



National Defence

National Defence Headquarters
Ottawa, Ontario
K1A 0K2

Défense nationale

Quartier général de la Défense nationale
Ottawa (Ontario)
K1A 0K2

REQUEST FOR PROPOSAL DEMANDE DE PROPOSITION

**AMENDMENT NO.
N° DE LA MODIFICATION**
001

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

Adam Lee, DLP 3-2-5-1
adam.lee@forces.gc.ca

Proposal To: National Defence 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 and services listed herein and on any attached sheets at the price(s) set out therefore.

Proposition à : Défense nationale 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 et services énumérés ici et sur toute feuille ci-annexée, au(x) prix indiqué(s).

Solicitation Closes – L'invitation prend fin

At: – à :
14h00 EDT-HAE

On: – le :
23 August 2021 / 23 Août 2021

Title/Titre Gas Mask Carrier	Solicitation No – N° de l'invitation W8486-217451/A
Date of Solicitation – Date de l'invitation 16 July 2021 / 16 Juillet 2021	
Address Enquiries to – Adresser toutes questions à Adam Lee Adam.Lee@forces.gc.ca	
Telephone No. – N° de téléphone 819-939-3250	FAX No – N° de fax
Destination See Herein	

Instructions: Municipal taxes are not applicable. Unless otherwise specified herein all prices quoted must include all applicable Canadian customs duties, GST/HST, excise taxes and are to be delivered Delivery Duty Paid including all delivery charges to destination(s) as indicated. The amount of the Goods and Services Tax/Harmonized Sales Tax is to be shown as a separate item.

Instructions : Les taxes municipales ne s'appliquent pas. Sauf indication contraire, les prix indiqués doivent comprendre les droits de douane canadiens, la TPS/TVH et la taxe d'accise. Les biens doivent être livrés « rendu droits acquittés », tous frais de livraison compris, à la ou aux destinations indiquées. Le montant de la taxe sur les produits et services/taxe de vente harmonisée doit être indiqué séparément.

Delivery Required – Livraison exigée
Vendor Name and Address – Raison sociale et adresse du fournisseur
Name and title of person authorized to sign on behalf of vendor (type or print) – Nom et titre de la personne autorisée à signer au nom du fournisseur (caractère d'imprimerie)
Name – Nom _____ Title – Titre _____
Signature _____ Date _____

Amendment 001 is raised to address the following:

NOTE (1) - English: Correction to the Solicitation by adding appendices I, II, III, IV, V, VI, VII to ANNEX B (Manufacturing Data) – refer to page #6 below.

REMARQUE (1) - French: Correction à l'invitation en ajoutant les appendices I, II, III, IV, V, VI, VII à l'ANNEXE B (Données de fabrication) – reportez-vous à la page #6 ci-dessous.

Question 1:

English

Can you please assist with some answers?

In the Annex B (Manufacturing Data):

1. Para. 4.2.3 Webbing Nylon 25mm Coyote Brown; does the webbing require Infrared Reflectance per DSSPM 3-6-80-001?
2. Para. 4.2.4 Webbing Polyester 14.2mm; does the webbing require Infrared Reflectance per DSSPM 3-6-80-001?
3. Para. 4.2.5 c) Nylon Loop, 45mm wide; Specification A-A-55216 does not include 45mm fastener, should this be changed to 50mm fastener?
4. Para. 4.3.1 Webbing Polyester 25.4mm; does the webbing require Infrared Reflectance per DSSPM 3-6-80-001?
5. Para. 4.3.2 Buckle Center Bar; Is there a drawing available? does the Buckle require Infrared Reflectance per DSSPM 3-6-80-001?
6. Para. 4.3.3 Loop Strap Fastening; Is there a drawing available? does the Loop require Infrared Reflectance per DSSPM 3-6-80-001?
7. Para. 4.8.2 Marking of Belt; requests the information be stamped? Due to the pronounced texture of webbing DSSPM 2-2-80-151, can this information be stenciled, or affixed as a Sew-On Label?

French

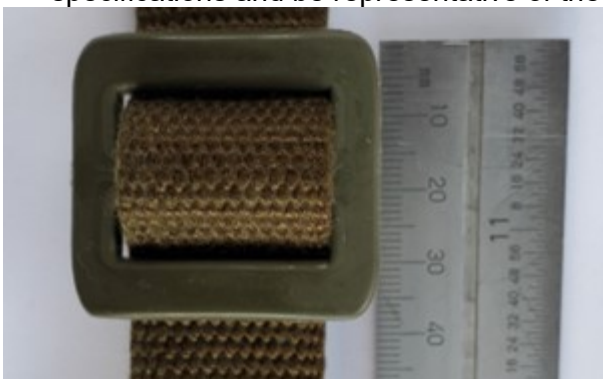
1. Para 4.2.3 Sangle Brun coyote 25mm en nylon; la sangle nécessite-t-elle une réflectance infrarouge selon DSSPM 3-6-80-001 ?
2. Para 4.2.3 Sangle Polyester 14,2 mm; la sangle nécessite-t-elle une réflectance infrarouge selon DSSPM 3-6-80-001 ?
3. Para. 4.2.5 c) Rubans autoagrippants, 45 mm de large; La spécification A-A-55216 n'inclut pas la fixation de 45 mm, doit-elle être remplacée par une fixation de 50 mm?

4. Para 4.2.3 Sangle Polyester 25.4mm; la sangle nécessite-t-elle une réflectance infrarouge selon DSSPM 3-6-80-001 ?
5. Para 4.3.2 Boucle de fixation de barre centrale; Y a-t-il un dessin disponible? la boucle nécessite-t-elle une réflectance infrarouge selon DSSPM 3-6-80-001 ?
6. Para 4.3.3 Boucle de fixation à courroie; Y a-t-il un dessin disponible? la boucle nécessite-t-elle une réflectance infrarouge selon DSSPM 3-6-80-001 ?
7. Para. 4.8.2 Marquage de la ceinture; demande que les informations soient tamponnées? En raison de la texture prononcée de la sangle DSSPM 2-2-80-151, ces informations peuvent-elles être imprimées au pochoir ou apposées sous forme d'étiquette à coudre?

Answer 1:

English

1. Webbing does not fall under referenced specification and does not require infrared reflectance.
2. Webbing does not fall under referenced specification and does not require infrared reflectance.
3. 45mm tape is the equivalent of 1.75 inch tape. 50mm (2 inch) tape fastener may be used but will be cut with a hotknife or similar process to ensure no fraying occurs. It should be cut to shape to match the profile of the front pouch flap. Please refer to Appendix I (see page 6 below) and the sealed sample for further information and example. Webbing does not fall under referenced specification and does not require infrared reflectance.
4. Webbing does not fall under referenced specification and does not require infrared reflectance.
5. - Buckle center bar does not fall under referenced specification and does not require infrared reflectance.
- No drawings are available for the 1 inch center bar, refer to the sealed sample if more information is required.
- A photo has been provided as reference only. The buckle must meet all specifications and be representative of the sealed sample.



6. - Loop strap fastening does not fall under referenced specification and does not require infrared reflectance.
 - No drawings are available for the 1 inch loop strap fastener, refer to the sealed sample if more information is required.
 - Contrary to Annex B para 4.3.3, Three (3) loop strap fasteners will be required for the construction.
 - A photo has been provided as reference only. The loop strap fastener must meet all specifications and be representative of the sealed sample.



7. No, the markings shall be made with indelible ink markings.

French

1. La sangle ne s'applique pas aux spécifications référencées et ne nécessite pas de réflectance infrarouge.
2. La sangle ne s'applique pas aux spécifications référencées et ne nécessite pas de réflectance infrarouge.
3. Les rubans autoagrippants de 45 mm équivaut à un ruban de 1,75 pouce. Un ruban autoagrippant de 50 mm (2 pouces) peut être utilisé mais doit être coupé avec un couteau à chaud ou un procédé similaire pour éviter tout effilochage. Il doit être découpé pour correspondre au profil du rabat avant de la poche. Veuillez-vous référer à l'appendice I (voir page 6 ci-dessous) et au modèle réglementaire pour plus d'informations et exemple.
4. La sangle ne s'applique pas aux spécifications référencées et ne nécessite pas de réflectance infrarouge.
5. - La Boucle de fixation de barre centrale ne s'applique pas aux spécifications référencées et ne nécessite pas de réflectance infrarouge.
 - Aucun dessin n'est disponible pour la barre centrale de 1 pouce, référez-vous au modèle réglementaire si plus d'informations sont nécessaires.
 - Une photo a été fournie à titre de référence seulement. La boucle doit répondre à toutes les spécifications et être représentative au modèle réglementaire.



6. - La Boucle de fixation à courroie ne s'applique pas aux spécifications référencées et ne nécessite pas de réflectance infrarouge.
- Aucun dessin n'est disponible pour fixation à courroie, référez-vous à l'échantillon scellé si plus d'informations sont nécessaires.
- Contrairement à l'Annexe B para 4.3.3, trois (3) attaches à boucle seront nécessaires pour la construction.
- Une photo a été fournie à titre de référence seulement. La boucle de fixation à courroie doit répondre à toutes les spécifications et être représentative de l'échantillon scellé.



7. Non, les marquages doivent être réalisés avec des marquages à l'encre indélébile.

Appendices I, II, III, IV, V, VI, VII to ANNEX B (Manufacturing Data)

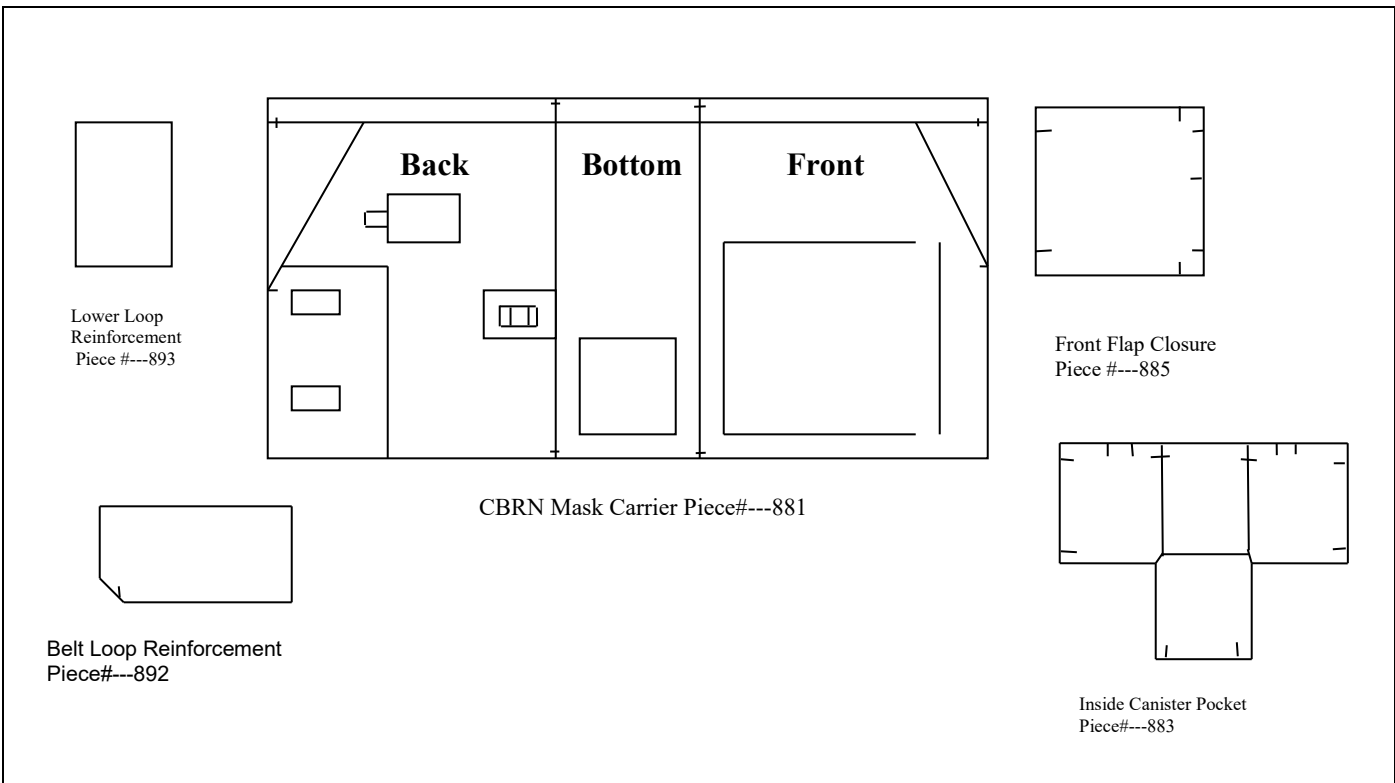
APPENDIX I to ANNEX B

ASSEMBLY MANUAL FOR THE CBRN MASK CARRIER AND HARNESS ASSEMBLY

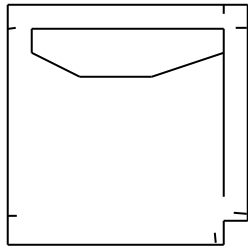
PAPER PATTERNS

The following pattern thumbnails are for guidance only. Proper paper will be supplied to contractor upon request.

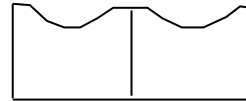
I. CBRN Carrier Main Piece



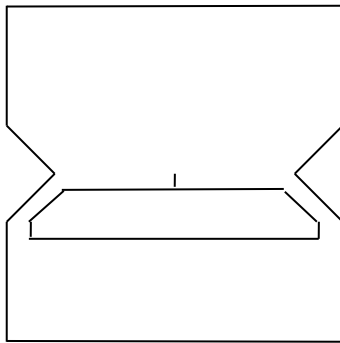
II. CBRN Carrier Side Pockets



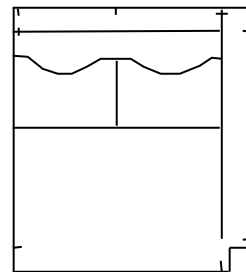
Top Side Pocket Piece#---882



Chemical Agent Detector Pocket
Piece#---884

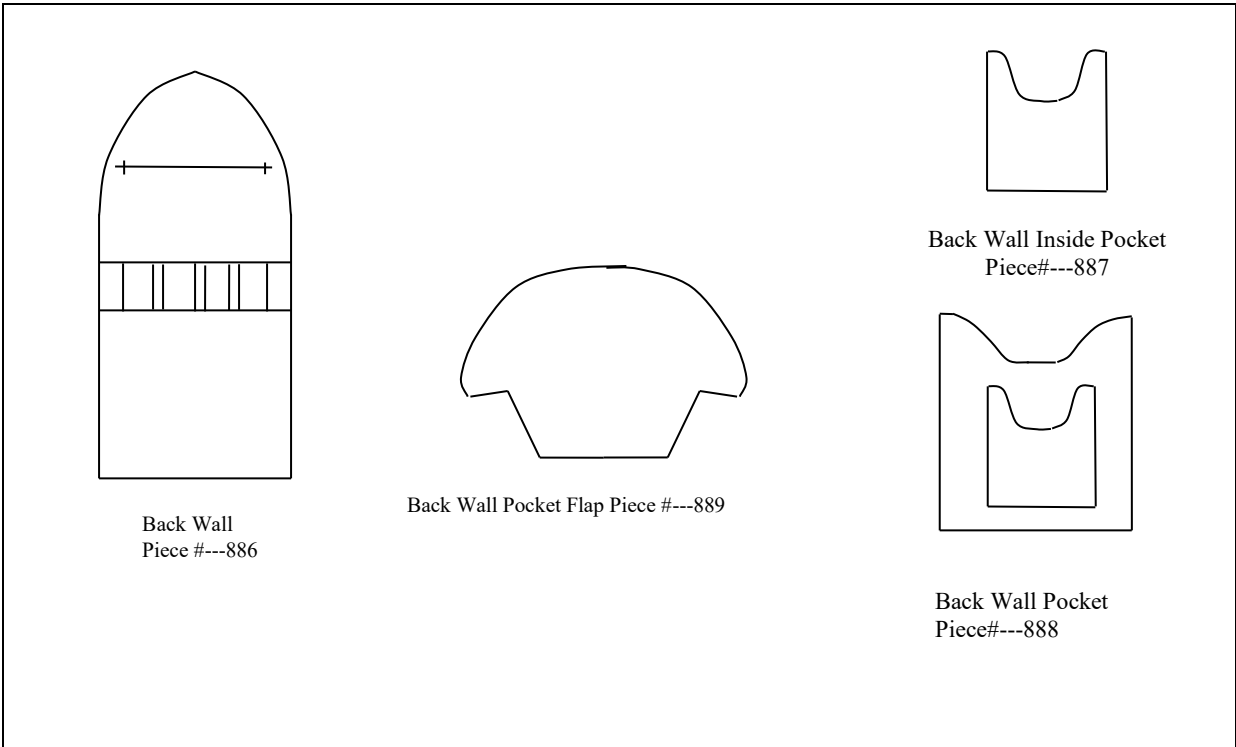


Side Pocket Flap
Piece #---890



Side pocket Piece#---891

III. CBRN Carrier Back Wall Pocket



Instructions for manufacturing the CBRN Mask Carrier and Harness Assembly are provided for guidance only. The contractor is responsible for streamlining the production of the carrier and harness.

These assembly instructions refer to a left mounted carrier for a right handed person.

1. CBRN MASK CARRIER

1.1 Side pocket.

1.1.1 Sew 24.1 cm (9-½") length of binding onto the curved edge of the Chemical Agent Detector Pocket (piece #---884).

1.1.2 Using the guidelines on the pattern, sew the Chemical Agent Detector Pocket onto the wrong side of the Side Pocket (piece #--- 891).

1.1.3 Fold 2.5 cm (1") hem to the wrong side and stitch.

1.1.4 Prepare Pull Tab by sewing a 22.8 cm (9") length of 15.9 mm (5/8") webbing in half lengthwise and sewing around three sides. With the wrong side facing, sew the Pull Tab at the notch marked at the centre of the hem, inserting it 10 mm (25/64") in from the edge.

1.1.5 Centre a 2.5 cm (1") wide x 17.8 cm (7") length of hook tape over the hem and 4.8 mm (3/16") down from the top of the pocket. Sew all around, backstitching over the Pull Tab to secure.

1.1.6 Fold the Pull Tab over to the right side of the Side Pocket and stitch again, following the previous line of stitching used on the hook tape.

1.1.7 Sew the corner of the Side Pocket, right sides together and using the notches as a guide. Turn to the right side.

1.1.8 Fold the Side Pocket, wrong sides together, along the pattern lines. Edgestitch to corner, pivot and edgestitch to the other side of the pocket using the notch as a guide. This forms the partial cargo pocket.

1.1.9 Fold and "press" the two sides forming the cargo pocket under 10 mm (25/64").

1.2 Top side pocket.

1.2.1 Fold the hem as indicated by the notches on the pattern (piece #--- 882) to the wrong side and sew across.

1.2.2 Trim the corners of a 4.4 cm (1-¾") wide x 21.3 cm (8-⅜") length of loop tape to match the markings on the pattern. Sew all around.

1.2.3 Sew the corner of the Top Side Pocket, right sides together and using the notches as a guide. Turn to the right side.

1.2.4 Fold the Top Side Pocket, wrong sides together, along the pattern lines. Edgestitch to corner, pivot and edgestitch to the other side of the pocket using the notch as a guide. This forms the partial cargo pocket.

1.2.5 Fold and "press" the two sides forming the cargo pocket under 10 mm (25/64").

1.3 Side pocket flap.

1.3.1 Fold the Side Pocket Flap (piece #--- 890) in half with the right sides together and sew along the two short sides. Turn to the right side, turning out edges well.

1.3.2 Edgestitch all four sides.

1.3.3 Cut a 2.5 cm (1") wide x 14 cm (5-½") long length of loop tape fastener. Position on the right side

of the Side Pocket Flap, centered and 3.5 cm (1- $\frac{3}{8}$ ") down from the unstitched side. Lockstitch all around. This is to attach a name tag.

1.3.4 Prepare Pull Tab by sewing a 20.3 cm (8") length of 15.9 mm (5/8") webbing in half lengthwise and sewing around three sides. With the wrong side of the flap facing, sew the Pull Tab at the centre of the flap bottom edge, inserting it 2.5 cm (1") in from the edge.

1.3.5 Cut the corners of 2.5 cm (1") wide x 21.6 cm (8- $\frac{1}{2}$ ") length of hook tape to the angles indicated on the pocket flap. Centre over the Pull Tab on the wrong side of the flap and 10 mm (25/64") from the edges, as indicated on the pattern piece.

1.4 Assemble side pocket.

1.4.1 Place the prepared Top Side Pocket on top of the Side pocket, matching the lower edges exactly. Baste down the left side of the pocket assembly.

1.4.2 Edgestitch the right sides together, all the way down the bottom sides, lining up the edges carefully.

1.4.3 Place this pocket assembly on the right side of the Carrier Shell according to the placement lines on the pattern. Edgestitch around the two sides stopping at bottom left corner.

1.4.4 Fold right side of the pocket assembly under 10 mm (25/64") and edgestitch to the bottom, following the placement lines on the pattern.

1.4.5 Pivot as you turn the corner and stitch through all layers of the pocket for 3.8 cm (1- $\frac{1}{2}$ ").

1.4.6 Reinforce with another vertical row of stitching 6.4 mm ($\frac{1}{4}$ ") away from the first row and for a distance of 19.1 mm ($\frac{3}{4}$ ").

1.4.7 Place Side Pocket Flap on the placement lines according to the pattern. Sew using a 6.4 mm ($\frac{1}{4}$ ") seam allowance. Fold down and topstitch.

1.5 Inside canister pocket.

1.5.1 Place a 2.5 cm (1") wide x 12.7 cm (5") long piece of elastic between one pair of notches on pattern piece #---883.

1.5.2 Sew on a 31.1 cm (12- $\frac{1}{4}$ ") length of binding, covering the elastic end, sewing around to the other side and placing the remaining end of elastic under the binding between the notches. The elastic should go over the top of the canister pocket.

1.5.3 With wrong sides together, fold along the lines as indicated on the pattern and edgestitch both sides.

1.5.4 Fold the canister pocket to sew the corners, with wrong sides together and sew.

1.5.5 Place the Inside Canister Pocket on the wrong side of the Carrier Shell according to the markings on the pattern. Sew around the three sides of the pocket, maintaining a distance of 4.8 mm (3/16") minimum. There is no need to finish or tuck under the raw edges of the fabric.

1.6 Back of carrier.

1.6.1 Sew on the Belt Loop Reinforcement (piece #---892) and the Lower Loop Reinforcement (piece #---893) to the markings on the wrong side of the Carrier Shell (piece #---881). The right side of the reinforcement should be in contact with the wrong side of the carrier.

1.6.2 Prepare Belt Loop by cutting a length of 2.5 cm (1") wide webbing x 24.7 cm (9 ¾"). Fold one end up 19.1 mm (¾") and place a 2.5 cm (1") wide x 8.9 cm (3-½") length of hook tape on the webbing, 6.4 mm (¼") from the folded edge. Sew all around.

1.6.3 Fold the remaining end of the webbing under 19.1 mm (¾") and place a 2.5 cm (1") x 8.9 cm (3-½") length of loop tape even with the folded edge. Sew a 5.1 cm (2") box through the loop tape and webbing. This should leave a 3.8 cm (1-½") length of loop tape hanging free. Turn the end of the loop tape under 9.5 mm (¾") and sew edges securely.

1.6.4 Repeat Steps 1.6.2 and 1.6.3 to make a second Belt Loop.

1.6.5 Place the Belt Loops on the right side of the Carrier according to the marks on the pattern. The loop tape should be closest to the Leg Strap. Sew with a full box stitch.

1.6.6 Cut a 2.5 cm (1") wide x 7.9 cm (3-1/8") length of webbing for the guide for the Leg Strap. Fold edges under 15.9 mm (5/8") and stitch with two rows of lockstitch placed 3.2 mm (1/8") from the folded edges and 6.4 mm (¼") apart. The 2.5 cm (1") Leg Strap must run freely through the guide.

1.6.7 Cut a 2.5 cm (1") wide x 22.2 cm (8-¾") length of webbing for the Security Closure Strap. Fold one end 9.5 mm (¾") two times and lockstitch through all three layers of webbing. Place a 2.5 cm (1") wide x 6 cm (2-¾") length of hook tape 19.1 mm (¾") from the folded edge and stitch all around. The folds should not show from the hook tape side.

1.6.8 Cut a 10.2 cm (4") wide x 5.1 cm (2") length of loop tape and place on the right side of the Carrier. Insert the strap prepared at Step 1.6.7 under the loop tape directly opposite the marking for the hook tape. Sew the loop tape all around.

1.6.9 Cut a 2.5 cm (1") wide x 5.7 cm (2-¼") length of loop tape, place on the right side of the Carrier according to the marks on the pattern and sew all around.

1.6.10 Fold the top edge of the Carrier opening under 6.4 mm (¼") to the wrong side. Fold again to the wrong side at 3.2 cm (1-¼") and stitch 2 mm (1/16") from the double folded edge.

1.6.11 Fold the Carrier with wrong sides together, along the lines indicated on the pattern, defining the bottom of the Carrier. Edge stitch from the opening to within 2.5 cm (1") of the notch on the other side.

1.6.12 Fold the Carrier right sides together, lining up the hem and the edge stitching defining the bottom of the Carrier. Edgestitch for a length of 8.5 cm (3-11/32") and backstitch well.

1.6.13 Insert the Duraflex strip cut to a 2.5 cm (1") width with one end angled to meet the pattern lines. There should be one on either side of the edge stitching made at Step 1.6.11.

1.6.14 Fold the Carrier with wrong sides together along the diagonal lines indicated on the pattern. Edgestitch.

1.7 **Back wall pocket.**

1.7.1 On the right side of the Back Wall (piece #---886) sew a 5.1 cm (2") wide x 30.5 cm (12") length

of elastic to the lines indicated on the pattern. Sew the first line, mark the elastic at 6.3 cm (2-½") and bring this mark to meet the next line on the pattern. Sew with two rows of lockstitch spaced 6.4 mm (¼"). Mark the elastic at 6.3 cm (2-½") and bring this mark to the next line on the pattern, Sew with two rows of lockstitch spaced 6.4 mm (¼") apart. Repeat until there are four bubbles of elastic.

1.7.2 Sew a 33 cm (13") binding on the top edges of the Back Wall Pocket (piece #---888) and a 14 cm (5-½") length of the Back Wall Inside Pocket (piece #---887).

1.7.3 Sew 4.4 cm (1-¾") wide x 12.1 cm (4-¾") loop tape to the right side of the Back Wall Pocket.

1.7.4 Topstitch the Back Wall inside Pocket to the wrong side of the Back Wall Pocket, 4.8 mm (3/16") away from the cut edges. There is no need to turn under the raw edges.

1.7.5 Pleat the bottom edges of the Back Wall Pocket, matching the notches. Sew/Baste to the right side of the Back Wall.

1.7.6 Sew 33.7 cm (13-¼") length of binding to the outer edge of the Back Wall Pocket Flap (piece #---889).

1.7.7 Prepare a Pull Tab by folding a 20.3 cm (8") length of 15.9 mm (5/8") webbing in half and stitching around three sides.

1.7.8 With the wrong side of the Back Wall Pocket Flap facing up, place the Pull Tab at the centre with a 2.5 cm (1") overlap. Sew securely 3 times with a back and forth lockstitch.

1.7.9 Place a 2.5 cm (1") wide x 11.4 cm (4-½") long piece of hook tape over the Pull Tab., centering it. Sew all around.

1.7.10 With right sides together, sew the corners with a 10 mm (25/64") seam. Turn to right side, fold seam allowance to the centre of the pocket flap and edgestitch.

1.7.11 Place the right side of the Back Wall Pocket Flap to the right side of the Back Wall according to the placement lines on the pattern and using a 6.4 mm (¼") seam allowance. Turn down and topstitch flap in place.

1.8 Assemble carrier.

1.8.1 Place the point of the Back Wall to the long side of the Carrier, right sides together. Starting at a point 10 mm (25/64") from either side, sew the Back Wall to the Carrier, matching the notches on the Carrier to the corners of the Back Wall, and continuing around to the starting point. On that same edge, sew binding tape to the length required, cut, fold end of binding tape under and then sew and backstitch.

1.8.2 Fold seam allowances to the Carrier side and topstitch all around.

1.8.3 With right sides together, sew across to the top of the carrier. On that same edge, sew binding tape to the length required, cut, fold end of binding tape under and then sew and backstitch. Turn to the right side and fold the bound edge toward the Side Pocket and topstitch.

1.8.4 Fold three edges of the Front Flap Closure (piece #---885) 10 mm (25/64") to the wrong side. Cut a 33 cm (13") length of 15.9 mm (5/8") webbing. Fold in half and sew all around. Sew to Front Flap at notch, with the wrong side facing. Cut a 10.2 cm (4") wide x 10.2 cm (4") length of hook tape. Place hook tape on the wrong side of the Front Flap Closure. Sew all around, securing the folded edges and the Tab well. Fold the Tab to the right side of the flap and stitch 12.7 mm (½") away with 3x back and forth. Place the right side of the prepared flap to the opening of the Carrier 7 cm (2-¾") from the bottom of the Carrier on the side with the Side Pocket. Sew following the stitching line on the hem and again 3.2

mm (1/8") from the opening of the Carrier.

1.9 **Leg strap.**

1.9.1 Cut a 2.5 cm (1") wide x 101.6 cm (40") length of webbing. Fold one end under 3.5 cm (1-3/8"). Slide on a Female Side Release Buckle. Fold again to 5.1 cm (2") Sew through all three layers of webbing with a 3.3 cm (1-5/16") long full box stitch. Cut a 2.5 cm (1") wide x 7.6 cm (3") length of elastic, fold in half and sew with a 10 mm (25/64") seam allowance, anchoring stops and starts well. Sew a second row 3.2 mm (1/8") from cut edges to reinforce. Thread a Male Side Release Buckle on the remaining end. Fold end up twice at 15.9 mm (5/8") and stitch through the centre of all three layers 3 times with a back and forth stitch. Thread Leg Strap through the Leg Strap Guide on the Carrier.

1.10 **Name tag.**

1.10.1 Cut 2.5 cm (1") wide hook tape x 14 cm (5-1/2") long. Cut a length of 2.5 cm (1") webbing x 14 cm (5-1/2") long. Heat seal the cut edges. Lockstitch the webbing to the hook tape. This will be used as a name tag for the Gas Mask Carrier.

2. **HARNESS ASSEMBLY**

2.1 **Waist strap.**

2.1.1 Cut a length of the 2.5 cm (1") webbing to measure 176.5 cm (69-1/2") long.

2.1.2 Make a mark 15.2 cm (6") from one end of the webbing. Thread the webbing end over the center post of the Slip Lock Buckle and bring to mark. Sew with a 38 mm (1-1/2") Full Box Stitch, lined up to the cut webbing end.

2.1.3 Slide a Male Stealth Warrior Buckle onto the other end of the webbing, pushing it close to the Full Box Stitch.

2.1.4 Thread the free webbing end back through the Slip Lock Buckle.

2.1.5 Mark the remaining end of the webbing at 12.7 cm (5"). Slip on a female buckle and bring end to meet mark, folding to the right side of the waist strap. Sew with a 3.8 cm (1-1/2") Full Box Stitch. Sew back and forth three times with a single line of lockstitch close to buckle.

2.2 **Shoulder strap.**

2.2.1 Cut 2.5 cm (1") webbing to measure 27.3 cm (10-3/4") long.

2.2.2 Make a mark 10.8 cm (4-1/4") from one end. Slide on Common Loop A and bring webbing to meet the mark.

2.2.3 Slide Common Loop B onto the other end of the webbing. Fold webbing to meet Common Loop A, tucking it between the two layers. Stitch the end of the webbing down 3 times with a back and forth lockstitch.

2.2.4 Move the Common Loops to either end of the webbing loop, matching up marks made earlier. Sew close to the Common Loop A with a 2.5 cm (1") Full Box Stitch.


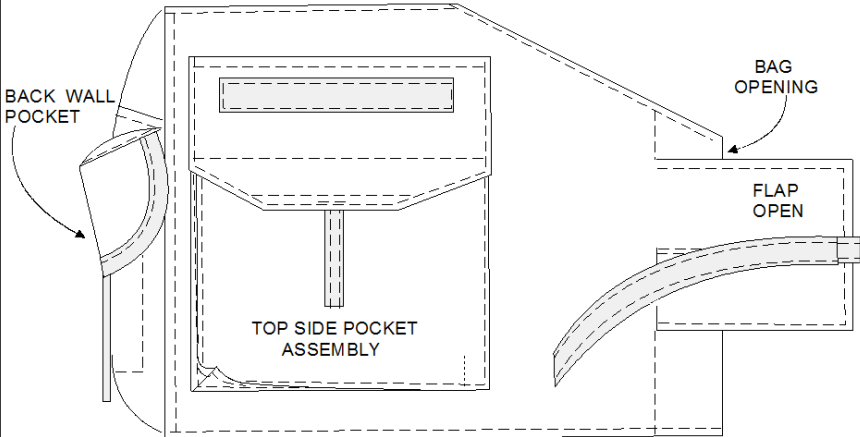
- 2.2.5 Make a 3x back and forth line of lockstitch close to Common Loop B.
- 2.2.6 Cut a length of 2.5 cm (1") webbing that measures 160 cm (63") long.
- 2.2.7 Make a mark 12.7 cm (5") from one end of the webbing. Thread the webbing around the center post of the Slip Lock Buckle and bring to mark. Sew with a 2.5 cm (1") Full Box Stitch, lined up to the webbing end.
- 2.2.8 Slide the end of the webbing through Common Loop A. Thread the webbing back through the Slip Lock Buckle.
- 2.2.9 Make a mark 20 cm (8") from the remaining end of the webbing. Thread a Common Loop on to the webbing, folding the webbing under to meet the mark.
- 2.2.10 Sew a 2.5 cm (1") full box stitch 3.2 mm (1/8") away from the cut end.
- 2.2.11 With the Common Loop pulled against the fold in the webbing, stitch three times with a back and forth lockstitch. There should be 5.1 cm (2") space between the stitching at the Common loop and the full box stitch to allow the Waist strap of the Harness to run freely.

2.3 **Assemble harness.**

- 2.3.1 Insert the Waist Strap into the Shoulder Harness.

Note that the Harness is suitable for left handed and right handed individuals by reversing the direction the Waist Strap is fed through the Shoulder Harness.

APPENDIX II to ANNEX B

CBRN MASK CARRIER	
STYLE CODE:	NBCMCRS0 (RIGHT) NBCMCLS0 (LEFT)
DESIGN:	<p>Front flap closure fastened with hook and loop, with pull-tab and security strap for quick access and accidental opening; self-hemmed pocket inside with a one-inch length of elastic to secure the spare canister; two belt loops for attachment to harness assembly or a belt; leg strap with a side release buckle to anchor the carrier; partial cargo design pockets with hook and loop closure and pull-tab closure for storage of chemical agent detectors and syringes; carrier is available in a version of right side and left side, printed in CADPAT™.</p>
	
 <p align="center">FRONT VIEW OF RIGHT SIDE CARRIER</p> <p align="center">*ALL DRAWINGS SHOWN ARE OF THE RIGHT SIDE CARRIER VIEW (LEFT SIDE CARRIER IS THE MIRROR OPPOSITE)</p>	

CBRN MASK CARRIER

STYLE CODE: NBCMCRS0 (RIGHT) NBCMCLS0 (LEFT)



PATTERN PIECE REFERENCE

Pattern Piece Description	Piece ID Code	QTY	Pattern Piece Description	Piece ID Code	QTY
Material A: Shell					
RIGHT SIDE BAG			LEFT SIDE BAG		
CBRN GAS MASK CARRIER BAG (BODY)	NBCMCRS881	1	CBRN GAS MASK CARRIER BAG (BODY)	NBCMCLS881	1
TOP SIDE POCKET	NBCMCRS882	1	TOP SIDE POCKET	NBCMCLS882	1
INSIDE CANISTER POCKET	NBCMCRS883	1	INSIDE CANISTER POCKET	NBCMCLS883	1
CHEMICAL AGENT DETECTOR POCKET	NBCMCRS884	1	CHEMICAL AGENT DETECTOR POCKET	NBCMCLS884	1
FRONT FLAP CLOSURE	NBCMCRS885	1	FRONT FLAP CLOSURE	NBCMCLS885	1
BACK WALL	NBCMCRS886	1	BACK WALL	NBCMCLS886	1
BACK WALL INSIDE POCKET	NBCMCRS887	1	BACK WALL INSIDE POCKET	NBCMCLS887	1
BACK WALL POCKET	NBCMCRS888	1	BACK WALL POCKET	NBCMCLS888	1
BACKWALL POCKET FLAP	NBCMCRS889	1	BACKWALL POCKET FLAP	NBCMCLS889	1
SIDE POCKET FLAP	NBCMCRS890	1	SIDE POCKET FLAP	NBCMCLS890	1
SIDE POCKET	NBCMCRS891	1	SIDE POCKET	NBCMCLS891	1
BELT LOOP REINFORCEMENT	NBCMCRS892	1	BELT LOOP REINFORCEMENT	NBCMCLS892	1
LOWER LOOP REINFORCEMENT	NBCMCRS893	1	LOWER LOOP REINFORCEMENT	NBCMCLS893	1

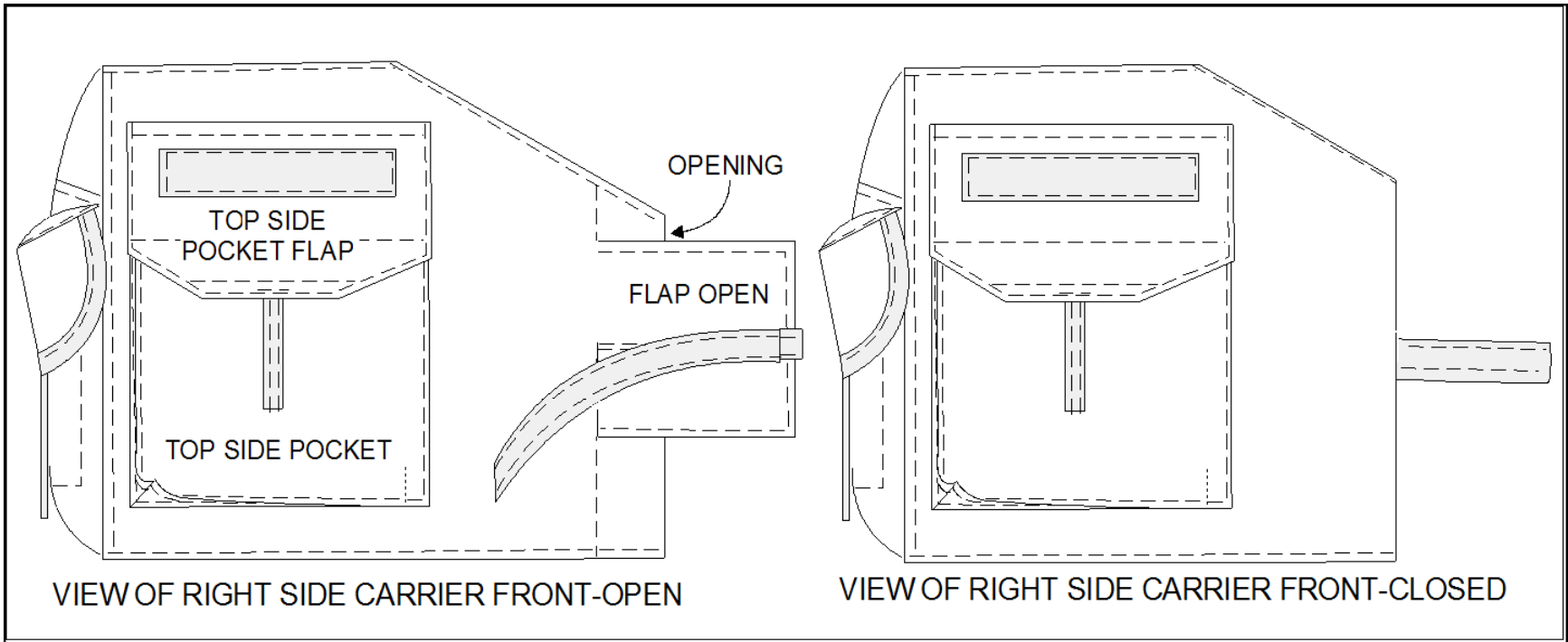
THE NUMBER IN THE QUANTITY COLUMN REFERS TO THE NUMBER OF PIECES REQUIRED TO CONSTRUCT ONE SAMPLE.

CBRN MASK CARRIER

STYLE CODE: NBCMCRS0 (RIGHT) NBCMCLS0 (LEFT)



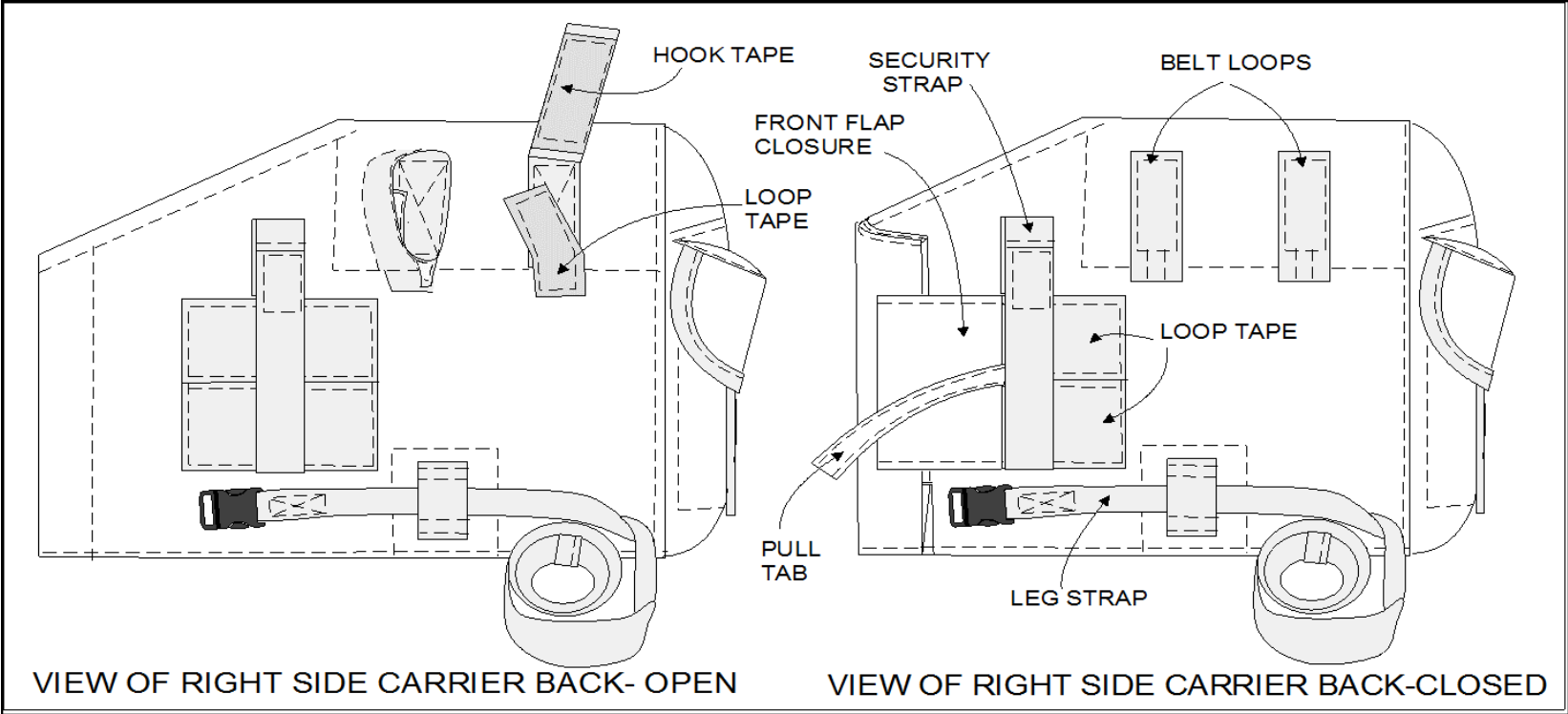
TECHNICAL DRAWINGS CARRIER FRONT



CBRN MASK CARRIER

STYLE CODE: NBCMCRS0 (RIGHT) NBCMCLS0 (LEFT)

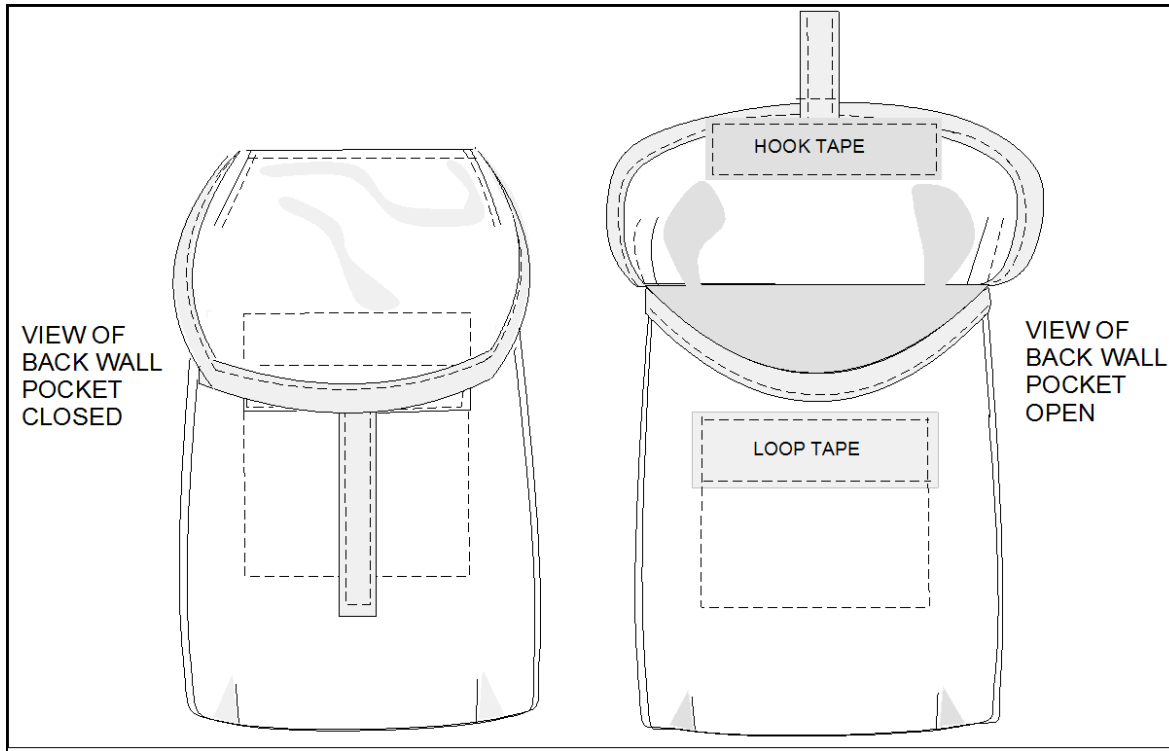
TECHNICAL DRAWINGS CARRIER BACK



CBRN MASK CARRIER

STYLE CODE: NBCMCRS0 (RIGHT) NBCMCLS0 (LEFT)

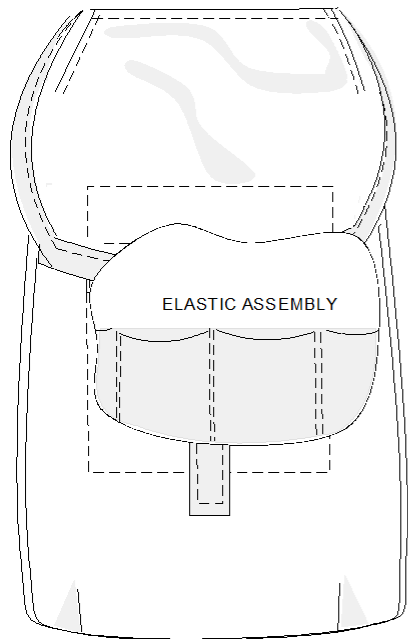
TECHNICAL DRAWINGS BACKWALL POCKET



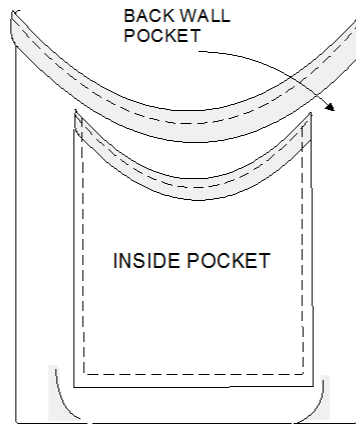
CBRN MASK CARRIER

STYLE CODE: NBCMCRS0 (RIGHT) NBCMCLS0 (LEFT)

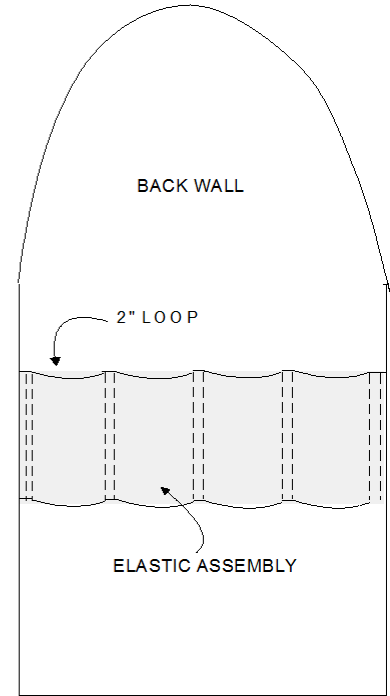
TECHNICAL DRAWINGS BACK WALL POCKET ASSEMBLY AND INTERIOR



**CUT-AWAY VIEW OF
BACKWALL POCKET**



**VIEW OF BACK WALL
POCKET WRONG SIDE**

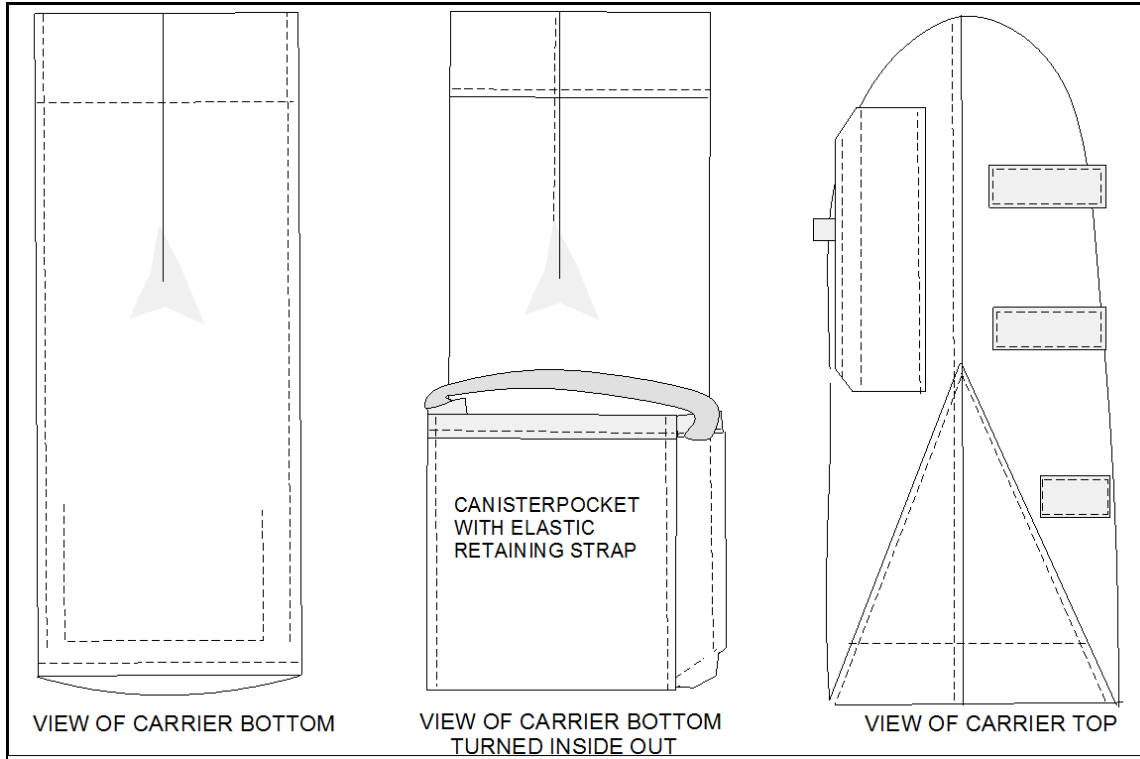


**VIEW OF BACK WALL
ELASTIC ASSEMBLY**

CBRN MASK CARRIER

STYLE CODE: NBCMCRS0 (RIGHT) NBCMCLS0 (LEFT)

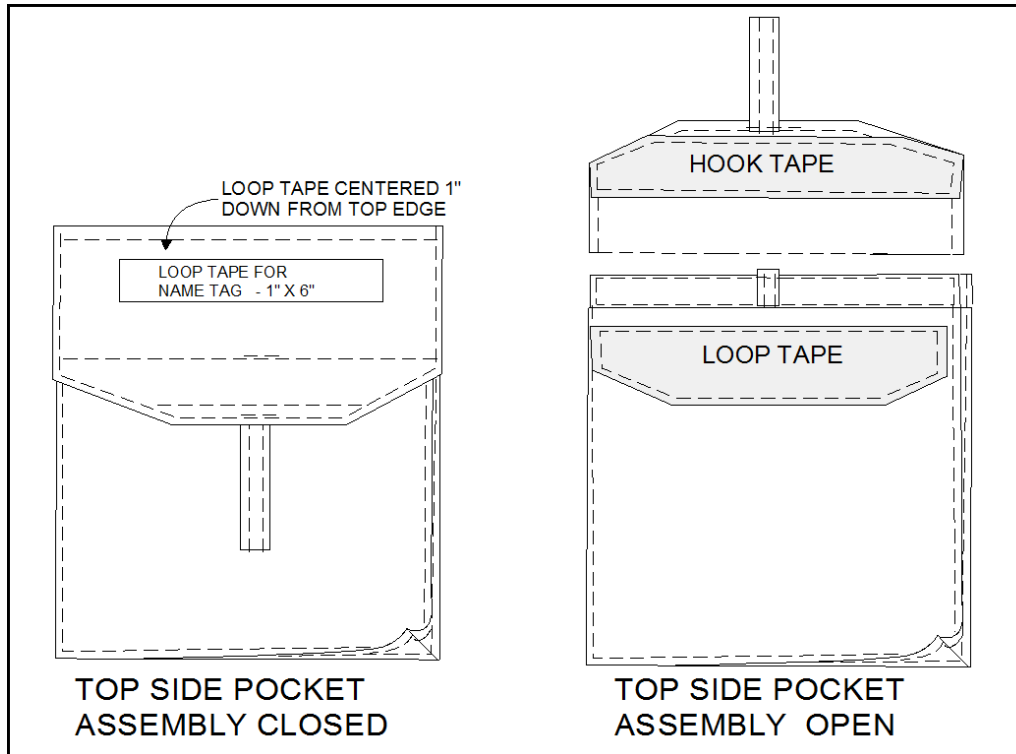
TECHNICAL DRAWINGS CARRIER BOTTOM AND CARRIER TOP



CBRN MASK CARRIER

STYLE CODE: NBCMCRS0 (RIGHT) NBCMCLS0 (LEFT)

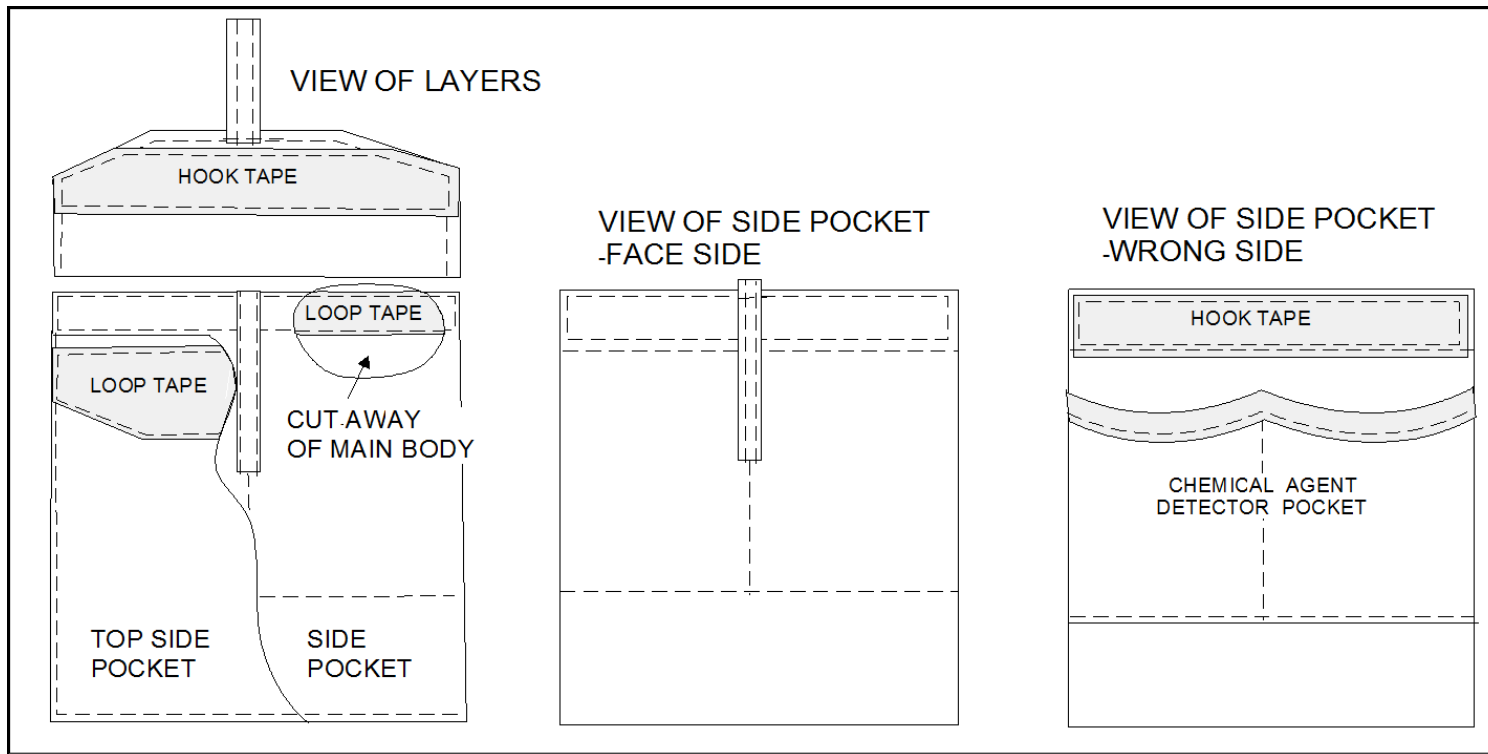
TECHNICAL DRAWINGS TOP SIDE POCKET ASSEMBLY



CBRN MASK CARRIER

STYLE CODE: NBCMCRS0 (RIGHT) NBCMCLS0 (LEFT)

TECHNICAL DRAWINGS TOP SIDE POCKET ASSEMBLY LAYERS



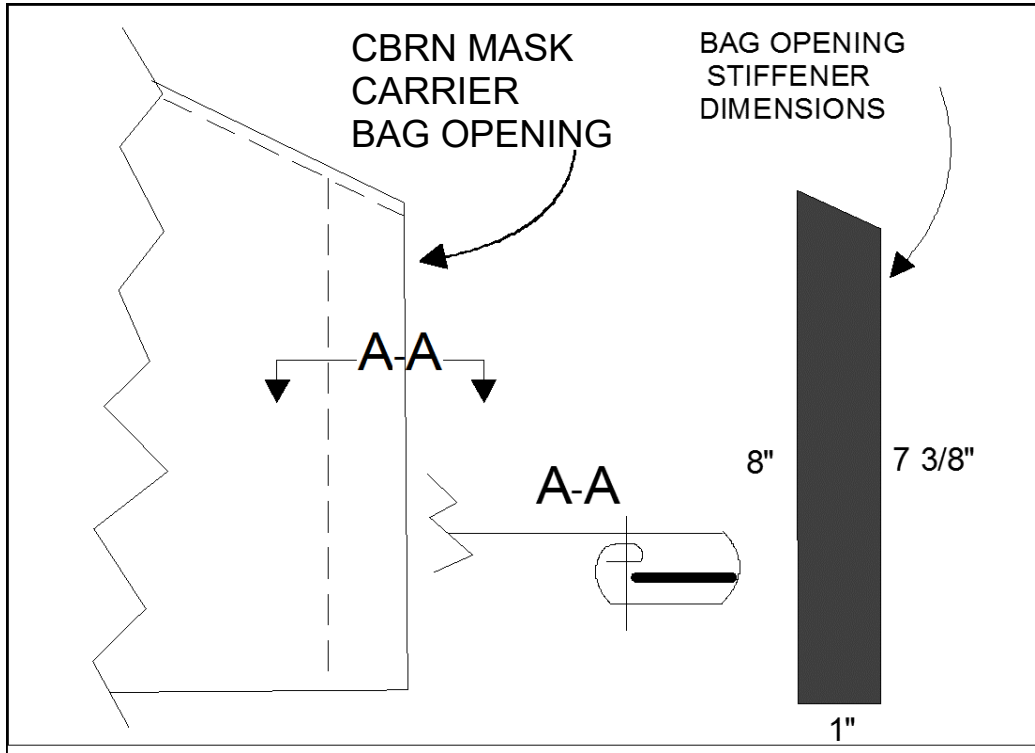
CBRN MASK CARRIER

STYLE CODE: NBCMCRS0 (RIGHT) NBCMCLS0 (LEFT)

TECHNICAL DRAWINGS FRONT OPENING STIFFENER



LOCATION AND SIZE



APPENDIX III to ANNEX B

**LINEAR PROPERTIES
CM (Inches)**

CBRN MASK CARRIER

2. 5 cm (1) wide, Nylon Webbing

ITEM	CUT LENGTH	# OF PIECES	TOTAL LENGTH	FINISH LENGTH
Belt Loops	25 (9.75)	2	50 (19.5)	20.3 (8)
Leg Strap	100 (39.5)	1	100 (39.5)	88.2 (34.75)
Security Strap - Front Closure	22.2 (8.75)	1	22.2 (8.75)	19 (7.5)
Guide for Leg Strap	8 (3.125)	1	8 (3.25)	5.4 (2.125)
Name Tag	14 (5.5)	1	14 (5.5)	14 (5.5)

2 cm (3/4) wide Binding Tape

ITEM	CUT LENGTH	# OF PIECES	TOTAL LENGTH	FINISH LENGTH
Chemical Agent Detector Pkt	24.0 (9.5)	1	24.0 (9.5)	24.0 (9.5)
Flap – Back Wall Pocket	33.7 (13.25)	1	33.7 (13.25)	33.7 (13.25)
Back Wall Pocket	33 (13)	1	33 (13)	33 (13)
Inside Pocket, Back Wall	14 (5.5)	1	14 (5.5)	14 (5.5)
Inside Canister Pocket	31.1 (12.25)	1	31.1 (12.25)	31.1 (12.25)

1.6 cm (5/8) wide, CADPAT™ Print Webbing

ITEM	CUT LENGTH	# OF PIECES	TOTAL LENGTH	FINISH LENGTH
Front Tab, Opening Tab	33 (13)	1	33 (13)	15.9 (6.25)
Side Pocket Opening Flap	20.3 (8)	1	20.3 (8)	7.9 (3.125)
Back Wall Pocket Tab	20.3 (8)	1	20.3 (8)	7.9 (3.125)
Side Pocket Tab	22.8 (8)	1	22.8 (8)	9.5 (3.75)

2. 5 cm (1) wide Elastic

ITEM	CUT LENGTH	# OF PIECES	TOTAL LENGTH	FINISH LENGTH
Keeper – Leg Strap	7.6 (3)		7.6 (3)	7.6 (3)
Canister Pocket	12.7 (5)		12.7 (5)	12.7 (5)

4.5 cm (2) wide Elastic

ITEM	CUT LENGTH	# OF PIECES	TOTAL LENGTH	FINISH LENGTH
Back Wall Pocket	30.5 (12)	1	30.5 (12)	30.5 (12)

2.5 cm (1) Tape Fastener, Hook

ITEM	CUT LENGTH	# OF PIECES	TOTAL LENGTH	FINISH LENGTH
Side Pocket Flap	21.6 (8.5)	1	21.6 (8.5)	21.6 (8.5)
Side Pocket	17.8 (7)	1	17.8 (7)	17.8 (7)
Back Wall Pocket	11.5 (4.5)	1	11.5 (4.5)	11.5 (4.5)
Belt Loops	8.9 (3.5)	2	17.8 (7)	8.9 (3.5)
Security Closure Flap	6.0 (2.375)	1	6.0 (2.375)	6.0 (2.375)
Name Tag	14 (5.5)	1	14 (5.5)	14 (5.5)

2.5 cm (1) Tape Fastener, Loop

ITEM	CUT LENGTH	# OF PIECES	TOTAL LENGTH	FINISH LENGTH
Shell – Inside Pocket	17.8 (7)	1	17.8 (7)	17.8 (7)
Belt Loops	8.9 (3.5)	2	17.8 (7)	8.9 (3.5)
Security Closure Flap	5.7 (2.25)	1	5.7 (2.25)	5.7 (2.25)
Name Tag	14 (5.5)	1	14 (5.5)	14 (5.5)

4.5 cm (1 ¾) Tape Fastener, Loop

ITEM	CUT LENGTH	# OF PIECES	TOTAL LENGTH	FINISH LENGTH
Top Side Pocket	21.3 (8.375)	1	21.3 (8.375)	21.3 (8.375)
Back Wall Pocket	12 (4.75)	1	12 (4.75)	12 (4.75)

10 cm (4) Tape Fastener, Hook

ITEM	CUT LENGTH	# OF PIECES	TOTAL LENGTH	FINISH LENGTH
Front Flap Closure – Tab	10.2 (4)	1	10.2 (4)	10.2 (4)

10 cm (4) Tape Fastener, Loop

ITEM	CUT LENGTH	# OF PIECES	TOTAL LENGTH	FINISH LENGTH
Front Closure Flap – Shell	10.2 (4)	1	10.2 (4)	10.2 (4)

HARNES ASSEMBLY

ITEM	CUT LENGTH	# OF PIECES	TOTAL LENGTH	FINISH LENGTH
Waist Strap	165 (65)	1	165 (65)	150 (50)
Shoulder Strap	160 (63)	1	160 (63)	145 (57)
Shoulder/Waist Attachment Strap	25.4 (10)	1	25.4 (10)	10.2 (4)

APPENDIX IV to ANNEX B

**HIGH DENSITY POLYETHYLENE PHYSICAL PROPERTIES
(DURAFLEX)**

PROPERTY	METHOD	SPECIFIED REQUIREMENT
TENSILE YIELD STRENGTH	*D 638	34 Mpa ±3
ULTIMATE ELONGATION	*D 638	>800%
FLEXURAL MODULUS	*D 790	1240 Mpa ±15
HARDNESS	*D 2240	69 Shore D ±4
BRITTLENESS TEMPERATURE	*D 746	125°C ± 5
DENSITY	*D1505	2.1 G/CM ³ ± 0.06

* ASTM – American Society of Testing & Materials

APPENDIX V to ANNEX B

SIDE RELEASE BUCKLE REQUIREMENTS

Introduction

This Appendix outlines the Side Release Buckle technical and operational description, tests methods and the performance requirements that the buckle must meet..

The contractor shall ensure that the buckle he will supply under this contract must conform to the performance requirements of Tables I and II and III and Appendix VII. An accredited laboratory familiar with buckle testing shall conduct all testing. Should a non-accredited laboratory be required for specific tests, approval shall be sought and received in writing from the Design Authority in advance.

Design and Operational Characteristics

Dimensions

The SR buckle should have safe designed pull strength of no less than 80kg \pm 5 (180 lbs \pm 12). The overall dimensions shall be as per table 1.

25 mm Side Release Buckle Overall dimensions: Tolerances unless otherwise specified \pm 0.4 mm				
Part	Length	Height	Width	Comments
Buckle	60	14	35	
Male	50	10	35	
Female	42	14	35	

Table 1 – Buckle Dimensions

Buckle Test Preparation

Prior to testing, the buckles shall be conditioned for a minimum of 40 hours at 23 \pm 2°C and 50 \pm 5% RH, as per ASTM D638. A deviation in the conditioning environment to 65 \pm 2% relative humidity and 20 \pm 2°C is permitted.

The tests required are pull test, chemical resistance test, chemical exposure + pull test, and low-temperature/wet test.

Test Procedures

Pull Test

This test consists of pulling the buckle apart at a rate of 50mm/min (2 inch/min); the maximum sustained load shall be reported for every buckle. The test will be performed at room temperature (23°C), low temperature (-40°C), and high temperature (+45°C). Buckles will conditioned at the test temperature for a minimum of 30 minutes prior to testing. Five (5) buckles will be used at each temperature. An average of the 5 maximum sustained loads shall be calculated at each temperature.

II. Chemical Resistance Test

This test method consists of applying a small amount of the contaminant, hereby referenced as test fluid, onto the buckle surface for a given period of time, removing the contaminant, and examining the contaminated surface for any defect. An exposure time of 2 hours shall be used to represent the accidental aspect of the contamination. The test fluids are listed in table II.

Test Fluids	
JP-4 turbine fluid	(MIL-DTL-5624)
Diesel fuel	(CGSB 3.6)
DEET – liquid	(NSN 6840-21-903-0036)
DEET – cream	(NSN 6840-01-284-3982)
Methyl Ethyl Ketone	(MEK)

Table III - Test Fluids

One (1) buckle will be tested in each fluid. Testing will be performed at room temperature (23°C).

Prepare a test pad that will consist of a glass microfiber filter, 2.1 cm in diameter, such as Whatman's 934-AH (catalog number 1827 021). In addition, prepare a microscope slide cover glass of sufficient area to cover the test pad, such as a No. 2 [18mm sq.] cover glass by Corning Glass Works.

Thoroughly wet the test pad by drenching it in the test fluid. Immediately, place the test pad on the horizontal specimen (buckle). Cover with the cover glass to minimise evaporation. The test pad shall be kept thoroughly wet during the exposure time. Check for degradation of the buckle material.

III. Chemical Exposure + Pull Test

This test consists of immersing the complete buckle in the test fluid for one (1) hour at room temperature (23°C), and subjecting it to the pull test detailed paragraph 5 while still wet. This test will indicate if the buckle is prone to environmental stress cracking. One (1) buckle shall be used for each test fluid and pull test. The maximum sustained load shall be recorded.

IV. Low Temperature/Wet Test (ease of operation)

This test will evaluate the buckle's ease of one-handed operation when cold and wet. Testing shall be performed at -40°C. Three (3) buckles shall be used for this test.

The buckle shall be immersed in distilled water and immediately placed in a temperature chamber set at -40°C. After soaking at this temperature for 1 hour, the buckle shall be operated in the chamber (i.e. one-hand release attempted), and a qualitative evaluation shall be reported. A dry/cold buckle shall be used as a reference for this test.

Buckle Requirements

Table III outlines the performance requirements of the buckle after exposure to the above tests.

Test	Test Conditions	# of Buckles	Minimum Requirement
I. Pull Test	23°C	5	210 lbs average, with individual value not less than 200 lbs
	-40°C	5	310 lbs average, with individual value not less than 290 lbs
	+45°C	5	195 lbs average, with individual value not less than 180 lbs
II. Chemical Resistance	Turbine fluid/ 23°C	1	No degradation in buckle material
	Diesel / 23°C	1	No degradation in buckle material
	DEET / 23°C	1	No degradation in buckle material
	MEK / 23°C	1	No degradation in buckle material
III. Chemical Exposure + Pull Test	Turbine fluid/ 23°C	1	200 lbs
	Diesel / 23°C	1	200 lbs
	DEET / 23°C	1	200 lbs
	MEK / 23°C	1	200 lbs
IV. Low Temp / wet, "Ease of operation" test	Wet / -40°C	3	Release of the buckle with one hand operation Buckle must remain operational

TABLE III - BUCKLE REQUIREMENTS

APPENDIX VI to ANNEX B

Colour of Materials - CBRN Mask Carrier and Harness Assembly

C4 Gas Mask Carrier	CADPAT™ (TW) 8465-20-002-5354 8465-20-002-5355	CADPAT™ (AR) 8465- 20-002-5351 8465- 20-002-5352	CADPAT™ (MT) NSN:TBD NSN:TBD
Carrier Fabric	CADPAT™ (TW)	CADPAT™ (AR)	CADPAT™ (MT)
Print Specification	DSSPM 3-6-80-001	DSSPM 3-6-80-001	DSSPM 3-6-80-001
Thread	Canadian Average Green	Light Sand	Coyote Brown
Tab Openings	CADPAT™ (TW)	CADPAT™ (AR)	CADPAT™ (MT)
Webbing – MIL-W-17337	Canadian Average Green	Light Sand	Coyote Brown
Tape Fastener	Canadian Average Green	Light Sand	Coyote Brown
Elastic Keeper MIL-T-17964	Canadian Average Green	Light Sand	Coyote Brown
25mm Elastic- Commercial	Black or White	Black or White	Black or White
50mm Elastic- Commercial	Black or White	Black or White	Black or White
Binding Tape MIL-T-5038	Canadian Average Green	Light Sand	Coyote Brown
Side Release Buckles Male and Female	Canadian Average Green	Light Sand	Coyote Brown

Harness Assembly	For Carriers in CADPAT™ (TW) and (AR) 8465-20-002-5356	For Carriers in CADPAT™ (MT) NSN:TBD
Webbing D-80-001-151/SF-001	Canadian Average Green	Coyote Brown
Thread	Canadian Average Green	Coyote Brown
Sliplock buckle	Canadian Average Green	Coyote Brown
Common Loop	Canadian Average Green	Coyote Brown
Side Release Buckles Male and Female	Canadian Average Green	Coyote Brown

APPENDIX VII to ANNEX B
Acetal (Delrin®) Specifications for
Buckle/ Cordlock/ Common Loop & Zipper pull

Properties and Characteristics

The characteristics of Delrin® resins include:

- a. High tensile strength, impact resistance, and stiffness.
- b. Outstanding fatigue endurance.
- c. Excellent resistance to moisture, gasoline, solvents, and many other neutral chemicals.
- d. Excellent dimensional stability.
- e. Good electrical insulating characteristics.
- f. Good resilience and resistance to creep.
- g. Natural lubricity.
- h. Wide end-use temperature range

Acetal (Delrin® 500 AL NC010)

Property	Test Method	Units	Value
Mechanical			
Tensile strength at yield 5mm/min (0.2in/min)	ASTM D 638	Mpa (kpsi)	66 (9.6)
Elongation at Yield 5mm/min (0.2in/min)	ASTM D 638	%	10
Elongation at Break 5mm/min (0.2in/min)	ASTM D 638	%	30
Tensile Modulus 5mm/min (0.2in/min)	ASTM D 638	Mpa (kpsi)	3170 (460)
Flexural Modulus	ASTM D 790	Mpa (kpsi)	2970 (430)
Flexural Stress	ASTM D 790	Mpa (kpsi)	
Strain 5%			88 (12.8)
Izod Impact	ASTM D 256	J/m (ft lb/in)	58 (1.1)
Thermal			
Heat Deflection Temperature 0.45MPa (66psi), Not annealed	ASTM D 648	°C (°F)	169 (336) 108 (226)
1.8MPa (264psi), Not Annealed	ASTM E 831	E-4/C	1.18
CLTE, Parallel 25 – 55°C (73-130°F)	ASTM E 831	E-4/C	1.16
CLTE, Parallel 25 – 55°C (73-130°F)	ASTM D 3418	°C (°F)	178 (352)
Melting Point			
Flow			
Melt Flow Rate 1.05kg at 190C	ASTM D 1238	g/10 min	6
Electrical			
Surface Resistivity	ASTM D 257	ohm	4 E15
Volume Resistivity	ASTM D 257	ohm cm	7 E17
Dielectric Strength, Short Time	ASTM D 149	kV/mm (V/mil)	17.7 (450)
3.2mm (0.126in)	ASTM D 150		3.6
Dielectric Constant 1E6 Hz	ASTM D 150		0.006
Dissipation Factor 1E6 Hz			
Flammability			
Rating @ Min. Thickness	UL94		HB
Min. Thickness Tested	UL94	Mm (in)	0.75 (0.03)
Other			
Specific Gravity	ASTM D 792		1.39
Mold Shrinkage	ASTM D 955	%	
Flow, 24h, 3.2mm (0.126in)			1.7-2.0
Transverse, 24h, 3.2mm (0.126in)			1.7-2.0
Processing			
Melt Temperature Range		°C (°F)	210-220 (410-430)
Mols Temperature Range		°C (°F)	80-100 (175-210)
Processing Moisture Content		%	<0.2