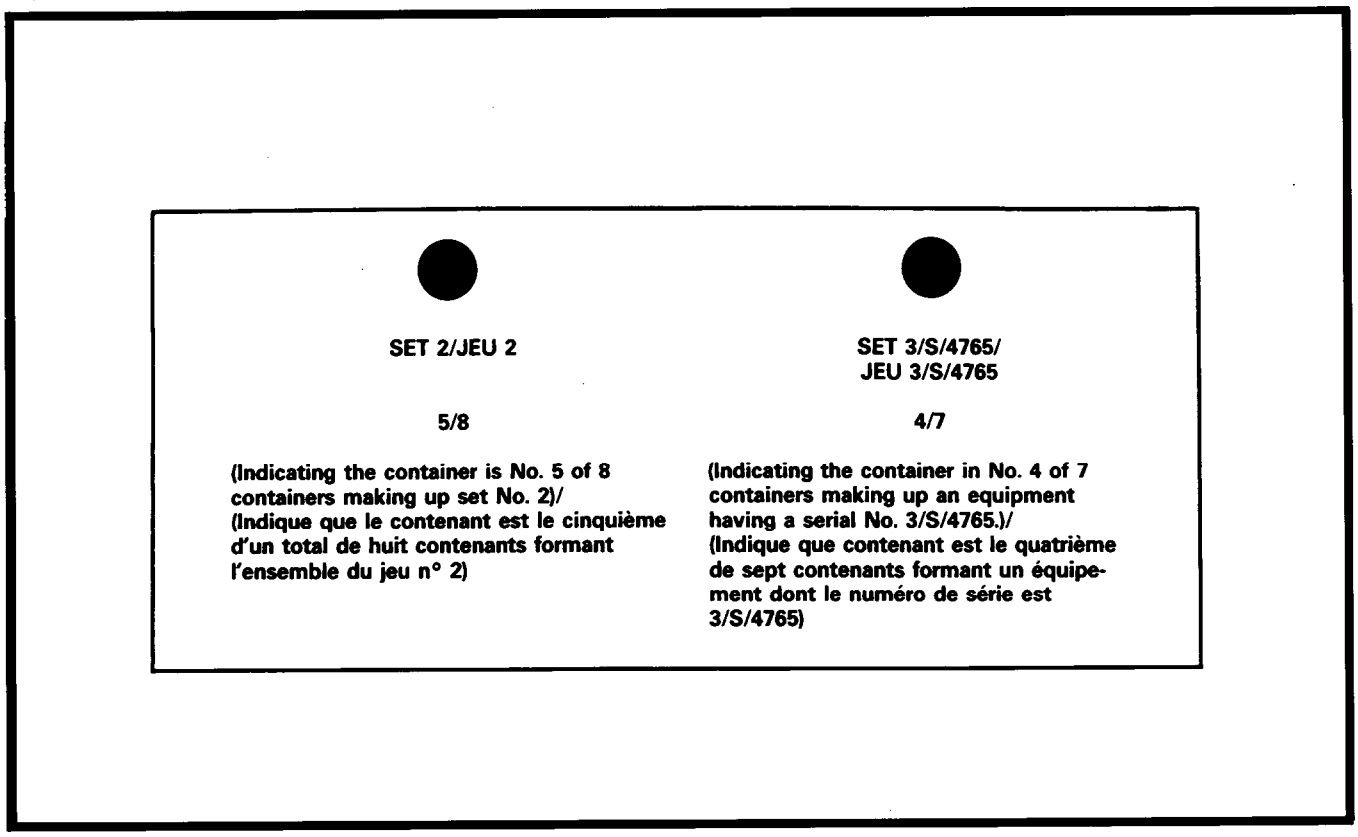


Figure 6 Set or Assembly Markings
Figure 6 Marques de jeu ou d'ensemble

FRAGILE
HANDLE WITH CARE
FRAGILE
MANIPULEZ AVEC SOIN

TO INDICATE THAT THE CONTENTS OF THE SHIPPING CONTAINER ARE FRAGILE AND THAT IT HAS TO BE HANDLED WITH CARE. SYMBOL TO BE LOCATED NEAR THE UPPER LEFT HAND CORNER OF THE SHIPPING CONTAINER.

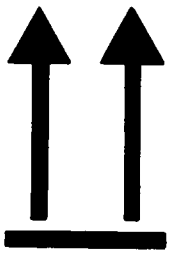
SERT À INDIQUER QUE LE CONTENANT RENFERME DES MARCHANDISES FRAGILES ET QU'IL FAUT, PAR CONSÉQUENT, LE MANIPULER AVEC SOIN. LE SYMBOLE DOIT ÊTRE PLACÉ DANS LE COIN SUPÉRIEUR GAUCHE DU CONTENANT.

USE NO HOOKS
MANIEZ
SANS CRAMPONS

TO INDICATE THAT HOOKS ARE PROHIBITED FOR LIFTING THE SHIPPING CONTAINER.

SERT À INDIQUER QU'IL NE FAUT PAS SOULEVER LE CONTENANT À L'AIDE DE CRAMPONS.

THIS WAY UP
CETTE FACE
EN HAUT



TO INDICATE THE CORRECT UPRIGHT POSITION OF THE SHIPPING CONTAINER.

SERT À INDIQUER QUE, DANS LA POSITION INDIQUÉE PAR LES FLÈCHES, LE CONTENANT EST À L'ENDROIT.

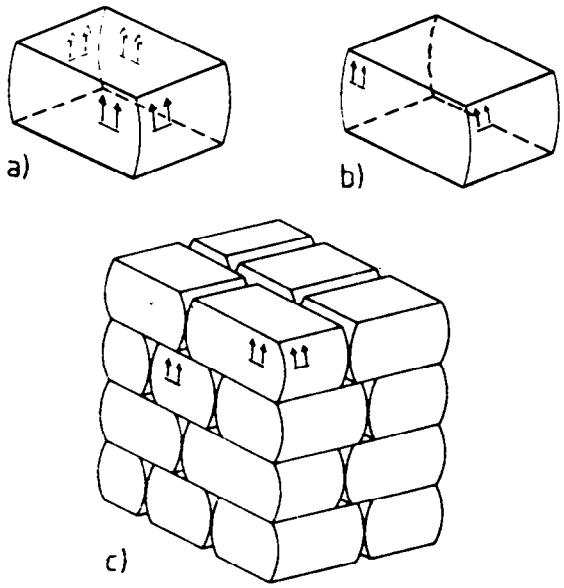


Figure 7 (Sheet 1 of 4)Handling and Cautionary Markings
Figure 7 (Page 1 de 4)Margues de manutention et d'avertissement

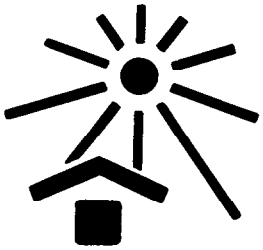
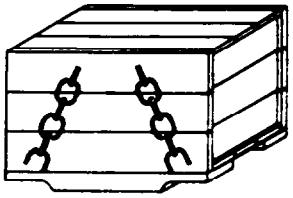
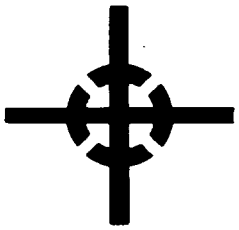
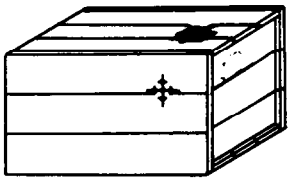
KEEP AWAY FROM HEAT **ÉVITER SOURCE DE CHALEUR** 	TO INDICATE THAT THE SHIPPING CONTAINER SHALL BE KEPT AWAY FROM HEAT. SERT À INDIQUER QU'IL FAUT SE GARDER DE DÉPOSER LE CONTENANT PRÈS D'UNE SOURCE DE CHALEUR.
SLING HERE **ATTACHER ICI**  	TO INDICATE WHERE THE SLINGS ARE TO BE PLACED FOR LIFTING THE SHIPPING CONTAINER. SYMBOL TO BE SHOWN ON AT LEAST TWO OPPOSITE FACES. SERT À INDIQUER OÙ PLACER LES ATTACHES POUR SOULEVER LE CONTENANT. LE SYMBOLE DOIT FIGURER SUR AU MOINS DEUX FACES OPPOSÉES DU CONTENANT.
KEEP DRY **GARDER AU SEC** 	TO INDICATE THAT THE SHIPPING CONTAINER SHALL BE KEPT IN A DRY ENVIRONMENT. SERT À INDIQUER QUE LE CONTENANT D'EXPÉDITION DOIT ÊTRE GARDÉ DANS UN ENDROIT SEC.

Figure 7 (Sheet 2 of 4)Handling and Cautionary Markings
Figure 7 (Page 2 de 4)Margues de manutention et d'avertissement

CENTRE OF GRAVITY
CENTRE DE GRAVITÉ





TO INDICATE THE CENTRE OF GRAVITY OF THE SHIPPING CONTAINER. THE SYMBOL TO BE PLACED ON ALL NORMALLY UPRIGHT SIDES, AND SHALL BE APPLIED IN THE CORRECT POSITION IN ORDER TO ENSURE THE MEANING IS UNDERSTOOD. REQUIRED ON ALL SHIPPING CONTAINERS OVER 3.0M OR ANY CONTAINER WHICH IS UNBALANCED.

SERT À INDIQUER LE CENTRE DE GRAVITÉ DU CONTENANT D'EXPÉDITION. LE SYMBOLE DOIT ÊTRE APPOSÉ SUR TOUS LES CÔTÉS DU CONTENANT, EN POSITION DEBOUT NORMALE, ET AU BON ENDROIT SUR CHAQUE FACE AFIN QUE LE SYMBOLE SOIT BIEN COMPRIS. INDIQUER CE SYMBOLE SUR TOUS LES CONTENANTS DE PLUS DE 3.0 M OU SUR TOUS LES CONTENANTS QUI NE SONT PAS ÉQUILIBRÉS.

DO NOT ROLL
NE PAS ROULER

TO INDICATE THAT THE SHIPPING CONTAINER SHALL NOT BE ROLLED.

SERT À INDIQUER QUE LE CONTENANT NE DOIT PAS ÊTRE ROULÉ.

NO HAND TRUCK HERE
PAS DE CHARIOT
DE CE CÔTÉ

TO INDICATE WHERE HAND TRUCKS OR DOLLIES SHALL NOT BE PLACED WHEN HANDLING THE SHIPPING CONTAINER.

SERT À INDIQUER À QUEL ENDROIT NE PAS PLACER LE DIABLE OU LE CHARIOT POUR DÉPLACER LE CONTENANT.

Figure 7 (Sheet 3 of 4)Handling and Cautionary Markings
Figure 7 (Page 3 de 4)Margues de manutention et d'avertissement

STACKING LIMITATION
LIMITE D'EMPILAGE

TO INDICATE THE LIMITED STACKING POSSIBILITIES OF THE SHIPPING CONTAINERS.

SERT À INDIQUER LA LIMITE D'EMPILAGE QUE LES CONTENANTS PEUVENT SUPPORTER.

CLAMP HERE
METTRE SERRES ICI

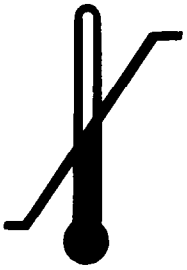
TO INDICATE WHERE CLAMPS SHALL BE PLACED FOR HANDLING THE SHIPPING CONTAINER.

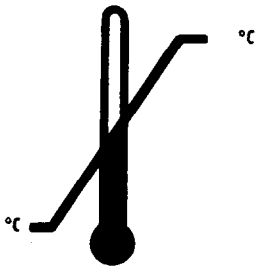
SERT À INDIQUER OÙ METTRE LES SERRES POUR MANIPULER LE CONTENANT.

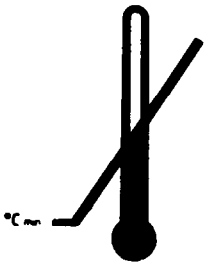
TEMPERATURE LIMITATIONS
LIMITES DE TEMPÉRATURE

TO INDICATE THE TEMPERATURE LIMITATIONS WITHIN WHICH THE SHIPPING CONTAINER SHALL BE KEPT AND HANDLED.

SERT À INDIQUER LES LIMITES DE TEMPÉRATURE À OBSERVER POUR L'ENTREPOSAGE ET LE TRANSPORT DU CONTENANT.







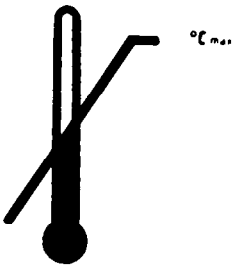


Figure 7 (Sheet 4 of 4)Handling and Cautionary Markings
Figure 7 (Page 4 de 4)Margues de manutention et d'avertissement

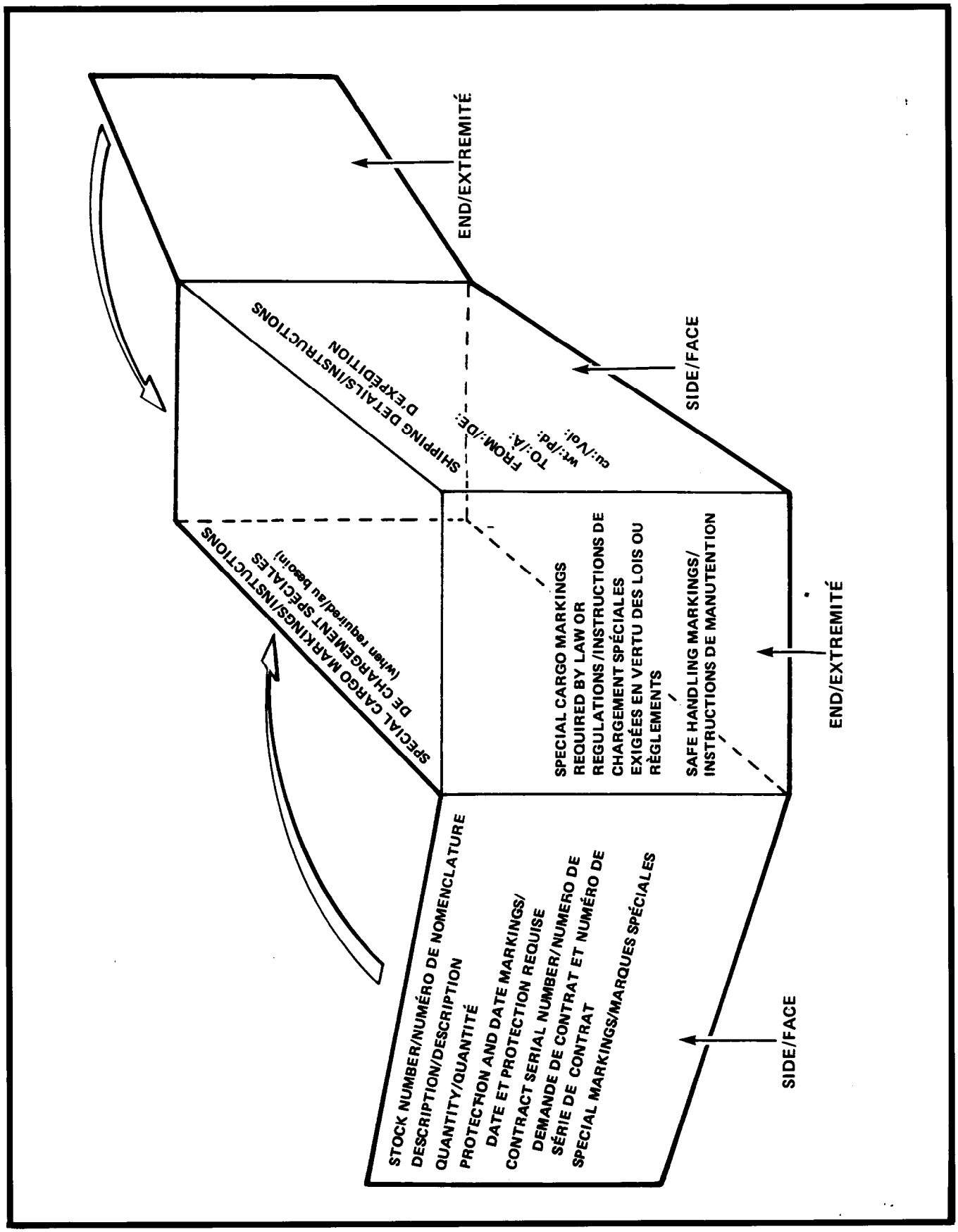


Figure 8 Shipping Container Markings — Volume under 0.28 m³ (10 cu ft)
Figure 8 Marquage des contenants d'expédition de moins de 0,28m³ (10 pi³)

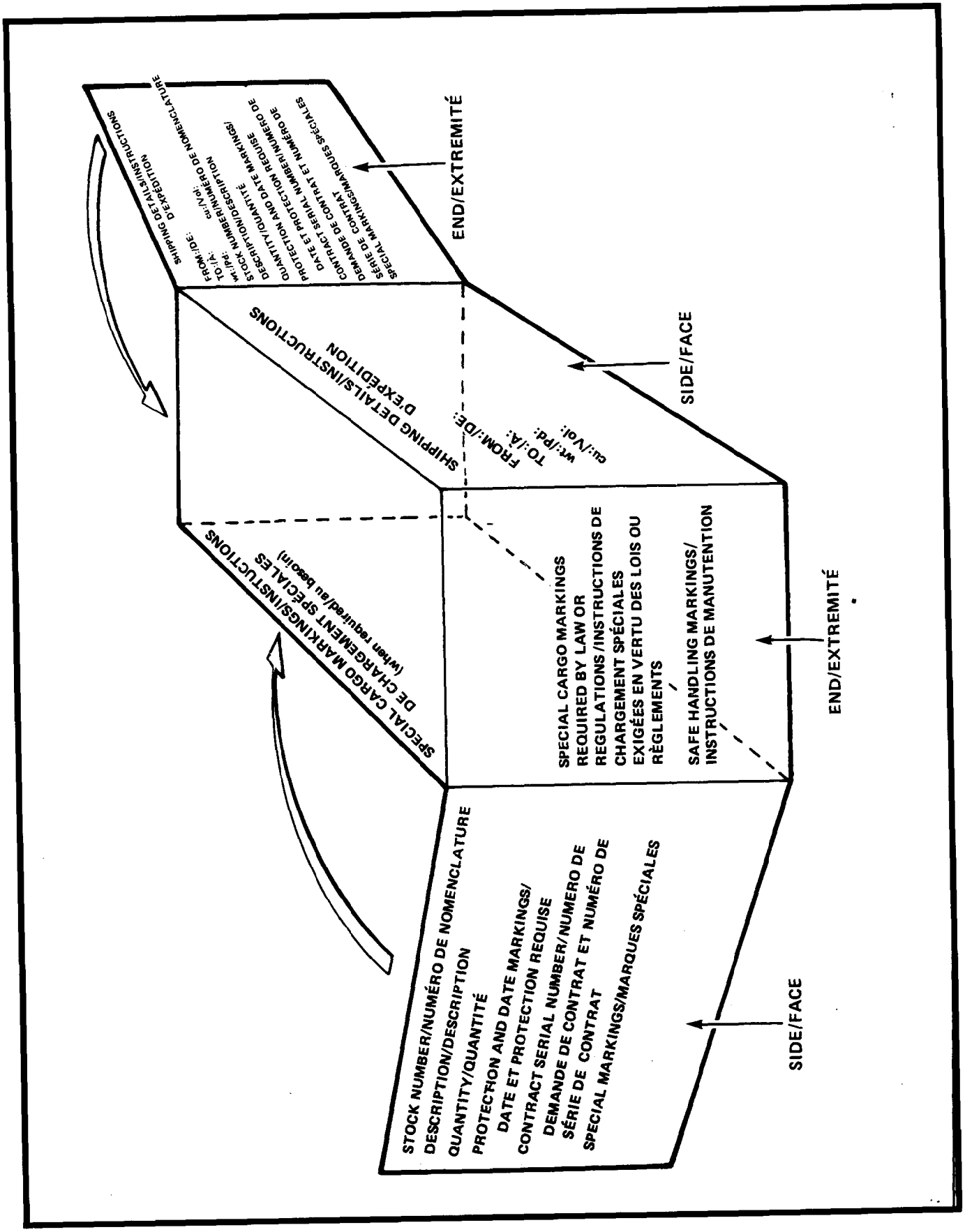
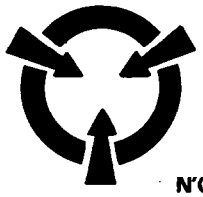


Figure 9 Shipping Container Markings — Volume over 0.28 m³ (10 cu ft)
Figure 9 Marquage des contenants d'expédition de 0,28 m³ (10 pi³) et plus

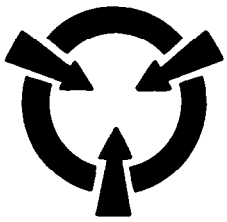


CAUTION
SENSITIVE ELECTRONIC DEVICES
DO NOT OPEN EXCEPT AT
APPROVED FIELD FORCE
PROTECTIVE WORK STATION

ATTENTION
MATÉRIEL ÉLECTRONIQUE SENSIBLE
N'OUVRIR QU'À UN POSTE DE TRAVAIL HOMOLOGUÉ
PROTÉGÉ CONTRE LES CHAMPS DE FORCES

SENSITIVE ELECTRONIC DEVICE UNIT PACK LABEL.

ÉTIQUETTE APPOSÉE SUR UN EMBALLAGE UNITAIRE RENFERMANT DU MATÉRIEL ÉLECTRONIQUE SENSIBLE.



CAUTION
SENSITIVE ELECTRONIC DEVICES
DO NOT SHIP OR STORE NEAR STRONG ELECTROSTATIC, ELECTROMAGNETIC, MAGNETIC OR RADIOACTIVE FIELDS

ATTENTION
MATÉRIEL ÉLECTRONIQUE SENSIBLE
NE PAS TRANSPORTER NI ENTREPOSER PRÈS DE CHAMPS ÉLECTROSTATIQUES, ÉLECTROMAGNÉTIQUES, MAGNÉTIQUES OU RADIOACTIFS DE FORTE INTENSITÉ

SENSITIVE ELECTRONIC DEVICE CAUTION LABEL (INTERMEDIATE AND EXTERIOR PACKS).

ÉTIQUETTE APPOSÉE SUR LES EMBALLAGES INTERMÉDIAIRES ET EXTÉRIEURS RENFERMANT DU MATÉRIEL ÉLECTRONIQUE SENSIBLE.

Figure 10 Sensitive Electronic Device Caution Label
Figure 10 Étiquette d'avertissement — Matériel électronique sensible

TERM	CODE	TERME	CODE
Ampoule	AM	Ampoule	AM
Assembly	AY	Anneau	HK
Assortment	AT	Assortiment	AT
Bag	BG	Balle	BA
Bale	BE	Ballot	BE
Ball	BA	Bande	SP
Bar	BR	Baril	DR
Barrel	BL	Barre	BR
Board Feet	BF	Baton	SX
Bolt	BO	Bidon	TI
Book	BK	Bobine	CL
Bottle	BT	Bobine	RL
Box	BX	Boisseau (Impérial)	BM
Bundle	BD	Boite	BX
Bushel, Imperial (2219.23 cu in)	BM	Bonbonne	CB
Cake	CK	Boulon	BO
Can	CN	Bouteille	BT
Carboy	CB	Brasse	FM
Cubic Yard	CD	Cannette	CN
Cartridge	CA	Cartouche	CA
Centigramme	CG	Cent	HD
Centimetre	CM	Centimètre	CM
Coil	CL	Centimètre Cube	CC
Cone	CE	Centigramme	CG
Container	CO	Chacun	EA
Cubic Centimetre	CC	Chopine (Impériel)	PI
Cubic Foot	CF	Chopine (Américaine)	PT
Cubic Inch	CI	Cone	CE
Cubic Metre	CZ	Conteneur	CO
Cylinder	CY	Cylindre	CY
Decagramme	DC	Décagramme	DC
Decigramme	DG	Décigramme	DG

TERM	CODE	TERME	CODE
Decilitre	DL	Décilitre	DL
Decimetre	DE	Décimètre	DE
Dozen	DZ	Dévidoir	SL
Drum	DR	Douzaine	DZ
Each	EA	Écheveau	SK
Fathom	FM	Emballage	PG
Foot	FT	Ensemble	SE
Gallon, Imperial	GB	Équipement	OT
Gallon, US	GL	Feuille	SH
Grain	GN	Fiole	VI
Gramme	GM	Gallon (Impérial)	GB
Gross	GR	Gallon (Américain)	GL
Group	GP	Grain	GN
Hank	HK	Gramme	GM
Hundred	HD	Grosse	GR
Hundredweight, Imperial (112 lb)	HI	Group	GP
Inch	IN	Jarre	JR
Jar	JR	Kilogramme	KG
Kilogramme	KG	Kilomètre	LM
Kilometre	KM	Litre	LI
Kit	KT	Livre	BK
Length	LG	Longueur	LG
Litre	LI	Mètre	MR
Long Ton (2240 lb)	LT	Microgramme	MC
Meal	ME	Mille	MX
Metre	MR	Milligramme	MG
Microgramme	MC	Millilitre	ML
Milligramme	MG	Millimètre	MM
Millilitre	ML	Once	OZ
Millimetre	MM	Once Troy	TO
Ounce	OZ	Pain	CK
Outfit	OT	Paire	PR
Package	PG	Patin	SD

TERM	CODE
Packet	PZ
Pad	PD
Pair	PR
Phial (see Vial)	VI
Pint, Imperial	PI
Pint, US	PT
Plate	PM
Pound	LB
Quart, Imperial	QI
Quart, US	QT
Ration	RA
Ream	RM
Roll	RO
Reel	RL
Set	SE
Sheet	SH
Shot	SO
Skein	SK
Skid	SD
Spool	SL
Square Foot	SF
Square Inch	SI
Square Yard	SY
Short Ton	ST
Stick	SX
Strip	SP
Thousand	MX
Tin	TI
Ton (2000 lb)	TN
Ton, Metric (2204.6 lb)	TM
Troy Ounce	TO
Tube	TU

TERME	CODE
Paquet	BD
Paquet	PZ
Pied	FT
Pied Carré	SF
Pied Cube	CF
Pied Planche	BF
Plaque	PM
Pinte (Impériale)	QI
Pinte (Américaine)	QT
Pouce	IN
Pouce Carré	SI
Pouce Cube	CI
Projectilé	SO
Quintal (Impériale)	HI
Rame	RM
Ration	RA
Repas	ME
Rouleau	RO
Sac	BG
Tampon	PD
Tonneau	BL
Tonne	TN
Tonne Mètrique	TM
Tonne Torte	LT
Trousse	KT
Tube	TU
Verge	YD
Verge Carrée	SY
Verge Cube	CD

TERM	CODE
Vial (see Phial)	VI
Yard	YD

(b) **Miscellaneous abbreviations.** Miscellaneous abbreviations are as follows:

Aircraft on ground	AOG
Bill of Lading	B/L
Catalogue	CAT
Supply and Services Canada	SSC
Dimensions	DIM
Engine	ENG
Express	EXP
Federal Stock Number	FSN
Financial Encumbrance	FE/EF
Freight	FRT
Government Bill of Lading	GBL
Hi Value	HV
Invoice	INV
Less than carload	LCL
Less than truckload	LTL
Manufactured	MFD
Mark	MK
NATO Stock Number	NSN
Net Weight	Net/WT
Number	NO
Ocean Bill of Lading	OBL
Parcel Post	PP
Prepaid	PPD
Station	STN
Tare Weight	T/WT
Urgent Repair Requirement	URR

TERME	CODE

(b) **Abréviations diverses.** Les abréviations employées sont les suivantes:

Aéronef au sol	AOG
Connaissement	B/L
Catalogue	CAT
Approvisionnements et Services Canada SSC	
Dimensions	DIM
Moteur	ENG
Express	EXP
Numéro de nomenclature fédéral	FSN
Consignation de fonds	FE/EF
Fret	FRT
Connaissement du gouvernement ÉTAT	CONN
Valeur élevée	HV
Facture	INV
Chargement partiel (wagon)	LCL
Chargement partiel (camion)	LTL
Fabriqué	MFD
Marque	MK
Numéro de nomenclature de l'OTAN	NNO
Poids net	NET/WT
Numéro	NO
Connaissement maritime	OBL
Colis postal	PP
Port payé	PPD
Station	STN
Poids à vide	T/WT
Réparation requise d'urgence	URR

TERM	CODE
(c) **Provinces.** Provinces are abbreviated as follows:	
Province of British Columbia	BC
Province of Alberta	AB
Province of Saskatchewan	SK
Province of Manitoba	MB
Province of Ontario	ON
Province of Quebec	PQ or QC
Province of New Brunswick	NB
Province of Nova Scotia	NS
Province of Prince Edward Island	PE
Province of Newfoundland	NF
Yukon Territory	YT
North West Territory	NT

TERME	CODE
(c) **Provinces.** Les abréviations employées sont les suivantes:	
Colombie-Britannique	BC
Alberta	AB
Saskatchewan	SK
Manitoba	MB
Ontario	ON
Québec	PQ/QC
Nouveau-Brunswick	NB
Nouvelle-Écosse	NS
Île-du-Prince-Édouard	PE
Terre-Neuve	NF
Yukon	YT
Territories du Nord-Ouest	NT

20. GUIDE TO CONTRACT IDENTIFICATION MARKINGS

20.1 **Scope.** This appendix shows an example of contract serial numbers which must be given to meet the requirements of 3.7.1(e) and 3.11.1(a)v.

20. GUIDE DES MARQUES D'IDENTIFICATION DES CONTRATS

20.1 **Portée.** Cette appendice présente un exemple des numéros qui doivent être donnés pour que soient satisfaites les exigences des paragraphes 3.7.1(e) et 3.11.1(a)v.

Supply and Services Canada / Approvisionnements et Services Canada

Scientific Elect. Mechanical & Construction Products Br. - DF
7B1 Place du Portage Phase III
Hull, Que. K1A 0S5
FAX NO: 819-997-9776

CONTRACT - CONTRAT

Page 1 of / de 12

SSC file No. - N° de référence d'ASC
014DF.W8463-0-DA6F

Date of Contract - Date du contrat
08 Apr/avr 1991

Contract No. - N° du contrat
W8463-0-DA6F/02-DF

Requisition No. - N° de la demande

Order office / Bureau demandeur	Yr / An	Serial No. / N° de série
W8463	0	DA6F

Financial Code(s) - Code(s) financier(s)
02D 846390EDA6F 8463DA 02DP
07243 GOODS
2302-AP-35TX--81710 GST

Duty - Droits
Included
Compris

F.O.B. - F.A.B.
Destination

Goods and Services Tax - Taxe sur les produits et services
see herein/voir ci-inclus

Destination
SEE HEREIN

Invoices - original and two copies are to be made out and sent to:
Factures - remplir et envoyer l'original et deux copies à:
SEE HEREIN

Address enquiries to: - Adresser toute demande de renseignements à:
B. Larocque

Area code / code régional	Telephone No. / N° de téléphone	Extension / Poste	Telex No. / N° de télex
819	956-3590		053-3703

Your proposal is accepted 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 supplies listed herein and on any attached sheets at the price or prices set out therefor.

Nous acceptons votre proposition de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans les présentes, et aux annexes ci-jointes, les articles énumérés dans les présentes, et sur toute feuille ci-annexée, au(x) prix indiqué(s).

MARITIME PAPER PRODUCTS LIMITED
PO BOX 668

DARTMOUTH NS
B2Y3Y9

0AZNT

Total est. cost - Coût total est.
$164,454.78

For the Minister - Pour le Ministre

Canada

DSS-MAS 9400-9 (10/90)

Figure 11 Contract Identification Markings
Figure 11 Marques d'identification d'un contrat

30. STANDARD SYMBOLOGY FOR BAR CODING

30.1 **Scope.** The purpose of this standard is to define the standard symbology for marking unit packs, outer containers, and selected documents by means of bar coding.

30.2 **Application.** The standard symbology shall be used whenever bar code marking/reading operations are employed within logistics operations.

30.3 **Definitions.** For the purpose of this publication:

bar
means a single dark element of a bar code;

bar code
means an array of rectangular marks and spaces in a predetermined pattern;

bar width
means the perpendicular distance across a bar measured from a point on one edge to the opposite edge; each edge will be defined as having a reflectance that is 50 per cent of the difference between the lighter background and the bar reflectances;

bearer bar
means a rectangular bar pattern circumscribing the bar code, particularly a bar code directly printed on corrugated fibreboard;

bidirectional code
means a bar code format which permits reading in complementary (opposite) directions across the bars and spaces;

binary
pertains to a characteristic or property involving a selection, choice, or condition in which there are two possibilities;

binary code
means a code which makes use of exactly two distinct characters, usually 0 and 1;

30. CODE À BATONNETS STANDARD

30.1 **Portée.** Cette appendice présente les normes de marquage des contenants unitaires, des contenants extérieurs et de certains documents au moyen du code à bâtonnets standard.

30.2 **Domaines d'application.** Le code à bâtonnets standard doit être utilisé dans les opérations de logistique.

30.3 **Définitions.** Les principaux termes utilisés dans cette publication sont définis ci-dessous:

bâtonnet
élément foncé d'un code à bâtonnets;

code à bâtonnets
ensemble rectangulaire de traits et d'espaces placés d'une manière ordonnée;

largeur d'un bâtonnet
plus petite dimension d'un bâtonnet, mesurée transversalement d'un point d'une bordure à un point de la bordure opposée; chaque bordure doit avoir une réflectance égale à 50% de la différence entre la réflectance du fond (plus pâle) et celle du bâtonnet;

cadre
élément rectangulaire entourant le code à bâtonnets, particulièrement quand celui-ci est imprimé directement sur du carton ondulé;

code bidirectionnel
code à bâtonnets dont la lecture peut se faire dans les deux sens;

binaire
se dit d'une caractéristique ou d'une propriété d'un choix ou d'un état offrant deux possibilités;

code binaire
code faisant appel à deux caractères distincts, généralement 0 et 1;

certificate of conformance (COC)
means contractors signed certification that the supplies provided to the government (under contract) comply with stated contract requirements and specifications; the COC does not waive the government's right to inspect supplies under other inspection provisions of a contract;

certificat de conformité
certificat signé par l'entrepreneur dans lequel celui-ci atteste que les fournitures remises à l'État (en vertu d'un contrat) sont conformes aux exigences et aux spécifications du marché; le certificat de conformité ne limite en rien le droit qu'a l'État d'inspecter les fournitures en vertu d'autres clauses d'un marché;

character
means a letter, digit, or other special form that is used as part of the organization, control, or representation of data and is often in the form of a spatial arrangement of adjacent or connected strokes;

caractère
lettre, chiffre ou autre symbole utilisé dans l'organisation, le contrôle ou la représentation des données; un caractère est souvent composé de traits adjacents ou liés;

characters per inch (CPI)
means the number of bar coded characters that are displayed in each inch of bar code;

caractères au pouce (C/po)
dans un code à bâtonnets, nombre de caractères représentés au pouce;

character set
means those characters which are available for encoding within the bar code;

ensemble de caractères
caractères susceptibles d'être représentés par un code à bâtonnets;

code density
means the number of characters that can appear per unit of length, normally expressed in characters per inch;

densité de codes
nombre de caractères par unité de longueur, normalement au pouce;

discrete code
means a bar code in which the intercharacter gap is not part of the code and is allowed to vary dimensionally within wide tolerance limits;

code discret
code à bâtonnets dans lequel l'intervalle entre les caractères ne fait pas partie du code et peut varier considérablement;

element
means a generic term used to refer to either a bar or a space;

élément
terme générique qui peut aussi bien désigner un bâtonnet qu'un espace;

human readable interpretation (HRI)
means the exact interpretation of the encoded bar code data presented in a human-readable font;

interprétation en clair
interprétation exacte des données d'un code à bâtonnets présentées avec une police intelligible;

intercharacter gap
means the space between the last element of one character and the first element of the adjacent character of a discrete bar code;

intervalle
espace compris entre le dernier élément d'un caractère et le premier élément du caractère adjacent d'un code discret;

margin (quiet zone)
means the area immediately preceding the start character and following the stop character which contains no markings, and provides the same reflectance as the spaces;

marge
espace blanc qui précède immédiatement le caractère de départ et qui suit le caractère d'arrêt, dont la réflectance est égale à celle des espaces;

message
means the string of characters encoded in a bar code;

print contrast signal (PCS)
means a measure of the contrast between bars and spaces of a symbol which is based on reflection measurements at a specific wave length of light;

standard NATO bar code symbology (SNS)
means the 3-of-9 bar code with a human-readable interpretation (HRI); the 3-of-9 code is defined in terms of size, density, contrast, and code pattern and is also referred to as code 39 or code 3-of-9;

self-checking bar code
means a bar code which uses a checking algorithm which can be applied against each character to guard against undetected errors;

space
means the lighter element of a bar code;

space width
means perpendicular distance across a space measured from a point on edge of bar to a point on the opposite bar;

start and stop characters
means distinct characters represented by an asterisk(*) used at the beginning and end of each 3-of-9 bar code which provides initial timing references and direction of read information to the coding logic; the asterisk start and stop code is an integral part of and peculiar to 3-of-9 bar code;

symbol
means a complete bar code containing margins, start character, data characters, check digit, if any, and stop character; and

unit size
means the bar width of the narrow element (the narrow bar and the narrow space are equal in the 3-of-9 bar code) where the width is referred to as the **X** dimension.

message
suite de caractères codés avec des bâtonnets;

signal de contraste d'impression
moyen de mesure du contraste entre les bâtonnets et les espaces d'un symbole qui repose sur des mesures de réflexion à une lumière de longueur d'onde précise;

code à bâtonnets standard
code à bâtonnets 3/9 à interprétation en clair; le code 3/9 (ou 39) a une taille, une densité, un contraste et une structure fixes;

code à bâtonnets d'auto-contrôle
code à bâtonnets dans lequel un algorithme de contrôle peut être appliqué à chaque caractère pour déceler des erreurs;

espace
élément pâle d'un code à bâtonnets;

largeur d'un espace
distance mesurée perpendiculairement entre un point de la bordure d'un bâtonnet et un point de la bordure d'un bâtonnet adjacent;

caractères de départ et d'arrêt
caractères représentés par un astérisque [*] qu'on utilise au début et à la fin de chaque code à bâtonnets 3/9 pour donner à la logique de codage des indications de synchronisation et de direction de lecture; le code d'astérisque fait partie intégrante du code à bâtonnets 3/9 et il en est un élément caractéristique;

symbole
code à bâtonnets complet comprenant des marges, un caractère de départ, des caractères de données, un chiffre de contrôle dans certains cas et un caractère d'arrêt; et

taille de l'unité
largeur d'un élément mince (le bâtonnet mince et l'espace mince ont une largeur égale dans un code 3/9); la largeur est appelée la dimension **X**.

30.2 General requirements

30.2.1 **Code description.** The 3-of-9 code is a variable length, discrete, self-checking, bidirectional, alphanumeric bar code. Its character set contains 43 characters 0-9, A-Z, -, ., $, /, +, %, and space. Each character is composed of 9 elements, five bars and four spaces. Three of the nine elements are wide (binary value 1) and six elements are narrow (binary value 0). A common character (*) is used for both start and stop delimiters. Figure 13 presents the code symbology for the 3-of-9 bar code characters.

30.2.2 **Code configuration.** A message shall consist of a number of 3-of-9 bar code data character symbols enclosed between start/stop code characters, with the corresponding HRI characters. An example of a 3-of-9 message containing the string **ABC** is shown at Figure 12.

30.2.3 **Human-readable interpretation.** The human-readable interpretation of the 3-of-9 bar code shall represent only the encoded characters. The HRI is intended to be used only for human recognition and is not intended to be machine readable. For example, a NATO stock number normally would be marked 5840-21-703-9285. However, when bar coded only the 13 digits are to be encoded and the HRI will be marked 5840217039285. Note that the start and stop asterisks shall be suppressed when marking the HRI (see Figure 15). The shapes and sizes of the characters can be in any easily read font and are to be a minimum of 2.39 mm (0.094 in.) in height. The HRI may be marked above, beside or preferably below the bar code.

30.3 Print requirements

30.3.1 **Reflectivity and contrast.** Print requirements for reflectivity and contrast are as follows:

(a) **Reflectivity.** The maximum allowable reflectivity of the dark base is related to the reflectivity of the light spaces. Bar code symbols with spaces that are less reflective will require bars that are darker (less reflective). The minimum space reflectance shall be 25 per cent for bar code symbols with narrow bar widths equal to or greater than 0.508 mm (0.020 in.). The minimum space reflectance shall be 50 per cent for bar code symbols with narrow bar widths less than 0.508 mm (0.020 in.). The following

30.2 Exigences générales.

30.2.1 **Description du code.** Le code 3/9 est un code à bâtonnets de longueur variable, discret, autocorrecteur, bidirectionnel et alphanumérique. Il comprend en tout 43 caractères (0 à 9, A à Z, -, ., $, /, +, % et espace). Chaque caractère est formé de neuf éléments: cinq bâtonnets et quatre espaces. Trois des neuf éléments sont larges (valeur binaire 1) et six, minces (valeur binaire 0). Un caractère commun (*) est utilisé comme symbole de départ et d'arrêt. La figure 13 présente la configuration des caractères d'un code de type 3/9.

30.2.2 **Configuration des codes.** Un message est formé de symboles représentant des données et compris entre un code de départ et un code d'arrêt; il est toujours accompagné d'une interprétation en clair. La figure 12 présente un exemple de code 3/9 dans lequel le message est **ABC**.

30.2.3 **Interprétation en clair.** L'interprétation en clair d'un code 3/9 ne doit représenter que les caractères codés. Elle a uniquement pour objet d'aider l'utilisateur à comprendre le message et elle n'est pas compréhensible par une machine. Par exemple, un numéro de nomenclature OTAN s'écrit normalement 5840-21-703-9285. Quand il est codé, toutefois, seuls les 13 chiffres sont codés, et l'interprétation en clair devient 5840217039285. On remarquera que les astérisques de départ et d'arrêt sont omises dans l'interprétation en clair (voir la figure 15). La forme et la taille des caractères importent peu, pourvu que les caractères soient faciles à lire et qu'ils fassent au moins 2,39 mm (0,094 po) de hauteur. L'interprétation en clair doit figurer de préférence sous le code à bâtonnets, mais elle peut également être placée au-dessus ou à côté du code.

30.3 Exigences relatives à l'impression

30.3.1 **Réflectance et contraste.** Les exigences d'impression qui concernent la réflectance et le contraste sont exposées ci-dessous:

(a) **Réflectance.** La réflectance maximale admissible des éléments foncés dépend de la réflectance des espaces pâles. Les symboles d'un code à bâtonnets dont les espaces ont une faible réflectance supposent des bâtonnets plus foncés (moins réfléchissants). La réflectance minimale des espaces doit être de 25% quand la largeur des bâtonnets minces est égale ou supérieure à 0,508 mm (0,02 po). La réflectance minimale des espaces doit être de 50% quand la largeur des bâtonnets minces est inférieure

illustrates the maximum bar reflections R_b as functions of space reflectance R_w.

â 0,508 mm (0,02 po). Le tableau ci-dessous présente la réflectance maximale des bâtonnets (R_b) en fonction de la réflectance des espaces (R_w).

ALLOWABLE VALUES OF BAR REFLECTANCE
RÉFLECTANCE ADMISSIBLE DES BÂTONNETS

SPACE REFLECTANCE RÉFLECTANCE DES ESPACES	MAXIMUM BAR REFLECTANCE RÉFLECTANCE MAXIMALE DES BÂTONNETS
R_w (%)	R_b (%)
25	6.25
30	7.50
35	8.75
40	10.00
45	11.25
50	12.50
55	13.75
60	15.00
65	16.25
70	17.50
75	18.75
80	20.00
85	21.25
90	22.50
95	23.75
100	25.00

In the above table, the minimum contrast ratio of R_w and R_b is 4.0 and the minimum Print Contrast Signal (PCS) is 75 per cent.

Dans le tableau ci-dessus, le ratio de contraste minimal de R_w et R_b est de 4.0, et le signal de contraste d'impression minimal, de 75 %.

(b) **Contrast.** The print contrast signal (PCS) is defined as:

where R_w is the reflectance from the white spaces and R_b is the reflectance from the dark bars. The minimum PCS allowed is 75 per cent.

30.3.2 **Code density and dimension.** The 3-of-9 bar code can be printed at various densities to accommodate a variety of printing and reading processes. The significant parameters are the nominal width X of the narrow elements and the nominal ratio of wide to narrow elements. The allowable range for the nominal unit size and the nominal wide-to-narrow ratio is as follows:

(b) **Contraste.** Le signal de contraste d'impression s'écrit:

où R_w représente la réflectance des espaces blancs, et R_b la réflectance des bâtonnets foncés. Le signal de contraste d'impression minimal admissible est de 75%.

30.3.2 **Densité et dimension des codes.** Les codes à bâtonnets 3/9 peuvent être imprimés â diverses densités, compte tenu des méthodes d'impression et de lecture. Les paramètres importants sont la largeur nominale X des éléments minces et le ratio nominal éléments larges/éléments minces. L'intervalle admissible de la taille nominale des unités et du ratio large/mince nominal sont donnés ci-dessous:

(a) Minimum nominal unit size — 0.112 mm (0.0044 in.) (for special applications).

(b) Minimum nominal unit size — 0.190 mm (0.0075 in.) for general applications.

(c) Maximum nominal unit size — 0.508 mm (0.0200 in.) for general applications.

(d) Maximum nominal unit size — 1.016 mm (0.0400 in.) for special applications.

(e) Nominal wide-to-narrow ratio:

i 2.5:1 to 3.0:1 for codes whose unit size is less than 0.190 mm (0.0075 in.).

ii 2.2:1 to 3.0:1 for codes whose unit size is less than 0.381 mm (0.015 in.) and equal to or greater than 0.190 mm (0.0075 in.).

iii 2.0:1 to 3.0:1 for codes whose unit size is equal to or more than 0.381 mm (0.015 in.).

iv 2.2:1 to 3.0:1 for codes whose unit size is less than 0.508 mm (0.0200 in.).

v 2.0:1 to 3.0:1 for codes whose unit size is more than 0.508 mm (0.0200 in.).

30.3.3 **Code heights.** The bar code height can vary to suit specific reading and marking requirements. The bar code heights shown at Figure 17 shall be used for the corresponding ranges of bar code density. For those applications where these heights are not suitable, height requirements will be as specified by the procuring activity. The corresponding minimum HRI heights are also shown at Figure 17.

30.3.4 **Intercharacter gap.** The minimum gap between characters is the same as the minimum dimension (X) of a narrow element. The maximum intercharacter gap width shall be three times the width of a narrow element (3X) (see Figure 12).

30.3.5 **Margins (quiet zones).** The minimum left and right margins shall be 10 times the width of one narrow element (10X) or 6.35 mm (0.25 in.) whichever is greater unless otherwise specified.

(a) Taille nominale minimale des unités — 0,112 mm (0,0044 po): applications spéciales.

(b) Taille nominale minimale des unités — 0,190 mm (0,075 po): applications générales.

(c) Taille nominale minimale des unités — 0,508 mm (0,02 po): applications générales.

(d) Taille nominale minimale des unités — 1,016 mm (0,04 po): applications spéciales.

(e) Ratio large/mince, nominal:

i 2,5:1 à 3,0:1 dans le cas des codes dont la taille de l'unité est inférieure à 0,190 mm (0,0075 po).

ii 2,2:1 à 3,0:1 dans le cas des codes dont la taille de l'unité est inférieure à 0,381 mm (0,015 po) et égale ou supérieure à 0,190 mm (0,0075 po).

iii 2,0:1 à 3,0:1 dans le cas des codes dont la taille de l'unité est égale ou supérieure à 0,381 mm (0,015 po).

iv 2,2:1 à 3,0:1 dans le cas des codes dont la taille de l'unité est inférieure à 0,508 mm (0,02 po).

v 2,0:1 à 3,0:1 dans le cas des codes dont la taille de l'unité est supérieure à 0,508 mm (0,02 po).

30.3.3 **Hauteur des codes.** La hauteur d'un code à bâtonnets dépend des conditions de lecture et de marquage. Les hauteurs indiquées à la figure 17 seront utilisées avec les intervalles correspondants de densité de code. Dans les situations où ces hauteurs ne conviennent pas, on se conformera aux exigences des responsables de l'acquisition. La hauteur minimale de l'interprétation en clair est également indiquée à la figure 17.

30.3.4 **Intervalle entre les caractères.** L'intervalle minimal entre les caractères est égal à la dimension minimale (X) de l'élément mince. L'intervalle maximal entre les caractères est égal à trois fois la largeur de l'élément mince (3X) (voir la figure 12).

30.3.5 **Marges.** À moins d'indication contraire, les marges de gauche et de droite doivent faire au moins dix fois la largeur d'un élément mince (10X) ou 6,35 mm (0,25 po), la valeur la plus élevée étant à retenir.

30.3.6 **Spacing between bar code and HRI.** The minimum spacing between the bar code and the HRI shall be a minimum of 0.25 mm (0.01 in.) and a maximum of 6.35 mm (0.25 in.).

30.3.7 **Spacing between edge of label and HRI.** The minimum spacing between the horizontal edge of the label and the HRI shall be 1.588 mm (0.0625 in.).

30.3.8 **Spacing recommendations for SDS message formats.** The following spacing requirements apply unless otherwise specified:

(a) When SDS messages are in an over-and-under configuration (stacked), the message shall have a minimum separation of 9.53 mm (0.375 in.) and a maximum separation of 19.05 mm (0.75 in.) from bar code to bar code (see Figure 16).

(b) The spacing between two separately coded SDS messages on the same line shall have a minimum separation of 12.7 mm (0.5 in.) (see Figure 16).

30.3.9 **Bar code tolerances.** Bar code tolerances are reached as follows:

(a) **Measuring tolerance.** The width of printed bars and spaces can be measured with an optical comparator using reflected light incident at 30° to 45° from a normal to the printed surface. A magnification of 50X is recommended although with some loss of accuracy, 20X may be used. Printed bar codes with reasonably smooth bar edges are easily measured by visually averaging the edge roughness over a linear reticle on the comparator screen.

(b) **Calculation tolerance.** The allowable printing with tolerance **t** is a function of the nominal width **x** and the nominal ratio **n** of wide to narrow. This tolerance is defined as:

$$t = \pm \left(\frac{4}{27}\right) \left(n - \frac{2}{3}\right) x$$

Note: The value of **n** shall be in the allowable range of 2 to 3. Figure 14 shows the tolerances for the various commonly used nominal dimensions.

30.3.6 **Espacement entre le code à bâtonnets et l'interprétation en clair.** L'espacement entre le code â bâtonnets et l'interprétation en clair doit être d'au moins 0,25 mm (0,01 po) et d'au plus 6,35 mm (0,25 po).

30.3.7 **Espacement entre la bordure de l'étiquette et l'interprétation en clair.** L'espacement entre la bordure horizontale de l'étiquette et l'interprétation en clair doit être d'au moins 1,588 mm (0,0625 po).

30.3.8 **Espacement recommandé dans le cas des messages en codes à bâtonnets standard.** À moins d'indication contraire, on veillera à se conformer aux exigences suivantes:

(a) Lorsque des message codés sont superposés, l'intervalle entre les codes à bâtonnets doit être d'au moins 9,53 mm (0,375 po) et d'au plus 19,05 mm (0,75 po) (voir la figure 16).

(b) Deux messages codés sur une même ligne doivent être séparés par un intervalle d'au moins 12,7 mm (0,5 po) (voir la figure 16).

30.3.9 **Tolérance.** Les tolérances relatives aux codes à bâtonnets peuvent être établies comme suit:

(a) **Mesure de la tolérance.** La largeur des bâtonnets et des espaces peut être mesurée avec un comparateur optique et une lumière réfléchie sur une surface imprimée à un angle de 30° à 45° par rapport à la normale. Un grossissement de 50X est recommandé, mais on pourra aussi recourir à un grossissement de 20X, même si la précision sera dans ce cas moins grande. On pourra mesurer facilement les codes à bâtonnets dont la bordure est raisonnablement lisse en faisant visuellement la moyenne des inégalités à l'aide du réticule de l'écran du comparateur.

(b) **Calcul des tolérances.** La tolérance d'impression admissible **t** est fonction de la largeur nominale **x** et du ratio nominal **n** (bâtonnets larges/bâtonnets minces). Cette tolérance s'écrit:

$$t = \pm \left(\frac{4}{27}\right) \left(n - \frac{2}{3}\right) x$$

Nota: La valeur de **n** doit se situer entre 2 et 3. La figure 14 présente les tolérances de diverses dimensions nominales couramment utilisées.

30.3.10 **Spots, voids and bar edge roughness.** Spots, voids, and bar edge roughness are considered as follows:

(a) **General.** A major advantage of the 3-of-9 bar code is that it can be correctly read in spite of localized printing defects. A defect of sufficient magnitude may cause a wand scanner not to read if the scanning line passes directly through the defect. However, a subsequent scan through a nondefective area of the bar code will typically result in a good read.

(b) **Edge roughness.** Edge roughness is included in the bar and space width tolerances. The white to black and black to white transition points are determined where the apparent reflectance of a circle with a diameter 0-8 times the nominal width of a narrow element is halfway between the reflectances of the bar and space reflectance values.

(c) **Spots and voids.** A single spot or void of sufficient magnitude in an individual character code will cause a wand scanner to not read when the scanning line passes directly through the defect. However, two independent defects occurring along the same scan within the same character code could produce a substitution error. Such error can only result if a void in a wide bar is aligned with a spot on a narrow bar within the same character code. Spots and voids which meet either of the following criteria are permitted:

i The spot or void can be contained within a circle whose diameter is 0.4 times the nominal width of the narrow element.

ii The spot or void occupies no more than 25 per cent of the area of a circle whose diameter is 0.8 times the nominal width of the narrow element. Larger spots or voids can be expected to reduce the first read rate depending on their size.

30.4 **Application of markings**

30.4.1 Marking of interior and shipping containers shall be as follows:

(a) The words NATO Stock Number, Nomenclature, Quantity and Protection and Date Markings, shall not be made a part of the markings.

30.3.10 **Taches, blancs et inégalités des bordures:**

(a) **Généralités.** Le principal avantage du code à bâtonnets 3/9 est qu'il peut être lu correctement même s'il présente quelques défauts d'impression. Si un défaut est suffisamment important, le crayon-lecteur ne saisit pas le bâtonnet si le faisceau de lecture passe directement sur l'imperfection. Toutefois, une lecture subséquente sur une partie sans imperfection du bâtonnet donne généralement de bons résultats.

(b) **Inégalités des bordures.** Les inégalités des bordures doivent entrer dans la largeur admissible des bâtonnets et des espaces. Les points de transition blanc-noir et noir-blanc se trouvent à l'endroit où la réflectance apparente d'un cercle dont le diamètre fait de 0 à 8 fois la largeur nominale d'un élément mince se trouve à mi-chemin entre la réflectance des bâtonnets et celle des espaces.

(c) **Taches et blancs.** Le caractère qui comporte une tache ou un blanc suffisamment important ne sera pas lu par le crayon-lecteur si le faisceau de lecture passe directement sur l'imperfection. Il se pourrait toutefois que deux imperfections indépendantes d'un même code de caractère produisent une erreur de substitution. Ces erreurs ne peuvent s'observer que si un blanc d'un bâtonnet large est aligné sur une tache d'un bâtonnet mince du même code de caractère. Les taches et les blancs qui satisfont aux exigences suivantes sont admissibles:

i La tache ou le blanc peut être contenu dans un cercle dont le diamètre est égal â 0,4 fois la largeur nominale de l'élément mince.

ii Le point ou le blanc n'occupe pas plus de 25 % de la superficie d'un cercle dont le diamètre est de 0,8 fois la largeur nominale de l'élément mince. Compte tenu de leur taille, les taches ou les blancs importants contribuent à réduire la proportion des lectures du premier coup.

30.4 **Marquage**

30.4.1 Marquage des contenants intérieurs et des contenants d'expédition:

(a) Les mentions numéro de nomenclature OTAN, description, quantité et protection et date ne doivent pas être marquées.

(b) Interior containers shall be marked with the NATO stock number and exterior containers shall be marked with the NATO stock number, contract serial number, quantity and unit of issue, protection-date markings and quality assurance code in the standard bar code symbology described herein. Bar code markings shall be applied as illustrated at Figures 15, 18, 19, 20 or 21.

(c) When no NSN is available, the manufacturer's reference/part number (MFR/PN) shall be used and space shall be left blank immediately above the number for subsequent placement of the NSN. The words MFR/PN shall be used to identify this information.

30.4.2 **Exterior container identification markings.** The required markings shall be placed so as not to be obscured by cleats and strapping. Arrangement of markings shall be as described and illustrated herein. One end and the top and bottom of containers shall always be free of any markings, unless otherwise specified.

(b) Les contenants intérieurs doivent porter le numéro de nomenclature OTAN, et les contenants extérieurs, le numéro de nomenclature OTAN, le numéro de série du contrat, la quantité et l'unité de distribution, les mesures de protection et la date ainsi que le code d'assurance de la qualité, ces renseignements étant donnés en codes à bâtonnets. Les codes à bâtonnets doivent être appliqués conformément aux indications des figures 15, 18, 19, 20, ou 21.

(c) À défaut de NNO, on indiquera le numéro de référence du fabricant ou le numéro de pièce et on laissera immédiatement au-dessus l'espace voulu pour que le NNO puisse être ajouté ultérieurement. Ces renseignements doivent être accompagnés de la mention numéro de référence du fabricant/numéro de pièce.

30.4.2 **Marques d'identification des contenants extérieurs.** Les marques d'identification des contenants extérieurs doivent être placées de manière que les attaches et les cerclages ne les cachent pas. Elles seront en outre conformes aux instructions et aux illustrations présentées ici. À moins d'indication contraire, on laisssra toujours une extrémité ainsi que le dessus et le dessous des contenants libres de toute marque.

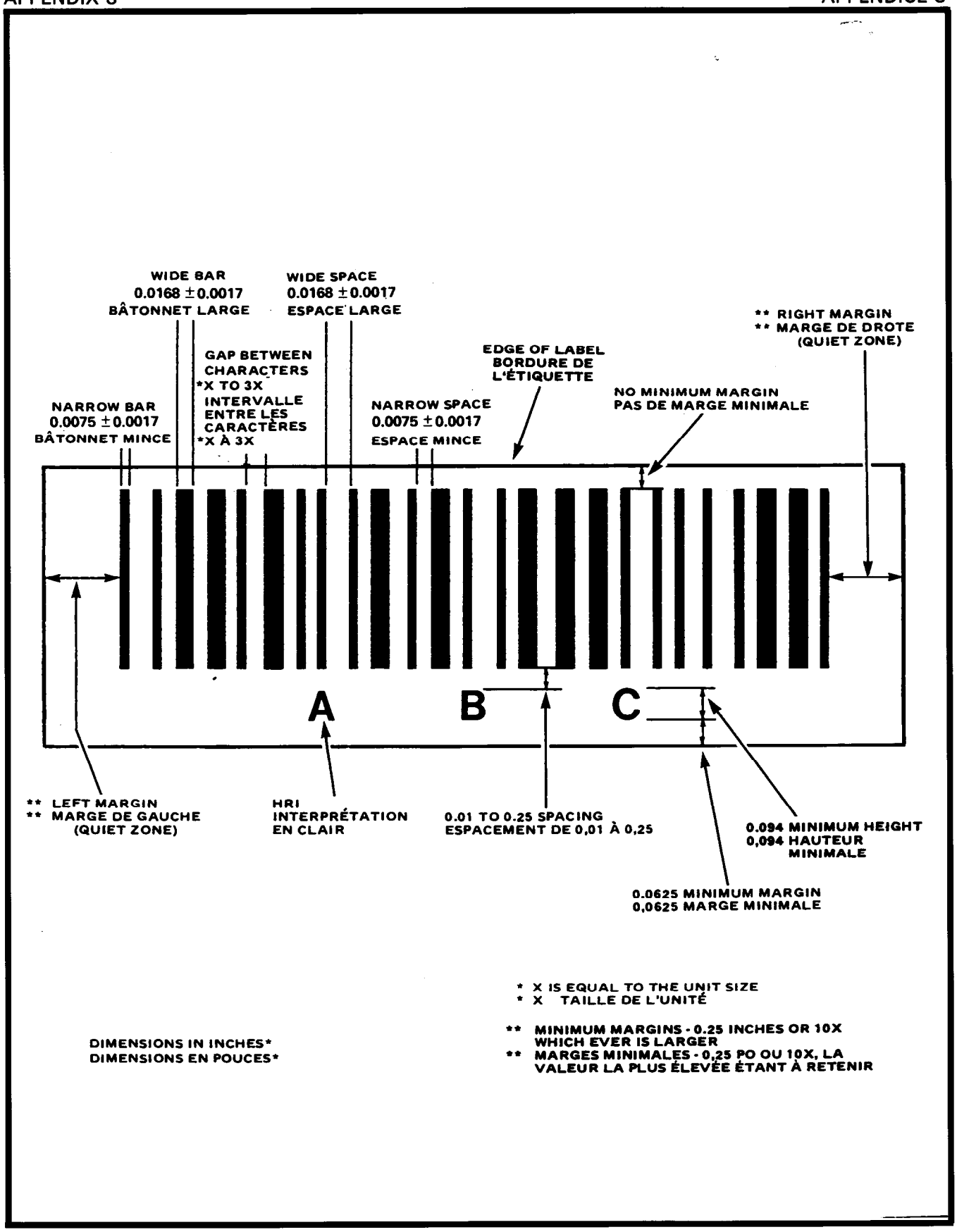


Figure 12 Standard Code, 9.4 Characters per Inch Density (Enlarged)
Figure 12 Code standard — Densité de 9,4 caractères au pouce (agrandissement)

Table I Code Configuration **Tableau I — Configuration de code**

CHAR. CARACTÈRE	PATTERN TRANSCRIPTION CODÉE	BARS BÂTONNETS	SPACES ESPACES	CHAR. CARACTÈRE	PATTERN TRANSCRIPTION CODÉE	BARS BÂTONNETS	SPACES ESPACES
1		10001	0100	M		11000	0001
2		01001	0100	N		00101	0001
3		11000	0100	O		10100	0001
4		00101	0100	P		01100	0001
5		10100	0100	Q		00011	0001
6		01100	0100	R		10010	0001
7		00011	0100	S		01010	0001
8		10010	0100	T		00110	0001
9		01010	0100	U		10001	1000
0		00110	0100	V		01001	1000
A		10001	0010	W		11000	1000
B		01001	0010	X		00101	1000
C		11000	0010	Y		10100	1000
D		00101	0010	Z		01100	1000
E		10100	0010	-		00011	1000
F		01100	0010	.		10010	1000
G		00011	0010	SPACE ESPACE		01010	1000
H		10010	0010	*		0110	1000
I		01010	0010	$		00000	1110
J		00110	0010	/		00000	1101
K		10001	0001	+		00000	1011
L		01001	0001	%		00000	0111

NOTE

* Denotes a start/stop code which must precede and follow every bar code message. Note that * is used only for the start/stop code.

NOTA

* indique un code de départ/d'arrêt qui doit précéder et suivre chaque message transmis en code à bâtonnets. Il est à noter que ce signe (*) n'est utilisé que comme code de départ/d'arrêt.

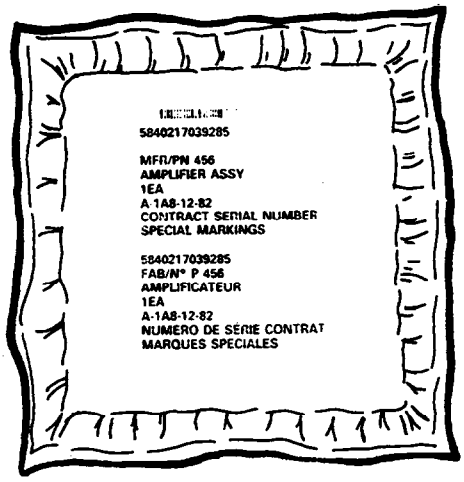
Figure 13 Table of Code Configurations
Figure 13 Tableau des configurations de codes

Table II – Tolerances of Common Nominal Dimensions

Tableau II – Tolérances telles qu'elles s'établissent suivant diverses dimensions nominales d'usage courant

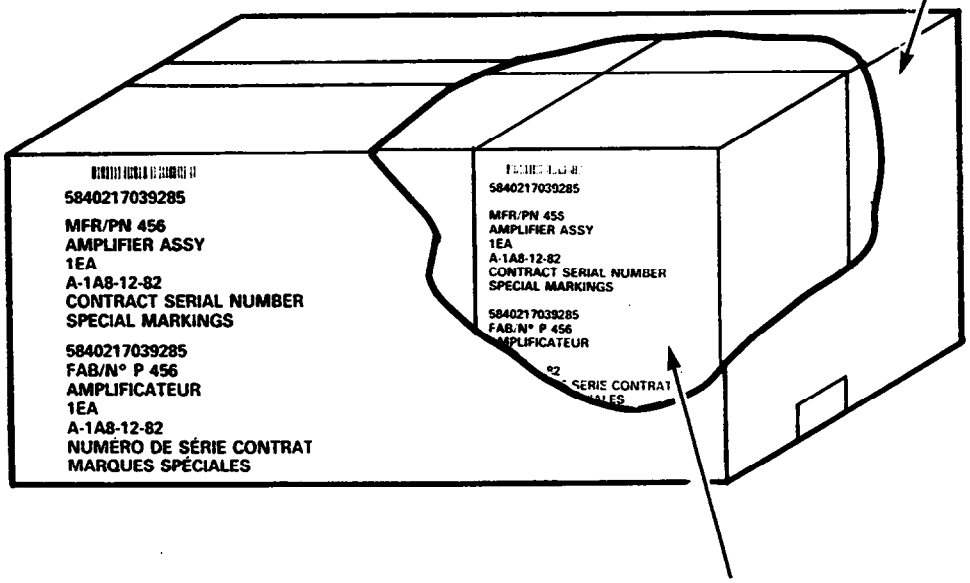
Density CPI Densité (C/po)	Nominal Width (x) Narrow Elements (mm) Largeur nominale (x) des éléments minces (mm)	(in) (po)	Wide/Narrow Ratio n Ratio large/mince (n)	Nominal Width (nx) Wide Elements (mm) Largeur nominale (nx) des éléments larges (mm)	(in) (po)	Element Tolerance (t) (mm) Tolérance (t) (mm)	(in) (po)
15.5	0.112	0.0044	2.5	0.279	0.0110	0.0012	0.030
12.5	0.140	0.0055	2.5	0.351	0.0138	0.0015	0.038
9.4	0.190	0.0075	2.24	0.427	0.0168	0.0017	0.044
8.6	0.203	0.0080	2.5	0.508	0.0200	0.0022	0.055
7.4	0.254	0.0100	2.2	0.559	0.0220	0.0023	0.058
6.3	0.254	0.0100	3.0	0.762	0.0300	0.0035	0.088
5.7	0.305	0.0120	2.5	0.762	0.0300	0.0033	0.083
5.4	0.292	0.0115	3.0	0.876	0.0345	0.0040	0.101
4.8	0.406	0.0160	2.0	0.813	0.0320	0.0032	0.081
3.9	0.406	0.0160	3.0	1.219	0.0480	0.0055	0.140
3.0	0.533	0.0210	3.0	1.600	0.0630	0.0073	0.184
2.3	0.762	0.0300	2.5	1.905	0.0750	0.0081	0.207
1.7	1.016	0.0400	2.5	2.540	0.1000	0.0109	0.276

Figure 14 Table of Tolerance of Common Nominal Dimensions
Figure 14 Tableau des tolérances pour diverses dimensions nominales d'usage courant



UNIT CONTAINER/CONTENANT UNITAIRE

INTERMEDIATE CONTAINER
CONTENANT INTERMÉDIAIRE



UNIT CONTAINER/CONTENANT UNITAIRE

Figure 15 Application of Bar Code Markings — Unit Packs and Intermediate Containers
Figure 15 Application des codes à bâtonnets — contenants unitaires et contenants intermédiaires

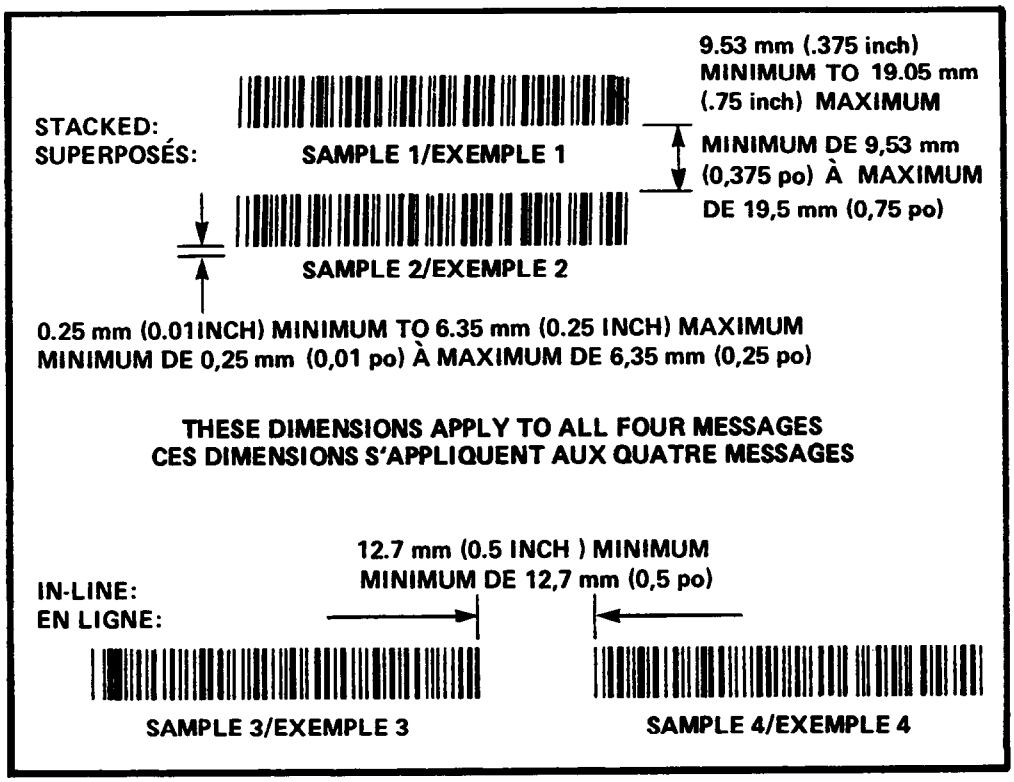


Figure 16 Spacing for Multiple SDS Message Formats
Figure 16 Espacement de messages multiples en codes à bâtonnets standard

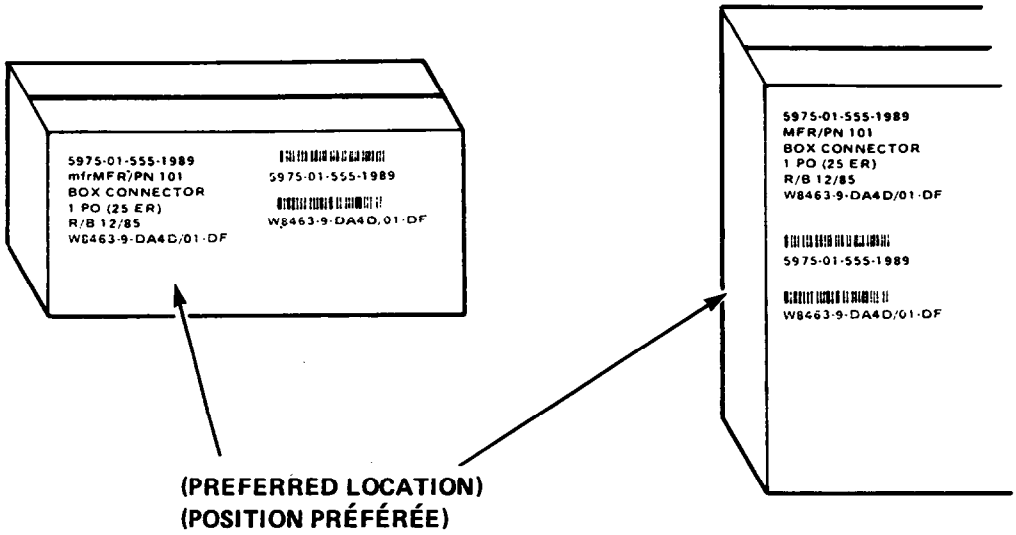
A. Bar code and HRI heights for general use.
A. Hauteur des codes à bâtonets et des interprétions en clair — Application générales

Bar Code Density Range Intervalle de densité des codes à bâtonnets	Bar Code Minimum Height mm Hauteur minumale des codes à batonnets mm	in po	Bar Code Maximum Height mm Hauteur maximale des codes à batonnets mm	in po	HRI Minimum Height mm Hauteur minimale de l'interprétation en clair mm	in po
1.7 ≤ CPI < 3.0	19.05	0.75	31.75	1.25	3.18	.125
3.0 ≤ CPI < 6.5	9.53	0.375	22.23	0.875	2.39	.094
6.5 ≤ CPI ≤ 9.4	6.35	0.25	12.7	0.50	2.39	.094

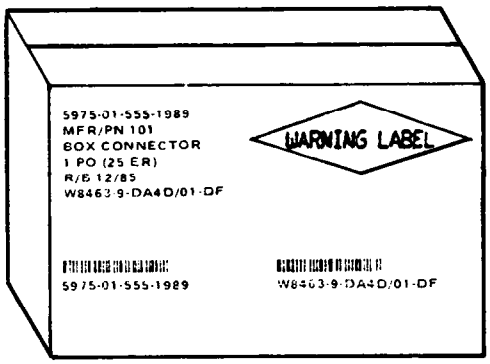
B. Bar code and HRI heights for special applications.
B. Hauteur des codes à bâtonnets et des interprétations en clair — Applications spéciales

Bar Code Density Range Intervalle de densité des codes à bâtonnets	Bar Code Minimum Height mm Hauteur minumale des codes à batonnets mm	in po	Bar Code Maximum Height mm Hauteur maximale des codes à batonnets mm	in po	HRI Minimum Height mm Hauteur minimale de l'interprétation en clair mm	in po
9.4 ≤ CPI ≤ 12.5	3.18	0.125	9.53	0.375	1.60	.063
12.5 < CPI ≤ 15.5	1,59	0.0625	6.35	0.250	0.89	.035

Figure 17 Bar Code and HRI Heights
Figure 17 Hauteur des codes à bâtonnets et des interprétations en clair



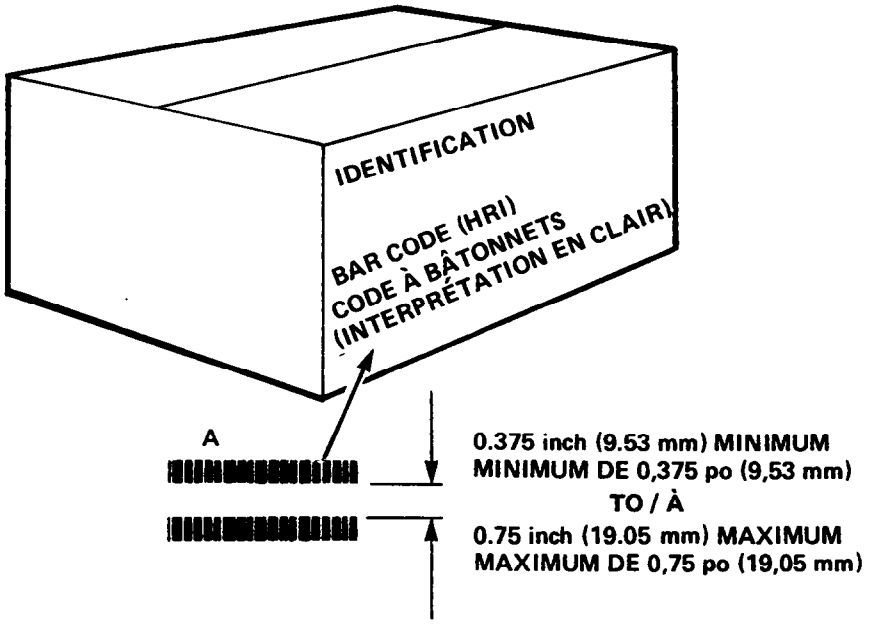
(PREFERRED LOCATION)
(POSITION PRÉFÉRÉE)



(OPTIONAL LOCATION)
(POSITION FACULTATIVE)

EXTERIOR CONTAINER
CONTENANT EXTÉRIEUR

Figure 18 Placement of Bar Code Markings — Exterior Containers
Figure 18 Position des codes à bâtonnets — contenants extérieurs



OR / OU

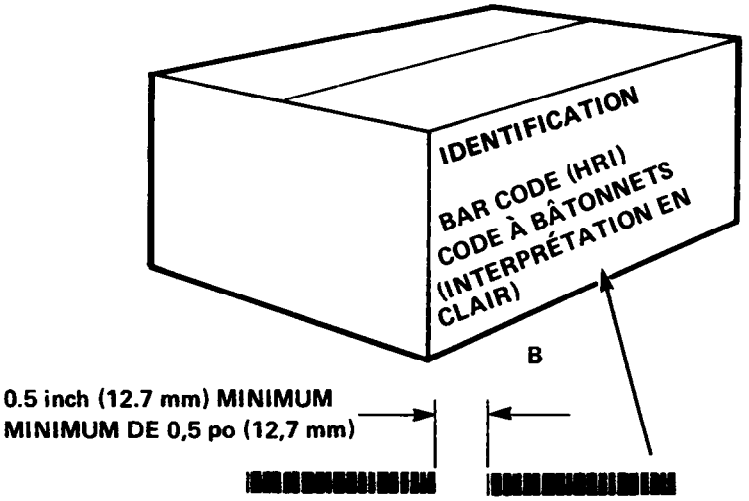
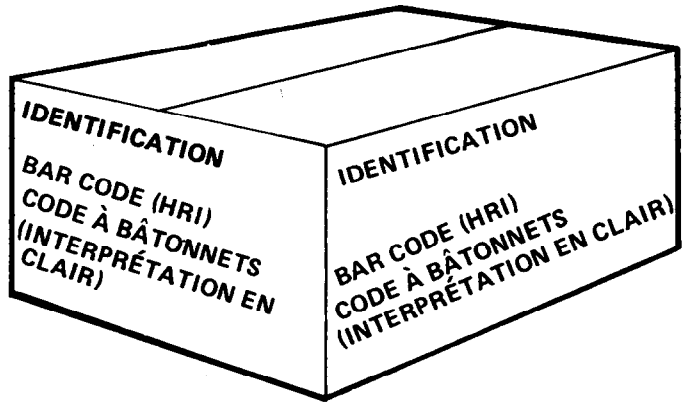
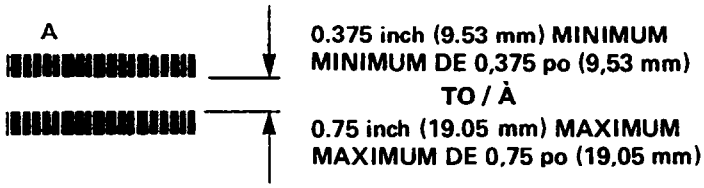


Figure 19 Bar Code Markings for Exterior Shipping Container under 10 Cubic Feet
Figure 19 Codes à bâtonnets des contenants d'expédition extérieurs de moins de 10 pi³





OR / OU

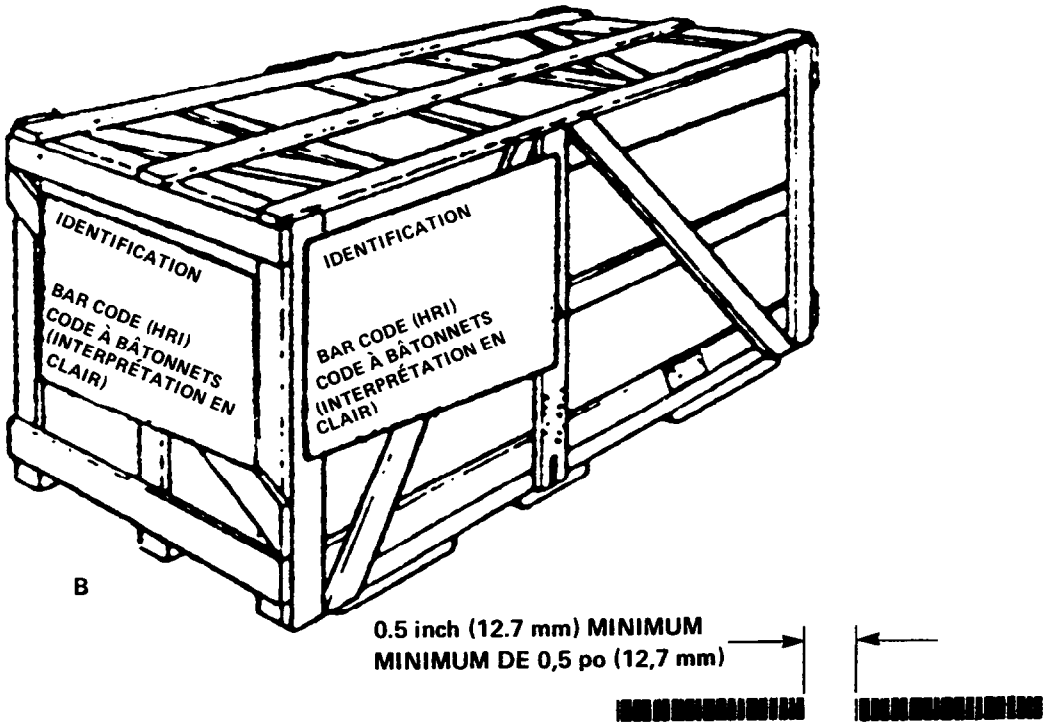


Figure 20 Bar Code Markings for Exterior Shipping Containers 10 Cubic Feet and Over
Figure 20 Codes à bâtonnets des contenants d'expédition extérieurs de 10 pi³ et plus

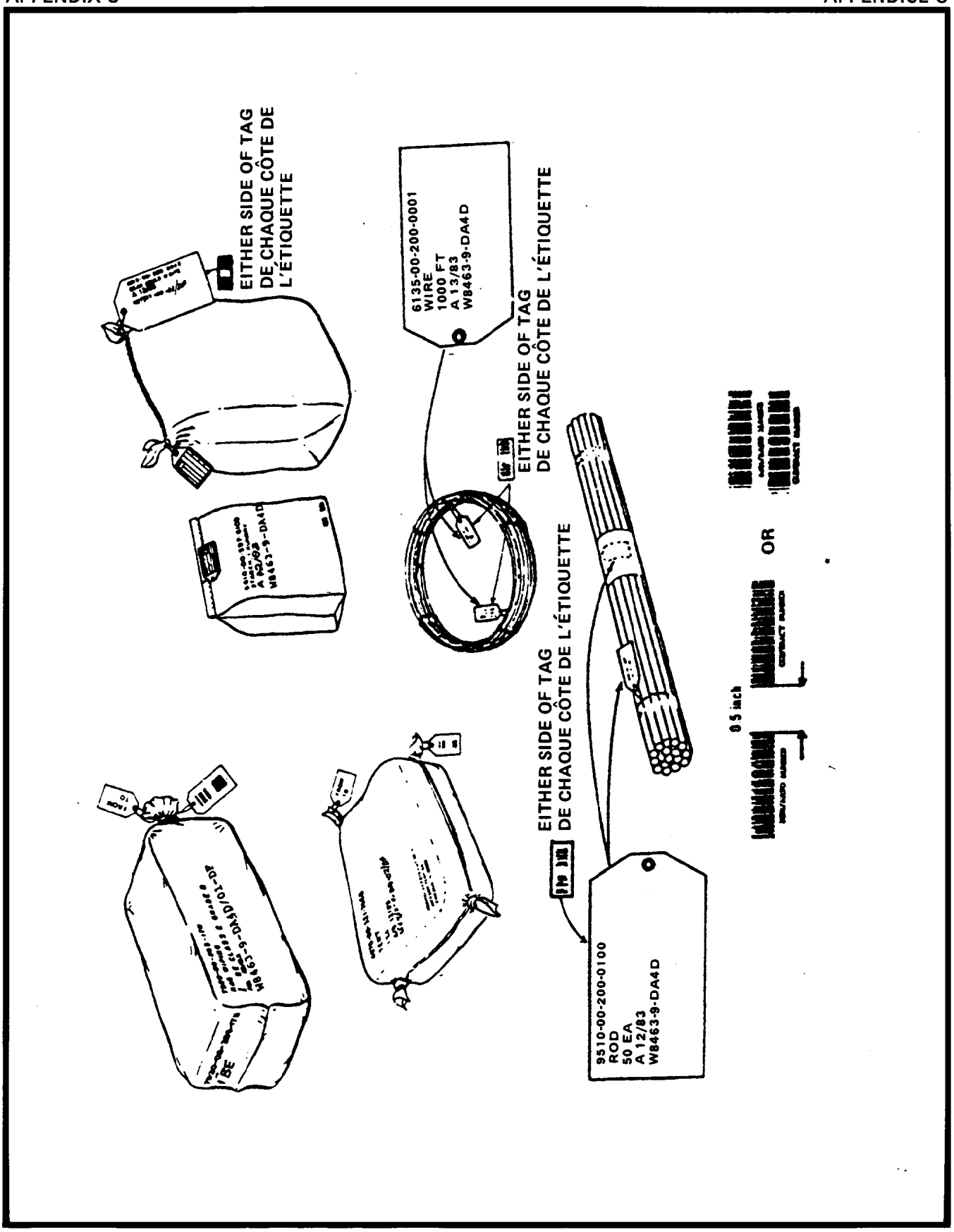


Figure 21 Bar Code Markings on Tags for Miscellaneous Packs and Unpacked Items.
Figure 21 Codes à bâtonnets d'étiquettes de divers emballages et d'articles non emballés

National Defence | Défense nationale

D-LM-008-011/SF-001

PREPARATION AND USE OF PACKAGING REQUIREMENT CODES

(BILINGUAL)

(Supersedes **D-LM-008-011/SF-001** dated **79-08-02**)

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 des marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

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Publiée avec l'autorisation du Chef d'état-major de la Défense

OPI: DSRO 3 **1988-11-10**

Canada

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i, ii	0		

Contact Officer: DSRO 3-2-2

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LIST OF FIGURES

CANADIAN FORCES SPECIFICATION

PREPARATION AND USE OF PACKAGING REQUIREMENT CODES

1. SCOPE

1.1 This specification establishes and defines a system of coding preservation and packaging requirements and is designed to meet the following requirements:

a. Approved pack — To provide information which will permit translating coded packaging requirements into verbal descriptions of packs which have been approved by the Department of National Defence. This packaging code will be shown in procurement documents immediately under the description of the item to which it applies. (See Figure 1, item 1.);

b . No approved pack — Contractors shall develop suitable packages for items for which no approved CF271 exists, and shall prepare and submit CF271 s for approval in accordance with para 1.1(1c);

c. Approval authority — The authority to approve CF271 s for items covered by procurement contracts is vested in NDHQ/DSRO. This authority, when required as part of the contract, is delegated to the packaging specialist of the applicable CFTSA. Where the identity of the approval authority is not known the supplier shall request this information from NDHQ/DSRO 3-2, (See Figure 1 preparation for delivery); and

d . Contractor's option — Contractors who consider that an item already covered by an approved CF271 could be packaged more effectively, or packaged with a substantial savings in cost, cube or weight, are encouraged to submit recommendations on CF271.

1.2 New materiel

1.2.1 The use of newly developed packaging, packing materiel and procedures is encouraged and recommended and will be permitted under the conditions specified herein, provided such materiel is equal to or better than similar approved materiel and procedures.

1.2.2 Where the materiel or procedure is not covered by a specification, the manufacturer shall furnish documented evidence that the materiel or procedure is equal to or exceeds the requirements of the specification for a similar materiel or procedure. If after a review of the materiel and procedure and the related certified compliance report, it is the opinion of the procuring activity that the materiel or procedure meets or exceeds the criteria established for similar materiel or procedures, authorization for use will be granted.

Item 1	0001	291 5-00-485-2901	TEST SET 10 only $99.75 ea. PKG REQTS CODE 10 1 1 ZZ ZZ ZZ Z D0 0 00 A BN CG ZZ ZZ ZZ 0 Z 1 CFTPO-00-485-2901, D/13 Jan 67
Item 2	0002	2915-00-485-2902	NUT 150 only $0.10 ea. PKG REQTS CODE - PDG DATA FORM REQD. LEVEL (A, B OR C AS APPLICABLE). PREPARATION FOR DELIVERY: 1. For contractors located in Canada: Preservation and Packaging will be in accordance with the Canadian Forces Packaging Specification D-LM-008-001/SF-001 to Level B, and shall be marked to D-LM-008-002/SF-011. Level B PKG DATA FORM READ in accordance with CFPS D-LM-008-011/SF-001, 2. For contractors located in U.S.A.: Preservation and Packaging shall be in accordance with US Department of Defence Military Standard MIL-STD-794 to Level B and shall be marked to MIL-STD-129. Level B PKG DATA FORM READ, in accordance with MIL-STD-834 and MIL-STD-726, and 3. Approval Authorities: when the "PKG REQTS CODE" for a specific item indicates "PKG DATA FORM READ", packaging data forms previously approved by Canadian or United States authorities shall be acceptable. When such approved forms are not available, the contractor shall apply to National Defence Headquarters, Ottawa, Ontario, K1A 0K2, attention DSRO 3-2, for Direction regarding identity of the "Approval Authority" for packaging Data forms.

Figure 1 – Sample Contract Demand

2. APPLICABLE DOCUMENTS

2.1 The following documents of the issues in effect on the date of invitation to tender shall form a part of this specification to the extent specified therein. Where there is a variation between this specification and the documents listed below, this specification shall govern.

CANADIAN FORCES PACKAGING SPECIFICATIONS

D-LM-008-001/SF-001 Methods of Packaging

D-LM-008-001/SF-001 Marking for Storage and Shipment

D-LM-008-001/SF-000 Department of National Defence Minimum Requirements for Manufacturer's Standard Pack

US MILITARY SPECIFICATIONS

MIL-P-116 - Preservation, Methods of

MIL-STD-129 - Marking for Shipment and Storage

3. REQUIREMENTS

3.1 Levels of protection

3.1.1 To help determine the extent of preservation, packaging and packing required to protect an item against specific hazards of storage, transportation and handling, three levels of preservation and packaging, and three levels of packing have been established. The levels of protection are based upon the degree of preservation, packaging and packing required to provide adequate protection against various conditions of transportation, storage and handling.

3.1.2 The main objective of these levels is to provide uniform, efficient and economical protection to supplies and equipment.

3.1.3 Levels of Preservation and Packaging

a. Level A - Full military package - The preservation and packaging must afford adequate protection against corrosion, deterioration and physical damage during shipment, handling, indeterminate storage and worldwide redistribution;

b. Level B - Limited military package - The preservation and packaging are less hazardous than those which Level A is designed to meet. The use of Level B should be based on firmly established knowledge of the shipment and storage conditions to be encountered, and a determination that monetary savings will result; and

c. Level C - Minimum military package - The preservation and packaging must afford adequate protection against corrosion, deterioration, and physical damage during shipment from supply source to the first receiving activity for immediate use. This level may conform to the supplier's commercial practice when such meets the requirements of this level.

3.1.4 Levels of packing

a. Level A - The degree required for protection against the most severe conditions known or anticipated to be encountered during shipment, handling and storage;

b. Level B - The degree required for protection under conditions known to be less severe than those requiring Level A, but more severe than those for which Level C is adequate;

c. Level C - The degree required for protection under known favourable conditions during shipment, handling and limited tenure of storage.

3.2 Specific packaging detail

3.2.1 The codes to be used are detailed in Tables 1 to XXIII inclusive. These tables provide all necessary information for coding and decoding. The use of codes other than those established in this specification in forbidden. See illustration at Figure 2 for Packaging Requirements Codes.

3.2.2 When none of the requirements of Tables 1 to XXIII apply, the following codes will be used:

a. The code "0" or "00" (dependent upon the number of digit spaces in the code field) indicates that the field does not apply to the package described by the code;

NOTE

To distinguish between alphabetical and numerical "0" and "00", numeric "0" and "00" shall be designated as "Ø" and "ØØ" and alphabetical "O" and "OO" shall be designated as "O" and "OO".

b. The code "Y" or "YY" (dependent upon the number of digit spaces in the code field) indicates that the packager (contractor) is responsible for selecting the appropriate requirements. When this code is used, the packager is not required to limit his selection to requirements included in the tables of this specification;

c. The code "Z" or "ZZ" (dependent upon the number of digit spaces in the code field) indicates that special requirements apply which are not represented by code symbols. When the "Z" or "ZZ" symbols are used in a procurement document (see Figure 1, item 1), details of the requirements will be provided immediately below the description of the item to which it applies.

3.2.3 Digits 1 and 2 (Field 1) Method of unit protection - These digits of the code describe the method of unit protection which applies to the particular item for which packaging is being coded.

3.2.3.1 Unit protection methods. The unit protection methods cited in Table 1 are those methods established by, and described in D-LM-008-001/SF-01**.** When the unit protection methods of this specification are invoked the packages presented shall be capable of meeting the applicable test requirements of the specification. When the method of unit protection specifically requires the use of a particular material in fabrication of the package, this material shall not be identified in other fields of the code.

3.2.3.2 Methods and sub-methods of unit protection. Table II lists codes which allow the user limited selection among the methods and sub-methods of D-LM-008-01/SF-01.

3.2.3.3 Packaging documents. Table III lists codes for specifications and standards which are regularly referenced in specifying the packaging requirements for certain groups of items. These codes should not be used unless the referenced document, supplemented by information which may be provided in the additional fields of the total code, adequately describes the packaging needed for the particular item being considered.

3.2.3.4 Special methods. Table IV establishes codes for preservation of packaging procedures which are regularly used, but which cannot be conveniently or adequately described without amplification of the basic method and material symbols.

2915-00-485-2901 TEST SET

PACKAGING REQUIREMENT CODE 10 1 1 ZZ ZZ ZZ Z DO O OO A BN CG ZZ ZZ ZZ O A 1

Digit	Table	Code Name
1-2	I, II, III, IV	Method of unit protection
3	V	Qty per unit package
4	VI	Cleaning method
5-6	VII	Preservative material
7-8	VIII	Wrapping material
9-10	IX	Cushioning and dunnage
11	X	Cushioning thickness
12-13	XI	Unit and intermediate container
14	XII	Intermediate container qty
15-16		See Table XI
17	XIII, XIV, XV	Levels of protection
18-19	XVI	Maximum weight
20-21	XVII	Maximum cube
	XVIII	Basic dimension codes (length, width and depth)
22-27	XIX	Modified dimension codes (length, width and depth)
	XX	Modified dimension codes (length, width and depth)
28	XXI	Container level
29	XXII	Optional procedure indicator
30	XXIII	Supplemental line indicator

Figure 2 — Packaging Requirements Codes

Table I - Unit protection codes

Methods of unit protection and sub-methods codes established by D-LM-008-001/SF-001.							
Code to Method Conversion				Method to Code Conversion			
Code	Method	Code	Method	Method	Code	Method	Code
1Ø	III	3H	IA-16	III	1Ø	IC-1	2E
11	I	3P	IA-15	I	11	IC-2	2M
12	IB-1	3Q	IA-14	IA	3Y(note 1)	IC-3	2D
1B	IB-2	3T	IA-13	IA-5	3V	IC-4	2S
1Y	IB(note1)	3V	IA-5	IA-6	3W	IC-7	2A
2A	IC-7	3W	IA-6	IA-8	3G	IC-9	2B
2B	IC-9	3Y	IA(note 1)	IA-13	3T	IC-10	2C
2C	IC-10	4G	IIc	IA-14	30.	II	4Y(note 1)
2D	IC-3	4H	IIa	IA-15	3P	IIa	4H
2E	IC-1	4P	IIe	IA-16	3H	IIb	4Q
2M	IC-2	4Q	IIb	IB	IY(note 1)	IIc	4G
2S	IC-4	4T	IIf	IB-1	12	IId	4V
2Y	IC(note 1)	4V	IId	IB-2	IB	IIe	4P
3G	IA-8	4Y	II(note 1)	IC	2Y(note 1)	IIf	4T
NOTE 1 — Sub-method is the choice of the contractor or packager.							

Table II - Optional unit protection codes

Method of unit protection codes which allow the user a limited choice between certain of the unit protection user and sub-methods of D-LM-008-001/SF-001.			
Code	Method of Preservation	Code	Method of Preservation
6F	Method IA-13 or IA-15 optional.	6P	Method IId (preferred) or IIa.
6L	Method I or III, in plastic containers of minimum practical size	6Q	Method IId (preferred) or IIb.
6M	Method I or III selected in accordance with the guidelines of D-LM-008-001/SF-001.	6R	Method IId or IIf.

Table III - Procedural specification codes

Method of unit protection codes referencing documents which establish packaging requirements for groups of items	
CODE	
15	ALUMINUM AND MAGNESIUM PRODUCTS - Package in accordance with MIL-STD-649.
17	BATTERIES, Lead Acid Package in accordance with D-LM-008-021/SF-001.
18	BATTERIES DRY - Package in accordance with MIL-B-55521.
19	BATTERIES, STORAGE, AIRCRAFT - Package in accordance with MIL-P-6063.
20	BATTERIES, STORAGE, INDUSTRIAL - Package in accordance with PPP-B-140.
21	BEARINGS, ANTI-FRICTION - Package in accordance with MIL-B-197.
22	CABLE, CORD AND WIRE ELECTRIC - Package in accordance with MIL-C-12000.
23	CHEMICALS LIQUID, DRY AND PASTE - Package in accordance with PPP-C-2020.
24	COMPONENTS AND HIGHER ASSEMBLIES, OR INCORPORATED DEVICES WHICH ARE SEN-SITIVE TO ELECTROMAGNETIC OR ELECTROSTATIC DISCHARGE - Package in accordance with D-LM-008-034/SF-000.
25	CORDAGE - Package in accordance with MIL-C-3131.
26	CAPSTANS, WINCHES, ETC - Package in accordance with MIL-P-3184.
27	CABLE ASSEMBLIES AND CORD ASSEMBLIES - Package in accordance with MIL-C-55442.
28	COPPER - Package in accordance with MIL-C-3993.
29	ELECTRIC MACHINES - Package in accordance with MIL-E-16298.
30	PRINTING, DUPLICATING AND REPRODUCTION EQUIPMENT - Package in accordance with MIL-P-3684.
32	ELECTRONIC CIRCUIT, PRINTED CIRCUIT, PRINTED WIRING BOARD/CARD - Package in accordance with D-LM-008-035/SF-000.
33	ELECTRONIC EQUIPMENT - Package in accordance with MIL-E-17555.
34	ENGINE REPAIR PARTS - Package in accordance with MIL-R-196.
35	ENGINES GAS TURBINE - Package in accordance with MIL-E-5607.
36	ENGINES AIRCRAFT RECIPROCATING - Package in accordance with MIL-E-6058.
37	ENGINES OTHER THAN AIRCRAFT - Package in accordance with MIL-E-10062.
38	FIRE CONTROL PARTS - Package in accordance with MIL-P-14232.
39	BATTERIES, LITHIUM - Package in accordance with D-LM-008-032/SF-001.
40	BEARINGS, MARITIME, MATCHED SETS - Package in accordance with D-LM-008-033/SF-000.

Table III - Procedural specification codes (continued)

CODE	
42	HARDWARE - Package in accordance with PPP-H-1581.
45	HOISTS - Package in accordance with MIL-H-3280.
47	HOSE - Package in accordance with MIL-H-775.
48	OPTICAL ELEMENTS - Package in accordance with MIL-0-16898.
49	MACHINERY, METAL AND WOODWORKING - Package in accordance with MIL-M-18058.
52	NAILS - Package in accordance with FF-N-105.
53	PREFORMED PACKING "0" RINGS - Package in accordance with D-LM-008-026 SF-001.
54	PAINT AND RELATED PRODUCTS - Package in accordance with PPP-P-1892
56	PARACHUTES - Package in accordance with MIL-P-5610.
66	PROPELLERS - Package in accordance with MIL-P-6074.
67	PUMPS - Package in accordance with MIL-P-10603.
70	RUBBER, NYLON FUEL AND OIL AND WATER ALCOHOL CELLS - Package in accordance with MIL-P-25621.
71	STEEL MILL PRODUCTS - Package in accordance with MIL-STD-163.
73	TIRES AND TUBES - Package in accordance with MIL-T-4.
74	TOOLS - Package in accordance with PPP-P-40.
75	ELECTRON TUBES - Package in accordance with MIL-E-75.
76	VALVES, FITTINGS AND FLANGES - Package in accordance with MIL-V-3.
78	WELDING RODS - Package in accordance with MIL-W-10430.
81	ABRASIVES AND ABRASIVES PRODUCTS - Package in accordance with MIL-A-3816.
89	NON-FERROUS PRODUCTS - Package in accordance with MIL-N-3944.
94	COMPRESSORS - Package in accordance with MIL-C-3600.
96	SEMICONDUCTOR DEVICES - Package in accordance with MIL-S-19491.
97	SYNCHROS, RESOLVERS AND SERVO MOTORS - Package in accordance with MIL-S-12134.
A1	TABLES AND BENCHES, WORK - Package in accordance with MIL-B-45977.
A2	TIME MEASURING INSTRUMENTS - Package in accordance with PPP-T-360.
A3	TOOL SETS, SHOP SETS AND KITS (COMMON AND SPECIAL) - Package in accordance with MIL-T-45542.

Table III - Procedural specification codes (continued)

CODE	
A5	BOILERS AND RELATED EQUIPMENT, FOR FIELD USE - Package in accordance with MIL-B-3180.
A8	AUTOMOBILES, TRUCKS, TRUCK-TRACTORS, TRAILERS AND TRAILERS AND TRAILER DOLLIES - Package in accordance with MIL-STD-281.
A9	CAPACITORS - Package in accordance with MIL-C-39028.
131	BLOCK, WIRE AND MANILA ROPE - Package in accordance with MIL-B-3865.
B3	PUMPS, PRIME MOVERS AND ASSOCIATED REPAIR PARTS - Package in accordance with MIL-P-16789.
B4	REFRIGERATORS AND RELATED EQUIPMENT - Package in accordance with MIL-P-12323.
B5	MAIN PROPULSION SHAFTING, BEARINGS, AND SHIP AND BOAT PROPELLERS - Package in accordance with MIL-P-2845.
B6	FABRICS - WOOLEN, WORSTED AND WOOL BLEND (SYNTHETIC FIBER - COTTON) - Package in accordance with PPP-P-1132.
B7	FABRICS - SYNTHETIC FIBER - Package in accordance with PPP-P-1133.
B8	FABRICS - COTTON AND COTTON-SYNTHETIC FIBER BLEND (EXCLUDING DUCK FABRICS) - Package in accordance with PPP-P-1134.
B9	FABRICS - DUCK FABRICS (COTTON SYNTHETIC FIBER: COTTON: SYNTHETIC FIBER BLENDS) - Package in accordance with PPP-P-1135.
C1	FABRICS - COATED (PLASTIC: RUBBER) AND LAMINATED FABRICS - Package in accordance with PPP-P-1136.
C2	RESISTORS - Package in accordance with MIL-R-39032.
C3	SONOBUOYS - Package in accordance with MIL-S-23665.
C4	MICROCIRCUITS - Package in accordance with MIL-M-55565.
C6	GYROSCOPE ASSEMBLIES - Package in accordance with MIL-G-81559.
C7	CONNECTORS - Package in accordance with MIL-C-55330.
C8	SWITCHES - Package in accordance with MIL-S-28786.
C9	KITS - Package in accordance with appendix D of MIL-STD-2073-1.
D6	Wire rope assembly, single leg. Package in accordance with MIL-W-3903.
D7	Chains and attachments, welded, weldless, and roller chain. Package in accordance with RR-C-271.

Table III - Procedural specification codes (continued)

CODE	
E1	Supplies and equipment that can be packaged commercially. Package in accordance with D-LM-008-036/SF-000.
E3	Vulcanized equipment. Package in accordance with MIL-Y-4555A.
E4	Wheeled vehicles. Package in accordance with MIL-V-62038.

Table IV - Specialized unit protection procedure codes

Method of unit protection codes for packaging procedures which are regularly used and require a more detailed description than allowed by the limitations of the basic code.	
CODE	
AA	Preservation and packaging identical to the commercial package used by the supplier for the prevention of deterioration and mechanical damage.
AB	Package in accordance with the detail requirements in the commodity specification or standard. Note: When Level A packaging is specified (when position 17 is A) and the commodity specification contains no provision for Level A, the packaging as specified for overseas shipment shall apply.
AC	Package Method III as Follows: Clean item of foreign matter. Wrap in non-abrasive tissue, and overwrap with 1/4 inch cushioning material (use more if needed to prevent damage or breakage) conforming to PPP-C-843, Type II; or wrap in non-abrasive neutral cushioning material of 1/4 inch thickness conforming to PPP-C-843, Type II. Overwrap each cushioned item with 60 lb kraft paper (24" x 36" - 500 sheets), fasten with waterproof pressure sensitive tape and place in a paperboard set up box. (Used for non-critical items of glass and similar material).
AD	Coil on reels or spools made in accordance with applicable material specification (for commodity being packaged) or best commercial practice, if no such specification exists.
AE	Seal or plug all openings with approved non-corrosive materials to prevent entrance of moisture, dirt and foreign matter. Package to meet requirements of Method III of D-LM-008-001/SF-001 .
AF	Package Method III as follows: Place in fold of neutral paper, conforming to MIL-B-121 Grade A or MIL-P-1 7667 material and fasten with pressure-sensitive tape to a rectangle of rigid corrugated fibreboard of minimum practicable size.
AG	Package Method III as follows: Mark or label each piece with stock number and quantity and place the number of individually marked pieces as indicated by the third digit of the packaging code in a paperboard or fibreboard carton or minimum practicable size.
AH	Package Method I as follows: Fog spray or flush internally with the preservative indicated by the 5th and 6th digits of the package code. All openings shall then be plugged, or sealed to prevent entrance of dirt and moisture. Exterior unpainted ferrous metal surfaces shall be coated with a suitable paint or enamel, or coated with cold application, non-tacky, corrosion preventive compound conforming to P-19 of D-LM-008-001/SF-001.
AJ	Package Method I as follows: Place preserved item in fold of MIL-B-121 Grade A material and fasten with pressure-sensitive tape to a rectangle of rigid corrugated fibreboard of minimum practicable dimensions.

Table IV - Specialized unit protection procedure codes (continued)

CODE	
AK	Package Method I as follows: Flush or fog spray internal water passages with preservative comforming to P-3 of D-LM-008-001/SF-001 . Flush or fog spray internal oil passages with preservative conforming to P-7, P-9 or P-10 of D-LM-008-001/SF-001. All internal surfaces must be thoroughly covered with preservative. Plug or seal all openings to prevent entrance of dirt and moisture. Coat all external ferrous metal surfaces with non-tacky, cold application, preservative compound conforming to P-19 of D-LM-008-001/SF-001 or paint with suitable enamel (used for pump and similar items)
AL	Package Method I as follows: Unit container shall conform to 43-GP-21 Type 1 , Class 2. Seal all seams and joints with PPP-T-76 tape, not less than two inches (5 cm) wide.
AM	Package in manufacturer's standard metal container, sealed with waterproof tape conforming to 43-GP-3, to prevent entry of moisture.
AN	Package Method IA as follows: Clean each item with chemically neutral detergent, wrap in non-abrasive chemically inert tissue, and overwrap with cushioning material conforming to PPP-C-843, or as an alternative, non-abrasive cushioning conforming PPP-C-843 to a minimum thickness of twice the thickness of the item. Seal each cushioned item within a bag made of material conforming to MIL-13-1 31. (Used for items of glass and similar material which have critical surfaces).
AP	Package Method IA-8 using MIL-B-1 31 class 1 barrier. Place each packaged item in an individual corrugated carton, folder or sleeve meeting the weight limitations of 43-GP-21. Use sufficient cushioning within the corrugated container for package to pass the free fall drop test of D-LM-008-001/SF-001.
AO	Package by Method IIa, IIb, or IId. If IIa is selected, place item in a nailed wood box conforming to Table 18 or 19 of CSA Z102.2, after sealing of barrier.
AR	Package by Method II (specific sub-method optional), except that items inherently fungus-proof, or completely treated with fungus resistant compound or varnish shall be packaged by Method III.
AT	Package in accordance with MIL-P-23199, Level A. Need for purging shall be determined by criteria specified in MIL-P-23199, Level A.
AU	Preservative compounds shall not be applied to windings, commutators or peripheries of armatures or rotors. Shafts shall be coated with Type P-2 preservative and wrapped with MIL-B-121 Grade A material secured in place with 43-GP-3 tape. Commutators shall be wrapped with MIL-B-121 Grade A, material, held in place with 43-GP-3 tape. Exposed surfaces of steel collector rings shall be coated with Type P-2 preservative. No preservative is required for bronze, brass or other corrosion resisting metals. All collector rings shall be wrapped with MIL-13-1 21 Grade A material and secured in place with 43-GP-3. Corrodible surfaces except shafts, commutators and collector rings may be preserved by the use of insulating varnish applied during the manufacturing process. In addition to the foregoing requirements, armatures and rotors shall be wrapped with MIL-B-121 Grade A material and secured with 43-GP-3 tape.

Table IV - Specialized unit protection procedure codes (continued)

CODE	
AU	Package in accordance with any of the following alternate methods. (Used for gaskets and similar items). a. Seal in bags made from material conforming to MIL-B-126, MIL-B-121, MIL-B-13239 or MIL-B-22191, using stiffening material internally if needed to maintain rigidity. b. Method, IA 13 or IA 15 of D-LM-008-001/SF-001. c. Place between sheets of , in fold of, or in a sheet of corrugated fibreboard of sufficient stiffness to resist bending, overwrap with waterproofed wrapping paper conforming to PPP-B-1055 and seal with pressure-sensitive tape conforming to PPP-T-76, 43-GP-3, or adhesive conforming to MMM-A-260. Authorization to use other waterproof barrier materials may be granted upon request.
AY	Preserve by method IA-8, IA14, IA15, IA16 using bags conforming to MIL-13-117, type 1, class G, style 1.
BA	Assemble non-ferrous accessories on shaft. Fasten non-ferrous keys in keyways with pressure-sensitive tape having non-corrosive properties of 43-GP-3. Preserve and package all ferrous parts and accessories in accordance with Method IA8 (using preservative conforming to P-2) and fasten them to shaft with 43-GP-3 tape. Pack assemblies individually lone per boil but otherwise in accordance with Figure 1 of MIL-P-2845, except that tops and bottoms of boxes may be made of 1 inch (2.5 cm) nominal thickness lumber. (Used for shaft assemblies and similar items, non-ferrous.)
BC	Package by Method I as follows: Coat all pieces of set with preservative compound conforming to P-19. Wrap or bag each preserved piece individually in MIL-B-121 Grade A material. Cushion or segregate individually wrapped or bagged pieces in the storage container to prevent movement and possible physical damage. (Segregated identical pieces, such as buckets, seal strips, are to be kept as close together in the container as possible to facilitate ease of counting.) Individually preserved, wrapped or bagged pieces need not be identified as the containers markings in accordance with D-LM-008-002/SF-001 will suffice. Itemized packing lists for inclusion within and for attachement to the outside of the container shall be furnished in accordance with D-LM-008-002/SF-001. The lists shall show quantity and nomenclature of all items included in the set. (Used for turbine blade sets and similar items.)
BD	Remove parts made of rubber, fibre, and/or non-metallic materials adversely affected by preservative compounds, and package by Method 1 A8 without a preservative. Package metal parts of assembly to conform to the requirements of Method 1A of D-LM-008-001/SF-001. Mark the bag containing non-metallic parts "Parts for Assembly" and include it within, or securely attached to the package containing metal parts in a manner which will assure its being found when the package is opened. (Use for couplings and similar items.)
BG	Package as for Method IC-1 except use 43-GP-30 heat sealable polyethylene film or bag as the barrier in lieu of MIL-B-121 material. Minimum film thickness shall be 4 mils.

Table IV - Specialized unit protection procedure codes (continued)

CODE	
BH	Dip item in a solution consisting of 5 per cent DDT, and 95 per cent solvent comprising 50 per cent xylene and 50 per cent gun oil conforming to MIL-L-1762 or MIL-L-17331. (Used for bristle sponges and similar products.)
BJ	Sandwich part between two rectangular pieces of fibreboard and seal with pressure-sensitive tape conforming to 43-GP-3, or 43-GP-28, Type 2.
BL	Plug or seal all openings and package Method I.
BM	Package Method III.
BN	Package Method I.
BP	Package Method IC-1.
BR	Package Method IA-5.
BS	Package Method IA-8.
BT	Package Method IA-13.
BU	Package Method IA-14.
BV	Package Method IA-15.
BW	Package Method IA-16.
BX	Package Method IIa.
CA	Package Method IIb.
CB	Package Method IId.
CC	Package Method IIe.
CD	Package Method IIf.
CE	Package Method IC-1 using MIL-13-121, Type 1 barrier. Place each packaged item in a individual folding paperboard box or setup paperboard box conforming to 43-GP-17 or 43-GP-18. Use sufficient cushioning within the paperboard container for package to pass the free fall drop test of D-LM-008-001/SF-001.
CG	Package Method IA-8 using barrier material meeting the requirements of MIL-B-131. Class.1.
CH	Package Method 1A-14, except the outer container shall be fibreboard box, conforming to the requirements of 43-GP-21, Type 1, Class 2. The corners, seams and manufacturer's joint of the outer container shall be sealed with pressure-sensitive tape, conforming to 43-GP-3. The tape shall be 2 inches (5 cm) wide for weights up to 20 pounds (9 kg), and 3 inches (7.6 cm) wide for boxes having a content weight in excess of 20 pounds (9 kg).
CJ	Package Method 1A-15 with kraft paper overwrap, secured.

Table IV - Specialized unit protection procedure codes (continued)

CODE	
CM	Package Method IIb, except the outer container shall be a fibreboard box, conforming to the requirements of 43-GP-21, Type 1, Class 2. The corners, seams, and manufacturer's joint of the outer container shall be sealed with pressure-sensitive tape, conforming to 43-GP-3. The tape shall be 2 inches (5 cm) wide for weights up to 20 pounds 19 kg), and 3 inches 17.6 cm) wide for boxes having a content weight in excess of 20 pounds (9 kg).
CID	Package Method lie with kraft paper overwrap, secured.
CO	Package Method III in bags, boxes of cylindrical containers of minimum practical size. Bags shall be made of neutral material conforming to MIL-P-130, MIL-P-17667 or MIL-B-121 Grade A. Boxes and cylindrical containers shall be of paperboard or plastic.
DA	Package Method III modified as follows: Wrap in a tight conforming wrap of neutral MIL-P-17667, MIL-B-130 or MIL-B-121 Grade A material. The wrapper shall be fastened, but not sealed, with pressure-sensitive tape.
DB	Package by Method III modified as follows: Package in a transparent barrier bag made of Type II or III. MIL-B-22191 plastic film. A single thickness of film may be used for items weighing up to ten pounds (4.6 kg) and at least two thicknesses of film shall be used for items weighing more than ten pounds (4.6 kg). MIL-B-22191 Type III, shall be used to cushion sharp edges and protrusions of items packaged in the transparent barrier bag. The bag closure may be made by any suitable means.
DC	Package by Method I modified as follows: Package in transparent barrier bag made of Type II, MIL-B-22191 plastic film. A single thickness of film may be used for items weighing up to ten pounds (4.6 kg) and at least two thicknesses of film shall be used for items weighing more than ten pounds (4.6 kg). MIL-B-22191, Type II, or equal commercial film shall be used to cushion sharp edges and protrusions of items packaged in the transparent barrier bag. MIL-F-22191, Type II film shall be used as cushioning if a contact preservative has been applied to the item. The bag closure may be made by any suitable means.
DD	Package by Method IC-1 or IA-8 modified as follows: Package in a transparent barrier bag conforming to Type I, Class C, Style 2 of MIL-B-117. To prevent bag puncture, wrap or cushion with sufficient layers of MIL-B-22191 or L-P-378 barrier material, PPP-C-1842 or PPP-C-795 cushioning, or otherwise protect sharp edges and protrusions with caps, covers, plugs, or rigid plastic foam in accordance with MIL-P-26514. If a contact preservative has been applied to item, MIL-B-22191, Type II, barrier material is required as wrap or cushioning and initial wrap prior to application of cushioning. Alternate cushioning materials are acceptable if certified as having physical properties equal to or better than similarly constructed materials covered by a government packaging specification. Non-corrosive conductive material shall be applied to all exposed leads and connector pins. Lead or terminal configurations for all items shall be maintained as manufactured without causing loads or stresses capable of causing damage to the item. Materials used to maintain item position and lead or terminal configuration shall permit item removal without damage to the item. The bag closure shall be made by heat sealing.

Table IV - Specialized unit protection procedure codes (continued)

CODE	
DG	Package Method IIc modified as follows: Package the item in a heat sealed transparent bag conforming to Type I, Class E, Style 2 of MIL-13-1 17. Wrap all items with layers of MIL-B-22191, Type III and L-P-378 barrier material, or otherwise protect sharp edges and protrusions with caps, covers, plugs, or rigid plastic foam in accordance with MIL-P-26514 or fiberboard to prevent puncture of bag. The required desiccant and card type humidity indicator shall be placed within heat sealed barrier bag.
DH	Package Method I as follows: Apply preservative indicated by the 5th and 6th digits of the package code to critical surfaces. Wrap critical exposed surfaces with MIL-B-121 Grade A material followed by MIL-B-121 Grade C, sealed with 43-GP-3, tape. Apply preservative conforming to P-1 of D-LM-008-001/SF-001 to unpainted exterior non-critical surfaces
DN	Package Method I as follows: The preservative indicated by the 5th and 6th digits of the package code is applicable to exterior surfaces or open interior passages. Manufacturers prelubricant is adequate for sealed interior compartments.
DP	Package Method IC as follows: The preservative indicated by the 5th and 6th of the package code is applicable to exterior surfaces or open interior passages. Manufacturer's prelubricant is adequate for sealed interior compartments.
DQ	Package Method IA as follows: The preservative indicated by the 5th and 6th digits of the package code is applicable to exterior surfaces or open interior passages. Manufacturer's prelubricant is adequate for sealed interior compartments.
DR	Package Method IC and as follows: Each unit shall have all internal fluid-carrying passages, which are not prelubricated, filled with the preservative/operating fluid indicated by the 5th and 6th digits of the packaging code, allowing space for internal thermal expansion. If filling is not practical, the unit shall be internally fog-sprayed or flushed, then drained to the drip point. All parts, fittings, openings, etc, shall be capped or plugged with non-corrosive (non interacting) metal caps or plugs conforming to MIL-C-5501 or equivalent. All hydraulic preservative/operating fluid used shall be filtered through a 3 micron absolute filter prior to being used as specified above. Exterior bare metal surfaces, subject corrosion, shall be coated with compound conforming to P2 or P6 of D-LM-008-001/SF-001. Unit shall be wrapped with a greaseproof wrap conforming to MIL-B-121, Grade A or equivalent; seal seams with PPP-T-76 tape to effect a measure of water-proofness and prevent unwrapping. The unit must be adequately cushioned with material specified in digits 9 through 11, and packaged in a 43-GP-21, V3C container (as a minimum), Style FOL or CSSC. All seams, corners and manufacturer's joint shall be tape-sealed with two inch tape conforming to PPP-T-60, Type III or IV.
DS	Cable Assemblies — Wrap and cushion connector ends in accordance with procedure specified in Code AA. Seal connector ends in MIL-B-22191, MIL-B-121 or MIL-B-131. Coil where possible to minimum cube and secure with dry common cord. Secure items weighing over ten pounds (coiled where possible) to corrugated, solid fiberboard or other rigid material. Package Method III in a fiberboard box, conforming to 43-GP-21, Type 1 or Type 2, class 1.

Table IV - Specialized unit protection procedure codes (continued)

CODE	
DV	Package Method IIa modified. Use Transparent film, MIL-B-22191, Type I, in lieu of MIL-B-131 material.
DW	Package Method IIb, as follows: Item shall be cleaned, wrapped, blocked and braced in an interior carton conforming to 43-GP-21, Class I MIL-B-131 barrier material, sealed as required, shall be utilized around the first container. The cushioning to be specified under digit positions 9 and 10 of the code and in the thickness required to adequately protect the item, shall be placed between the barrier and the outer container.
DX	Package Method IA-8 using MIL-13-131, Class 1 barrier. Place each packaged item in an individual folding paperboard box or set-up paperboard box conforming to 43-GP-17 or 43-GP-18, Use sufficient cushioning with the paperboard container for packaged to pass the free fall drop test of D-LM-008-001/SF-001.
DY	Package in accordance with MIL-STD-2073-1, except that packaging shall be converted to the minimum cube methods in accordance with MIL-STD-758 when non-repairable items do not exceed 40 pounds and repairable items do not exceed 100 pounds. All items exceeding 40 pounds shall be packed Level A in individual shipping containers in accordance with MIL-STD-2073-1 or MIL-STD-758 as applicable.
EA	Package Method IIc using MIL-B-131, Class 1 barrier. Place each packaged item in an individual folding paperboard box or set-up paperboard box conforming to 43-GP-17 or 43-GP-18. Use sufficient cushioning within the paperboard container for package to pass the free fall drop test of D-LM-008-001 /SF-001.
EB	Package Method IC-3 using MIL-B-121, Type 1 barrier. Place each packaged item in an individual folding paperboard box or set-up paperboard box conforming to 43-GP-17 or 43-GP-18. Use sufficient cushioning within the paperboard container for package to pass the free fall drop test of D-LM-008-001 /SF-001.
EK	Package Method III as follows: Each bolt shall have the shank and threads protected by means of a sleeve extending over the full length of the shank and thread. The sleeve shall be manufactured from paperboard, asphalt impregnated chipboard, or spiral wrap of kraft paper over chipboard, lined with material conforming to MIL-B-121. Plastic sleeve coverings may also be used.
EL	Package Method IC-1 using MIL-B-121, Type 1 barrier. Place each packaged item in an individual corrugated box meeting the weight limitations of 43-GP-21. Use sufficient cushioning within the container to provide a completed package which will pass the free fall drop test of D-LM-008-001/SF-001.
FA	Method of preservation shall be in accordance with Method Symbol A of MIL-B-197. (See Note 1.)
FB	Method of preservation shall be in accordance with Method Symbol B of MIL-B-197. (See Note 1.)
FC	Method of preservation shall be in accordance with Method Symbol C of MIL-B-197. (See Note 1.)
FD	Method of preservation shall be in accordance with Method Symbol D of MIL-B-197. (See Note 1.)

Table IV - Specialized unit protection procedure codes (continued)

CODE	
FE	Method of preservation shall be in accordance with Method Symbol E of MIL-B-197. (See Note 1.)
FF	Method of preservation shall be in accordance with Method Symbol F of MIL-B-197. (See Note 1.)
FG	Method of preservation shall be in accordance with Method Symbol G of MIL-B-197. (See Note 1.)
FH	Method of preservation shall be in accordance with Method Symbol H of MIL-B-197. (See Note 1.)
FJ	Method of preservation shall be in accordance with Method Symbol J of MIL-B-197. (See Note 1.)
FK	Method of preservation shall be in accordance with Method Symbol K of MIL-B-197. (See Note 1.)
FL	Method of preservation shall be in accordance with Method Symbol L of MIL-B-197. (See Note 1.)
FM	Method of preservation shall be in accordance with Method Symbol A, C, D, K, G or L of MIL-B-197, as applicable.
FN	Method of preservation shall be in accordance with MIL-8-1 97, Method Symbol D of L for open bearings and Method Symbol C or L for closed bearings. (See Note 1.)
FP	Method of preservation shall be in accordance with Method Symbol A or MIL-13-1 97. (See Note 1.)
FQ	Package in accordance with MIL-E-75, Package Group 1.
FS	Package in accordance with MIL-E-75, Package Groupe 4.
FT	Package in accordance with MIL-E-75, Package Group 9. Appropriate magnetic cautionary markings shall be determined in accordance with MIL-S-4473.
FU	Package in accordance with MIL-E-75, Package Group 23.
FV	Package in accordance with MIL-E-75, Package Group 24.
FX	Package in accordance with MS90363-4.
FY	Package in accordance with MS90363-5.
GA	Package in accordance with MS90363-6.
GB	Package in accordance with MS90363-7.
GC	Package in accordance with MS90363-8.
GP	Package in accordance with MS90363-3.
GQ	Package in accordance with MS90363-1.

Table IV - Specialized unit protection procedure codes (continued)

CODE	
GR	Package in accordance with MS90363-2.
GS	Package Method IC-1 modified as follows: Package in transparent VCI treated bag made of film conforming to MIL-B-22109 (bag conforming to MIL-B-22020). A single thickness of film may be used for items weighing up to 10 pounds (4.6 kg) and at least two thicknesses of film shall be used for items weighing more than 10 pounds (4.6 kg).
GT	Package in accordance with MS90407-1.
GU	Package in accordance with MS90407-2.
GV	Package Method III. Unit container shall conform to 43-GP-21, Type 1, Class 2. Seal all seam. and joints with tape, not less than two inches (5 cm) wide, conforming to PPP-T-76.
GW	Package by Method Ila modified as follows: Pack in flexible, reusable watervaporproof container conforming to MIL-C-9959, Type 1, Grade A, Flame resistant
GX	Package by Method IA-8 as follows: Items adversely affected by electrostatic and/or both electromagnetic and electrostatic field forces shall be initially wrapped in material conforming to MIL B-81705, Type II, or cushioned in material conforming to PPP-C-1842, Type III, style A or B, or PPP-C-795, class 2, or PPP-C-1752, Type VII, class 4, or PPP-C-1797, Type II, to prevent bag puncture, and unit packed in a heat-sealed bag conforming to MIL-B-117, Type I, class F, Style 1. Alternate cushioning materials are acceptable if certified as having physical properties equal to or better than similarly constructed materials) covered by a government packaging specification and such materials satisfy the electrostatic decay rate requirement of MIL-B-81 705. Noncorrosive conductive materials) shall be applied to all exposed leads and connector pins. Lead or terminal configurations for all items shall be maintained as manufactured without causing loads of stresses capable of causing damage to the item. Materials used to maintain item position and lead or terminal configuration shall permit item removal without damage to the item. Sensitive electronic device caution labels shall be applied in accordance with D-LM-008-035/SF-000.
GZ	Package by Method IC-1 or IA-8 modified as follows: Package in a transparent barrier bag conforming to Type I, Class C, Style 2 of MIL-B-1 17, To prevent bag puncture, wrap or cushion with sufficient layers of MIL-B-22191 or L-P-378 barrier material, PPP-C-1842 or PPP-C-795 cushioning, or otherwise protect sharp edges and protrusions with caps, covers, plugs, or rigid plastic foam in accordance with MIL-P-26514. If a contact preservative has been applied to the item, MIL-B-22191, Type II barrier material, is required as wrap or cushioning and initial wrap prior to application of cushioning. The bag closure shall be made by heat sealing.
JF	Package Method III - Items shall be packaged in a vacuum formed Skin Package, formed from either cellulose acetate, cellulose butyrate or cellulose propionate. The material shall be 10 to 15 mils minimum thickness prior to draw and 2 to 4 mils minimum thickness after draw. 43-GP-22 fibreboard shall be used as a stiffener.

Table IV - Specialized unit protection procedure codes (continued)

CODE	
JG	Package Method IA-8 using MIL-B-131, Class 1 or 2 barrier material.
JH	Package Method IA-8 MIL-B-22191 Type I film. Sharp edges and protrusions shall be sufficiently cushioned with transparent material to protect the item and barrier.
JK	Package Method IA-8 for semiconductor devices and resistors in accordance with level A provisions of MIL-S-19491 and MIL-R-39032 respectively, utilizing the field force protection (shielding) requirements as well as ensuring that all other applicable requirements (including packing, marking and quality assurance) of these specifications are met. All other items shall be preserved Method IA-8 as follows: These items shall be wrapped in material conforming to MIL-B-81705, Type II, or cushioned in material conforming to PPP-C-795, Class 2; PPP-C-1752, Type VII, Class 4; PPP-C-1797, Type II; or PPP-C-1842, Type III. Lead or terminal configurations for all items shall be maintained as manufactured without causing loads or stresses capable of causing item damage. Materials used to protect lead or terminal configurations shall permit item removal without damage to the item. The unit container shall consist of a heat sealed bag conforming to MIL-E3-81705, Type I. All containers used shall be marked as specified for sensitive electronic devices in D-LM-008-034/SF-000 and D-LM-008-035/1SF-000.
JL	Package Method IC-3 using MIL-B-22191 Type III film. Sharp edges and protrusions shall be sufficiently cushioned with transparent material to protect the item and barrier.
JM	Package Method III as follows: Unit container shall consist of one piece of 3/8-inch (.95 cm) plywood and once piece of double wall fibreboard, 43-GP-22, each 4 inches (10 cm) longer and wider than the item dimensions. Place item on plywood, cover with fibreboard and staple fibreboard to plywood on sides and ends. For items longer than 96 inches (244 cm) frame panel in accordance with PPP-B-601 (used for backing boards and similar flat items).
JN	Package in accordance with MIL-P-23199, Level B.
JR	Package Method III. Package technical literature Method IC-1 and place on top of contents prior to closure of unit container.
JS	Package Method IA-14. Package technical literature Method IC-1 and place on top of contents prior to closure of unit container.
JT	Package Method IIb. Package technical literature Method IC-1 and place on top of contents prior to closure of unit container.

NOTES -

1. Cleaning, preservation and packaging shall be in accordance with Level A requirements of MIL-B-197

2. In order to reduce cube and afford better physical protection to item, disassemble where operation is simple and commonly available tools only are required to reassemble.

3.2.4 Digit 3 (Field 2) Quantity per unit package - Codes to be used in the Quantity Per Unit Package (QUP) field of the code (third digit) are cited in Table V.

Table V Quantity per unit package codes

Code	Quantity	Code	Quantity	Code	Quantity
1	1	B	12	N	72
2	2	C	15	P	75
3	3	D	16	Q	100
4	4	E	18	R	120
5	5	F	20	S	144
6	6	G	24	T	200
7	7	H	25	U	250
8	8	J	32	V	500
9	9	K	36	W	1000
Ø	See Note	L	48	X	Bulk
A	10	M	50		

Code
Y Packager's option provided all other contractual requirements are met.

Code
Z Special requirement - refer to special instruction or drawings provided.

NOTE - When a quantity other than listed in this table is desired, a "Z" will be used. In this case the desired quantity must be provided by supplementary instructions. When the quantity is included in the method of preservation code, a "Ø" will be used.

3.2.5 Digit 4 (Field 3) Cleaning method

3.2.5.1 Cleaning - The cleaning process listed in the code, Table VI, shall be accomplished with materials and in the manner specified in D-LM-008-001/SF-001. Cleaned items must be capable of meeting the requirements of the cleanliness test of these specifications.

3.2.5.2 Drying - Drying shall be accomplished by one or more of the procedures of D-LM-008-001/SF-001. The procedure selected shall not be injurious to the item.

3.2.6 Digits 5 and 6 (Field 4) Preservative material - Codes used in the preservative materials field of the code (5th and 6th digits) are listed in Table VII.

3.2.7 Digits 7 and 8 (Field 5) Wrapping material - Codes used for wrapping material are cited in Table VIII. When a specific class, type or grade of wrap is not specified, the material selected must be adequate to prevent damage to the item and to other elements of the package.

Tableau VI — Cleaning procedure codes

Code	Cleaning Procedure	Code	Cleaning Procedure
0	No requirement.	D	Process C-9; Alkaline cleaning.
1	Process C-1; Any applicable process in accordance with D-LM-008-001 /SF-001	E	Cleaning shall be in accordance with MIL-M-9950, MISSILE COMPONENTS; Cleaning and Packaging for Delivery.
3	Process C-3; Two step petroleum solvent.	F	Clean for oxigen service in accordance with industrial practice. Petroleum and other nonflammable solvents shall not be used.
5	Process C-5; Petroleum solvent follow- ed by finger-print removal	G	Process C-1 1, Electro-cleaning.
6	Process C-5 or C-18; Petroluem solvent or vapour degreasing followed by finger-print removal.	H	Process C-12, Emulsion Cleaning.
7	Process C-7; Vapour degreasing.	J	Process C-15, Abrasive blast.
8	Process C-8; Finger-print removal.	K	Process C-16, Abrasive blast (honing process).
9	Process C-14; Steam cleaning	L	Process C-17, Soft grit blast.
A	Process C-18; Vapour degreasing followed by finger-print removal.	M	Process C-19; Ultrasonic cleaning in ac-cordance with industry practice.
B	Clean lenses and optical equipment in accordance with MIL-D-16898 optical elements — Packaging of	N	Cleaning shall be in accordance with MIL-STD-767 Piping System Cleaning Requirements for.
C	Process C-8; Using material conforming to O-M-232, Methanol (Methyl Alcohol).	P	Process D-1, Blast or prepared, dry, clean compressed air.
		Q	Process D-4, Wiping with clean, dry, lint free cloths or specially prepared wiping papers.
		R	Clean for high pressure air service in accordance with industry practice to assure safe equipment. Petroleum and other flammable solvents shall not be us- ed. Attach certification of special cleaning accomplished to each unit.
		X	See Method of Preservation Code (1st and 2nd digits) for this requirement.
		Y	Packager's option provided all other contractural requirements are met.
		Z	Special Requirements — See specific instructions or drawings provided.

3.2.8 Digits 9 and 10 (Field 6) Cushioning and dunnaging — Codes used in cushioning and dunnaging are cited in Table IX. When a specific class, type or grade of cushioning and dunnaging material is not specified, it must be adequate to prevent damage to the item and to other elements of the package.

3.2.8.1 Boxes used as cushioning — Boxes cited as cushioning in this field of the code shall be limited to those boxes which are used inside the barrier. Boxes used as the outer container of the method of preservation shall be described as unit intermediate containers in the 12th, 13th, 15th and 16th digit of the code.

3.2.9 Digit 11 (Field 7) Cushioning thickness — Thickness of cushioning material or dunnage shall be as shown in Table X.

Table VII Preservation material codes

CODE	
ØØ	No requirement.
Ø1	P-1, 31-GP-1. Corrosion, Preventive, Compound, Cold Application, Hard Film.
Ø2	P-2, 31-GP-3. Corrosion, Preventive, Compound, Cold Application, Soft Film.
Ø3	P-3, 31-GP-4. Corrosion, Preventive, Compound, Cold Application, Water Displacing, Soft Film.
Ø6	P-6, MIL-C-11796. Class 3, Light Preventive, Compound, Soft Film, Hot Application.
Ø7	P-7, MIL-L-3150. Oil, Preservative, Medium, Cold Application.
Ø9	P-9, VV-L-800. Very light, Preservative Oil Water Displacing, Cold Application.
1Ø	P-10, MIL-L-21260. Lubricating Oil, Internal-Combustion Engine, Preservative, Grade 1, Light Viscosity Oil, Grade 2, Medium Viscosity Oil, or Grade 3, Heavy Viscosity Oil.
11	P-11, MIL-G-23827. Grease, Aircraft and Instrument, Gear and Actuator Screw.
12	P-11, MIL-G-81322. Grease, Aircraft, General Purpose.
13	P-11, 3-GP-685. Grease, Automotive and Artillery.
14	P-11, MIL-C-10382. Corrosion Preventive Compound; Food Handling Machinery and Equipment.
15	P-1 5, MIL-H-461 70, Hydraulic Fluid, Rust inhibited, fire retardant, synthetic hydrocarbon base.
17	P-17, MIL-L-6085. Lubricating Oil Instrument, Aircraft, Low Volatility.
18	P-18, MIL-L-3420. Inhibitor, Corrosion Volatile, Treated Carrier Type, Packaging Materials.
19	P-19, MIL-C-16173, Grade 4, Corrosion Preventive, Solvent, Cutback, Cold Application, Transparent, Non-tacky.
2Ø	P-20, MIL-L-46002. Lubricating Oil, Contact and Volatile Corrosion Inhibitor Treated.
21	P-21, MIL-C-16173. Grade 5, Thin Film Preservative.
26	MIL-C-0083933, Corrosion Preventive Compound, Cold application (for motor vehicles), fire retardant.
27	MIL-C-16555, Type I, Coating Compound, strippable, sprayable, fire retardant, aluminum and aluminum gray.
28	MIL-C-16555, Type II, Class I, Coating compound, strippable, sprayable, fire retardant, Olive drab.
29	MIL-C-16555, Type II, Class 2, Coating Compound, Strippable, sprayable, fire retardant, marine core green.
3Ø	MIL-L-8937. Lubricant, Solid Film, Heat Cured.

Table VII Preservation material codes (continued)

CODE	
31	MIL-C-6529. Corrosion-Preventive Compound, Aircraft Engine, Type II, Ready-mixed Material for Reciprocating Aircraft Engines.
32	MIL-C-6529, Type III, Ready-mixed Material for Turbojet Aircraft Engines which use MIL-L-6081 Lubricating Oil.
33	MIL-L-7808. Lubricating Oil, Aircraft Turbine Engine, Synthetic Base.
38	MIL-P-149, Compound: Protective, Strippable, Hot Dipping.
43	MIL-G-25537 Grease, Aircraft Helicopter.
49	Vendor's protective grease or oil coating.
5Ø	MIL-L-7870 Lubricating Oil, General Purpose, Low Temperature.
51	MIL-L-6081, Oil, Lubricating, Jet Engine, Grade 1010.
52	MIL-C-8188, Corrosion-Preventive Oil, Gas Turbine, Engine, Aircraft, Synthetic Base.
53	MIL-L-6082, Lubricating Oil, Aircraft, Reciprocating (Piston) Engine, Fire retardant.
56	MIL-L-23699, Lubricating Oil, Aircraft Turbine Engine, Synthetic Base.
57	MIL-L-21260, Lubricating Oil, internal combustion engine, preservative and break-in, Grade 10, light viscosity oil.
58	MIL-L-21260, Grade 2, medium viscosity oil.
59	MIL-L-21260, Lubricating Oil, Grade 3, Heavy Viscosity Oil.
61	3-GP-26, Hydraulic Fluid Petroleum.
62	MIL-H-6083, Hydraulic Fluid, Petroleum Base, Preservative.
65	MIL-H-83282, Hydraulic fluid, syn. hydrocarbon, fire retardant.
71	MIL-P-3420, Inhibitor, Corrosion, Volatile, Treated Carrier Type, Type 1. For General Application.
72	MIL-P-3420, Type II, For Limited Application.
73	P-9, Lubricating Oil, General Purpose, Preservative, (Water-displacing, Low Temperature) over-wrapped with MIL-P-3420, Type I material.
78	MIL-B-22019, Film, Transparent, Flexible, Heat Sealable, Volative Corrosion Inhibitor Treated.
79	MIL-B-46167, Brake Fluid, silicone, automotive, operational and preservative.
80	MIL-P-46093, Primer Coating, synthetic (for brake drums).
83	P-9 applied to operating parts with P-1 applied to external non-critical surfaces.
89	Preserve with normal operating lubricant.
92	MIL-H-6083, Hydraulic Fluid Petroleum Base, Preservative applied to interior surfaces; P-6 applied to critical external ferrous metal surfaces and/or P-1 applied to external non-critical ferrous metal surfaces.

Table VII Preservation material codes (continued)

CODE	
93	MIL-C-81309, Grade A, Compound, Corrosion Preventive, Water Displacing, Ultra-Thin Film.
94	MIL-C-81309, Grade B, Compound, Corrosion Preventive, Water Displacing, Ultra-Thin Film.
95	MIL-C-22235, Corrosion, Preventative Oil, Non-staining.
AA	Preservative used shall be in accordance with general provisions of D-LM-008-001/SF-001.
XX	See Method of Preservation Code (1st and 2nd digits) for this requirement.
YY	Packager's option so long as all other contractual requirements are met.
ZZ	Special Requirement - See specific instructions or drawings provided.

Table VIII Wrapping material codes

CODE	
AA	Material used shall be in accordance with the general provisions of Specification D-LM-008-001/SF-001.
AB	MIL-B-81916, Barrier watervaporproof, flexible, heat sealable, Flame resistant.
BA	43-GP-148 Aluminum Foil.
CA	9-GP-5 Paper, Kraft Wrapping.
CE	UU-P-268, Kraft Wrapping, Type 1, Grade C, fire retardant.
DA	9-GP-7 Paper, Tissue Wrapping.
EA	MIL-P-17667, Chemically Neutral Wrapping Paper.
EB	MIL-P-17667, Type I.
EC	MIL-P-17667, Type II, Class 1.
ED	MIL-P-17667, Type II, Class 2.
FA	MIL-P-130, Laminated and Creped Wrapping Paper.
FB	MIL-P-130, Type I.
FC	MIL-P-130, Type II.
FD	MIL-P-130, Type III.
GA	MIL-B-121, Greaseproof, Waterproof barrier.
GB	MIL-B-121, Grade A.
GC	MIL-B-121, Type I, Heavy Duty, Grade A.
GD	MIL-B-121, Type I, Grade A, Class 1, Heat Sealable.
GE	MIL-B-121, Type I, Grade A, Class 2, Non Heat Sealable.
GF	MIL-B-121, Type II, Medium Duty.
GG	MIL-B-121, Type II, Class 1, Grade A, Heat Sealable.
GH	MIL-B-121, Type II, Class 2, Grade A, Non Heat Sealable.
GK	MIL-B-121, Grade A, overwrap with MIL-P-130, and secure the outer wrap.
GM	MIL-B-131, Class 1, General.
GN	MIL-B-131, Class 2, Limited.
GP	MIL-B-131, Class 3, Scrim.
HC	PPP-B-1055 Barrier Material, Waterproofed, Flexible.

Table VIII Wrapping material codes (continued)

CODE	
JA	43-GP-30 Film, Packaging Low Density Polyethylene.
JB	PPP-C-795, Cushioning Material, Flexible, Cellular, Plastic Film, for Packaging Applications, Class 1, Thin, Up to 1/4 inch (.63 cm).
JL	MIL-B-22019, Film, Transparent, Flexible, Heat Sealable, Volatile Corrosion Inhibitor Treated.
JV	MIL-B-22191, Films, Transparent, Flexible, Heat Sealable, Type III.
JW	PPP-C-795, Cushioning Material, Flexible, Cellular, Plastic Film, for Packaging Applications, Class 1, Medium, 1/4 to 3/8 inch (.63 cm to .95 cm).
JX	PPP-C-795, Class 1, Thick, Greater than 3/8 inch (.95 cm).
K3	MIL-B-81705, Type II, Barrier Material, Flexible, Electrostatic Free Heat Sealable.
LA	NNN-P-40, Paper, Lens, Type II.
MA	PPP-P-291, Paperboard, Wrapping and cushioning.
N1	PPP-C-795, Cushioning Material, Flexible, Cellular, Plastic Film, for Packaging Applications, Class 2, Thin, Up to 1 /4 inch (.63 cm), antistatic.
N2	PPP-C-795, Class 2, Medium, 1 i4 inch (.63 cm) to 3/8 inch (.95 cm), antistatic.
N3	PPP-C-795, Class 2, Thick, Greater than 3/8 inch (.95 cm), antistatic.
N4	PPP-C-1797, Cushioning Material, Resilient, Low Density, Unicellular Polypropylene Foam, 1/16inch (.03 cm).
N5	PPP-C-1797, 3/32 inch (.15 cm).
N6	PPP-C-1797, 1/8 inch (.31 cm).
N7	PPP-C-1797, 1/4 inch (.63 cm).
N8	MIL-B-81705, Type I Barrier Materials, Flexible, Electrostatic Free, Heat Sealable.
PA	PPP-C-795, Class 3, Flexible, Closed cell, Fire retardant, Non corrosive, Heat sealable.
OO	No requirement.
XX	See Method of Preservation Code (1st and 2nd digits) for this requirement.
YY	Packager's option so long as all other contractual requirements are met.
ZZ	Special requirements - See specific instructions or drawings required.

Table IX Cushioning and dunnage material codes

CODE	
AA	Any cushioning and dunnage which will meet the general requirements of D-LM-008-001/SF-001.
AB	Cushioning and dunnage used within the unit container shall be treated latex or sponge rubber, cellulosic preforms, rubberized hair, or cane fibre inserts.
AC	Provide cushioning outside of the transparent unit package when packing within the shipping container. Any cushioning which meets the general requirements of D-LM-008-001/SF-001 is acceptable.
AD	Cushion, anchor, block or brace in accordance with MIL-STD-1186.
AF	Cushioning conforming to the general requirements of D-LM-008-001/SF-001 shall be located between the barrier and outer container.
AG	MIL-F-87090, Class 1, Combustion retardant foam for cushioning supply items aboard navy ships (Sheet stock).
AH	MIL-F-81334, Foam Plastic, flexible, open cell, polyester type, polyurethane Grades 1 and 2.
AJ	MIL-F-87090, Class 2, combustion retardant foam for cushioning supply items aboard navy ships (Sheet Stock).
BA	PPP-C-843, Cellulosic cushioning material.
BB	PPP-C-843, in 43-GP-17 or 43-GP-18 Box.
BC	PPP-C-843, in 43-GP-21 Box Class 1.
BD	PPP-C-843, Type 1.
BE	PPP-C-843, Type 1 in 43-PG-17 or 43-PG-18 Box.
BF	PPP-C-843, Type 1 in 43-GP-21 Box.
BG	PPP-C-843, Type II.
BH	PPP-C-843, Type II in 43-GP-17 or 43-GP-18 Box.
BJ	PPP-C-843, Type II in 43-GP-21 Box.
BL	PPP-C-850, Cushioning material, Polystyrene expanded, resilient, Type 1 (Sheet Form) and Type 2 (Roll Form) Grade SE Flame resistant.
BN	PPP-C-850, Cushioning Material, Polystyrene, Expanded, Resilient (for Packaging Use).
DA	PPP-P-291 Paperboard, Wrapping and Cushioning.
DB	PPP-P-291 in 43-GP-17 or 43-GP-18 Box.
DC	PPP-P-291 in 43-GP-21 Box Class I.

Table IX Cushioning and dunnage material codes (continued)

CODE	
DD	MIL-R-5001, Rubber cellular sheet, latex foam, Type 1 and Type 2, Grade A (Flame resistant).
DH	MIL-R-0020092, Type 1, Class 5, Fire retardant, Shipboard
DJ	MIL-R-0020092, Type 2, Class 5, Fire retardant, shipboard.
EA	43-GP-17, 43-GP-18 or 43-GP-20 Box.
EB	Vendors Set-up or Folding Box.
EC	43-GP-21, Box Fibreboard, Class Domestic.
ED	Vendor's fibreboard box.
EG	PPP-T-495, Mailing Tube.
EM	PPP-C-1120, Cushioning material, Bound Fiber, Class B.
EN	PPP-C-1120, Type 1 (soft) Class B.
EQ	PPP-C-1120, Type 1, Class B, in 43-GP-21 Class 1 Box.
ER	PPP-C-1120, Type II (medium soft) Class B.
ET	PPP-C-1120, Type II, Class B, in 43-GP-21 Class 1 Box.
EU	PPP-C-1120, Type III (medium firm) Class B.
EW	PPP-C-1120, Type III, Class B, in 43-GP-21 Clash 1 Box.
EX	PPP-C-1120, Type IV, (firm) Class B.
EZ	PPP-C-1120, Type IV, Class B, in 43-GP-21 Class 1 Box.
FA	PPP-C-1120, Class A (water resistant), cushioning material, bound.
FB	PPP-C-1120, Type 1 (soft) Class A.
FC	PPP-C-1120, Type 1, Class A, in 43-GP-17 or 43-GP-18 Box.
FD	PPP-C-1 120, Type 1, Class A, in 43-GP-21 Class 1 Box.
FE	PPP-C-1120, Type II (medium soft), Class A.
FF	PPP-C-1120, Type II, Class A, in 43-GP-17 or 43-GP-18 Box.
FG	PPP-C-1120, Type II, Class A, in 43-GP-21 Class 1 Box.
FH	PPP-C-1120, Type III, (medium firm) Class A.
FJ	PPP-C-1120, Type III, in 43-GP-17 or 43-GP-18 Box.
FK	PPP-C-1120, Type III, in 43-GP-21 Class 1 Box.
FL	PPP-C-1120, Type IV, (firm) Class A.

Table IX - Cushioning and dunnage material codes (continued)

CODE	
FM	PPP-C-1120, Type IV, Class A, in 43-GP-17 or 43-GP-18 Box.
FN	PPP-C-1120, Type IV, Class A, in 43-GP-21 Class 1 Box.
GA	PPP-C-1752, Cushioning Material, Packaging, Unicellular, Polyethylene Foam, Flexible, 2 Pounds per Cubic Foot.
GB	MIL-F-83671, Packaging Material, Foam-in-Place, Class 3, Fire Retardant.
GC	MIL-P-19644, Plastic, Molding Material.
GD	MIL-P-26514, Type I, Class 1 Polyurethane, Prefoamed, Rigid, Fire Retardant.
GE	MIL-P-26514, Type I, Class 2, Grade A, Polyurethane, Prefoamed, Flexible, Light Load Range, 45g's or less, Fire Retardant.
GF	MIL-P-26514, Type I, Class 2, Grade B, Polyurethane, Prefoamed, Flexible, Medium Load Range, 65g's or less, Fire Retardant.
GH	MIL-P-26514, Type I, Class 2, Grade B, Polyurethane, Prefoamed, Flexible, Medium Load Range, 45g's or less, Fire Retardant.
GJ	MIL-P-26514, Type I, Class 2, Grade C, Polyurethane, Prefoamed, Flexible Heavy Load Range, 65g's or less, Fire Retardant.
GK	MIL-F-83671, Class 2, Grade A, Foam-in-Place, Fire Retardant.
GL	MIL-F-83671, Class 2, Grade B, Foam-in-Place, Fire Retardant.
GM	MIL-F-83671, Class 1, Foam-in-Place, Fire Retardant.
GP	PPP-C-1752, Cushioning Materiel, Packaging, Unicellular, Polyethylene Foam, Flexible, 1 Pound per Cubic Foot.
GO	MIL-P-26514, Type I, Class 2, Grade C, polyurethane, prefoamed, flexible, heavy load range, 45g's or less, fire retardant.
GR	MIL-P-26514, Type I, Class 2, Grade C, polyurethane, prefoamed, flexible, heavy load range, 65g's or less, fire retardant.
GS	Polyurethane cushioning in rigid plastic container.
GT	PPP-C-1797, Cushioning Material, Resilient, Low Density, Unicellular, Polypropylene Foam, 1/16 Inch.
GU	PPP-C-1797, 3/32 Inch.
GV	PPP-C-1797, 1/8 inch (.31 cm).
GW	PPP-C-1797, 1/4 inch (.63 cm).
GY	PPP-C-1797, 3/16 inch.
GZ	MIL-P-19644, Plastic Molding Material, polystyrene Foam, expanded bead. Fire retardant, Type II.

Table IX Cushioning and dunnage material codes (continued)

CODE	
HA	UU-C-282 Chipboard sheet used as a stiffener on one side of item.
HB	UU-C-282 Chipboard sheet used as a stiffener on both sides of item.
HC	UU-C-282 Chipboard sheet used as pads on all surfaces.
HD	UU-C-282 Chipboard sheet used as pads, cells, die-cuts or sleeves.
HE	UU-C-282 Chipboard sheet used as a stiffener on one side of item in 43-GP-17 or 43-GP-18 Box.
HF	UU-C-282 Chipboard sheet used as a stiffener on both sides of the item in 43-GP-17 or 43-GP-18 box.
HG	UU-C-282 Chipboard sheet used as pads on all surfaces in 43-GP-17 or 43-GP-18 Box.
HH	UU-C-282 Chipboard sheet used as pads, cells, die-cuts or sleeves in 43-GP-17 or 43-GP-18 Box.
HJ	UU-C-282 Chipboard sheet used as a stiffener on one side of item in 43-GP-21 Class 1.
HK	UU-C-282 Chipboard sheet used as a stiffener on both sides of item in 43-GP-21 Class 1.
HL	UU-C-282 Chipboard sheet used as pads on all surfaces in 43-GP-21 Class 1.
HM	UU-C-282 Chipboard sheet used as pads, cells, die-cuts or sleeves in 43-GP-21 Class 1.
HN	PPP-C-1752 Type VII, Class 1, Cushioning material, unicellular, Polyethylene Foam.
JA	43-GP-22 Type III Fibreboard used as a stiffener on one side of the item.
JB	43-GP-22 Type III Fibreboard used as a stiffener on both sides of the item.
JC	43-GP-22 Type II or Type III Fibreboard used as pads, cells, sleeves or die-cuts.
JD	43-GP-22 Type III Fibreboard used as a stiffener on one side of the item in 43-GP-1 7 or 43-GP-18 Box.
JE	43-GP-22 Type III Fibreboard used as stiffener on both sides of the item in a 43-GP-17 or 43-GP-18 box.
JF	43-GP-22 Type II or Type III used as pads, cells, sleeves or die-cuts in 43-GP-17 or 43-GP-18 box.
JG	43-GP-22 Type III Fibreboard used as a stiffener on one side of the item in 43-GP-21 Class 1.

Table IX Cushioning and dunnage material codes (continued)

CODE	
JH	43-GP-22 Type III Fibreboard used as a stiffener on both sides of the item in 43-GP-21 Class 1.
JJ	43-GP-22 Type II or Type III Fibreboard used as pads, cells, sleeves or die-cuts in 43-GP-21 Class 1.
JL	PPP-F-320 Class Weather Resistant used as a stiffener on both sides of the item.
JM	PPP-F-320 Class Weather Resistant used as a stiffener on one side of the item.
JN	PPP-F-320 Class Weather Resistant used as pads, cells, sleeves or die-cuts.
JQ	Fibreboard triple-wall cells, pads, sleeves or die-cuts, made of materials used in the fabrication of PPP-B-640 boxes.
LB	4-GP-35 Felt, Hair and or Wool Untreated or Rot Resistant.
LC	PPP-C-795 Cushioning Materials, Flexible, Cellular, Plastic Film, for Packaging Applications, Class 1, Thin, Up to 1/4 inch (.63 cm).
LD	PPP-C-795, Class 1, Greater than 1/4 inch (.63 cm).
LE	MIL-P-26514, Polyurethane Foam Rigid or Elastic, for Packaging, Type 1, Class 2. Used as corner Pads, Fire retardant.
LF	MIL-C-3955, Spirally Wound Fibre Cans (material used as tubing without metal ends.)
LG	43-GP-22 Type III Fibreboard discs faced on both sides with MIL-B-121, Grade A, Barrier Material (cushioning inside fibre cans).
LH	Utilize the chest or carrying case of the item as the inner container.
LJ	43-GP-3 Tape Adhesive, Pressure Sensitive, Water Resistant for Packaging. Applied to exposed threads.
LK	Wood blocking and bracing, and/or fasteners, and or steel strapping for tie-down purposes. Rubber tired wheels shall be blocked clear of the floor of the crate or skid, and shall not be load bearing.
LN	Plastic Containers, (Boxes, Vials, etc) shall be constructed of rigid, transparent material and, if applicable, resistant to lubricant or preservative being used.
LP	CSA0115, 0121, OR 0151 plywood padded as required; used as a pressure strip block, brace or pallet.
LR	PPP-C-795, Cushioning Material, Flexible, Cellular, Plastic Film, For Packaging Applications, Class 1, Medium 1/4 to 3/8 Inch (.63 cm to .95 cm).
LS	PPP-C-795 Class 1, Thick, Greater than 3/8 Inch (.95 cm).
LT	PPP-C-795 Class 2, Thin, Up to 1/4 inch (.63 cm), antistatic pink.

Table IX Cushioning and dunnage material codes (continued)

CODE	
LU	PPP-C-795 Class 2, Medium, 1/4 à 3/8 Inch (.95 cm), Antistatic pink.
LV	PPP-C-795 Class 2, Thick, Greater than 3/8 Inch (.95 cm), Antistatic pink.
LX	PPP-C-795, in 43-GP-21 Class 1.
MA	MIL-P-26514 Type II, Class 2, Polyurethane, Flexible, Foamed-in-Pace.
MB	MIL-P-26514 Type II, Class 1, Polyurethane Rigid, Foamed-in-Place.
MC	MIL-P-26514 Type II, Class 1, Polyurethane, Density 0.5 through 1.0 pounds per cubic foot (.80 through 16.1 cu cm).
MD	MIL-P-26514 Type II, Class 1, Polyurethane, Density 1.2 through 1.5 pounds per cubic foot (19.3 through 24.1 cu cm).
ME	MIL-P-26514 Type II, Class 1, Polyurethane, Density 1.6 through 1.9 pounds per cubic foot (25.7 through 30.5 cu cum).
MF	MIL-P-26514 Type II, Class 1, Polyurethane, Density 2.0 through 2.4 pounds per cubic foot (32.1 through 38.5 cu CM).
MG	PPP-C-843, Type II or PPP-C-795 and PPP-C-1797 as delineated in Code NA.
NA	PPP-C-795, Cushioning Material, Flexible, Cellular, Plastic Film, for packaging applications, or PPP-C-1842, Cushioning Material, Plastic, Open Cell for packaging applications or PPP-C-1797, Cushioning Material, Resilient, Low Density, Unicellular, Polypropylene Foam or PPP-C-752 Cushioning Material Packaging Unicellular Polyethylene Foam.
NB	PPP-C-1842, Type III, Style A.
ND	PPP-C-795 or PPP-C-1842 or PPP-C-1797 or PPP-C-1752 in 43-GP-21 Class 1 Box.
NG	PPP-C-1842, Cushioning Material, Plastic, Open Cell.
NR	PPP-F-320, Class Domestic, Fiberboard used as Pads, Cells, Sleeves or die cuts in PPP-B-636, Class Domestic Box or Cushioning Material conforming to MIL-P-19644 or Polyurethane Foam conforming to MIL-P-26514.
NS	PPP-F-320, Class weather resistant used as Pads, Cells, Sleeves or die cuts or plastic molding material conforming to MIL-P-19644 or Polyurethane Foam conforming to MIL-P-26514.
NT	ASTM C516-80E 1.
NU	PPP-C-795, Cushioning Material, Flexible, Cellular, Plastic Film, for Packaging Application or PPP-C-1842, Cushioning Material, Plastic, Open cell for Packaging Application or PPP-C-1797, Cushioning Material, Resilient, Low Density, Unicellular Polypropylene Foam or PPP-C-1752, Cushioning Material, Packaging, Unicellular Polyurethane Foam, Flexible or PPP-B-566 or PPP-B-676 Box.
NV	PPP-C-1842, Cushioning Material, Type III, Plastic Open Cell for Packaging Application or PPP-C-1797, Cushioning Material, Resilient, Low Density, Unicellular Polypropylene Foam in PPP-B-566 or PPP-B-676 Box.

Table IX Cushioning and dunnage material codes (continued)

CODE	
NW	PPP-C-1842, Cushioning Material, Type III Plastic open cell for packaging application or PPP-C-1797, unicellular Polypropylene Foam in 43-GP-21, Class 1 Box.
00	No requirement.
XX	See Method of Preservation Code (1st and 2nd digits) for this requirement.
YY	Packager's option so long as other contractual requirements are met.
ZZ	Special requirements - See specific instructions or drawings provided.

Table X Cushioning thickness codes

CODE	MAXIMUM THICKNESS	CODE	MAXIMUM THICKNESS
A	1/4 inch thick (.63 cm).	Q	3-3/4 inches thick (9.5 cm).
B	1/2 inch thick (1.2 cm).	R	4 inches (10.1 cm).
C	3/4 inch thick (1.9 cm).	S	4-1/4 inches thick (10.7 cm).
D	1 inch thick (2.5 cm).	T	4-1/2 inches thick (1 1.4 cm).
E	1-1/4 inches thick (3.1 cm).	U	4-3/4 inches thick (12 cm).
F	1-1/2 inches thick (3.8 cm).	V	5 inches thick (12.7 cm).
G	1-3/4 inches thick (4.4 cm).	W	5-1/4 inches thick (13.3 cm).
H	2 inches thick (5 cm).	X	As required to protect the item or elements of the package.
J	2-1/4 inches thick (5.7 cm).		
K	2-1/2 inches thick (6.3 cm).	O	Not applicable.
L	2-3/4 inches thick (6.9 cm).	Y	Packager's option provided all other contractual requirements are met
M	3 inches (7.6 cm).		
N	3-1/4 inches thick (8.2 cm).	Z	Special requirements - See specific instructions or drawing provided.
P	3-1/2 inches thick (8.8 c m).		

3.2.10 Digits 12 and 13 (Field 81 Unit containers and Digits 15 and 16 (Field 10) Intermediate containers - Intermediate containers are interior containers which enclose two or more unit containers of identical items, Intermediate containers are used only when two or more intermediate containers are to be enclosed within a shipping container.

3.2.10.1 Option - When the code allows an option in the selection of the containers to be used, the weight and size limitations of the container specification will apply.

Table XI Unit and intermediate container codes

CODE	
1Ø	Any suitable container included in this table.
11	Unit or shipping containers is not required. Preparation for shipment shall be accomplished in a manner which will ensure safe delivery at destination, and shall comply with CTC Freight Classification Regulations, or other regulations, as applicable to the mode of transportation.
12	Bag conforming to requirements of UU-B-23 (Flame retardant).
A1	Bags made of MIL-P-130 Paper or MIL-B-121, Grade A, or MIL-B-1 17. Closure may be by staples, tape, adhesive or Heat Seal.
A2	Any bag or sack used by the vendor.
A3	Bags made of material conforming to MIL-B-121, Grade A, or 43-GP-30. Closure shall be Heat Seal only.
A4	Bags made of material conforming to MIL-B-11 7, Type 1 Class G, Style 1. (Flame Resistant).
AA	PPP-B-20 Mailing Bags.
AC	PPP-S-30 Sacks, Shipping, Paper, (Cushioned).
AD	PPP-S-30 Type I, Exterior Packaging Bags.
AE	PPP-S-30, Type II, Interior Packaging Bags.
AH	PPP-B-35, Bags, Textile, Shipping.
AJ	PPP-B-35, Type I, Standard Burlap Bag.
AK	PPP-B-35, Type II, Standard Cotton Bag.
AL	PPP-B-35, Type III, Laminated Textile Bags.
AN	43-GP-2, Bags, Paper (Kraft), Grocers.
AO	Any suitable bag or sack, included in this table.
B1	MIL-B-117, Type I, Class B, Style 3, Heavy Duty, Waterproof, Opaque and Transparent, Bag.
B2	MIL-B-117, Type I, Class C, Style 3, Heavy Duty, Waterproof, Greaseproof, Opaque and Transparent, Bag.
B3	MIL-B-1 17, Type I, Class E, Style 3, Heavy Duty, Greaseproof, Waterproof, Water Vapour-proof, Opaque and Transparent, Bag.
B4	MIL-B-1 17, Type II, Class F, Style 3, Medium Duty, Greaseproof, Waterproof, Water Vaporproof, Opaque and Transparent, Bag.
B6	MIL-B-1 17, Type III, Class C, Style 2, Light Duty, Waterproof, Greaseproof, Transparent, Bag.

Table XI Unit and intermediate container codes (continued)

CODE	
B7	MIL-B-117 bags or bags made of 43-GP-30 material, fabricated in accordance with MIL-B-1 17, closure may be staples, tape, adhesive or heat seal.
B8	MIL-B-117, Type I, Class A, Style 2, Heavy Duty, Water-proof Electrostatic Free.
B9	MIL-B-117, Type I, Class F, Style 1, Heavy Duty Watervapor-proof, Electrostatic Free.
BD	Bags made from material conforming to MIL-B-131, Barrier Materials, water-vaporproof, flexible; MIL-B-121, Grade A, Barrier Materials, greaseproof, flexible, non-corrosive non-transferrable coating; or Barrier Material, waterproof.
BE	Bags made from material conforming to MIL-B-121, Grade A.
BL	Bags, made of material conforming to 43-GP-30 Film, Packaging, Low-density Polyethylene.
BQ	MIL-B-117, Bags, Type 1, Class D, Heavy Duty, waterproof.
BR	Bags made of material conforming to MIL-B-121, Grade A.
BS	Bags made of material conforming to MIL-B-131.
BT	MIL-B-22020, Bag, Transparent, Heat Sealable VCI, Treated.
BU	MIL-B-117, Type II, Class B, medium Type, waterproof Bag.
BV	Bags made of material conforming to MIL-B-121, Grade C.
BW	Bags made of material conforming to MIL-B-131, Class II.
BX	MIL-B-117, Type III, Class B, light duty, waterproof bag.
CA	PPP-B-1806, Barrel and Kegs, Wood, Slack.
CF	PPP-D-723, Drum, Fibre.
CG	PPP-D-723, Type I, Domestic Type.
CH	PPP-D-723, Type II, Normal overseas type.
CJ	PPP-D-723, Type III, Military overseas type.
CO	Any suitable fibre drum, included in this table.
CR	PPP-D-723, Type I, Grade A, Class 2.
CS	Vendor's fibre drum.
CT	43-GP-17.
CU	43-GP-17 or 43-GP-20, Type 2.
CV	PPP-B-566, Variety 2, Process II or PPP-B-665, Class 2 or PPP-B-636, Type CF, Class weather-resistant.

Table XI Unit and intermediate container codes (continued)

CODE	
CW	PPP-B-665, Class 2, Box, Paperboard Metal Edged and Components.
D1	43-GP-17 or 43-GP-18, Folding or set-up boxes.
D2	43-GP-20, Metal-Stayped; 43-GP-18, Set-up or 43-GP-17, Folding, paperboard boxes.
D3	43-GP-17, 43-GP-20, 43-GP-21, Folding Metal-stayed, set-up or fibreboard boxes.
D4	Vendor's set-up or folding box.
D6	43-GP-17 or 43-GP-18.
D7	Water resistant PPP-B-566 or PPP-B-676 box.
D8	Grease resistant PPP-B-566 or PPP-B-676 box.
DA	43-GP-17 Boxes, Folding Paperboard.
DB	MIL-B-43666, Type III.
DC	MIL-B-38721, Boxes, Consolidation, Fibreboard.
DE	43-GP-18, Boxes, Set-Up, Paperboard.
DJ	43-GP-20, Boxes, Metal-stayed, Paperboard.
DO	Any suitable fibre box, included in this table.
DP	PPP-B-640, Box, Triplewall.
DQ	PPP-B-640, Class 1.
DR	PPP-B-640, Class 2.
DU	CFPS 17, Box, Cleated Panels, Type 2, 3 or 4.
DV	CFPS 17, Type 3 or 4.
DW	CFPS 17, Type 2.
E1	43-GP-21, Boxes, Fibreboard, Type I or Type II, Class 1.
E2	43-GP-21, Type I or type II, Class 2.
E3	43-GP-21, W5c or W6c.
E4	43-GP-21, W5s or W6s.
E5	43-GP-21, any desired option.
E6	Vendor's fibreboard box.
E7	43-GP-21, Type I, Class 1 Single Wall.
E8	43-GP-21, Type I, Class 1 Double Wall.

Table XI Unit and intermediate container codes (continued)

CODE	
E9	43-GP-21, Type I, Class 2.
EB	43-GP-21, Type I.
EC	43-GP-21, Type I, Class 1.
ED	43-GP-21, Type I, Class 2.
EE	43-GP-21, V3c.
EF	43-GP-21, W5c.
EG	43-GP-21, W6c.
EM	43-GP-21, Type II.
EN	43-GP-21, Type II, Class 1.
EP	43-GP-21, Type II, Class 2.
EQ	43-GP-21, V3s.
ER	43-GP-21, W5s.
ES	43-GP-21, W6s.
ET	43-GP-21, V1s.
EU	43-GP-21, V2s.
EV	PPP-B-1364, Box, Corrugated Fibreboard, High Strengh, Water Resistant, DW.
EW	43-GP-21, Vac or Vas.
EX	PPP-B-621, Class 2, Style 7.
EY	PPP-B-621, Class 1, Style 7.
F1	43-GP-47, PPP-B-576 or 43-GP-23, Wood Boxes.
F2	43-GP-47, Boxes, Wood, Cleated -Plywood, Overseas Type; or 43-GP-46 Overseas Type.
F3	PPP-B-601, Boxes, Wood, Cleated -Plywood, Domestic Type, or PPP-B-621, Class 1.
F4	43-GP-47, Grade A Plywood shall have the grade stamp of an approved testing agency.
F5	Vendor's wood box.
F6	43-GP-47, Style I or J, Wood-cleated, Plywood box, surface treated in accordance with the requirements of the specification.

Table XI Unit and intermediate container codes (continued)

CODE	
F9	Shallow box, constructed of plywood and wood as follows: Sides and ends of one-piece lumber, 3/4 inch (1.9 cm) minimum thickness. Top and bottom of one-piece Standard Grade 3/8 inch (.95 cm) plywood with exterior glue conforming to PSI-66. End cleats shall run across the grain of the ends and shall extend within 1/8 inch (.31 cm) of the outside surface of the top and bottom. Sides shall extend over the cleats. Battens shall be applied in accordance with paras 3.3.5, 3.3.5.2, 3.3.5.2.1, 3.3.5.2.2 and Table VIII of PPP-B-621 except exterior battens or cleats shall not be used on the top. Nailing pattern and size of nails used in fastening the top and bottom to the sides and ends shall conform to Table XII of PPP-B-621 for the Style 4 box.
FA	43-GP-46 Nailed Wooden Boxes.
FB	43-GP-46 Domestic Type.
FC	43-GP-46 Overseas Type.
FD	43-GP-47 Cleated Plywood Boxes.
FE	43-GP-47 Cleated Plywood Boxes, Type 1.
FF	43-GP-47 Cleated Plywood Boxes, Type 2.
FG	43-GP-47 Cleated Plywood Boxes, Type 3.
FH	PPP-B-601, Fire retardant treated with non teachable compounds in accordance with MIL-L-19140.
FK	PPP-B-576 Box Wood, cleated, Veneer, Paper Overlaid.
FL	PPP-B-576, (Class 1).
FM	PPP-B-576, (Class 2).
FO	Any suitable wood box, included in this table.
FP	43-GP-23, Boxes, Wooden, Wirebound.
FQ	43-GP-23, Class 1.
FR	43-GP-23, Class 2.
FU	MIL-B-26195, Box, Wood Cleated, Skidded, Load Bearing Base.
FV	MIL-B-26195, Type I, Domestic.
FW	MIL-B-26195, Type II, Overseas.
FX	43-GP-23M, Type 1, Class A.
GA	43-GP-23M, Type 1, Class B.
GC	MIL-P-46161, Grade B.
HA	PPP-C-96, Cans, Metal.

Table XI Unit and intermediate container codes (continued)

CODE	
HB	PPP-C-96, Type I, Round, Square Oblong, or Bear-shaped, Open-top, Double-seamed Ends.
HC	PPP-C-96, Type II, Round, Soldered Side and End Seams, Soldered Vent Hold Closures.
HD	PPP-C-96, Type III, Round, Open-top Double-seamed Ends, Key Opening Band with Reclosure Feature.
HE	PPP-C-96, Type IV, Round, Oval or Oblong one piece drawn body. Open-top with crimped, soldered or double-seamed lid, or lid crimped in position by means of an annular band with tear tab.
HF	PPP-C-96, Type V, Round, Square, Oval or Oblong, both ends crimped or double-seamed on (Class Optional).
HG	PPP-C-96, Type VI, Round, Square or Oblong, bottom and crimped or double-seamed on, with full friction plug or slip cover or hinged closure.
HH	PPP-C-96, Type VII, Round, Flaring body.
HJ	PPP-C-96, type VIII, Round, dome or cone top, both ends double-seamed on, top end fitted with crown or screw cap closure, or a special dispensing fitting.
HK	PPP-C-96, Type IX.
HO	Any suitable metal can, included in this table.
HU	MIL-C-26094, Cans Hermetic Sealing, Aluminum, Two Piece.
JC	MIL-C-3955, Cans, Fibre, Spirally Wound.
JD	MIL-C-3955, Type I, Single Body.
JE	MIL-C-3955, Type II, Telescopic Type.
JF	MIL-C-3955, Type II, Telescopic, Type Grade A, Untreated (low moisture resistance).
JG	MIL-C-3955, Type II, Telescopic Type, Grade B, Asphalt Treated (highly moisture resistant).
JH	PPP-C-96, Type V, Class 1, Round, Square, Oval or Oblong, both ends crimped or double-seamed on, single friction plug closure.
JJ	PPP-C-96, Type V, Class 2, Round, Square, Oval or Oblong, both ends crimped or double-seamed on, with multiple friction plug closure.
JK	PPP-C-96, Type V, Class 3. Round, Square, Oval or Oblong, both ends crimped or double-seamed on, with Newman seal closure.
JL	PPP-C-96, Type I, Class 4, Round, Square, Oval or Oblong, both ends crimped or double-seamed on, with screw cap closure.
JM	PPP-C-96, Type V, Class 5, Round, Square, Oval or Oblong, both ends crimped or double-seamed on, with snap-on closure.

Table XI Unit and intermediate container codes (continued)

CODE	
JN	PPP-C-96, Type V, Class 6, Round, Square, Oval or Oblong, both ends crimped or double-seamed on, with spout closure.
JP	Any suitable fibre can, included in this table.
K1	Each unit shall be packaged in a reusable metal container of minimum praticable size conforming to MIL-D-6054, MIL-D-6055, or MIL-C-4150, depending upon size or capacity of container required. This container will be used to accomplish the preservation method indicated by the 1st and 2nd digits of the code.
KA	MIL-C-4150, Case, Carrying and Storage, cushioned within a 43-G-21 Box, Class domestic, ers, Polyurethane, Rigid or Elastic for Packaging Small Engines.
KB	MIL-C-9959, Container, Flexible, Reusable Watervaporproof, Flame resistant, Type 1, Grade A.
KE	MIL-D-6054, Drum, Steel, Shipping, Reusable.
KF	MIL-D-6055, Drums, Metal Reusable, Shipping and Storage.
KO	Any suitable rigid case or container, included in this table.
KP	MIL-C-5584, Containers, Shipping, Aircraft Engine, Metal, Reusable.
M1	MIL-C-9897, Crate, Slotted Angle, Steel or Aluminum, for Lightweight Airframe Components and Bulky Items, Type I, Style A, 500 pound (227 kg) maximum weight.
M2	MIL-C-9897, Type II, Style A, 500 pound (227 kg) maximum gross weight.
M3	MIL-C-9897, Type I, Style B, 3,000 pound (1.4 metric tons) gross weight.
M4	MIL-C-9897, Type II, Style B, 3000 pound (1.4 metric tons) gross weight.
M5	Vendor's open wood crate.
MA	MIL-C-104, Crate, Wood, Lumber and Plywood Sheathed. Nailed and Bolted.
MB	MIL-C-104, Type I, Nailed, Class 1, Lumber.
MC	MIL-C-104, Type II, Bolted, Class 1, Lumber.
MF	MIL-C-104, Type I, Nailed, Class 2, Plywood.
MG	MIL-C-104, Type II, Bolted Class 2, Plywood.
MJ	MIL-C-3774, Crate, Wood, Open (12.000 to 16.000 pound (5.5 to 7.3 metric tons) capacity.
MO	Any suitable wood crate, included in this table.
MU	MIL-C-25731, Types VI and VII as applicable.
MV	MIL-C-52950, Crates, Wood, Open and Covered, Style A-Heavy Duty.

Table XI Unit and intermediate container codes (continued)

CODE	
MW	MIL-C-25731, Crate, Wood, For Lightweight Aircraft Components.
MX	MIL-C-52950, Crates, Wood, Open and Covered, Style B-Light Duty.
MY	Naval aviation supply office DWG no. 15024 for shipping and storage of gyroscopic instruments.
NO	43-GP-21, Grade Vllc, Double Wall.
NP	43-GP-21, Grade V13c, Double Wall.
NQ	43-GP-21, Grade V15c, Double Wall.
NR	PPP-B-1672, Vertical, Star Pack Type I, Includes internal cushioning.
NS	PPP-B-1672, Folded Convoluted, Pack Type II, Includes internal cushioning.
NT	43-GP-21, Type 1 or 2, Class 1, Style 5 or 6.
NU	43-GP-21, Type 1 or 2, Class 2, Style 5 or 6.
NV	PPP-B-1672, Telescoping Encapsulated Pack Type III, includes Internal Cushioning.
NW	PPP-B-1672, Horizontal Star Pack Type IV, includes Internal Cushioning.
NY	Naval aviation supply office DWG no. P069, molded, reusable, for circuit cards and modules.
00	No requirements.
P1	CFPS 17, Cleated Panels and boxes, Type I, Style A.
P2	CFPS 17, Type I, Style B.
P3	CFPS 17, Type I, Style A or B.
P4	CFPS 17, Type I, Style A.
PC	CFPS 17, Type I, any style.
PD	CFPS 17, Type III, Style A.
PE	CFPS 17, Type III, Style B.
PF	CFPS 17, Type III, any style.
PJ	CFPS 17, Type III, Style A or B.

Table XI - Unit and intermediate container codes (continued)

CODE	
PK	MIL-P-9902 Demountable Box, Type II, Class 1, Style A, PPP-B-601, Box Wood, Cleated - Plywood, Overseas Type, PPP-B-621, Box Wood, Nailed, Class 2 or PPP-B-640, Fiberboard Box. Triple-Wall, Class 2. Provide with nominal 2" x 4" skids. See box specifications for weight limitations. The packaged item shall be centered and cushioned on all surfaces between the unit package and the shipping container with cushioning conforming to PPP-C-1 120, Type III or IV, Class C, PPP-C-1752, PPP-C 850, Type I or II, MIL-P-26514 or MIL-R-20092, Type II, Class 4 as required. Close, seal and reinforce fiberboard boxes in accordance with the appendix to the box specification. Steel banding is not permitted for fiberboard boxes. Wood and plywood boxes shall have top panels secured with wood screws (except MIL-B-9902 box) and boxes banded. The top, one side and one end of the shipping container shall be marked "REUSABLE CONTAINER AND CUSHIONING - USE FOR RETURN OF NRFI ASSEMBLY". Black letters, minimum 2" high. Also, containers closed with screws shall be marked, "To open use screw driver". Black letters, minimum 1" high.
RS	PPP-P-704, Type I-5 Gallon (23 litres), Tight Head, Steel Shipping Pail.
RT	PPP-P-704, Type II, Steel Shipping Pails, (1 through 12 gallons) (5 through 55 litres) Lug Cover.
RU	PPP-D-705, Type III Steel Shipping Drum, full removable lug cover.
W1	PPP-T-495, Tubes, Mailing and Filing, Styles A or B.
W2	PPP-T-495, Style C.
W3	PPP-T-495, Style D.
WA	Suitable secured bundle.
WB	MIL-C-4150 (included Styles A and B requirements of cancelled MIL-B-253051. MIL-C-5584 includes Stylec requirements of cancelled Specification MIL-B-25305.
WC	MIL-B-9361, Box, Metal, Fuel Tanks Aircraft External Nested.
WD	Plastic Containers shall be constructed of rigid transparent material and, if applicable, resistant to lubricant or preservative being used. Containers too small for adequate marking shall be over-packaged in envelopes for identification marking purposes.
WM	PPP-T-495, Tubes, Mailing and Filing, Paper.
WP	9-GP-5M, Paper, Kraft, Untreated, Wrapping, secured so as not to come unwrapped.
WQ	43-GP-30, Film packaging low density polyethylene.
WR	PPP-P-291, Paperboard, Wrapping, Cushioning, secured so as not to come unwrapped.
WS	43-GP-22, Fiberboard, Taped. Used as Interior Unit Container.
WU	MIL-B-5806, Box, Helicopter Blade.
WV	Wire or nylon tape ties a minimum of four places.

Table XI - Unit and intermediate container codes (continued)

CODE	
WX	Cylindrical container of 22 mm thick polyethylene; closure may be by mechanical fasteners or heat seal.
XX	See Method of Preservation Code (1st and 2nd digits) for this requirement.
YY	Packager's option so long as all other contractual requirements are met.
ZZ	Special Requirement - See specific instructions or drawings provided.

NOTE 1. Reusable aluminum shipping container assembly for Method II Packaging, Includes plug type humidity indicator, pressure relief valve, cushioning and internal fibreboard box.

3.2.11 Digit 14 (Field 9) Intermediate container quantity - This code represents the number of unit packages to be included in the intermediate container

Table XII Intermediate container quantity codes

Code	Intermediate Container Quantity	Code	Intermediate Container Quantity	Code	Intermediate Container Quantity
2	2	C	15	L	40
4	4	D	16	M	45
5	5	E	20	N	48
6	6	F	24	P	50
8	8	G	25	Q	100
Ø	None	H	30	R	144
A	10	J	35	S	200
B	12	K	36		

X See Method of Preservation Code (1st and 2nd digits) for this requirement.

Y Packer's option provided all other contractual requirements are met.

Z Special requirement - See specific drawings or instructions provided.

3.2.12 Digit 17 (Field 11) Level of protection. - Codes used in the level of Protection field of the code are cited in Tables XIII, XIV and XV. The codes in these tables indicate the level of protection which the package provides the item. In addition, the codes of Tables XIX and XX modify certain of the unit container dimensions.

Table XIII Basic levels of protection codes

CODE	LEVEL
A	Level A
B	Level B
C	Level C
X	Commercial - NOTE 1

Note 1 - Commercial protection may be used to satisfy any degree of protection whenever the technical design details of the unit pack meets all conditions of the Level of protection specified.

Level of protection codes - These codes are used when it is necessary to code maximum length, width or depth dimensions in excess of 10 feet (305 cm). Use tables as indicated under the length, width and depth columns.

Table XIV Modified level of protection codes
(for any packages in excess of ten feet ((305 cm) in any side).

Level A Codes	Level B Codes	Length	Width	Depth
1	J	XIX	XVIII	XVIII
2	K	XVIII	XIX	XVIII
3	L	XVIII	XVIII	XIX
4	M	XIX	XIX	XVIII
5	N	XIX	XVIII	XIX
6	P	XVIII	XIX	XIX
7	Q	XIX	XIX	XIX

Table XV Modified level of protection codes (used for
packages with dimensions less than 4.95 feet (151 cm) on a side,
when dimensional increments of less than one-tenth of a foot (3 cm) are required)

Level A Codes	Level B Codes	Length	Width	Depth
8	R	XX	XVIII	XVIII
9	S	XVIII	XX	XVIII
D	T	XVIII	XVIII	XX
E	U	XX	XX	XVIII
F	V	XX	XVIII	XX
G	W	XVIII	XX	XX
H	X	XX	XX	XX

3.2.13 Digits 18 and 19 (Field 12) Maximum weight - The codes given in Table XVI provide the maximum allowable weight of the unit package. Packagers are encouraged to use the lightest weight materials and containers which will provide the required protection. Further, the packager is not expected to weight packages to the nearest 1/100 of a pound (.04 kg). Decimals shown under two pounds (.9 kg) approximate 1/2 or 1 ounce (14.2 or 28.4 ml) increments.

Table XVI Maximum weight codes

WEIGHT		CODE	WEIGHT		CODE	WEIGHT		CODE
Pounds	Kilo Grams		Pounds	Kilo Grams		Pounds	Kilo Grams	
0.04	18	AA	2.40	1.08	A2	7.10	3.19	C7
0.07	31	AB	2.50	1.12	BV	7.20	3.24	CX
0.10	45	AC	2.60	1.17	A3	7.30	3.28	C8
0.13	58	AD	2.67	1.20	BW	7.40	3.33	DA
0.17	77	AE	2.84	1.27	BX	7.50	3.37	C9
0.20	90	AF	2.90	1.30	A4	7.60	3.42	DB
0.23	104	AG	3.00	1.35	CA	7.70	3.46	D1
0.25	113	AH	3.10	1.39	A5	7.80	3.51	DC
0.29	130	AJ	3.20	1.42	CB	7.90	3.55	D2
0.32	144	AK	3.30	1.48	A6	8.00	3.60	DD
0.35	158	AL	3.40	1.53	CC	8.10	3.64	D3
0.37	167	AM	3.50	1.57	A7	8.20	3.69	DE
0.41	185	AN	3.60	1.62	CD	8.30	3.73	D4
0.44	195	AP	3.70	1.66	A8	8.40	3.78	DF
0.50	226	AG	3.80	1.71	CE	8.50	3.82	D5
0.57	258	AR	3.90	1.75	A9	8.60	3.87	DG
0.63	285	AS	4.00	1.80	CF	8.70	3.91	D6
0.69	312	AT	4.10	1.84	B1	8.80	3.96	DH
0.75	339	AU	4.20	1.89	CG	8.90	4.00	D7
0.82	371	AV	4.30	1.93	B2	9.00	4.05	DJ
0.88	398	AW	4.40	1.98	CH	9.10	4.09	D8
0.94	425	AX	4.50	2.02	B3	9.20	4.14	DK
1.00	453	BA	4.60	2.07	CJ	9.30	4.18	D9
1.07	484	BB	4.70	2.11	B4	9.40	4.23	DL
1.13	511	BC	4.80	2.16	CK	9.50	4.27	E1
1.20	543	BD	4.90	2.20	B5	9.60	4.32	DM
1.25	566	BE	5.00	2.25	CL	9.70	4.36	E2
1.32	597	BF	5.10	2.29	B6	9.80	4.41	DN
1.37	620	BG	5.20	2.34	CM	9.90	4.45	E3
1.44	652	BH	5.30	2.38	B7	10.00	4.50	DP
1.50	679	BJ	5.40	2.43	CN	10.10	4.54	E4
1.57	711	BK	5.50	2.47	B8	10.20	4.59	E5
1.63	738	BL	5.60	2.52	CP	10.25	4.61	DQ
1.69	765	BM	5.70	2.56	B9	10.40	4.68	E6
1.75	792	BN	5.80	2.61	CQ	10.50	4.72	DR
1.82	824	BP	5.90	2.65	C1	10.60	4.77	E7
1.88	851	BQ	6.00	2.70	CR	10.70	4.81	E8
1.94	879	BR	6.10	2.74	C2	10.75	4.83	DS
2.00	906	BS	6.20	2.79	CS	10.90	4.90	E9
2.10	951	A1	6.30	2.83	C3	11.00	4.95	DT
2.17	983	BT	6.40	2.88	CT	1 1.10	4.99	F1
2.34	1060	BU	6.50	2.92	C4	11.20	5.04	F2
			6.60	2.97	CU	11.25	5.06	DU
			6.70	3.01	C5	11.40	5.13	F3
			6.80	3.06	CV	11.50	5.17	DV
			6.90	3.10	C6	11.60	5.22	F4
			7.00	3.15	CW			

Table XVI Maximum weight codes

WEIGHT		CODE	WEIGHT		CODE	WEIGHT		CODE
Pounds	Kilo Grams		Pounds	Kilo Grams		Pounds	Kilo Grams	
11.70	5.26	F5	16.70	7.51	J9	21.70	9.76	N8
11.75	5.28	DW	16.80	7.56	ET	21.80	9.81	FL
11.90	5.35	F6	16.90	7.60	K1	21.90	9.85	N9
12.00	5.40	DX	17.00	7.65	K2	22.00	9.90	P1
12.10	5.44	F7	17.10	7.69	E4	22.10	9.94	P2
12.20	5.49	F8	17.20	7.74	K3	22.20	9.99	FM
12.25	5.51	EA	17.30	7.78	K4	22.30	10.03	P3
12.40	5.58	F9	17.40	7.83	EV	22.40	10.08	P4
12.50	5.62	EB	17.50	7.87	K5	22.50	10.12	P5
12.60	5.67	G1	1 7.60	7.92	K6	22.60	10.1 7	FN
12.70	5.71	G2	17.70	7.96	EW	22.70	10.21	P6
12.75	5.73	EC	17.80	8.01	K7	22.80	10.26	P7
12.90	5.80	G3	17.90	8.05	K8	22.90	10.30	P8
13.00	5.85	ED	18.00	8.10	EX	23.00	10.35	FP
13.10	5.89	G4	18.10	8.14	K9	23.10	10.39	P9
13.20	5.94	G5	18.20	8.19	L1	23.20	10.44	Q1
13.25	5.96	EE	18.30	8.23	FA	23.30	10.48	QZ
13.40	6.03	G6	18.40	8.28	L2	23.40	10.53	FQ
13.50	6.07	EF	18.50	8.32	L3	23.50	10.57	Q3
13.60	6.12	G7	18.60	8.37	FB	23.60	10.62	Q4
13.70	6.16	G8	18.70	8.41	L4	23.70	10.66	Q5
13.75	6.18	EG	18.80	8.46	L5	23.80	10.70	FR
13.90	6.25	G9	18.90	8.50	FC	23.90	10.75	Q6
14.00	6.30	EH	19.00	8.55	L6	24.00	10.80	Q7
14.10	6.34	H1	19.10	8.59	L7	24.10	10.84	Q8
14.20	6.39	H2	19.20	8.64	FD	24.20	10.89	FS
14.25	6.41	EJ	19.30	8.68	L8	24.30	10.93	Q9
14.40	6.48	H3	19.40	8.73	L9	24.40	10.98	R1
14.50	6.52	EK	19.50	8.77	FE	24.50	11.02	R2
14.60	6.57	H4	19.60	8.82	M1	24.60	11.07	FT
14.70	6.61	H5	19.70	8.86	M2	24.70	11.11	R3
14.75	6.63	EL	19.80	8.91	FF	24.80	11.16	R4
14.90	6.70	H6	19.90	8.95	M3	24.90	11.20	R5
15.00	6.75	EM	20.00	9.00	M4	25.00	11.25	FU
15.10	6.79	H7	20.10	9.04	M5	25.30	11.38	R6
15.20	6.84	H8	20.20	9.09	FG	25.50	11.47	FV
15.30	6.88	EN	20.30	9.13	M6	25.80	11.61	R7
15.40	6.93	H9	20.40	9.18	M7	26.00	11.70	FW
15.50	6.98	J1	20.50	9.22	M8	26.30	11.83	R8
15.60	7.02	EP	20.60	9.27	FH	26.50	11.92	FX
15.70	7.06	J2	20.70	9.31	M9	26.80	12.06	R9
15.80	7.11	J3	20.80	9.36	N1	27.00	12.15	GA
15.90	7.15	EQ	20.90	9.40	N2	27.30	12.28	S1
16.00	7.20	J4	21.00	9.45	FJ	27.50	12.37	GB
16.10	7.24	J5	21.10	9.49	N3	27.80	12.41	S2
16.20	7.29	ER	21.20	9.54	N4	28.00	12.60	GC
16.30	7.35	J6	21.30	9.58	N5	28.30	12.73	S3
16.40	7.38	J7	21.40	9.63	FK	28 50	12.82	GD
16.50	7.42	ES	21.50	9.67	N6	28.80	12.96	S4
16.60	7.47	J8	21.60	9.72	N7	29.00	13.05	GE

Table XVI Maximum weight codes

WEIGHT		CODE	WEIGHT		CODE	WEIGHT		CODE
Pounds	Kilo Grams		Pounds	Kilo Grams		Pounds	Kilo Grams	
29.30	13.18	S5	44.50	20.02	V3	68.20	30.69	Y2
29.50	13.27	GF	44.80	20.16	V4	68.80	30.96	JG
29.80	13.41	S6	45.20	20.34	HG	69.50	31.27	Y3
30.10	13.54	GG	45.60	20.52	V5	70.10	31.54	JH
30.40	13.68	S7	46.10	20.74	HH	70.80	31.86	Y4
30.70	13.81	GH	46.50	20.92	V6	71.50	32.17	11
31.00	13.95	S8	47.00	21.15	HJ	72.20	32.49	Y5
31.30	14.08	GJ	47.50	21.37	V7	72.90	32.80	JK
31.60	14.22	S9	47.90	21.55	HK	73.50	33.07	Y6
31.90	14.35	GK	48.20	21.69	V8	74.20	33.39	JL
32.30	14.53	T1	48.50	21.82	V9	74.90	33.70	Y7
32.50	14.62	GL	48.80	21.96	HL	75.60	34.02	JM
32.80	14.76	T2	49.20	22.14	W1	76.30	34.33	Y8
33.10	14.89	GM	49.50	22.27	W2	77.10	34.69	JN
33.40	15.03	T3	49.70	22.36	HM	77.80	35.01	Y9
33.70	15.16	GN	50.00	22.50	W3	78.60	35.37	JP
34.00	15.30	T4	50.30	22.63	W4	79.50	35.77	Z1
34.30	15.43	GP	50.70	22.81	HN	80.10	36.04	JQ
34.60	15.57	T5	51.20	23.04	W5	80.80	36.36	Z2
34.90	15.70	GQ	51.70	23.26	HP	81.70	36.76	JR
35.30	15.88	T6	52.20	23.49	W6	82.50	37.12	Z3
35.60	16.02	GR	52.70	23.71	HQ	83.30	37.48	JS
35.90	16.15	T7	53.20	23.94	W7	84.10	37.84	Z4
36.30	16.33	GS	53.70	24.16	HR	84.90	38.20	JT
36.70	16.51	T8	54.20	24.39	W8	85.70	38.56	Z5
37.00	16.65	GT	54.70	24.61	HS	86.60	38.97	JU
37.30	16.78	GU	55.20	24.84	W9	87.50	39.37	Z6
37.50	16.87	T9	55.70	25.06	HT	88.30	39.73	JV
37.80	17.01	U1	56.30	25.33	X1	89.20	40.14	Z7
38.10	17.14	GV	56.80	25.56	HU	90.00	40.50	JW
38.50	17.32	U2	57.30	25.78	X2	90.90	40.90	Z8
38.80	17.46	GW	57.90	26.05	HV	91.80	41.31	JX
39.10	17.59	U3	58.30	26.33	X3	92.70	41.71	Z9
39.50	17.77	GX	59.00	26.55	HW	93.60	42.12	KA
39.80	17.91	U4	59.50	26.77	X4	94.50	42.52	1A
40.30	18.13	HA	60.10	27.04	HX	95.40	42.93	KB
40.50	18.27	U5	60.70	27.31	X5	96.20	43.29	KC
40.80	18.36	U6	61.30	27.58	JA	97.10	43.69	KD
41.10	18.49	HB	61.90	27.85	X6	98.90	44.50	1B
41.30	18.53	U7	62.50	28.12	JB	99.70	44.86	1C
41.60	18.72	U8	63.00	28.35	X7	100	45.00	1D
41.90	18.85	HC	63.70	28.66	JC	101	45.45	KE
42.30	19.03	U9	64.30	28.93	X8	102	45.90	1E
42.70	19.21	HD	64.90	29.20	JD	103	46.35	KF
43.00	19.35	V1	65.70	29.56	X9	104	46.80	1F
43.50	19.57	HE	66.20	29.79	JE	105	47.25	KG
43.80	1 9.71	V2	66.90	30.10	Y1	106	47.70	1G
44.30	19.93	HF	67.50	30.37	JF	107	48.15	KH

Table XVI Maximum weight codes

WEIGHT		CODE	WEIGHT		CODE	WEIGHT		CODE
Pounds	Kilo Grams		Pounds	Kilo Grams		Pounds	Kilo Grams	
108	48.60	1H	157	70.65	LK	214	96.30	MF
109	49.05	KJ	158	71.10	2K	216	97.20	3S
110	49.50	1J	159	71.55	2L	218	98.10	MG
111	49.95	KK	160	72.00	LL	220	99.00	3T
112	50.40	1K	161	72.45	2M	222	99.90	MH
113	50.85	KL	162	72.90	2N	224	100.80	3U
114	51.30	1L	163	73.35	LM	226	101.70	MJ
115	51.75	KM	164	73.80	2P	228	102.60	3V
116	52.20	1M	165	74.25	2Q	230	103.50	MK
117	52.65	KM	166	74.70	LN	232	104.40	3W
118	53.10	1N	167	75.15	2R	234	105.30	ML
119	53.55	KP	168	75.60	2S	236	106.20	3X
120	54.00	1P	169	76.05	LP	238	107.10	MM
121	54.45	KQ	170	76.50	2T	240	108.00	3Z
122	54.90	1Q	171	76.95	2U	242	108.90	MN
123	55.35	KR	172	77.40	LQ	244	109.80	4A
124	55.80	1R	173	77.85	2V	246	110.70	MP
125	56.25	KS	174	78.30	2W	248	111.60	4B
126	56.70	1S	175	78.75	LR	250	112.50	MQ
127	57.15	KT	176	79.20	2X	253	113.85	4C
128	57.60	1T	177	79.65	2Y	255	114.75	MR
129	58.05	KU	178	80.10	LS	257	115.65	4D
130	58.50	1U	179	80.55	2Z	260	117.00	MS
131	58.95	KV	180	81.00	3A	263	118.35	4E
132	59.40	1V	181	81.45	LT	265	119.25	MT
133	59.85	KW	182	81.90	3B	267	120.15	4F
134	60.30	1W	183	82.35	3C	270	121.50	MU
135	60.75	KX	184	82.80	LU	273	122.85	4G
136	61.30	1X	185	83.25	3D	275	123.75	MV
137	61.65	LA	186	83.70	LV	277	124.65	4H
138	62.10	1Y	187	84.15	3E	280	126.00	MW
139	62.55	LB	188	84.60	3F	283	127.35	4J
140	63.00	1Z	189	85.05	3G	285	128.25	MX
141	63.45	LC	190	85.50	LW	287	129.15	4K
142	63.90	2A	191	85.95	3H	290	130.50	NA
143	64.35	LD	192	86.40	3J	293	131.85	4L
144	64.80	2B	193	86.85	LX	295	132.75	NB
145	65.25	LE	194	87.30	3K	298	134.10	4M
146	65.70	2C	195	87.75	3L	301	135.45	NC
147	66.15	LF	196	88.20	MA	304	136.80	4N
148	66.60	2D	197	88.65	3M	307	138.15	ND
149	67.05	LG	198	89.10	3N	310	139.50	4P
150	67.50	2E	199	89.55	MB	313	140 05	NE
151	67.45	LH	202	90.90	MC	316	142.20	4Q
152	68.40	2F	204	91.80	3P	319	143.55	NF
153	68.85	2G	206	92.77	MD	322	144.90	4R
154	69.30	LJ	208	93.60	3Q	325	146.25	MG
155	69.75	2H	210	94.50	ME	328	147.60	4S
156	70.20	2J	212	95.50	3R	331	148.95	NH

Table XVI Maximum weight codes

WEIGHT		CODE	WEIGHT		CODE	WEIGHT		CODE
Pounds	Kilo Grams		Pounds	Kilo Grams		Pounds	Kilo Grams	
334	150.50	4T	528	237.60	PL	850	382.50	6U
337	151.65	NJ	533	239.85	5U	859	386.55	QP
340	153.00	4U	538	242.10	PM	867	390.15	6V
343	154.35	NK	543	244.35	5V	876	394.20	QQ
346	155.70	4V	548	246.60	PN	884	397.80	6W
349	157.05	NL	553	248.85	5W	893	401.85	QR
352	158.40	4W	559	251.55	PP	902	405.90	6X
356	160.20	NM	564	253.80	5X	911	409.95	QS
359	161.35	4X	570	256.50	PQ	920	414.00	6Y
363	163.35	NN	575	258.75	5Y	929	418.05	QT
366	164.70	4Y	581	261.45	PR	938	422.10	6Z
370	166.50	NP	587	264.15	5Z	947	426.15	QU
373	167.75	4Z	592	266.40	PS	956	430.20	7A
377	169.65	NQ	598	269.10	6A	966	434.70	QV
381	171.45	5A	604	271.80	PT	975	438.75	7B
384	172.80	NR	610	274.50	6B	985	443.25	QW
387	174.15	5B	618	277.20	PU	994	447.30	7C
391	175.95	NS	622	279.90	6C	1,004	451.80	QX
394	177.30	5C	628	282.60	PV	1,014	456.30	7D
398	179.10	NT	633	284.85	6D	1,024	460.80	RA
402	180.90	5D	640	288.00	PW	1,034	465.30	7E
406	182.70	NU	647	291.15	6E	1,044	469.80	RB
410	184.50	5E	653	293.85	PX	1,055	474.75	7F
414	186.30	NV	659	296.55	6F	1,065	479.25	RC
418	188.00	5F	666	299.70	QA	1,076	484.20	7G
422	189.90	NW	672	302.40	6G	1,086	488.70	RD
424	190.80	5G	679	305.55	QB	1,097	493.65	7H
428	192.60	NX	686	308.70	6H	1,108	498.60	RE
432	194.40	5H	692	311.40	QC	1,119	503.55	7J
436	196.20	PA	699	314.55	6J	1,130	508.50	RF
440	198.00	5J	706	317.70	QD	1,142	513.00	7K
444	199.80	PB	713	320.85	6K	1,153	518.85	RG
448	201.60	5K	720	324.00	QE	1,165	524.25	7L
453	203.85	PC	727	327.15	6L	1,1 76	529.20	RH
458	206.10	5L	734	330.30	QF	1,180	531.00	7M
462	207.90	PD	741	333.45	6M	1,199	539.55	RJ
466	209.70	5M	749	337.05	QG	1,211	544.25	7N
471	211.95	PE	756	340.20	6N	1,223	550.35	RK
475	213.75	5N	764	343.80	QH	1,235	555.75	7P
480	216.00	PF	771	346.95	6P	1,247	561.15	RL
484	217.80	5P	779	350.55	QJ	1,260	567.00	7Q
489	220.05	PG	786	353.70	6Q	1,272	572.40	RM
494	222.30	5Q	794	357.30	QK	1,285	578.25	7R
498	224.10	PH	802	360.90	6R	1,299	584.55	RN
502	225.90	5R	810	364.50	QL	1,312	590.40	7S
508	228.00	PJ	818	368.10	6S	1,325	596.25	RP
513	230.85	5S	826	374.70	QM	1,338	602.10	7T
518	233.10	PK	834	375.30	6T	1,352	608.40	RQ
523	235.35	5T	842	378.90	QN	1,365	614.25	7U

Table XVI Maximum weight codes

WEIGHT		CODE	WEIGHT		CODE	WEIGHT		CODE
Pounds	Kilo Grams		Pounds	Metric Tons		Pounds	Metric Tons	
1,379	620.55	RR	2,223	1.00	ST	3,598	1.63	TV
1,393	626.85	7V	2,245	1.01	8V	3,634	1.64	9V
1,407	633.15	RS	2,268	1.02	SU	3,671	1.66	TW
1,421	639.45	7W	2,291	1.03	8W	3,708	1.68	9W
1,435	645.75	RT	2,314	1.04	SV	3,745	1.70	TX
1,449	652.05	7X	2, 337	1.06	8X	3, 783	1.71	9X
1,464	658.80	RU	2,361	1.07	SW	3,821	1.73	UA
1,478	665.10	7Y	2,385	1.08	8Y	3,859	1.75	9Y
1,493	671.25	RV	2,409	1.09	SX	3,898	1.76	UB
1,508	678.60	7Z	2,433	1.10	8Z	3,937	1.78	9Z
1,523	685.35	RW	2,458	1.11	TA	3,977	1.80	UC
1,538	692.10	8A	2,483	1.12	9A	4,017	1.82	01
1,554	699.30	RX	2,508	1.13	TB	4,058	1.84	UD
1,569	706.05	8B	2, 533	1.14	9B	4, 099	1.86	02
1,585	715.25	SA	2,558	1.16	TC	4,140	1.87	UE
1,601	720.45	8C	2,585	1.17	9C	4,182	1.89	03
1,617	727.65	SB	2,611	1.18	TD	4,224	1.91	UF
1,633	734.85	8D	2,637	1.19	9D	4,267	1.93	04
1,649	742.05	SC	2,664	1.20	TE	4,310	1.95	UG
1,665	749.25	8E	2,691	1.22	9E	4,353	1.97	05
1,682	756.90	SD	2,718	1.23	TF	4,397	1.99	UH
1,699	761.55	8F	2,745	1.24	9F	4,441	2.01	06
1,716	772.20	SE	2,773	1.25	TG	4,486	2.03	UJ
1,733	779.85	8G	2,801	1.27	9G	4, 531	2.05	07
1,750	787.50	SF	2,829	1.28	TH	4,577	2.07	UK
1,767	795.15	8H	2,857	1.29	9H	4,623	2.09	08
1,785	803.25	SG	2,886	1.31	TJ	4,670	2.12	UL
1,803	811.35	8J	2,915	1.32	9J	4,717	2.14	09
1,821	819.45	SH	2,944	1.33	TK	4,765	2.16	UM
1,839	827.55	8K	2,974	1.35	9K	4,813	2.18	10
1,858	830.10	SJ	3,004	1.36	TL	4,862	2.20	UN
1,876	844.20	8L	3,034	1.37	9L	4,911	2.22	11
1,895	852.75	SK	3,065	1.39	TM	4,961	2.25	UP
1,914	861.30	8M	3,096	1.40	9M	5,011	2.27	12
1,933	869.85	SL	3,217	1.41	TN	5,062	2.29	UQ
1,952	878.40	8N	3,159	1.43	9N	5,113	2.32	13
1,972	887.40	SM	3,190	1.44	TP	5,165	2.34	UR
1,992	896.40	8P	3,222	1.46	9P	5,217	2.36	14
2,012	905.40	SN	3,255	1.47	TQ	5,270	2.39	US
2,032	914.40	8Q	3,288	1.49	9Q	5,323	2.41	15
2,053	923.85	SP	3,321	1.50	TR	5,377	2.44	UT
2,073	932.85	8N	3,354	1.52	9R	5,431	2.46	16
2,094	942.30	SQ	3,388	1.53	TS	5,486	2.49	UU
2,115	951.45	8S	3,422	1.55	9S	5,541	2.51	17
2,136	961.20	SR	3,457	1.56	TT	5,597	2.54	UV
2,1 57	970.65	8T	3,492	1.58	9T	5,653	2.56	18
2,179	980.55	SS	3,527	1.60	TU	5,711	2.59	UW
2,201	990.45	8U	3, 563	1.61	9U	5, 769	2.61	19

Table XVI Maximum weight codes

WEIGHT		CODE	WEIGHT		CODE	WEIGHT		CODE
Pounds	Kilo Grams		Pounds	Metric Tons		Pounds	Metric Tons	
5,827	2.64	UX	12,200	5.53	WC	21,820	9.89	67
5,914	2.68	20	12,383	5.62	45	22,034	9.99	XA
6,002	2.72	VA	12,566	5.69	WD	22,254	10.00	68
6,092	2.76	21	12,754	5.79	46	22,474	10.19	69
6,182	2.80	VB	12,943	5.87	WE	22,695	10.29	XB
6,247	2.83	22	13,137	5.96	47	22,922	10.39	70
6,367	2.89	VC	13,331	6.04	WF	23,149	10.49	71
6,462	2.93	23	13,531	6.14	48	23,376	10.61	XC
6,558	2.97	VD	13,731	6.23	WG	23,609	10.71	72
6,656	3.02	24	13,937	6.32	49	23,843	10.82	73
6,755	3.06	VE	14,143	6.42	WH	24,077	10.93	XD
6,856	3.11	25	14,355	6.51	50	24,318	11.02	74
6,958	3.15	VF	14,567	6.65	WJ	24,559	11.14	75
7,062	3.20	26	14,785	6.71	51	24,800	11.25	XE
7,167	3.25	VG	15,004	6.81	WK	25,048	11.37	76
7,274	3.30	27	15,229	6.91	52	25,296	11.48	77
7,382	3.35	VH	15,454	7.00	WL	25,544	11.59	XF
7,492	3.40	28	15,686	7.12	53	25,799	11.71	78
7,603	3.45	VJ	15,918	7.22	WM	26,054	11.82	79
7,716	3.50	29	16,156	7.33	54	26, 310	11.94	XG
7,830	3.55	VK	16,395	7.44	WN	26,573	12.05	80
7,947	3.60	30	16,641	7.55	55	26,836	12.18	81
8,065	3.66	VL	16,887	7.66	WP	27,099	12.29	XH
8,186	3.71	31	17,140	7.78	56	27,370	12.42	82
8,307	3.76	VM	17,394	7.89	WQ	27,641	12.54	83
8,431	3.82	32	17,655	8.00	57	27,912	12.67	XJ
8,556	3.88	VN	17,916	8.13	WR	28,191	12.79	84
8,684	3.94	33	18,184	8.25	58	28,470	12.92	85
8,813	4.00	VP	18,453	8.37	WS	28,749	13.05	XK
8,945	4.06	34	18,730	8.49	59	29,036	13.18	86
9,077	4.12	VQ	19,007	8.62	WT	28,323	13.31	87
9,213	4.18	35	19,292	8.75	60	29,611	13.44	XL
9,350	4.24	VR	19,577	8.88	WU	29,907	13.57	88
9,490	4.30	36	19,870	9.01	61	30,203	13.71	89
9,630	4.37	VS	20,164	9.15	WV	30,500	13.84	XM
9,774	4.43	37	20,365	9.24	62	30, 805	13.98	90
9,919	4.49	VT	20,567	9.42	63	31,110	14.12	91
10,068	4.57	38	20,769	9.52	WW	31,415	14.26	XN
10,217	4.63	VU	20,976	9.52	64	31,729	14.40	92
10,370	4.70	39	21,184	9.61	65	32,043	14.54	93
10,524	4.77	VV	21,392	9.71	WX	32,357	14.69	XP
10,682	4.84	40	21,606	9.79	66	32,680	14.83	94
10,840	4.92	VW						
11,002	4.99	41						
11,165	5.06	VX						
11,332	5.14	42						
11,500	5.22	WA						
11,672	5.29	43						
11,845	5.37	WB						
12,022	5.45	44						

Table XVI Maximum weight codes

WEIGHT		CODE	WEIGHT		CODE	WEIGHT		CODE
Pounds	Kilo Grams		Pounds	Metric Tons		Pounds	Metric Tons	
33,004	14.98	95						
33,328	15.13	XQ						
33,661	1 5.28	96						
33,994	15.43	97						
34,328	15.58	XR						
34,671	15.74	98						
35,014	15.89	99						
35,358	16.03	XS						

OO No requirement.
YY Packagers' option so long as all other contractual requirements are met.
ZZ Special requirement - See specific drawings or instructions provided.

3.2.14 Digits 20 and 21 (Field 13) Maximum cube - The code given Table XVII establishes the maximum allowable cube of the unit package. Packagers are encouraged to use materials and containers which will provide the required protection in the minimum volume.

3.2.15 Digits 22 and 23 (Filed 14) Maximum length; Digits 24 and 25 (Field 15) Maximum width; and Digits 26 and 27 (Field 16) Maximum depth - Codes indicating maximum allowable inside length, width and depth are cited in Tables XVIII, XIX and XX. When the level of protection is A, B or C, the dimensions indicated in Table XVIII apply. When the code for the level of protection is other than A, B, or C, the dimensions in Tables XVIII, XIX or XX apply as indicated in Tables XIV or XV.

Tableau XVII Maximum cube codes

CODE	CUBIC FEET	CUBIC CM	CUBIC INCHES	CUBIC CM	CODE	CUBIC FEET	CUBIC METER	CODE	CUBIC FEET	CUBIC METER
AA	0.0015	43	3	41	BA	1.00	0.028	B5	4.30	0.121
AB	0.003	85	5	82	BB	1.10	0.031	B6	4.40	0.124
AC	0.009	255	15	246	BC	1.20	0.033	B7	4.50	0.127
AD	0.017	482	30	492	BD	1.30	0.036	BW	4.60	0.130
AE	0.029	822	50	820	BE	1.40	0.039	B8	4.70	0.133
AF	0.046	1303	80	1311	BF	1.50	0.042	B9	4.80	0.135
AG	0.069	1954	120	1967	BG	1.60	0.045	C1	4.90	0.138
AH	0.087	2464	150	2459	BH	1.70	0.048	BX	5.00	0.141
AJ	0.115	3257	200	3278	BJ	1.80	0.050	C2	5.10	0.144
AK	0.174	4928	300	4917	BK	1.90	0.053	C3	5.20	0.147
AL	0.231	6542	400	6555	BL	2.00	0.056	C4	5.30	0.150
AM	0.289	8184	500	8194	A1	2.10	0.059	C5	5.40	0.152
AN	0.347	9827	600	9833	BM	2.20	0.062	CA	5.50	0.155
AP	0.445	11469	700	11471	A2	2.30	0.065	C6	5.60	0.158
AQ	0.463	12347	800	13110	BN	2.40	0.067	C7	5.70	0.161
AR	0.521	14754	900	14749	A3	2.50	0.070	C8	5.80	0.164
AS	0.579	16396	1000	16388	BP	2.60	0.073	C9	5.90	0.167
AT	0.636	18010	1100	18026	A4	2.70	0.076	CB	6.00	0.169
AU	0.706	19992	1210	19829	BQ	2.80	0.079	D 1	6.10	0.172
AV	0.779	22059	1330	21795	A5	2.90	0.082	D2	6.20	0.175
AW	0.845	23928	1460	23926	BR	3.00	0.084	D3	6.30	0.178
AX	0.926	26222	1600	26220	A6	3.10	0.087	D4	6.40	0.181
					A7	3.20	0.090	D5	6.50	0.184
					BS	3.30	0.093	CC	6.60	0.186
					A8	3.40	0.096	D6	6.70	0.189
					A9	3.50	0.099	D7	6.80	0.192
					BT	3.60	0.101	D8	6.90	0.195
					B1	3.70	0.104	D9	7.00	0.198
					B2	3.80	0.107	E1	7.10	0.201
					BU	3.90	0.110	CD	7.20	0.203
					B3	4.00	0.113	E2	7.40	0.209
					B4	4.10	0.116	E3	7.50	0.212
					BV	4.20	0.118	E4	7.60	0.215

Table XVII Maximum cube codes

CODE	CUBIC FEET	CUBIC METER	CODE	CUBIC FEET	CUBIC METER	CODE	CUBIC FEET	CUBIC METER
E5	7.70	0.218	CN	15.80	0.447	N4	34.90	0.988
E6	7.80	0.220	J9	16.00	0.453	N5	35.30	0.999
CE	7.90	0.223	CP	16.50	0.467	N6	35.70	1.01
E7	8.00	0.226	K1	17.00	0.481	DH	36.10	1.03
E8	8.10	0.229	CQ	17.40	0.492	N7	36.70	1.04
E9	8.20	0.232	K2	17.80	0.504	N8	37.20	1.06
F1	8.30	0.235	CR	18.20	0.515	DJ	37.90	1.08
F2	8.40	0.237	K3	18.50	0.523	N9	38.40	1.09
F3	8.50	0.240	K4	18.80	0.532	P1	38.90	1.10
F4	8.60	0.243	CS	19.10	0.540	P2	39.40	1.12
CF	8.70	0.246	K5	19.50	0.552	DK	39.80	1.13
F5	8.80	0.249	K6	19.80	0.560	P3	40.20	1.14
F6	8.90	0.252	CT	20.10	0.569	P4	40.70	1.16
F7	9.00	0.254	K7	20.50	0.580	P5	41.30	1.17
F8	9.10	0.257	K8	20.80	0.588	DL	41.80	1.19
F9	9.20	0.260	CU	21.10	0.597	P6	42.40	1.20
G1	9.30	0.263	K9	21.50	0.608	P7	42.90	1.22
G2	9.40	0.266	L1	21.80	0.617	P8	43.40	1.23
CG	9.50	0.269	CV	22.20	0.628	DM	43.90	1.25
G3	9.60	0.271	L2	22.60	0.639	P9	44.40	1.26
G4	9.70	0.274	L3	22.90	0.648	Q1	44.90	1.28
G5	9.80	0.277	CW	23.30	0.659	Q2	45.30	1.29
G6	9.90	0.280	L4	23.70	0.671	Q3	45.70	1.30
G7	10.00	0.283	L5	24.00	0.679	DN	46.10	1.31
G8	10.20	0.288	CX	24.40	0.690	Q4	46.70	1.33
CH	10.40	0.294	L6	24.70	0.699	05	47.30	1.34
G9	10.60	0.300	L7	25.00	0.707	Q6	47.90	1.36
H1	10.80	0.305	L8	25.40	0.719	DP	48.40	1.38
H2	11.00	0.311	DA	25.70	0.727	Q7	49.10	1.40
H3	11.20	0.317	L9	26.00	0.736	Q8	49.70	1.41
OJ	11.40	0.322	M1	26.50	0.750	DQ	50.80	1.44
H4	11.60	0.328	DB	26.90	0.761	Q9	51.30	1.46
H5	11.80	0.334	M2	27.20	0.770	R1	51.70	1.47
H6	12.00	0.339	M3	27.50	0.778	R2	52.30	1.49
H7	12.30	0.348	M4	28.00	0.792	R3	52.70	1.50
CK	12.50	0.353	DC	28.30	0.801	DR	53.30	1.51
H8	12.70	0.359	M5	28.70	0.812	R4	53.70	1.52
H9	13.00	0.368	M6	29.20	0.826	R5	54.30	1.54
J1	13.30	0.376	DD	29.70	0.841	R6	54.70	1 .55
J2	13.50	0.382	M7	30.20	0.855	R7	55.30	1.57
CL	13.70	0.387	M8	30.70	0.869	R8	55.70	1.58
J3	14.00	0.396	DE	31.20	0.883	DS	56.00	1.59
J4	14.30	0.404	M9	31.70	0.897	R9	56.40	1.60
J5	14.50	0.410	N1	32.20	0.911	S1	56.80	1.61
J6	14.70	0.416	DF	32.70	0.925	S2	57.40	1.63
CM	15.00	0.424	N2	33.20	0.940	S3	57.80	1.64
J7	15.30	0.433	N3	33.70	0.954	S4	58.50	1.66
J8	15.50	0.438	DG	34.40	0.974	DT	58.80	1.67

Table XVII Maximum cube codes

CODE	CUBIC FEET	CUBIC METER	CODE	CUBIC FEET	CUBIC METER	CODE	CUBIC FEET	CUBIC METER
S5	59.30	1.68	EC	82.70	2.35	1Q	118	3.35
S6	59.70	1.70	X2	83.30	2.36	1R	119	3.37
S7	60.30	1.71	X3	83.70	2.38	1S	120	3.40
S8	60.70	1.72	X4	84.30	2.39	1T	121	3.43
S9	61.30	1.74	X5	84.70	2.40	EL	122	3.46
DU	61.70	1.75	X6	85.30	2.42	1U	123	3.49
T1	62.30	1.77	X7	85.70	2.43	1V	124	3.52
T2	62.70	1.78	X8	86.40	2.45	1W	125	3.54
T3	63.30	1.80	ED	86.90	2.47	1X	127	3.57
T4	63.70	1.81	X9	87.30	2.48	1Y	127	3.60
T5	64.40	1.83	Y1	87.70	2.49	EM	128	3.63
DV	64.80	1.84	Y2	88.30	2.50	1Z	129	3.66
T6	65.30	1.85	Y3	88.70	2.52	2A	130	3.69
T7	65.70	1.87	Y4	89.30	2.53	2B	131	3.71
T8	66.30	1.88	Y5	89.70	2.55	2C	132	3.74
T9	66.70	1.89	Y6	90.30	2.56	2D	133	3.77
U1	67.30	1.91	Y7	90.70	2.57	2E	135	3.80
U2	67.70	1.92	EE	91.20	2.59	EN	135	3.83
DW	68.10	1.93	Y8	91.70	2.60	2F	136	3.86
U3	68.40	1.94	Y9	92.30	2.62	2G	137	3.88
U4	68.80	1.95	Z1	92.70	2.63	2H	138	3.91
U5	69.30	1.97	Z2	93.30	2.65	2J	139	3.94
U6	69.70	1.98	Z3	93.70	2.66	2K	140	3.97
U7	70.30	2.00	Z4	94.30	2.68	2L	141	4.00
U8	70.70	2.01	Z5	94.70	2.69	EP	142	4.03
U9	71.00	2.02	Z6	95.30	2.70	2M	143	4.05
DX	71.50	2.03	EF	95.80	2.72	2N	144	4.08
V1	72.00	2.04	Z7	96.40	2.73	2P	145	4.11
V2	72.50	2.06	Z8	96.80	2.75	2Q	146	4.14
V3	73.00	2.07	Z9	97.40	2.76	2R	147	4.17
V4	73.50	2.09	1A	97.80	2.77	EQ	148	4.20
V5	74.00	2.10	1B	98.40	2.79	2S	150	4.25
V6	74.50	2.11	1C	98.80	2.80	2T	152	4.31
EA	75.00	2.13	1D	99.30	2.82	2U	153	4.34
V7	75.50	2.14	1E	99.70	2.83	2V	154	4.36
V8	76.00	2.16	EG	100	2.84	2W	155	4.39
V9	76.50	2.17	1F	102	2.89	ER	156	4.42
W1	77.00	2.19	1G	104	2.95	2X	158	4.48
W2	77.50	2.20	EH	106	3.00	2Y	160	4.54
W3	78.30	2.22	1H	108	3.06	2Z	161	4.56
EB	78.80	2.24	11	110	3.12	3A	162	4.59
W4	79.30	2.25	EJ	111	3.15	3B	163	4.62
W5	79.70	2.26	1K	112	3.18	ES	164	4.65
W6	80.30	2.28	1L	113	3.20	3C	165	4.68
W7	80.70	2.29	1M	114	3.23	3D	167	4.73
W8	81.30	2.31	1N	115	3.26	3E	168	4.76
W9	81.70	2.32	EK	116	3.29	3F	171	4.85
X1	82.30	2.34	1P	117	3.32	ET	172	4.87
						3G	173	4.90
						3H	174	4.93
						3J	175	4.96
						3K	176	4.99
						3L	178	5.05

Table XVII Maximum cube codes

CODE	CUBIC FEET	CUBIC METER	CODE	CUBIC FEET	CUBIC METER	CODE	CUBIC FEET	CUBIC METER
EU	181	5.13	5C	271	7.68	6U	401	11.36
3M	182	5.16	5D	273	7.74	6V	404	11.45
3N	183	5.19	5E	275	7.79	6W	407	11.53
3P	184	5.22	5F	277	7.85	6X	411	11.64
3Q	186	5.27	FF	280	7.93	FP	414	11.73
3R	188	5.33	5G	283	8.02	6Y	417	11.81
EV	190	5.39	5H	285	8.08	6Z	421	11.93
3S	191	5.41	5J	287	8.13	7A	424	12.00
3T	192	5.44	5K	289	8.19	7B	427	12.10
3U	194	5.50	5L	292	8.27	7C	431	12.21
3V	196	5.56	FG	294	8.33	FQ	435	12.32
3W	198	5.61	5M	297	8.42	7D	438	12.41
EW	199	5.64	5N	300	8.50	7E	441	12.49
3X	201	5.70	5P	302	8.56	7F	444	12.58
3Y	203	5.75	5Q	303	8.59	7G	447	12.66
3Z	205	5.81	5R	306	8.67	7H	451	12.78
4A	207	5.87	FH	309	8.75	FR	456	12.92
EX	209	5.92	5S	312	8.84	7J	460	13.03
4B	211	5.98	5T	315	8.92	7K	464	13.14
4C	213	6.04	5U	318	9.00	7L	468	13.26
4D	215	6.09	5V	321	9.09	7M	472	13.37
4E	217	6.15	5W	323	9.15	7N	476	13.48
4F	219	6.21	FJ	324	9.18	FS	479	13.57
FA	220	6.23	5X	327	9.26	7P	484	13 71
4G	222	6.29	5Y	331	9.38	7Q	488	13 82
4H	224	6.35	5Z	334	9.46	7R	492	13.94
4J	226	6.40	6A	337	9.55	7S	496	14.05
4K	228	6.46	6B	339	9.60	7T	500	14.16
FB	230	6.52	FK	340	9.63	FT	503	14.25
4L	232	6.57	6C	343	9.72	7U	505	14.31
4M	234	6.63	6D	347	9.83	7V	507	14 36
4N	236	6.69	6E	349	9.89	7W	509	14.42
4P	238	6.74	6F	352	9.97	7X	511	14.47
4Q	240	6.80	6G	356	10.09	7Y	512	14.50
FC	242	6.86	FL	358	10.14	FU	513	14.53
4R	244	6.91	6H	361	10.23	7Z	515	14.59
4S	246	6.97	6J	364	10.31	8A	517	14.64
4T	248	7.03	6K	368	10.43	8B	521	14.70
4U	250	7.08	6L	370	10.48	8C	521	14.76
4V	252	7.14	6M	373	10.57	8D	523	14.81
FD	254	7.20	FM	375	10.62	FV	524	14.84
4W	256	7.25	6N	378	10.71	8E	526	14.90
4X	258	7.31	6P	381	10.79	8F	528	14.96
4Y	260	7.37	6Q	384	10.88	8G	530	15.00
4Z	263	7.45	6R	388	10.99	8H	532	15.07
5A	265	7.51	6S	391	11.08	FW	534	15.13
FE	267	7.57	FN	394	11.16	8J	536	15.18
5B	269	7.62	6T	398	11.28	8K	538	15.24
						8L	540	1 5.30
						8M	543	1 5.38
						FX	545	1 5.44
						8N	547	1 5.49
						8P	549	1 5.55

Table XVII Maximum cube codes

CODE	CUBIC FEET	CUBIC METER	CODE	CUBIC FEET	CUBIC METER	CODE	CUBIC FEET	CUBIC METER
8Q	551	15.61	07	644	18.24	44	760	21.53
8R	553	15.66	08	646	18.30	GS	763	21.61
8S	555	15.72	09	649	18.38	45	766	21.70
GA	556	15.75	GJ	651	18.44	46	769	21.78
8T	558	15.80	10	653	18.50	47	772	21.87
8U	560	15.86	11	655	18.55	48	775	21.95
8V	562	15.92	12	657	18.61	GT	778	22.04
8W	564	15.98	13	660	18.69	49	781	22.12
8X	566	16.03	14	662	18.75	50	784	22.20
GB	567	16.06	GK	664	18.81	51	787	22.29
8Y	569	16.12	15	666	18.86	52	790	22.38
8Z	571	16.17	16	668	18.92	GU	793	22.46
9A	573	16.23	17	670	18.98	53	796	22.55
9B	575	16.29	18	673	19.06	54	799	22.63
9C	577	16.34	19	675	19.12	55	802	22.72
GC	578	16.37	GL	677	19.18	56	805	22.80
9D	580	16.43	20	679	19.23	GV	809	22.91
9E	582	16.49	21	681	19.29	57	813	23.03
9F	584	16.54	22	683	19.35	58	817	23.14
9G	586	16.60	23	685	19.40	59	821	23.25
9H	588	16.66	24	687	19.46	60	823	23.31
GD	590	16.71	GM	691	19.57	GW	826	23.39
9J	592	16.77	25	693	19.63	61	830	23.51
9K	594	16.83	26	696	19.71	62	833	23.59
9L	596	16.88	27	698	19.77	63	837	23.71
9M	598	16.94	28	701	19.86	64	840	23.79
9N	600	17.00	GN	704	19.94	GX	842	23.85
GE	601	17.02	29	707	20.03	65	846	23.96
9P	603	17.08	30	710	20.11	66	849	24.05
9Q	605	17.14	31	713	20.20	67	853	24.16
9R	607	17.19	32	716	20.28	68	856	24.24
9S	610	17.28	GP	719	20.36	HA	859	24.33
9T	612	17.34	33	722	20.45	69	862	24.41
GF	613	17.36	34	725	20.53	70	866	24.53
9U	615	17.42	35	728	20.62	71	869	24.61
9V	617	17.48	36	730	20.68	72	873	24.73
9W	619	17.53	GQ	733	20.76	HB	876	24.81
9X	620	17.56	37	736	20.85	73	880	24.92
9Y	624	17.67	38	739	20.93	74	883	25.00
GG	626	17.73	39	742	21.02	75	887	25.12
9Z	628	17.79	40	745	21.10	76	890	25.21
01	630	17.84	GR	748	21.19	HC	894	25.32
02	632	17.90	41	751	21.27	77	897	25.40
03	634	17.96	42	754	21.36	78	901	25.52
04	636	18.00	43	757	21.44	79	904	55.60
GH	638	18.07				80	908	25.72
05	640	18.13				HD	911	25.80
06	642	18.18				81	914	25.89
						82	918	26.00
						83	922	26.11

Table XVII Maximum cube codes

CODE	CUBIC FEET	CUBIC METER	CODE	CUBIC FEET	CUBIC METER	CODE	CUBIC FEET	CUBIC METER
84	926	26.23	JM	1,650	46.73	LN	4,020	113.84
HE	930	26.34	JN	1,680	47.58	LP	4,100	116.10
85	934	26.45	JP	1, 720	48.71	LQ	4,190	118.65
86	937	26.54	JQ	1,750	49.56	LR	4,270	120.92
87	941	26.65	JR	1,790	50.69	LS	4,360	123.47
88	944	26.74	JS	1,820	51.54	LT	4,440	125.73
HF	948	26.85	JT	1,860	52.67	LU	4,530	128.28
89	952	26.96	JU	1,900	53.81	LV	4,620	130.83
90	955	27.05	JV	1,930	54.66	LW	4,720	133.66
91	959	27.16	JW	1,970	55.79	LX	4,810	136.21
92	962	27.25	JX	2,010	56.92	MA	4,910	139.04
93	965	27.33	KA	2,050	58.05	MB	5,000	141.59
HG	967	27.39	KB	2,090	59.19	MC	5,100	144.42
94	972	27.53	KC	2,140	60.60	MD	5,210	147.54
95	976	27.64	KD	2,180	61.74	ME	5,310	150.37
96	979	27.73	KE	2,220	62.87	MF	5,420	153.48
97	983	27.84	KF	2,270	64.28	MG	5,520	156.31
HH	986	27.93	KG	2,310	65.42	MH	5,640	159.71
98	992	28.10	KH	2,360	66.83	MJ	5,750	162.83
99	998	28.27	KJ	2,400	67.97	MK	5,860	165.94
HJ	1,010	28.60	KK	2,450	69.38	ML	5,980	169.34
HK	1,030	29.17	KL	2, 500	70.80	MM	6,100	172.74
HL	1,050	29.74	KM	2,550	72.21	MN	6,220	176.14
HN	1,070	30.30	KN	2,600	73.63	MP	6,350	179.82
HN	1,090	30.87	KP	2,660	75.33	MQ	6,470	183.21
HP	1,110	31.44	KQ	2,710	76.74	MR	6,600	186.90
HQ	1,130	32.00	KR	2,760	78.16	MS	6,740	190.86
HR	1,160	32.85	KS	2,820	79.86	MT	6,870	194.54
HS	1,180	33.42	KT	2,870	81.27	MU	7,010	198.51
HT	1,200	33.99	KU	2,930	82.97	MV	7,150	202.47
HU	1,230	34.83	KV	2,990	84.67	MW	7,290	206.43
HV	1,250	35.40	KW	3,030	86.37	MX	7,440	210.68
HW	1,280	36.25	KX	3,1 10	88.07	NA	7,580	214.65
HX	1,300	36.82	LA	3,170	89.75	NB	7,740	219.18
JA	1,330	37.67	LB	3,240	91.75	NC	7,890	223.43
JB	1,350	38.23	LC	3,300	93.45	ND	8,050	227.96
JC	1,380	39.08	LD	3,370	95.43	NE	8,210	232.49
JD	1,410	39.93	LE	3,440	97.42	NF	8,370	237.02
JE	1,440	40.78	LF	3,500	99.11	NG	8,540	241.83
JF	1,460	41.35	LG	3, 570	101.10	NH	8,710	246.65
JG	1,500	42.48	LH	3,640	103.08	NJ	8,890	251.74
JH	1,520	43.05	LJ	3,720	105.34	NK	9,060	256.56
JJ	1,560	44.18	LK	3,790	107.33	NL	9,240	261.65
JK	1,590	45.03	LL	3,870	109.59	NM	9.430	267.03
JL	1,620	45.88	LM	3,940	111.57	NN	9,620	272.41
						NP	9,810	277.79
						NQ	10,000	283.17

Table XVIII Unit container dimensions, basic dimension codes

CODE	DIM Feet	DIM (cm)	CODE	DIM Feet	DIM (cm)	CODE	DIM Feet	DIM (cm)	CODE	DIM Feet	DIM (cm)
01	0.1	3.1	25	2.5	76.3	49	4.9	149.4	73	7.3	222.6
02	0.2	6.1	26	2.6	79.3	50	5.0	152.5	74	7.4	225.6
03	0.3	9.2	27	2.7	82.3	51	5.1	155.5	75	7.5	228.7
04	0.4	12.2	28	2.8	85.4	52	5.2	158.5	76	7.6	231.7
05	0.5	15.3	29	2.9	88.4	53	5.3	161.6	77	7.7	234.7
06	0.6	18.3	30	3.0	91.5	54	5.4	164.6	78	7.8	237.8
07	0.7	21.4	31	3.1	94.5	55	5.5	167.7	79	7.9	240.8
08	0.8	24.4	32	3.2	97.6	56	5.6	170.7	80	8.0	213.9
09	0.9	27.5	33	3.3	100.6	57	5.7	173.8	81	8.1	246.9
10	1.0	30.5	34	3.4	103.7	58	5.8	176.8	82	8.2	250.0
11	1.1	33.6	35	3.5	106.7	59	5.9	179.9	83	8.3	253.0
12	1.2	36.6	36	3.6	109.8	60	6.0	182.9	84	8.4	256.1
13	1.3	39.7	37	3.7	112.8	61	6.1	186.0	85	8.5	259.1
14	1.4	42.7	38	3.8	115.9	62	6.2	189.0	86	8.6	262.2
15	1.5	45.8	39	3.9	118.9	63	6.3	192.1	87	8.7	265.2
16	1.6	48.8	40	4.0	122.0	64	6.4	195.1	88	8.8	268.3
17	1.7	51.9	41	4.1	125.0	65	6.5	198.2	89	8.9	271.3
18	1.8	54.9	42	4.2	128.1	66	6.6	201.2	90	9.0	274.4
19	1.9	58.0	43	4.3	131.1	67	6.7	204.3	91	9.1	277.4
20	2.0	61.0	44	4.4	134.2	68	6.8	207.3	92	9.2	280.5
21	2.1	64.0	45	4.5	137.2	69	6.9	210.4	93	9.3	283.5
22	2.2	67.1	46	4.6	140.3	70	7.0	213.4	94	9.4	286.6
23	2.3	70.2	47	4.7	143.3	71	7.1	216.5	95	9.5	289.6
24	2.4	73.2	48	4.8	146.4	72	7.2	219.5	96	9.6	292.7
									97	9.7	295.7
									98	9.8	298.7
									99	9.9	301.8

OO No requirement.

YY Packagers' option provided all other contractual requirements are met.

ZZ Special requirement - See specific drawings or instructions provided.

Table XIX Modified dimension in excess of ten foot codes

CODE	DIM (Feet)	DIM (cm)	CODE	DIM (Feet)	DIM (cm)	CODE	DIM (Feet)	DIM (cm)	CODE	DIM (Feet)	DIM (cm)
01	10.1	307.9	25	12.5	381.0	49	14.9	454.2	73	17.3	527.4
02	10.2	310.9	26	12.6	384.1	50	15.0	457.3	74	17.4	530.4
03	10.3	314.0	27	12.7	387 1	51	15.1	460.3	75	17.5	533.5
04	10.4	317.0	28	12.8	390.2	52	15 2	463.3	76	17.6	536.5
05	10.5	320.1	29	12.9	393.2	53	15.3	466.4	77	17.7	539.5
06	10.6	323.1	30	13.0	396.3	54	15.4	469.4	78	17.8	542.6
07	10.7	326.2	31	13.1	399.3	55	15.5	472.5	79	17.9	545.6
08	10.8	329.2	32	13.2	402.4	56	15.6	475.5	80	18.0	548.7
09	10.9	323.3	33	13.3	405.4	57	15.7	478.6	81	18.1	551.7
10	11.0	335.3	34	13.4	408.5	58	15 8	481 6	82	18.2	554.8
11	11.1	338.4	35	13.5	411.5	59	15.9	484.7	83	18.3	557.8
12	11.2	341.4	36	13.6	414.6	60	16.0	487.7	84	18.4	560.9
13	11.3	344.5	37	13.7	417.6	61	16.1	490.8	85	18.5	563.9
14	11.4	347.5	38	13.8	420.7	62	16.2	493.8	86	18.6	567.0
15	11.5	350.6	39	13.9	423.7	63	16.3	496.9	87	18.7	570.0
16	11.6	353.6	40	14.0	426.8	64	16.4	499.9	88	18.8	573.1
17	11.7	356.7	41	14.1	429.8	65	16.5	503.0	89	18.9	576.1
18	11.8	359.7	42	14.2	432.9	66	16.6	506 0	90	19.0	579.2
19	11.9	362.8	43	14.3	435.9	67	16.7	509.1	91	19.1	582.2
20	12.0	365.8	44	14.4	439.0	68	16.8	512.1	92	19.2	585.3
21	12.1	368.9	45	14.5	442.0	69	16.9	515.2	93	19.3	588.3
22	12.2	371.9	46	14.6	445.0	70	17.0	518.2	94	19.4	591.4
23	12.3	375.0	47	14.7	448.1	71	17.1	521.3	95	19.5	594.4
24	12.4	378.0	48	14.8	451.2	72	17.2	524.3	96	19.6	597.5
									97	19.7	600.5
									98	19.8	603.6
									99	19.9	606.6

* All dimensions indicated are in feet or centimeters.

OO No requirement.

YY Packagers' option so long as all other contractual requirements are met.

ZZ Special requirement — See specific drawing or instructions provided.

Table XX Modified dimensions for increments less than .1 foot codes

CODE	FEET	CM	CODE	FEET	CM	CODE	FEET	CM	CODE	FEET	CM
01	0.05	1.6	33	1.65	50.3	65	3.25	99.1	95	4.75	144.8
02	0.10	3.1	34	1.70	51.9	66	3.30	100.0	96	4.80	146.4
03	0.15	4.6	35	1.75	53.4	67	3.35	102.2	97	4.85	147.9
04	0.20	6.1	36	1.80	54.9	68	3.40	103.7	98	4.90	149.4
05	0.25	7.7	37	1.85	56.4	69	3.45	103.2	99	4.95	150.9
06	0.30	9.2	38	1.90	58.0	70	3.50	106.7			
07	0.35	10.7	39	1.95	59.5	71	3.55	108.3			
08	0.40	12.2	40	2.00	61.0	72	3.60	109.8			
09	0.45	13.8	41	2.05	62.5	73	3.65	111.3			
10	0.50	15.3	42	2.10	64.0	74	3.70	112.8			
11	0.55	16.8	43	2.15	65.6	75	3.75	114.4			
12	0.60	18.3	44	2.20	67.1	76	3.80	115.9			
13	0.65	19.9	45	2.25	58.6	77	3.85	117.4			
14	0.70	21.4	46	2.30	70.2	78	3.90	118.9			
15	0.75	22.9	47	2.35	71.7	79	3.95	120.4			
16	0.80	24.4	48	2.40	73.2	80	4.00	122.0			
17	0.85	26.0	49	2.45	74.7	81	4.05	123.5			
18	0.90	27.5	50	2.50	76.3	82	4.10	125.0			
19	0.95	29.0	51	2.55	77.8	83	4.15	126.5			
20	1.00	30.5	52	2.60	79.3	84	4.20	128.1			
21	1.05	32.0	53	2.65	80.8	85	4.25	129.6			
22	1.10	33.6	54	2.70	82.3	86	4.30	131.1			
23	1.15	35.1	55	2.75	83.9	87	4.35	132.6			
24	1.20	36.6	56	2.80	85.4	88	4.40	134.2			
25	1.25	38.2	57	2.85	86.9	89	4.45	135.7			
26	1.30	39.7	58	2.90	88.4	90	4.50	137.2			
27	1.35	41.2	59	2.95	90.0	91	4.55	138.7			
28	1.40	42.7	60	3.00	91.5	92	4.60	140.3			
29	1.45	44.2	61	3.05	93.0	93	4.65	141.8			
30	1.50	45.8	62	3.10	94.5	94	4.70	143.3			
31	1.55	47.3	63	3.15	96.1						
32	1.60	48.4	64	3.20	97.6						

OO No requirement.

YY Packagers' option so long as all other contractual requirements are met.

ZZ Special requirement - See specific drawing or instructions provided.

3.2.16 Digite 28 (Field 17) Level of packing - The code shown in this position indicates the level of packing which is provided by the unit container (Field 8).

Table XXI Level of packing

O —	The unit container (as indicated in Field 8) is not an acceptable shipping container and requires overpacking.
A —	The unit container (as indicated in Field 8) is an acceptable shipping container and provides level "A" protection.
B —	The unit container (as indicated in Field 8) is an acceptable shipping container and provides level "B" protection.
C —	The unit container (as indicated in Field 8) is an acceptable container and provides level "C" protection.
Z —	The unit container (as indicated in Field 8) is an acceptable shipping container subject to certain specific limitations, eg, covered storage only. Limitations will be indicated on the procurement (see pare 3.3.2c) or, when packaging requirements are developed by the contractor the limitation shall be indicated in the Supplemental Data of Form CF 271 .

3.2.17 Digit 29 (Field 18) Optional procedure indicator - The codes relating to optional procedures open to contractors are given in Table XXII.

Table XXII Optional procedure indicator

A—	Packaging is governed by a specific commodity process specification, or by transportation packaging order. The appropriate specification or order number will be shown in the procurement document immediately below the description of the item to which it applies as illustrated in Figure 1, item 1. The options, if any, in the specification or transportation packaging order shall apply.
M —	All packaging data are mandatory for compliance and no substitution is permitted. Deviation from any of the elements shall have prior approval of the procuring agency.
O —	An option can be exercised as to the sub-method and packaging materials to be used. However, the basic preservation method and quantity per unit pack shall be retained, weight and cube shall not be increased. There shall be no increased cost to the Government of Canada and equal or better protection shall be given the item. Prior approval of the procuring agency is not required under these conditions.

3.2.18 Digit 30 (Field 19) Supplemental line indicator - Table XXIII gives the codes indicating the number of lines of supplemental information.

Table XXIII Supplemental card indicator

O —	The data shown in the 18 fields of the code contain all necessary requirements. If supplemental data is required, indicate number or lines used, ie, "1" ,"2" ,"3" or "4". The maximum number of lines is 4.

3.3 Essential preservation and packaging data

3.3.1 Form CF 271. Options may be exercised when completing the essential data portion of the form. This portion may consist of coded or literal data and is entered in columns 47 to 76. For purposes of using coded data, the details of each code block are contained in this specification, tables 1 through XXIII. The literal option permits plain language or direct reference to another document, eg. a manufacturers drawing, a specification, or a Canadian Forces Transportation packaging order (CFTPO) etc. Since a computerized data base is utilized to store packaging data, certain guidelines must be followed when entering either coded or literal data on the CF 271. These guidelines are discussed in the following paragraphs.

3.3.2 Dangerous material. The alpha character "D" shall be inserted in column 41 of the essential data block of the form CF 271 for all items which have dangerous characteristics. Dangerous characteristics are those which present a hazard during storage, handling or transport. The items are classified as explosives, flammables, corrosives, oxidizers, poisons, toxics, compressed gases, radioactive or unduly magnetic materials. When a "D" is inserted in column 41, the dangerous classification of the item, united nations number and its proper shipping name shall be shown in the supplemental preservation and packaging data portion of the form, EG ACETIC ACIDCORROSIVE (see Figure 7).

NOTE Unduly magnetic is construed to mean that sufficient magnetic field strength is present to cause significant navigational deviation of the compass sensing devices in an aircraft.

3.3.3 Coded data. Data shall be entered on the CF 271 beginning at column 47 and continuing through column 76. Special note should be taken with respect to columns 75 and 76 which are discussed separately under following paragraphs headed "Optional procedures indicator" and "supplemental line indicator". (See Figure 3 and 4).

3.3.4 Literal data. Entries of literal data on form CF 271 shall be accomplished in the following manner:

a. For items classified as dangerous enter the alpha character D in Column 41 (Figure 7).

b. Enter and asterisk in column 47;

c. Enter literal data beginning at column 50 utilizing as many columns as required up to and including column 75. The one exception is that when entering literal data for items in nato classes 1 560, 1610, 1615, 1620, 1630, 1650, 1660, 1670, 1680, 2620, 2810, 2840, 2915, 2925, 2935, 2995, 6135 and 6140 column 49 must contain a quantity per unit pack code. These codes are contained in table V of this specification (Figure 8).

d. Enter the supplementary line indicator in column 76. Ensure that the number entered corresponds with the number of lines of supplementary data being entered (Figure 9);

e. When entering a specification number as literal data omit the oblique stroke and the final dash from the specification number. For example D-LM-008-026/SF-001 should be entered as D-LM-008-026SF001 (Figure 10)

f. When entering a specification as literal data and that specification contains a limit on the quantity per unit pack, and deviation from that quantity is desirable, enter by leaving one space after the specification number followed by QUP and desired quantity, for example D-LM-008-36SF000 QUP 1 000 (Figure 11);

g. To enter the requirement for a special-to-type container insert the word "USE" followed by a space, the abbreviation NSN followed by the stock number of the container, for example USE NSN 8145-00-800-3321 (Figure 12);

h. To enter a specification and a special-to-type container, show the specification in the essential preservation and packaging data block, indicate supplemental line indicator in column 76 and enter the container stock number in the supplemental data block (Figure 9);

j. Enter a drawing of CFTPO in the same manner as identified for example "Jones DWG 38-6832" or CFTPO-21-811-3326 (Figures 13 and 14);

k. A special message may be entered using plain language. For example "store in dry ice" (Figure 7). This type of message would normally be used where there is no specific packaging requirement but the need to store or handle in a specific way is of sufficient importance that a precautionary message is necessary;

3.3.5 Optional procedures indicator. This code shall be entered in column 75 of the form CF 271 and is used when entering coded data only. Either an "O", "A" or an "M" shall be entered as defined in table XXII of this specification. An "O" indicates that an option with respect to the submethod and packaging materials is being provided. An "A" indicates that some other document containing packaging detail is required. The document number shall be indicated in the supplemental data portion of the CF 271. An "M" indicates that deviation from the described package is NOT permitted.

3.3.6 Supplemental line indicator. This code is entered in column 76 of the form CF 271 and is a mandatory entry. Codes are contained in table XXIII of this specification. Code "O" shall be used when no lines of supplemental data exist. Numerals 1 through 4 shall be entered when corresponding lines of supplemental data are entered.

3.4 Packaging Data Form CF 271 (Figure 3 and 4).

3.4.1 Form 271 is designed to reduce the work required to compile data related to packaging. The form has provision for:

a. Item identification and approval data;

b. Essential preservation and packaging data;

c. Supplemental preservation and packaging data;

d. Packaging for transportation support (see note): and

e. Control and support data.

NOTE: Packaging for transportation support data is a mandatory entry when the unit container is utilized as a shipping container or when the volume/weight of a package (not by itself a shipping container) exceeds either one cubic foot (0.03 m^3) or one pound (0.45 kg). When an entry is made and the package cannot stand alone for shipping purposes, an "X" shall be inserted in column 61 of the transportation support block of the CF 271.

Packaging requirements developed in accordance with para 1.1(b) shall be reduced to coded data. The information required to determine the appropriate codes are contained in Tables I to XXIII.

National Defence / Défense nationale

PACKAGING DATA
DONNÉES D'EMBALLAGE

APPROVAL STAMP – SCEAU D'APPROBATION

NATO STOCK NO. – NUMÉRO DE STOCK OTAN

NSC – CSO	CD – PO	IIN – N° IA	CARD NO CARTE N°	U.I. U.D.
1630	21	841 4590	04	EA

ESSENTIAL PRESERVATION AND PACKAGING DATA – DONNÉES ESSENTIELLES – PRÉSERVATION ET EMBALLAGE

SEQ./SUCC.	DM MD	CATEGORY CATÉGORIE	METHOD MÉTHODE	QTY UNIT PACK. QTE PAR UNITE D'EMBALLAGE	CLEAN NETTOYAGE	PRESV. MAT. MAT. PRÉS.	WRAP MAT. MAT. EMB.	CUSHION AND DUNNAGE BOURRAGE ET FARDAGE	CUSH. THICK. ÉPAISS. BOURR.	UNIT CONT. CONT. UNIT	INTER. QTY. QTÉ	INTER. CONT.	LEVEL OF PRO. COTE PROT.	MAX WEIGHT CODE CODE POIDS MAX	MAX CUBE CODE CODE VOLUME MAX	UNIT CONTAINER DIMENSION DIMENSIONS DU CONTENANT PAR UNITÉ LENGTH LONGUEUR	WIDTH LARGEUR	DEPTH PROFONDEUR	CONT. LEVEL COTE CONT.	OPT. PROC. IND. MÉT. FACULT.	SUP. LINE IND. L. D. SUPPL.	REVISION NO. RÉVISION N°
18			4V	11		ØØ	JA	FH	HK	E	OOO		A	EK	BF	Ø9	Ø9	14	A	M	2	

SUPPLEMENTAL PRESERVATION AND PACKAGING DATA – DONNÉES SUPPLÉMENTAIRES – PRÉSERVATION ET EMBALLAGE

SEQ. SUCC.	
18	
A	JA 29x2Ø FH 4 DISCS 10.5 DIA 1 STRID 48x
B	8x2 DESICCANT 22 UNITS
C	
D	

PACKAGING FOR TRANSPORTATION SUPPORT – DONNÉES SPÉCIALES – EMBALLAGE POUR TRANSPORT

SEQ./SUCC.	SHIPPING CONTAINER DIMENSIONS DIMENSIONS DU CONTENANT D'EXPÉDITION LENGTH IN. LONGUEUR-POUCE	WIDTH IN. LARGEUR-POUCE	DEPTH IN. PROFONDEUR POUCE	SHIPPING CONTAINER WEIGHT POIDS DU CONTENANT D'EXPÉDITION WHOLE LBS. LIVRES ENTIÈRES	100TH 100E	SHIPPING CONTAINER CUBE VOLUME DU CONTENANT D'EXPÉDITION WHOLE CUBE FT. PIED CUBE ENTIER	100TH 100E	SHIPPING CONTAINER QTY. QTÉ CONTENANT D'EXPÉDITION	CONT LEVEL NIVEAU CONT	TYPE OF CONT. GENRE DE CONT.
X	Ø12	Ø12	Ø18	ØØØ14	5Ø	ØØØØ1	5ØØ	Ø1	A	KE
18										

DETAIL – DÉTAIL	BASIC – DE BASE	INTERMEDIATE INTERMÉDIAIRE	BULK – EN VRAC
METHOD/LEVEL MÉTHODE/NIVEAU	IID (4V)	(DESICC	22 UNITS)
CLEANING NETTOYAGE	C1		
DRYING SÉCHAGE			
PRESERVATION PRÉSERVATION			
INITIAL WRAP EMBALLAGE INITIAL	PF	29 x 20	(JA)
CUSH/DUNNAGE BOURRAGE/FARDAGE	R-TYPE III		
CONTAINER CONTENANT	22.5R		(KE)
CUBE VOLUME	1.50		(BF)
WEIGHT POIDS	14.5 LBS		(EK)
QUANTITY QUANTITÉ	1		

ITEM NAME – NOM DE L'ARTICLE	ORIGINATOR – EXPÉDITEUR	DATE
VALVE (POWER BROKE)	AVIATION ELECTRIC	25 JUL 88

SPECIAL INSTRUCTIONS – INSTRUCTIONS SPÉCIALES

COST COÛT	LABOUR MAIN-D'OEUVRE $	PACK INDEX LISTE D'EMBALLAGE	CONTROL NO. – N° DE CONTRÔLE
	MATERIEL MATÉRIEL $		

CF 271 (2-83) 75 30-21-896-0977

Figure 3 – Completed Form CF 271 (Contractor)

NATO STOCK NO. – NUMÉRO DE STOCK OTAN

NSC – CSO	CD – PO	IIN – N° IA	CARD NO. CARTE N°	U.I. U.D.
1650	ØØ	822 4126	Ø2	EA
1 2 3 4	5 6	7 8 9 10 11 12 13	14 15	16 17

National Defence / Défense nationale

PACKAGING DATA
DONNÉES D'EMBALLAGE

APPROVAL STAMP – SCEAU D'APPROBATION

ESSENTIAL PRESERVATION AND PACKAGING DATA – DONNÉES ESSENTIELLES – PRÉSERVATION ET EMBALLAGE

SEQ./SUCC.		DM MD	CATEGORY CATÉGORIE	METHOD MÉTHODE	QTY UNIT PACK. - QTE PAR UNITÉ D'EMBALLAGE	CLEAN NETTOYAGE	PRESV. MAT. MAT. PRÉS.	WRAP MAT. MAT. EMB.	CUSHION AND DUNNAGE BOURRAGE ET FARDAGE	CUSH. THICK. ÉPAISS. BOURR.	UNIT CONT. CONT. UNIT	INTER. QTY. QTÉ	INTER. CONT.	LEVEL OF PRO. COTE PROT.	MAX WEIGHT CODE CODE POIDS MAX	MAX CUBE CODE CODE VOLUME MAX	UNIT CONTAINER DIMENSION DIMENSIONS DU CONTENANT PAR UNITÉ LENGTH LONGUEUR	WIDTH LARGEUR	DEPTH PROFONDEUR	CONT. LEVEL COTE CONT.	OPT. PROG. IND. MÉT. FACULT.	SUP. LINE IND. L. D. SUPPL.		REVISION NO. RÉVISION N°
					4Ø	1	ØØØ	JA	FE	DK	E	OOO		A	AS	AJ	Ø5	Ø5	Ø8	A	A2			
18		41	42 43 44 45 46	47	48	49	50 51 52	53 54	55 56	57	58 59	60 61 62		63	64 65	66 67	68 69	70 71	72 73	74	75 76	77	78 79 80

SUPPLEMENTAL PRESERVATION AND PACKAGING DATA – DONNÉES SUPPLÉMENTAIRES – PRÉSERVATION ET EMBALLAGE

SEQ. SUCC.		40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
18																																										
A		J	A		1	4	X	1	4			F	E		1		1	8	X	8		2	.	5		D	1	A			K	E		5		D	1	A	X	8	.	5
B		D	E	S	I	C	C	A	N	T		2		U	N	I	T	S			H		I	N	D		1															
C																																										
D																																										

PACKAGING FOR TRANSPORTATION SUPPORT – DONNÉES SPÉCIALES – EMBALLAGE POUR TRANSPORT

SEQ./SUCC.		SHIPPING CONTAINER DIMENSIONS DIMENSIONS DU CONTENANT D'EXPÉDITION LENGTH IN. LONGUEUR-POUCE	WIDTH IN. LARGEUR-POUCE	DEPTH IN. PROFONDEUR POUCE	SHIPPING CONTAINER WEIGHT POIDS DU CONTENANT D'EXPÉDITION WHOLE LBS. LIVRES ENTIÈRES	100TH 100E	SHIPPING CONTAINER CUBE VOLUME DU CONTENANT D'EXPÉDITION WHOLE CUBE FT. PIED CUBE ENTIER	100TH 100E	SHIPPING CONTAINER QTY. QTÉ CONTENANT D'EXPÉDITION	CONT LEVEL NIVEAU CONT	TYPE OF CONT. GENRE DE CONT.
X		Ø06	Ø6	Ø09	ØØØØ3	1Ø	ØØØØØ	1Ø	ØØ1	A	KE
18		35 36 37	38 39 40	41 42 43	44 45 46 47 48	49 50	51 52 53 54 55	56 57	58 59 60	61	62 63

DETAIL – DÉTAIL	BASIC – DE BASE	INTERMEDIATE INTERMÉDIAIRE	BULK – EN VRAC
METHOD/LEVEL MÉTHODE/NIVEAU	II D (4Q)		
CLEANING NETTOYAGE			
DRYING SÉCHAGE			
PRESERVATION PRÉSERVATION			
INITIAL WRAP EMBALLAGE INITIAL	43-GP-30		
CUSH/DUNNAGE BOURRAGE/FARDAGE	PPP-C-1120		
CONTAINER CONTENANT	MIL-D-6055		
CUBE VOLUME	.1		
WEIGHT POIDS	3.1		
QUANTITY QUANTITÉ	1		

ITEM NAME – NOM DE L'ARTICLE	ORIGINATOR – EXPÉDITEUR	DATE
ACCUMULATOR	5 CFSD	28 JUL 88

SPECIAL INSTRUCTIONS – INSTRUCTIONS SPÉCIALES

COST COÛT	LABOUR MAIN-D'OEUVRE $	PACK INDEX LISTE D'EMBALLAGE	CONTROL NO. – N° DE CONTRÔLE
	MATERIEL MATÉRIEL $		

CF 271 (2-83) 7530-21-896-0977

Figure 4 – Completed form CF 271 (Supply Depot)

3.5 Canadian Forces Transportation Packaging Order (CFTPO).

3.5.1 When it is not possible to adequately describe the method of cushioning, blocking and bracing, provisions for tie down, or modification of a approved type of container on the packaging detail form, a CFTPO shall be prepared in two copies and submitted with the Form CF 271.

3.5.2 CFTPOs have been introduced to obviate the necessity for producing engineering drawings to depict packaging requirements and to provide a standard format and numbering system for sketches or tracing used in lieu of engineering drawings.

3.5.3 The CFTPO is designed to allow contractors as much freedom as possible. It need not be prepared as "reproducible" copy. If drawing facilities are not available, it will be permissible to trace or cut and paste onto the CFTPO, illustrations taken from brochures etc. Sketches need not be to scale. A high standard of drawing is not necessary.

3.5.4 CFTPOs shall be prepared when the following conditions are applicable.

a. The physical characteristics of the item require special blocking, bracing, cushioning, suspension system or specially designed non-specification containers to provide the necessary protection.

b. The requirements cannot be reflected on Form CF 271 by code or reference to an approved specification or drawing.

3.5.5 The data shown on the CFTPO must be in sufficient detail to permit subsequent duplication of the package.

3.5.6 CFTPOs shall be prepared on forms in accordance with Figure 5 which may be supplemented by forms conforming to Figure 6 depending upon which of the forms best suits the individual purpose. Blank forms may be obtained from the Technical Services Agency or Inspection Authority designated on the contract or order.

3.5.7 CFTPOs shall be developed using narrative description, graphic sketch or a combination of both. All headings on CFTPOs shall be completed.

3.5.8 The blank area of the form shall be used for sketches or narrative description of the package.

3.5.9 The block "Based on" shall always contain, among other references, the complete stock number of the item.

3.5.10 The block "CFTPO" shall bear the last nine numbers of the stock number of the item and the blank block under the "CFTPO" block shall contain the date on which the CFTPO was prepared.

3.5.11 All detail required for production of the package, including internal block and bracing or contour supports, shall be shown in their relationship to the item being packaged.

3.5.12 Basic isometric or perspective views may be used to show the various components of the package in relation to each other and the contained item. Relation of the component parts of the package may be shown by exploded or partially exploded views. In some instances clarity is best effected by showing the item outlined in place. Selection of the method best suited to meet the intended purpose shall be left to the discretion of the packager, subject to approval by the approval authority.

3.5.13 When the instruction covers blocking and bracing of unpacked items, all details necessary to indicate handling and storage shall be provided, including instructions for cribbing, hoisting, tie down and supports.

3.5.14 If special grades of types lumber and plywood are used, the varieties shall be clearly indicated. Direction of surface grain of plywood shall be shown when it is a pertinent factor. Lumber of standard commercial size used in blocking and bracing shall be distinguished by "(NOM)" following the thickness and width dimension, ie, 2 by 4 inch (5 by 10 cm) (NOM) by 23 inch 159 cm). Unless so specified, dimensions listed will be presumed to be nominal rather than actual dimensions.

3.5.15 Fibreboard used as pads, die-cuts and sleeves shall be identified as to type, class, grade, flute sire, bursting strength and flute direction.

3.5.16 Specification, type, grade and thickness of cushioning material shall be indicated. When shear mounts, vibration isolators, or other shock mounting devices are used, they shall be identified and described.

3.5.17 Unless otherwise specified, bolts, lag screws, etc, shall be of standard commercial grade. Types of bolts such as "carriage" and "machine" shall also be indicated.

3.5. 18 Angle iron, strapping, and rods used as a securing media shall be clearly identified as to material, finish and tensile strength.

3.5.19 Construction details of military specification type containers need not be illustrated, except as necessary to clarify details of the package. The specification number and type of container shall be shown. All pertinent details shall be indicated when containers, modified into special containers, are used.

3.5.20 Only when no other means of identification is possible shall trade names be used.

3.5.21 CFTPOs shall be submitted with the Form CF 271 which they support.

3.5.22 CFTPOs shall not contain details for specialized shockmounts, containers, preformed dunnage etc, that will duplicate information in approved drawings. However, the engineering drawing number may be indicated on the CFTPO.

3.5.23 When item(s) involved are kits, sets, or assemblies that require more than one exterior shipping container to pack the components, each CFTPO shall reference that paragraph of Specification D-LM-008-002/SF-001 that pertains to sets or assembly markings, ie, marking shall be in accordance with D-LM-008-002/SF-001, sets, assemblies, etc.

CFTPO –

PRESERVATION AND PACKAGING/PRÉSERVATION ET EMBALLAGE DATA/DONNÉES NOTES

LEVEL A/NIVEAU A
Method/Méthode
Cleaning and Drying/Nettoyage et séchage
Preservative Compound/Produit de préservation
Cushioning and Dunnage/Bourrage et fardage

LEVEL B/NIVEAU B
Method/Méthode
Cleaning and Drying/Nettoyage et séchage
Preservative Compound/Produit de préservation
Cushioning and Dunnage/Bourrage et fardage

LEVEL C/NIVEAU C
Method/Méthode
Cleaning and Drying/Nettoyage et séchage
Preservative Compound/Produit et préservation
Cushioning and Dunnage/Bourrage et fardage

PACKING/EMBALLAGE

CONTAINER/CONTENANT

LEVEL A/NIVEAU A
Specification/Spécification
Inside Dimensions/Dimensions intérieures
Length/Longueur (inches)/(pouces)
Width/Largeur (inches)/(pouces)
Depth/Profondeur (inches)/(pouces)

LEVEL B/NIVEAU B
Specification/Spécification
Inside Dimensions/Dimensions intérieures
Length/Longueur (inches)/(pouces)
Width/Largeur (inches)/(pouces)
Depth/Profondeur (inches)/(pouces)

LEVEL C/NIVEAU C
Specification/Spécification
Inside Dimensions/Dimensions intérieures
Length/Longueur (inches)/(pouces)
Width/Largeur (inches)/(pouces)
Depth/Profondeur (inches)/(pouces)

AIR SHIPMENT (LEVEL D)/
EXPÉDITION PAR AIR (NIVEAU D)
Specification/Spécification
Inside Dimensions/Dimensions intérieures
Length/Longueur (inches)/(pouces)
Width/Largeur (inches)/(pouces)
Depth/Profondeur (inches)/(pouces)

GROSS CUBE (OUTSIDE)/VOLUME BRUT (EXTÉRIEUR)
Level A/Niveau A (cu. ft.)/(pi. cu.)
Level B/Niveau B (cu. ft.)/(pi. cu.)
Level C/Niveau C (cu. ft.)/(pi. cu.)
Air Shipment/ (cu. ft.)/
Expédition par air (pi. cu.)

GROSS WEIGHT/POIDS BRUT
Level A/Niveau A (lbs.)
Level B/Niveau B (lbs.)
Level C/Niveau C (lbs.)
Air Shipment/
Expédition par air (lbs.)

CLOSURE/FERMETURE

MARKING/MARQUAGE

Req'd/ Demandé	Item/ Article	Description	Material/ Matériel
	10		
	9		
	8		
	7		
	6		
	5		
	4		
	3		
	2		
	1		

Draftsman/ Dessinateur
Checker/ Pointeur
Design Engineer/ Ingénieur de bureau d'études
Approval/ Sceau
Stamp/ d'approbation

CANADIAN FORCES
TRANSPORTATION PACKAGING ORDER/
ORDONNANCE DES FORCES CANADIENNES
RELATIVE À L'EMBALLAGE AUX FINS DE TRANSPORT

CFTPO –

Nomenclature

Based on/Base sur

Sheet/Feuille

CF 797 (JUL. 79)
7530-21 855-2598

(If additional sheets are required, used Form CF 798, Jul. 69)
(Pour feuilles supplémentaires, utiliser la formule 798, juillet 1969)

Figure 5 — Form CFTPO

CFPS 11
Distr 2

CFTPO –

Draftsman/ Dessinateur		CANADIAN FORCES TRANSPORTATION PACKAGING ORDER/ ORDONNANCE DES FORCES CANADIENNES RELATIVE À L'EMBALLAGE AUX FINS DE TRANSPORT
Checker/ Pointeur		
Design Engineer/ Ingénieur de bureau d'études		**CFTPO –**
Approval/ Sceau	Nomenclature	
Stamp/ d'approbation	Based on/Basé sur	Sheet/Feuille

CF 798 (JUILLET 1969)
7530-21-855-23599

(Use only in conjunction with Form CF 797 Jul. 69)
(À utiliser uniquement avec la formule CF 797, juillet 1969)

Figure 6 — Form CFTPO

National Defence / Défense nationale

PACKAGING DATA
DONNÉES D'EMBALLAGE

APPROVAL STAMP – SCEAU D'APPROBATION

NATO STOCK NO. – NUMÉRO DE STOCK OTAN

NSC – CSO	CD – PO	IIN – N° IA	CARD NO. CARTE N°	U.I. U.D.
6810	21	801 1488	04	GB
1 2 3 4	5 6	7 8 9 10 11 12 13	14 15	16 17

ESSENTIAL PRESERVATION AND PACKAGING DATA – DONNÉES ESSENTIELLES – PRÉSERVATION ET EMBALLAGE

SEQ./SUCC.		DM MD	CATEGORY CATÉGORIE	METHOD MÉTHODE	QTY UNIT PACK. QTÉ PAR UNITÉ D'EMBALLAGE	CLEAN NETTOYAGE	PRESV. MAT. MAT. PRÉS.	WRAP MAT. MAT. EMB.	CUSHION AND DUNNAGE BOURRAGE ET FARDAGE	CUSH. THICK. ÉPAISS. BOURR.	UNIT CONT. CONT. UNIT	INTER. QTY. QTÉ	INTER. CONT.	LEVEL OF PRO. COTE PROT.	MAX WEIGHT CODE CODE POIDS MAX	MAX CUBE CODE CODE VOLUME MAX	UNIT CONTAINER DIMENSION DIMENSIONS DU CONTENANT PAR UNITÉ LENGTH LONGUEUR	WIDTH LARGEUR	DEPTH PROFONDEUR	CONT. LEVEL COTE CONT.	OPT. PROC. IND. MÉT. FACULT.	SUP. LINE IND. L. D. SUPPL.		REVISION NO. RÉVISION N°
		D		*		STORE				IN			DRY		ICE							1		
18		41	42 43 44 45 46	47	48 49	50 51 52	53 54	55	56	57 58	59	60 61	62	63	64 65	66 67	68 69	70 71	72 73	74	75	76	77	78 79 80

SUPPLEMENTAL PRESERVATION AND PACKAGING DATA – DONNÉES SUPPLÉMENTAIRES – PRÉSERVATION ET EMBALLAGE

SEQ. SUCC.		40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
18																																										
A		A	C	E	T	I	C		A	C	I	D		–		C	O	R	R	O	S	I	V	E			U	N		2	7	8	9									
B																																										
C																																										
D																																										

PACKAGING FOR TRANSPORTATION SUPPORT – DONNÉES SPÉCIALES – EMBALLAGE POUR TRANSPORT

SEQ./SUCC.		SHIPPING CONTAINER DIMENSIONS DIMENSIONS DU CONTENANT D'EXPÉDITION LENGTH IN. LONGUEUR-POUCE	WIDTH IN. LARGEUR-POUCE	DEPTH IN. PROFONDEUR POUCE	SHIPPING CONTAINER WEIGHT POIDS DU CONTENANT D'EXPÉDITION WHOLE LBS. LIVRES ENTIÈRES	100TH 100E	SHIPPING CONTAINER CUBE VOLUME DU CONTENANT D'EXPÉDITION WHOLE CUBE FT. PIED CUBE ENTIER	100TH 100E	SHIPPING CONTAINER QTY. QTÉ CONTENANT D'EXPÉDITION	CONT LEVEL NIVEAU CONT	TYPE OF CONT. GENRE DE CONT.
X											
18		35 36 37	38 39 40	41 42 43	44 45 46 47	48 49 50	51 52 53	54 55 56 57	58 59	60 61	62 63

DETAIL – DÉTAIL	BASIC – DE BASE	INTERMEDIATE INTERMÉDIAIRE	BULK – EN VRAC
METHOD/LEVEL MÉTHODE/NIVEAU			
CLEANING NETTOYAGE			
DRYING SÉCHAGE			
PRESERVATION PRÉSERVATION			
INITIAL WRAP EMBALLAGE INITIAL			
CUSH/DUNNAGE BOURRAGE/FARDAGE			
CONTAINER CONTENANT			
CUBE VOLUME			
WEIGHT POIDS			
QUANTITY QUANTITÉ			

ITEM NAME – NOM DE L'ARTICLE | ORIGINATOR – EXPÉDITEUR | DATE

SPECIAL INSTRUCTIONS – INSTRUCTIONS SPÉCIALES

COST COÛT: LABOUR MAIN-D'OEUVRE $; MATERIEL MATÉRIEL $

PACK INDEX LISTE D'EMBALLAGE

CONTROL NO. – N° DE CONTRÔLE

CF 271 (2-83) 7530-21-896-0977

Figure 7 — Making Direct Reference to Special Instructions

Figure 8 — Direct Reference to a Specification with Special QUP

NATO STOCK NO. – NUMÉRO DE STOCK OTAN

NSC – CSO	CD – PO	IIN – N° IA	CARD NO. CARTE N°	U.I. U.D.
1 5 6 Ø	2 1	9 Ø 1 5 5 Ø 9	Ø 4	E A
1 2 3 4	5 6	7 8 9 10 11 12 13	14 15	16 17

National Defence / Défense nationale

PACKAGING DATA
DONNÉES D'EMBALLAGE

APPROVAL STAMP – SCEAU D'APPROBATION

ESSENTIAL PRESERVATION AND PACKAGING DATA – DONNÉES ESSENTIELLES – PRÉSERVATION ET EMBALLAGE

SEQ./SUCC.		DM MD	CATEGORY CATÉGORIE	METHOD MÉTHODE	QTY UNIT PACK. - QTE PAR UNITÉ D'EMBALLAGE	CLEAN NETTOYAGE	PRESV. MAT. MAT. PRÉS.	WRAP MAT. MAT. EMB.	CUSHION AND DUNNAGE BOURRAGE ET FARDAGE	CUSH. THICK. EPAISS. BOURR.	UNIT CONT. CONT. UNIT	INTER. QTY QTÉ	INTER. CONT	LEVEL OF PRO. COTE PROT.	MAX WEIGHT CODE CODE POIDS MAX	MAX CUBE CODE CODE VOLUME MAX	UNIT CONTAINER DIMENSION DIMENSIONS DU CONTENANT PAR UNITÉ LENGTH LONGUEUR	WIDTH LARGEUR	DEPTH PROFONDEUR	CONT. LEVEL COTE CONT.	OPT. PROC. IND. MÉT. FACULT.	SUP. LINE IND. L. D. SUPPL.		REVISION NO. REVISION N°
				*	1	D	L	M	0	0 8	–	0 3	6	S	F 0 0 0									
18		41	42 43 44 45 46	47	48 49	50	51	52 53	54	55 56	57	58 59	60	61	62 63	64	65 66 67	68 69	70 71	72 73	74	75	76 77	78 79 80

SUPPLEMENTAL PRESERVATION AND PACKAGING DATA – DONNÉES SUPPLÉMENTAIRES – PRÉSERVATION ET EMBALLAGE

SEQ. SUCC.																																											
18		40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
A																																											
B																																											
C																																											
D																																											

PACKAGING FOR TRANSPORTATION SUPPORT – DONNÉES SPÉCIALES – EMBALLAGE POUR TRANSPORT

SEQ./SUCC.		SHIPPING CONTAINER DIMENSIONS DIMENSIONS DU CONTENANT D'EXPÉDITION LENGTH IN. LONGUEUR-POUCE	WIDTH IN. LARGEUR-POUCE	DEPTH IN. PROFONDEUR POUCE	SHIPPING CONTAINER WEIGHT POIDS DU CONTENANT D'EXPÉDITION WHOLE LBS. LIVRES ENTIÈRES	100TH 100E	SHIPPING CONTAINER CUBE VOLUME DU CONTENANT D'EXPÉDITION WHOLE CUBE FT. PIED CUBE ENTIER	100TH 100E	SHIPPING CONTAINER QTY. QTÉ CONTENANT D'EXPÉDITION	CONT LEVEL NIVEAU CONT	TYPE OF CONT. GENRE DE CONT.
X											
18		35 36 37	38 39 40	41 42 43	44 45 46 47	48 49 50	51 52 53	54 55 56 57	58 59 60	61	62 63

DETAIL – DETAIL	BASIC – DE BASE	INTERMEDIATE INTERMÉDIAIRE	BULK – EN VRAC
METHOD/LEVEL MÉTHODE/NIVEAU			
CLEANING NETTOYAGE			
DRYING SÉCHAGE			
PRESERVATION PRÉSERVATION			
INITIAL WRAP EMBALLAGE INITIAL			
CUSH/DUNNAGE BOURRAGE/FARDAGE			
CONTAINER CONTENANT			
CUBE VOLUME			
WEIGHT POIDS			
QUANTITY QUANTITÉ			

ITEM NAME – NOM DE L'ARTICLE	ORIGINATOR – EXPÉDITEUR	DATE
ROD ASSY	J. DOE	26 Jul 88

SPECIAL INSTRUCTIONS – INSTRUCTIONS SPÉCIALES

COST COÛT	LABOUR MAIN-D'OEUVRE $	PACK INDEX LISTE D'EMBALLAGE	CONTROL NO. – N° DE CONTRÔLE
	MATERIEL MATÉRIEL $		

CF 271 (2-83) 7530-21-896-0977

D-LM-008-011/SF-001

NATO STOCK NO. – NUMÉRO DE STOCK OTAN

NSC – CSO	CD – PO	IIN – N° IA	CARD NO. CARTE N°	U.I. U.D.
5999	01	801 1466	02	EA
1 2 3 4	5 6	7 8 9 10 11 12 13	14 15	16 17

National Defence / Défense nationale

PACKAGING DATA
DONNÉES D'EMBALLAGE

APPROVAL STAMP – SCEAU D'APPROBATION

ESSENTIAL PRESERVATION AND PACKAGING DATA – DONNÉES ESSENTIELLES – PRÉSERVATION ET EMBALLAGE

SEQ./SUCC.		DM MD	CATEGORY CATÉGORIE	METHOD MÉTHODE	QTY UNIT PACK. - QTE PAR UNITE D'EMBALLAGE	CLEAN NETTOYAGE	PRESV. MAT. MAT. PRÉS.	WRAP MAT. MAT. EMB.	CUSHION AND DUNNAGE BOURRAGE ET FARDAGE	CUSH. THICK. ÉPAISS. BOURR.	UNIT CONT. CONT. UNIT	INTER. QTY. QTÉ	INTER. CONT.	LEVEL OF PRO. COTE PROT.	MAX WEIGHT CODE CODE POIDS MAX	MAX CUBE CODE CODE VOLUME MAX	UNIT CONTAINER DIMENSION DIMENSIONS DU CONTENANT PAR UNITÉ LENGTH LONGUEUR	WIDTH LARGEUR	DEPTH PROFONDEUR	CONT. LEVEL COTE CONT.	OPT. PROC. IND. MÉT. FACULT.	SUP. LINE IND. L. D. SUPPL.		REVISION NO. REVISION N°
				*		D	L	M	00	8	0	34	S	F	000							1		
18		41	42 43 44	45 46 47	48 49	50	51 52	53 54	55 56	57	58 59	60	61 62	63	64 65	66 67	68 69	70 71	72 73	74	75	76	77	78 79 80

SEQ. SUCC.

SUPPLEMENTAL PRESERVATION AND PACKAGING DATA – DONNÉES SUPPLÉMENTAIRES – PRÉSERVATION ET EMBALLAGE

18		40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
A		U	S	E		8	1	1	5	-	2	1	-	8	0	0	-	1	4	6	6																						
B																																											
C																																											
D																																											

PACKAGING FOR TRANSPORTATION SUPPORT – DONNÉES SPÉCIALES – EMBALLAGE POUR TRANSPORT

SEQ./SUCC.		SHIPPING CONTAINER DIMENSIONS DIMENSIONS DU CONTENANT D'EXPÉDITION LENGTH IN. LONGUEUR-POUCE	WIDTH IN. LARGEUR-POUCE	DEPTH IN. PROFONDEUR POUCE	SHIPPING CONTAINER WEIGHT POIDS DU CONTENANT D'EXPÉDITION WHOLE LBS. LIVRES ENTIÈRES	100TH 100E	SHIPPING CONTAINER CUBE VOLUME DU CONTENANT D'EXPÉDITION WHOLE CUBE FT. PIED CUBE ENTIER	100TH 100E	SHIPPING CONTAINER QTY. QTÉ CONTENANT D'EXPÉDITION	CONT LEVEL NIVEAU CONT	TYPE OF CONT. GENRE DE CONT.
X											
18		35 36 37	38 39 40	41 42 43	44 45 46 47	48 49 50	51 52 53	54 55 56 57	58 59 60	61	62 63

DETAIL – DÉTAIL	BASIC – DE BASE	INTERMEDIATE INTERMÉDIAIRE	BULK – EN VRAC
METHOD/LEVEL MÉTHODE/NIVEAU			
CLEANING NETTOYAGE			
DRYING SÉCHAGE			
PRESERVATION PRÉSERVATION			
INITIAL WRAP EMBALLAGE INITIAL			
CUSH/DUNNAGE BOURRAGE/FARDAGE			
CONTAINER CONTENANT			
CUBE VOLUME			
WEIGHT POIDS			
QUANTITY QUANTITÉ			

ITEM NAME – NOM DE L'ARTICLE	ORIGINATOR – EXPÉDITEUR	DATE
CIRCUIT CARD	B. BROWN	11 JULY 83

SPECIAL INSTRUCTIONS – INSTRUCTIONS SPÉCIALES

COST COÛT		PACK INDEX LISTE D'EMBALLAGE	CONTROL NO. – N° DE CONTRÔLE
	LABOUR MAIN-D'OEUVRE $		
	MATERIEL MATÉRIEL $		

CF 271 (2-83) 7530-21-896-0977

Figure 9 — Direct Reference to a Specification and Refering to a Special Container

Figure 10 — Direct Reference to a Specification (Plain Language)

NATO STOCK NO. – NUMÉRO DE STOCK OTAN

NSC – CSO	CD – PO	IIN – N° IA	CARD NO. CARTE N°	U.I. U.D.
5330	00	800 1459	04	EA
1 2 3 4	5 6	7 8 9 10 11 12 13	14 15	16 17

National Defence / Défense nationale

PACKAGING DATA
DONNÉES D'EMBALLAGE

APPROVAL STAMP – SCEAU D'APPROBATION

ESSENTIAL PRESERVATION AND PACKAGING DATA – DONNÉES ESSENTIELLES – PRÉSERVATION ET EMBALLAGE

SEQ./SUCC.		DM MD	CATEGORY CATÉGORIE	METHOD MÉTHODE	QTY UNIT PACK. - QTE PAR UNITÉ D'EMBALLAGE	CLEAN NETTOYAGE	PRESV. MAT. MAT. PRÉS.	WRAP MAT. MAT. EMB.	CUSHION AND DUNNAGE BOURRAGE ET FARDAGE	CUSH. THICK. ÉPAISS. BOURR.	UNIT CONT. CONT. UNIT	INTER. QTY QTÉ	INTER. CONT.	LEVEL OF PRO. COTE PROT.	MAX WEIGHT CODE CODE POIDS MAX	MAX CUBE CODE CODE VOLUME MAX	UNIT CONTAINER DIMENSION DIMENSIONS DU CONTENANT PAR UNITÉ LENGTH LONGUEUR	WIDTH LARGEUR	DEPTH PROFONDEUR	CONT. LEVEL COTÉ CONT.	OPT. PROC. IND. MÉT. FACULT.	SUP. LINE IND. L. D. SUPPL.		REVISION NO. RÉVISION N°
				*		D	L	M			008	026	S	F	001							0		
18		41	42 43 44	45 46 47	48 49	50	51 52	53 54	55 56	57	58 59	60	61 62	63	64 65	66 67	68 69	70 71	72 73	74	75	76	77	78 79 80

SUPPLEMENTAL PRESERVATION AND PACKAGING DATA – DONNÉES SUPPLÉMENTAIRES – PRÉSERVATION ET EMBALLAGE

SEQ. SUCC.																																											
18		40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
A																																											
B																																											
C																																											
D																																											

PACKAGING FOR TRANSPORTATION SUPPORT – DONNÉES SPÉCIALES – EMBALLAGE POUR TRANSPORT

SEQ./SUCC.		SHIPPING CONTAINER DIMENSIONS DIMENSIONS DU CONTENANT D'EXPÉDITION LENGTH IN. LONGUEUR-POUCE	WIDTH IN. LARGEUR-POUCE	DEPTH IN. PROFONDEUR POUCE	SHIPPING CONTAINER WEIGHT POIDS DU CONTENANT D'EXPÉDITION WHOLE LBS. LIVRES ENTIÈRES	100TH 100E	SHIPPING CONTAINER CUBE VOLUME DU CONTENANT D'EXPÉDITION WHOLE CUBE FT. PIED CUBE ENTIER	100TH 100E	SHIPPING CONTAINER QTY. QTÉ CONTENANT D'EXPÉDITION	CONT LEVEL NIVEAU CONT	TYPE OF CONT. GENRE DE CONT.
X											
18		35 36 37	38 39 40	41 42 43	44 45 46 47	48 49 50	51 52 53	54 55 56 57	58 59 60	61	62 63

DETAIL – DÉTAIL	BASIC – DE BASE	INTERMEDIATE INTERMÉDIAIRE	BULK – EN VRAC
METHOD/LEVEL MÉTHODE/NIVEAU			
CLEANING NETTOYAGE			
DRYING SÉCHAGE			
PRESERVATION PRÉSERVATION			
INITIAL WRAP EMBALLAGE INITIAL			
CUSH/DUNNAGE BOURRAGE/FARDAGE			
CONTAINER CONTENANT			
CUBE VOLUME			
WEIGHT POIDS			
QUANTITY QUANTITÉ			

ITEM NAME – NOM DE L'ARTICLE	ORIGINATOR – EXPÉDITEUR	DATE
GASKET	J. SMITH	12 SEP 82

SPECIAL INSTRUCTIONS – INSTRUCTIONS SPÉCIALES

COST COÛT	LABOUR MAIN-D'OEUVRE $	PACK INDEX LISTE D'EMBALLAGE	CONTROL NO. – N° DE CONTRÔLE
	MATERIEL MATÉRIEL $		

CF 271 (2-83) 7530-21-896-0977

NATO STOCK NO. – NUMÉRO DE STOCK OTAN

NSC – CSO	CD – PO	IIN – N° IA	CARD NO. CARTE N°	U.I. U.D.
5940	00	134 0674	04	EA
1 2 3 4	5 6	7 8 9 10 11 12 13	14 15	16 17

National Defence / Défense nationale

PACKAGING DATA
DONNÉES D'EMBALLAGE

APPROVAL STAMP – SCEAU D'APPROBATION

ESSENTIAL PRESERVATION AND PACKAGING DATA – DONNÉES ESSENTIELLES – PRÉSERVATION ET EMBALLAGE

SEQ./SUCC.		DM MD	CATEGORY CATÉGORIE	METHOD MÉTHODE	QTY UNIT PACK. - QTE PAR UNITÉ D'EMBALLAGE	CLEAN NETTOYAGE	PRESV. MAT. MAT. PRÉS.	WRAP MAT. MAT. EMB.	CUSHION AND DUNNAGE BOURRAGE ET FARDAGE	CUSH. THICK. ÉPAISS. BOURR.	UNIT CONT. CONT. UNIT	INTER. QTY. QTÉ	INTER. CONT.	LEVEL OF PRO. COTE PROT.	MAX WEIGHT CODE CODE POIDS MAX	MAX CUBE CODE CODE VOLUME MAX	UNIT CONTAINER DIMENSION DIMENSIONS DU CONTENANT PAR UNITÉ LENGTH LONGUEUR	WIDTH LARGEUR	DEPTH PROFONDEUR	CONT. LEVEL COTE CONT.	OPT. PROC. IND. MÉT. FACULT.	SUP. LINE IND. L. D. SUPPL.		REVISION NO. RÉVISION N°
				*		D	- L	M -	0 0	8 -	0 3	6	5	F	0 0	0	Q 4	P	1 0	0 0	0		
18		41	42 43 44	45 46 47	48 49	50	51 52	53 54	55 56	57	58 59	60	61 62	63	64 65	66 67	68 69	70 71	72 73	74	75	76 77	78 79 80

SUPPLEMENTAL PRESERVATION AND PACKAGING DATA – DONNÉES SUPPLÉMENTAIRES – PRÉSERVATION ET EMBALLAGE

SEQ. SUCC.		40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
18																																										
A																																										
B																																										
C																																										
D																																										

PACKAGING FOR TRANSPORTATION SUPPORT – DONNÉES SPÉCIALES – EMBALLAGE POUR TRANSPORT

SEQ./SUCC.		SHIPPING CONTAINER DIMENSIONS DIMENSIONS DU CONTENANT D'EXPÉDITION LENGTH IN. LONGUEUR-POUCE	WIDTH IN. LARGEUR-POUCE	DEPTH IN. PROFONDEUR POUCE	SHIPPING CONTAINER WEIGHT POIDS DU CONTENANT D'EXPÉDITION WHOLE LBS. LIVRES ENTIÈRES	100TH 100E	SHIPPING CONTAINER CUBE VOLUME DU CONTENANT D'EXPÉDITION WHOLE CUBE FT. PIED CUBE ENTIER	100TH 100E	SHIPPING CONTAINER QTY. QTÉ CONTENANT D'EXPÉDITION	CONT LEVEL NIVEAU CONT	TYPE OF CONT. GENRE DE CONT.
X											
18		35 36 37	38 39 40	41 42 43	44 45 46 47	48 49 50	51 52 53	54 55 56 57	58 59 60	61	62 63

DETAIL – DÉTAIL	BASIC – DE BASE	INTERMEDIATE INTERMÉDIAIRE	BULK – EN VRAC
METHOD/LEVEL MÉTHODE/NIVEAU			
CLEANING NETTOYAGE			
DRYING SÉCHAGE			
PRESERVATION PRÉSERVATION			
INITIAL WRAP EMBALLAGE INITIAL			
CUSH/DUNNAGE BOURRAGE/FARDAGE			
CONTAINER CONTENANT			
CUBE VOLUME			
WEIGHT POIDS			
QUANTITY QUANTITÉ			

ITEM NAME – NOM DE L'ARTICLE	ORIGINATOR – EXPÉDITEUR	DATE
CONNECTOR.	J. SMITH	12 SEP 82

SPECIAL INSTRUCTIONS – INSTRUCTIONS SPÉCIALES

COST COÛT			
LABOUR MAIN-D'OEUVRE $	PACK INDEX LISTE D'EMBALLAGE	CONTROL NO. – N° DE CONTRÔLE
MATERIEL MATÉRIEL $		

CF 271 (2-83) 7530-21-896-0977

Figure 11 — Direct Reference to a Specification with Special QUP (Plain Language)

NATOSTOCK NO. – NUMÉRO DE STOCK OTAN

NSC – CSO	CD – PO	IIN – N° IA	CARD NO. CARTE N°	U.I. U.D.
5885	00	801 2021	05	EA
1 2 3 4	5 6	7 8 9 10 11 12 13	14 15	16 17

National Defence / Défense nationale

PACKAGING DATA
DONNÉES D'EMBALLAGE

APPROVAL STAMP – SCEAU D'APPROBATION

ESSENTIAL PRESERVATION AND PACKAGING DATA – DONNÉES ESSENTIELLES – PRÉSERVATION ET EMBALLAGE

SEQ./SUCC.		DM MD	CATEGORY CATÉGORIE	METHOD MÉTHODE	QTY UNIT PACK. QTÉ PAR UNITÉ D'EMBALLAGE	CLEAN NETTOYAGE	PRESV. MAT. MAT. PRÉS.	WRAP MAT. MAT. EMB.	CUSHION AND DUNNAGE BOURRAGE ET FARDAGE	CUSH. THICK. ÉPAISS. BOURR.	UNIT CONT. CONT. UNIT	INTER. QTY QTÉ	INTER. CONT.	LEVEL OF PRO. COTE PROT.	MAX WEIGHT CODE CODE POIDS MAX	MAX CUBE CODE CODE VOLUME MAX	UNIT CONTAINER DIMENSION DIMENSIONS DU CONTENANT PAR UNITÉ LENGTH LONGUEUR	WIDTH LARGEUR	DEPTH PROFONDEUR	CONT. LEVEL COTE CONT.	OPT. PROC. IND. MÉT. FACULT.	SUP. LINE IND. L. D. SUPPL.		REVISION NO. RÉVISION N°
				*		USE		N	S	N		81	45	–	00	–	800	–	3321			0		
18		41	42 43 44 45 46	47	48	49	50 51 52	53 54	55 56	57	58 59	60	61 62	63	64 65	66 67	68 69	70	71 72 73	74	75	76	77	78 79 80

SUPPLEMENTAL PRESERVATION AND PACKAGING DATA – DONNÉES SUPPLÉMENTAIRES – PRÉSERVATION ET EMBALLAGE

SEQ. SUCC.		40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
18																																										
A																																										
B																																										
C																																										
D																																										

PACKAGING FOR TRANSPORTATION SUPPORT – DONNÉES SPÉCIALES – EMBALLAGE POUR TRANSPORT

SEQ./SUCC.		SHIPPING CONTAINER DIMENSIONS DIMENSIONS DU CONTENANT D'EXPÉDITION LENGTH IN. LONGUEUR-POUCE	WIDTH IN. LARGEUR-POUCE	DEPTH IN. PROFONDEUR POUCE	SHIPPING CONTAINER WEIGHT POIDS DU CONTENANT D'EXPÉDITION WHOLE LBS. LIVRES ENTIÈRES	100TH 100E	SHIPPING CONTAINER CUBE VOLUME DU CONTENANT D'EXPÉDITION WHOLE CUBE FT. PIED CUBE ENTIER	100TH 100E	SHIPPING CONTAINER QTY. QTÉ CONTENANT D'EXPÉDITION	CONT. LEVEL NIVEAU CONT.	TYPE OF CONT. GENRE DE CONT.
X											
18		35 36 37	38 39 40	41 42 43	44 45 46 47	48 49 50	51 52 53	54 55 56 57	58 59 60	61	62 63

DETAIL – DÉTAIL	BASIC – DE BASE	INTERMEDIATE INTERMÉDIAIRE	BULK – EN VRAC
METHOD/LEVEL MÉTHODE/NIVEAU			
CLEANING NETTOYAGE			
DRYING SÉCHAGE			
PRESERVATION PRÉSERVATION			
INITIAL WRAP EMBALLAGE INITIAL			
CUSH/DUNNAGE BOURRAGE/FARDAGE			
CONTAINER CONTENANT			
CUBE VOLUME			
WEIGHT POIDS			
QUANTITY QUANTITÉ			

ITEM NAME – NOM DE L'ARTICLE	ORIGINATOR – EXPÉDITEUR	DATE
REGULATOR	P. JONES	12 NOV. 81

SPECIAL INSTRUCTIONS – INSTRUCTIONS SPÉCIALES

COST COÛT		PACK INDEX LISTE D'EMBALLAGE	CONTROL NO. – N° DE CONTRÔLE
	LABOUR MAIN-D'OEUVRE $		
	MATERIEL MATÉRIEL $		

CF 271 (2-83) 7530-21-896-0977

Figure 12 — Direct Reference to a Special Container (Plain Language)

NATO STOCK NO. – NUMÉRO DE STOCK OTAN

NSC – CSO	CD – PO	IIN – N° IA	CARD NO. CARTE N°	U.I. U.D.
6630	00	801 1412	06	EA
1 2 3 4	5 6	7 8 9 10 11 12 13	14 15	16 17

National Defence / Défense nationale

PACKAGING DATA
DONNÉES D'EMBALLAGE

APPROVAL STAMP – SCEAU D'APPROBATION

ESSENTIAL PRESERVATION AND PACKAGING DATA – DONNÉES ESSENTIELLES – PRÉSERVATION ET EMBALLAGE

SEQ./SUCC.		DM MD	CATEGORY CATÉGORIE	METHOD MÉTHODE	QTY UNIT PACK. - QTE PAR UNITE D'EMBALLAGE	CLEAN NETTOYAGE	PRESV. MAT. MAT. PRÉS.	WRAP MAT. MAT. EMB.	CUSHION AND DUNNAGE BOURRAGE ET FARDAGE	CUSH. THICK. ÉPAISS. BOURR.	UNIT CONT. CONT. UNIT	INTER. QTY. QTÉ	INTER. CONT.	LEVEL OF PRO. COTE PROT.	MAX WEIGHT CODE CODE POIDS MAX	MAX CUBE CODE CODE VOLUME MAX	UNIT CONTAINER DIMENSION DIMENSIONS DU CONTENANT PAR UNITÉ: LENGTH LONGUEUR	WIDTH LARGEUR	DEPTH PROFONDEUR	CONT. LEVEL COTE CONT.	OPT. PROC. IND. MÉT. FACULT.	SUP. LINE IND. L. D. SUPPL.	REVISION NO. RÉVISION N°
				*		JONES			D	WG		38	–	6	832							O	
18		41	42 43 44 45 46	47	48	49	50 51 52	53 54	55	56	57 58	59	60 61	62	63	64 65	66 67	68 69	70 71	72 73	74	75	76 77 78 79 80

SUPPLEMENTAL PRESERVATION AND PACKAGING DATA – DONNÉES SUPPLÉMENTAIRES – PRÉSERVATION ET EMBALLAGE

SEQ. SUCC.																																											
18		40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
A																																										
B																																										
C																																										
D																																										

PACKAGING FOR TRANSPORTATION SUPPORT – DONNÉES SPÉCIALES – EMBALLAGE POUR TRANSPORT

SEQ./SUCC.		SHIPPING CONTAINER DIMENSIONS DIMENSIONS DU CONTENANT D'EXPÉDITION: LENGTH IN. LONGUEUR-POUCE	WIDTH IN. LARGEUR-POUCE	DEPTH IN. PROFONDEUR POUCE	SHIPPING CONTAINER WEIGHT POIDS DU CONTENANT D'EXPÉDITION: WHOLE LBS. LIVRES ENTIÈRES	100TH 100E	SHIPPING CONTAINER CUBE VOLUME DU CONTENANT D'EXPÉDITION: WHOLE CUBE FT. PIED CUBE ENTIER	100TH 100E	SHIPPING CONTAINER QTY. QTÉ CONTENANT D'EXPÉDITION	CONT. LEVEL NIVEAU CONT.	TYPE OF CONT. GENRE DE CONT.
X											
18		35 36 37	38 39 40	41 42 43	44 45 46 47	48 49 50	51 52 53	54 55 56 57	58 59	60 61	62 63

DETAIL – DÉTAIL	BASIC – DE BASE	INTERMEDIATE INTERMÉDIAIRE	BULK – EN VRAC
METHOD/LEVEL MÉTHODE/NIVEAU			
CLEANING NETTOYAGE			
DRYING SÉCHAGE			
PRESERVATION PRÉSERVATION			
INITIAL WRAP EMBALLAGE INITIAL			
CUSH/DUNNAGE BOURRAGE/FARDAGE			
CONTAINER CONTENANT			
CUBE VOLUME			
WEIGHT POIDS			
QUANTITY QUANTITÉ			

ITEM NAME – NOM DE L'ARTICLE

ORIGINATOR – EXPÉDITEUR

DATE

SPECIAL INSTRUCTIONS – INSTRUCTIONS SPÉCIALES

COST COÛT: LABOUR MAIN-D'OEUVRE $; MATERIEL MATÉRIEL $

PACK INDEX LISTE D'EMBALLAGE

CONTROL NO. – N° DE CONTRÔLE

CF 271 (2-83) 7530-21-896-0977

Figure 13 – Making Direct Reference to Manufacturer's Drawing Number

Figure 14 — Making Direct Reference to a CFTPO

NATO STOCK NO. – NUMÉRO DE STOCK OTAN

NSC – CSO	CD – PO	IIN – N° IA	CARD NO CARTE N°	U.I. U.D.
6210	00	801 2346		
1 2 3 4	5 6	7 8 9 10 11 12 13	14 15	16 17

National Defence / Défense nationale

PACKAGING DATA
DONNÉES D'EMBALLAGE

APPROVAL STAMP – SCEAU D'APPROBATION

ESSENTIAL PRESERVATION AND PACKAGING DATA – DONNÉES ESSENTIELLES – PRÉSERVATION ET EMBALLAGE

SEQ./SUCC.		DM MD	CATEGORY CATÉGORIE	METHOD MÉTHODE	QTY UNIT PACK. QTE PAR UNITE D'EMBALLAGE	CLEAN NETTOYAGE	PRESV. MAT. MAT. PRÉS.	WRAP MAT. MAT. EMB.	CUSHION AND DUNNAGE BOURRAGE ET FARDAGE	CUSH. THICK. ÉPAISS. BOURR.	UNIT CONT. CONT. UNIT	INTER. QTY. QTÉ	INTER. CONT	LEVEL OF PRO. COTE PROT.	MAX WEIGHT CODE CODE POIDS MAX	MAX CUBE CODE CODE VOLUME MAX	UNIT CONTAINER DIMENSION DIMENSIONS DU CONTENANT PAR UNITÉ LENGTH LONGUEUR	WIDTH LARGEUR	DEPTH PROFONDEUR	CONT. LEVEL COTE CONT.	OPT. PROC. IND. MÉT. FACULT.	SUP. LINE IND. L. D. SUPPL.	REVISION NO. REVISION N°
				*		C	F	T	P	O	- 2 1 -	8 1	1 -	3	3	2 6						O	
18		41	42 43 44 45 46	47	48	49	50	51	52	53	54 55	56 57	58 59	60	61	62 63	64	65	66 67	68 69	70 71	72 73	74 75 76 77 78 79 80

SEQ. SUCC.

SUPPLEMENTAL PRESERVATION AND PACKAGING DATA – DONNÉES SUPPLÉMENTAIRES – PRÉSERVATION ET EMBALLAGE

SEQ./SUCC.																																											
18		40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
A																																											
B																																											
C																																											
D																																											

PACKAGING FOR TRANSPORTATION SUPPORT – DONNÉES SPÉCIALES – EMBALLAGE POUR TRANSPORT

SEQ./SUCC.		SHIPPING CONTAINER DIMENSIONS DIMENSIONS DU CONTENANT D'EXPÉDITION: LENGTH IN. LONGUEUR-POUCE	WIDTH IN. LARGEUR-POUCE	DEPTH IN. PROFONDEUR POUCE	SHIPPING CONTAINER WEIGHT POIDS DU CONTENANT D'EXPÉDITION: WHOLE LBS. LIVRES ENTIÈRES	100TH 100E	SHIPPING CONTAINER CUBE VOLUME DU CONTENANT D'EXPÉDITION: WHOLE CUBE FT. PIED CUBE ENTIER	100TH 100E	SHIPPING CONTAINER QTY. QTÉ CONTENANT D'EXPÉDITION	CONT. LEVEL NIVEAU CONT.	TYPE OF CONT. GENRE DE CONT.
X											
18		35 36 37	38 39 40	41 42 43	44 45 46 47 48	49 50	51 52 53 54 55	56 57	58 59 60	61	62 63

DETAIL – DÉTAIL	BASIC – DE BASE	INTERMEDIATE INTERMÉDIAIRE	BULK – EN VRAC
METHOD/LEVEL MÉTHODE/NIVEAU			
CLEANING NETTOYAGE			
DRYING SÉCHAGE			
PRESERVATION PRÉSERVATION			
INITIAL WRAP EMBALLAGE INITIAL			
CUSH/DUNNAGE BOURRAGE/FARDAGE			
CONTAINER CONTENANT			
CUBE VOLUME			
WEIGHT POIDS			
QUANTITY QUANTITÉ			

ITEM NAME – NOM DE L'ARTICLE

ORIGINATOR – EXPÉDITEUR

DATE

SPECIAL INSTRUCTIONS – INSTRUCTIONS SPÉCIALES

COST COÛT: LABOUR MAIN-D'OEUVRE $; MATERIEL MATÉRIEL $

PACK INDEX LISTE D'EMBALLAGE

CONTROL NO. – N° DE CONTRÔLE

CF 271 (2-83) 7530-21-896-0977

AUTHORIZED ABBREVIATIONS CROSS REFERENCES TO UNITS OF ISSUE

ABBREVIATION	TERM
AM	Ampoule
AY	Assembly
BC	Block
BE	Bale
BF	Board Feet
BG	Bag
BI	Brick
BK	Book
BL	Barrel
BM	Bushel, Imperial (2219.23 cu in)
BD	Bundle
BO	Bolt
BR	Bar
BT	Bottle
BU	(2150.48 cu in) Bushel
BX	Box
CM	Centimetre
CM^2	Square Centimetre
CM^3	Cubic Centimetre
CA	Cartridge
CB	Carboy
CD	Cubic Yard
CE	Cone
CF	Cubic Foot
CG	Centigramme
CH	Chest
CI	Cubic Inch
CK	Cake
CL	Coil
CN	Can
CO	Container
CP	Capsule
CR	Crate
CS	Case
CT	Carton
CY	Cylinder
DC	Decagramme
DE	Decimetre
DG	Decigramme
DK	Deck
DL	Decilitre
DM	Dram
DR	Drum
DZ	Dozen
EA	Each
EN	Envelope
FL	Flask
FT	Foot
GB	Gallon (Imperial)
GL	Gallon, US
GM	Gramme
GN	Grain
GP	Group

ABBREVIATION	TERM
GR	Gross
GS	Glass
HD	Hundred
HI	Hundredweight (Imperial)
HW	Hundredweight
IN	Inch
JG	Jug
JR	Jar
KD	Cord
KE	Keg
KG	Kilogramme
KM	Kilometre
KS	Cask
KT	Kit
LB	Pound
LF	Linear Foot
LG	Length
LI	Litre
LT	Long ton (2240 lb)
LY	Linear Yard
MC	Microprogramme
MG	Milligramme
MI	Mile
ML	Millilitre
MM	Millimetre
M3	Cubic Metre
MR	Metre
MT	Metric Ton
MX	Thousand
SC	Section
SE	Set
SF	Square Foot
SH	Sheet
SI	Square Inch
SL	Spool
SQ	Square
SS	Stack
ST	Short Ton
SV	Sleeve
SY	Square Yard
TI	Tin
TM	(2240.6 lb) Ton, Metric
M^2	Square
NT	Net Ton
OZ	Ounce
PA	Paper
PC	Piece
PD	Pad
PF	Panel
PG	Package
PI	Pint (Imperial)
PK	Pack

ABBREVIATION	TERM
PL	Pail
PN	Packing
PO	Pouch
PR	Pair
PI	Pint, US
PV	Half Pint (US)
PW	Half Pint (Imperial)
QI	Quart (Imperial)
QR	Quire
QT	Quart, US
RA	Ration
RD	Round

ABBREVIATION	TERM
RL	Reel
RO	Roll
RM	Ream
RN	Ribbon
SA	Sack
TO	Troy Ounce
TP	Tape
TU	Tube
UN	Unit
VI	Vial (or Phial)
VO	Volume
XX	Ten
YD	Yard

National Defence | Défense nationale

D-LM-008-036/SF-000

DEPARTMENT OF NATIONAL DEFENCE MINIMUM REQUIREMENTS FOR MANUFACTURER'S STANDARD PACK

(BILINGUAL)

(Supersedes D-LM-008-036/SF-000 dated 1983-01-24 and Change 2 dated 1990-06-11)

EXIGENCES DU MDN EN MATIÈRE D'EMBALLAGE COMMERCIAL DU FABRICANT

(BILINGUE)

(Remplace la D-LM-008-036/SF-000 de 1983-01-24 et le modificatif 2 de 1990-06-11)

Issued on Authority of the Chief of the Defence Staff
Publiée avec l'autorisation du Chef d'état-major de la Défense

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LIST OF EFFECTIVE PAGES

Insert latest changed pages and dispose of superseded pages in accordance with applicable orders.

NOTE

The portion of the text affected by the latest change is indicated by a black vertical line in the margin of the page. Changes to illustrations are indicated by miniature pointing hands or black vertical lines.

Dates of issue for original and changed pages are:

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Insérer les pages le plus récemment modifiées et se défaire de celles qu'elles remplacent conformément aux instructions pertinentes.

NOTA

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Original	0	2013-12-01	Ch/Mod	3	
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Ch/Mod	2		Ch/Mod	5	

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Page No./Numéro de page	Change No./ Numéro de modificatif
Title/Titre	0
A	0
i/ii	0
1 to/à 7/8	0

Un zéro dans la colonne Numéro de modificatif indique une page originale. La lettre E ou F indique que la modification est exclusivement en anglais ou en français. La présente publication comprend 12 pages réparties de la façon suivante :

Contact Officer: DSCO 5-4-3

Personne responsable : DOCA 5-4-3

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TABLE DES MATIÈRES

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SCOPE

PURPOSE

1. This specification states the circumstances under which the manufacturer's or supplier's standard pack can be used to fulfill the Canadian Forces (CF) requirement for cleaning, drying, preservation, packaging, packing and marking.

2. Where individual instructions for specific items have been included in the contract, e.g. type of preservation material to be applied, those instructions shall take precedence over paragraph 9.

3. Where the commodity specification for an item includes packaging, the commodity specification shall take precedence. Where the commodity specification contains more than one level of packaging and the required level is not specified in the document, packaging shall be to the lowest level of protection established in the commodity specification (Level A being the highest – Level C or Commercial being the lowest).

GENERAL REQUIREMENTS

4. Subject to the limitations set forth below, commercial cleaning, drying, preservation, packaging and marking are acceptable. This specification neither requires nor precludes the use of CF methods and/or materials.

5. Items shall be afforded adequate protection against deterioration and damage during handling and shipment. Packaging and marking shall be suitable for distribution to retail outlets.

6. Unless otherwise specified, bulk preservation, packaging, packing and marking such as those used in interplant and intraplant shipments, and for shipment to jobbers for repackaging and to part distribution outlets for re-preservation and packing, are not acceptable. Examples include tote-boxes, open baskets, and boxes without lids or other such handling aids.

PORTÉE

OBJET

1. La présente ordonnance indique dans quels cas l'emballage commercial des fabricants ou des fournisseurs peut être utilisé afin de satisfaire aux exigences des Forces canadiennes (FC) en matière de nettoyage, de séchage, de préservation, d'emballage, d'empaquetage et de marquage.

2. Dans le cas où des dispositions du contrat stipulent l'emploi d'articles particuliers (p. ex. le genre de matériel à employer pour assurer la préservation), ces dispositions auront préséance sur le paragraphe 9.

3. Si les stipulations du contrat portant sur un article prévoient l'emballage, ces stipulations prévaudront. Lorsque les spécifications du produit prévoient plus d'un niveau d'emballage et que le niveau requis n'est pas précisé dans le document, l'emballage sera au plus bas niveau établi dans les spécifications du produit (le niveau A étant le plus haut, et le niveau C, ou commercial, étant le plus bas).

DIRECTIVES GÉNÉRALES

4. Sous réserve des restrictions ci-dessous, les méthodes commerciales de nettoyage, de séchage, de préservation, d'emballage et d'empaquetage sont acceptables. La présente ordonnance n'exige ni n'exclut l'emploi des méthodes ou du matériel des FC.

5. Les articles doivent être bien protégés contre tout dommage ou détérioration lors de la manutention et de l'expédition. L'emballage et le marquage doivent convenir à la distribution aux magasins de détail.

6. Sauf avis contraire, la préservation, l'emballage, l'empaquetage ainsi que le marquage en bloc sont inacceptables pour la manutention interne ou la manutention d'un établissement à un autre, de même que pour l'expédition à des entrepreneurs en remballage et à des magasins de distribution pour un nouveau traitement de préservation et l'emballage. Par exemple, les emballages peuvent être des boîtes de transport, des paniers ouverts, des boîtes sans couvercle et d'autres articles de manutention.

7. Cleaning, drying, preservation, packaging, packing and marking furnished by the supplier shall meet or exceed the following minimum requirements.

CLEANING

8. Items shall be free from dirt or contaminants which would contribute to deterioration of the item or which would require cleaning by the customer prior to use. Coatings of preservatives applied to the item for protection are not considered contaminants.

PRESERVATION

9. Items susceptible to corrosion or deterioration shall be protected by the use of preservative coatings, volatile corrosion inhibitors or desiccated packs.

CUSHIONING

10. Items requiring surface protection from physical and mechanical damage, or items that are fragile in nature, shall be protected by wrapping, cushioning, or other means to distribute shock and vibration during handling and shipment.

INTERIOR PACKS

11. Interior packs are classified as unit packs and intermediate packs. A unit pack is the first stage at which the item or quantity of items is enclosed in a container (bag, envelope, box, etc). A unit pack shall be so designed and constructed that it will contain the contents with no damage to them, and with minimal damage to the unit pack during shipment and storage in the shipping container, and will allow subsequent handling. Unit packs are a mandatory requirement of this specification and are limited to the parameters specified at paragraph 12. In extraordinary circumstances due to weight or size, e.g. sheet metal, bar stock, etc., exception to the limits imposed by paragraph 12. may be authorized by a qualified Department of National Defence (DND) packaging specialist.

7. Les opérations de nettoyage, de séchage, de préservation, d’emballage, d’empaquetage et de marquage effectuées par le fournisseur doivent au moins répondre aux exigences suivantes.

NETTOYAGE

8. Les articles ne doivent être ni sales ni contaminés, ce qui contribuerait à les détériorer ou obligerait le client à les nettoyer avant de les utiliser. Les revêtements dont on couvre les marchandises constituent des agents de préservation et non des agents de contamination.

PRÉSERVATION

9. Les articles qui risquent de se corroder ou de se détériorer doivent être protégés à l’aide de revêtements de préservation, d’inhibiteurs de corrosion volatils ou d’emballages dessicatifs.

BOURRAGE

10. Les articles fragiles ou dont la surface doit être protégée contre les avaries physiques ou mécaniques doivent être préservés grâce à un emballage, à un bourrage, ou à tout autre moyen servant à amortir les chocs et les vibrations pendant la manutention et le transport.

EMBALLAGES INTÉRIEURS

11. Les emballages intérieurs sont classés soit comme emballages individuels soit comme emballages intermédiaires. L’emballage individuel est la première forme sous laquelle un article ou un groupe d’articles est placé dans un contenant (sac, enveloppe, boîte, etc.). Un emballage individuel doit être conçu et fabriqué de manière à envelopper le contenu sans l’endommager et en subissant lui-même un minimum de dommages pendant l’expédition et l’entreposage dans le contenant d’expédition, ce qui en permettra la manipulation ultérieure. L’emploi d’emballages individuels est obligatoire en vertu de la présente ordonnance, et assujetti aux règles spécifiées au paragraphe 12. Dans certains cas inhabituels, étant donné le poids ou les dimensions de l’objet (p. ex. tôle, barre, etc.), un technicien du ministère de la Défense nationale (MDN), spécialiste en emballage, pourra autoriser des exceptions aux restrictions imposées au paragraphe 12.

12. **Unit Packs.** Unless otherwise specified, the unit pack quantity shall not exceed 100 pieces and shall not weigh more than 25 lb (11.3 kg). Single items weighing more than 10 lb (4.5 kg) shall be individually packed.

12. **Emballages individuels.** Sauf avis contraire, un emballage individuel ne doit pas contenir plus de 100 articles et ne doit pas peser plus de 25 lb (11.3 kg). Les articles qui pèsent à eux seuls plus de 10 lb (4.5 kg) doivent être emballés individuellement.

13. **Intermediate Packs.** An intermediate pack is simply a number of unit packs placed in a larger container for convenience of handling, counting, and marking to the requirements of paragraph 16. Unless otherwise specified in the contract, intermediate packs are not mandatory, neither are they forbidden. The supplier may employ them or not, as is his/her discretion. Unit packs or intermediate packs shall be packed into exterior shipping containers that meet common carrier acceptance and provide safe delivery to destination (refer to paragraph 14.). Unit or intermediate packs that conform to these requirements need no supplemental protection.

13. **Emballages intermédiaires.** Il s'agit tout simplement d'un certain nombre d'emballages individuels qui sont placés dans un plus grand contenant en vue de faciliter la manutention, le comptage et le marquage conformément au paragraphe 16. Sauf mention expresse au contrat, l'emploi d'emballages intermédiaires n'est ni obligatoire, ni interdit. En fait, il est laissé à la discrétion du fournisseur. Les emballages individuels ou intermédiaires doivent être déposés dans des contenants d'expédition extérieurs que le transporteur juge d'ordinaire acceptables pour assurer une livraison sûre au destinataire (se reporter au paragraphe 14.). Les emballages qui satisferont à ces exigences ne nécessitent aucune protection supplémentaire.

SHIPPING CONTAINERS

14. These are containers that are acceptable to the common carrier for safe delivery to consignee at the lowest applicable rate, e.g. corrugated fibreboard, wood, plywood, hardboard, boxes, barrels, crates, shipping drums, some types of baskets and, in some instances, loose items. All wood packaging materials must meet all requirements for the importing or exporting of wood packaging materials as specified by the Canadian Food Inspection Agency in accordance with the International Plant Protection Conventions wood packaging standard ISPM-15. It is required that manufacturers notify the Department if any untreated wood will be used as a packaging material for any and all item(s).

CONTENANTS D'EXPÉDITION

14. Ce sont les contenants que le transporteur peut d'ordinaire juger acceptable pour assurer une livraison sûre au destinataire au taux le plus bas. Il peut s'agir par exemple de carton-fibre ondulé, de bois, de contre-plaqué, de carton dur, de boîtes, de barils, de caisses, de certains genres de paniers, et, dans certains cas, d'articles en vrac. Tous les matériaux d'emballage en bois doivent répondre à toutes les exigences en matière d'importation ou d'exportation des matériaux d'emballage en bois, comme le spécifie l'Agence canadienne d'inspection des aliments et conformément à la norme ISPM-15 sur le bois d'emballage de la Convention internationale pour la protection des végétaux. Les fabricants doivent informer le Ministère de toute utilisation de bois non traité pour l'emballage de quelque article que ce soit.

15. The use of containers that have been used previously for the shipment or storage of other items is permissible, if approved by the appropriate packaging specialist. The exception being that previously used corrugated fibreboard boxes are not an acceptable shipping container and are not to be used under any circumstances.

15. Il est permis d'employer des contenants qui ont déjà servi au transport ou à l'entreposage d'autres articles si le spécialiste en emballage l'autorise. Il est toutefois strictement interdit d'employer des boîtes de carton-fibre ondulé qui ont déjà servi et qui ne sont pas considérées comme des contenants d'expédition acceptables.

MARKING PROCEDURES

16. Besides markings that are required to effect delivery of material (consignee, consignor), certain other markings are required on shipping containers and, in some instances, on interior containers. When the contents of a shipping container comprise only one item of material (regardless of quantity), the interior containers need not be marked. When, however, the shipping containers hold more than one item of material (more than one NATO stock number), the interior containers must be marked. If intermediate packs are employed within a shipping container, they must be marked, but the unit packs need not. If intermediate packs are not employed, each unit pack must be marked. All markings shall be legible, durable, and identify the contents of the package.

17. **Interior Containers.** The required markings for interior containers are as follows:

a. NATO stock number – as shown on the contract.

b. Description – noun or noun phrase.

c. Quantity – as determined by the supplier.

18. **Shipping Containers.** Each shipping container must bear the following markings on one face of the container (preferably the end or smaller face):

a. NATO stock number – as shown on the contract.

b. Description – noun or noun phrase.

c. Quantity – as determined by the supplier.

d. Gross weight – packed weight of the container.

e. Contract serial number – as shown on the contract.

MÉTHODES DE MARQUAGE

16. En plus des inscriptions nécessaires pour la livraison du matériel (noms du destinataire et de l’expéditeur), certaines autres inscriptions doivent être apposées sur les contenants d’expédition et, dans certains cas, sur les contenants intérieurs. Lorsqu’un contenant ne renferme que les articles de même nature, peu importe la quantité, il n’est pas nécessaire de marquer les contenants intérieurs. Toutefois, il faut le faire lorsque le contenant d’expédition compte plus d’une sorte d’articles (articles portant des numéros de nomenclature OTAN différents). En outre, il faut marquer les emballages intermédiaires groupés dans un contenant d’expédition, mais pas les emballages individuels qu’ils contiennent. Toutefois, si l’on n’emploie pas d’emballage intermédiaire, il faut identifier chacun des emballages individuels. Toutes les inscriptions marquées doivent être lisibles et durables et identifier le contenu de l’emballage.

17. **Contenants intérieurs.** Les inscriptions apposées sur les contenants intérieurs doivent comporter les renseignements suivants :

a. Numéro de nomenclature OTAN – indiqué sur le contrat.

b. Description – substantif ou locution substantive.

c. Quantité – établie par le fournisseur.

18. **Contenants d’expédition.** Chaque contenant d’expédition doit porter les renseignements suivants sur l’une de ses faces (de préférence la plus petite ou celle du bout) :

a. Numéro de nomenclature OTAN – indiqué sur le contrat.

b. Description – substantif ou locution substantive.

c. Quantité – établie par le fournisseur.

d. Poids brut – poids du contenant après emballage.

e. Numéro de série du contrat – indiqué sur le contrat.

19. One contrasting face of the container (preferably on the side or larger face) must bear the following shipping instructions:

a. Consignee – as shown on the contract.

b. Consignor – suppliers name or symbol.

c. Container number – relation of the container within the shipment (e.g. Case 1 of 1).

NOTE

The last shipment container shall have affixed to its face an envelope containing the contract supply voucher, release note, packing list, etc. This envelope, which shall be water resistant, shall be prominently marked “Packing Slip Enclosed” and securely affixed to the outside wall of the container.

APPLICATION OF MARKINGS

20. The most satisfactory method of applying markings to containers is by stencil and marking ink. Labels may be used, but the characters must be sufficiently large to facilitate reading from a reasonable distance. If stencilling is impracticable, because of container shape or because of the material from which the container is manufactured, tags may be used (refer to paragraph 21.). Marking inks shall be fade resistant.

UNUSUAL MARKING CIRCUMSTANCES

21. The above marking instructions mainly concern boxes and it is realized, that in some instances, the shipping container may be a bag, sack, bale, pail, drum, barrel, or loose item. In these circumstances, the markings quoted in paragraph 16. are still required but it will be permissible to apply the markings by means of tags firmly attached to the bags or loose items. The NATO stock number description, quantity, contract serial number shall be shown on one tag or on one side of a tag and the consignee, consignor, container number, number of containers and packing slip enclosed shall be shown on the opposite side of the same tag, or on another tag.

19. Il faut inscrire sur la face opposée de chaque contenant (la face du côté ou la face la plus grande) les directives d’expédition suivantes :

a. Nom du destinataire – indiqué sur le contrat.

b. Nom de l’expéditeur – nom ou logotype du fournisseur.

c. Numéro du conteneur – par rapport à l’ensemble de l’envoi; p. ex. Conteneur 1 de 1.

NOTA

Le dernier conteneur d’expédition doit porter sur l’une de ses faces une enveloppe contenant le bordereau d’approvisionnement annexé au contrat, l’avis de remise, le bordereau d’expédition, etc. Il faut inscrire clairement sur cette enveloppe, qui doit être imperméable, « Bordereau d’expédition inclus » et la fixer solidement au panneau extérieur du conteneur.

MARQUAGE

20. La meilleure méthode de marquage consiste à utiliser un pochoir et de l’encre à marquer. On peut également se servir d’étiquettes, mais les caractères employés doivent être assez gros pour se lire aisément à une distance raisonnable. On peut avoir recours à cette méthode lorsqu’on ne peut employer la première en raison de la forme du contenant ou de la matière dont il est fait (se reporter au paragraphe 21.). Les encres à marquer doivent être indélébiles.

MARQUAGE – CAS PARTICULIERS

21. Les directives de marquage ci-dessus s’appliquent surtout en ce qui a trait aux boîtes, mais il peut arriver que le contenant d’expédition soit un sac, une poche, un ballot, un seau, une caisse, un baril ou un panier, ou que l’article ne soit pas emballé. Dans de tels cas, le marquage décrit au paragraphe 16. demeure nécessaire, mais il est permis de marquer les contenants ou les articles séparés à l’aide d’étiquettes solidement fixées. Il faut inscrire le numéro de nomenclature OTAN, la description, la quantité, le numéro de série du contrat sur une étiquette ou sur l’un de ses côtés, et le nom du destinataire et de l’expéditeur, le numéro du contenant et le nombre total de contenants ainsi que la mention « Bordereau d’expédition inclus » sur une autre étiquette ou au verso de la même étiquette.

DANGEROUS MATERIALS

22. Dangerous Goods/Hazardous Materials – materiel which is classed as dangerous/hazardous shall have the shipping container marked in accordance with the Transportation of Dangerous Goods Act; and the immediate product container shall be marked in accordance with the Hazardous Products Act.

23. Bilingual Materiel Safety Data Sheets (3 copies) indicating the NATO Stock Number as specified on the procurement document shall be provided, with one copy being enclosed with the shipment, one copy to be mailed to:

National Defence Headquarters
MGen George R Pearkes Building
101 Colonel By Drive
Ottawa ON K1A 0K2
Attention: DSCO 5-4-2

One additional copy shall be sent by email to the following address in word processing format (i.e. MS Word or WordPerfect): MSDS-FS@FORCES.GC.CA

24. USA regulations covering these dangerous materials can be found in Code of Federal Regulations, title 49, Subtitle B, parts 100 to 199, which cover transportation of hazardous materials by rail, road, aircraft and vessel. Carriage by military aircraft is regulated by USA DOD AFM 71-4.

QUALITY ASSURANCE PROVISIONS

25. Quality assurance provisions shall be as specified in the contract.

MATIÈRES DANGEREUSES

22. Dans le cas des matières classées dangereuses, il faudra se conformer aux dispositions de la Loi sur le transport des marchandises dangereuses pour le marquage des contenants d'expédition, et aux dispositions de la Loi sur les produits dangereux pour le marquage de l'emballage intérieur.

23. Il faudra fournir des fiches techniques santé-sécurité bilingues (en 3 copies) portant le numéro de nomenclature OTAN, tel qu'il est indiqué sur le document d'approvisionnement; une copie devra être insérée dans le contenant d'expédition et l'autre postée au :

Quartier général de la Défense nationale
Édifice mgén George R. Pearkes,
101, promenade Colonel-By
Ottawa ON K1A 0K2
À l'attention de : DOCA 5-4-2

Envoyer également une copie par courriel à l'adresse suivante, dans un format de traitement de texte (c.-à-d. exemple, MS Word ou WordPerfect) : MSDS-FS@FORCES.GC.CA

24. Les règlements américains se rapportant aux matières dangereuses sont énoncés dans le « Code of Federal Regulations » titre 49, sous-chapitre B, parties 100 à 199. Ce document traite du transport des matières dangereuses par chemin de fer, par route, par air et par mer. Les règlements régissant le transport par avion militaire sont contenus dans la publication américaine DOD AFM 71-4.

ASSURANCE DE LA QUALITÉ

25. Toutes les dispositions en matière de contrôle de la qualité doivent figurer au contrat.

PREPARATION FOR DELIVERY

26. Prepare for delivery as applicable. Materiel handling aids such as pallets, crates, etc., shall be utilized where applicable to facilitate off loading of materiel from transport vehicles at destination.

NOTES

1. **Deviation from Specification.** If the contractor wishes to suggest other proposals or otherwise depart from the current issue of this specification, he shall forward his proposals immediately, to the Department for approval.

2. **Inquiries.** Any question relating to this specification are to be referred to the Department's authorized representative and/or DSCO 5-4-3. Technical assistance may be obtained by contacting the Packaging Officer at the Supply Depot indicated on the procurement document.

3. **Specification.** Copies of this specification may be obtained from the Department of National Defence, Attention DSCO 5-4-3. Specifications may also be located online at the address below.

   National Defence Publications Search: http://publications.mil.ca/pod/pubs/pubSearch.jsp?LangType=0

LIVRAISON

26. La préparation en vue de la livraison devra être conforme aux directives applicables. Il faudra utiliser au besoin des dispositifs de manutention, par exemple, des palettes, des caisses à claire-voie, etc., pour faciliter le déchargement des marchandises des véhicules de transport une fois rendus à destination.

NOTA

1. **Dérogations à l'ordonnance.** Si l'entrepreneur désire faire d'autres suggestions ou déroger à la présente ordonnance, il doit envoyer immédiatement ses suggestions au Ministère pour approbation.

2. **Questions.** Toute question portant sur la présente ordonnance doit être adressée à un représentant autorisé du Ministère ou au DOCA 5-4-3. On peut obtenir une aide technique en communiquant avec l'agent d'emballage du dépôt d'approvisionnement dont le nom figure sur le document d'approvisionnement.

3. **Spécification.** On peut se procurer des exemplaires de la présente spécification en s'adressant au ministère de la Défense Nationale, à l'attention du DOCA 5-4-3. On peut également trouver les spécifications en ligne, à l'adresse ci-dessous.

   Recherche de publication de la Défense nationale : http://publications.mil.ca/pod/pubs/pubSearch.jsp?LangType=0

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.

SPECIFICATION FOR CLOTH, COATED, NYLON/POLYURETHANE, 235 G/M^2

SPÉCIFICATION POUR TISSU DE NYLON ENDUIT DE POLYURÉTHANE, 235 g/m^2

1. SCOPE

1.1 Scope. This Manufacturing Data covers the requirements for cloth, nylon, polyurethane coated, 235 g/m^2. Its purpose is for manufacture of the shell for the fragmentation vest, garment reinforcement, and carrier bags.

1.2 Application: The information contained herein is Copyright to Her Majesty the Queen of Canada, as is its associated pattern. The term CADPAT™, with and without extensions, is a registered Trademark belonging to the Department of National Defence. Any of the data contained in this specification, and its associated pattern, may be used only for goods for Canada. The printed textile and any items made therefrom shall be for the sole end use of DND. There shall be no selling or offering for sale of goods incorporating the CADPAT™ pattern and colours to any person or entity other than Canada without the Minister's prior written authorization. Explicit in this is that any goods of not first quality produced shall not be released, sold, or offered for sale, directly or indirectly, to any person or corporation other than Canada without the Minister's prior written authorization.

1. PORTÉE

1.1 Portée. La présente spécification vise les exigences relatives au tissu de nylon enduit de polyuréthane, 235 g/m^2. Ce tissu est utilisé pour la fabrication du tissu extérieur des vestes pare-éclats, des renforts de vêtements et des sacs de transport.

1.2 Application. Les informations contenues dans le présent document, ainsi que le dessin associé, sont la propriété de Sa Majesté la Reine du Canada et protégés par droit d'auteur. Le terme DCamC^{MC}, avec ou sans extension, est une marque déposée, propriété du ministère de la Défense nationale. Les données contenues dans la présente spécification et le modèle associé ne peuvent être utilisés que pour des marchandises produites pour le Canada. Les tissus imprimés et tous les articles fabriqués dans ce tissu sont à l'usage final exclusif du MDN. Nul bien incorporant le motif et les couleurs du DCamC^{MC} ne peut être vendu ni offert à toute personne ou entité autre que le Canada sans l'autorisation préalable écrite du ministre. De façon explicite, tout bien qui n'est pas de première qualité ne peut être distribué, vendu ou offert en vente, directement ou indirectement, à toute personne physique ou morale autre que le Canada sans l'autorisation préalable écrite du ministre.

OPI/BPR: DSSPM / DAPES 2-2

Canada

1.2.1 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 Design Authority, Director Soldier Systems Programme Management, or the Director of Intellectual Property, Department of National Defence, 101 Colonel By Dr., Ottawa, K1A 0K2, Canada.

1.3 Classification. The fabric shall be classified as follows:

Type I	Cloth, Nylon, Polyurethane Coated, 235 g/m^2, CADPAT™ (TW) NSN: 8305-20-002-4731
Type II	Cloth, Nylon, Polyurethane Coated, 235 g/m^2, CADPAT™ (AR) NSN: 8305-20-002-4733
Type III	Cloth, Nylon, Polyurethane Coated, 235 g/m^2, International Orange NSN: 8305-20-002-4734
Type IV	Cloth, Nylon, Polyurethane Coated, 235 g/m^2, Red

2. APPLICABLE DOCUMENTS

2.1 Government Documents. The following publications form part of this Specification to the extent specified herein. The effective dates shall be those in effect on the date of the invitation to tender. Copies of this Specification may be obtained from the Department of National Defence, Ottawa, Ontario, Canada, K1A 0K2, Attention: DSSPM 2.

1.2.1 Les informations, données, formules, algorithmes, logiciels, processus, systèmes, méthodes, dessins, ouvrages, figures, tableaux, croquis, photos, plans, dessins, spécifications, échantillons, rapports, noms, inventions ou idées, de même que le libellé ou le savoir-faire figurant aux présentes (ci-après désignés sous le nom collectif « propriété intellectuelle ») sont la propriété exclusive de Sa Majesté la Reine du Chef du Canada, représentée par le ministre de la Défense nationale (ci-après le « MDN »). Nul n'a le droit de reproduire, divulguer, diffuser ou utiliser, de quelque manière ou sous quelque forme que ce soit, cette propriété intellectuelle, en tout ou en partie, sans le consentement écrit préalable du MDN. Pour de plus amples informations sur les restrictions applicables à cette propriété intellectuelle, ou pour demander le consentement du MDN, veuillez contacter l'autorité responsable de la conception, Directeur – Administration du programme de l'équipement du soldat, ou le Directeur – Propriété intellectuelle, ministère de la Défense nationale, 101, promenade Colonel By, Ottawa, K1A 0K2, Canada.

1.3 Classification. Le tissu doit être classé comme suit:

Type I	Tissu de nylon enduit de polyuréthane, 235 g/m^2, DCamC^{MC} (RBT) NNO: 8305-20-002-4731
Type II	Tissu de nylon enduit de polyuréthane, 235 g/m^2, DCamC^{MC} (RA) NNO: 8305-20-002-4733
Type III	Tissu de nylon enduit de polyuréthane, 235 g/m^2, orangé international NNO: 8305-20-002-4734
Type IV	Tissu de nylon enduit de polyuréthane, 235 g/m^2, rouge

2. DOCUMENTS APPLICABLES

2.1 Documents du gouvernement. Les publications suivantes font partie intégrante de la présente spécification dans la mesure prescrite dans ce dernier. La version en vigueur doit être celle en vigueur à la date de l'appel d'offres. Des copies de la présente spécification peuvent être obtenues du ministère de la Défense nationale, Ottawa (Ontario), Canada K1A 0K2, à l'attention de : DAPES 2.

SPECIFICATIONS

D-LM-008-002/SF-001 Specification for Marking for Storage and Shipment (Appendix 3)

DSSPM 2-2-80-500 Specification for CADPAT™ (TW) [Canadian Disruptive Pattern (Temperate Woodland)]

DSSPM 2-2-80-501 Specification for CADPAT™ (AR) [Canadian Disruptive Pattern (Arid Region)]

2.2 Other Publications. The following documents form part of this Specification to the extent specified herein. Effective dates shall be those in effect on the date of manufacture. Sources are as shown.

CAN/CGSB-4.2 Textile Test Methods
Canadian Government Standards Board
11 Laurier Street
Place du Portage, Phase III
Hull, Quebec, K1A 1G6
Phone: (819) 956-0425 or 1-800-665-CGSB (Canada only)
Fax: (819) 956-5644
Internet address: ncr.cgsb-ongc@pwgsc.gc.ca

FED-STD-101 Federal Standard Test Procedures for Packaging Materials
FED-STD-191 Federal Standard Textile Test Methods
General Services Administration
Specification Activity, Printed Materials Supply Division,
Building 197, Naval Weapons Plant,
Washington, D.C. 20407 USA

AATCC Technical Manual
American Association of Textile Chemists and Colorists (AATCC)
PO Box 12215
Research Triangle Park, North Carolina 27709
USA.

American Society for Testing and Materials (ASTM)
American Association for Testing and Materials (ASTM)

SPÉCIFICATIONS

D-LM-008-002/SF-001 Spécification visant le marquage pour l'entreposage et l'expédition (annexe 3)

DAPES 2-2-80-500 Spécification visant le DCamC^{MC} (RBT) [dessin de camouflage canadien (régions boisées tempérées)]

DAPES 2-2-80-501 Spécification visant le DCamC^{MC} (RA) [dessin de camouflage canadien (régions arides)]

2.2 Autres publications. Les documents suivants font partie intégrante de la présente spécification dans la mesure prescrite par cette dernière. La version en vigueur à la date de fabrication s'applique. La source de diffusion est celle qui est indiquée.

CAN/CGSB-4.2 Méthodes pour épreuves textiles
Office des normes générales du Canada
11, rue Laurier
Place du Portage, Phase III
Gatineau (Québec) K1A 1G6
Téléphone : 819-956-0425 ou 1 800-665-CGSB (Canada seulement)
Télécopieur : 819-956-5644
Courriel : ncr.cgsb-ongc@pwgsc.gc.ca

FED-STD-101 Federal Standard Test Procedures for Packaging Materials
FED-STD-191 Federal Standard Textile Test Methods
General Services Administration
Specification Activity, Printed Materials Supply Division
Building 197, Naval Weapons Plant
Washington, D.C. 20407
ÉTATS-UNIS

AATCC Technical Manual
American Association of Textile Chemists and Colorists (AATCC)
PO Box 12215
Research Triangle Park, North Carolina 27709
ÉTATS-UNIS

American Society for Testing and Materials (ASTM)
American Association for Testing and Materials (ASTM)

100 Barr Harbour Dr
West Conshohocken, PA 19428 USA

ISO – International Standards Organization
Standards Council of Canada
350 Sparks Street, Suite 1200
Ottawa, ON K1P 6N7

2.3 Sealed Patterns. Sealed patterns are made available to the bidders and the contractor(s) as a guide to production. Sealed pattern numbers are:

DSSPM 259-04 Cloth, Nylon, Polyurethane Coated, 235 g/m^2 for construction and hand

DSSPM 259-01 CADPAT™ (TW) (Disruptive Pattern Temperate) for pattern, motif size, colour distribution, clarity and colour guidance

DSSPM 253-02 CADPAT™ (AR) (Disruptive Pattern Arid Region) for pattern, motif size, colour distribution, print quality, strike through, clarity, and uniformity of colour

DCGEM 263-78 Cloth, Nylon, Plain Weave, 5.75 oz/yd^2. For colour International Orange only

DSSPM 262-08 Cloth, Polyester/ Cotton, 50/50. For colour red only.

Under no circumstances are the Sealed Patterns to be mutilated or cut.

2.4 CADPAT™ . The technical requirement is defined in DSSPM 2-2-80-500 for Canadian Disruptive Pattern (Temperate Woodland), and DSSPM 2-2-80-501for Canadian Disruptive Pattern (Arid Region). These include requirements for colour and for Infra-red Reflection.

2.4.1 If information or clarification is required concerning the pattern, its colour or infra-red requirements other than that contained in the specification of DSSPM 2-2-80-500 or DSSPM 2-2-80-501, and sealed patterns, the Design Authority (see para 6.2.1) should be consulted through the Contracting Authority.

100 Barr Harbour Dr
West Conshohocken, PA 19428
ÉTATS-UNIS

ISO Organisation internationale de normalisation
Conseil canadien des normes
350, rue Sparks, pièce 1200
Ottawa (Ontario) K1P 6N7

2.3 Modèles réglementaires. Des modèles réglementaires sont mis à la disposition des soumissionnaires et des entrepreneurs comme guide pour la production. Voici les numéros des modèles réglementaires :

DSSPM 259-04 Tissu de nylon enduit de polyuréthane, 235 g/m² pour la confection et le fini

DSSPM 259-01 DCamC^{MC} (RBT) (dessin de camouflage, régions boisées tempérées) pour le dessin, la taille des motifs, la distribution des couleurs et le guide des couleurs

DSSPM 253-02 DCamC^{MC} (RA) (dessin de camouflage, régions arides) pour le dessin, la taille des motifs, la distribution des couleurs et le guide des couleurs

DCGEM 263-78 Orangé international : tissu de nylon, armure unie, 5,75 oz/v^2. Pour couleur orangé international seulement.

DSSPM 262-08 Tissu du polyester/coton, 50/50. Pour couleur rouge seulement.

En aucune circonstance, les modèles réglementaires ne doivent être endommagés ni coupés.

2.4 DCamC^{MC}. Les exigences techniques sont définies et énoncées dans les documents DAPES 2-2-80-500 visant le dessin de camouflage canadien (régions boisées tempérées) et DAPES 2-2-80-501 visant le dessin de camouflage canadien (régions arides). Ces exigences portent notamment sur la couleur et la réflectance dans l'infrarouge.

2.4.1 Pour obtenir de l'information ou des précisions sur le motif, sa couleur ou la réflectance dans l'infrarouge, autres que ce qui est contenu dans les documents DAPES 2-2-80-500 ou DAPES 2-2-80-501 et les modèles réglementaires, on doit consulter l'autorité responsable de la conception (voir le paragraphe 6.2.1).

2.5 Order of Precedence

2.5.1 In the event of any inconsistency in contract documents such as contract, Specification and sealed patterns, the order of precedence shall be contract, Specification, and sealed pattern.

2.5.2 In the event of inconsistency within this specification, including inconsistency between official languages, the Design Authority shall be consulted for clarification.

2.5.3 Nothing in this document supersedes applicable laws and regulations, unless a specific exemption has been obtained.

2.5 Ordre de préséance.

2.5.1 En cas d'incohérence entre les documents contractuels, soit le contrat, la spécification et les modèles réglementaires, l'ordre de préséance est le suivant : le contrat, la spécification et les modèles réglementaires.

2.5.2 En cas d'incohérence dans l'énoncé de la spécification, y compris dans les détails techniques entre les deux langues officielles, il faut communiquer avec l'autorité responsable de la conception pour obtenir des précisions.

2.5.3 Aucun élément du présent document ne remplace les lois et règlements applicables, à moins qu'une exemption particulière n'ait été obtenue.

3. REQUIREMENTS

3.1 The materials covered by this Specification shall be free of imperfections or blemishes such as may adversely affect its appearance or serviceability. For inspection purposes, imperfections and blemishes shall be considered defects when clearly visible at a normal inspection distance of approximately one metre under good, preferably North Light, lighting conditions. No weaving or yarn defect shall be acceptable if the integrity of the coating is in question. Good commercial standard practices shall apply throughout.

3.2 Sealed Patterns. Sealed patterns, when furnished, shall constitute the standard only in regard to any properties not defined herein, and in association with any notes, which may be included on the reverse side of the sealed pattern tag. It is otherwise provided for guidance purposes.

3.3 Yarns. The yarns for both warp and weft of the base cloth shall be air textured continuous filament nylon 6.6, evenly spun. The yarn shall be 140 filament and 500 denier.

3.4 Fabric. The base cloth shall be plain woven from the yarn specified in para 3.3, and shall be of such construction that the requirements of Table II shall be met after coating and finishing and for delivery.

3.4.1 Base Cloth. The base cloth is to be thoroughly desized and scoured prior to being heat-set. The

3. EXIGENCES

3.1 Le tissu visé par la présente spécification doit être exempt de défauts pouvant nuire à son aspect ou à sa tenue en service. Aux fins d'inspection, sont considérés comme défauts ceux qui sont clairement visibles à une distance d'inspection normale d'environ un mètre sous un bon éclairage, de préférence la lumière du nord. Aucun défaut dans le tissage ou les fils n'est acceptable si l'intégrité de l'enduit est en cause. Les bonnes pratiques commerciales usuelles doivent être constamment appliquées.

3.2 Modèles réglementaires. Les modèles réglementaires, quand ils sont fournis, doivent constituer la norme uniquement en ce qui concerne les propriétés qui ne sont pas définies aux présentes, compte tenu des notes qui peuvent figurer au verso de l'étiquette du modèle réglementaire. Les modèles réglementaires sont par ailleurs fournis à titre indicatif.

3.3 Fils. Les fils de chaîne et de trame du tissu de fond doivent être en nylon 6,6 type 440 à filaments continus texturés à l'air, filés de façon uniforme. Le fil doit contenir 140 filaments, et sa masse linéique nominale doit être de 500 deniers.

3.4 Tissu. Le tissu de fond doit être le tissu à armure unie fabriqué à partir des fils prescrits au paragraphe 3.3, et être fabriqué de telle sorte que les exigences du tableau II doivent être satisfaites après l'enduction et le fini et pour la livraison.

3.4.1 Tissu de fond. Le tissu de fond doit être entièrement désencollé et lavé à fond avant d'être

scoured cloth shall contain no impurity, which may adversely affect the coating process. Table I contains information concerning the base fabric construction.

thermofixé. Le tissu lavé ne doit pas contenir d'impureté qui pourrait altérer le processus d'enduction. Le tableau I contient des informations relatives à la fabrication du tissu de fond.

3.5 Colour. Colour shall be as specified in the procurement documents. It may be required dyed or printed.

3.5 Couleur. La couleur doit être conforme aux prescriptions des documents contractuels. La couleur pourra être obtenue par teinture ou impression, selon les exigences.

3.5.1 When **dyed**, the colour shall be even throughout and shall conform to the colour requirements provided in contractual documents.

3.5.1 Si la couleur est obtenue par **teinture**, elle doit être uniforme et être conforme aux exigences relatives aux couleurs prescrites dans les documents contractuels.

3.5.2 When **printed**, unless otherwise specified in the contract, the print shall be a wet print, using dyes. The pattern and colours shall be as specified in the contract. For all of the CADPAT™ patterns, the visual colours, their colour co-ordinates, tolerances, measurement conditions, and Infra-red Reflection (IRR) requirements shall be as defined by the appropriate technical data at paras 2.3 and 2.4 and as required by contractual documents.

3.5.2 Si la couleur est obtenue par **impression**, sauf indication contraire dans le contrat, l'impression doit être faite au mouillé, en utilisant des colorants. Le motif et les couleurs doivent être conformes aux prescriptions du contrat. Pour tous les patrons DCamC^{MC}, les couleurs visuelles, leurs coordonnées colorimétriques, les tolérances, les conditions de mesure et les exigences relatives à la réflectance dans l'infrarouge (RIR) sont définies par les données techniques appropriées aux paragraphes 2.3 et 2.4 et par les exigences des documents contractuels.

3.5.2.1 In all circumstances, the print shall be clear, clean, with minimal overlap of one colour to the next, show no bleeding, have good dye penetration, and all colours shall be uniform throughout.

3.5.2.1 Dans tous les cas, l'impression doit être claire et nette, avec un minimum de chevauchement des couleurs voisines, sans dégorgement, avec une bonne pénétration des colorants, et toutes les couleurs doivent être uniformes sur l'ensemble du tissu.

3.6 Infra-red Reflection. These requirements must be met both when manufactured and after 5 laundering cycles when laundered in accordance with CAN/CGSB-4.2 Test Method 58 III E.

3.6 Réflectance dans l'infrarouge. Ces exigences doivent être respectées à la fabrication et après cinq cycles de blanchissage quand ceux-ci sont réalisés conformément à la norme CAN/CGSB-4.2, méthode d'essai 58, procédure III. E.

3.6.1 CADPAT™ (TW). The on-going Canadian requirement is to achieve the IRR performance values, ranging from 400 nm to 2000 nm (average green and black), or 730 nm to 2000 nm (light green and brown) as stated in DSSPM 2-2-80-500. Currently, emphasis is being placed in the compulsory regions (which extend to 1350 nm for all colours except black, for which the entire curve forms the mandatory range). Every effort should be made to meet the required curves beyond 1350 nm.

3.6.1 DCamC^{MC} (RBT). Selon les exigences canadiennes actuelles, on doit respecter les valeurs de rendement pour la RIR entre 400 et 2 000 nm (vert moyen et noir), ou entre 730 et 2 000 nm (vert pâle et brun), comme le prescrit le document DAPES 2-2-80-500. Actuellement, on met l'accent sur les zones obligatoires (jusqu'à 1 350 nm pour toutes les couleurs sauf le noir, pour lequel l'ensemble de la courbe représente la gamme obligatoire). On ne devrait ménager aucun effort pour respecter les courbes requises au-delà de 1 350 nm.

3.6.2 CADPAT™ (AR). The on-going Canadian requirement is to achieve the IRR performance values, ranging from 400 nm to 2000 nm as stated in DSSPM 2-

3.6.2 DCamC^{MC} (RA). Selon les exigences canadiennes actuelles, on doit respecter les valeurs de rendement pour la RIR entre 400 et 2 000 nm (vert moyen et noir), comme le prescrit le document DAPES 2-2-80-501.

2-80-501. Currently, emphasis is being placed in the compulsory regions, which are from 700 nm to 1450 nm. Every effort should be made to meet the requirements completely.

Actuellement, on met l'accent sur les zones obligatoires, qui vont de 700 à 1 450 nm. On ne devrait ménager aucun effort pour respecter ces exigences.

3.7 Coating. The woven and printed textile shall be further processed by the application of a coating to the backside only of the goods. The following processes will be acceptable provided that all requirements of this specification are met: calendar coating, cast coating, direct coating, roller coating, and transfer coating, or a combination of any of these processes. The polyurethane elastomer used shall be hydrolysis and mildew resistant. The polyurethane is to be unpigmented (colourless) unless otherwise specified in contract documents. The resultant coating shall be uniform, and free from bubbles, pinholes, thin spots, delamination, or any other coating defects.

3.7 Enduit. Les textiles tissés et imprimés doivent être traités par l'application d'un enduit sur l'envers seulement. Les procédés suivants seront acceptables pourvu que toutes les exigences de la présente spécification soient respectées : enduction par calandrage, enduction par couchage, enduction directe, enduction par laminage et enduction par transfert, ou une combinaison quelconque de ces procédés. L'élastomère de polyuréthane utilisé doit être résistant à l'hydrolyse et à la moisissure. Le polyuréthane doit être sans pigment (incolore), sauf indication contraire dans les documents contractuels. L'enduit qui en résulte doit être uniforme et exempt de bulles, de piqûres, d'endroits minces, de délaminage ou de tout autre défaut.

3.8 Finish. The coated, printed cloth shall be given a durable water repellent finish to comply with the requirements of Table II.

3.8 Fini. Le tissu imprimé et enduit de polyuréthane doit recevoir un traitement hydrofuge durable conforme aux exigences du tableau II.

3.9 Sealed Seams. Articles that will be made from this textile may have sewn seams that require sealing or taping. Therefore, any finish applied to either nylon fabric or polyurethane coating that will impair secure adhesion of sealant or sealing tape shall be avoided.

3.9 Coutures renforcées. Les articles qui seront fabriqués avec ce textile peuvent avoir des coutures qui doivent être collées ou recouvertes d'un biais. Par conséquent, on doit éviter d'utiliser tout fini appliqué au tissu de nylon ou à l'enduit de polyuréthane qui peut nuire à la bonne adhérence de l'adhésif ou du biais.

3.10 Selvedges. Selvedges are to be firm, straight, and not of such thickness as may lead to unacceptable build-up during laying up for end item cutting.

3.10 Lisières. Les lisières doivent être fermes, droites et pas trop épaisses afin d'éviter une accumulation excessive d'épaisseur sur les bords quand le tissu est posé à plat pour la coupe.

3.11 Hand. The hand, drape, and surface texture of the finished coated cloth are to match those of the applicable sealed pattern. These properties must be acceptable for the end item being procured.

3.11 Main. La main, le drapé et la texture de surface du tissu enduit fini doivent correspondre à ceux du modèle réglementaire. Ces propriétés doivent être acceptables pour les articles finaux qui sont achetés.

3.12 Length

3.12 Longueur.

3.12.1 For delivery to the Department of National Defence and unless otherwise specified in contractual documents, the cloth shall be delivered in pieces of approximately 50 metres with no more than two lengths per piece, the shorter of which shall be not less than 20 metres.

3.12.1 Sauf indication contraire dans les documents contractuels, le tissu doit être livré au ministère de la Défense nationale en pièces d'environ 50 m de longueur avec au plus deux longueurs par pièce, dont la plus courte ne doit pas être inférieure à 20 m.

3.12.2 When made under contract to a Defence supplier and not for delivery direct to the Crown, para 3.11.1 above need not apply.

3.12.2 Lorsque le tissu est fabriqué sous contrat pour un fournisseur du MDN et n'est pas livré directement au gouvernement, le paragraphe 3.12.1 ci-dessus ne s'applique pas.

3.13 Width

3.13.1 For delivery to the Department of National Defence and unless otherwise specified in contractual documents, the cloth shall comply with Table II. Minimum width refers to usable width.

3.13.2 When made under contract to a Defence supplier and not for delivery direct to the Crown, para 3.12.1 above need not apply.

3.14 Piece Marking. Each piece shall have a label attached to the selvedge at one end. The label shall be made of linen or heavy cardboard, with a reinforced eyelet for attaching a tying cord, and shall be legibly marked with the following information:

a) Contractor's identification (name or CA number)
b) Contract Number
c) Gross length in metres, including allowance
d) Net length in metres
e) Piece number
f) Number of lengths per piece
g) Nomenclature/Classification (para 1.2)
h) Colour
j) NATO Stock Number
k) Date of manufacture

All of the above information is required when the goods are contracted for and being delivered directly to the Crown. When contracted by a third party with delivery not to the Crown, only a), e), g), h), j), and k) are mandatory. The other information must be readily available to the Crown and/or its contractor if required.

3.13 Largeur.

3.13.1 Sauf indication contraire dans les documents contractuels, le tissu livré au ministère de la Défense nationale doit être conforme au tableau II. La largeur minimale désigne la largeur utile.

3.13.2 Lorsque le tissu est fabriqué sous contrat pour un fournisseur du MDN et n'est pas livré directement à la Couronne, le paragraphe 3.13.1 ci-dessus ne s'applique pas.

3.14 Marquage des pièces. Chaque pièce de tissu livrée doit porter, à une extrémité, une étiquette fixée à la lisière. L'étiquette doit être en toile de lin ou en carton fort et percée d'un œillet renforcé permettant d'attacher une ficelle; elle doit porter les indications suivantes en caractères lisibles :

a) Identification de l'entrepreneur (nom ou numéro CA)
b) Numéro du contrat
c) Longueur brute en mètres, y compris la réserve
d) Longueur nette en mètres
e) Numéro de la pièce
f) Nombre de longueurs par pièce
g) Nomenclature /classification (par. 1.2)
h) Couleur
j) Numéro de nomenclature OTAN
k) Date de fabrication

Tous les renseignements ci-dessus sont requis lorsque les marchandises sont obtenues par contrat et livrés directement au gouvernement. Lorsque les marchandises sont obtenues par contrat par une tierce partie sans être livrées au gouvernement, seuls les éléments a), e), g), h), j) et k) sont obligatoires. Les autres renseignements doivent être facilement accessibles pour le gouvernement et/ou son entrepreneur, le cas échéant.

4. QUALITY CONTROL/INSPECTION

4.1 Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspections and tests as specified herein and to demonstrate that the materiel and services conform to the requirements specified in this Specification. Contractors may utilise their own or any other inspection facility acceptable to the Crown or its designated representative. Contractors may also utilise their own test facilities so long as Crown approval has been obtained in advance and the conditions stated in

4. CONTRÔLE DE LA QUALITÉ/INSPECTION

4.1 Sauf indication contraire dans le contrat ou les documents d'achat, l'entrepreneur est tenu d'effectuer les inspections et les essais mentionnées ci-après afin de démontrer que le matériel et les services sont conformes aux exigences énoncées dans la présente spécification. L'entrepreneur peut utiliser ses propres installations d'inspection ou avoir recours à toute autre installation jugée acceptable par le gouvernement ou son représentant désigné. L'entrepreneur peut également utiliser ses propres installations d'essai, pourvu qu'il ait

ISO quality and manufacturing publications are followed.

obtenu à l'avance l'approbation du gouvernement et que les conditions décrites dans les normes ISO portant sur la confection et la qualité soient respectées.

4.2 The Crown reserves the right to perform any of the inspections or tests specified herein, where such are deemed necessary to ensure the materiel and/or services submitted to the Crown for acceptance meet all requirements of the contract. This applies equally to materiel contracted for delivery directly to the Department of National Defence or as component parts to a supplier with a contract for products for Defence use.

4.2 Le gouvernement se réserve le droit d'effectuer toute vérification ou tout essai jugé nécessaire pour garantir que le matériel et/ou les services qui lui sont présentés pour acceptation sont conformes à toutes les exigences énoncées dans le contrat. Ceci s'applique également au matériel obtenu sous contrat pour être livré directement au ministère de la Défense nationale ou comme composants livrés à un fournisseur dans le cadre d'un contrat pour des produits à des fins militaires.

5. PACKAGING

5.1 Unless otherwise specified, packaging, packing, and marking of shipping containers shall be in accordance with the terms of the contract.

5. CONDITIONNEMENT

5.1 Sauf indication contraire, le conditionnement, l'emballage et le marquage des contenants d'expédition doivent être conformes aux modalités du contrat.

6. NOTES

6.1 Ordering data. Procurement documents should specify the following:

a) title, number and date of this Specification
b) NATO Stock number of required item
c) Nomenclature/Classification (para 1.2)
d) Pre-production requirements
e) Packaging, packing, and marking of shipping containers
f) The Design Authority
g) The Quality Assurance Authority

6. REMARQUES

6.1 Données de commande. Les documents d'achat doivent indiquer les points suivants :

a) Titre, numéro et date de la présente spécification
b) Numéro de nomenclature OTAN des articles requis
c) Nomenclature/classification (par. 1.2)
d) Exigences de présérie
e) Conditionnement, emballage et marquage des contenants d'expédition
f) Autorité responsable de la conception
g) Autorité responsable de l'assurance de la qualité

6.2 Definition of terms

6.2.1 Design Authority. The Design Authority is the Government agency responsible for the technical aspects of the design and for changes to the design. The Design Authority for this requirement is the Directorate of Soldier Systems Programme Management (DSSPM), Department of National Defence.

6.2.2 Quality Assurance Authority. The Quality Assurance Authority is the Government agency responsible for providing assurance the materiel and services supplied by the contractor are in accordance with the terms of the contract. The Quality Assurance

6.2 Définition des termes.

6.2.1 Autorité responsable de la conception. L'autorité responsable de la conception est l'organisme gouvernemental chargé des aspects techniques de la conception et des modifications connexes. Dans le cas des articles visés par la présente spécification, il s'agit de la Direction, Administration du programme de l'équipement du soldat (DAPES).

6.2.2 Autorité responsable de l'assurance de la qualité. L'autorité responsable de l'assurance de la qualité est l'organisme gouvernemental chargé d'assurer que le matériel et les services fournis par l'entrepreneur satisfont aux modalités du contrat. L'autorité

Authority is the Directorate of Quality Assurance (DQA), Department of National Defence.

responsable de l'assurance de la qualité est la Direction de l'assurance de la qualité (DAQ) du ministère de la Défense nationale.

6.2.3 Sealed pattern. The sealed pattern is a duplicate of the master sealed pattern which is the Department of National Defence's authorized prototype of the item to be produced. Sealed patterns are available for the contractor to use as a *conceptual example for production*. Contractors should note that sealed patterns may not incorporate all the details cited in this Specification and the order of precedence prevails (see para 2.5).

6.2.3 Modèle réglementaire. Copie exacte du modèle réglementaire type, qui est le prototype autorisé par le ministère de la Défense nationale pour l'article qui doit être fabriqué. Les modèles réglementaires sont mis à la disposition de l'entrepreneur comme *exemples conceptuels pour la production*. Les entrepreneurs devraient prendre note que les modèles réglementaires n'incorporent pas nécessairement tous les détails mentionnés dans la présente spécification et l'ordre de préséance mentionné au paragraphe 2.5 prévaut.

6.2.4 Specification Copies. Copies of this Specification are available from the Department of National Defence, Directorate of Soldier Systems, Ottawa, Ontario, K1A 0K2, Attention: DSSPM 2-2/DSSPM 2-11.

6.2.4 Copies de la spécification. Des copies de la présente spécification peuvent être obtenues auprès du ministère de la Défense nationale, Direction de l'administration du programme de l'équipement du soldat, Ottawa (Ontario), K1A 0K2, à l'attention de : DAPES 2-2/DAPES 2-11.

6.3 The production of a product to this specification, or the evaluation of a product to this specification, may require the use of materials and/or equipment that could be hazardous. This specification does not purport to address all safety, health and environmental concerns, if any associated with its use. It is the responsibility of the user of this specification to establish appropriate safety, health and environmental practices and to determine the applicability of regulatory limitations prior to use.

6.3 La fabrication ou l'évaluation d'un produit conformément à la présente spécification pourrait nécessiter l'utilisation de matériel ou d'équipement dangereux. La présente spécification n'a pas pour objet de traiter de toutes les préoccupations relatives à la santé, à la sécurité et à l'environnement liées à son utilisation. Il incombe à l'utilisateur de la spécification d'établir au préalable des méthodes appropriées qui tiennent compte des questions d'environnement, de santé et de sécurité, et de déterminer les restrictions réglementaires applicables.

TABLE I
Requirements for Base (Greige) Cloth
500 denier nylon

Test #	PROPERTY	TEST METHOD	SPECIFIED REQUIREMENTS	MINIMUM ACCEPTABLE	MAXIMUM ACCEPTABLE
1	Fibre content	14.3*	100% nylon 6,6 air textured filament		
2	Mass (g/m^2)	5.1*	190	180	200
3	Linear density of yarns (denier)	5.1*	500 warp and weft	490 warp and weft	515 warp and weft
4	Breaking Strength N	9.1*	warp: 2250 weft: 1450	warp: 2100 weft: 1400	
5	Tear Strength N	12.1*	warp: 120 weft: 100	warp: 110 weft: 90	
6	Woven Count yarns/cm	6*	warp: 19 weft: 14	warp: 18 weft: 13	warp: 21 weft: 16

* CAN/CGSB-4.2 Textile Test Methods

Note that the information in Table I is provided for guidance purposes. **ALL** requirements for the finished cloth as described by Table II must be met.

TABLE II
Requirements for Finished Coated Fabric, 500 denier nylon

Test #	PROPERTY	TEST METHOD	SPECIFIED REQUIREMENTS	MINIMUM ACCEPTABLE	MAXIMUM ACCEPTABLE
1	Mass - finished	5.1*	235 g/m^2		290 g/m^2
2	Width (cm) (excluding selvedge)	4.1*	152 cm	150 cm	154 cm
3	Woven Count (yarns per cm)	6*		warp: 18 weft: 13	warp: 21 weft: 16
4	Breaking Strength (N/2.54 cm)	9.1* (Test 6.1)	warp: 1100 N weft: 850 N	warp: 1000 N weft: 800 N	
5	Tear strength (N)	12.1*	warp: 100 N weft: 80 N	warp: 70 N weft: 50 N	
6	Puncture Resistance (N)	2065.1 **	525 N	475 N	
7	Coating Adhesion (N/25 mm)	D 751 ***** **See Note 1**		Warp: 40 Weft: 40	
8	Colour fastness to light - all colours	16***** (Option E)		Sample Grey Scale 4 after 20 AATCC fading units	
9	Colour fastness to crocking – each colour dry wet	116 ****	 Colour change GS 5 Staining GS 5 Colour change GS 5 Staining GS 5		 Colour change GS 4 Staining GS 4 Colour change GS 4 Staining GS 4
10	Colour fastness to laundering - all colours	19.1* Test 2	Colour change GS 5 Staining GS 5		Colour change GS 4 Staining GS 4
11	Colour fastness to perspiration – all colours	23*	Colour change GS 5 Staining GS 5		Colour change GS 4 Staining GS 4
12	Dimensional stability in laundering - after 3 washes **See Note 2**	24.2* or 58* Test III.E.3 (50^{0}C, normal agitation, tumble dry)			 warp 2.5% weft 2%

Test #	PROPERTY	TEST METHOD	SPECIFIED REQUIREMENTS	MINIMUM ACCEPTABLE	MAXIMUM ACCEPTABLE
13	Stiffness ($gf.cm^2/cm$)	Kawabata Evaluation System Bending property (B Mean) Sensitivity: 5x1 Specimen width: 10cm **See Note 3**			Maximum for each direction: Length: 2.2 Width: 1.2 Sum of Length + Width, Max: 3.0
14	Resistance to abrasion Face Followed by Back Followed by	D3886 *****(modified): abradant is the face surface of the fabric under test. fabric face abraded for 10,000 cycles (using **NEW** set of the specimens) hydrostatic resistance, 26.3*/ISO 811*** fabric back abraded for 10,000 cycles (using **NEW** set of the specimens) hydrostatic resistance 26.3*/ISO811***		Face: 80 cm Back: 40 cm	
15	Water Repellency -after 3 washes **See Note 2**	26.2*/ ISO *** 4920:1981		90	
16	Oil Repellency - after 3 washes **See Note 2**	118 ****	Rating 4 for all colours	rating 3 for all colours	
17	Resistance to fungal growth	28.2*			10%
18	Blocking	5872 ******	No blocking		
19	Hydrostatic Resistance (cm) As received	26.3* / ISO *** 811 (60 cm/min)		200cm	
	After 3 washes **See Note 2**	58* III E		20 cm	
	After ageing (70°C & 95% RH for 24 hours)			100 cm	

Test #	PROPERTY	TEST METHOD	SPECIFIED REQUIREMENTS	MINIMUM ACCEPTABLE	MAXIMUM ACCEPTABLE
20	Chemical Resistance - degreasers, cleaning agent (methyl ethyl ketone 99.8% assay) -insect repellent (DEET) liquid in accordance with CAN/CGSB-15.19 (75%) - insect repellent (DEET) cream, 32% - turbine fuel in accordance with CAN/CGSB-3.23 - diesel fuel in accordance with CAN/CGSB-3.6 type A	**See Note 4** for chemical exposure test method. Following exposure test: Hydrostatic Resistance 26.3*/ISO *** 811		200 cm, no individual result less than 125 cm	
21	Gloss rating Of coating (unit) Cloth dry 20° angle 60° angle 85 ° angle	D523 *****	 <1.5 <1.5 <1.5		 2.0 2.0 2.0

***** CAN/CGSB-4.2 Canadian General Standards Board Textile Test Methods
** FED-STD-101 Federal Standard Test Procedures for Packaging Materials
*** ISO International Standards Organization
******** AATCC American Association of Textile Chemists and Colorists Technical Manual
********* ASTM American Society for Testing and Materials
********** FED-STD-191 Textile Test Methods

Note 1: Adhesive "Loctite" 420, available from Acklands-Granger Inc., has been known to provide a good separation and consistent result.

For the purpose of this specification, 'separation' shall be interpreted as the separation of coating from substrate, between layers of coating, of the adhesive itself, or a combination of these. A satisfied separation may be either complete or partial, and the test result must be equal to or greater than the minimum requirement.

For the purpose of this specification, test shall be carried out by compressing the specimen with a 4.5 kg mass between two glass plates and curing specimens for one hour.

Note 2: Washing shall be carried out in accordance with CAN/CGSB-4.2 No. 58, washing procedure III (50^0C, synthetic detergent, normal agitation) and Drying procedure E (tumble dry, normal setting). **The last wash cycle is to be carried out *without* detergent.**

Note 3: The Kawabata bending test is to be carried out on NEW fabric. A new roll or bolt of fabric shall be submitted to the laboratory. The laboratory shall cut test specimens from fabric taken directly from the new roll or bolt. *It is imperative that the new fabric and the test specimens be handled as little as possible prior to conducting the Kawabata bending test.*

References for test procedure:

i. Kawabata, S (1980) The Standardisation and Analysis of Hand Evaluation (2nd Edition), Chapter IV. Measurement of the Mechanical Properties of Fabrics, para2.2 Bending property; and

ii. KES Kato Tech Co. Ltd, Manual for Tensile & Shear Tester, KES-FB-1

Note 4: Test Procedure for Chemical Resistance

1. Fabric samples of sufficient size and quantity to carry out the following tests will be prepared. Five new specimens from each sample shall be tested separately to each chemical. The chemicals shall be placed on the side of the fabric that is intended to be the outer face side.

2. For liquid chemicals, a quantity of 100 ml/m^2 of the test liquid shall be placed on the top of the test fabric and spread as evenly as possible over the whole surface using a plastic squeegee. As much as possible of the test fabric should be covered with chemical, but leaving a border of one (1) cm width uncontaminated. This should ensure that none of the applied chemical seeps outside the weight, after it is applied.

3. For the non-liquid cream, a quantity of 50 g/m^2 of the chemical shall be placed on the top of the test fabric and spread as evenly as possible over the whole surface using a plastic squeegee. A border of one (1) cm width shall be left uncontaminated.

4. The whole test area shall then be covered with a glass plate and weighted to a total pressure of 6.895 kPa (1 psi).

5. This weighted cover shall be left in place for two (2) hours.

6. The fabric shall then be submitted to hydrostatic resistance testing, and must comply with the requirements in Table II. All five (5) specimens must pass. **Note that the side of the fabric that was exposed to the chemical will be facing the water in testing.**

TABLEAU I
Exigences relatives au tissu de base (écru), nylon de 500 deniers

ESSAI n°	PROPRIÉTÉ	MÉTHODE D'ESSAI	EXIGENCE	MINIMUM ACCEPTABLE	MAXIMUM ACCEPTABLE
1	Teneur en fibres	14.3*	100 % nylon 6,6 Filament texturé à l'air		
2	Masse (g/m²)	5.1*	190	180	200
3	Masse linéique des fils (denier)	5.1*	500 Chaîne et trame	490 Chaîne et trame	515 Chaîne et trame
4	Résistance à la rupture (N)	9.1*	Chaîne : 2250 Trame : 1450	Chaîne : 2100 Trame : 1400	
5	Résistance au déchirement (N)	12.1*	Chaîne : 120 Trame : 100	Chaîne : 110 Trame : 90	
6	Contexture (fils/cm)	6*	Chaîne : 19 Trame : 14	Chaîne : 18 Trame : 13	Chaîne : 21 Trame : 16

* CAN/CGSB-4.2 Méthodes pour épreuves textiles

Veuillez prendre note que les informations du tableau I sont fournies à titre indicatif seulement. **TOUTES** les exigences relatives au tissu fini décrites dans le tableau II doivent être respectées.

TABLEAU II
Exigences relatives au tissu fini (enduit), nylon de 500 deniers

ESSAI n°	PROPRIÉTÉ	MÉTHODE D'ESSAI	EXIGENCE	MINIMUM ACCEPTABLE	MAXIMUM ACCEPTABLE
1	Masse - tissu fini	5.1*	235 g/m^2		290 g/m^2
2	Largeur (cm) (lisières non comprises)	4.1*	152 cm	150 cm	154 cm
3	Contexture (fils par cm)	6*		Chaîne : 18 Trame : 13	Chaîne : 21 Trame : 16
4	Résistance à la rupture (N/2,54 cm)	9.1* (Essai 6.1)	Chaîne : 1 100 N Trame : 850 N	Chaîne : 1 000 N Trame : 800 N	
5	Résistance au déchirement (N)	12.1*	Chaîne : 100 N Trame : 80 N	Chaîne : 70 N Trame : 50 N	
6	Résistance à la perforation (N)	2065.1 **	525 N	475 N	
7	Adhérence de l'enduit (N/25 mm)	D 751 ***** **Voir la note 1**		Chaîne : 40 Trame : 40	
8	Solidité de la couleur à la lumière – toutes les couleurs	18.3* /ISO *** 105-B02 :1994 (Essai 1)		Étalon L5 changement de couleur du spécimen échelle de gris 3	
9	Solidité de la couleur au frottement (dégorgement) (toutes les couleurs) sec mouillé	116 ****	Changement de couleur : échelle de gris 5 Tachage échelle de gris 5 Changement de couleur : échelle de gris 5 Tachage échelle de gris 5		Changement de couleur : échelle de gris 4 Tachage échelle de gris 4 Changement de couleur : échelle de gris 4 Tachage échelle de gris 4
10	Solidité de la couleur au lessivage – toutes les couleurs	19.1* Essai 2	Changement de couleur : échelle de gris 5 Tachage échelle de gris 5		Changement de couleur : échelle de gris 4 Tachage échelle de gris 4
11	Solidité de la couleur à la sueur – toutes les couleurs	23*	Changement de couleur : échelle de gris 5 Tachage échelle de gris 5		Changement de couleur : échelle de gris 4 Tachage échelle de gris 4

ESSAI n°	PROPRIÉTÉ	MÉTHODE D'ESSAI	EXIGENCE	MINIMUM ACCEPTABLE	MAXIMUM ACCEPTABLE
12	Stabilité dimensionnelle au blanchissage – après 3 lavages **Voir note 2**	24.2* or 58* Essai III.E.3 (50 °C, agitation normale, séchage par culbutage)			Chaîne : 2,5 % Trame : 2,0 %
13	Rigidité ($gf.cm^2/cm$)	Système d'évaluation de Kawabata Propriété de pliage (moyenne B) Sensibilité : 5 x 1 Largeur du spécimen : 10 cm **Voir note 1**			Maximum pour chaque direction : Longueur : 2,2 Largeur : 1,2 La somme de Longuer plus Largeur, Max: 3.0
14	Résistance à l'abrasion Endroit Suivi de Envers Suivi de	D3886 *****(modifiée) : L'abrasif est l'endroit du tissu soumis à l'essai. L'endroit est soumis à 10 000 cycles d'abrasion (avec une **NOUVELLE** série de spécimens) Essai de pénétration d'eau à haute pression 26.3*/ISO 811**** L'envers est soumis à 10 000 cycles d'abrasion (avec une **NOUVELLE** série de spécimens) Essai de pénétration d'eau à haute pression 26.3*/ISO 811***		Envers : 80 cm Endroit : 40 cm	
15	Déperlance -après 3 lavages **Voir note 2**	26.2*/ ISO *** 4920 :1981		90	
16	Oléofugation - après 3 lavages **Voir note 2**	118 ****	Étalon 4 pour toutes les couleurs	Étalon 3 pour toutes les couleurs	
17	Résistance aux micro-organismes	28.2*			10 %
18	Blocage	5872 ******	Pas de blocage		
19	Essai de pénétration d'eau à haute pression (cm) À la réception	26.3* / ISO *** 811 (60 cm/min)		200 cm	
	après 3 lavages **Voir note 4**	58* III E		20 cm	
	Après vieillissement (70 °C et 95 % HR pendant 24 heures)			100 cm	

ESSAI n°	PROPRIÉTÉ	MÉTHODE D'ESSAI	EXIGENCE	MINIMUM ACCEPTABLE	MAXIMUM ACCEPTABLE
20	Résistance aux substances chimiques - dégraisseurs, agent de nettoyage (essai au méthyléthylcétone 99,8 %) -insectifuge (DEET) liquide conformément à la norme CAN/CGSB-15.19, 75 % - insectifuge (DEET) en crème, 32 % - carburéacteur, conformément à la norme CAN/CGSB 3.23 - carburant diesel, conformément à norme CAN/CGSB 3.6, type A	**Voir note 3** pour la méthode d'essai de l'exposition aux subsistances chimiques. Après l'exposition : Essai de pénétration d'eau à haute pression 26.3*/ISO *** 811		200 cm aucun résultat individuel < 125 cm	
21	Cote de lustre de l'enduit (unité) Tissu sec Angle de 20° Angle de 60° Angle de 85°	D523 *****	< 1,5 < 1,5 < 1,5		2,0 2,0 2,0

***** CAN/CGSB-4.2 Méthodes pour épreuves textiles
** FED-STD-101 Federal Standard Test Procedures for Packaging Materials
*** ISO Organisation internationale de normalisation
******** AATCC American Association of Textile Chemists and Colorists Technical Manual
********* ASTM American Society for Testing and Materials
********** FED-STD-191 Textile Test Methods

Note 1: L'adhésif « Loctite » 420, de la société Acklands-Granger Inc., est reconnu pour assurer une bonne séparation et donner des résultats uniformes.

Aux fins de la présente spécification, le terme « séparation » désigne la séparation de l'enduit par rapport au substrat, entre les couches d'enduit ou de l'adhésif lui-même, ou une combinaison de ces processus. Une séparation satisfaisante peut être totale ou partielle, et le résultat de l'essai doit être égal ou supérieur à l'exigence minimale.

Pour l'essai réalisé conformément à la présente spécification, le spécimen doit être placé sous une charge de 4,5 kg entre deux plaques de verre et on doit le laisser sécher pendant une heure.

Note 2: Le lavage doit être effectué conformément à la norme CAN/CGSB-4.2 n° 58, procédure de lavage III (50 °C, agitation mécanique modérée, détergent synthétique), et procédure de séchage E (séchage en machine à tambour sans chaleur). **Le dernier cycle de lavage doit être fait *sans* détergent**

Note 3: L'essai de flexion Kawabata doit être effectué sur du tissu NEUF. Un rouleau ou une pièce de tissu neuf doit être soumis au laboratoire. Le laboratoire doit couper les spécimens directement dans le tissu provenant d'un rouleau ou d'une pièce de tissu neuf. *Il est impératif que le tissu neuf et les spécimens soient manipulés le moins possible avant de procéder à l'essai de flexion Kawabata*.
Références pour la procédure d'essai :
i. Kawabata, S (1980) The Standardisation and Analysis of Hand Evaluation (2nd Edition), Chapter IV. Measurement of the Mechanical Properties of Fabrics, para2.2 Bending Propriété;
ii. KES Kato Tech Co. Ltd, Manual for Tensile & Shear Tester, KES-FB-1

Note 4: Procédure d'essai de résistance aux substances chimiques

1. On doit préparer un échantillon du tissu de dimensions et en quantité suffisantes pour réaliser les essais suivants. Cinq nouveaux spécimens provenant de chaque échantillon doivent faire l'objet d'un essai distinct pour chaque substance chimique. Les substances chimiques doivent être placées sur le côté du tissu qui est le côté extérieur selon le fabricant.

2. Pour les substances chimiques liquides, une quantité de 100 mL/m² du liquide d'essai doit être versée au haut du tissu testé et répartie aussi uniformément que possible sur toute la surface à l'aide d'une raclette en plastique. Une surface du tissu aussi grande que possible devrait être recouverte par la substance chimique, mais on doit laisser une lisière non contaminée de 1 cm de largeur. On s'assurera ainsi que la substance chimique ne suinte pas hors du tissu, une fois la pression appliquée.

3. Pour les crèmes non liquides, une quantité de 50 g/m² de la substance chimique doit être versée sur le dessus du tissu testé et répartie aussi uniformément que possible sur toute la surface à l'aide d'une raclette en plastique. On doit laisser une lisière non contaminée de 1 cm de largeur.

4. Toute la zone d'essai doit ensuite être recouverte d'une plaque de verre et comprimée sous une pression totale de 6,895 kPa (1 lb/po²).

5. Ce montage sous pression doit être laissé en place pour deux (2) heures.

6. Le tissu est ensuite soumis à des essais de pénétration d'eau à haute pression et doit satisfaire aux exigences du tableau II. Les cinq spécimens doivent réussir l'essai. **Veuillez prendre note que la face du tissu qui a été exposée aux substances chimiques doit être contre l'eau pendant l'essai.**

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 must continue to apply.

AVIS

Le présent document a été révisé par l'autorité technique et ne contient pas de dispositions visant des marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues initialement doivent continuer de s'appliquer.

SPECIFICATION FOR CADPAT™ (CANADIAN DISRUPTIVE PATTERN)

1. SCOPE

1.1. This specification defines the technical performance requirements for Canadian Disruptive Pattern (CADPAT™) colours and patterns for Temperate Woodland (TW), Arid (AR), and Winter Operations (WO) regions. This specification is to be used for the technical requirements, production, and evaluation of materiel in CADPAT™ and CADPAT™ colours for the Canadian Armed Forces.

1.2. The information contained herein is Copyright to Her Majesty the Queen of Canada, as is its associated pattern. The term CADPAT™, with and without extensions, is a registered Trademark belonging to the Department of National Defence. Any of the data contained in this specification, and its associated pattern, may be used only for goods for Canada. The printed textile and any items made therefrom must be for the sole end use of DND. There must be no selling or offering for sale of goods incorporating the CADPAT™ pattern and colours to any person or entity other than Canada without the Minister's prior written authorization. Explicit in this is that any goods of not first quality produced must not be released, sold, or offered for sale, directly or indirectly, to any person or

SPÉCIFICATION DCamC^MC (DESSIN DE CAMOUFLAGE CANADIEN)

1. PORTÉE

1.1. La présente spécification définit les exigences de rendement technique relatives aux couleurs et aux motifs du dessin de camouflage canadien (DCamC^MC) pour régions boisées tempérées (RBT), pour régions arides (RA) et pour l'hiver/arctique (H/A). Elle est destinée à être utilisée pour les exigences techniques, la production et l'évaluation du tissu aux motifs et aux couleurs du DCamC^MC à l'intention des Forces armées canadiennes.

1.2. L'information contenue dans le présent document, ainsi que le motif connexe, sont la propriété de Sa Majesté la Reine du Canada et sont protégés par droits d'auteur. Le terme DCamC^MC, avec ou sans extension, est une marque déposée, propriété du ministère de la Défense nationale. Les données contenues dans la présente spécification et le motif associé ne peuvent être utilisés que pour des marchandises produites pour le Canada. Les tissus imprimés et tous les articles fabriqués dans ce tissu sont à l'usage final exclusif du MDN. Nul bien incorporant le motif et les couleurs du DCamC^MC ne peut être vendu ni offert à toute personne ou entité autre que le Canada sans l'autorisation préalable écrite du ministre. De façon explicite, tout bien qui n'est pas de première qualité ne peut être distribué, vendu ou offert à la vente, directement ou

corporation other than Canada without the Minister's prior written authorization.

1.3. 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 Design Authority.

2. APPLICABLE REFERNCES

2.1. Government Documents.

2.1.1. Copies of this specification may be obtained from the Department of National Defence, Ottawa, Ontario, Canada, K1A 0K2, Attention: DSSPM 3-7.

2.2. Other Publications.

2.2.1. The following documents form part of this Specification to the extent specified herein. Effective dates must be those in effect on the date of manufacture.

ASTM E308	Standard Practice for Computing the Colors of Objects by Using the CIE System
ASTM D523	Standard Test Method for Specular Gloss
ISO 105-B02	Textiles – Tests for colour fastness – Part B02: Colour fastness to artificial light: Xenon arc fading lamp test
ISO 105-J03	Textiles – Tests for colour fastness – Part J03L Calculation of colour differences

indirectement, à toute personne physique ou morale autre que le Canada sans l’autorisation préalable écrite du ministre.

1.3. Les renseignements, données, formules, algorithmes, logiciels, processus, systèmes, méthodes, dessins, ouvrages, figures, tableaux, croquis, photos, plans, dessins, spécifications, échantillons, rapports, noms, inventions ou idées, de même que le libellé ou le savoir-faire figurant aux présentes (ci-après désignés sous le nom collectif « propriété intellectuelle ») sont la propriété exclusive de Sa Majesté la Reine du Chef du Canada, représentée par le ministre de la Défense nationale (ci-après le « MDN »). Nul n’a le droit de reproduire, divulguer, diffuser ou utiliser, de quelque manière ou sous quelque forme que ce soit, cette propriété intellectuelle, en tout ou en partie, sans le consentement écrit préalable du MDN. Pour de plus amples informations sur les restrictions applicables à cette propriété intellectuelle, ou pour demander le consentement du MDN, veuillez contacter l’autorité responsable de la conception.

2. DOCUMENTS APPLICABLES

2.1. Documents du gouvernement

2.1.1. Des copies de la présente spécification peuvent être obtenues auprès du ministère de la Défense nationale, Ottawa (Ontario), Canada, K1A 0K2, à l’attention de : DAPES 3-7.

2.2. Autres publications

2.2.1. Les documents suivants font partie intégrante de la présente spécification dans la mesure prescrite par cette dernière. La version en vigueur à la date de fabrication s’applique.

ASTM E308	Standard Practice for Computing the Colors of Objects by Using the CIE System
ASTM D523	Standard Test Method for Specular Gloss
ISO 105-B02	Textiles – Essais de solidité des coloris – Partie B02 : Solidité des coloris à la lumière artificielle : Lampe à arc au xénon
ISO 105-J03	Textiles – Essais de solidité des teintures – Partie J03 : Calcul des écarts de couleur

2.3. **Order of Precedence.**

2.3.1. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification must take precedence.

2.3.2. In the event of inconsistency within the specification, the Design Authority must be contacted for clarification.

2.3.3. For any inconsistency in technical details between languages, the language of the original document, which in this case is English, must take precedence.

2.3.4. Any deviation(s) from the requirements outlined in this specification, will be outlined in the materiel specification.

2.3. **Ordre de préséance**

2.3.1. En cas de divergence entre les documents mentionnés aux présentes et le contenu de la présente spécification, cette dernière a préséance.

2.3.2. En cas d'incohérence dans l'énoncé de la spécification, il faut communiquer avec l'autorité responsable de la conception pour obtenir des précisions.

2.3.3. En cas d'incohérence dans les détails techniques, entre les deux langues, la langue du document d'origine, dans ce cas-ci l'anglais, a préséance.

2.3.4. Tout écart par rapport aux exigences prescrites dans la présente spécification sera indiqué dans les spécifications du tissu.

3. REQUIREMENTS

3.1. **CADPAT™ Pattern.**

3.1.1. CADPAT™ posters are available, by request, from the Design Authority , as a guide for production when a CADPAT™ pattern is required. The CADPAT™ poster reflects the design, pattern, motifs, repeat, and clarity that are required for all CADPAT™ printing.

3.1.2. The CADPAT™ posters are available as hardcopy and electronically in Portable Document Format (PDF) and Adobe Illustrator Artwork (AI) formats.

3.1.3. The scale of pattern on the samples, see section 4 below, supplied by the Bidder or Contractor must be within 10% of the scale of the CADPAT™ posters. The distance between all points on the screen must be within 10% of the distance between the same points on the full scale poster.

3.1.3.1. The scale of pattern measurement will be performed by the Design Authority upon request by the Technical Authority (TA).

3.1.4. The CADPAT™ patterns on the samples, see section 4 below, supplied by the Bidder or Contractor must be free from imperfections or blemishes which may adversely affect its appearance or serviceability. For inspection purposes, imperfections and blemishes must be

3. EXIGENCES

3.1. **Motif DCamC℠**

3.1.1. Des affiches du DCamC℠ sont disponibles, sur demande, auprès de l'autorité responsable de la conception, et serviront de guide pour la production lorsqu'un motif DCamC℠ est requis. L'affiche du DCamC℠ reflète la conception, le dessin, les motifs, les répétitions et la clarté requis pour l'impression du DCamC℠.

3.1.2. Les affiches du DCamC℠ sont disponibles en format papier et en format électronique, soit en format de document portable (PDF) et en Adobe Illustrator Artwork (AI).

3.1.3. L'échelle du motif sur les échantillons (voir l'article 4 ci-dessous) fournis par le soumissionnaire ou l'entrepreneur doit être inférieure ou égale à 10 % de l'échelle des affiches du DCamC℠. La distance entre tous les points de l'écran doit se situer dans les 10 % de la distance entre les mêmes points sur l'affiche pleine échelle.

3.1.3.1. À la demande du responsable technique, l'autorité responsable de la conception mesurera l'échelle du motif.

3.1.4. Les motifs du DCamC℠ sur les échantillons (voir l'article 4 ci-dessous) fournis par le soumissionnaire ou l'entrepreneur doivent être exempts d'imperfections ou de défauts qui pourraient nuire à son aspect ou à sa tenue en service. À des fins d'inspection, sont considérés

considered defects when clearly visible at a normal inspection distance of approximately one metre under North Light lighting conditions.

comme des défauts ceux qui sont clairement visibles à une distance normale d'environ un mètre sous un bon éclairage (lumière du jour provenant du nord).

3.2. **Visible Colour.**

3.2. **Couleurs visibles**

3.2.1. Visible colours must be measured in accordance with ASTM E308-08 as specified in Table I.

3.2.1. Les couleurs visibles doivent être mesurées conformément à la norme ASTM E308-08, comme il est indiqué dans le tableau I.

3.2.2. All textile samples used for measurement must be constructed of 4 randomly aligned layers of monochromatic material on a black matte background.

3.2.2. Tous les échantillons de tissu utilisés pour les mesures doivent être constitués de quatre (4) épaisseurs de tissu monochrome alignées de façon aléatoire sur un fond noir mat.

3.2.2.1. Colour difference must be measured in accordance with ISO 105-J03 using $\Delta E_{cmc}(l:c)$ colour difference formulas with parametric factors lightness, $l = 2$, and chromaticity, $c = 1$.

3.2.2.1. La différence de couleur doit être mesurée conformément à la norme ISO 105-J03, à l'aide de la formule $\Delta E_{cmc}(l:c)$, où la clarté des facteurs paramétriques est $l = 2$, et la chromaticité, $c = 1$.

3.2.2.2. Each colour must meet the ΔE_{cmc} tolerance requirements specified in Table I.

3.2.2.2. Chaque couleur doit satisfaire aux exigences et aux tolérances ΔE_{cmc} indiquées au tableau I.

3.3. **Near Infrared and Ultraviolet.**

3.3. **Proche infrarouge et ultraviolet**

3.3.1. Near infrared and ultraviolet measurements are to be made using a testing apparatus as specified in Table I.

3.3.1. Les mesures du proche infrarouge et du rayonnement ultraviolet doivent être effectuées avec l'appareil d'essai spécifié au tableau I.

3.3.2. All textile samples used for measurement must be constructed of 4 randomly aligned layers of monochromatic material on a black matte background.

3.3.2. Tous les échantillons de tissu utilisés pour les mesures doivent être constitués de quatre (4) épaisseurs de tissu monochrome alignées de façon aléatoire sur un fond noir mat.

3.3.3. For each colour, the required reflectance values are provided in Tables I, II, and III. The measured values must be no less than the minimum and no greater than the maximum allowable reflectance values for all specified wavelengths in these tables. Measurements are required every 50nm.

3.3.3. Les valeurs de réflectance requises pour chaque couleur sont fournies aux tableaux I, II et III. Les valeurs mesurées ne doivent pas être inférieures à la valeur minimale ni supérieures à la valeur maximale permise pour toutes les longueurs d'onde spécifiées dans ces tableaux. Les mesures doivent être prises tous les 50 nm.

3.4. **Gloss.**

3.4. **Brillant**

3.4.1. Specular gloss must be measured in accordance with ASTM D523 using 85º geometry.

3.4.1. Le brillant spéculaire doit être mesuré conformément à la norme ASTM D523, à l'aide d'une géométrie de 85º.

3.4.2. All colours must be matte. For each colour, spectral gloss measurements must be no greater than the maximum values specified in Table I.

3.4.2. Toutes les couleurs doivent être mates. Pour chaque couleur, les mesures du brillant spéculaire ne doivent pas dépasser les valeurs maximales indiquées au tableau I.

3.5. **Colour Fastness to Light.**

3.5.1. Colour fastness must be measured in accordance with ISO 105-B02:2014 as specified in Table I.

3.5.2. All colours must achieve a colour fastness rating of 6 or better.

3.6. **Print Quality.** (for textile materials)

3.6.1. Textiles should be dyed prior to printing. Dyeing and printing operations must be carried out with dyes (i.e. pigments must not be used). The class(es) of dyestuff(s) used must be appropriate for the fibre content of the fabric.

3.6.2. All component fibres in the textile must be completely penetrated with overall print quality, including colour penetration (i.e. the overall colouring of the opposite side of the printed textile), uniformity of each colour, clarity, definition, and evenness indicative of a good print.

3.6.3. Textile materials must have no finish applied to obtain temporary colour or temporary near infrared reflectance (NIRR) compliance.

4. TESTING

4.1. **General.**

4.1.1. The Bidder and Contractor is responsible for all testing as specified herein and to demonstrate that the materiel conforms to all the requirements outlined in this Specification.

4.1.2. The Crown reserves the right to perform any of the inspections or tests specified herein, where such are deemed necessary to ensure the materiel submitted to the Crown for acceptance meets all requirements of the contract. This applies equally to materiel contracted for delivery directly to the Department of National Defence or as component parts to a supplier with a contract for products for Defence use.

4.1.3. All submitted samples will remain property of the Crown following submission.

3.5. **Solidité de la couleur à la lumière**

3.5.1. La solidité de la couleur doit être mesurée conformément à la norme ISO 105-B02:2014 et selon les indications du tableau I.

3.5.2. Toutes les couleurs doivent avoir une solidité de 6 ou plus.

3.6. **Qualité d'impression** (des tissus)

3.6.1. Les tissus doivent être teints au préalable, avant l'impression. Les opérations de teinture et d'impression doivent être réalisées avec des colorants (c.-à-d. aucun pigment ne doit être utilisé). Les catégories de colorants utilisées doivent convenir à la teneur en fibres du tissu.

3.6.2. La pénétration complète de toutes les fibres composant le tissu est requise. La qualité globale de l'impression, y compris la pénétration de la couleur (c.-à-d. la coloration globale de l'envers du tissu imprimé), l'uniformité de chaque couleur, la clarté, la définition et la régularité doivent être indicatives d'une bonne impression.

3.6.3. Aucun fini ne doit être appliqué sur le tissu pour obtenir temporairement la conformité à la couleur ou à la réflectance dans le proche infrarouge.

4. ESSAIS

4.1. **Généralités**

4.1.1. Il incombe au soumissionnaire et à l'entrepreneur d'effectuer tous les essais prescrits dans le présent document et de démontrer que le tissu est conforme à toutes les exigences énoncées dans la présente spécification.

4.1.2. Le gouvernement se réserve le droit d'effectuer toute vérification ou tout essai jugé nécessaire pour s'assurer que le matériel présenté au gouvernement pour acceptation est conforme à toutes les exigences énoncées dans le contrat. Cela s'applique également au matériel obtenu sous contrat qui doit être livré directement au ministère de la Défense nationale ou comme composants livrés à un fournisseur dans le cadre d'un contrat pour des produits à des fins militaires.

4.1.3. Tous les échantillons soumis demeureront la propriété du gouvernement.

4.2. **Pre-Contract Award Test Reports & Sample.**

4.2.1. The Bidder must provide Standards Council of Canada (SCC), CE, or equivalent accredited third-party test reports to the TA, as specified by the requirements outlined in Table I, in full accordance with all specified test methods and conditions.

4.2.2. Third-party test report testing must be performed on the final product.

4.2.3. Third-party test report data must result from tests carried out on a current production run, specifically within twelve (12) months of Third-party test report submission.

4.2.4. The Bidder must provide one (1) pre-contract award material sample to the TA, for inspection and evaluation done by the TA or Design Authority.

4.3. **Pre-Production Test Reports & Sample.**

4.3.1. The Contractor must provide SCC, CE, or equivalent accredited test reports to the TA, for Visible Colour (see para. 3.2) and Near Infrared and Ultraviolet (see para. 3.3) requirements in full accordance with all specified test methods and conditions.

4.3.2. Test report testing must be performed on the final product.

4.3.3. Test report data must result from tests carried out on a current production run, specifically within twelve (12) months of test report submission.

4.3.4. The Contractor must provide one (1) pre-production material sample to the TA, for inspection and evaluation done by the TA or Design Authority.

4.2. **Échantillons et rapports d'essai préalables à l'attribution du contrat**

4.2.1. Le soumissionnaire doit fournir au responsable technique des rapports d'essai accrédités par le Conseil canadien des normes (CCN), le CE ou par une tierce partie équivalente, comme il est indiqué dans les exigences du tableau I, conformément à toutes les méthodes et conditions d'essai prescrites.

4.2.2. Les essais décrits dans les rapports doivent être menés sur le produit fini.

4.2.3. Les données présentées dans le rapport d'essai doivent provenir d'essais menés sur un lot de la production courante, plus précisément dans un délai de douze (12) mois suivant le dépôt du rapport d'essai d'une tierce partie.

4.2.4. Le soumissionnaire doit fournir au responsable technique un (1) échantillon de tissu préalable à l'attribution du contrat, pour inspection et évaluation par le responsable technique ou l'autorité responsable de la conception.

4.3. **Échantillons et rapports d'essai de présérie**

4.3.1. L'entrepreneur doit fournir au responsable technique des rapports d'essai accrédités par le Conseil canadien des normes (CCN), le CE ou par une tierce partie équivalente, sur les exigences relatives à la couleur visible (voir l'art. 3.2), le proche infrarouge et l'ultraviolet (voir l'art. 3.3), conformément à toutes les méthodes et conditions d'essai prescrites.

4.3.2. Les essais décrits dans les rapports doivent être menés sur le produit fini.

4.3.3. Les données présentées dans le rapport d'essai doivent provenir d'essais menés sur un lot de la production courante, plus précisément dans un délai de douze (12) mois suivant le dépôt du rapport d'essai.

4.3.4. L'entrepreneur doit fournir au responsable technique un (1) échantillon de tissu de présérie, pour inspection et évaluation par le responsable technique ou l'autorité responsable de la conception.

4.4. **Production Test Reports.**

4.4.1. For all shipments of CADPAT™ printed textile, the Contractor must provide additional test reports to the TA, on the goods being shipped, for Visible Colour (see para. 3.2) and Near Infrared and Ultraviolet (see para. 3.3) measurements, for each additional 5,000 metres batch of CADPAT™ printed textile, or when shipment occurs more than twelve (12) months after date of previous test report submission.

4.4. **Rapports d'essai de production**

4.4.1. Pour tous les envois de tissu imprimé avec le DCamC^{MC}, l'entrepreneur doit fournir au responsable technique des rapports d'essai additionnels sur les marchandises expédiées, au sujet des mesures de la couleur visible (voir l'art. 3.2), du proche infrarouge et de l'ultraviolet (voir l'art. 3.3), ainsi que pour chaque lot additionnel de 5 000 m de tissu imprimé avec le DCamC^{MC}, ou lorsque l'envoi a lieu plus de douze (12) mois après la date de dépôt du rapport d'essai précédent.

5. CADPAT™ USE AND CONTROL.

5.1. CADPAT™ is not considered to be a "Controlled Good" by The International Traffic in Arms (ITAR) or Controlled Technology and Transfer (CTAT) definitions as determined by the Department of Foreign Affairs and International Trade (DFAIT) in 2002, however, it is subject to DND controls with respect to intellectual property, research and development, application/use, distribution and disposal.

5.2. The use of CADPAT™ is protected by Canadian copyright laws and patents held by DND and managed by Director Material Property and Procedures, Intellectual Property (DMPP IP).

5.3. Potential bidders and contractors wishing to develop CADPAT™ products must sign non-disclosure agreements with DND. The Design Authority is responsible for managing the non-disclosure agreements that were prepared by DMPP.

5. UTILISATION DU DCamC^{MC} ET CONTRÔLE

5.1. Le DCamC^{MC} n'est pas considéré comme une marchandise contrôlée par l'International Traffic in Arms (ITAR) ou selon les définitions du site Accès et transfert de la technologie contrôlée (ATTC), comme l'a déterminé le ministère des Affaires étrangères et du Commerce international (MAECI) en 2002. Cependant, il fait l'objet d'un contrôle par le MDN relativement à la propriété intellectuelle, à la recherche et au développement, à l'application ou à l'utilisation, à la distribution et à l'élimination.

5.2. L'utilisation du DCamC^{MC} est protégée par la *Loi sur le droit d'auteur* et les brevets détenus par le MDN et gérée par le Directeur – Politiques et procédures (Matériel), propriété intellectuelle (DPPM PI).

5.3. Les soumissionnaires potentiels et les entrepreneurs qui souhaitent fabriquer des produits avec le DCamC^{MC} doivent signer des ententes de confidentialité avec le MDN. L'autorité responsable de la conception sera chargée de gérer les ententes de confidentialité préparées par le DPPM.

6. NOTES.

6.1. The production of a product to this specification, or the evaluation of a product to this specification, may require the use of materials and/or equipment that could be hazardous. This specification does not purport to address all safety, health and environmental concerns, if any associated with its use. It is the responsibility of the user of this specification to establish appropriate safety, health and environmental practices and to determine the applicability of regulatory limitations prior to use.

6. NOTES

6.1. La fabrication ou l'évaluation d'un produit conformément à la présente spécification pourrait nécessiter l'utilisation de matériel ou d'équipement dangereux. La présente spécification n'a pas pour objet de traiter de toutes les préoccupations relatives à la santé, à la sécurité et à l'environnement liées à son utilisation. Il incombe à l'utilisateur de la spécification d'établir au préalable des méthodes appropriées qui tiennent compte des questions d'environnement, de santé et de sécurité, et de déterminer les restrictions réglementaires applicables.

6.2. **Definition of terms.**

6.2.1. **Design Authority.** The Design Authority is the Government agency responsible for the technical aspects of the design and for changes to the design. The Design Authority for this specification is the Camouflage, Concealment, and Deception Engineer, DSSPM 3-7 at the Directorate of Soldier Systems Programme Management (DSSPM), Department of National Defence.

6.2.2. **Technical Authority.** Where referenced in this Specification, the Technical Authority is the individual responsible for providing information, guidance and advice on the technical aspects of the materiel being procured. This individual will be identified in supporting procurement documentation.

6.2. **Définition des termes**

6.2.1. **Autorité responsable de la conception.** L'autorité responsable de la conception est l'organisme gouvernemental chargé des aspects techniques de la conception et des modifications connexes. Dans le cas des articles visés par la présente spécification, il s'agit du Génie, camouflage, dissimulation et déception, DAPES 3-7, à la Direction de l'administration du programme de l'équipement du soldat (DAPES) du ministère de la Défense nationale.

6.2.2. **Responsable technique.** Lorsqu'il en est fait mention dans la présente spécification, le responsable technique est la personne chargée de fournir de l'information, des directives ou des conseils concernant les aspects techniques du tissu visé par le présent document. Cette personne sera désignée dans les documents d'achat.

Table I. Technical Performance Requirements for Canadian CADPAT™ Colours
Tableau I. Exigences techniques en matière de rendement pour les couleurs du DCamC^MC

Property ***Propriété***	**Standard** ***Norme***		**Colour** ***Couleur***		**Requirement** ***Exigence***	**Tolerance** ***Tolérance***
Chromaticity Coordinates and Luminance ***Coordonnées trichromatiques et luminance***	ASTM E308-08		TW *RBT*	Canadian Average Green *Vert canadien moyen*	L* = 26.88 a* = -3.27 b* = 16.26	$\Delta E_{cmc} = 3$
	Colour Space/ *Espace colorimétrique*	L*a*b*		Light Green *Vert pâle*	L* = 42.56 a* = -11.46 b* = 27.13	$\Delta E_{cmc} = 3$
	Illuminant/ *Illuminant*	CIE Standard Illuminant D65/*Illuminant standard D65 de la CIE*		Black *Noir*	L* = 18.67 a* = 0.37 b* = 1.13	$\Delta E_{cmc} = 3$
	Observer Geometry/ *Géométrie observateur*	CIE 10° Standard Observer/ *Observateur de référence à 10° de la CIE*		Brown *Brun*	L* = 36.25 a* = 4.60 b* = 14.48	$\Delta E_{cmc} = 3$
	Specular Component/ *Composante spéculaire*	Excluded or Included/*Exclue ou incluse*	AR *RA*	Light Sand *Sable pâle*	L* = 64.89 a* = 4.09 b* = 15.66	$\Delta E_{cmc} = 3$
	Calculation Range/*Plage de calcul*	360 – 780 nm		Dark Sand *Sable foncé*	L* = 51.85 a* = 7.22 b* = 8.09	$\Delta E_{cmc} = 3$
				Brown *Brun*	L* = 34.16 a* = 5.84 b* = 12.18	$\Delta E_{cmc} = 3$
	ISO 105-J03 $\Delta E_{cmc}(2:1)$		WO *H/A*	White *Blanc*	L* = 95.78 a* = -0.22 b* = -0.43	$\Delta E_{cmc} = 3$
				Grey *Gris*	L* = 61.28 a* = -0.24 b* = -0.71	$\Delta E_{cmc} = 3$
Specular Gloss ***Brillant spéculaire***	ASTM D523		TW *RBT*	Canadian Average Green *Vert canadien moyen*	≤ 1 units/*unités*	
	Geometry/ *Géométrie*	85°		Light Green *Vert pâle*	≤ 1 units/*unités*	
				Black *Noir*	≤ 1 units/*unités*	
				Brown *Brun*	≤ 1 units/*unités*	
			AR *RA*	Light Sand *Sable pâle*	≤ 1 units/*unités*	
				Dark Sand *Sable foncé*	≤ 1 units/*unités*	
				Brown *Brun*	≤ 1 units/*unités*	
			WO *H/A*	White *Blanc*	≤ 5 units/*unités*	
				Grey *Gris*	≤ 5 units/*unités*	

Property ***Propriété***	**Standard** ***Norme***		**Colour** ***Couleur***		**Requirement** ***Exigence***	
Near Infrared Reflectance (NIRR) (750 – 1350 nm) ***Réflectance dans le proche infrarouge (RIR) (750 – 1350 nm)***	Test Apparatus Specifications/ *Caractéristiques de l'appareil d'essai*		TW *RBT*	Canadian Average Green *Vert canadien moyen*	See Table II *Voir le tableau II*	
	Type	CIE calibrated double beam spectrophotometer/ *Spectrophotomètre à double faisceau étalonné par le CIE*		Light Green *Vert pâle*		
				Black *Noir*		
				Brown *Brun*		
	Reference Panel/*Panneau de référence*	Compressed $BaSO_4$ or Spectralon/ *$BaSO_4$ comprimé ou Spectralon*	AR *RA*	Light Sand *Sable pâle*	See Table III *Voir le tableau III*	
				Dark Sand *Sable foncé*		
				Brown *Brun*		
	Measurement Optical Geometry/ *Géométrie optique de mesure*	8°/d (SPEX) or/*ou* 8°/t (SPIN)	WO *H/A*	White *Blanc*	85%	± 10%
				Grey *Gris*	25%	± 10%
Ultraviolet (UV) Reflectance (250-400 nm) ***Réflexion des ultraviolets (UV) (250–400 nm)***			WO *H/A*	White *Blanc*	70%	± 10%
	Spectral band/ *Bande spectrale*	IR: 700 - 1350 nm UV: 250-400 nm		Grey *Gris*	NONE *Aucune*	NONE *Aucune*
	Wavelength Accuracy/ *Précision des longueurs d'ondes*	< ± 0.1 nm				
	Wavelength Reproducibility/ *Reproductibilité des longueurs d'onde*	<0.0023				
	Resolution/ *Résolution*	<0.20 nm				
	Spectral precision/ *Précision spectrale*	±0.30 nm				
	Photometric precision/ *Précision photométrique*	±0.005 A				
Colour Fastness ***Solidité de la couleur***	ISO 105-B02:2014		All *Tous*		6 or better *6 ou plus*	
	Number of Specimens/*Nombre de spécimens*	3				
	Exposure Cycle/*Cycle d'exposition*	A1				
	Exposure Method/*Méthode d'exposition*	3				

Table II. Temperate Woodland Near Infrared Spectral Reflectance Requirements
Tableau II. Exigences relatives à la réflectance spectrale dans le proche infrarouge – RBT

Wavelength *Longueur d'onde*	**Canadian Average Green / Vert canadien moyen**			**Light Green/Vert pâle**			**Brown/Brun**			**Black/Noir**		
	lower tolerance *tolérance inférieure*	**(%)**	**upper tolerance** *tolérance supérieure*	**lower tolerance** *tolérance inférieure*	**(%)**	**upper tolerance** *tolérance supérieure*	**lower tolerance** *tolérance inférieure*	**(%)**	**upper tolerance** *tolérance supérieure*	**lower tolerance** *tolérance inférieure*	**(%)**	**upper tolerance** *tolérance supérieure*
750	22.75	35.95	49.15	28.43	44.94	61.44	28.43	44.94	61.44	1.00	3.00	8.00
800	26.04	40.33	54.62	32.55	50.41	68.28	32.55	50.41	68.28	1.00	3.00	8.00
850	27.60	42.50	57.39	34.50	53.12	71.74	34.50	53.12	71.74	1.01	3.01	8.01
900	28.17	43.11	58.06	35.21	53.89	72.57	35.21	53.89	72.57	1.13	3.13	8.13
950	27.94	42.64	57.33	34.93	53.30	71.67	34.93	53.30	71.67	1.33	3.33	8.33
1000	27.91	42.56	57.20	34.89	53.20	71.51	34.89	53.20	71.51	1.46	3.46	8.46
1050	30.30	45.51	60.73	37.87	56.89	75.91	37.87	56.89	75.91	1.54	3.54	8.54
1100	30.94	45.88	60.81	38.67	57.35	76.02	38.67	57.35	76.02	1.67	3.67	8.67
1150	26.76	40.86	54.97	33.45	51.08	68.72	33.45	51.08	68.72	1.80	3.80	8.80
1200	22.61	35.04	47.47	28.26	43.80	59.34	28.26	43.80	59.34	1.85	3.85	8.85
1250	24.96	37.26	49.57	31.20	46.58	61.96	31.20	46.58	61.96	1.92	3.92	8.92
1300	25.36	37.40	49.45	31.70	46.76	61.82	31.70	46.76	61.82	2.01	4.01	9.01
1350	22.83	34.15	45.47	28.53	42.69	56.84	28.53	42.69	56.84	2.07	4.07	9.07

Figure I. Temperate Woodland Near Infrared Spectral Reflectance Requirements
Figure I. Exigences relatives à la réflectance spectrale dans le proche infrarouge – RBT

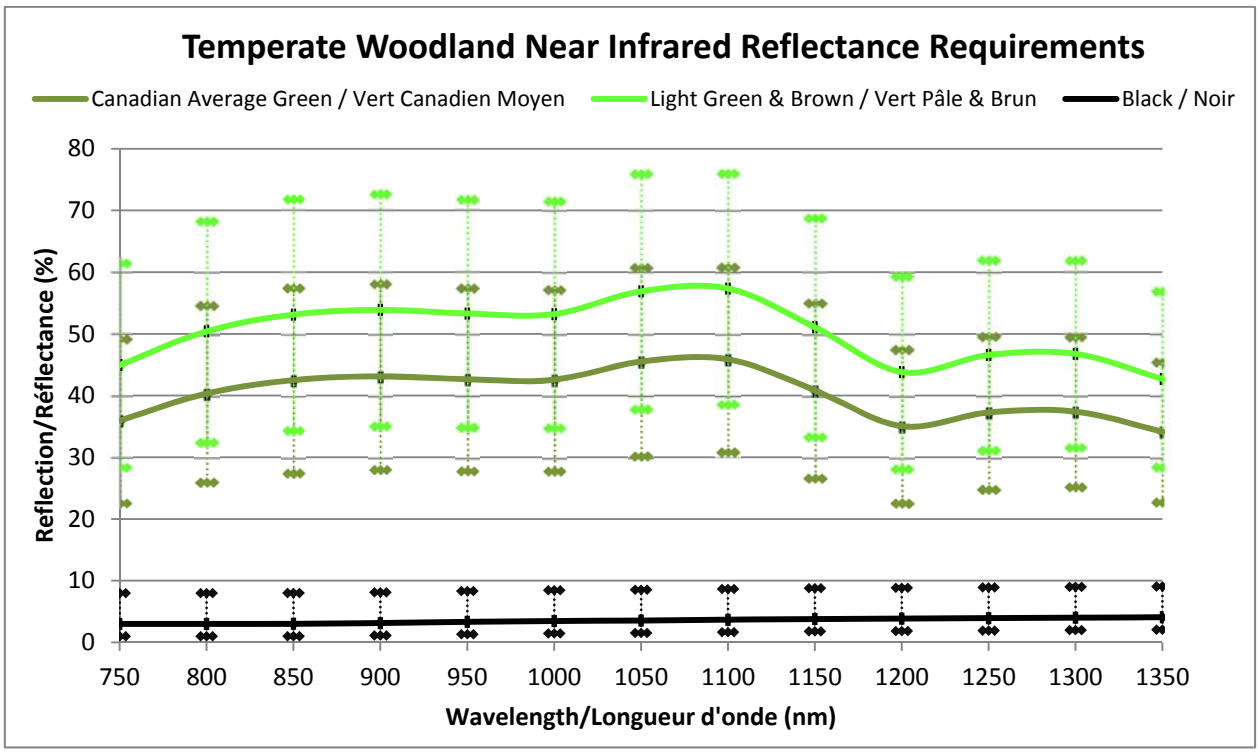
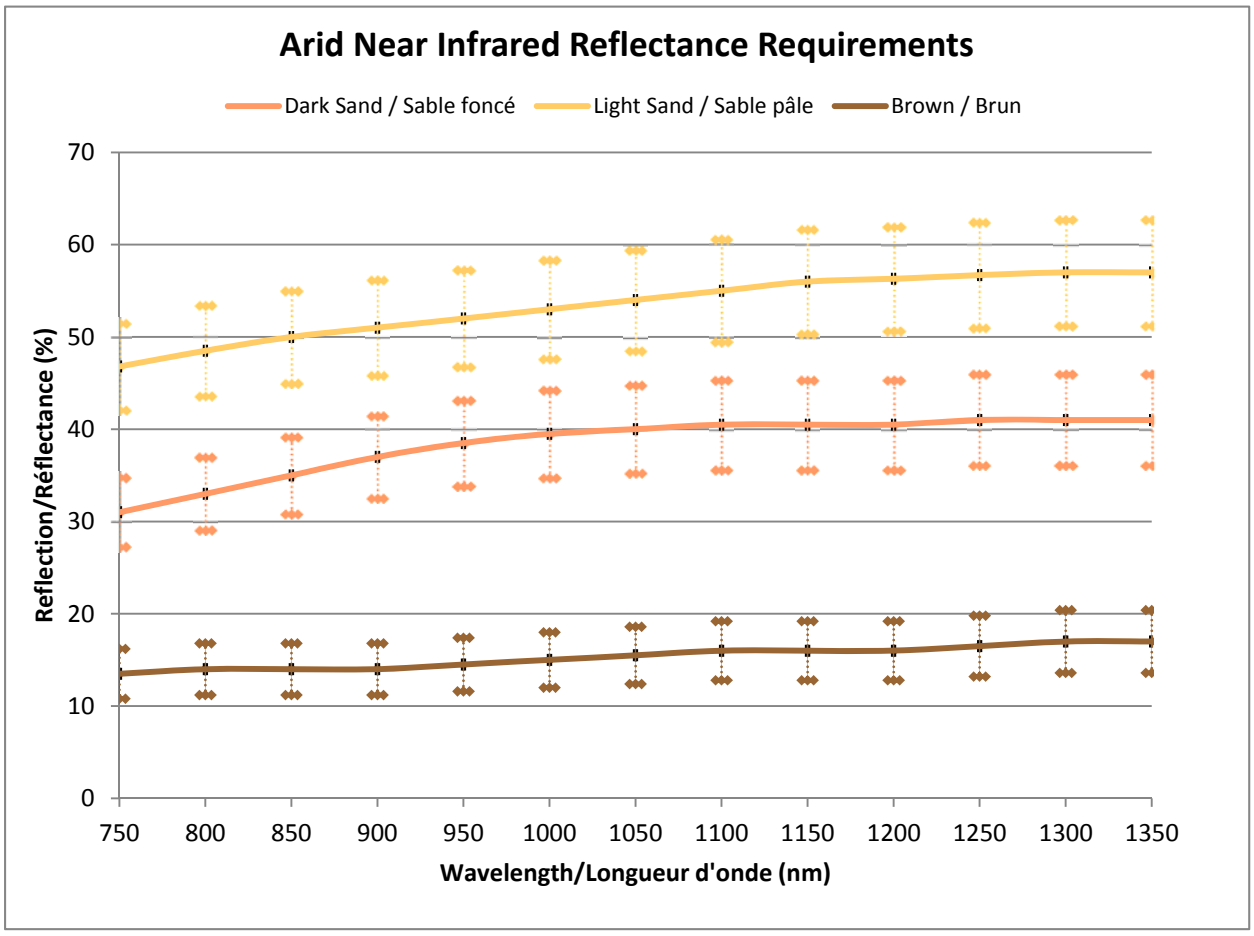


Table III. Arid Near Infrared Spectral Reflectance Requirements
Tableau III. Exigences relatives à la réflectance spectrale dans le proche infrarouge – RA

Wavelength (nm) *Longueur d'onde*	**Light Sand / Sable pâle**			**Dark Sand / Sable foncé**			**Brown / Brun**		
	lower tolerance *tolérance inférieure*	**(%)**	**upper tolerance** *tolérance supérieure*	**lower tolerance** *tolérance inférieure*	**(%)**	**upper tolerance** *tolérance supérieure*	**lower tolerance** *tolérance inférieure*	**(%)**	**upper tolerance** *tolérance supérieure*
750	42.1	46.8	51.5	27.3	31	34.7	10.8	13.5	16.2
800	43.7	48.5	53.4	29.0	33	37.0	11.2	14	16.8
850	45.0	50	55.0	30.8	35	39.2	11.2	14	16.8
900	45.9	51	56.1	32.6	37	41.4	11.2	14	16.8
950	46.8	52	57.2	33.9	38.5	43.1	11.6	14.5	17.4
1000	47.7	53	58.3	34.8	39.5	44.2	12.0	15	18.0
1050	48.6	54	59.4	35.2	40	44.8	12.4	15.5	18.6
1100	49.5	55	60.5	35.6	40.5	45.4	12.8	16	19.2
1150	50.4	56	61.6	35.6	40.5	45.4	12.8	16	19.2
1200	50.7	56.3	61.9	35.6	40.5	45.4	12.8	16	19.2
1250	51.0	56.7	62.4	36.1	41	45.9	13.2	16.5	19.8
1300	51.3	57	62.7	36.1	41	45.9	13.6	17	20.4
1350	51.3	57	62.7	36.1	41	45.9	13.6	17	20.4

Figure II. Arid Near Infrared Spectral Reflectance Requirements
Figure II. Exigences relatives à la réflectance spectrale dans le proche infrarouge – RA



INCH-POUND

MIL-C-5040H
17 March 1994
SUPERSEDING
MIL-C-5040G
30 June 1987

MILITARY SPECIFICATION

CORD, FIBROUS, NYLON

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers braided nylon cord.

1.2 Classification. The braided cord shall be of the type specified (see table I and 6.2). A part or identifying number for the cord shall be as specified in 6.5 and be applicable to table I.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

FEDERAL

UU-T-81 - Tags, Shipping and Stock

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be used in improving this document should be addressed to: U.S. Army Natick, Research, Development, and Engineering Center, Natick, MA 01760-5019, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A FSC 4020

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

PPP-B-601 - Boxes, Wood, Cleated-Plywood
PPP-B-636 - Boxes, Shipping, Fiberboard

MILITARY

MIL-C-3131 - Cordage; Packaging of
MIL-L-35078 - Loads, Unit: Preparation of Semiperishable Subsistence Items; Clothing, Personal Equipment and Equipage; General Specification for

FEDERAL

FED-STD-191 - Textile Test Methods
FED-STD-595 - Colors Used in Government Procurement

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-129 - Marking for Shipment and Storage
MIL-STD-147 - Palletized Unit Loads
MIL-STD-731 - Quality of Wood Members for Containers and Pallets
MIL-STD-905 - Identification, Nylon Cord, Manufacturer's Color Code

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.2 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D 3951 - Standard Practice for Commercial Packaging

(Applications for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103-1187.)

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

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

3. REQUIREMENTS

3.1 Government and supply purchases. The requirements specified in 3.12 and 3.13 apply only to cord purchased directly by the Government. All other requirements apply to cord purchased by a contractor as a component for an end item and to cord purchased directly by the Government.

3.2 Standard sample. The cord shall match the standard sample for shade and shall be equal to or better than the standard sample with respect to all characteristics for which the standard sample is referenced (see 6.3). When Camouflage Green 483 is specified, the color shall match color chip 34094 of FED-STD-595 (see 3.1.1 and 6.3.2).

3.2.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 6.3.1) in accordance with 4.1.3.

3.3 Materials. The nylon yarn in the manufacture of the cord shall be a bright, high-tenacity, light-resistant and heat-resistant polyamide prepared from hexamethylenediamine and adipic acid or its derivatives. It shall have a minimum melting point of 244°C when tested as specified in 4.2.1. The plied yarns shall be twisted only from the deniers specified in table I. It is encouraged that recycled material be used when practical as long as it meets the requirements of this specification.

3.4 Processing of yarns.

3.4.1 Core yarns. The core yarns shall be wet shrunk, for a minimum of 60 minutes, at a temperature of 93°C ± 3°C after which they shall be dried at a temperature not exceeding 93°C before manufacture of the core (see 4.2.2). No oil shall be added to this yarn.

3.4.2 Sleeve yarns. Sleeve yarns shall be wet shrunk for a minimum of 30 minutes at a temperature of 71°C ± 3°C, after which they shall be dried at a temperature not exceeding 71°C before braiding (see 4.2.2). No oil shall be added to this yarn.

3.4.3 Stretching. The yarns used to manufacture the cord shall not be subjected to a stretching operation (see 4.2.2).

3.5 Bleaching. The yarn or the fabricated cord shall not be subjected to any type of bleaching process.

3.6 Construction and physical requirements. The fabricated cord shall conform to the applicable requirements specified in tables I and II and following paragraphs for the respective types when tested as specified in 4.2.1 and 4.2.4.

TABLE I. Construction

Dash no.	Type		Yarns denier/ply	Twist (turns/in) spin	Ply	Number of core ends	Picks per in	No. of carriers and ends per carrier
-1	I	Core	210/3	7.0 to 9.5	5 to 7	4 to 7	--	--
		Sleeve	70/3	20 to 24.0	15 to 19	--	26 to 28	32/1 or 16/2
-2	IA	Core	--	--	--	--	--	--
		Sleeve	210/3	7.0 to 9.5	5 to 7	--	26 to 28	16/1
-3	II 1/	Core	210/1st 5 or 1050 (singles) Final - 3	1	1st 10 to 16 FINAL 6 to 8	4 to 7	--	--
		Sleeve	210/3	7.0 to (approx) 9.5	5 to 7	--	26 to 28	32/1 or 36/1
-4	IIA	Core	--	--	--	--	--	--
		Sleeve	210/3	7.0 to 9.5	5 to 7	--	26 to 28	32/1 to 36/1
-5	III 1/	Core	210/1st 5 or 1050 (singles) Final - 3	1	1st 10 to 16 FINAL 6 to 8	7 to 9	--	--
		Sleeve	210/3	7.0 to (approx) 9.5	5 to 7	--	26 to 28	32/1 or 36/1

TABLE I. Construction (cont'd)

Dash no.	Type		Yarns denier/ply	Twist [turns/in] spin	Ply	Number of core ends	Picks per in	No. of carriers and ends per carrier
-6	IV 1/	Core	210/1st 5 or 1050 (singles) Final - 3	--	1st 10 to 16 FINAL 6 to 8	11	--	--
		Sleeve	210/3	7.0 to 9.5	5 to 7	--	26 to 28	32/1, 36/1, or 44/1

1/ The core yarn shall be constructed by plying five yarns of 210 denier, resulting in a 1050 denier yarn, for the initial spin, or by using 1050 denier singles yarn, then plying three of the 1050 yarns (either 5 ply or singles) together, resulting in a final core size of 3150 denier.

TABLE II. Physical requirements

	Type I	Type IA	Type II	Type IIA	Type III	Type IV
Breaking strength (pounds), minimum	95	100	400	225	550	750
Elongation (percent), minimum	30	30	30	30	30	30
Length per pound of cord (feet), minimum	950	1050	265	495	225	165

3.6.1 Lapping of the core ends. Lapping of the core ends, or a sewn overlap where two core yarns are held together by the wrapping of thread around them is permissible providing the overlap is more than 5 inches but does not exceed 10 inches in length. Splicing or knotting of the core lines is not permissible (see 6.4). The minimum distance between a core end overlap or any adjacent core end overlap shall be 100 feet. The approximate center of each overlap shall be marked by inserting a bright red thread through the sleeve. The free ends of the marker shall extend approximately 3 inches on either side of the sleeve. The removal of the marker shall be accomplished by a light pull on either end. When Camouflage Green 483 colored cord is specified, the color of the marker shall be white.

3.6.1.1 Protruding core ends. When any core end projects through the sleeve as a result of overlapping (see 3.6.1 and 6.4), the end(s) shall be out flush with the surface of the sleeve with the cord in a relaxed condition. CAUTION: Do not hot knife the end(s) and be extremely careful not to damage the sleeve.

3.6.2 Extractable matter (chloroform-soluble material). No material shall be added for the purpose of weighing the cord. The chloroform-soluble material of the cord shall not exceed 2.0 percent when tested as specified in 4.2.4.

3.7 Resistance to light and heat. The nylon cord shall lose not more than 15 percent of its original breaking strength after exposure to light and heat when tested as specified in 4.2.4.

3.8 Color. Unless otherwise specified (see 6.2), the color of the cord shall be natural. When colored cord is specified, the color shall be obtained by yarn dyeing, and the cord shall match an approved standard shade of Camouflage Green 483 (see 6.3).

3.8.1 Color (shade) matching. The dyed cord shall match the standard sample when viewed under filtered tungsten lamps that approximate artificial daylight and that have a correlated color temperature of 7500 K ± 200 K, with illumination of 100 foot candles ± 20 foot candles, and shall be a good match to the standard sample under incandescent lamplight at 2300 K ± 200 K.

3.8.2 Colorfastness. The dyed cord shall show fastness to light, laundering, and dry cleaning equal to or better than the standard sample or shall show good fastness to light, laundering, and dry cleaning when tested as specified in 4.2.4.

* 3.9 Manufacturer's identification. Manufacturer's identification yarns (color-codes) shall be dyed yarns of the assigned colors designated in MIL-STD-905 and shall have the same colorfastness properties as described in 3.8.2.

3.9.1 Types I, II, III, and IV cord. Each manufacturer shall include in the cores of types I, II, III, and IV cord dyed yarns of the assigned colors that will identify his product. The color identification yarns shall be incorporated into a single core end. If a manufacturer's color code consists of three different colors, one core end shall contain all three of these colors, one color per ply.

3.9.2 Type IA and type IIA cord. Each manufacturer shall include, in the sleeve of type IA and type IIA cord, yarns of the assigned colors that will identify his product.

3.10 Type identification. Type II cord shall be identified by one black yarn braided into the sleeve (or cover). The colored marker yarns shall be 210 denier, 3 ply.

3.11 Age. The yarn used to fabricate the cord shall be no more than two years old on date of delivery of goods to the first receiving point. The cord shall be no more than one year of age from the date of manufacture to the date of delivery to the first receiving point.

3.12 Put-up and length. Unless otherwise specified (see 6.2), the cord shall be put-up on nonreturnable reels/spools in lengths specified in table III. Each reel/spool shall not contain any knots or splices and shall be so wound that each turn and layer is free from entanglement. A plus tolerance of 10 percent shall be allowed on the total length of any reel/spool. The ends of the cord shall be heat sealed to prevent fraying. When the cord is put-up in 1200 foot or 1500 foot lengths, 80 percent of the total number of reels/spools in the lot shall be in one continuous length. The remaining 20 percent in the lot may contain pieced lengths (lapped on ends). These reels/spools shall contain no more than two pieces, with no piece less than 300 feet in length. When the cord is put-up on 2100 foot reels/spools, 80 percent of these reels/spools shall contain no more than two pieces, with

no piece less than 300 feet in length. The remaining 20 percent in the lot shall contain no more than three pieces less than 300 feet. When pieced lengths are contained on a reel/spool, the number and lengths of the pieces shall be marked on the identification ticket or label as specified in 3.13.

TABLE III. Length

Type	Length on reels/spools (feet), minimum
I	1500
IA	1500
II	2100 or 1200
IIA	2100 or 1200
III	2100 or 1200
IV	1500

3.13 Identification. Each spool (reel) or cord shall have a ticket (identification tag) or label attached to it for identification purposes. The ticket shall conform to the requirements for type B, size 4 or 5 of UU-T-81. The ticket shall be made of not less than 15-point paper stock and shall have a minimum tearing resistance of both directions (total) or 850 grams when tested as specified in UU-T-81. When labels are used, the label shall be attached in such a manner as to remain in place and be legible until all cord has been removed. The ticket or label shall be legibly printed, stamped, or typed with water insoluble ink. The ticket or label shall contain the following information:

Stock number
Item description
Specification number
Length
Number and length of pieces (when applicable)
Color
Contract number and date
Date of manufacture (month and year)
Length of pieces of cord per spool (when applicable)
Contractor's name
Bar code

3.14 Workmanship. The end item shall conform to the quality of product established by this specification and the occurrence of defects shall not exceed the applicable acceptable quality levels.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in this specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements; however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.1.2 Certificates of compliance. When certificates of compliance are submitted (see table IV), the Government reserves the right to inspect such items to determine the validity of the certification.

4.1.3 First article inspection. When a first article is required (see 3.1 and 6.2), it shall be examined for the defects specified in 4.2.3.1, 4.2.3.2, 4.2.3.3, 4.2.3.3.1, 4.2.3.3.2 and tested for the characteristics specified in 4.2.4. The presence of any defect shall be cause for rejection of the first article.

4.2 Quality conformance inspection. Unless otherwise specified, sampling for inspection shall be performed in accordance with MIL-STD-105.

4.2.1 Component and material inspection. In accordance with 4.1, components and materials shall be inspected in accordance with all the requirements of referenced documents unless otherwise excluded, amended, modified, or qualified in this specification or applicable purchase document. In addition, inspection shall be performed for the requirements in table IV.

TABLE IV. Component tests

Characteristic	Requirement paragraph	Test method
Denier	3.3	1/
Tenacity	3.3	1/

TABLE IV. Component tests (cont'd)

Characteristic	Requirement paragraph	Test method
Melting point	3.3	1534 1/ 2/
Bleaching	3.5	1/
Age of yarn and cord	3.11	1/
Twist, single yarns	Table I	4052 1/ 2/ 3/
Twist, plied yarns	Table I	4054 1/ 2/ 3/
Plying of core yarns	Table I	1/

1/ Unless otherwise specified, a contractor's certificate of compliance shall be furnished and will be accepted for the requirements.

2/ Refers to test method of FED-STD-191.

3/ Twist of yarns: The number of specimens averaged for the result shall be five determinations on the core yarns and 10 determinations on the sleeve yarns, and the dead weight tension applied to the specimens shall be 60 grams ± 2.0 grams. The 10 determinations of the sleeve yarn twist shall be made on specimens so selected that observations shall be made on five yarns braiding in one direction and five yarns braiding in the opposite direction. Turns per inch of the singles and first ply yarns shall be determined from the same specimen used for the determination of ply twist by cutting out all but one of the strands, leaving the plied ends still fastened in the clamps, and setting the counter to the zero mark.

4.2.2 In-process inspection. Inspection shall be made at any point or during any phase of the manufacturing process to determine that the requirements for processing of the core and sleeve yarns for shrinkage and stretching, lapping of the core yarn (see 3.4.1, 3.4.2, 3.4.3, and 3.6.1), and for percentages of allowable number of pieced lengths per spool or reel in the lot (see 3.12) have been adhered to in the manufacture of the cord. Unless otherwise specified, a contractor's certificate of compliance shall be furnished and will be accepted for these requirements. The Government reserves the right to exclude from consideration for acceptance any material or service for which in-process inspection has indicated nonconformance.

4.2.3 End item inspection.

4.2.3.1 Critical defect examination of the end item. Prior to performing the end item sampling required in 4.2.3.2, the cord spools (reels) shall be 100 percent examined for the critical defects in table V. This 100 percent

critical defect examination shall become a part of the contractor's inspection system or quality program. Any spool (reel) found to contain a critical defect shall be rejected.

4.2.3.2 End item visual examination. The defects specified in table V shall be counted, regardless of their proximity to each other, except where two or more defects represent a single local condition, in which case only the more serious defect shall be counted. The lot size shall be expressed in units of spools (reels), as applicable. The sample unit for the examination shall be one spool (reel). The inspection level shall be III and the finding of any defect shall be cause for rejection of the lot. Ten percent of the length contained on each sample unit, but not less than 100 feet, shall be subjected to the visual examination.

TABLE V. End item visual defects

Examine	Defect	Classification		
		Critical	Major	Minor
Appearance and workmanship	Any cut or hole	01		
	Abrasion, chafed area, or distortion in the orientation of yarn	02		
	Kink or unevenly braided, resulting open place, break in continuity of braid, or soft spot	03		
	Float, broken or missing end, or pick	04		
	Any projecting core end	05		
	Missing core end	06		
	Typed identification missing (when applicable)	07		
	Manufacturer's identification missing		101	
Type	Other than specified		102	
Color	Other than specified		103	
	Not within established tolerances			201
Put-up	Other than specified (i.e., spools (reels) not made of wood or metal)		104	
Cleanness	Spot or stain clearly visible 1/			202
	Objectionable odor			203

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

Examine	Defect	Classification		
		Critical	Major	Minor
Identification	Omitted		105	
	Information incorrect, illegible			204
	Ticket or label not as specified			205
Coarse or heavy end (per 20 linear yards)	Over one end, 2 yards or more in length		106	
	Over two ends		107	
	Two ends, over 1 yard long		108	
	One end, up to 2 yards long			206
	Two ends, up to 1 yard long			207
Heavy, thick, or hard pieces or uneven picks	Picks per inch:			
	- 31 or more		109	
	- 29 or more for over 2 inches		110	
	- 29 or 30 for up to 2 inches			208
Knots in plied yarn (per 10 linear yards)	Over one knot in sleeve yarns		111	
	Any knot or splice in core	08		
	One knot in sleeve yarns			209
Light place, pull down, step marks, or uneven picks	Picks per inch:			
	- 23 or less		112	
	- 25 or less for over 2 inches		113	
	- 24 or 25 for up to 2 inches			210
Tight ends (per 10 linear yards)	Over one end, 2 yards or more in length		114	
	Two or more ends, less than 2 yards long			211

1/ At normal inspection distance (approximately 3 feet).

4.2.3.3 Examination for length and winding. The sample unit for this examination shall be one spool (reel). The inspection level shall be S-3 and the finding of any defect shall be cause for rejection of the lot. For lots consisting of 500 or fewer units, the sample size shall be 10 and the acceptance number 1. The lot size shall be the number of spools (reels) in the lot. Defects shall be as listed in 4.2.3.3.1 and 4.2.3.3.2. The length on the spool (reel) (see table III) shall be determined using the following formula:

W x L = Length per spool (reel) in feet,

where W = the net weight of the spool (reel) in 0.1 pound
L = the lot average of the weight/length relationship (length/pound) as determined in 4.2.4.

The length on the spool (reel) may also be determined by measuring yardage on the spool (reel).

4.2.3.3.1 Defects with regard to length. Defects shall be considered to exist if any of the following are determined during inspection:

a. The length of cord on spool (reel) is less than specified or more than 10 percent in excess of the length specified.

b. Length of cord on spool (reel) is more than 6 feet less than length marked on ticket or label.

4.2.3.3.2 Defects with regard to winding. Defects shall be considered to exist if any of the following conditions are determined during inspection:

a. Improperly or not firmly wound, resulting in kinking, knotting, entangling, or slippage during unwinding or otherwise affecting free unhampered unwinding of cord.
b. Put-up not as specified.
c. Any end not heat sealed.
d. Knot or otherwise joining of ends to make a continuous length.
e. Any core end lap less than 100 feet apart (when applicable).
f. Any spool (reel) of cord found to contain more pieced lengths than specified.
g. Any piece of cord less than 300 feet in length.
h. The lengths of the pieces not marked on the identification ticket or label.

4.2.4 End item testing. The methods of testing specified in FED-STD-191, wherever applicable and as listed in table VI, shall be followed. When the data in the "Number of determinations" and "Results reported as" columns are not specified in the table, they shall be as required by the referenced test method. The physical and chemical values specified in section 3 apply to the average of the determinations made on a sample unit for test purposes as specified in the applicable test methods. The lot size shall be expressed in units of spools (reels) of cord, as applicable. The sample unit shall be one spool (reel). The inspection level shall be S-3 and the finding of any defect shall be cause for rejection of the lot. All test reports shall contain the individual values utilized in expressing the final results. Tests to determine compliance with document requirements, may be made under prevailing atmospheric conditions. In cases of dispute, tests shall be made upon material that has reached equilibrium under standard conditions as defined in FED-STD-191.

TABLE VI. End item tests

Characteristics	Requirement reference	Test method	No. of determinations per individual sample unit	Results reported as
Construction:				
Number of core ends	Table I	Visual	3	Avg of 3 determinations to nearest whole no.
Picks per inch	Table I	4.3.1	1	To nearest whole no.
Number of carriers	Table I	Visual	3	Avg of 3 determinations to nearest whole no.
Number of ends per carrier	Table I	Visual	3	Avg of 3 determinations to nearest whole no.
Ply	Table I	Visual	3	Avg of 3 determinations to nearest whole no.
Length per pound	Table II	6004	-	-
Breaking strength	Table II	6016	-	-
Elongation	Table II	6016 1/	-	-
Extractable matter (chloroform-soluble material)	3.6.2	2611	-	-
Resistance to light	3.7	4.3.2	-	-
Resistance to heat	3.7	4.3.2	-	-

TABLE VI. End item tests (cont'd)

Characteristics	Requirement reference	Test method	No. of determinations per individual sample unit	Results reported as
Colorfastness:				
To light	3.8.2	5660 2/	1	Pass or fail
To laundering	3.8.2	5614 3/ 4/	1	Pass or fail
To dry cleaning	3.8.2	5620 4/	1	Pass or fail

1/ Except that elongation shall be determined at the breaking point.

2/ The exposure shall be 20 standard fading hours.

3/ This test shall be applied to the dyed identification yarns which are part of the core yarns of the cored types of this specification or are a part of the sleeve yarns in the coreless type of cord. On the cored types of cord, the sleeve shall be removed, and a 4 to 5 gram test specimen of the core yarns containing the dyed yarns, together with the marker yarns, shall be gathered together and tied into a bundle with a single overhand knot. For the coreless type, the specimen shall consist of the sleeve containing the marker threads.

4/ Test on dyed cord: The test specimen shall be 4 to 5 grams of cord.

4.2.5 Packaging inspection. Inspection shall be made in accordance with the quality assurance provisions of MIL-C-3131 except that the inspection level shall be S-2 and the finding of any defect shall be cause for rejection of the lot.

4.2.6 Palletization examination. The fully packaged and palletized end items shall be examined for the defects listed below. The lot size shall be expressed in units of palletized unit loads. The sample unit shall be one palletized unit load, fully packaged. The inspection level shall be S-1 and the finding of any defect shall be cause for rejection of the lot.

Examine	Defect
Finished dimensions	Length, width, or height exceeds specified maximum requirement
Palletization	Pallet pattern not as specified Interlocking of loads not as specified Load not bonded with required straps as specified
Weight	Exceeds maximum load limits

Marking	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application

4.3 Methods of inspection.

4.3.1 Determination of picks per inch. Picks per inch shall be counted visually with the cord so positioned that the repeat of the stitch pattern creates a straight line parallel to the axis of the cord.

4.3.2 Determination of resistance to light. Five test specimens shall be taken from each sample unit. The test specimens shall be expressed in the accelerated weathering unit as specified in method 5804 of FED-STD-191. The specimens shall be placed side by side on the rack in such a manner that only the center 10 inches to 18 inches of each specimen is exposed without being shielded by the rack. Unbacked specimens shall be exposed either mounted in stainless steel frames or as a large piece suspended from the outside rim of the exposure rack. Corex D filters and sunshine carbons shall be used. The exposure time shall be fifty hours. The spray heads shall be shut off during the entire exposure period and the relative humidity in the test chamber during the exposure shall be 55 percent $\pm$ 5 percent. The drain pan shall contain from 1/2 inch to 1 inch of water during the exposure process. At the end of the exposure period, the specimens shall be conditioned at 70°F $\pm$ 2°F and 65 percent $\pm$ 2 percent relative humidity for twenty-four hours. The specimens shall then be tested for breaking strength (BS) in accordance with method 6016 of FED-STD-191, and the percent of BS lost shall be calculated as follows:

$$\text{Percent of BS lost} = \frac{\text{Original BS} - \text{BS after exposure}}{\text{Original BS}} \times 100$$

4.3.3 Determination of resistance to heat. Five test specimens shall be taken from each sample unit. The test specimens shall be suspended in a circulating air oven at a temperature of 356°F $\pm$ 5° for one hour. After removal from the oven, the specimens shall be conditioned at 70°F $\pm$ 2°F and 65 percent $\pm$ 2 percent relative humidity for 24 hours. The specimens shall then be tested for BS in accordance with method 6016 of FED-STD-191, and the percent BS lost shall be calculated as specified in 4.3.2.

5. PACKAGING

5.1 Preservation. Preservation shall be level A or Commercial, as specified (see 6.2).

5.1.1 Level A. Spools (reels) or cord, put-up as specified, shall be preserved in accordance with the applicable requirements of MIL-C-3131.

5.1.2 Commercial. Spools (reels) of cord shall be preserved in accordance with ASTM D 3951.

5.2 Packing. Packing shall be level A, B, or Commercial, as specified (see 6.2).

5.2.1 Levels A and B packing. Spools (reels) of cord shall be packed in accordance with the applicable requirements of MIL-C-3131 except that for level A the shipping container shall conform to style RSC, grade V2s of PPP-B-636 or to overseas type, style A or I, grade A or B, type 2 load of PPP-B-601, as specified (see 6.2). For level A packing, fiberboard shipping containers shall be arranged in unit loads in accordance with MIL-L-35078 for the type and class of load specified (see 6.2). Strapping shall be limited to nonmetallic strapping, except for type II, class F loads.

5.2.2 Commercial packing. Spools (reels) or cord, preserved as specified in 5.1, shall be packed in accordance with ASTM D 3951.

5.3 Palletization. When specified (see 6.2, cord, packed in fiberboard shipping containers as specified in 5.2.1 and 5.2.2, shall be palletized on a four-way entry pallet in accordance with load type Ia of MIL-STD-147. Pallet type shall be type I (four-way entry), type IV or type V in accordance with MIL-STD-147. Pallets shall be fabricated from wood groups I, II, III, or IV of MIL-STD-731. Each prepared load shall be bonded with primary and secondary straps in accordance with bonding means C and D or film bonding means F or G. Pallet pattern shall be in accordance with appendix of MIL-STD-147. Interlocking of loads shall be affected by reversing the pattern of each course.

5.4 Marking. In addition to any special marking required by the contract or purchase order, interior unit packs, exterior shipping containers, spools (reels), and palletized unit loads shall be marked in accordance with MIL-STD-129 or ASTM D 3951, as applicable.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The cord is intended for use as personnel parachute suspension lines and is also used with various equipage items.

6.2 Acquisition requirements. Acquisition documents must specify the following:

a. Title, number, and date of this specification.
b. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2).
c. Part number, type required (see table I).
d. When shade Camouflage Green 483 is required (see 3.8).
e. Put-up if other than specified (see 3.12).

f. Selection of applicable levels of preservation and packing (see 5.1 and 5.2).
g. Type of shipping container desired for level A packing (see 5.2.1).
h. Type and class of unit load required for level A packing (see 5.2.1).
i. When palletization is required (see 5.3).
j. When a first article is required (see 3.2.1, 4.1.3, and 6.3.1).

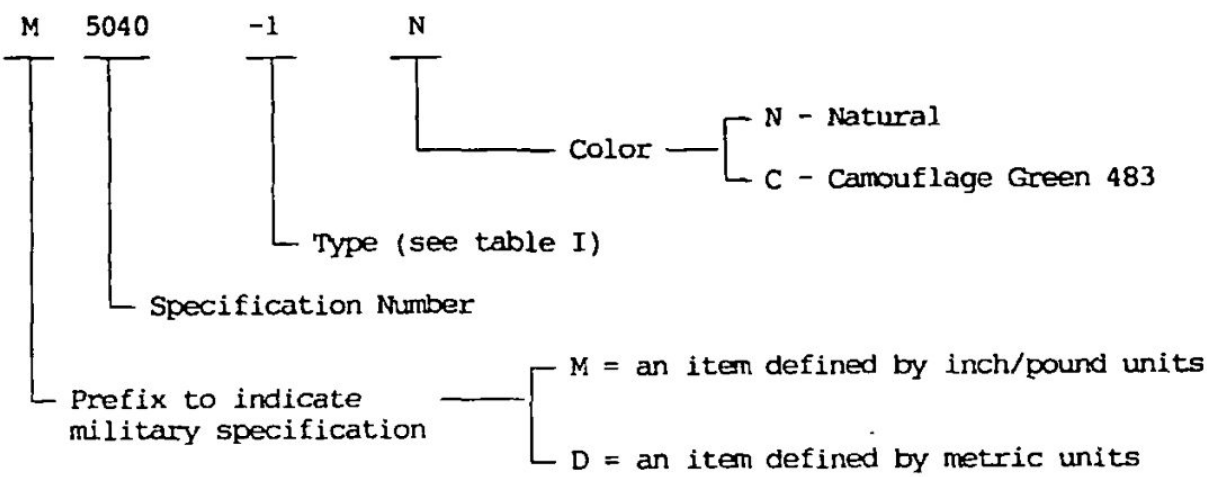
6.3 Standard sample. For access to samples, address the contracting activity issuing the invitation for bids.

6.3.1 First article. When a first article is required, it shall be inspected and approved under the appropriate provisions of FAR 52.209-4. The first article should be a preproduction sample. The contracting officer should specify the appropriate type of first article and the number of units to be furnished. The contracting officer should also include specific instructions in acquisition documents regarding arrangement for selection, inspection, and approval of the first article.

6.3.2 Color. Olive Drab 7 has been replaced by Camouflage Green 483. Any end item which previously required Olive Drab 7 shall use Camouflage Green 483.

6.4 Splicing and lapping. Splicing as used in this specification is defined as the joining of two strands or core ends by process of interweaving or mechanical joint. Lapping of core ends as used in this specification is defined as the insertion of an incoming core line running parallel to a running-out core line without splicing (i.e., to lie upon and extend between two given points).

6.5 Part or identifying number (PIN). The PIN to be used for nylon cord acquired to this specification are created as follows:



6.6 Subject term (key word) listing.

Cord, nylon
Equipage
Parachute lines

6.7 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians:

Army - GL
Navy - AS
Air Force - 99

Review Activities:

Navy - SH
Air Force - 82
DLA - IS
DNA - DS

User Activity:

Navy - MC

Preparing activity:

Army - GL

(Project 4020-0342)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER	2. DOCUMENT DATE (YYMMDD)
	MIL-C-50408	1994 March 17

3. DOCUMENT TITLE

CORD, FIBROUS, NYLON

4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (Last, First, Middle Initial)	b. ORGANIZATION	
c. ADDRESS (Include Zip Code)	d. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON (If applicable)	7. DATE SUBMITTED (YYMMDD)

8. PREPARING ACTIVITY

a. NAME	b. TELEPHONE (Include Area Code) (1) Commercial	(2) AUTOVON/DSN
U.S. Army Natick RD&E Center	508-651-4532	256-4532
c. ADDRESS (Include Zip Code) Commander, U.S. Army Natick RD&E Center ATTN: SATNC-IR Natick, MA 01760-5019	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340	

DD Form 1426, OCT 89 Previous editions are obsolete.

MIL-C-5651D
26 September 1985
SUPERSEDING
MIL-C-5651C
2 March 1977

MILITARY SPECIFICATION

CORD, ELASTIC, EXERCISER AND SHOCK ABSORBER, FOR AERONAUTICAL USE

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1 SCOPE

1.1 Scope. This specification covers the requirements for three types of elastic shock absorbing and exerciser cord for aeronautical use.

1.2 Classification. The elastic cord shall be furnished in the following types, as specified (see 6.2.1):

Type	Description
I	Straight cord with double braided cover (shock absorbing).
II	Endless ring (Bungee) with double braided cover (shock absorbing).
III	Straight cord with single braided cover (exerciser cord).

2 APPLICABLE DOCUMENTS

2.1 Government documents.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Systems Engineering and Standardization Department (Code 93), Naval Air Engineering Center, Lakehurst, NJ 08733, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

FSC 8305

2.1.1 Specifications, standards, and handbooks Unless otherwise specified, the following specifications, standards, and handbooks of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation form a part of this specification to the extent specified herein.

SPECIFICATIONS

FEDERAL

MMM-A-260	-	Adhesive, Water-Resistant, (For Sealing Waterproofed Paper).
PPP-B-636	-	Boxes, Shipping, Fiberboard.
PPP-B-1055	-	Barrier Material, Waterproofed, Flexible.
PPP-T-60	-	Tape, Packaging, Waterproof.
PPP-T-76	-	Tape, Packaging, Paper (For Carton Sealing)

MILITARY

MIL-B-131	-	Barrier Materials, Watervaporproof, Flexible, Heat-Sealable.

STANDARDS

MILITARY

MIL-STD-105	-	Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-129	-	Marking for Shipment and Storage.

(Copies of specifications, standards, handbooks, drawings, and publications required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

2.2 Other publications. The following document forms a part of this specification to the extent specified herein. The issues of the documents which are indicated as DoD adopted shall be the issue listed in the current DoDISS and the supplement thereto, if applicable.

UNIFORM CLASSIFICATION COMMITTEE, AGENT

Uniform Freight Classification Rules

(Application for copies should be addressed to the Uniform Classification Committee, Room 1106, 222 South Riverside Plaza, Chicago, IL 60606.)

(Industry association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

2.3 Order or precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

3. REQUIREMENTS

3.1 First article. When specified, samples shall be subjected to first article inspection (see 4.3 and 6.3).

3.2 Materials.

3.2.1 Strands. The strands shall be made from natural, synthetic, or a mixture thereof of synthetic natural rubber compound having such qualities that, when encased in a braided cover (Types I and II double braided, Type III single braided), the finished cord shall conform to the requirements specified herein. Reclaimed rubber shall not be used.

3.2.2 Yarns. The yarns for the braid shall be spun from a good grade and staple of cotton that shall be free of imperfections and impurities.

3.3 Design and construction. The elastic shock absorber cord (Types I and II) and the elastic exerciser cord (Type III) shall be composed of multiple strands tightly encased within a double layer of cotton braid for Types I and II and a single layer of cotton braid for Type III.

3.3.1 Strands. The strands shall be continuous throughout the length of the cord and, in a given cord, shall be of uniform size and configuration. Strands shall be thoroughly treated with soapstone or talc to prevent them from adhering to each other in the finished cord.

3.3.2 Braid. All cord shall be braided with a sufficient number of ends that, when the cord is elongated 100 percent, the braid shall be tight and prevent dirt from entering between the individual yarns of the braid. The minimum number of ends in the braid for all cords shall be as specified in Table I.

3.3.2.1 Type I braid. The Type I cord shall be double braided from natural color cotton ply yarns. The outer braid shall consist of glazed (polished) yarns and the inner braid shall consist of soft finished yarns.

3.3.2.2 Type II braid. Type II bungee ring cord shall be double braided from natural color cotton ply yarns. The inner and outer braid shall be fabricated from glazed yarns.

3.3.2.3 Type III braid. Type III shall be a single cotton braid consisting of ply yarns of a colorfast color specified by the acquisition activity (see 6.2.1).

3.4 Size and tolerance.

3.4 1 Diameters. The elastic cord shall be furnished in the diameters specified in Table I. The tolerances, as applicable, shall be as follows:

Types I and II: +.047, -0 inch (+0.119, -0 cm).
Type III: +.031, -0 inch (+0.079, -0 cm).

3.4.2 Lengths. Unless otherwise specified (see 6.2.1), the cord lengths shall be as specified in Table II.

3.5 Physical properties. The physical properties of the cords shall conform to Table III. Type II bungee ring cord shall meet all the requirements for Type I cord in addition to those for Type II.

3.6 Age limitation. Elastic cord furnished under this specification shall be not more than six (6) months old from date of manufacture to date of delivery (see 6.2.2).

3.7 Product identification. The elastic cord shall be identified as to type and date of manufacture by using dyed yarns as part of the outer braid. Type I cords shall be identified by two dyed ends indicating year of manufacture (see 3.7.1.1) and a third indicating quarter of manufacture (see 3.7.1.2). Type III cord shall utilize three dyed ends for the year (see 3.7.1.1) and a fourth dyed end for the quarter of manufacture (see 3.7.1.2). The identification ends shall be separated by one or two natural color or olive drab dyed ends.

3.7.1 Identification yarn colors.

3.7.1.1 Year of manufacture. The following colorfast identification yarn colors shall be used to distinguish the year of manufacture:

1982 - Red
1983 - Blue
1984 - Yellow
1985 - Black
1986 - Green

For succeeding years, this cycle shall be repeated.

3.7.1.2 Quarter of manufacture. The following colors shall be used to distinguish the quarter year of manufacture:

January through March - Red
April through June - Blue
July through September - Green
October through December - Yellow

3.8 Workmanship. Workmanship shall be in accordance with high grade practice covering this class of material.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

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

a. First article inspection (see 4.3).

b. Quality conformance inspection (see 4.4).

4.3 First article inspection. The first article inspection of the cords shall consist of tests and examinations for all the requirements of this specification.

4.3.1 First article samples. Unless otherwise specified, as soon as practicable after the award of the contract or order, the contractor shall submit 80 feet (24 meters) for each type and size ordered in the contract. The samples shall be representative of the construction, workmanship, components and materials to be used during production. When a contractor is in continuous production of these cords from contract to contract, submission of further first article inspection samples, on the new contract, may be waived at the discretion of the acquiring activity (see 6.2.1). Approval of the first article inspection samples or the waiving of the first article inspection does not waive the requirements for performing the quality conformance inspection. The first article inspection samples shall be furnished to the Government as directed by the contracting officer (see 6.2.1). The first article inspection sample shall be identified by securely attached tags or labels durably marked with the following information:

Sample for First Article Inspection
CORD: ELASTIC, EXERCISER AND SHOCK ABSORBER,
FOR AERONAUTICAL USE
Type and size as applicable
Name of manufacturer
Name of distributor (if applicable)
Product designation (manufacturer's)
Date of manufacture
Submitted by (name) (date) for first article inspection
in accordance with the requirements of MIL-C-5651D.

4.3.2 Test report. Two copies of the contractor's test report, containing complete test data for the end item and for each component required herein and referring specifically to the applicable paragraphs, shall be submitted with the first article inspection sample.

4.4 Quality conformance inspection.

4.4.1 Lot formation. Unless otherwise specified, a lot shall consist of all the elastic cord of the same type and size produced under essentially the same manufacturing condition and from the same material, at one plant, and ready for inspection at the same time. Unless otherwise specified, the lot size shall be expressed as the total number of feet (m) in the lot.

4.4.2 Sampling.

4.4.2.1 Dimensional. The unit of product for this inspection shall be one coil, core, or spool of cord The sample size shall be as specified in Table IV. Each unit shall be examined as specified in 4.4.3.1.

4.4.2.2 Visual. The sample size shall be determined in accordance with Inspection Level I of MIL-STD-105. The unit of product shall be one (1) foot (0.3 m). An approximately equal number of units of product from the cores, coils, or spools, selected as specified in 4.4.2.1, shall be used for the visual sample. Each unit shall be examined as specified in 4.4.3.2.

4.4.2.3 Physical properties. The sample size shall be determined in accordance with Inspection Level S-1 of MIL-STD-105. The unit of product shall be 10 feet (3 m). Each unit shall be examined as specified in 4.4.3.3.

4.4.2.4 Packaging. A quantity of shipping containers prepared for delivery, just prior to closure, shall be randomly selected from each lot in accordance with Inspection Level I of MIL-STD-105. The lot size for purposes of sampling shall be the number of shipping containers in the lot. Examination shall be as specified in 4.4.3.4.

4.4.3 Inspection procedure.

4.4.3.1 Dimensional. Units of product selected as specified in 4.4.2.1 shall be examined for length as follows: Any individual length found to be less than the specified minimum length (50 feet) (15 m) or any total length less than 2 feet (0.6 m) below the length specified on the package shall be considered a defect. The diameter of the cord shall be measured at least 5 times during the length measurement. The acceptance number shall be as specified in Table IV. In addition, when the actual total length in the entire sample is less than the total specified on the packages, the entire lot shall be considered unacceptable.

4.4.3.2 Visual. Units of product selected as specified in 4.4.2 2 shall be examined to the requirements specified in Table V. The Acceptable Quality Level (AQL) shall be 0.15 for major and 1.0 total combined (major plus minor) defects per 100 units of product (feet) (30 units of product m).

4.4.3.3 Physical properties. Each unit of product selected as specified in 4.4.2.3 shall be examined to the requirements specified in Table VI. Nonconformance of any unit of product to a single applicable requirement shall be cause to reject the lot represented by the sample.

4.4.3.4 Packaging inspection. Shipping containers selected as specified in 4.4.2.4 shall be examined for conformance to Table VII and the requirements of Section 5 of this specification. The AQL shall be 2.5 percent defective. In addition, shipping containers fully prepared for delivery shall be examined for closure defects.

4.5 Test conditions.

4.5.1 Standard conditions. Standard conditions shall be 23 ± 3°C (73.4 ± 5°F) and a relative humidity of 50 ± 5 percent.

4.5.2 Conditioning. Unless otherwise specified herein, all test fixtures and measurement gauges shall be maintained at standard conditions for 24 hours prior to tests. In addition, all cord shall be conditioned for at least 7 days from the date of manufacture before testing.

4.5.3 Reporting of test results. Unless otherwise specified in the applicable test method, test results shall be reported as the average of all values obtained. However, each individual value shall be noted in the test report and shall conform to the specified requirement. When comparison of initial and after conditioning values are indicated, the comparison shall be determined on the reported average.

4.6 Test methods.

4.6.1 Construction details.

4.6.1.1 Visual. The elastic cord shall be carefully examined to determine conformance with the requirements for materials, workmanship, construction, and marking (year and quarter of manufacture).

4.6.1.2 Dimensions. The diameter of the cord shall be measured at 5 different locations. The average value shall be reported.

4.6.1.3 Weight. A 12 ± 0.031 inch (30 ± 0.08 cm) length of cord shall be weighed to the nearest 0.1 gram. Weight in pounds per 100 feet (kilograms per 30 m) of cord shall be determined as follows:

W E 453.6 x100 = Weight in pounds per 100 feet.

W E 10 = Weight in kilograms per 30 meters.

Where:

W = Weight in grams.

4.6.2 Tensile properties.

4.6.2.1 Specimen preparation. Three lengths of cord, at least 12 inches (30 cm) long, shall have each end tied with a slip knot using cord material of greater strength than the elastic cord. Two inch (5 cm) bench marks shall be located approximately equidistant from the midpoint of the cord.

4.6.2.2 Procedure. One end loop shall be attached to the stationary pin and the opposite end to the movable head of a tensile testing apparatus. In the event it is not possible to grip large cord sizes by this method, split drum type grips shall be used. The rate of jaw separation shall be 20 inches (50 cm) per minute. The load, in pounds (kilograms), required to produce elongations of 50, 75, 100 and 125 percent and the breaking point shall be recorded. Ultimate elongation shall be determined from the following:

$$\text{Ultimate elongation } \% = \frac{A - B}{B} \times 100$$

Where:

A = Bench mark length at break (inch) (cm).

B = Initial bench mark length (inch) (cm).

The results of all the above tensile properties shall be reported as the average initial value.

4.6.3 Drift and set.

4.6.3.1 Specimen preparation. Three specimens shall be prepared as specified in 4.6.2.1. Each specimen shall be fitted within a drift apparatus (a device which maintains an applied elongation), attached to the tensile testing machine, and extended to 100 percent elongation. The load in pounds (kilograms) shall be recorded (A), and the drift apparatus engaged to sustain the elongaton of the cord. The entire apparatus shall then be removed from the tensile machine.

4.6.3.2 Drift determination. The elongated specimens shall be conditioned 16 $\pm$ 0.25 hours at standard conditions (see 4.5.1). Upon completion of the conditioning period, the drift apparatus shall be re-attached to the tensile testing machine and 50 percent of the initial load (A) applied. The drift apparatus shall be disengaged, allowing the specimen to relax, followed by loading to 100 percent elongation. The load, in pounds (kilograms), (B) shall be recorded. Drift (percent loss in tension) shall be calculated as follows:

$$\text{Percent drift} = \frac{A - B}{B} \times 100$$

Where:

A = Initial load (pounds) (kilograms).

B = After conditioning load (pounds) (kilograms).

4.6.3.3 Set determination. Upon completion of 4.6.3.2, the specimen shall be removed from the drift apparatus and allowed to relax for 10 minutes. The distance between bench marks shall then be measured. Percent set shall be calculated as follows:

$$\text{Percent set} = \frac{A - B}{B} \times 100$$

Where:

A = After conditioning, bench mark distance (inch) (cm).

B = Initial bench mark distance (inch) (cm) (see 4.6.3.1).

4.6.4 Flexure.

4.6 4.1 Test conditions Two specimens of each type I and III cords and size shall be tested at 70 ± 1°C (158 ± 2°F). A length of cord, at least 18 inches (45 cm) long, with a 10 inch (25 cm) bench mark centrally located along the lengthwise axis, shall constitute one test specimen. The specimen shall be installed in a flex apparatus equipped with a movable grip which reciprocates to produce the elongations required below. The apparatus shall be capable of maintaining the test temperature.

4.6.4.1.1 Type I. Type I specimens shall be elongated from a minimum 10 percent to a total of 50 percent elongation and return per cycle at a flexing frequency of 30 cycles per minute.

4.6.4.1.2 Type III. Type III specimens shall be elongated from a minimum of 10 percent to a total of 100 percent elongation and return per cycle at a flexing frequency of 60 cycles per minute.

4.6.4.2 Evaluation. The flexing test shall continue until the specimen fails or the specified cycles (see Table III) are completed. In addition, each specimen that successfully completes the flexing test shall show no evidence of failure of individual strands or braid.

4.6.5 Low temperature properties.

4.6 5.1 Percent change in load. Six specimens shall be prepared as specified in 4.6.2.1. Three specimens shall be loaded to 100 percent elongation (50 percent for 0.75 inch (1.91 cm) diameter) at room temperature. The rate of jaw separation shall be 2 inches (5 cm) per minute. The load shall be recorded and averaged. The remaining specimens shall be exposed at -40 ± 1°C (-40 ± 2 degrees F) for 5 ± 0.25 hours. The load required to produce the applicable elongation shall be determined while the specimens are at the exposure temperature. The load, in pounds (kilograms), shall be recorded and averaged. Percent change in load shall be calculated as follows:

$$\text{Percent change in load} = \frac{A - B}{B} \times 100$$

Where:

A = Load, in pounds (kilograms), at -40°C (average of 3 determinations).

B = Load, in pounds (kilograms), initial (average of 3 determinations).

4.6.5.2 Set. Percent set at low temperature (-40°C) shall be determined by maintaining the load required to produce the low temperature elongation in 4.6.5.1 for a period of 5 minutes. The load shall be released and the distance between the bench marks measured after one minute (after conditioning distance). Percent set shall be calculated as specified in 4.6.3.3.

4.6.6 Heat aging properties.

4.6.6.1 Exposure conditions. Five lengths of elastic cord, at least 18 inches (45 cm) long, shall be exposed in a circulating air oven at 70 ± 1°C (158 ± 2°F) for 7 days ± 1 hour. After the heat cycle, the lengths of cord shall be removed from the oven and allowed to remain at standard conditions (see 4.5.1) for a minimum of 20 hours before initiation of tests.

4.6.6.2 Tensile tests. Testing shall be in accordance with 4.6.2. Three lengths of cord exposed as specified in 4.6.6.1 shall be used to prepare three specimens in accordance with 4 6.2.1. All results shall be averaged and reported as the percent change from the initial values. Calculation shall be as follows:

$$\text{Percent change} = \frac{A - B}{B} \times 100$$

Where:

A = After aging, load in pounds (kilograms) at 100 percent elongation, breaking strength or ultimate elongation, as applicable (average of values).

B = Initial averaged values (from 4.6.2.2).

4.6.6.3 Flex test. The remaining two lengths of cord from 4.6.6.1 shall be subjected to the flex test of 4.6 4. Number of cycles shall be as specified in Table III.

5. PACKAGING

5.1 Preservation. Preservation shall be Level A or Commercial, as specified (see 6.2.1).

5.1.1 Level A. Interior packages shall consist of reels or spools of the elastic cord in lengths specified in Table II. Each reel or spool shall be wrapped in kraft paper and overwrapped or bagged in barrier material conforming to PPP-B-1055 or MIL-B-131, Class 2. The barrier material shall be sealed using tape conforming to PPP-T-60 or PPP-T-76 or adhesive conforming to MMM-A-260. When applicable, the barrier material may be heat sealed.

5.1.2 Commercial. Cords shall be preserved in accordance with the manufacturer's commercial practice.

5.2 Packing. Packing shall be level A, B, or C, as specified (see 6.2.1).

5.2.1 Level A. Interior packages and coils shall be packed in fiberboard shipping containers conforming to Type CF or SF, Class Weather Resistant, Style FOL of PPP-B-636. Net weight of the contents shall not exceed 65 pounds (30 kilograms). Closure shall be in accordance with the appendix of PPP-B-636.

5 2.2 Level B. Interior packages and coils shall be packed in fiberboard shipping containers conforming to Type CF or SF, Class Domestic, Style FOL of PPP-B-636. Net weight of the contents shall not exceed 65 pounds (30 kilograms). Closure shall be in accordance with the appendix of PPP-B-636.

5 2.3 Level C. Interior packages and coils shall be packed in containers of the size and kind commonly used for the purpose in a manner that will insure acceptance by common carrier and safe delivery at destination. Shipping containers shall comply with the Uniform Freight Classification Rules or regulations of other carriers as applicable to the mode of transportation.

5.3 Marking. In addition to markings required by the contract or order, spools, coils, reels, interior packages, and shipping containers shall be marked in accordance with MIL-STD-129.

5.3.1 Additional Markings. A tag shall be attached to the cord on each spool, coil, reel, or other container. The tag shall be durable and shall be attached to the cord until it is completely expended. The tag shall include the following:

CORD, ELASTIC, EXERCISER OR SHOCK ABSORBER
MIL-C-5651D
TYPE
SIZE
QUANTITY (FEET, METERS)
CONTRACT OR ORDER NUMBER
MANUFACTURER'S DESIGNATION
NATIONAL STOCK NUMBER

6. NOTES

6.1 Intended use. The elastic cord is intended for use as follows:

Types I and II - Shock mount installations.

Type III - Opening elastic on parachute packs, camera or instrument cradle mounts, airship valve control lines and where a shock absorbing cord of low initial tension is required.

6.2 Ordering data.

6.2.1 Acquisition requirements. Acquisition documents should specify the following:

a. Title, number, and date of this specification.

b. Type required (see 1.2)

c. Size required (diameter) (see Table I).

d. Length.

e. Whether first article is required (see 3.2, 4.3.1 and 6.3).

f. Name and address of activity to conduct first article inspection (see 4.3.1).

g. Levels of preservation-packaging and packing (see 5.1).

6.2.2 Data requirements. When this specification is used in an acquisition which incorporates a DD Form 1423, Contract Data Requirements List (CDRL), the data requirements identified below shall be developed as specified by an approved Data Item Description (DD Form 1664) and delivered in accordance with the approved CDRL incorporated into the contract. When the provisions of FAR 52 209 are invoked and the DD Form 1423 is not used, the data specified below shall be delivered by the contractor in accordance with the contract or purchase order requirements. Deliverable data required by this specification is cited in the following paragraphs:

Paragraph no.	Data requirement	Applicable DID no.
3.6	Certificate of compliance for the age of materials and components	DI-E-2121
4.3.1	Inspection and test reports.	DI-T-5329

(Copies of data item descriptions required by contractors in connection with specific acquisition functions should be obtained from the Naval Publications and Forms Center or as directed by the contracting officer.)

6.3 First article instructions.

6.3.1 Testing instructions. When a contractor is in continuous production of the cord from contract to contract, consideration should be given to waive first article inspection (see 4.3.1). When inspection is required the following shall apply:

a. Rebranded products shall be subject to first article inspection.

b. First article approval shall be granted only to the plant producing the sample. Separate sets of data are required for each plant.

c. First article testing may be performed at the manufacturer's or distributor's facility under the supervision of an authorized Government representative. Optionally, commercial laboratories may be utilized when acceptable to the Government. Forty feet (12 m) of the first article sample prepared for 4.3 shall be used for these tests.

6 3.2 Report instructions First article certified tests reports shall include the following:

a. Name and address of manufacturer.

b. Plant location.

c. Product designation.

d. When rebranded, include name and address of distributor and distributor's product designation.

e. Tabulation of test results in accordance with this specification. Include requirements and test method paragraph numbers.

f. Signature of responsible official (manufacturer, distributor, or commerical laboratory, as applicable) attesting to the validity of the data presented.

g. Signature of authorized Government representative approving the first article report.

6.3.3 Distribution of report. In addition to the distribution required by the contract or order, the following distributions shall be made:

a. One copy and 40 feet (12 m) of the first article sample from 4.3 shall be forwarded to the Commander, Naval Air Development Center, Code 6062, Warminster, PA 18974.

b. One copy to the Commander, Naval Air Systems Command, Washington, DC 20361, Attention: AIR-5304C.

c. One copy to the San Antonio Air Logistics Center, Kelly Air Force Base, TX 78241.

6.4 Metric conversions. Metric system conversions shown herein are exact equivalent values for those properties critical to the design of the product. All other conversions are approximate.

6.5 Changes from previous issue Asterisks are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians:
Army - ME
Navy - AS

Review activities:
Army - AV, MI, AR

User activities:
Army - GL
Navy - MC

Preparing activity
Navy - AS

(Project 8305-0956)

TABLE I. Number of ends in braid.

Size, OD of finished cord, inch (centimeter)	Number of ends	
	Inner braid	Outer braid
TYPE I:		
.250 (.635)	16	24
.375 (.953)	24	48
.500 (1.27)	32	72
.625 (1.59)	48	72
.750 (1.91)	60	96
TYPE II:		
.250 (.635)	32	32
.375 (.953)	48	48
.437 (1.11)	48	48
.500 (1.27)	48	48
.562 (1.43)	48	48
.625 (1.59)	48	48
.687 (1.75)	48	48
.750 (1.91)	64	64
.812 (2.06)	64	64
TYPE III:		
.125 (.32)	-	32
.187 (.476)	-	32
.312 (.794)	-	32

TABLE II. Cord lengths, spools, and reels. 1/

Cord size, diameter, inch (cm)	Length, feet (m) (± 5%) 2/
.250(.635), .375(.953), .500 (1.27)	500 (150)
.187(.474), .312(.792), .625 (1.588)	250 (75)
.750 (1.905)	200 (60)

1/ Cord acquired in lengths not exceeding 50 feet (15 m) shall be furnished as coils.

2/ Short lengths may be furnished; however, no individual length shall be less than 50 feet (15 m).

TABLE III. Physical properties.

Characteristic	Requirements							
Type	I					III		
Diameter/in inches (centimeters)	.250(635)	.375(953)	500(1 27)	.625(1.59)	.750(1 91)	.125(.32)	187(476)	.312(.794)
Weight·								
lbs/100 ft.	2 4	5 5	9.0	14	22	1 85	1.3	3.1
kg/30m	1 1	2 5	4.0	6.3	9.8	.84	.58	1.4
Tensile properties, load·								
@ 50% elongation								
lbs.	8 12	30-60	80-120	100-180	200-350	1-2.5	2-6	5-10
kg.	3 6-5.5	13.6-27 2	36.3-54 5	45-82	91-159	.45-1 2	.91-2.7	2.3-4.5
@ 75% elongation·								
lbs	10-18	50-100	110-190	160-250	300-450	1 9-3 4	4-8	6-12
kg	4 5-8.2	23-45	50-86	73-113	136-204	.86-1.5	1 8-3 6	2.7-5.4
@ 100% elongation:								
lbs.	16-28	90-150	175-250	250-350	400-650	2.4-4 5	6-10	8-15
kg	1 3-12 7	41-68	79-113	113-159	182-295	1 1-2 0	2 7-4.5	3 6-6 8
@ 125% elongation·								
lbs.	-	-	-	-	-	2.9-5.4	8-12	10-18
kg.	-	-	-	-	-	1.3-2 4	3 6-5 4	4.5-8 2
Breaking strength min ·								
lbs	120	300	400	500	1000	30	45	75
kg	54 5	136	193	227	454	13 6	20 5	34
Ultimate elongation % min	140	140	140	140	120	200	200	200
Drift, %, max	20	20	20	20	20	10	10	10
Set, % max	10	10	10	10	10	5	5	5
Low temp set, %, max	10	10	10	10	10	5	5	5
Flex, cycles, min	5×10^4	5×10^4	5×10^4	5×10^4	1×10^4	3.5×10^4	3.5×10^4	$3 5 \times 10^4$
Low temp exposure load, % change from initial max.	+50	+50	+50	+50	+50	+12	+12	+12

TABLE III Physical properties. - Continued

Characteristic	Requirements								
Type	I					III			
Diameter/in inches (centimeters)	250(635)	375(953)	500(1 27)	625(1 59)	750(1 91)	125(32)	187(476)	312(794)	
After heat aging, % change from initial value. Load @ 100% elongation	-35 to +20	-40 to +20	-40 to +20	-45 to +20	-50 to +20	-30 to +20	-30 to +20	-30 to +20	
Breaking strength, max.	-40	-40	-40	-40	-40	-20	-20	-20	
Ultimate elongation, max	-30	-20	-20	-20	-20	-20	-20	-20	
Flex, cycles, min	5×10^3	5×10^3	5×10^3	5×10^3	2×10^3	9×10^3	9×10^3	10×10^3	
Type	II								
Diameter/in inches (centimeters)	250(635)	375(953)	438(1 11)	500(1.27)	.562(1 43)	625(1.59)	687(1.75)	.750(1 91)	812(2.06)
Load @ 100% elongation lbs kg	32-56 14 5-25 4	180-300 82-136	260-400 118-182	350-500 159-227	425-600 193-272	500-700 227-318	650-850 295-386	800-1300 363-590	1100-1500 499-681

TABLE IV. Dimension sample size and acceptance number.

Lot size, feet (meters (m)) 1/	Sample size cores, coils, or spools 2/	Maximum number of defects acceptable in sample
Up to 1,300 (up to 400)	3	0
1,301 to 3,200 (401 to 980)	5	0
3,201 to 8,000 (981 to 2,440)	7	0
8,001 to 22,000 (2,441 to 6,700)	10	0
22,001 to 110,000 (6,701 to 33,500)	15	1
110,001 and over (35,501 and over)	25	1

1/ Metric conversions are not exact.

2/ When a lot contains fewer than 3 rolls, coils, or spools, the entire lot shall be the sample.

TABLE V. Visual examination

Examination	Defect	Major	Minor
Marker threads	Not correct color code or showing more than 6 months of age	X 1/	
Cord strands	Not stranded	X	
	Strands adhere to each other		X
Cover	Abrasion marks resulting in a weak spot	X	
	Broken or missing yarn Two or more contiguous regardless of length	X	
	Knot, clearly visible 2/		X
	Spot or stain, clearly visible 2/		X
	Does not adhere tightly to the cord	X	
	Float multiple	X	

1/ Any spool or coil indicated overage by marker end examination shall be removed and replaced with another sample. When corrected, this examination shall not be scored as a defect.

2/ Observed at normal inspection distance (approximately 3 feet (1 m)).

TABLE VI. Quality conformance physical property inspection.

Property	Requirement	Test paragraph	Number of determinations per unit of product 1/
Weight per 100 feet (30 m), max.	Table III	4.6.1.3	1
Load in lbs: 2/			
50% elongation	Table III	4.6.2	3 3/
75% elongation	Table III	4.6.2	3
100% elongation	Table III	4.6.2	3
125% elongation	Table III	4.6.2	3
Breaking strength, lbs., min.	Table III	4.6.2	3
Ultimate elongation %, min.	Table III	4.6.2	3

1/ Reporting of test results shall be as specified in the applicable test paragraph and 4.5.3.

2/ Load in pounds (lbs.) shall be determined dependent on type applicability (see Table III).

3/ The specimens for 50% elongation shall be used to determine the remaining properties specified in 4.6.2.

TABLE VII. Packaging examination.

Examination	Defect
Packaging	Not level required by contract or order Material or construction not as specified
Packing	Not level required by contract or order Any nonconforming component Closure not as specified Material or construction not as specified
Count	Less than specified in contract or order
Marking	Packaging and packing-omitted, illegible, incorrect, incomplete or not in accordance with contract

INSTRUCTIONS In a continuing effort to make our standardization documents better, the DoD provides this form for use in submitting comments and suggestions for improvements All users of military standardization documents are invited to provide suggestions This form may be detached, folded along the lines indicated, taped along the loose edge *(DO NOT STAPLE)*, and mailed In block 5, be as specific as possible about particular problem areas such as wording which required interpretation, was too rigid, restrictive, loose, ambiguous, or was incompatible, and give proposed wording changes which would alleviate the problems. Enter in block 6 any remarks not related to a specific paragraph of the document If block 7 is filled out, an acknowledgement will be mailed to you within 30 days to let you know that your comments were received and are being considered

NOTE This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document*(s)* or to amend contractual requirements.

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Naval Air Engineering Center
Systems Engineering Standardization Department
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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions – Reverse Side)

1. DOCUMENT NUMBER: MIL-C-5651D

2. DOCUMENT TITLE: Cord, Elastic, Exerciser and Shock Absorber for Aeronautical Use

3a. NAME OF SUBMITTING ORGANIZATION

b. ADDRESS *(Street, City, State, ZIP Code)*

4. TYPE OF ORGANIZATION *(Mark one)*

- [ ] VENDOR
- [ ] USER
- [ ] MANUFACTURER
- [ ] OTHER *(Specify)* _____

5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording

c. Reason/Rationale for Recommendation

6. REMARKS

7a. NAME OF SUBMITTER *(Last, First, MI)* – Optional

b. WORK TELEPHONE NUMBER *(Include Area Code)* – Optional

c. MAILING ADDRESS *(Street, City, State, ZIP Code)* – Optional

8. DATE OF SUBMISSION *(YYMMDD)*

DD FORM 1426 PREVIOUS EDITION IS OBSOLETE

INCH-POUND
MIL-DTL-32439
19 February 2013
SUPERSEDING
MIL-C-43734D
20 August 1987

DETAIL SPECIFICATION

CLOTH, DUCK, TEXTURED NYLON

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the requirements for textured nylon duck cloth, dyed or printed with a camouflage pattern.

1.2 Classification. The cloth covers the following Types, Classes and Styles as specified (see 6.2):

Type I - 1000 denier
- Class 1 - 9.5 oz/sq yd, Untreated
- Class 2 - 9.5 oz/sq yd, Water repellent
- Class 3 - 12.0 oz/sq yd, Water repellent/back coated
- Class 4 - 12.0 oz/sq yd, Water repellent/flame retardant

Type II - 725 denier
- Class 1 - 7.5 oz/sq yd Untreated
- Class 2 - 7.5 oz/sq yd, Water repellent
- Class 3 - 10.0 oz/sq yd, Water repellent/back coated

Comments, suggestions, or questions on this document should be addressed to Attn: DLA Troop Support Standardization Team, 700 Robbins Avenue, Philadelphia, PA 19111-5096. Since contact information can change, you may want to verify the currency of the address information using Acquisition Streamlining and Standardization Information System (ASSIST) online database https://assist.dla.mil

AMSC NA FSC 8305

Type III - 500 denier
- Class 1 - 7.0 oz/sq yd Untreated
- Class 2 - 7.0 oz/sq yd, Water repellent
- Class 3 - 8.0 oz/sq yd, Water repellent/back coated
- Class 4 - 9.5 oz/sq yd, Water repellent/flame retardant

Type IV - 330 denier
- Class 1 - 4.0 oz/sq yd Untreated
- Class 2 - 4.0 oz/sq yd, Water repellent
- Class 3 - 5.5 oz/sq yd, Water repellent/back coated

Style A - Solid shade
Style B - Woodland Camouflage printed
Style C - Desert Camouflage printed (3 Color)
Style D - Universal Camouflage printed (UCP)
Style E - Woodland Camouflage printed Marine Pattern (MARPAT)
Style F - Desert Camouflage printed, Marine Pattern (MARPAT)
Style G - Operation Enduring Freedom Camouflage Pattern (OCP)

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, 4 or 5 of this specification. This section does not include documents cited in other sections of this specification, or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3, 4 or 5 of this specification whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those cited in the solicitation or contract (see 6.2).

FEDERAL STANDARDS

FED-STD-4 - Glossary of Fabric Imperfections

COMMERCIAL ITEM DESCRIPTIONS

A-A-59826 - Thread Nylon

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-1487 - Glossary of Cloth Coating Imperfections

(Copies of these documents are available online at https://assist.dla.mil/quicksearch/ or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.2.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation or contract. (See 6.2).

DRAWINGS

U.S. ARMY NATICK SOLDIER, RESEARCH, DEVELOPMENT, AND ENGINEERING CENTER

2-1-1516	-	Woodland Camouflage Pattern
2-1-2240	-	Desert Camouflage Pattern (3 color)
2-1-2519	-	Universal Camouflage Pattern
2-1-2519-1	-	ARPAT Camouflage Pattern, Desert Sand 500
2-1-2519-2	-	ARPAT Camouflage Pattern, Urban Gray 501
2-1-2519-3	-	ARPAT Camouflage Pattern, Foliage Green 502
2-1-2525	-	Woodland MARPAT Pattern 4 color (Coyote 476)
2-1-2526	-	Woodland MARPAT Pattern 4 color (Green 474 with EGA symbol)
2-1-2527	-	Woodland MARPAT Pattern 4 color (Black 477)
2-1-2528	-	Woodland MARPAT Pattern 4 color (Kahki 475)
2-1-2529	-	Desert MARPAT Pattern 4 color (Light Tan 479)
2-1-2530	-	Desert MARPAT Pattern 4 color (Urban Tan 478)
2-1-2531	-	Desert MARPAT Pattern 4 color (Light Coyote 481 with EGA symbol)
2-1-2532	-	Desert MARPAT Pattern 4 color (Highland 480)

(Copies of drawings are available from the U.S. Army Natick Research Development and Engineering Center, Natick Soldier Center, ATTN: -RDNS-WPC, Natick, MA 01760.)

CODE OF FEDERAL REGULATIONS

27 CFR Part 21 - Formula for Denatured alcohol
40 CFR Parts (150 – 180) – Protection of Environment

(Copies of these documents are available on-line at http://www.gpoaccess.gov/cfr/index.html or from U.S. Government Printing Office, Superintendent of Documents, Mail Stop, Washington, DC 20402-9328).

ENVIRONMENTAL PROTECTION AGENCY

EPA Pollutants/toxins subtopics
Federal Insecticide, Fungicide and Rodenticide Act.

(Copies are available online at http://www.epa.gov/pesticides or from the Environmental Protection Agency, 1200 Pennsylvania Avenue, N.W., Washington, D.C. 20460.)

FEDERAL TRADE COMMISION

Rules and Regulations Under the Textile Fiber Products Identification Act

(Copies are available online at http://www.ftc.gov or from the Federal Trade Commission, 600 Pennsylvania Avenue, N.W., Washington, DC 20580-0001.)

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract (see 6.2).

AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS (AATCC)

AATCC Test Method 8 - Colorfastness to Crocking: AATCC Crockmeter Method
AATCC Test Method 15 - Colorfastness to Perspiration
AATCC Test Method 16 - Colorfastness to Light
AATCC Test Method 20 - Fiber Analysis: Qualitative
AATCC Test Method 22 - Water Repellency: Spray Test
AATCC Test Method 61 - Colorfastness to Laundering, Accelerated
AATCC Test Method 70 - Water Repellency: Tumble Jar Dynamic Absorption Test
AATCC Test Method 81 - pH of the Water-Extract from Wet Processed Textiles
AATCC Test Method 96 - Dimensional Changes in Commercial Laundering of Woven and Knitted Fabrics Except Wool
AATCC Test Method 118- Oil Repellency: Hydrocarbon Resistance Test
AATCC Test Method 119- Color Change Due to Flat Abrasion (Frosting): Screen Wire Method
AATCC Test Method 127- Water Resistance: Hydrostatic Pressure Test
AATCC Test Method 135- Dimensional Changes of Fabrics after Home Laundering
AATCC Test Method 169- Weather Resistance of Textiles Xenon Lamp Exposure
AATCC Evaluation Procedure 1 – Gray Scale for Color Change
AATCC Evaluation Procedure 2 – Gray Scale for Staining
AATCC Evaluation Procedure 8 – AATCC 9-Step Chromatic Transference Scale
AATCC Evaluation Procedure 9 – Visual Assessment of Color Difference of Textiles

(Copies are available on line at http://www.aatcc.org or from the American Association of Textile Chemists and Colorists, P.O. Box 12215, Research Triangle Park, NC 27709-2215.)

ASTM INTERNATIONAL

ASTM D 276	- Standard Test Methods for Identification of Fibers in Textiles
ASTM D 737	- Test Method for Air Permeability of Textile Fabrics
ASTM D 747	- Standard Test Method for Apparent Bending Modulus of Plastics by Means of a Cantilever Beam
ASTM D 751	- Standard Test Method for Coated Fabrics
ASTM D 1424	- Standard Test Method for Tearing Strength of Fabrics by Falling-Pendulum Type (Elmendorf) Apparatus
ASTM D 1776	- Standard Practice for Conditioning and Testing Textiles
ASTM D 1907	- Standard Test Method for Linear Density of Yarn (Yarn Number) by the Skein Method
ASTM D 2582	- Standard Test Method for Puncture-Propagation Tear Resistance of Plastic Film and Thin Sheeting
ASTM D 3775	- Standard Test Method for Warp (End) and Filling (Pick) Count of Woven Fabrics
ASTM D 3776	- Standard Test Methods for Mass Per Unit Area (Weight) of Fabric
ASTM D 3884	- Standard Guide for Abrasion Resistance of Textile Fabrics (Rotary Platform, Double-Head Method
ASTM D 5034	- Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)
ASTM D 6413	- Standard Test Method for Flame Resistance of Textiles (Vertical Test)

(Copies of documents are available online at http://www.astm.org or from the ASTM INTERNATIONAL, 100 Barr Harbor Drive, P.O. Box 700C, West Conshohocken, PA 19428-2959.)

OTHER PUBLICATIONS

Repeat Insult Patch Test-Modified Draize Procedure-
Principles and Methods of Toxicology, (fourth edition), 2001, A. Wallace Hayes (editor), pp 1057-1060.

(Copies are available online at http://www.taylorandfrancis.co.uk/ or from the Taylor and Francis Group, 325 Chestnut St., Philadelphia, PA 19106.)

Sears Fabric Defect Replica Scales

(Copies are available from Sears Roebuck and Co. “Fabric Defect Replica Kit” at SHGS Hong Kong Textile Testing Laboratory, 49/F, office Tower, Langham Place, 8 Argyle Street, Mongkok, Kowloon, Hong Kong.)

(Copies of documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

2.4 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein (except for related specification sheets), the text of this document takes precedence.

3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 6.3) in accordance with 4.2.

3.2 Standard sample. The finished cloth shall match the standard sample for shade and appearance, and shall, be equal to or better than the standard sample with respect to all characteristics for which the standard sample is referenced (see 6.4).

3.3 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible, provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

3.4 Material.

3.4.1 Yarn. The yarn shall be textured continuous filament nylon. Testing shall be as specified in 4.4.5.

3.4.1.1 Yarn denier. The yarn denier shall be 1000 for Type I, 725 for Type II, 500 for Type III and 330 for Type IV. Testing shall be as specified in 4.4.5.

3.5 Color.

3.5.1 Style A, solid shades. The Style A finished cloth shall be dyed in one of the following shades or as otherwise specified in the contract or purchase order: Camouflage Green 483, Foliage Green 504, Urban Gray 505. Coyote 498, Coyote Brown 3758, Tan 380 and Arctic White (see 6.2).

3.5.2 Style B, Woodland Camouflage print. The Style B finished cloth shall be dyed to a ground shade either matching or approximating Light Green 354 and then overprinted with the applicable Woodland Camouflage colors by roller or screen printing. When the ground shade is dyed to match Light Green 354, the remaining colors shall be obtained by subsequent printing using three rollers or screens, as appropriate for the Dark Green 355, Brown 356 and Black 357 areas of the pattern. When the ground shade is dyed to approximate Light Green 354, all four colors of the camouflage pattern shall be obtained by subsequent printing using four rollers or screens to match all four colors. The dyeing of the ground shade approximating Light Green 354

and the printing shall be accomplished by using a combination of acid dyes except for Black 357 only, carbon black alone or in combination with acid dyes shall be used. Resin bonded pigments shall not be used.

3.5.3 Style C, Desert Camouflage print (3 color). The Style C finished cloth shall be dyed to a ground shade either matching or approximating Light Tan 492 and then overprinted with the applicable Desert Camouflage colors by roller or screen printing. When the ground shade is dyed to match Light Tan 492, the remaining colors shall be obtained by subsequent printing using two rollers or screens, as appropriate for the Light Brown 493 and Light Khaki 494 areas of the pattern. When the ground shade is dyed to approximate Light Tan 492, all three colors of the camouflage pattern shall be obtained by subsequent printing using three rollers or screens to match all three colors. Resin bonded pigments shall not be used.

3.5.4 Style D, Universal Camouflage print. The Style D finished cloth shall be dyed to a ground shade either matching or approximating Desert Sand 500 and then overprinted with the camouflage pattern by roller or screen printing. When the ground shade is dyed to match Desert Sand 500, the remaining colors shall be obtained by subsequent printing using two rollers or screens, as appropriate for the Urban Gray 501 and Foliage Green 502 areas of the pattern. When the ground shade is dyed to approximate Desert Sand 500, all three colors of the camouflage pattern shall be obtained by subsequent printing using three rollers or screens to match all three colors. Resin bonded pigments shall not be used.

3.5.5 Style E, MARPAT Woodland Camouflage print. The Style E finished cloth shall be dyed to a ground shade either matching or approximating Khaki 475 and then overprinted with the camouflage pattern by roller or screen printing. When the ground shade is dyed to match Khaki 475, the remaining colors shall be obtained by subsequent printing using three rollers or screens, as appropriate for the Green 474, Coyote 476 and Black 477 areas of the pattern. When the ground shade is dyed to approximate Khaki 475, all four colors of the camouflage pattern shall be obtained by subsequent printing using four rollers or screens to match all four colors. Resin bonded pigments shall not be used.

3.5.6 Style F, MARPAT Desert Camouflage print. The Style F finished cloth shall be dyed to a ground shade either matching or approximating Light Tan 479 and then overprinted with the camouflage pattern by roller or screen printing. When the ground shade is dyed to match Light Tan 479, the remaining colors shall be obtained by subsequent printing using three rollers or screens, as appropriate for the Urban Tan 478, Highland 480 and Light Coyote 481 areas of the pattern. When the ground shade is dyed to approximate Light Tan 479, all four colors of the camouflage pattern shall be obtained by subsequent printing using four rollers or screens to match all four colors. Resin bonded pigments shall not be used.

3.5.7 Style G, Operation Enduring Freedom Camouflage print. The cloth shall be dyed to a ground shade either matching or approximating Cream 524 and then overprinting with the camouflage pattern by roller or screen printing. When the ground shade is dyed to match Cream 524, the remaining colors shall be obtained by subsequent printing using six rollers or screens, as appropriate for the Tan 525, Pale Green 526, Olive 527, Dark Green 528, Brown 529 and Dark Brown 530 areas of the pattern. When the ground shade is dyed to approximate Cream 524 all seven colors of the camouflage pattern shall be obtained by subsequent printing using seven rollers or screens to match all seven colors. Resin bonded pigments shall not be used.

3.5.8 Visual shade matching. The color and appearance of the dyed or camouflage printed finished cloth shall match the standard sample when tested as specified in 4.4.5 (see 6.4).

3.5.9 Colorfastness. The finished cloth shall conform to the colorfastness requirements specified in Table I when tested as specified in 4.4.5.

TABLE I. Colorfastness requirements (all styles).

Style	Color Evaluation	Laundering (3 cycles) 1/ (min.)	Light (40 hrs or 170 kJ 2/ (min.)	Perspiration (Acid & Alkaline) 1/ (min.)	Crocking 3/ (min.)	Accelerated weathering (80 hrs.) 2/ (min.)	Frosting (Carbon Black) 2/ (min.)
"A" Solid Shade	All colors	3-4	3-4	3-4	3.5	3-4	N/A
"B" Woodland Camouflage	All colors except Black 357	3-4	3-4	3-4	3.5	N/A	N/A
	Black 357	3	2-3	3-4	1.0	N/A	3-4
"C" Desert Camouflage 3 Color	All colors	3-4	3-4	3-4	3.5	N/A	N/A
"D" Universal Camouflage	All colors	3-4	3-4	3-4	3.5	N/A	N/A
"E" Woodland MARPAT	All colors except Black 477	3-4	3-4	3-4	3.5	N/A	N/A
	Black 477	3-4	3-4	3-4	1.5	N/A	3-4
"F" Desert MARPAT	All colors	3-4	3-4	3-4	3.5	N/A	N/A

TABLE I. Colorfastness requirements (all styles) – Continued.

Style	Color Evaluation	Laundering (3 cycles) 1/ (min.)	Light (40 hrs. or 170 kJ 2/ (min.)	Perspiration (Acid & Alkaline) 1/ (min.)	Crocking 3/ (min.)	Accelerated weathering (80 hrs.) 2/ (min.)	Frosting (Carbon Black) 2/ (min.)
"G" OCP Camouflage	All Colors	3-4		3-4	3.5	N/A	N/A
	Dk. Green 528 Brown 529, Dk. Brown 530		3-4				
	Cream 524, Tan 525 Pale Green 526, Olive 527		3				

1/ Rated using the AATCC Evaluation Procedure 1, Gray Scale for Color Change and AATCC Evaluation Procedure 2, Gray Scale for Staining.
2/ Rated using the AATCC Evaluation Procedure 1, Gray Scale for Color Change
3/ Rated using the AATCC Evaluation Procedure 8, AATCC 9-Step Chromatic Transference Scale

3.6 Pattern execution The pattern on the printed finished cloth(s) shall match the standard sample with respect to design, colors, and registration of the respective areas. The various areas of the pattern shall be properly registered in relation to each other and shall present definite sharp demarcations with a minimum of feathering or spew. Each pattern area shall show solid coverage; skitteriness exceeding that shown by the standard sample in any of the printed areas will not be acceptable. When a standard sample is not available for pattern execution, a pattern drawing will be provided (see 6.4), and the pattern on the finished cloth shall match that of the drawing (see 2.2.2. and 6.2). The pattern repeat for each style shall be as follows:

Style B Woodland Camouflage - 27.25 (+1.25, -2.50) inches in the warp direction.
Style C Desert Camouflage (3 color) - 16.75 (+1.25, -2.25) inches in the warp direction.
Style D Universal Camouflage ARPAT - 36.00 (+1.25, -2.50) inches in the warp direction.
Style E Woodland MARPAT - 27.25 (+1.25, -2.50) inches in the warp direction.
Style F Desert MARPAT - 27.25 (+1.25, -2.50) inches in the warp direction.
Style G Operation Enduring Freedom (OCP)- 25.255 (+1.25, -2.50) inches in the warp direction.

3.7 Spectral reflectance. The spectral reflectance values for each Style shall conform to the requirements specified in their respective applicable Tables II through IX when tested as specified in 4.4.5.

TABLE II. Spectral reflectance (percent), Style A.

Solid Shades														
Wave-length (nano nometers)	Camouflage Green 483		Foliage Green 504		Urban Gray 505		Coyote 498		Coyote Brown 3758		Tan 380		Tan 499	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
600	3	10	8	26	12	26	8	20	8	20	N/A	N/A	8	26
620	3	10	8	26	14	26	8	20	8	20	N/A	N/A	8	26
640	3	10	8	28	14	28	8	22	8	22	N/A	N/A	8	30
660	3	11	10	30	14	30	8	24	8	26	N/A	N/A	8	34
680	3	13	10	34	18	34	12	24	10	27	N/A	N/A	12	38
700	4	28	12	38	24	38	12	34	12	53	25	53	12	40
720	5	40	16	42	26	42	16	42	16	54	25	54	16	46
740	7	52	16	46	30	46	22	46	20	55	25	55	22	50
760	11	60	18	48	32	48	30	50	21	56	26	56	30	50
780	17	64	18	48	34	48	34	54	21	57	27	57	34	54
800	24	67	20	50	34	50	36	56	22	58	28	58	36	56
820	32	70	22	54	36	54	38	58	23	59	30	59	38	58
840	37	71	24	54	38	54	38	58	24	62	33	62	38	58
860	40	73	26	56	40	56	40	60	25	65	36	65	40	60

TABLE III. Spectral reflectance (percent), Style B.

Woodland Camouflage Pattern						
Wavelengths (nanometers)	Light Green 354		Dark Green 355 and Brown 356		Black 357	
	Min	Max	Min	Max	Min	Max
600	8	20	3	9	N/A	N/A
620	8	20	3	9	N/A	N/A
640	8	20	3	9	N/A	N/A
660	8	20	3	12	N/A	N/A
680	10	30	3	14	N/A	N/A
700	18	50	5	28	N/A	20
720	22	54	7	44	N/A	30

TABLE III. Spectral reflectance (percent), Style B - Continued.

Woodland Camouflage Pattern						
Wavelengths (nanometers)	Light Green 354		Dark Green 355 and Brown 356		Black 357	
740	30	56	12	52	N/A	33
760	35	58	18	56	N/A	33
780	40	62	26	56	N/A	34
800	55	80	34	56	N/A	34
820	55	80	42	60	N/A	35
840	55	84	44	60	N/A	35
860	60	84	44	60	N/A	35

TABLE IV. Spectral reflectance (percent), Style C.

Desert Camouflage Pattern (3-color)						
Wavelength, (nanometers)	Light Tan 492		Light Brown 493		Light Khaki 494	
	Min	Max	Min	Max	Min	Max
700	38	53	19	36	25	48
720	38	58	20	36	25	52
740	39	62	20	36	25	54
760	40	66	21	36	26	56
780	41	72	21	38	27	57
800	43	76	22	43	28	58
820	45	76	23	45	30	58
840	48	78	24	46	33	58
860	50	78	25	46	36	59

TABLE V. Spectral reflectance (percent), Style D.

Universal Camouflage Pattern						
Wavelength, (nanometers)	Desert Sand 500		Urban Gray 501		Foliage Green 502	
	Min	Max	Min	Max	Min	Max
600	28	40	12	26	8	18
620	30	42	14	26	8	18
640	34	48	14	28	8	20
660	38	56	14	30	10	26
680	44	60	18	34	10	26
700	46	66	24	38	12	28

TABLE V. Spectral reflectance (percent), Style D – Continued

Universal Camouflage Pattern						
Wavelength, (nanometers)	Desert Sand 500		Urban Gray 501		Foliage Green 502	
720	48	68	26	42	16	30
740	48	72	30	46	16	30
760	50	74	32	48	18	32
780	54	76	34	48	18	34
800	54	76	34	50	20	36
820	54	76	36	54	22	38
840	55	78	38	54	24	40
860	56	78	40	56	26	42

TABLE VI. Spectral reflectance (percent), Style E.

Marine Pattern (MARPAT) Woodland Camouflage Pattern						
Wavelengths (nanometers)	Coyote 476 and Khaki 475		Green 474		Black 477	
	Min	Max	Min	Max	Min	Max
600	8	20	3	9	N/A	N/A
620	8	20	3	9	N/A	N/A
640	8	20	3	9	N/A	N/A
660	8	20	3	12	N/A	N/A
680	10	30	3	16	N/A	N/A
700	18	50	5	32	N/A	20
720	22	54	7	44	N/A	30
740	30	56	12	52	N/A	33
760	35	58	18	56	N/A	33
780	40	62	26	56	N/A	34
800	55	80	34	56	N/A	34
820	55	80	42	60	N/A	35
840	55	84	44	60	N/A	35
860	60	84	44	60	N/A	35

TABLE VII. Spectral reflectance (percent), Style F.

Marine Pattern (MARPAT) Desert Camouflage Pattern						
Wavelength, (nanometers)	Light Tan 479		Light Coyote 481 and Highland 480		Urban Tan 478	
	Min	Max	Min	Max	Min	Max
700	38	53	19	36	25	48
720	38	58	20	36	25	52
740	39	62	20	36	25	54
760	40	66	21	36	26	56
780	41	72	21	38	27	57
800	43	76	22	43	28	58
820	45	76	23	45	30	58
840	48	78	24	46	33	58
860	50	78	25	46	36	59

TABLE VIII. Spectral reflectance (percent), Style G (Types I, II and III only).

Operation Enduring Freedom Camouflage Pattern (OCP)						
Wavelength, (nanometers)	Cream 524 and Tan 525		Pale Green 526, Olive 527 and Brown 529		Dark Green 528, and Dark Brown 530	
	Min	Max	Min	Max	Min	Max
600	22	44	10	30	3	12
620	24	45	11	30	3	12
640	24	45	11	32	4	12
660	25	45	12	32	4	13
680	28	48	14	35	4	18
700	28	54	19	40	6	25
720	30	58	22	43	6	27
740	32	60	25	46	10	29
760	36	61	27	48	14	33
780	38	62	28	50	18	36
800	40	62	29	50	20	37
820	44	65	30	51	20	38
840	46	66	32	51	21	39
860	48	67	33	52	21	40

TABLE IX. Spectral reflectance (percent), Style G (Type IV only).

Operation Enduring Freedom Camouflage Pattern (OCP)						
Wavelength, (nanometers)	Cream 524 and Tan 525		Pale Green 526, Olive 527 and Brown 529		Dark Green 528, and Dark Brown 530	
	Min	Max	Min	Max	Min	Max
600	22	44	12	30	3	11
620	24	45	12	30	3	12
640	24	45	12	32	4	13
660	25	45	12	32	4	14
680	28	45	14	36	4	17
700	28	48	14	39	6	23
720	30	52	16	41	6	23
740	32	55	18	43	10	25
760	36	56	20	45	14	30
780	38	57	22	45	18	35
800	40	57	22	45	21	40
820	44	58	24	47	24	42
840	46	59	26	46	26	43
860	48	60	28	48	28	45

3.8 Physical requirements. The finished cloth shall conform to the requirements specified in Table X when tested as specified in 4.4.5.

TABLE X. Physical requirements.

Characteristic	Weight (oz/sq yd)		Yarns per inch (min.)		Breaking strength lbs (min.)		Air permeability (cu.ft/min./sq.ft) (max)
	Min	Max	Warp	Filling	Warp	Filling	
Type I Classes 1 and 2	8.5	9.5	35	28	500	300	10 1/
Type I Class 3	11.0	12.0	35	28	500	300	N/A
Type I Class 4	11.0	12.0	35	28	500	300	N/A
Type II Classes 1 and 2	6.5	7.5	41	36	450	280	N/A
Type II Class 3	9.0	10	41	36	450	280	N/A
Type III Classes 1 and 2	6.0	7.0	48	35	275	200	N/A

TABLE X. Physical requirements - Continued

Characteristic	Weight (oz/sq yd) Min	Max	Yarns per inch (min.) Warp	Filling	Breaking strength lbs (min.) Warp	Filling	Air permeability (cu.ft/min./sq.ft) (max)
Type III Class 3	7.0	8.0	48	35	300	225	N/A
Type III Class 4	8.0	9.5	48	35	360	270	N/A
Type IV Classes 1 and 2	N/A	5.5	58	38	200	155	N/A
Type IV Class 3	N/A	6.0	58	38	200	155	N/A

1/ Requirement applicable to Type I, Class 1 (Solid Shades) only.

3.8.1 Tear strength. The Type IV, Class 2 cloth shall have a tear strength of 8.0 pounds minimum in both the warp and fill. Testing shall be as specified in 4.4.5.

3.8.1.1 Puncture propagation tear strength. The Type IV, Class 3 cloth shall have a tear strength of 7.0 kilograms of force (kgf) minimum in the warp and 6.0 kilograms of force (kfg) minimum in the fill. Testing shall be as specified in 4.4.5.

3.8.2 Abrasion resistance. Unless otherwise specified in the end item use, contract or purchase order (see 6.2) the Type III, Class 4 cloth shall show abrasion resistance to 800 cycles minimum and Type IV, Class 3 shall show abrasion resistance to 700 cycles minimum. Testing shall be as specified in 4.4.5.

3.8.3 Weave. The weave shall be plain with one up and one down. The use of a flyshuttle or shuttleless loom is permitted. Testing shall be as specified in 4.4.5.

3.9 Finish. The cloth shall be thoroughly scoured and heat set. Classes 2, 3 and 4 cloths (all Types) shall be given a water repellent treatment (see 3.9.1); Class 3 cloths (all Types) shall be back coated (see 3.9.2) and the Class 4 cloths (Types I and III) shall be flame retardant treated (see 3.9.9).

3.9.1 Water repellency. The Classes 2, 3, and 4 cloths (all Types) shall be given a water repellent treatment that shall be capable of meeting all repellency characteristics referenced in this specification.

3.9.1.1 Spray rating. The results of three individual determinations for the Class 3 cloths (and Class 4 cloths if FR coated) shall be equal to or better than 100, 100, 90 initially and 90, 90, 80 after one laundering; for Class 2 cloth (and Class 4 cloth if not FR coated), the results of three individual determinations shall be equal to or better than 90, 90, 80 initially. Testing shall be as specified in 4.4.5.

3.9.1.2. Hydrostatic resistance. The Types I, II and III, Class 3 back coated cloths (and Class 4 cloths if FR coated) shall show no leakage below a hydrostatic height of 35 centimeters. Testing shall be as specified in 4.4.5.

3.9.1.3 Dynamic water absorption. The finished Class 3 cloths (and Class 4 cloths if FR coated) (all Types) shall show not more than 20 percent dynamic water absorption initially and after one laundering; for the Class 2 cloths (and Class 4 cloths if not FR coated) (all Types) the dynamic water absorption shall not be greater than 25 percent initially. Testing shall be as specified in 4.4.5.

3.9.2 Back coating. The Class 3 cloths (all Types) shall be coated on the back side only with a suitable clear polyurethane coating compound and shall show water repellency characteristics on the face side. If plasticizers are used in the coating, only phosphate or phthalate ester type plasticizers shall be used.

3.9.3 Blocking. The blocking properties at 180°F of the finished back coated side of the Class 3 cloths (all Types) (and Class 4 cloths if FR coated) shall not be greater than a No. 3 rating. Testing shall be as specified in 4.4.5.

3.9.4 Resistance to organic liquid. The finished Classes 2, 3 and 4 cloths (all Types) shall show no wetting by N-Tetradecane minimum initially and after 1-laundering. Testing shall be as specified in 4.4.5.

3.9.5 Resistance to Diethyltoluamide (DEET). The finished Class 3 cloths (all Types) (and Class 4 cloths if FR coated) shall show no lifting, tackiness, solution, pickoff or adherence to itself greater than a scale rating of “2” (trace blocking). Testing shall be as specified in 4.4.5.

3.9.6 Resistance to low temperature . The finished Class 3 back coated cloths (all Types) (and Class 4 cloths if FR coated), shall not show any cracking, flaking or separation of the coating from the base cloth. Testing shall be as specified in 4.4.5.

3.9.7 Resistance to high humidity. For the finished Class 3 back coated cloths (all Types) (and Class 4 cloths if FR coated), the coating shall not show stiffness and brittleness nor softness and tackiness and shall show no evidence of cracking or crazing. Testing shall be as specified in 4.4.5.

3.9.8 Stiffness. The stiffness of the Types I, II and III Class 3 finished back coated cloths (and Class 4 cloths if FR coated) shall not be more than 0.034 pounds force in the warp or filling directions. The Type IV Class 3 cloth when used for Army uniform components shall show stiffness of 0.002 inch-pound (max) at 32 °F and 70 °F and when used for Marine Corp uniform components shall show stiffness of 11 centimeters (max) in both the warp and filling. Testing shall be as specified in 4.4.5.

3.9.9 Flame resistance. The Class 4 cloths shall be flame retardant treated and shall have an average after-flame time of not more than 3.0 seconds in both the warp and fill directions; an average after-glow time of not more than 2.0 seconds in both the warp and fill directions and an average char length of not more than 4-1/2-inches initially and after 5 launderings in both the warp and fill directions. The average melt/drip after removal of source flame shall be less than one (1) droplet in both the warp and fill directions. Testing shall be as specified in 4.4.5.

3.10 pH. The pH value of the water extract of the finished cloth shall be not less than 5.0 or more than 8.5 when tested as specified in 4.4.5.

3.11 Dimensional stability. The finished cloth shall have an average dimensional change of no more than 3.0 percent in the warp and no more than 2.0 percent in the filling directions, with no single value over 3.5 and 2.5 percent, respectively after 1 laundering cycle. Testing shall be as specified in 4.4.5.

3.12 Width. For Government procurements only, unless otherwise specified, the width of the finished cloth shall be as specified in the contract or purchase order (see 6.2) and shall be the minimum acceptable width inclusive of selvages. When the cloths are woven on shuttleless looms, the width measurement shall be made between the last yarns on each side, with the protruding fringe(s) excluded.

3.13 Length and put-up. For Government procurements only, unless otherwise specified (see 6.2), the cloth shall be furnished full width in continuous lengths, each not less than 40 yards.

3.14 Face identification. The face side of Style A, solid shade dyed cloth shall be identified by stamping that side with the word “FACE” at each end of the roll.

3.15 Roll identification. Each roll of finished cloth shall be labeled or ticketed for fiber content in accordance with the Rules and Regulations under the Textile Fiber Products Identification Act.

3.16 Toxicity The finished fabric shall not present a health hazard and shall show compatibility with prolonged, direct skin contact when tested as specified in 4.4.5. Chemicals recognized by the Environmental Protection Agency (EPA) as human carcinogens shall not be used.

3.17 Workmanship. The finished cloth shall conform to the quality established by this document. The demerit points per 100 square yards when calculated as specified in Section 4 shall not exceed the established maximum point value.

4. VERIFICATION

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

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

4.2 First article inspection. A first article, submitted in accordance with 3.1, shall be inspected, examined for appearance, color and finish defects in 4.4 and tested for the characteristics specified in 4.4.5.

4.3 Conformance inspection. Conformance inspection shall include the examination of 4.4 and the testing in 4.4.5 as applicable.

4.3.1 Inspection conditions. Unless otherwise specified, all inspections shall be performed in accordance with all the requirements of referenced documents, unless otherwise, excluded, amended, modified or qualified in this specification or applicable procurement documents (see 6.2).

4.4 Examination. Each roll in the sample shall be examined on the face side only. When the total yardage in the roll does not exceed 100 yards, the entire yardage in the roll shall be examined. When the total yardage in the roll exceeds 100 yards, only 100 yards shall be examined. All defects, as defined in Section III of FED-STD-4, that are clearly noticeable at normal inspection distance (3 feet) shall be scored and assigned demerit points as listed in 4.4.1 except that only those slubs and knots which exceed the limits shown on the Sears Fabric Defect Scale (see 2.3), "D" for slubs and "C" for knots, shall be scored and coarse yarn shall only be scored as a defect when the coarse yarn is twice the diameter of the normal yarn used in the fabric. No linear yard (increments of 1 yard on the measuring device of the inspection machine) from any one roll shall be penalized more than four points. The sample size shall be 20 rolls selected from 20 containers. The lot shall be unacceptable if the points per 100 square yards of the total yardage examined exceed 35.0 points. The lot shall be unacceptable if the points per 100 square yards of two or more individual rolls exceed 53.0 points. If one roll in the sample exceeds 53.0 points per 100 square yards, a second sample of 20 rolls shall be examined for individual roll quality only. The lot shall be unacceptable if one or more rolls in the second sample exceeds 53.0 points per 100 square yards. Point computation for lot quality and individual roll quality shall be calculated as follows:

$$\frac{\text{Total points scored in sample} \times 3600}{\text{Contracted width of cloth (inches)} \times \text{Total yards inspected}} = \text{Points per 100 square yards}$$

4.4.1 Demerit points. Demerit points shall be assigned as follows:

For defects up to and including 3 inches in any dimension	- one point
For defects exceeding 3 inches, but not exceeding 6 inches in any dimension	- two points
For defects exceeding 6 inches, but not exceeding 9 inches in any dimension	- three points
For defects exceeding 9 inches in any dimension	- four points

4.4.1.1 Four demerit point defects. The following shall be scored four points for each yard in which they occur:

Hole, cut or tear
Objectionable odor
Baggy, ridged or wavy cloth
Width less than specified
Edge ravels when pulled outward
Slack or tight selvage 1/
Overall uncleanness
Pattern design not equal to standard sample (Styles B, C, D, E, F and G)
Incorrect color in any part of the pattern (Styles B, C, D, E, F and G)
Pattern repeat not equal to the standard sample (Styles B, C, D, E, F and G)
Pattern repeat less or more than specified dimensions (Styles B, C, D, E, F and G) (see 3.6)
Skitteriness (mottled, uneven color) of pattern exceeds that shown by standard sample (Styles B, C, D, E, F and G)
Excessive feathering or spew (fuzziness at color boundaries) of pattern as compared to the standard sample (Styles B, C, D, E, F and G)
Excessive grinning (off register, gap where ground shade shows through) of pattern as compared to the standard sample (Styles B, C, D, E, F and G)
Excessive haloing or trapping (overlapping of colors) of pattern as compared to the standard sample (Styles B, C, D, E, F and G)

1/ To determine the presence of unacceptable selvage conditions, the following procedure shall be followed: During the visual examination, the perch shall be stopped a minimum of three times for each roll in the sample, tension removed and the finished cloth examined for selvage conditions. A waviness in the selvage or significant ripples diagonally across the width of the fabric is an indication of slack or tight selvage.

4.4.1.2 Examination (coated fabric) Class 3. In addition to the defects listed in 4.4.1.1 the required yardage of each roll of the finished coated cloth shall be inspected on the coated side for the visual defects listed below and as defined in MIL-STD-1487. The defects found shall be counted regardless of their proximity to each other, except where two or more defects represent a single local condition on the cloth, in which case only one defect shall be counted. A continuous defect shall be counted as one defect for each warpwise yard in which it occurs. The following shall be scored four points for each yard in which they occur.

Examine	Defect
Coating	Any uncoated area
	Any thinly coated area
	Any blister, tunnel, or delamination of coating
	Any lump or heavily coated area
	Crease or wrinkle that cannot be corrected by manual pressure or resulting in doubling or adhesion of surfaces
	Any spot, stain, or streak more than 1 inch in its longest dimension 1/
	Any embedded foreign matter
	Any scorch or burn
	Any strike through of the coating to the uncoated side of the cloth
	Tackiness

1/ Clearly visible at normal inspection distance (approximately 3 feet).

4.4.2 Length examination. During the yard-by-yard examination, each roll in the sample shall be examined for length. Any length found to be less than the minimum specified or more than 2 yards less than the length marked on the ticket shall be considered a defect. The lot shall be unacceptable if two or more rolls in the sample are defective in respect to length. The lot shall be unacceptable if the total of the actual lengths of rolls in the sample is less than the total of the lengths marked on the tickets

4.4.3 Shade and appearance examination. During the yard-by-yard examination, each roll in the sample shall be examined for shade and appearance. Any roll in the sample, off shade or shaded side to side, side to center, or end to end, or any roll that does not have the same appearance as the standard sample, shall be cause for rejection of the entire lot.

4.4.4 Roll identification examination. During the yard-by-yard examination, each roll in the sample shall be examined for the defects listed below. The lot shall be unacceptable if two or more of the following defects are present in any sample:

Not labeled or ticketed in accordance with the Rules and Regulations under the Textile Fiber Products Identification Act
Face marking missing from either or both ends (Style A, solid shade)
Face marking on wrong side (Style A, solid shade)

4.4.5 End item testing. The cloth shall be tested for characteristics listed in Table XI. All test reports shall contain the individual values utilized in expressing the final result. The sample unit shall be 4 yards, full width of finished cloth. The sample size shall be as follows and the lot shall be unacceptable if one or more sample units fail to meet any requirement.

Lot size (yards)	Sample size (sample units)
800 or less	2
801 up to 22,000	3
22,001 and over	5

TABLE XI. End item tests.

Characteristic	Requirement Paragraph	Test Method
Yarn:		
Fiber identification	3.4.1	AATCC-20 or ASTM D 276
Yarn denier	3.4.1.1	ASTM D 1907
Visual shade matching	3.5.8	AATCC Evaluation Procedure 9, Option A 1/
Colorfastness to:		
Laundering (after 3 cycles)	3.5.9	AATCC 61, Test 1A
Light (after 40hrs. or 170 kJ)	3.5.9	AATCC 16, Option 1or 3
Perspiration (acid & alkaline)	3.5.9	AATCC 15
Crocking	3.5.9	AATCC 8
Accelerated Weathering (after 80 hrs.) (Style A only)	3.5.9	AATCC 169 Option 3
Frosting (carbon black only) (300 cycles)	3.5.9	AATCC 119
Spectral reflectance	3.7	4.5.1
Weight	3.8	ASTM D 3776, Option C
Yarns per inch	3.8	ASTM D 3775
Breaking strength	3.8	ASTM D 5034
Air permeability (Type I Class 1 only)	3.8	ASTM D 737
Tear strength: (Type IV Class 2)	3.8.1	ASTM D 1424
Puncture propagation tear strength (Type IV Class 3)	3.8.1.1	ASTM D 2582
Abrasion Resistance	3.8.2	ASTM D 3884 2/
Weave	3.8.3	Visual
Spray rating (All Types Classes 2, 3 and 4):		
Initial	3.9.1.1	AATCC 22
(All Types Classes 3 (and 4 if FR coat-ed):	3.9.1.1	
After one laundering		AATCC 96 Test VIc,A,0 and AATCC 22
Hydrostatic resistance (Types I, II and III Classes 3 (and 4 if FR coated)	3.9.1.2	AATCC 127 or ASTM D 751, 3/ 4/
Dynamic absorption: (All Types Classes 3 (and 4 if FR coat-ed)		
Initial	3.9.1.3	AATCC 70
After 1 laundering	3.9.1.3	AATCC 96, Test VIc,A,0 and AATCC 70

TABLE XI. End item tests - Continued.

Characteristic	Requirement Paragraph	Test Method
Blocking (All Types, Classes 3 and 4)	3.9.3	ASTM D 751, and 4.5.2
Resistance to organic liquid: (All Types Classes, 2, 3 and 4) Initial After one laundering	 3.9.4 3.9.4	 AATCC 118 5/ AATCC 96, Test VIc,A,0 and AATCC 118
Resistance to Diethyltoluamide (DEET)	3.9.5	4.5.3
Resistance to low temperature (All Types, Classes 3 and 4)	 3.9.6	 4.5.4
Resistance to high humidity	3.9.7	4.5.5
Stiffness: (Types I, II and III Classes 3 and 4) (Type IV, Class 3 (Army) (Type IV, Class 3 (Marine Corp)	 3.9.8 3.9.8 3.9.8	 ASTM D 747 ASTM D 747 4.5.6
Flame resistance Initial After 5 launderings	 3.9.9 3.9.9	 ASTM D 6413 6/ AATCC 135, 3,III,Aiii and ASTM D 6413 6/
pH	3.10	AATCC 81
Dimensional stability(after 1 cycle)	3.11	AATCC 96, Test VIc,A,0
Toxicity	3.16	4.5.7

1/ Using sources simulating artificial daylight D75 illuminant with a color temperature of 7500 (± 200) ^{0}K illumination of 100 (± 20) foot candles, and shall be a good match to the standard sample under incandescent lamplight at 2856 (± 200) ^{0}K.
2/ H-18 abrasive wheel with 1000 gram load shall be used. A hole shall be defined as the wear through of one (1) warp end and one (1) filling yarn at the same location.
3/ Leakage is defined as the appearance of water at three or more different places within the 4-1/2-inch diameter test area at a hydrostatic height of 35.0 centimeters. The uncoated side of the coated cloth shall contact the water.
4/ In cases of dispute, the ASTM method prevails
5/ Test for N-Tetradecane minimum only.
6/ Specimen which burn along the edge of the specimen holder shall be considered invalid and retested.

4.5 Methods of inspection.

4.5.1 Spectral reflectance test. Spectral reflectance data shall be obtained from 600 to 860 nanometers (nm) for Woodland Camouflage (Styles B and E), Universal Camouflage (Style D), Operation Enduring Freedom (OCP) (Style G) and unless otherwise specified all solid colors

(Style A), 700 to 860 nanometers (nm) for Desert Camouflage (Styles C and E) at 20 nm intervals on a spectrophotometer relative to the barium sulfate standard, the preferred white standard. Other white reference materials may be used provided they are calibrated to absolute white, e.g. magnesium oxide or vitrolite tiles. The spectral band width shall be less than 26 nm at 860 nm. Reflectance measurements shall be made by either the monochromatic or polychromatic mode of operation. When the polychromatic mode of operation is used, the spectrophotometer shall operate with the specimen diffusely illuminated with the full emission of a continuous source that simulates either CIE Source A or CIE Source D65. Measurements shall be taken on a minimum of two (2) different areas and the data averaged. The measured areas should be at least 6 inches away from the selvage. The specimen shall be measured as a single layer backed with layers of the same fabric and shade as follows: Style B, Woodland pattern cloth, three (3) backing layers shall be used for Light Green 354, Dark Green 355 and Brown 356 colors and two (2) backing layers shall be used for Black 357; Style C, Desert pattern cloth, four (4) backing layers of the same shade cut from the standard; Style D, Universal pattern cloth, four (4) backing layers of the same shade; Style E, MARPAT Woodland cloth, four (4) backing layers for Green 474, Khaki 475 and Coyote 476 and two (2) backing layers for Black 477; Style F, MARPAT Desert cloth, four (4) backing layers of the same shade and for Style G. Operation Enduring Freedom pattern (OCP) cloth, four (4) backing layers of the same shade. The specimen shall be viewed at an angle no greater than 10° from normal, with the specular component included. Measurements shall be taken on a minimum of two different areas. Specimens shall be oriented in different directions during testing. When possible, the specimens tested shall not contain the same warp or filling yarns when presented to the sample port. Photometric accuracy of the spectrophotometer shall be within 1 percent and wavelength accuracy within 2 nm. The diameter for standard aperture size used in the color measurement device shall be 1.0 to 1.25-inches for Woodland (Style B) and Desert (Style C) Camouflage and unless otherwise specified all solid colors and 0.3725 inches or larger for the Universal (Style D), MARPAT Woodland (Style E), MARPAT Desert (Style F) and Operation Enduring Freedom (OCP) (Style G). (Always use the largest aperture possible.) Any color having spectral reflectance values falling outside the limits at four or more of the wavelengths specified shall be considered a test failure.

4.5.2 Blocking. The test shall be performed in accordance with ASTM D 751, Blocking Resistance at Elevated Temperatures, except that the test shall be performed at a temperature of 180 (± 2) ºF for 30 minutes. Evaluate the resistance of the specimen to blocking by the scale given below:

1 – No Blocking. Cloth surfaces are free and separate without any evidence of cohesion or adhesion.
2 – Trace blocking. Cloth surfaces show slight cohesion or adhesion.
3 – Slight blocking. Cloth surfaces must be lightly peeled to separate.
4 – Blocking. Cloth surfaces separate with difficulty or coating is removed during separation.

4.5.3 Resistance to Diethyltoluamide (DEET). The DEET solution contains 75 percent diethyltoluamide and 25 percent ethanol (see 4.5.3.1). Three (3) drops of the DEET solution shall be placed in the center of a 4 by 8-inch specimen of the finished cloth with the coated side up. The specimen shall be folded to form a 4 by 4-inch square with the coated side folded onto itself. The folded specimen shall then be placed between two (2) 6 by 6-inch glass plates and a 4-pound weight placed on the assembly and left at standard conditions for 16 hours. The specimen shall then be removed from between the glass plates, and immediately rated using the blocking scale ratings as shown in 4.5.2.

4.5.3.1 DEET reagent. The DEET reagent is an insect repellent reagent solution of 75 percent by weight (min) of diethyltoluamide and the remainder denatured alcohol. The diethyltoluamide component of the solution shall be a technical grade and containing N, N-diethylmetatoluamide of not less than 95 percent purity and the remainder shall consist of entirely or mixture of ortho or para isomers of N, N- diethyltoluamide. The denatured alcohol component of the solution shall be ethanol, U.S.P. 94.9 percent by volume and denatured in accordance with The Code of Federal Regulations 27 CFR 21, Formula 40 (see 2.2.2). The diethyltoluamide shall be registered with the U. S. Environmental Protection Agency in accordance with the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) (see 2.2.2).

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4.5.4 Resistance to low temperature. The test shall be performed in accordance with ASTM D 751, Low Temperature Crack Test, with the exposure time 4-hours (min.) at a test temperature of -40°F (± 5) °F; the test for hydrostatic resistance shall not be performed. The specimen shall be removed from the chamber, allowed to come to room temperature and visually examined for any signs of cracking, flaking or separation of the coating from the base cloth. Unless otherwise specified, at least three (3) specimens from the sample shall be tested. Results of tests shall be expressed as “pass” or “fail” as exhibiting visible coating nonconformities.

4.5.5 Resistance to high humidity. Three 4 by 4-inch specimens shall be laid flat, coated side up, on a supporting plate and the assembly placed in a desiccator containing water in the lower portion. The water level shall be approximately 1-inch below the specimens. The lid of the desiccator shall be put in place and the desiccator placed in a circulating air oven having a

temperature of 125°F ± 2°F for a period of seven days. At the end of the aging period, each specimen shall be removed from the desiccator, visually examined for colorfastness and then visually examined for any evidence of stiffness, brittleness, softness, tackiness, cracking or crazing.

4.5.6 Stiffness test.

Apparatus. The test apparatus shall consist of a framework with a rotating, two-roller spindle assembly and a calibrated linear measuring tool. Of the assembly, the two rolls, each one inch in diameter and approximately 4.25-inches in length, are positioned parallel to one another and held in contact by spring tension. The line of contact of the two rolls shall coincide with the axis of rotation of the spindle assembly attached to the fixed framework. A pointer shall be attached to the spindle assembly to indicate the relative angular position of the assembly to a moveable circular scale calibrated in degrees. The rolls of the spindle assembly shall be capable of being rotated on their axis using a slow gear adjustment to adjust the length of the test specimen. The assembly shall rotate, in both clockwise and counterclockwise directions, at a uniform rate of one revolution per 60 ± 5 seconds. The linear measuring tool, graduated to 0.1 mm, shall be used to measure the length of a test specimen extending perpendicular from the line of contact or nip of the two rolls.

Test specimens. The specimen shall be a rectangle of cloth 1-1/4-inches wide by 6- to 12-inches long with the longer dimension parallel to the direction being tested; unless otherwise specified, the warp or machine direction of the sample shall be tested. The specimens shall be cut with clean, straight and parallel edges from locations diagonally across the width of the sample and they shall not contain any evidence of creasing or folding.

Number of determinations. Unless otherwise specified, five specimens from each of the designated directions shall be tested from each sample unit.

Procedure. Conditioned test specimens in accordance with ASTM D 1776 and test with specimens and apparatus in that environment, unless otherwise specified. Level the apparatus, before use, so that the spindle assembly is horizontal. Secure an end of the test specimen in and perpendicular to the nip of the rolls with enough length projecting on the left so that on rotating the spindle assembly clockwise, the projecting end of the test specimen falls through the vertical to the right. On rotating the spindle assembly counterclockwise from the stop or end point, the test specimen should not fall back to the left until it is turned through an angle of 90 degrees. Shorten the projecting length until a rotation of 90 ± 2 degrees causes the end of the test specimen to fall from one side to the other. This defines the critical length which is measured from the line gripping the specimen (or nip of the rollers) to its free end. Measure the critical length of the test specimen in millimeters and to the nearest millimeter using the linear measuring tool. Report all individual readings of critical length and the average of results for the specified direction of test of each sample unit.

4.5.7 Toxicity test. Unless otherwise specified (see 6.2), an acute dermal irritation study and a skin sensitization study shall be conducted on laboratory animals. When the results of the studies indicate the finished cloth is not a sensitizer or irritant, a Repeat Insult Patch Test shall be performed in accordance with the Modified Draize Procedure (see 2.3). If the toxicity requirement (see 3.16) can be demonstrated with historical use data, toxicity testing may not be required (see 6.2).

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of material is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Department or Defense Agency, or within the military service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The cloth is intended for use in the manufacture of load bearing vests, field packs, body armor protective vests, duffel bags, reinforcement elbow and knee patches and other field items.

6.2 Acquisition requirements. Acquisition documents should specify the following:

a. Title, number, and date of this specification.
b. Type, Class and Style of cloth required (see 1.2).
c. The specific issue of individual documents referenced (see 2.2 and 2.3).
d. When first article is required (see 3.1, 4.2 and 6.3).
e. Color required if Style A is specified (see 3.5.1).
f. Pattern drawing, if required (see 3.6).
g. When abrasion requirement is not applicable (see 3.8.2)
h. Width of cloth required, (see 3.12).
i. Length required if other than specified (see 3.13).
j. When toxicity testing if required (see 3.16 and 4.5.8).
k. Inspection conditions (see 4.3.1).
l. Packaging requirements (see 5.1).

6.3 First article. When a first article inspection is required (see 3.1), it will be inspected and approved under the appropriate provisions of FAR 52.209-4. The first article should be a pre-production sample. The contracting officer should specify the appropriate type of first article and the number of units to be furnished. The contracting officer should include specific instructions in acquisition documents regarding arrangements for selection, inspection, and approval of the first article.

6.4 Standard sample. For access to samples and pattern drawings, address the contracting activity issuing the invitation for bids or request for proposal.

6.5 Supersession data . This document supersedes MIL-C-43734D. The supersession data is as follows:

MIL-C-43734D	MIL-DTL-32439
Class 1	Type I, Class 1, Style A
Class 2	Type I, Class 2, Style B
Class 3	Type I, Class 3, Style A
Class 4	Type III, Class 3, Style B
Class 5	Type III, Class 2, Style B

6.6 Subject term (key word) listing).

Vest, Survival, AIRSAVE
Bag, Duffel
Camouflage, Desert,
Camouflage, MARPAT
Camouflage, Woodland
Camouflage, Universal
Camouflage, OCP
Equipage item
Flame resistant
Water repellency

6.7 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of changes.

Custodians:

Army – GL
Navy - NU
Air Force – 11

Review activities:

Army – MD, AV
Navy – MC, AS

Preparing Activity:
DLA-CT

Agent:
Army – GL

Project Number: 8305-2013-003

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