



Essex PB&R Corporation

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Essex Crewmember Protective Breathing Equipment (PBE)



User Reference and Procedures Manual

for

FAA TSO-C116 & TSO-C99 Approved
United Kingdom - Civil Aviation Authority (CAA) Approved
European Aviation Safety Agency (EASA) Approved
Civil Aviation Authority of China (CAAC) Approved

Crewmember PBE Assemblies

Part No: DP3113(A)

Model No's: MR-10022NAA and MR-10021NAA



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FAA TSO-C116, TSO C-99, CAA, EASA AND CAAC APPROVED PBE ASSEMBLIES

Model Number	Description
MR-10021NAA	Crewmember PBE - Training Unit
MR-10022NAA	Crewmember PBE with Concealed Mounting Holes and Clear Lid

Note: Part Number DP3113(A) is the Essex Crewmember PBE without a barrier pouch or any type of stowage bracket. The Model Number, MR-10022NAA, designates the type of bracket configuration that Part Number DP3113(A) is assembled into. The Model Number, MR-10021NAA does not require a bracket configuration.

1. DESCRIPTION AND OPERATION

A. General Description of Equipment

(1) Purpose of the Equipment

The Essex PB&R Corp. (Essex) Crewmember PBE (**Ref. Figure 1 on page 6**) is a self-contained, portable, personal breathing device designed to safeguard the wearer from the effects of smoke, carbon dioxide, harmful gases, and oxygen deficiency while managing in-flight fire, smoke or fume emergencies.

The equipment improves the wearer's visibility in smoke-filled compartments, protects the head and face from melting or dripping plastics, and shields the head against brief exposure to heat and flame.

The primary functional component in the Essex Crewmember PBE is a portable hood that contains both a breathable oxygen supply, and lithium hydroxide scrubber panels that absorb exhaled carbon dioxide.

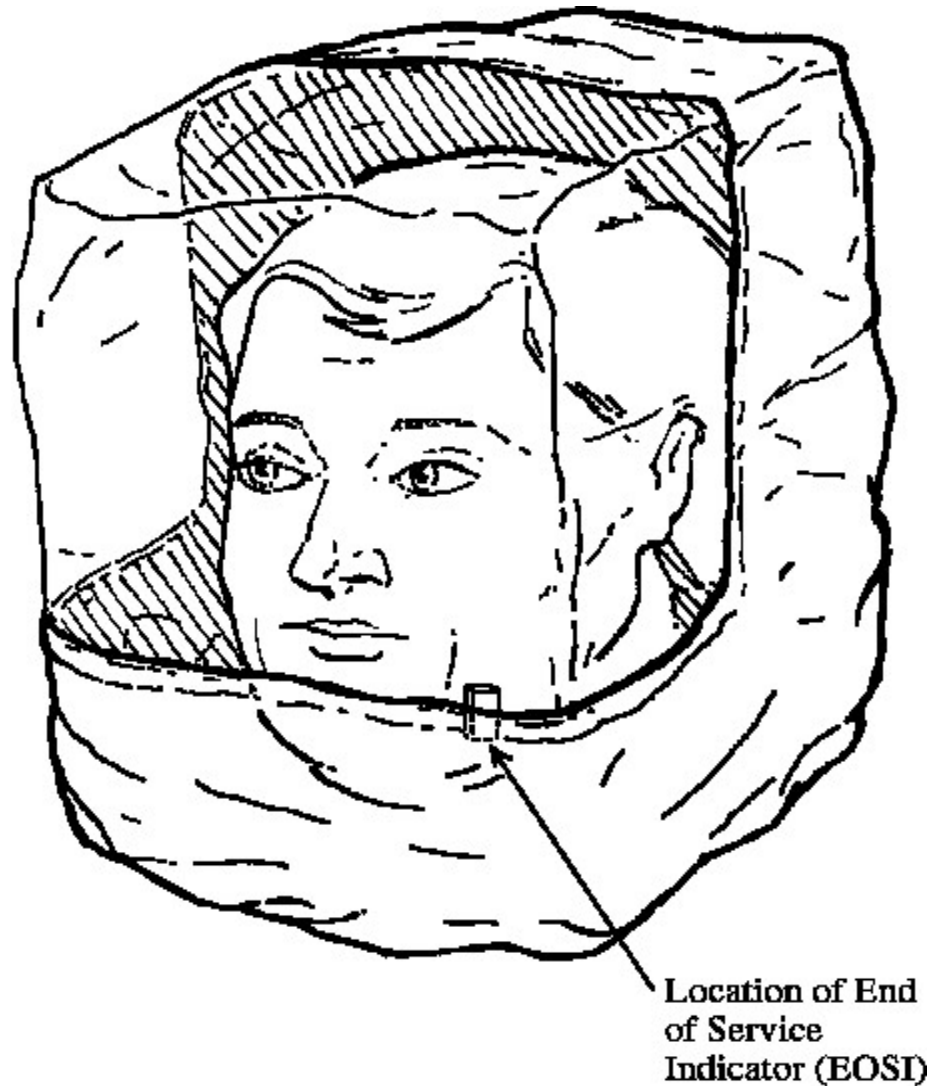
The hood has a self-fitting neck opening that seals out contaminants, retains the oxygen and keeps the hood inflated during use. The entire unit is hermetically sealed at Essex PB&R Corp. to protect the LiOH scrubber panels from outside air.

(2) Hood Shell Construction

The Essex Crewmember PBE hood is fabricated from a durable, tear-resistant combination of polyimide and PFA films. The hood's inner surface has an anti-fog coating to improve visibility.

(3) Oxygen System

The Essex Crewmember PBE has two oxygen cylinders. Together they hold a minimum of 36 liters of Aviator Grade oxygen. These cylinders meet SAE Standard AS 8010 for breathing-oxygen purity, and have rupture protection in case of over pressurization.



Overall View of Essex Crewmember PBE (As Worn)

Figure 1



(4) Service/End-of-Service Indicator

The Essex Crewmember PBE features a battery-powered green and red light Service/End-of-Service Indicator. Mounted slightly below eye level on the left inner side of the hood, this indicator functions as a secondary indicator for monitoring oxygen activation, reassuring the wearer that the equipment is functioning, and signaling when the equipment's service life is ended. **(Ref. Figure 1 on page 6).**

(5) Packaging and Stowage Container

The Essex Crewmember PBE alone weighs 3.2 lbs (1.45 kg). It is folded and packaged in a moisture resistant pouch, and stowed in a protective container. A packaged Crewmember PBE is normally installed within 3 ft (.9 m) of each required on-board fire extinguisher. Each airline should receive regulatory approval for installation locations.

(6) Compliance

The Essex Crewmember PBE complies with the requirements of FAA Action Notice A8150.2 and is approved according to FAA TSO-C116 and TSO-C99. The Essex Crewmember PBE is also approved: under BCAR B4-8, United Kingdom – Civil Aviation Authority (CAA) requirements thereby we are also approved by the European Aviation Safety Agency (EASA); and by the Civil Aviation Authority of China (CAAC).

(7) Useful Service Life (Warranty Period)

The Essex Crewmember PBE has a 10-year 6-month, warranted, useful service life, beginning from the date of manufacture.

B. Operating Features

(1) Tamper-Evident Seals

To ensure that the Essex Crewmember PBE has not been tampered with, each stowage container has a tamper-evident seal, P/N 6851007-14. The tamper-evident seal for Model # MR-10022NAA, is a green-knotted cable tie. **(Ref. Figure 2 on page 10)**

(2) Pouch Access

The sealed barrier pouch containing the Essex Crewmember PBE is easily accessed and removed from its stowage container **(Ref. para. 1.C. (2) on page 11)**. A force of approximately 18-28 pounds will be required to remove the pouch, or to lift the lid &



break the tamper-evident seals.

(3) Breathing System

Once the pouch is removed from its container and opened, oxygen flow is initiated by grasping one cylinder with one hand, and pulling the red ball with the other hand until it is completely released from the PBE, which in turn activates the flashing green light on the Service/End-of-Service Indicator. The red ball, pull cords, and release levers should be discarded immediately upon activation. One bottle releases oxygen rapidly, whereas the second bottle discharges oxygen slowly. An audible hissing sound and inflation of the unit within (2) minutes indicates the PBE is operating properly.

Once donned, the Essex Crewmember PBE will protect the wearer for up to 15 minutes. Although both bottles will completely discharge in 8 to 10 minutes, enough oxygen will remain for the full, specified 15 minutes of respiratory protection. When the unit deflates to the point where it touches the wearer's head and face, or when the red light on the Service/End-of-Service Indicator flashes, the unit's useful life has ended and must be removed.

The Essex Crewmember PBE operates at a positive pressure. The neck seal acts as a relief valve to prevent excessive pressure from building up inside the hood.

(4) Time Required to Put On and Take Off Hood

A trained user can access, and don the hood in approximately 15 seconds. It can be removed in less than 5 seconds.

(5) Maneuverability During Use

The Essex Crewmember PBE does not restrict or interfere with normal body movements. Even when fully inflated, it is compact enough that the wearer can pass through openings as small as 18 x 18 in (460 mm x 460 mm).

(6) Carbon Dioxide Control

Special fabric panels inside the hood control carbon dioxide buildup. These panels contain a dustless lithium hydroxide absorbent sealed inside a double walled membrane, which keeps carbon dioxide concentrations at safe levels during the hood's 15-minute service period.

(7) Interpersonal Communications

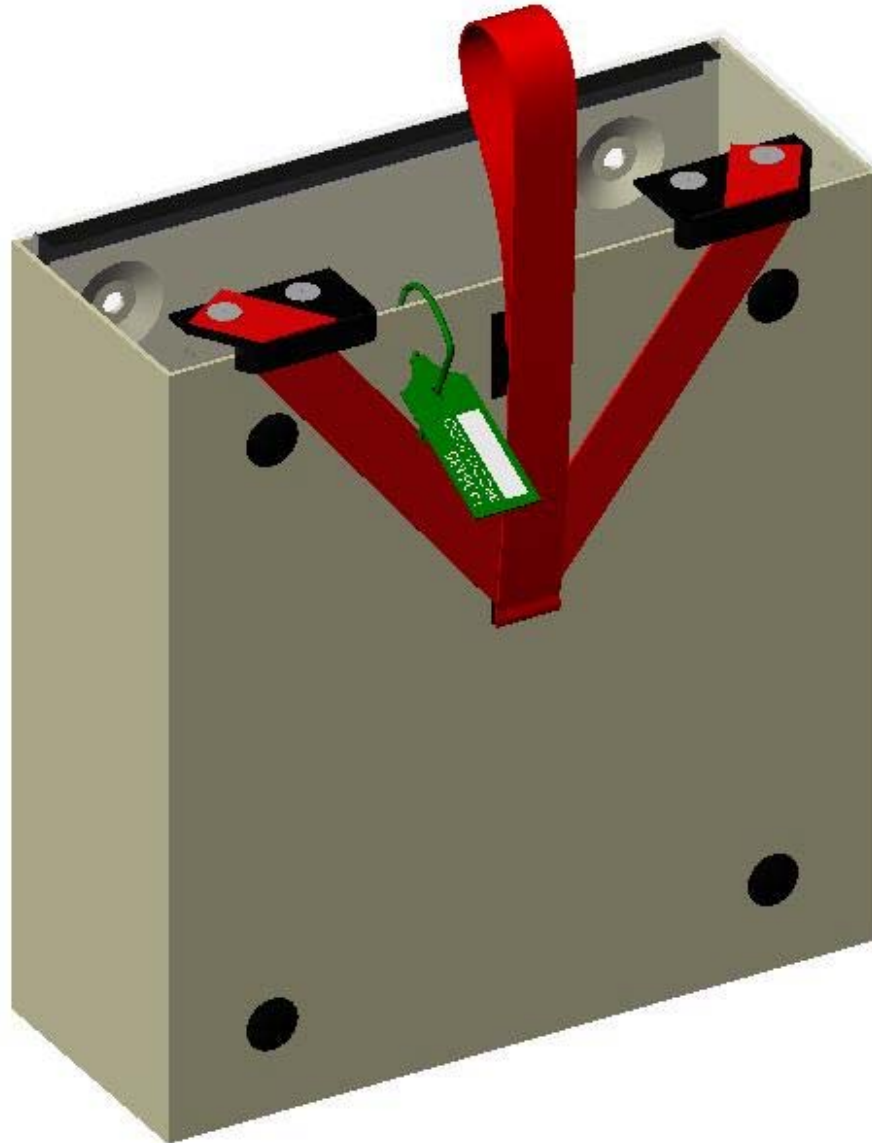
Persons wearing the Essex Crewmember PBE can communicate by unaided voice with other people wearing hoods, at a distance of at least 13.1 ft (4 m) away.

When using an interphone, megaphone or microphone, it may be necessary to pull the skirt of the hood down so the scrubber is below mouth level. Press the phone unit firmly against the hood film in front of the mouth as shown in **Figure 1A below**, minimizing the gap between the mouth and device.



Megaphone Operation Illustration

Figure 1A



Tamper Evident Seal

Figure 2

C. Operating Steps

(1) General Sequence of Steps

The normal operating sequence is: access the PBE, open the equipment pouch, activate the system, don the hood, wear it as needed, then remove and dispose of it after use.

(2) Accessing the Essex Crewmember PBE Equipment Pouch

Grasp the strap attached to the lid and pull sharply to break the green-knotted cable tie. Approximately 18 to 28 pounds of force will be required to lift the lid and break the tamper-evident seal. Grasp the yellow nylon strap and pull the PBE from the bracket.

Note: The yellow nylon strap is located at the bottom of the pouch.

Accessing the Essex PBE Pouch from the Internal-Mounted Stowage Case with Clear Lid



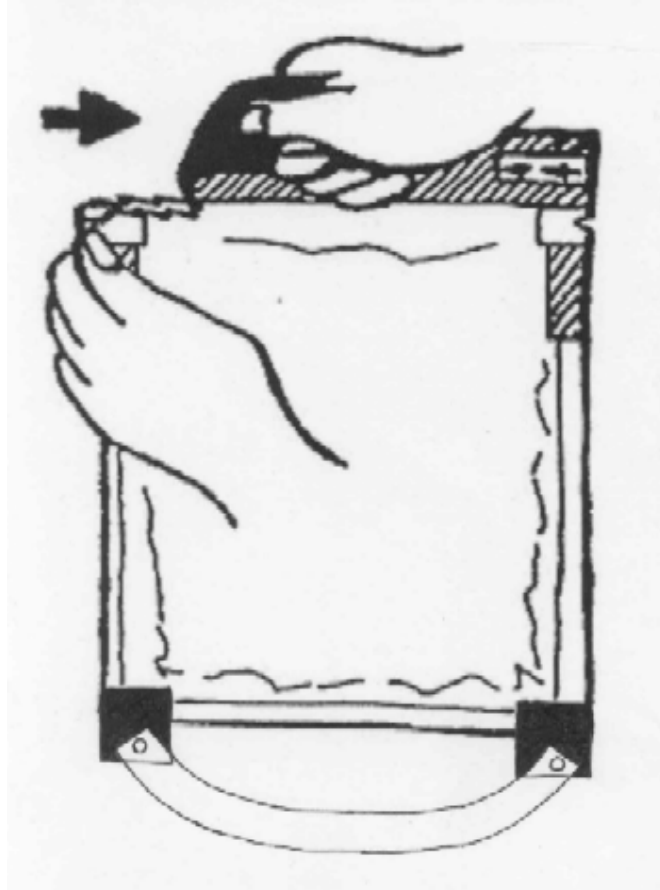
Figure 3

Weight	4.7 lbs		
	H	W	D
Inches	9 1/4	8 1/2	3 3/8
Cm	23.5	21.59	8.57

(3) Open the Sealed Pouch (**Ref. Figure 4 below**)

- (a) The top of the pouch is recognizable by the bright red tear strip across the width of the pouch. To open, grasp the pouch in one hand at either of the small red grip tabs located on each side of the pouch. With the other hand grasp the red tear strip and tear across the pouch in the direction of the arrows. This pouch may be opened from either direction.
- (b) Remove the hood from the pouch, then discard the pouch.

CAUTION: BEFORE ACTIVATING THE OXYGEN, REMOVE OBJECTS FROM AROUND THE HEAD (SUCH AS HAIR COMBS, LONG EARRINGS OR JEWELRY) TO PREVENT THEM FROM PUNCTURING THE HOOD OR DAMAGING THE NECK SEAL.



Opening the Sealed Equipment Pouch to Remove the Essex PBE

Figure 4

(4) Activate the Oxygen Supply.

- (a) Before activating the oxygen supply, be sure to position the front of the hood correctly. If visibility permits, locate the amber-colored, transparent, non-metalized area of the hood. This is the front of the hood. It should not be visible during the activation and donning. The user should see only the metalized area.

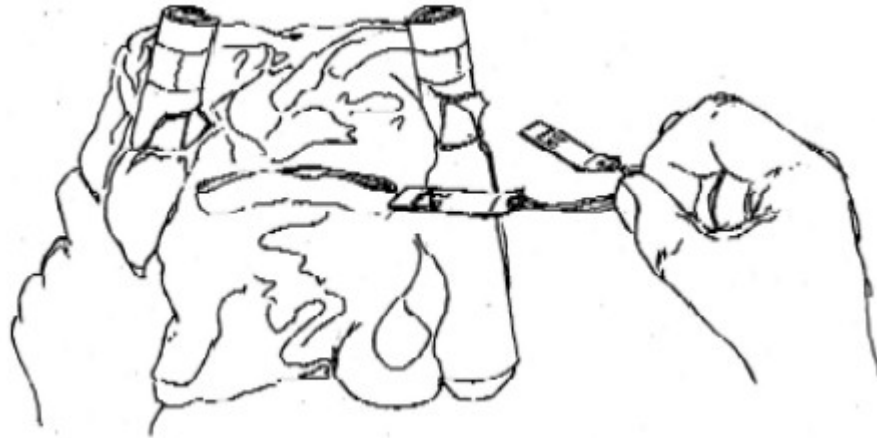
Unfold the hood far enough to reveal the oxygen cylinders. Grasp either cylinder securely with one hand, and grasp the red ball with the other hand (**Ref. Figure 5a below**). Pull the red ball sharply, the cords and levers should separate completely from the PBE (**Ref. Figure 5b on page 14**). This sharp action triggers the oxygen flow and activates the green light on the Service/End-of-Service Indicator. Discard the red ball and its components.

WARNING: TO AVOID LOSING OXYGEN ONCE THE SYSTEM IS ACTIVATED, AND TO MINIMIZE THE AMOUNT OF TOXINS THAT MAY ENTER THE HOOD, DON THE HOOD PROMPTLY AFTER ACTIVATION.



Activating the Essex PBE Oxygen Supply Preparatory to Donning It

Figure 5a



Activating the Essex PBE Oxygen Supply Preparatory to Donning It

Figure 5b

(5) Don the Activated Hood (**Ref. Figure 6 on page 15**)

- (a) After the sharp pulling action required to activate the equipment, the self-fitting elastic neck seal will be revealed.
- (b) Hold the equipment at about waist level. Place both hands inside the neck seal opening, with palms facing each other. Stretch the neck seal open by spreading the hands apart.
- (c) Lift up the opened hood with both hands, and then lower it down over the head until it fits securely around the neck.

NOTE: EYEGLASS WEARERS SHOULD FIRST POSITION THE NECK SEAL AGAINST THE BACK OF THE HEAD, THEN PULL THE HOOD FORWARD AND DOWN OVER THE EYEGLASSES.

NOTE: MAKE SURE THAT SHIRT COLLARS OR SCARVES DO NOT INTERFERE WITH THE NECKSEAL.



Donning the Activated Essex PBE

Figure 6

WARNING: AFTER DONNING THE HOOD, DO NOT OPEN THE NECK SEAL EXCEPT TO QUICKLY TUCK IN HAIR, OR TO ADJUST THE HOOD'S POSITION. HAVE ANOTHER PERSON HELP IF NEEDED.



- (d) The equipment is donned correctly if the oxygen cylinders are positioned over the shoulders under each ear and the transparent amber-colored area is facing front.

If the hood is accidentally donned backwards, do not remove it. Instead, rotate the hood until it is properly positioned.

WARNING: IF EITHER OF THE FOLLOWING CONDITIONS EXIST, REMOVE THE EQUIPMENT AND DISCARD IT IMMEDIATELY:

- (1) THE SOUND OF THE OXYGEN FLOW IS INAUDIBLE IMMEDIATELY AFTER DONNING.**
- (2) THE HOOD DOES NOT INFLATE WITHIN 2 TO 3 MINUTES, OR COLLAPSES.**

WARNING: DO NOT PASS ALONG AN ACTIVATED HOOD TO ANOTHER PERSON ONCE IT IS DONNED. THIS WILL CAUSE OXYGEN TO ESCAPE AND CAN SUBSTANTIALLY REDUCE PERFORMANCE.

(6) Wearing the Hood

Full hood inflation takes from 2 to 3 minutes but the equipment is ready for use immediately. During the first few minutes the oxygen makes a noticeably loud, hissing sound that gradually diminishes. The oxygen stops flowing after 8 to 10 minutes, but enough remains in the hood for a full 15 minutes of usage.

WARNING: IF THE HOOD COLLAPSES AROUND THE FACE AT ANYTIME, REMOVE IT IMMEDIATELY AND OBTAIN A NEW ONE.

WARNING: DO NOT APPROACH ANY CLOSER TO A FIRE OR FLAMES THAN THE NORMAL RANGE OF AN APPROVED FIRE EXTINGUISHER, SINCE THE USER WILL ORDINARILY NOT BE WEARING FIRE-RESISTANT CLOTHING.

- (a) Observe the flashing green Service/End-of-Service Indicator light inside the hood, located to the left and just below eye level. When the red light flashes with the green light, or when the hood collapses, move immediately to a safe area and remove the unit.



- (b) Note that warming and condensation inside the hood may occur. If this interferes with vision, press the hood against the face to wipe away condensation.
- (c) Some users may experience mild ear popping as the air pressure inside the hood gradually increases due to the oxygen flow.
- (d) Interphone, megaphone and microphone communication are possible while the hood is still inflating and during its operation. Press the phone device directly against the hood for best operation. Or, place the phone device up against the Adam's apple.

WARNING: DO NOT REMOVE THE HOOD WHILE NEAR SPARKS OR OPEN FLAME. SOME RESIDUAL OXYGEN MAY REMAIN IN BOTH THE HOOD AND HAIR.

(7) Remove and Discard the Hood

Remove the PBE if the hood collapses over the face, or as soon as the red light in the Service/End-of-Service indicator comes on, or immediately after the emergency is under control, whichever comes first.

- (a) Leave the area of the emergency before attempting to remove the hood.
- (b) To remove the hood, insert both hands under the neck seal, beneath the chin. Lift the hood up and out to clear the face.

NOTE: EYEGLASS WEARERS SHOULD FIRST INSERT BOTH HANDS UNDER THE NECK SEAL, THEN PULL THE HOOD FORWARD AND OUTWARD, LIFTING IT UP OVER THE HEAD TO AVOID DISLODGING THE EYEGLASSES.

(8) Dispose of Equipment Properly

WARNING: DO NOT CUT INTO THE WHITE PANELS AROUND THE COLLAR OR UP THE BACK OF THE HOOD. THIS MAY EXPOSE LITHIUM HYDROXIDE & LITHIUM CARBONATE, WHICH CAN IRRITATE THE SKIN AND BREATHING PASSAGES.

Follow these steps in properly disposing of spent equipment.

- (a) Cut the neck seal into four quadrants.



- (b) Cut a hole in the amber-colored transparent film area at least 5 inches across.
- (c) If the oxygen system has not yet been activated, do so before disposing of the equipment.
 - (i) Handle the oxygen disposal in an area where there is no potential danger from sparks or other fire hazards.
 - (ii) After equipment has been activated, leave it alone for at least one hour, so that all residual oxygen will dissipate.
- (d) Dispose of the hood in compliance with federal, state and local EPA regulations. Contact the appropriate agency for proper disposal procedures. The white scrubber panels contain about 200 grams of lithium hydroxide and/or lithium carbonate.

2. INSPECTION AND FAULT ISOLATION

A. General

Inspection and inspection frequency of PBE's in stowage containers should be in accordance with your governing regulatory authority and your airline operating procedure. The PBE will be inspected by the following indicators: replace by date label, tamper-evident seals, and humidity indicator.

B. Methods of Inspection **after** verification that the unit has not exceeded the replace by date (also refer to **Figure 8 on page 20** for Essex PB&R's recommended inspection procedures).

- (1) **Replace by Date Label:** The first step is to inspect the date on the replace by date label. If the replace by date has **not been exceeded** proceed to the next inspection step. If the replace by date **has been exceeded**, the unit must be immediately replaced.
- (2) **Tamper-Evident Seals:** Tamper-evident seals are the second step for determining serviceability of the PBE.
- (3) **Humidity Indicator:** The humidity indicator represents the third step of inspection. The purpose of the humidity indicator is to show that moisture has gotten **inside** of the barrier pouch, and **may** come in contact with the lithium hydroxide scrubbers inside of the hood. Please see **Figure 7 below** that illustrates acceptance criteria.



Blue Indicator: Unit is Acceptable

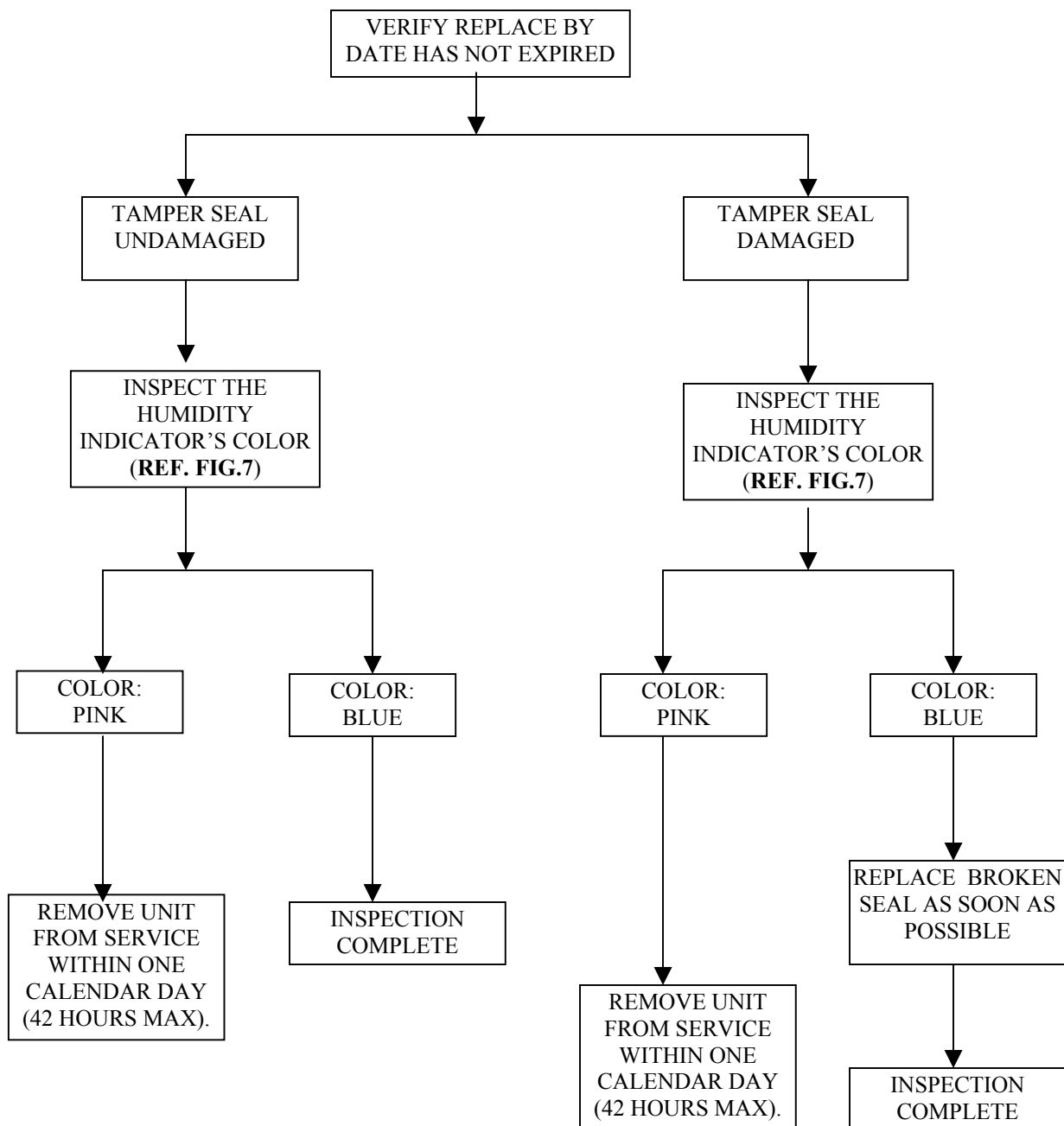


Pink Indicator: Remove Unit from Service within one (1) calendar day (42 hrs. max).

Humidity Indicator Acceptance Criteria

Figure 7

The method of inspection for the PBE can be found in an easy to read flow chart provided in **Figure 8 on page 20**. **Deviation from the recommended inspection method for your particular PBE is not covered by the factory warranty, and is the sole responsibility of the operator.**



Inspection Procedure Flow Chart

Figure 8



C. Statement of Warranty for Protective Breathing Equipment (PBE)

Essex PB&R Corp. warrants that: (1) The Essex Crewmember PBE (hereinafter referred to as the “unit”) meets the requirements of FAA TSO-C116 and TSO-C99 and CAA; and (2) The Essex Crewmember PBE is, and will remain free from defects in material and workmanship, whether patent or latent, for up to the replace by date which is a period of ten (10) years and six (6) months from the date of manufacture when properly stowed aboard aircraft in containers supplied or approved by Essex PB&R Corp.

For those units equipped with a humidity indicator, the loss of vacuum in the inner packaging does not render the PBE unserviceable. Units with barrier pouches that have lost vacuum remain serviceable as long as the humidity indicator remains blue. Although if a unit is found to have a damaged barrier pouch, e.g. cut, puncture or other damage, the unit should be pulled from service and sent back for repair at the customer’s expense.

The liability of Essex PB&R Corp. for any defect in any unit, and the sole and exclusive remedy of the buyer, shall be limited to the repair or replacement of the defective unit, or a refund of the original purchase price (pro-rated in proportion to the ten (10) year and six (6) month warranty) at the sole discretion of Essex PB&R Corp. The obligation to repair, replace, or provide a pro-rated refund shall terminate ten (10) years and six (6) months after the date of manufacture of the unit.

This warranty is in lieu of all other warranties and representations, expressed or implied, and all other obligations and liabilities of Essex PB&R Corp. Correction of defects, in the manner and for the period of time provided above, shall constitute fulfillment of all liabilities of Essex PB&R Corp. whether based on warranty, tort, contract or otherwise. Under no circumstances shall Essex PB&R Corp. be liable for any punitive, special, incidental or consequential damages.

This warranty shall not apply to any unit that has been stowed in an unauthorized container, which has been repaired or altered by anyone other than Essex PB&R Corp., or which has been subject to misuse due to negligence or accident, or the failure to use the unit in accordance with the User Reference and Procedures Manual supplied by Essex PB&R Corp.

THE FOREGOING WARRANTIES ARE IN LIEU OF ALL WARRANTIES, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY, NON-INFRINGEMENT, OR FITNESS FOR A PARTICULAR PURPOSE, AND OF ANY OTHER OBLIGATION ON THE PART OF ESSEX PB&R CORP.



D. Return Procedures

- (1) Before returning any unit for repair, replacement or evaluation, call Essex PB&R at (314) 351-6116, or at 1-800-296-7587 (U.S. only) to obtain a Return of Material Number (ROM). To expedite handling, supply the following information:

- (a) Product Model Number(s)
- (b) Quantity to be returned
- (c) Reason(s) for return

- (2) Address all shipments to:

Essex PB&R Corporation
8007 Chivvis Drive
St. Louis, MO 63123

- (3) Freight on all shipments is to be prepaid.
- (4) Shipping instructions will vary depending on mode of shipment.

- (a) For domestic or international air shipments:

- (i) Bill of lading description (**Ref. Figure 9 on page 23** for an example of a complete shipper's declaration for dangerous goods):

Life saving appliances, not self-inflating, UN3072

- (ii) Hazard labeling (IATA/ICAO): three hazard labels are required:

Miscellaneous Class 9

- (iii) Hazard Marking (IATA/ICAO):

Life saving appliances, not self-inflating, UN3072

- (b) For domestic highway shipments:

- (i) Bill of lading description:

Life saving appliances, not self-inflating, UN3072

- (ii) Hazard labeling (DOT): None

(iii) Hazard Marking (DOT):

Life saving appliances, not self-inflating, UN3072

Proper Shipping Name	Class or Division	UN or ID Number	Subsidiary Risk	Net Quantities	Packing Instructions
Life saving appliances, not self-inflating, UN3072	9	UN3072		___ * x 0.248 kg	905

* Enter number of units shipped to calculate total net quantity.

Example of Complete Shipper's Declaration for Dangerous Goods

Figure 9



3. REPAIR

A. General

- (1) The Essex Crewmember PBE is not an owner repairable system. (**Ref. para. 2.C. on page 21** for the statement of warranty; and para. **2.D. on pages 21 and 22** for return procedures).
- (2) Minor maintenance repairs can be accomplished by the owner on stowage containers to refit a broken or missing tamper-evident seal.

B. Refitting a Broken or Missing Tamper-Evident Seal

- (1) Replacement tamper-evident seals, P/N 6851007-14, can be ordered from Essex PB&R.
- (2) To replace a broken or missing tamper-evident seal follow these steps:
 - (a) First verify the serviceability of the equipment pouch (**Ref. Section 2 on pages 19 and 20**).
 - (b) With the lid opened, insert the knotted end of the tamper-evident seal through the hole located on the edge of the lid.
 - (c) Close the lid, then insert the knotted end of the tamper-evident seal through the hole located on the front of the bracket.
 - (d) Verify that the lid is completely secure and affix with Hook and Loop Fastener Strap.
 - (e) Feed the knotted end of the tamper-evident seal through the hole in the tab that reads "Enter". **Note: The knotted end of the cable tie will only go through one side of the tab.** Pull knotted end through until secure. Cut off excess portion of the knotted end of the seal, leaving approximately ½ inch.

4. INSTALLATION AND ASSEMBLY

A. Mounting Locations

- (1) Locate each Essex Crewmember PBE within 3 ft (.9m) of a required fire extinguisher on board the aircraft, according to applicable FAA or airline regulations. All mounting locations should comply with FAR 45.15, and should be approved by the FAA or other regulatory authority before actual use.

Verify each mounting location for adequate clearance, especially behind seats and in overhead compartments, for ease of inspection, and for removing the pouch



quickly during emergency use. A force of approximately 18-28 pounds will be required to remove the pouch, or to lift the lid, breaking the tamper-evident seal. Allow for adequate access.

- (2) Mount the unit either vertically or horizontally. There should be at least 15 in (38 cm) of clearance between the stowage case opening and any surrounding structures or equipment to allow for removal of the PBE.
- (3) Mount the unit on a continuously flat (not curved) surface that is free of screw heads, anchors, hinges, knobs or other protrusions that could damage either the sealed pouch or the stowage container.

B. Installation Steps

WARNING: INSPECT EACH NEW UNIT FOR SERVICEABILITY BEFORE INSTALLING (Ref. Section 2.B. (3) on page 19). DO NOT INSTALL ANY UNIT THAT FAILS THIS INSPECTION.

- (1) Remove the Essex Crewmember PBE equipment from its shipping box and inspect it.
- (2) Secure the stowage case to the existing mounting holes using the four access holes in front of unit for tool insertion. The top two anchors or lag screws should be able to support at least 30 lbs (14 kg).
- (3) Place the Essex Crewmember PBE into the container and secure the lid with the Velcro® Strap. Verify that the humidity indicator can be seen through the window. Install the tamper-evident seal. Install all four (4) black cap plugs into front access holes when installation is complete.

5. THE ESSEX CREWMEMBER PBE TRAINING UNIT

A. Introduction

- (1) The Essex Crewmember PBE training unit, MR-10021NAA, is designed to help teach how to activate, don, and doff the equipment correctly.
- (2) This section reviews the differences between an Essex Crewmember PBE training unit and a live unit, how to practice putting on the training hood, and how to properly care for the training unit. When practicing with the Essex Crewmember PBE, it is recommended that the special, disposable, sanitary hood liner be used for good personal hygiene (**Ref. Para. 5.C. (1) on page 26**).



B. Operating Features

There are several major differences between the training unit and a live unit.

- (a) The training unit is reusable.
- (b) A sanitary plastic liner (optional) protects the user from unsanitary conditions while wearing the training hood, allowing full visibility, and protecting the hood from possible damage.

WARNING: DISCARD THE SANITARY LINER AFTER EACH USE.

- (c) The training unit has two empty, non-functioning oxygen cylinders and non-functioning carbon dioxide control panels. The training unit is designed to mimic a live unit. Because there is no oxygen in the training unit, the hood has breathing holes.
- (d) The training unit has a detachable neck seal that can be replaced if it becomes torn or damaged.
- (e) There is no Service/End-of-Service Indicator in the training unit.

C. Operating Steps

(1) Plastic Training Liner (Optional)

Sanitary plastic liners, P/N CP3205, can be ordered from Essex PB&R.

Adjust the plastic liner so that its top paper edge is horizontal at the tip of the nose, and the crease is centered vertically in the middle of the face. Fold the liner's rear pleat over, then secure it with ordinary cellophane-type tape (**Ref. Figure 11A on page 30**).

(2) General Sequence of Steps

To open the training unit hood, follow the same sequence as for a live unit but with the difference described in steps (a) through (d) on the following page.

- (a) Remove the pouch containing the hood from its storage container.
- (b) Open the pouch. To simulate activating the oxygen system for the hood use the same motions that would be used for a live unit (**Ref. para. 1.C. (4) on page 13**). The training unit uses spring clips to mimic the resistance of a live unit's release levers.

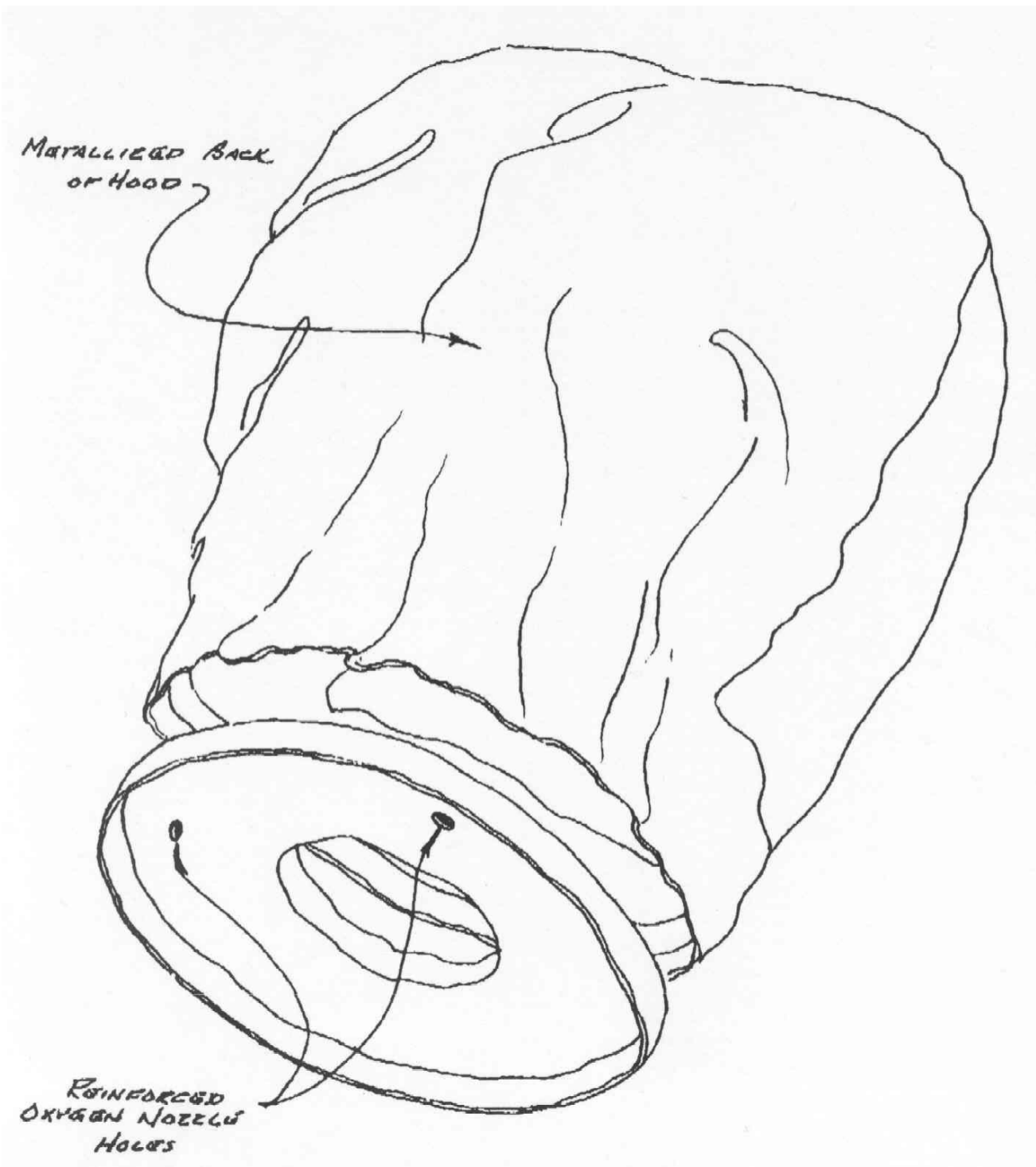
WARNING: WHEN USING THE OPTIONAL TRAINING LINER, HOLD THE HOOD DIRECTLY OVERHEAD WHEN DONNING IT. DISTURBING THE LINER CAN INTERFERE WITH VISION OR IMPAIR BREATHING (Ref. Figure 11B on page 30).

- (c) Open the hood and don it quickly (**Ref. para. 1.C. (5) on page 14**). Spread the neck seal apart, as with a live unit. Next, unlike a live unit, hold the training unit directly overhead and lower it straight down over the plastic hood liner. Have a qualified observer check the hood and liner for proper placement.
- (d) Remove the hood and discard the liner when the practice session is complete.
- (3) Verbal communication with the training hood with an interphone, megaphone and microphone are similar to the live hood. (**Ref. para. 1.B.(7) on page 8**) (**Ref. Figures 1A and 11C on pages 9 and 30, respectively**).

D. Replacing Torn or Damaged Neck Seals

- (1) Replacement Neck Seals, P/N DP2217, can be ordered from Essex PB&R.
- (2) To replace a torn or damaged neck seal follow these steps:
 - (a) On the inside of the hood, remove the black plastic washers from the valve stems. Remove the oxygen cylinders and felt washers from the neck seal and red slings.

Note: Newer versions of the PBE Trainers have eliminated the black plastic washers and utilize socket head cap screws to affix the empty oxygen cylinders. Using an Allen Wrench, unscrew the socket head cap screws and remove fender washers to remove the oxygen cylinders.
 - (b) Remove the damaged neck seal by disconnecting the Hook and Loop Fastener attachment.
 - (c) Attach the Hook and Loop Fastener from the new neck seal to the hood making sure to orientate the neck seal with the two valve holes facing the sides of the hood and towards the back of the hood. **See Figure 10 on page 28** for proper placement of the neck seal.
 - (d) Reinstall the oxygen cylinders.



Proper Placement of Replaceable Neck Seal

Figure 10



E. Replacing The Pull Cord Assembly

The Pull Cord Assembly, which imitates the red ball activation, can be replaced if the Pull Force Spring becomes too loose from repeated use. A replacement Pull Cord Assembly, P/N BP2127, can be ordered from Essex PB&R.

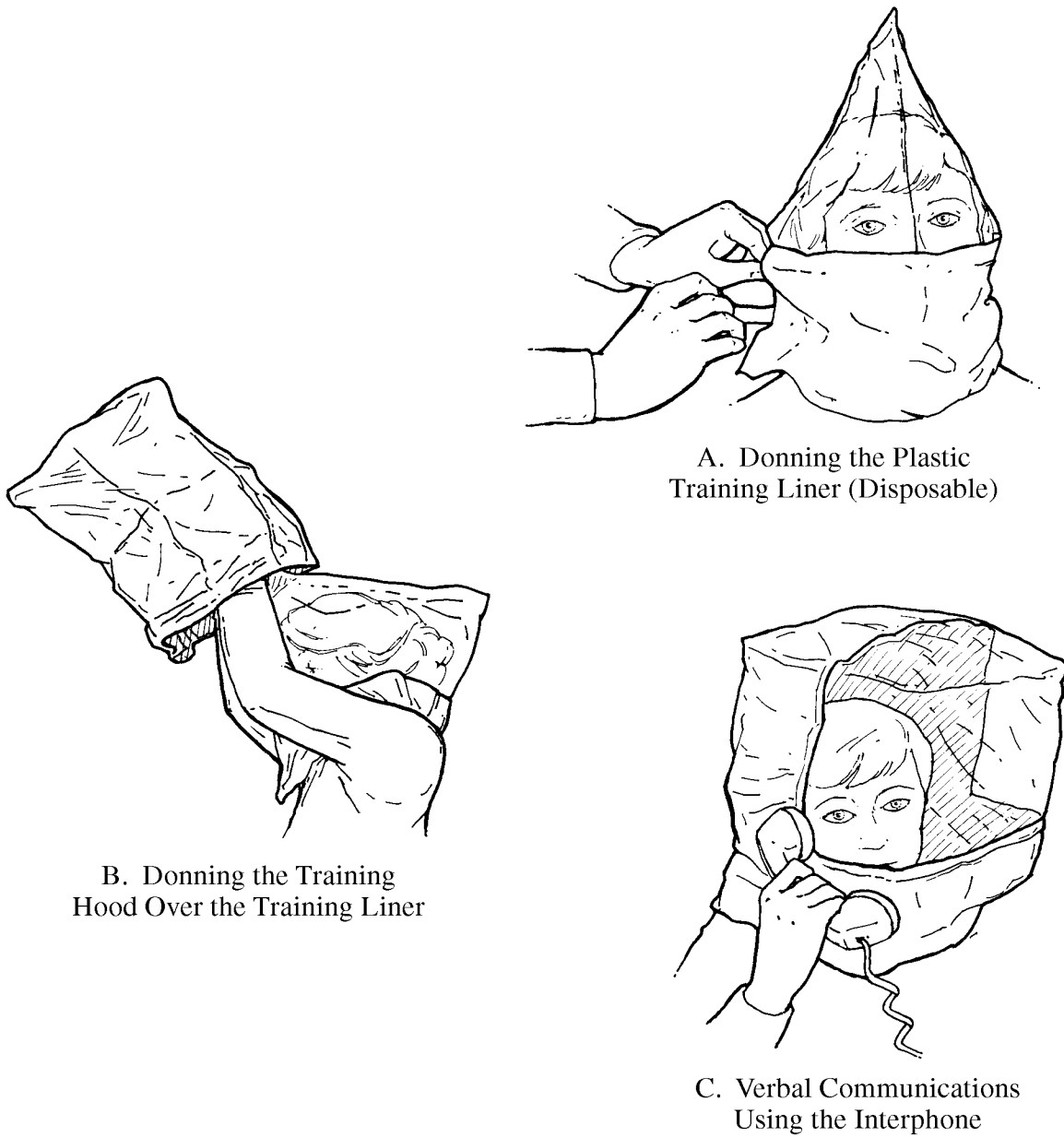
F. Maintenance Procedures

CAUTION: TREAT THE TRAINING UNIT WITH CARE SO AS NOT TO AFFECT ITS DURABILITY.

- (1) Clean and disinfect the training hood periodically so it will continue to work effectively.
 - (a) Moisten a cotton cloth with 50-50 mixture of alcohol and water.
 - (b) Wipe all inside and outside surfaces. Let dry.
- (2) Clean and disinfect the neck seal periodically so it will continue to work effectively.
 - (a) To clean the neck seal, soak a cotton cloth with a commercially available disinfecting cleaner.
 - (b) Wipe all inside and outside surfaces. Let dry.

G. Handling and Storage

- (1) Fold the training unit hood so that there is a long crease up the back. Next fold the front peak of the hood. Finally, fold the hood in half.
- (2) Insert the folded training unit into the storage bag. Store the folded training unit in a suitable location.



Use of the Training Hood

Figure 11