

# FireHawk® M7XT Ultra Elite® XT Facepiece

**MAINTENANCE AND REPAIR**

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**MINE SAFETY APPLIANCES COMPANY**  
**CRANBERRY TWP., PENNSYLVANIA, U.S.A. 16066**

# FIREHAWK M7XT ULTRA ELITE XT FACEPIECE

## Replacement Kits

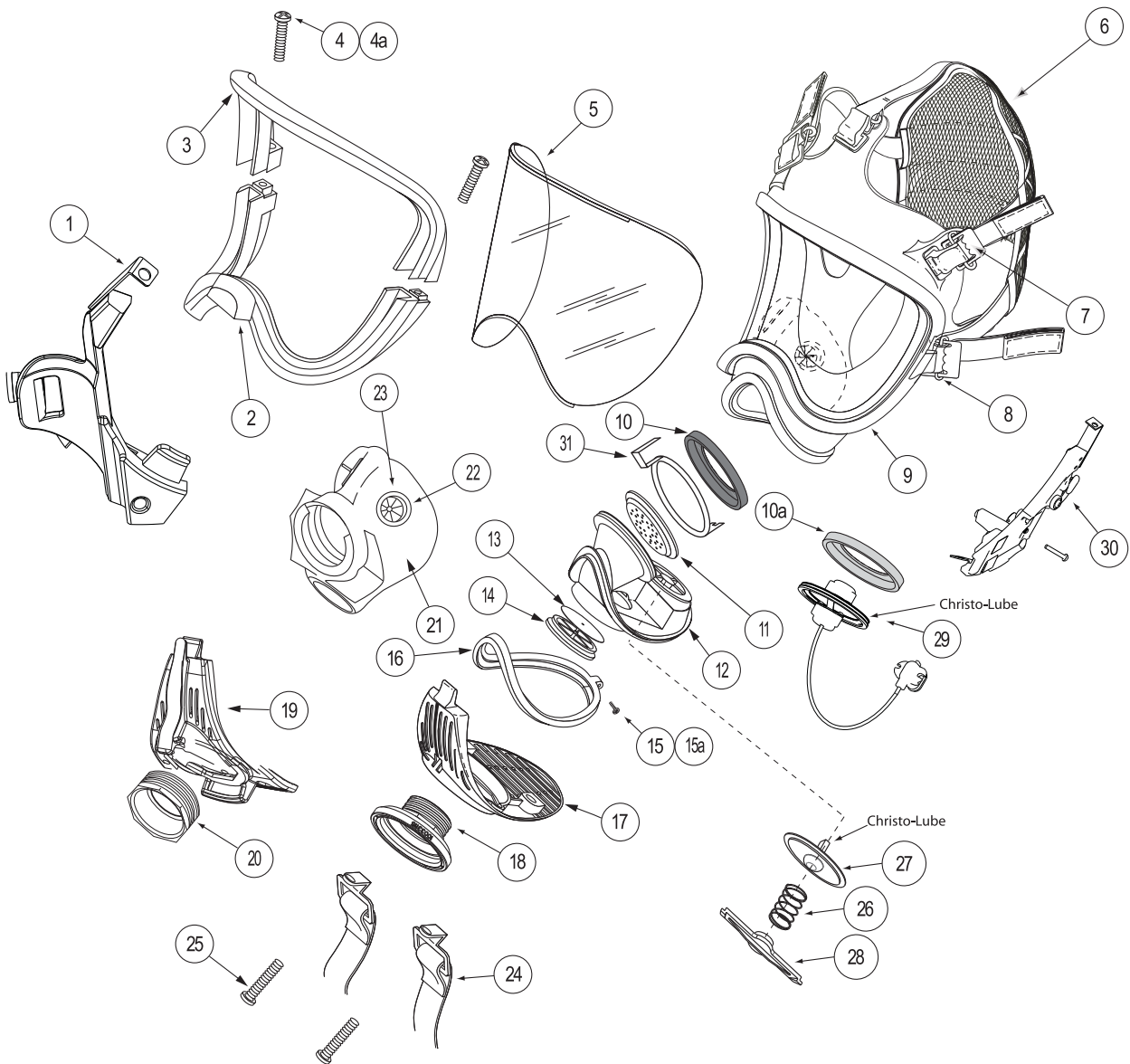
FireHawk M7XT Ultra Elite Facepiece (complete)		
	Part Number	Description
Push-to-Connect	10149310	Small
	10149312	Small, Ultra Elite Communication System - ready
	10149306	Small, M7 HUD-ready
	10149308	Small, Ultra Elite Communication System and M7 HUD-ready
	10149288	Medium
	10149290	Medium, Ultra Elite Communication System - ready
	10149284	Medium, M7 HUD-ready
	10149286	Medium, Ultra Elite Communication System and M7 HUD-ready
	10149332	Large
	10149334	Large, Ultra Elite Communication System - ready
	10149328	Large, M7 HUD-ready
	10149330	Large, Ultra Elite Communication System and M7 HUD-ready
Slide-to-Connect	10149309	Small
	10143911	Small, Ultra Elite Communication System - ready
	10149305	Small, M7 HUD-ready
	10149307	Small, Ultra Elite Communication System and M7 HUD-ready
	10149287	Medium
	10149289	Medium, Ultra Elite Communication System - ready
	10149283	Medium, M7 HUD-ready
	10149285	Medium, Ultra Elite Communication System and M7 HUD-ready
	10149331	Large
	10149333	Large, Ultra Elite Communication System - ready
	10149327	Large, M7 HUD-ready
	10149329	Large, Ultra Elite Communication System and M7 HUD-ready
Component Housing Assembly (Complete)		
815604	804808	Speaking Diaphragm Retainer
	804809	Speaking Diaphragm
	815605	Component Housing w/ Exhalation Valve
	804813	Inlet Valve Disc
	805011	Valve Spider
Exhalation Valve Retaining Bar Kit		
818107	490133	Spring
	490128	Spring Retainer
Nosecup Assembly (with valve)		
491121	Small/Medium	
491123	Large	
M7 I-HUD Retaining Clip		
10150529-SP	I-HUD Retaining Cip	

## FIREHAWK M7XT ULTRA ELITE XT FACEPIECE

Item	Part Number	Description
1	10083133	HUD Bracket
2	10129281	Lower Lens Ring
3	10129269	Upper Lens Ring
4	636955	Screw (2 req'd)
4a	804806	Screw Kit (2 req'd)
5	10129107	Lens Super Hardcoat
6	10031102	Speed-ON® Harness Assembly
6a	817089	Speed-ON Harness Assembly (with 3 buckles)
6b	817088	Speed-ON Harness Assembly (less buckles)
7	494297	Buckles (3 req'd)
8	804807	Buckle Assembly with D-ring (2 req'd)
9	10048814	Hycar Facepiece Blank (small)
	10048813	Hycar Facepiece Blank (medium)
	10048815	Hycar Facepiece Blank (large)
10	804808	Black Speaking Diaphragm Retainer
10a	10023505	Gray Speaking Diaphragm Retainer (communications system)
11	804809	Speaking Diaphragm
12	815605	Component Housing with Exhalation Valve
13	804813	Inlet Valve Disc
14	805011	Valve Spider
15	636956	Screw
15a	804812	Screw Kit
16	804811	Component Housing Ring
17	489224	Component Housing Cover (push-to-connect)
18	10033115	Push-to-Connect Adapter
19	10034500	Component Housing Cover (slide-to-connect)
20	10018621	Slide-to-Connect Adapter
21	491121	Nosecup Assembly with Valves, Medium
	491123	Nosecup Assembly with Valves, Large
22	804822	Valve Seat (2 req'd)
23	804823	Valve Disc (2 req'd)
24	804829	Neck Strap
25	637070	Screw (2 req'd)
26	490133	Spring
27	814459	Exhalation Valve Assembly
28	490128	Spring Retainer
29	10024076	ClearCommand® Voicemitter
30	10057484	ClearCommand Bracket
31	10150529	I-HUD Retaining Clip
	600920	Snoop Leak Detector

**NOTE:** The Ultra Elite Amplifier and ClearCommand Amplifier use the same ClearCommand Bracket and Clear Command Voicemitter.

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## DISASSEMBLY

### 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.

### Removing the M7 HUD Mounting Bracket

**NOTE:** Clean and disinfect the facepiece before removing the component housing. (See **Cleaning and Disinfecting** for instructions.)

1. Remove the screws from the lens rings.



2. Remove the component housing cover (See **Removing the Component Housing Cover**).

3. Carefully pry the tab off of the boss.



4. Slide the bracket off of the facepiece.



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## Removing the Lens and Lens Ring

**NOTE:** Remove the adapter assembly and 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.



## Removing the Nosecup

1. Remove the nosecup.



## Removing the Component Housing Cover

### MMR with Push-to-Connect Adapter

1. Remove the two component housing cover screws and neckstrap (if present).
2. Disengage the cover at the cover release hook, using a small slot screwdriver, if necessary. Once the release is lifted, pull the cover away from the housing. With the Component Housing slightly pulled away from the housing, unthread and remove the Push-to-Connect Adapter.
3. Completely remove the component housing cover from the assembly.



### MMR with Slide Connection

1. Remove the two component housing cover screws and neckstrap (if present).
2. Lift up on the cover. Remove the cover by pulling it away from the housing and working it over the adapter.

## Removing the Spring, Spring Retainer, and Exhalation Valve

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.

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## Removing the Speaking Diaphragm

1. Unscrew and remove the speaking diaphragm retaining ring. Remove the M7 I-HUD retaining clip (if installed).



2. Carefully remove the speaking diaphragm.



## Disassembling the Component Housing

### Removing the Adapter Assembly

1. Remove the inlet adapter, if installed for the MMR slide connection.

**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.



## 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.



## REASSEMBLY

**NOTE:** Flow test the facepiece on the PosiChek3 after reassembly.

### Assembling the Component Housing

Install the valve spider and disk valve, speaking diaphragm, and adapter assembly.

### 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 centerline.

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**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.

## Installing Adapter Assembly (MMR Slide Connection only)

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.



## Installing the Speaking Diaphragm

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



**NOTE:** For External HUD Configuration: Install the retaining ring (P/N 804808) and firmly hand-tighten.



**NOTE:** For Internal HUD Configuration: Position the IHUD retaining clip on the speaking diaphragm housing. Ensure the locking mechanism located on the top of the clip is facing towards you and the fingers at the bottom of the clip are engaged around the rib above the inhalation valve.



Thread the speaking diaphragm retaining ring onto the housing.



**NOTE:** There should only be a little play in the I-HUD retaining clip; it must not swivel/rotate behind the retaining ring.

## 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.



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**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 (P/N 600920) as needed.
5. Moisten the mating surfaces of the facepiece and housing ring with Snoop (P/N 600920).

6. Check by gently squeezing the ring ends together. Bulges or wrinkles indicate that the rubber is not completely captured.

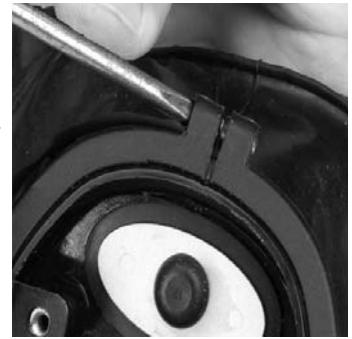


- a. Rework the ring until there are no bulges or wrinkles.

### **⚠ WARNING**

**Bulges or wrinkles indicate that the facepiece rubber is not seated properly. Reinstall the ring so that there are no bulges or wrinkles. Misuse 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 ClearCommand brackets, install the bracket and screw provided (See **Installing the ClearCommand Bracket** for instructions).

### **Installing the Exhalation Valve, Spring, and Spring Retainer**

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.



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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.

### Installing the Component Housing Cover

Before installing the component housing cover, first install the ClearCommand Voicemitter and Bracket along with the M7 HUD Mounting Bracket as required (See **Installing the ClearCommand Bracket and Voicemitter and M7 HUD Mounting Bracket** for instructions).

**NOTE:** Verify that the exhalation valve is installed.

### MMR with Push-to-Connect Adapter

1. Insert the tab on the component housing cover into the slot in the lens ring, and place the component housing cover over the housing.
2. With the cover not yet secured onto the housing, hand-tighten the Push-to-Connect Adapter into the component housing. When doing so verify:

- a. Orientation of the Push-to-Connect adapter is aligned with the octagonal shape on the cover and the mold lines on the Push-To-Connect adapter being centered at each octagon flat.



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  3. Press in on the front of the cover until the cover hook snaps into place.
  4. Line up the screw holes in the cover with the metal tab mounting bracket and threaded inserts in the housing.
  5. Place the neckstrap brackets into the cover sockets. Install the new Phillips screws and tighten.

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  6. Verify that there is no loose play in the assembly of the parts.
  7. Don the facepiece and check the face-to-facepiece seal. Follow the Facepiece Fit Check procedures in the Product Operation and Instructions Manual.

### MMR with Slide Connection

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  1. Place the component housing cover over the adapter assembly.
  2. Insert the tab on the cover into the slot in the lens ring. Press in on the front of the cover until the cover hook snaps into place.

**NOTE:** Flexing the housing slightly at the chin cup may reduce the tension on the housing cover retaining clip so it will engage.

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  3. Line up the screw holes in the cover with the metal tab of mounting bracket and threaded inserts in the housing.
  4. Place the neckstrap brackets into the cover sockets. Install the new Phillips screws and tighten.
  5. Verify that there is no loose play in the assembly of parts.

### Installing the Nosecup

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  1. Stretch the nose cup over the exhalation valve flange.



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  2. Stretch the nose cup over the retaining ring.



**NOTE:** Ensure that the nosecup fully engages the retaining ring. If equipped with an I-HUD retaining clip, do not stretch the nosecup over this clip.

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## Installing the Lens and Lens Ring

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.



**NOTE:** The bottom lens centerline mark must line up with the bottom facepiece centerline 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).



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8. Install the lens ring.



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.
14. Check the face-to-facepiece seal. (See **FireHawk M7XT Air Mask Operation and Instructions P/N 10145950** for instructions).

## ⚠ CAUTION

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

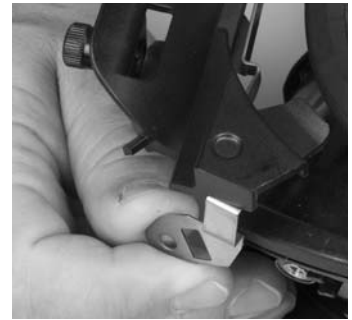
### Installing the M7 HUD Mounting Bracket

**NOTE:** Remove the component housing cover before installing either HUD Mounting Bracket (See **Removing the Component Housing** for instructions). If necessary, remove the lens ring screws (See **Removing the Lens Ring and Lens Assembly**).

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 **Installing the Component Housing Cover** for instructions).
5. Check alignment and tighten screws.

### Installing the Speed-ON Head Harness

1. Install the crown buckle.

- a. Insert the long tab of the lug into the D-ring.



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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.)

### Removing the ClearCommand Voicemitter and Bracket

**NOTE:** If upgrading from a speaking diaphragm to the ClearCommand voicemitter, remove the speaking diaphragm. (See Removing the Speaking Diaphragm for instructions.)

**NOTE:** It is not necessary to remove and disassemble the component housing to replace the ClearCommand voicemitter and bracket.

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 **Removing the Component Housing Cover**).



4. Slide the bracket off of the facepiece.

5. Use a small Phillips screwdriver to disconnect the ClearCommand voicemitter from the bracket.



6. Remove the nose cup.



7. Unscrew and remove the speaking diaphragm retaining ring. Remove the I-HUD retaining clip (if installed).



8. Remove the ClearCommand voicemitter.



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## Installing the ClearCommand Voicemitter

1. Thread the cable through the component housing.



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

3. With the gasket forward place the microphone (P/N 10024076) into the component housing.



4. Install the I-HUD retaining clip when using an I-HUD configuration.

**NOTE:** For Internal HUD Configuration: Position the I-HUD retaining clip on the speaking diaphragm housing. Ensure the locking mechanism located on the top of the clip is facing towards you and the fingers at the bottom of the clip are engaged around the rib above the inhalation valve.



5. Thread the speaking diaphragm retaining ring onto the housing.



6. Reinstall the nosecup (See Installing the Nosecup for instructions).

7. Route the microphone cable over the component housing retaining ring centerline.



8. Assemble the component housing cover (See Assembling the Component Housing Cover).

9. Use a small Phillips screwdriver to connect the ClearCommand voicemitter to the ClearCommand bracket.



## Installing the ClearCommand Bracket

1. Remove the component housing cover (See Removing the Component Housing Cover).
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.



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



5. Install the component housing cover (See **Installing the Component Housing Cover** for instructions).

## CLEANING AND DISINFECTING

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

### Cleaning the Speed-ON Head Harness

Machine wash in warm water (maximum 110°F) 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 (P/N 10009971). 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 Regulator.
3. Loosen the thumbscrew and remove the M7 HUD or I-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) water.
7. Clean the exhalation valve by pressing the stem with a blunt object and flushing with clean water.
8. Allow the facepiece to thoroughly air dry away from direct sunlight.

**NOTE:** Do not force dry with heat.

## 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 the exhalation valve opens at too high of a pressure (over 2.5 IWC - EXHALATION VALVE MAY BE STICKING) retest as the valve may have been stuck due to debris or other foreign matter. If the exhalation resistance still does not meet specification, clean the facepiece. If for a third time it still does not meet specification, 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.