

Maintenance and Repair Manual

FireHawk® M7

Ultra Elite® Facepiece



Order No.: 10093089/05
CR 800000035869
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 **WARNING!**

Read this manual carefully before servicing the device. The device will perform as designed only if it is used and maintained in accordance with the manufacturer's instructions. Otherwise, it could fail to perform as designed and persons who rely on this device for their safety could sustain serious personal injury or death.

Please read and observe the WARNINGS and CAUTIONS inside. For any additional information relative to use or repair, call 1-800-MSA-2222 during regular working hours.

For alternate languages, please refer to part number 10168038.

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1 Description

1.1 Parts List and Replacement Parts

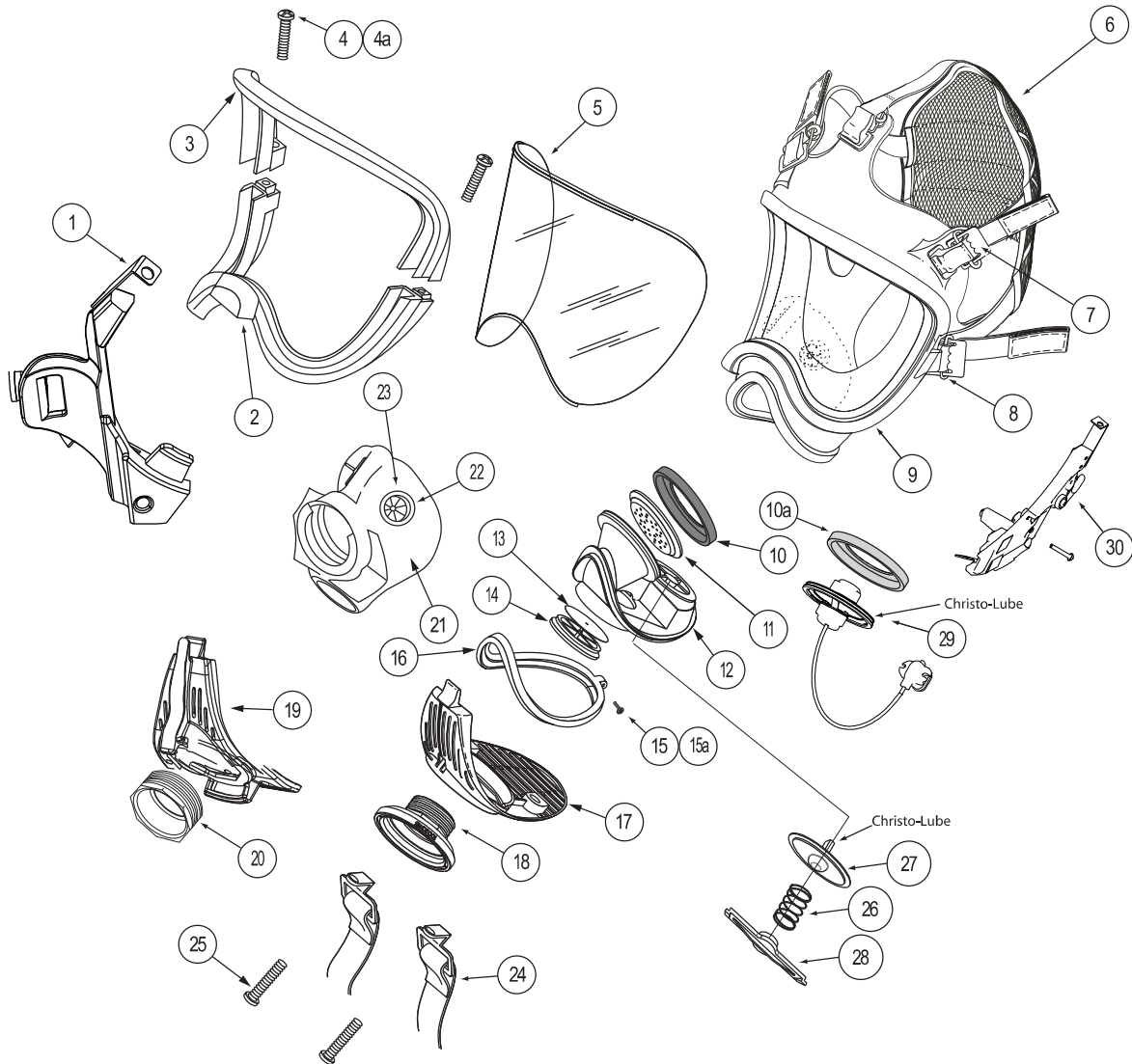


Fig. 1 Exploded View

Parts List

Item	Description	Part Number
1	HUD Bracket	10083133
2	Lower Lens Ring	804805
3	Upper Lens Ring	804804
4	Screw (2 req'd)	636955
4a	Screw Kit (2 req'd)	804806
5	Lens Super Hardcoat	805020

Item	Description	Part Number
6	Speed-ON Harness Assembly	10031102
6a	Speed-ON Harness Assembly (with 3 buckles)	817089
6b	Speed-ON Harness Assembly (less buckles)	817088
7	Buckles (3 req'd)	494297
8	Buckle Assembly with D-ring (2 req'd)	804807
	Hycar Facepiece Blank (small)	10048814
9	Hycar Facepiece Blank (medium)	10048813
	Hycar Facepiece Blank (large)	10048815
10	Black Speaking Diaphragm Retainer	804808
10a	Gray Speaking Diaphragm Retainer (communications system)	10023505
10b	Speaking Diaphragm Retainer	10023505
11	Speaking Diaphragm	804809
12	Component Housing with Exhalation Valve	815605
13	Inlet Valve Disc	804813
14	Valve Spider	805011
15	Screw	636956
15a	Screw Kit	804812
16	Component Housing Ring	804811
17	Component Housing Cover (push-to-connect)	489224
18	Push-to-Connect Adapter	10033115
19	Component Housing Cover (slide-to-connect)	10034500
20	Slide-to-Connect Adapter	10018621
21	Nosecup Assembly with Valves, Medium	491121
	Nosecup Assembly with Valves, Large	491123
22	Valve Seat (2 req'd)	804822
23	Valve Disc (2 req'd)	804823
24	Neck Strap	804829
25	Screw (2 req'd)	10033208
26	Spring	490133
27	Exhalation Valve Assembly	814459
28	Spring Retainer	490128
	Snoop Leak Detector	600920
29	ClearCommand Voicemitter (Communication System Microphone)	10024076
30	ClearCommand Bracket (Communication System Mounting Bracket)	10057484

Replacement Kits

FireHawk M7 Ultra Elite Facepiece (complete)

	Description	Part Number	
Push-to-Connect	Small	10094690	
	Small, ClearCommand Communication System - ready	10084822	
	Medium	10084824	
	Medium, ClearCommand Communication System - ready	10084826	
	Large	10084828	
	Large, ClearCommand Communication System - ready	10084830	
Slide-to-Connect	Small	10084689	
	Small, ClearCommand Communication System - ready	10084821	
	Medium	10084823	
	Medium, ClearCommand Communication System - ready	10084825	
	Large	10084827	
	Large, Ultra Elite Communication System - ready	10084829	
		Part Number with TUFF Lens	Part Number with Clear Lens
Component Housing Assembly (Complete)			
	Speaking Diaphragm Retainer		804808
	Speaking Diaphragm		804809
	Component Housing w/ Exhalation Valve	10195302	815605
	Inlet Valve Disc		804813
	Valve Spider		805011
		Part Number with TUFF Lens	Part Number with Clear Lens
Exhalation Valve Retaining Bar Kit			
	Spring		490133
	Spring Retainer	818107	490128
		Part Number with TUFF Lens	Part Number with Clear Lens
Nosecup Assembly (with valve)			
	Small/Medium	491121	
	Large	491123	

2 Disassembly

2.1 Removing the Speed-ON Head Harness

The center strap of the Speed-ON Head Harness is stitched permanently to the buckle.

To replace the harness:



- (1) Remove the center strap and buckle.
 - a) Grasp the facepiece lug with one hand and the buckle with the other.
 - b) Lift the metal buckle while stretching the facepiece lug.

- (2) Remove the temple and jaw straps.
 - a) Extend each strap so that the end tab is at the buckle.
 - b) Unlace the straps.

Note: To remove the Speed-ON Head Harness with buckles, repeat Step 1 on each buckle.

2.2 Removing the M7 HUD Mounting Bracket



Clean and disinfect the facepiece before removing the component housing. (See section 5 "Cleaning and Disinfecting" for instructions.)



(1) Remove the screws from the lens rings.

(2) Remove the component housing cover. (See section 2.5 "Removing the Component Housing Cover".)



(3) Carefully pry the tab off of the boss.



(4) Slide the bracket off of the facepiece.

2.3 Removing the Lens and Lens Ring



Note: Remove the adapter assembly and component housing cover. (See section 2.5 "Removing the Component Housing Cover".)



- (1) Remove the screws from the top and bottom lens rings.



- (2) Remove the lens rings.



- (3) Fold the flange back and pull the lens out of the groove.

2.4 Removing the Nosecup



- (1) Remove the nosecup.

2.5 Removing the Component Housing Cover



- (1) Remove the two component housing cover screws, if present, and neck strap. If present, remove the push-to-connect adapter assembly.

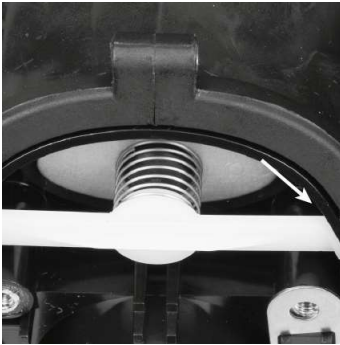


Note: If necessary, use a small slot head screwdriver to disengage the cover.



- (2) Remove the component housing cover.

2.6 Removing the Spring, Spring Retainer, and Exhalation



- (1) Remove and discard the spring retainer.
 - a) Slide one end of the retainer out of the slot.
 - b) Carefully push the center of the retainer and release the other end.

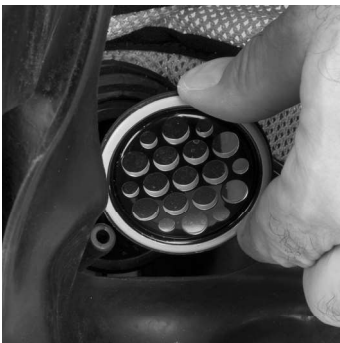
Note: Be careful not to damage the slots, valve, or valve seat. If the slots, valve, or valve seat are damaged, replace the component housing.

- (2) Inspect the slots in the component housing for damage or distortion. If damage or distortion is present, replace the component housing.
- (3) Remove the exhalation valve.

2.7 Removing the Speaking Diaphragm



- (1) Unscrew and remove the speaking diaphragm retaining ring.



- (2) Carefully remove the speaking diaphragm.

2.8 Disassembling the Component Housing

2.8.1 Removing the Adapter Assembly



- (1) Remove the inlet adapter.

Note: Use a large adjustable wrench to unscrew the inlet adapter. You can use a piece 1" PVC pipe wrapped with a few winds of electrical tape to prevent the inlet adapter from deforming.

2.8.2 Removing the Inlet Gasket and Disc Valve



- (1) Remove the spider gasket.



- (2) Disassemble the spider gasket.
 - a) Stretch the disc off of the stem.

3 Reassembly



Flow test the facepiece on the PosiChek3 after reassembly.

3.1 Assembling the Component Housing

Install the valve spider (P/N 805011) and disk valve, speaking diaphragm, drinking tube, and adapter assembly.

3.2 Installing the Inlet Gasket and Disc Valve



(1) Gently stretch the valve disc over the stem.

(2) Insert the gasket so that the groove captures the housing rim.

a) Align the tabbed spoke with the center-line.



Note: Ensure that the groove captures the component housing rim. Flex the gasket spider as needed to fully capture the rim. When installed correctly, the gasket lays flat and all of the spokes are straight.



(3) Reinstall the adapter assembly.

3.3 Installing the Adapter Assembly



- (1) Screw the adapter into the component housing.
 - a) Ensure that the corners of the top flat align with the notches.



Note: You can use a piece 1" PVC pipe wrapped with a few winds of electrical tape to prevent the inlet adapter from deforming while tightening.

3.4 Installing the Speaking Diaphragm



- (1) With the gasket forward (perforations facing the wearer) place the diaphragm in the component housing.



- (2) Install the retaining ring (P/N 804808) and firmly hand-tighten.

3.5 Installing the Component Housing



- (1) Slide the housing into the front of the facepiece.
 - a) Starting at the top (narrow end) of the housing, work the housing into the groove.

Note: Ensure that the housing is captured completely by the groove and that the centerline marks are aligned.



- (2) Insert the narrow end of the housing ring between the lower lens ring and facepiece housing.



- (3) Align the component housing ring center mark with the facepiece centerline. Lubricate with Snoop (P/N 600920) as needed.

- (4) Start at the narrow end and work the housing ring onto the facepiece.
 - a) Work down both sides until the ring completely captures the facepiece rubber. Lubricate with Snoop as needed.
- (5) Moisten the mating surfaces of the facepiece and housing ring with Snoop.

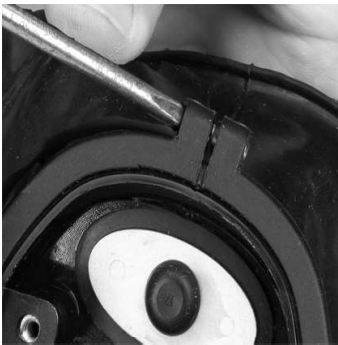
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- (6) Check by gently squeezing the ring ends together. Bulges or wrinkles indicate that the rubber is not completely captured.
 - a) Rework the ring until there are no bulges or wrinkles.

⚠ WARNING!

Bulges or wrinkles indicate that the facepiece rubber is not seated properly. Reinstall the ring so that there are no bulges or wrinkles. Failure to follow this warning can cause the facepiece to leak and result in serious personal injury or death.



- (7) Use a Phillips screwdriver to tighten the component housing ring screw.
 - a) Make sure the facepiece rubber does not extrude between the component housing ring ends.

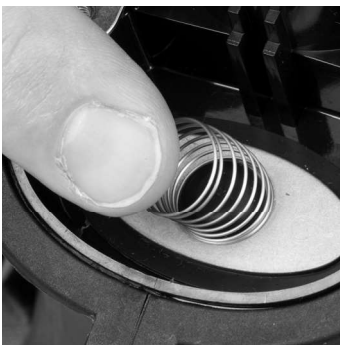
Note: On models equipped with ClearCommandCommunication System mounting brackets, install the mounting bracket and screw provided. (See section 4.3 "Installing the ClearCommand Communication System Mounting Bracket" for instructions.)

3.6 Installing the Exhalation Valve, Spring and Spring

Exhalation Valve Retaining Bar Kit P/N 818107



- (1) Lightly lubricate the exhalation valve stem with Christo-Lube.
 - a) Insert the exhalation valve post into the slot.



- (2) Place a new spring on the valve.



- (3) Insert a new spring retainer.



- (4) Ensure spring retainer is secure.
 - a) Make sure the retainer is fully engaged in the slots.
 - b) Ensure that the spring is centered on the exhalation valve.

Note: If the retainer cannot be secured, replace the component housing.

⚠ CAUTION!

If facepiece rubber extrudes between the component housing ring ends, loosen the ring, adjust, and reassemble.

3.7 Installing the Component Housing Cover

Install the ClearCommand Communication System and M7 HUD mounting brackets. (See section 4.3 "Installing the ClearCommand Communication System Mounting Bracket" and section 3.10 "Installing the M7 HUD Mounting Bracket" for instructions.)



Verify that the exhalation valve is installed.



- (1) Place the component housing cover over the adapter assembly.

- (2) Insert the tab on the cover into the slot in the lens ring.

- (3) Press the cover until it locks.



Note: If necessary, use a small slot head screwdriver to engage the cover.



- (4) Place the neck strap brackets into the sockets.
 - a) Install Phillips screws and tighten.

3.8 Installing the Nosecup



- (1) Stretch the nose cup over the exhalation valve flange.



- (2) Stretch the nose cup over the retaining ring.

Note: Ensure that the nosecup fully engages the retaining ring.

3.9 Installing the Lens and Lens Ring

Lens Assembly P/N 10093933

Lower Lens Ring P/N 804805

Upper Lens Ring P/N 804804

Snoop P/N 600920



- (1) Remove dirt, lens fragments, or debris from the groove.



- (2) Lubricate the groove with Snoop (P/N 600920) or properly mixed Confidence Plus cleaner sanitizer solution.

⚠ CAUTION!

Keep the lens cover (P/N 10093932) on new lenses until facepiece assembly is complete.

- (3) Align the lens centerline marks (top and bottom) with the facepiece centerline marks.

Note: Verify proper lens selection. NFPA approved lenses bear the Identification Mark “X” at the top center of the lens.



- (4) Insert the top of the lens into the groove.

- (5) Work the groove around the lens to seat the lens.

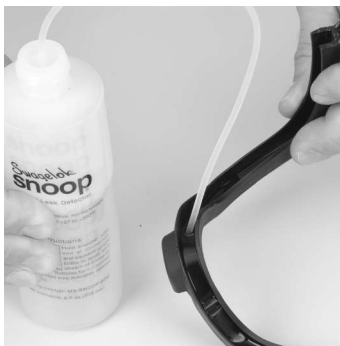
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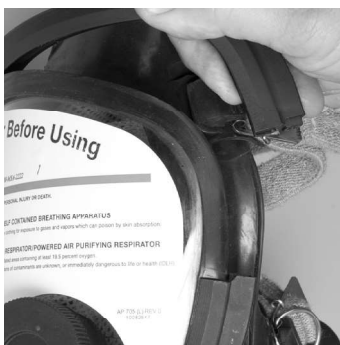
Note: The bottom lens center line mark must line up with the bottom facepiece center line mark.



(6) Moisten the mating surfaces of the facepiece and lens ring with Snoop (P/N 600920).



(7) Lubricate the lens ring with Snoop (P/N 600920).



(8) Install the lens ring.

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(9) Press the ring halves together to mate the ends.

(10) Install a screw on each side.

a) If the screws do not go in easily, pull them out and try again. Avoid cross threading.

(11) Alternate tightening the left and right screws to seat the ring evenly.

(12) Don the facepiece.

(13) Cycle exhalation valve by inhaling and exhaling six times.

(15) Check the face-to-facepiece seal.

(See **FireHawk M7 Air Mask Operation and Instructions P/N 10082858** for instructions.)

 **CAUTION!**

Do not over tighten. Facepiece rubber must not be visible through the joint. If the facepiece rubber is visible, reassemble.

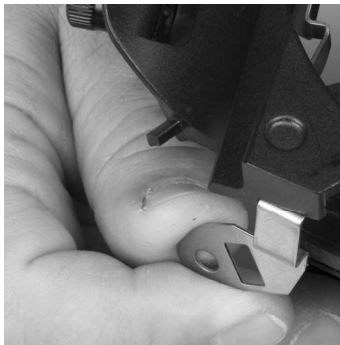
3.10 Installing the M7 HUD Mounting Bracket

M7 HUD Mounting Bracket P/N 10083133



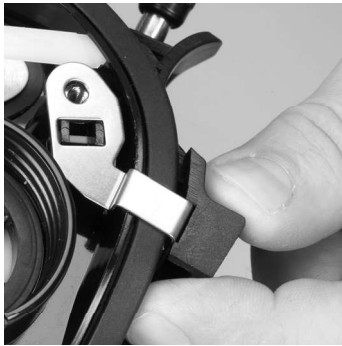
Remove the component housing cover before installing the M7 HUD Mounting Bracket. (See section 2.5 "Removing the Component Housing Cover" for instructions.)

If necessary, remove the lens ring screws. (See section 2.3 "Removing the Lens and Lens Ring" for instructions.)



- (1) Slide the bracket assembly onto the facepiece.
 - a) Make sure that tab is under the lower lens ring.

- (2) Reinstall the lens ring screw.



- (3) Align the screw hole in the lower metal tab with component housing screw hole.
- (4) Reinstall the component housing cover. (See section 3.7 "Installing the Component Housing Cover" for instructions.)
- (5) Check alignment and tighten screws.

3.11 Installing the Speed-ON Head Harness

Speed-ON Head Harness P/N 10031102



- (1) Install the crown buckle.
 - a) Insert the long tab of the lug into the D-ring.
- (2) Pull the entire lug through.

Note: Repeat steps 1 and 2 to install temple, and jaw buckles. (See Kit P/N 817088, **Head Harness Installation** instructions to attach the harness.)

4 ClearCommand Communication System



If upgrading from a speaking diaphragm to the ClearCommand Communication System, remove the speaking diaphragm. (See section 2.7 "Removing the Speaking Diaphragm" for instructions.)

4.1 Removing the ClearCommand Communication System



It is not necessary to remove and disassemble the component housing to replace the ClearCommand Communication System.



- (1) Use a Phillips screwdriver to remove the lens ring screw.

- (2) Use a Phillips screwdriver to remove the component housing ring screw.
- (3) Remove the component housing cover. (See section 2.5 "Removing the Component Housing Cover" for instructions.)



- (4) Slide the bracket off of the facepiece.



- (5) Use a small Phillips screwdriver to disconnect the ClearCommand microphone from the mounting bracket.



(6) Remove the nosecup.



(7) Unscrew and remove the speaking diaphragm retaining ring.

(8) Remove the I-HUD retaining clip (if installed).



(9) Remove the ClearCommand voicemitter.

4.2 Installing the ClearCommand Microphone

ClearCommand Microphone P/N 10024076

Retaining Ring P/N 10023505



- (1) Thread the cable through the component housing.



- (2) Lightly lubricate the ring of the microphone (P/N 10024076) on its receiver side.

- (3) With the gasket forward place the microphone into the component housing.



- (4) Install the retaining ring and firmly hand-tighten.

- (5) Reinstall the nosecup. (See section 3.8 "Installing the Nosecup" for instructions.)



- (6) Route the microphone cable over the component housing retaining ring center line.



- (7) Assemble the component housing cover. (See section 3.7 "Installing the Component Housing Cover" for instructions.)
- (8) Use a small Phillips screwdriver to connect the ClearCommand microphone to the mounting bracket.

4.3 Installing the ClearCommand Communication System Mounting Bracket

ClearCommand Communication System Mounting Bracket P/N 10024077

- (1) Remove the component housing cover. (See section 2.5 "Removing the Component Housing Cover" for instructions.)
- (2) Slide the bracket onto the facepiece.



- (3) Align the upper tab to the screw holes in the upper lens ring.
 - a) Insert a screw. Use a Phillips screwdriver to tighten the lens ring screw.



- (4) Use a Phillips screwdriver to tighten the component housing screw.



- (5) Install the component housing cover. (See section 3.7 "Installing the Component Housing Cover" for instructions.)

5 Cleaning and Disinfecting

In general, only the facepiece requires cleaning and disinfecting after each use.

5.1 Cleaning the Speed-ON Head Harness

Machine wash in warm water (maximum 110 °F/43 °C) with a mild detergent.

Allow to air dry.

Do not dry clean.

Do not bleach or use abrasive cleaners.

Do not fold or store when wet.

Cleaning and Disinfecting


Depending on cleaning policy, either a designated person or the user should clean the respirator after each use. ANSI standards suggest user training in cleaning procedures.

Use MSA Confidence Plus® Cleaning Solution. It cleans and disinfects in one operation, retains germicidal effectiveness in hard water to inhibit bacteria growth, and will not deteriorate rubber, plastic, glass, or metal parts.

CAUTION!

Do not use cleaning substances that can attack the apparatus. Do not use alcohol as a germicide because it may deteriorate rubber parts. Cleaning agent residue may irritate the wearer's skin. Rinse thoroughly to remove all traces of cleaning solution.

- (1) Follow instructions to mix Confidence Plus Cleaning Solution or similar germicidal cleaner.
- (2) Disconnect the Firehawk M7 Responder regulator.
- (3) Loosen the thumbscrew and remove the M7 HUD.
- (4) Wash thoroughly with soft brush or sponge.
- (5) Submerge in a germicidal solution for the manufacturer's recommended time.
- (6) Thoroughly rinse the facepiece and components in clean, warm (110 °F/43 °C) water.
- (7) Clean the exhalation valve by pressing the stem with a blunt object and flushing with clean water.
- (8) Thoroughly rinse the drinking tube by filling the canteen and draining it through the drinking tube. Repeat as necessary.
- (9) Allow the facepiece to thoroughly air dry away from direct sunlight.

 Do not force dry with heat.

6 Troubleshooting

Exhalation valve Opening Pressure Test

- 1.5-2.5 IWC passes
- If exhalation valve opens at too low of a pressure (under 1.5 IWC), replace exhalation spring and retaining bar P/N 818107.
- If exhalation valve opens at too high of a pressure (over 2.5 IWC) retest as the valve may have been stuck due to debris or other foreign matter. If the exhalation resistance still fails, clean the facepiece. If still failing, replace spring and retaining bar P/N 818107 and apply Christo-Lube to only the rectangular plastic stem of the exhalation valve.

Facepiece Leak Test

- Reposition facepiece on PosiChek3 head form and tighten to ensure good seal.
- Inspect speaking diaphragm membrane for holes.
- Inspect rubber material and other facepiece components for physical damage.
- Inspect sealing surface of exhalation valve to the component housing. Clean any debris.

