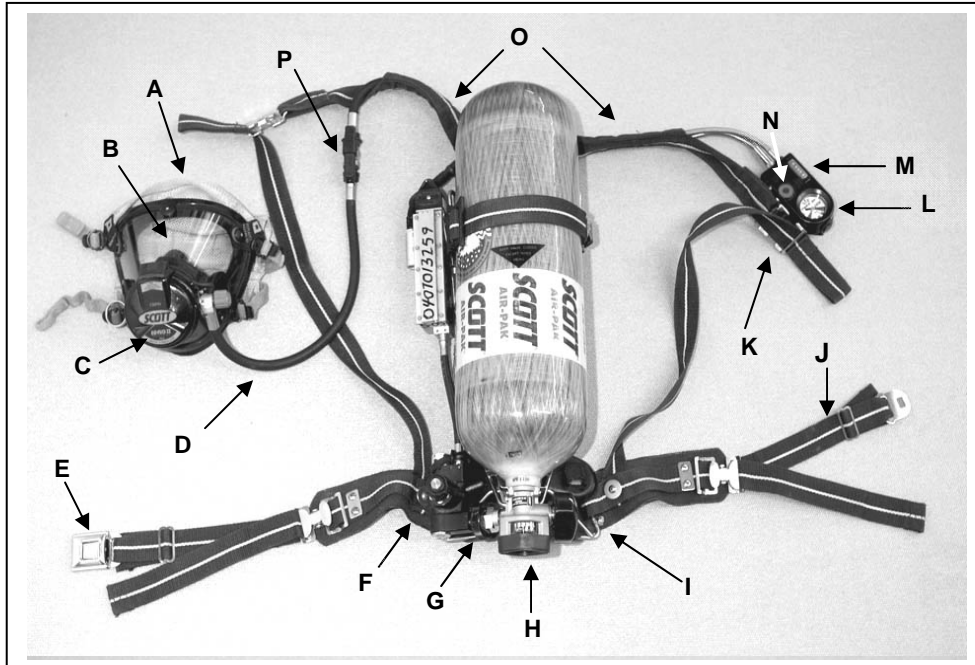


**SCOTT 4.5 POSITIVE PRESSURE SELF-  
CONTAINED BREATHING APPARATUS (SCBA)**

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- |                               |                                   |                                   |
|-------------------------------|-----------------------------------|-----------------------------------|
| <b>A</b> Kevlar Head net      | <b>F</b> Universal Air Connection | <b>K</b> Alligator Clip           |
| <b>B</b> Facepiece            | <b>G</b> High Pressure Coupling   | <b>L</b> Remote Console           |
| <b>C</b> Regulator            | <b>H</b> Cylinder Valve & Gauge   | <b>M</b> Indicator Lights         |
| <b>D</b> Low Pressure Hose    | <b>I</b> Pak-Alert SE 7           | <b>N</b> Manual Alert Button      |
| <b>E</b> Quick Release Buckle | <b>J</b> Waist Belt               | <b>O</b> Shoulder Straps          |
|                               |                                   | <b>P</b> Quick Connect/Disconnect |

## 1. INTRODUCTION

- 1.1 FDNY currently uses the NFPA 2007 Edition, Scott 4.5 Positive Pressure, Self Contained Breathing Apparatus (SCBA). This SCBA meets the approval of the National Fire Protection Association (NFPA), Occupational Safety and Health Administration (OSHA) and National Institute for Occupational Safety and Health (NIOSH). Use of the SCBA is regulated by the U.S. Department of Labor Safety and Health Act and together with full firefighting clothing, makes it a part of the framework of firefighters' personal protective equipment.
- 1.2 The NFPA 2007 SCBA Standard mandates that all SCBAs must have a visual and audible low air alert device. All of the FDNY's SCBAs have a Heads-Up Display (HUD), a Universal Air Connection (UAC), and a Chemical, Biological, Radiation, Nuclear (CBRN) approval. The regulator diaphragm is made of butyl rubber similar to a "Level A" entry suit. The CBRN approval means that the SCBA has met the NIOSH and NFPA criteria for exposure to Liquid Mustard and Sarin Agents. An approved SCBA CBRN regulator can be identified by its orange background label. An approved back frame assembly can be identified by a CDC NIOSH sticker.
- 1.3 **Members are not fully protected from CBRN agents unless wearing the NFPA 2007 compliant SCBA in conjunction with Proper Protective Clothing (e.g., "Level A" entry suit) and proper Haz-Mat training.**

## 2. LIMITATIONS

### 2.1 PROTECTION

- 2.1.1 The SCBA is designed to protect against an Immediately Dangerous to Life and Health (IDLH) atmosphere.
- 2.1.2 The facepiece further protects against entry of contaminants through the eyes.
- 2.1.3 Because the facepiece does not cover the ears, airborne contaminants can enter the respiratory tract through a punctured or ruptured eardrum.
- 2.1.4 The SCBA does not protect against the absorption of toxic and hazardous substances, or radiation through parts NOT covered by the facepiece.
- 2.1.5 The SCBA does not protect against heat exhaustion or exposure to flame or heat.
- 2.1.6 The actual working and exit time achieved from an SCBA will vary considerably depending upon physical conditioning, type of work load, physical characteristics, training, and a number of other factors. It is the individuals' responsibility to know their work and exit times of the SCBA.
- 2.1.7 If a member runs out of air, that member should remove the regulator from the facepiece. The donned facepiece will provide some protection to the skin on the face. Notify Officer and immediately leave the contaminated area. This member MUST be accompanied to a safe area by another member using an SCBA.

### 2.2 CONFINED SPACES

The Code of Federal Regulations 29-CFR 1910.146 defines a confined space as any area that is:

- ◆ Not designed for continuous human occupancy; and
- ◆ Large enough so a person can enter and work; and
- ◆ Has limited means for entry and escape

- 2.2.1 Confined spaces include, but are not limited to, basements, sub-basements and cellars, manholes, pits, tunnels, wells, windowless buildings, storage containers, and other spaces that may be oxygen deficient or contain dangerous levels of airborne contaminants.
- 2.2.2 All confined spaces are to be considered dangerous until proven otherwise.
- 2.2.3 All members entering a confined space shall operate with SCBA donned until the space is deemed safe.
- 2.2.4 Members operating in a confined space must work in teams of two or more and maintain contact with each other, in case assistance is needed.

2.2.5 When a member of a rescue team has to leave an area to service an SCBA, this member must be accompanied to a safe area by another member using an SCBA.

## 2.3 CONTACT LENSES AND GLASSES

2.3.1 Contact lenses may be worn with the SCBA.

2.3.2 When the use of corrective eye lenses is required during SCBA use, the corrective lenses must not interfere with a good seal between face and facepiece. Glasses with temple bars or straps that pass between the face and the seal of the facepiece **must not be used**. Each size facepiece may be equipped with a lens frame kit. The Department will issue corrective lens kits to members that request them.

## 2.4 UNDERWATER USE

2.4.1 The SCBA is NEVER to be used underwater.

2.4.2 Submersion in water will render the SCBA inoperative.

2.4.3 If the SCBA becomes submerged it MUST be placed out of service and returned with a completed service tag (RT-2) stating the problem to the Mask Service Unit.

## 3. DESCRIPTION

### 3.1 BACKFRAME AND HARNESS ASSEMBLY

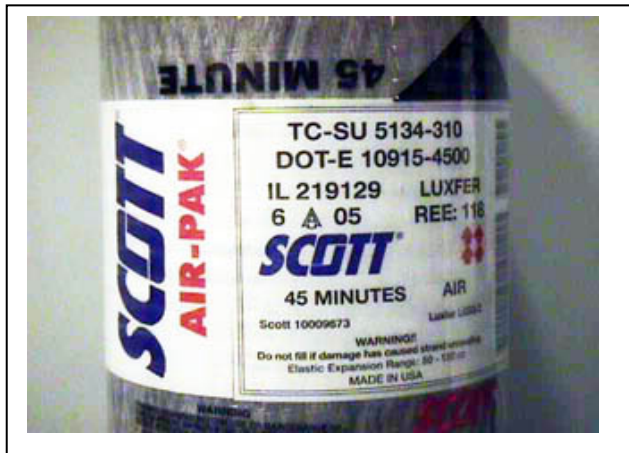
3.1.1 The backframe is the rigid base and back plate to which the Harness Straps and Pressure Reducer Assembly are attached. Its main purpose is to hold the air cylinder. This is done by means of an adjustable cylinder band and a locking tab.

3.1.2 The harness assembly consists of two adjustable shoulder straps and adjustable waist straps made of Kevlar with a quick release buckle. The shoulder straps have pockets through which the low pressure hose and the remote gauge line pass. The waist belt rests on the hips of the wearer and distributes most of the weight of the SCBA to that area.

### 3.2 BREATHING AIR CYLINDER

3.2.1 Cylinders are constructed of an aluminum shell and wrapped with a fiber composite including neck and bottom, which strengthen and protect the shell.

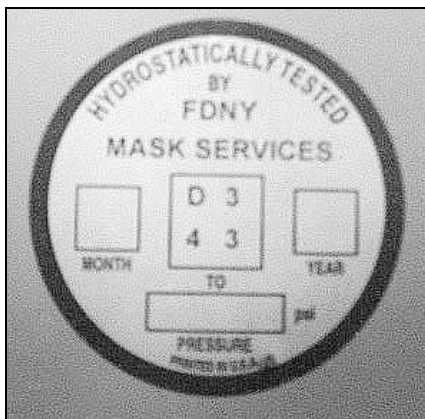
3.2.2 Pressurized to 4500psi, the cylinder holds purified breathing air.



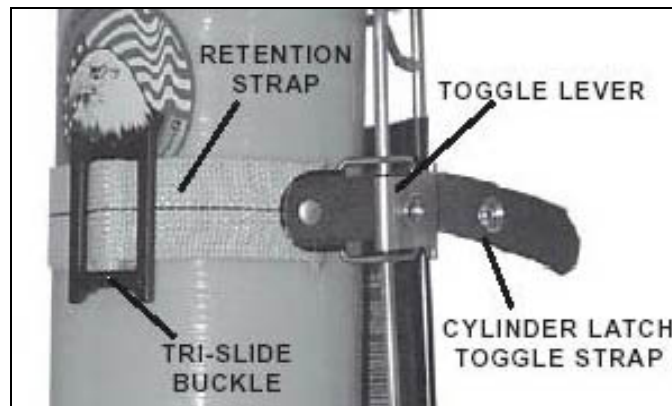
**Figure 1**



**Figure 2**



**Figure 3**



**Figure 4**

3.2.3 The Date of Manufacture is listed on the SCOTT label by month and year. The service life of an air cylinder is 15 years. If a manufacture date is greater than 15 years, the cylinder must be removed from service, bled down, tagged, and returned to MSU. (Figure 1)

3.2.4 Hydrostatic testing is done every 5 years. If the test date shows greater than 5 years, the cylinder must be removed from service, bled down, tagged and returned to MSU. The hydrostatic test date will also be found on the top of the cylinder. For example, the number 102 will indicate that this cylinder was tested in January of 2002, and will need to be retested by January of 2007. (Figure 2)

A. 10 minute escape cylinders used by Special Operations Command (SOC) units for confined space, need to be hydrostatic tested every 3 years.

3.2.5 Cylinders that have had a Hydrostatic retest will have a round Hydro Recertified label glued to it, with month and year of retest. (Figure 3)

- 3.2.6 The SCBA assembly has the capability of accepting 30, 45 or 60 minute cylinders. Since all 4.5 cylinders are pressurized to 4500psi, the difference between them is their varying cylinder sizes. The cylinder slide buckle is the only adjustment that must be made when using a different duration cylinder. Each cylinder has a similar hanger to lock onto the backframe. (Figure 4)
- 3.2.7 Scott 4.5 NIOSH Rated Service Time Cylinders - The service duration times for 30, 45 and 60 minute cylinders are determined by a NIOSH Breathing Machine Test simulating an average adult moderate work rate of 40 liters per minute.
- ◆ 30 minute cylinder = approximately 1200 liters
  - ◆ 45 minute cylinder = approximately 1800 liters
  - ◆ 60 minute cylinder = approximately 2400 liters
- 3.2.8 These are rated durations and the actual time achieved from the cylinder will vary considerably. The End of Service Time Indicator (EOSTI) alarms (vibralert and HUD) actuate when approximately 25% of full cylinder pressure remains in the cylinder and valve assembly. The alarms will continue to operate until the cylinder is nearly depleted. It is the individuals' responsibility to know their working and exit time of the SCBA.
- 3.2.9 The working and exit time of the SCBA will depend on factors such as:
- ◆ The degree of physical activity of the user.
  - ◆ The physical conditioning of the user.
  - ◆ The degree to which the user's breathing is affected by excitement, fear or other emotional factors.
  - ◆ The degree of training or experience which the user has with this or similar equipment.
  - ◆ Whether or not the cylinder is fully charged at the start of the work period.
  - ◆ The atmospheric pressure; for example, if used in a pressurized tunnel or caisson at 2 atmospheres, the duration will be one-half as long as when used at 1 atmosphere; and at 3 atmospheres, will be one-third as long.
  - ◆ Loose or improperly fitted facepiece.
  - ◆ The condition of the SCBA.

3.2.10 The cylinder valve assembly consist of: (Figure 5)

- A. **Rubber Bumper**-for protection of the assembly.
- B. **Cylinder Gauge**-reads the pressure of the air within cylinder and gauge assembly. Cylinder gauge must read the same on both sides.
- C. **Cylinder Hanger**-connects cylinder to backframe assembly.
- D. **Over Pressurization Disk**-a safety feature should the cylinder be over pressurized.
- E. **Cylinder Valve**-to be opened fully counter clockwise when in use. To close, push valve in and turn clockwise to stop.

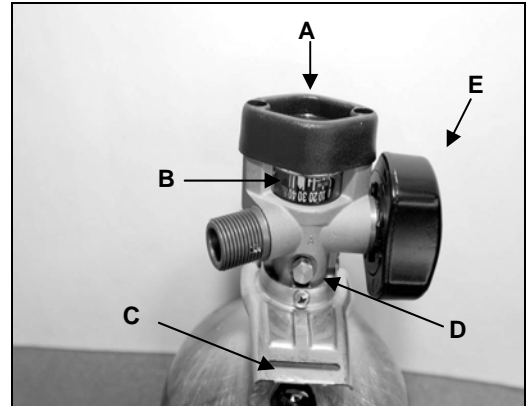


Figure 5

3.2.11 Spare cylinders should be placed in either storage boxes or apparatus holders. Extra cylinders should be placed on their sides, with the valve stem and handle protected from damage

3.2.12 Inspect all spare cylinders (depots, High-Rise Units, company and reserve apparatus) weekly on Mondays for FULL pressure (4500psi). Stored cylinders found below FULL should be tagged and returned to the Mask Service Unit for further inspection.

3.2.13 Compressed air is dangerous. When servicing cylinder, position it so that it does not fall or roll away. Do not open the cylinder valve when the cylinder is not in the backframe or secured in some other manner. When opening a cylinder valve of a secured cylinder, be sure not to direct airflow at yourself or any other individual.

3.2.14 Avoid fully depleting cylinders and leaving valve open. Doing so will allow moisture and contaminates to build up inside the cylinder.

3.2.15 Designated training cylinders are identified with a blue top and/or a polymer protective sleeve. These cylinders are **not** to be used for firefighting purposes

3.2.16 It is prohibited to use company or spare SCBAs when performing any of the dragging methods outlined in Training Bulletin, Unconscious Firefighter Removal. Only the equipment included in the Emergency Removal Training Kit shall be used. Dragging a member with an SCBA attached, **for training purposes**, has caused injury to members and unnecessary damage to air cylinders and SCBAs. Each Battalion has been issued an Emergency Removal Training Kit which includes a mannequin outfitted in condemned bunker gear and a mask harness for training purposes.

### 3.3 CYLINDER EXCHANGE

#### 3.3.1 Exchange cylinder for one that is FULL when:

- A. Prior to operating, the remote gauge reads less than FULL (green area).
- B. While operating, when the remote gauge and HUD reads less than 1/4 (Vibralert, Remote Gauge and HUD (EOSTI) will warn of this).

#### 3.3.2 Exchange Procedure

- A. Shut down the cylinder valve FULLY and purge all residual air from the SCBA.
- B. Uncouple the high pressure hand coupling from the cylinder.
- C. Unsnap and lift cylinder toggle strap.
- D. While pressing down on the cylinder locking tab, grasp the cylinder at the rubber bumper and slide the cylinder hanger away from and free of the bottom hook.
- E. Slide cylinder over locking tab until top of cylinder clears band.
- F. Slide in a FULL cylinder in opposite direction of removal.
- G. As cylinder hanger clears bottom hook of wire frame, let hook slide back and lock into hanger slot.
- H. Attach high pressure hand coupling to cylinder and turn clockwise. Coupling is to be made hand tight, **never** use a wrench to tighten coupling.
- I. Push down on cylinder band toggle lever to firmly secure cylinder to backframe. Toggle lever should not be hard to push down, but have some tension. If necessary, readjust the slide buckle on the retention strap.
- J. Open cylinder valve FULLY. Listen for any leaks in the entire SCBA system.
- K. Shut down the cylinder valve and purge all residual air from the SCBA system, prior to placement in apparatus mounting bracket.

### 3.4 HIGH PRESSURE HOSE AND HAND COUPLING (Figure 6)

- A High Pressure Hose
- B Relief Valve
- C UAC Connection
- D Nylon O-Ring
- E High Pressure Hand Coupling

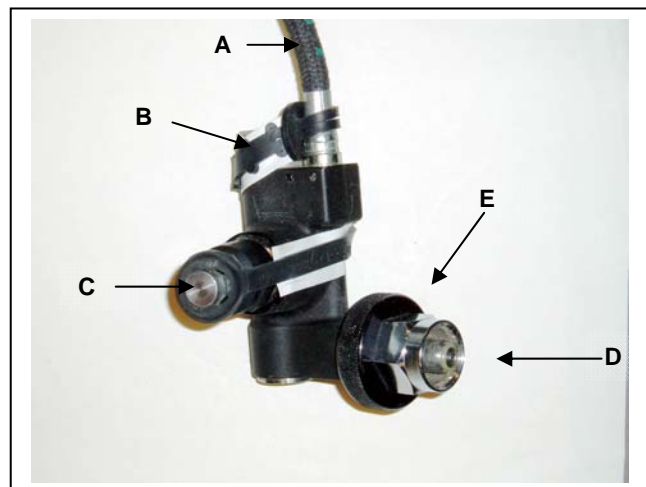


Figure 6



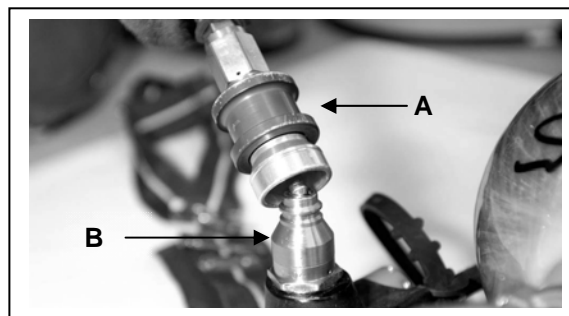
3.4.1 The high pressure hose and high pressure hand coupling conveys breathing air from the cylinder to the pressure reducer assembly. Air pressure within this hose can be as much as 4500psi.

3.4.2 During inspection of the SCBA, there may be a need to tighten or replace the Nylon O-Ring. To do so, use a 1/8" Allen wrench and a 7/16" open end wrench. (Figure 7)



**Figure 7**

3.5 UNIVERSAL AIR CONNECTION (UAC) (Figure 8)



**Figure 8**

3.5.1 SCOTT 4.5 SCBAs are fitted with a UAC System which permits **emergency replenishment** of an approved SCBA breathing air supply cylinder on a user's SCBA from an approved air supply source while in use. This is not a Quick Charge attachment and must **not** be used for routine recharging of the air cylinder, buddy breathing, transferring air from another SCBA, or any other unapproved use. The UAC is for **emergency use only** when the SCBA user is incapacitated within the hazardous atmosphere. The UAC manifold is equipped with a relief valve which will open if the supply pressure of the emergency supply exceeds the maximum pressure rating of the complete SCBA. However, the supply pressure from the High Pressure Coupling (A), of the emergency air supply to be connected to the UAC (B), must not exceed 4500psi. (Figure 8)

3.5.2 The UAC Connection must have its protective dust cover in place. A missing cover allows damage to the UAC or debris and contaminants to enter the connection, facilitating a possible malfunction when used with an approved air supply source. An SCBA with a missing UAC dust cover shall be placed out of service. It must be tagged with an RT-2 and forwarded to MSU.

## 3.6 PRESSURE REDUCER ASSEMBLY (Figure 9)

3.6.1 The Pressure Reducer Assembly (PRA), mounted on the left side of the backframe, reduces the high pressure breathing air received from the cylinder. Consisting of two systems, the PRA normally reduces the operating pressure to 100 psi before entering the regulator's low pressure hose. The regulator then controls the pressure within the facepiece to slightly above atmospheric pressure.

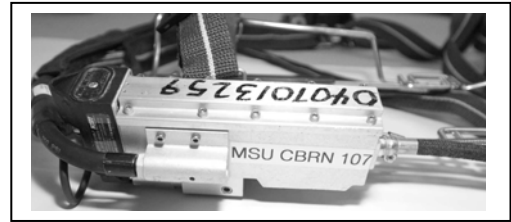


Figure 9

3.6.2 A malfunction of the PRA's primary system will automatically direct breathing air into a secondary system. When this occurs, the operating pressure will only be reduced to 150 psi and cause the vibralert alarm to activate. The member will only know that the vibralert alarm has activated and **must notify their officer and immediately leave the contaminated area**. This member must be accompanied to a safe area by another member using a SCBA.

3.6.3 Failure of both the primary and secondary systems in the open position will activate a Relief Valve in the PRA, which will rapidly discharge all pressure in excess of 185 psi into the atmosphere. When this occurs, the cylinder valve should be partially closed, allowing only a minimal amount of air to release, permitting the member to both breathe and conserve air. **The member must notify their officer and immediately leave the contaminated area**. This member must be accompanied to a safe area by another member using a SCBA.

## 3.7 LOW PRESSURE HOSE

3.7.1 The low pressure hose conveys breathing air from the PRA, to the regulator assembly.

3.7.2 The Low pressure hose incorporates a Quick Disconnect with HUD connection. This connection allows for one of the options with the Fast Pak.

3.7.3 To disconnect – While pushing the plug “D” into the socket, pull the locking sleeve “E” back toward the guard. The plug “D” will separate. (Figure 10)

3.7.4 To reconnect - align the HUD plug with the mating connector and push plug “D” into socket until the locking sleeve “E” pops forward. Test for proper engagement by tugging on the coupling. (Figure 11)

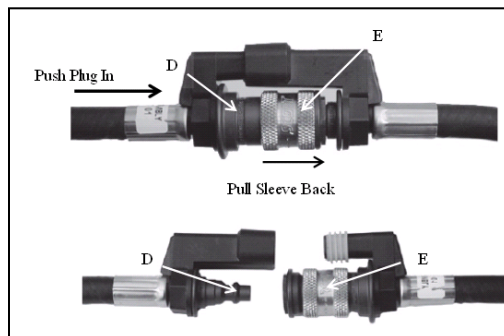


Figure 10

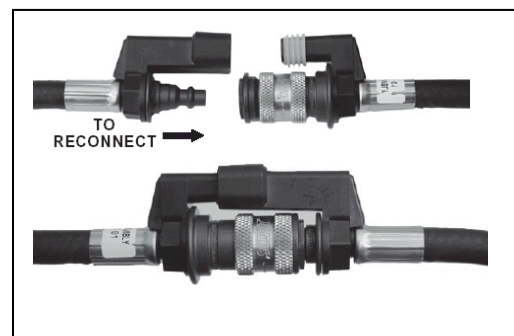


Figure 11

## 3.8 REGULATOR ASSEMBLY

3.8.1 Positive Pressure Demand Regulator- Regulates and maintains pressure within the donned facepiece. This is done with the breathing air received from the Pressure Reducer Assembly. The positive pressure inside the facepiece (internal pressure) is slightly higher than the pressure outside (atmospheric pressure), and is maintained when the seal between the two atmospheres is disturbed. Internal pressure within the facepiece creates an outward thrust of breathing air from any opening, thereby preventing contaminants from entering the member's breathing zone. Prolonged facepiece disturbance can deplete available breathing air sooner than expected.

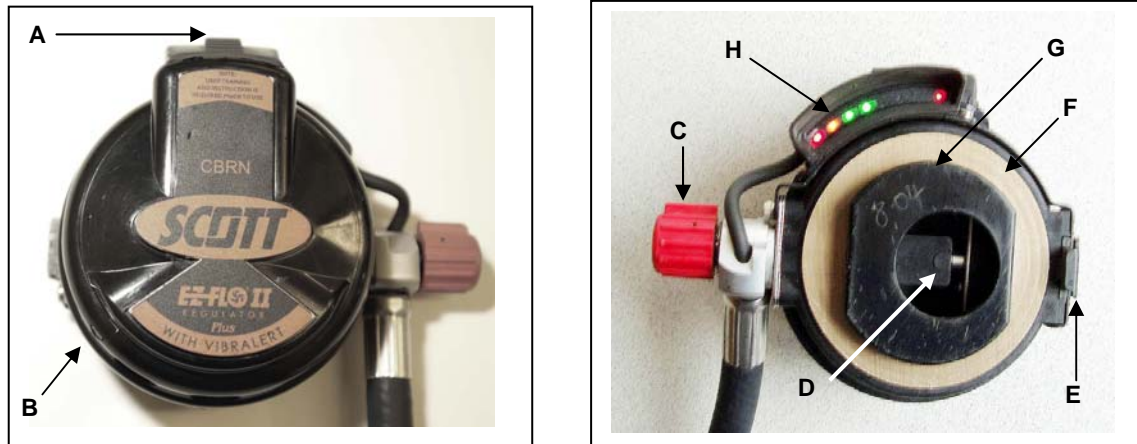


Figure 12

- |                          |                    |
|--------------------------|--------------------|
| A Manual Shut-Off Switch | E Snap Lock        |
| B Regulator Cover        | F Regulator Gasket |
| C Purge Valve            | G Spray Bar        |
| D Vibralert Alarm        | H Heads-Up Display |

## 3.8.2 Manual Shutoff Switch (Figure 12 {A})

- A. A manual shut-off switch is mounted on top of the regulator assembly. The function of the switch is to stop the flow of air into the facepiece prior to facepiece removal. When used, the switch conserves the limited amount of breathing air which can remain in the SCBA. If the switch is not pressed, a full 45 minute cylinder can be depleted in approximately 4 minutes, exhausting the member's available breathing air.
- B. When pressed, the switch holds the regulator in the closed position, stopping air flow. The switch automatically releases when the member inhales sharply through the facepiece, allowing air to continue to flow. If the manual shut-off fails to release for any reason, turn the red purge valve downward, 180 degrees to start the flow of air. Notify the officer and leave to a safe area, accompanied by another member using a SCBA.

## 3.8.3 Regulator Cover (Figure 12 {B})

- A. The EZ Flow II regulator has a high density plastic cover that won't dent. It provides less exhalation resistance, which can increase overall operating time.

### 3.8.4 Purge Valve (Figure 12 {C})

- A. A red purge valve knob is located on the left side of the regulator assembly. It is a manual override allowing the user to create a constant flow of air into the facepiece of up to 225 liters per minute. Control this flow by partially closing the purge valve. When the regulator is correctly positioned on the facepiece, a stem on the purge valve will point upwards in its normal mode. Turning the valve downward 180 degrees away from the member's face will activate the purge. Do not force the valve past the 180 degree stop.
- B. The purge valve is used:
1. To relieve any residual pressure remaining in the SCBA system after the air supply is shut down.
  2. To release all air remaining in the attached breathing air cylinder, prior to placing the entire SCBA assembly into a Haz-Mat overpack drum.
  3. To clear the spray bar holes of any small particles.
  4. To clear the facepiece of any contaminants that may have entered.
  5. To defog the facepiece.
  6. For the following **Emergencies**:
    - ♦ Failure of the regulator in the closed position, (no air to facepiece) turn purge valve counter-clockwise. If failure of the regulator in the open position, (too much air flow in the facepiece), air flow can be controlled by opening the purge valve fully and partially closing the cylinder valve.
    - ♦ To provide airflow if facepiece becomes severely damaged.
    - ♦ If the manual shut-off switch fails to release for any reason.

**NOTE:** In all SCBA emergencies, **the member must notify their officer and immediately leave the contaminated area.** This member must be accompanied to a safe area by another member using an SCBA.

### 3.8.5 Vibralert Alarm (Figure 12 {D})

- A. A vibralert alarm is housed within the regulator assembly. The alarm gives warning by both an audible and vibratory action around the facepiece. The vibratory action is especially evident when working in areas with background noises, which may muffle the audible alarm.
- B. The vibralert is an End of Service Time Indicator (EOSTI) that activates at approximately 25% of the cylinders air capacity, alerting the member to exit the contaminated area. The vibralert and HUD work independently and may not activate at precisely the same time.

- C. The 30, 45 and 60 minute rated cylinders are durations, and the actual time achieved for exiting the IDLH area from the cylinder will vary considerably depending upon the user's physical condition, type of work load, physical characteristics, training and a number of other factors.
- D. The alarm will also activate if the PRA's primary system malfunctions, thus activating the secondary system.
- E. Upon activation of the vibralert alarm, **the member must notify their officer and immediately leave the contaminated area.** This member must be accompanied to a safe area by another member using a SCBA.

#### 3.8.6 Snap Lock (Figure 12 {E})

A spring-loaded snap lock is located on the right side of the regulator assembly that secures the facepiece to the regulator. With the lock facing downward and purge valve up, the regulator inserts into the facepiece's molded groove, and is then rotated clockwise until the lock snaps into place. The snapping action between the molded notches on the facepiece correctly positions the regulator for use.

#### 3.8.7 Regulator Gasket (Figure 12 {F})

A regulator gasket glued on the regulator assembly provides a seal between the facepiece and the regulator. The integrity of the gasket ensures contaminants remain outside the facepiece.

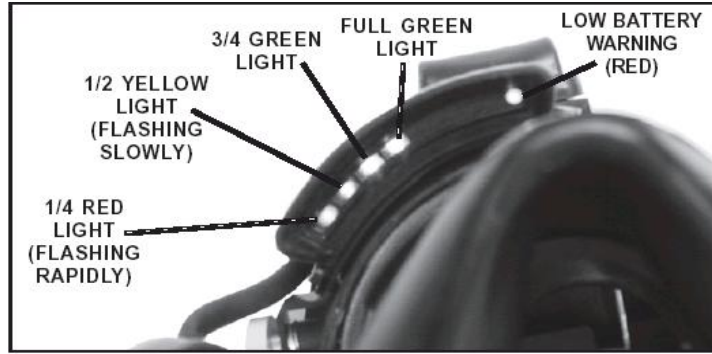
#### 3.8.8 Spray Bar (Figure 12 {G})

A spray bar, comprised of nine small holes, surrounds the upper part of the regulator assembly. As the member breathes, air passes through the bar and is directed toward the lens, helping to keep the facepiece clear of any condensation buildup.

#### 3.8.9 HEADS-UP DISPLAY OPERATION (Figure 12 {H} & Figure 13)

The HEADS-UP DISPLAY is an independent EOSTI that provides a visual monitor of the air supply in the cylinder. The display is fitted to the facepiece-mounted regulator and appears across the bottom of the user's field of view through the facepiece. The HUD consists of four rectangular lights to represent the cylinder pressure at Full, Three-Quarters, One-Half, and One-Quarter. A fifth round red light indicates Low Battery. The HUD operates as follows:

- A. When cylinder valve is turned on, the HUD will initialize and illuminate all five lights for twenty (20) seconds. Operation of all five lights must be verified every time SCBA use has begun and with every regular operation inspection.



**Figure 13**

- B. After initialization, the rectangular indicator lights will show the level of the air supply in the cylinder as follows:
1. FULL cylinder - indicated by the two green lights glowing near the center of the display.
  2. THREE-QUARTERS cylinder - indicated by a single green light glowing.
  3. ONE-HALF cylinder - indicated by the yellow light flashing slowly at once a second.
  4. ONE-QUARTER cylinder - EOSTI indicated by the red light at the far left flashing rapidly at ten times a second. When this warning light is flashing rapidly, **the member must notify their officer and immediately leave the contaminated area.** This member must be accompanied to a safe area by another member using a SCBA.

INDICATOR LIGHTS	WHAT THEY MEAN	WHAT YOU SHOULD DO
Two Green Lights Glowing	Full Cylinder	Continue Using Mask
One Green Light Glowing	¾ Cylinder	
One Yellow Light Flashing Slowly	½ Cylinder	
One Red Light Flashing Rapidly	¼ Cylinder	<b>Leave Hazardous Area Immediately</b>

5.If a member runs out of air, that member should remove the regulator from the facepiece. The donned facepiece will provide some protection to the skin on the face.

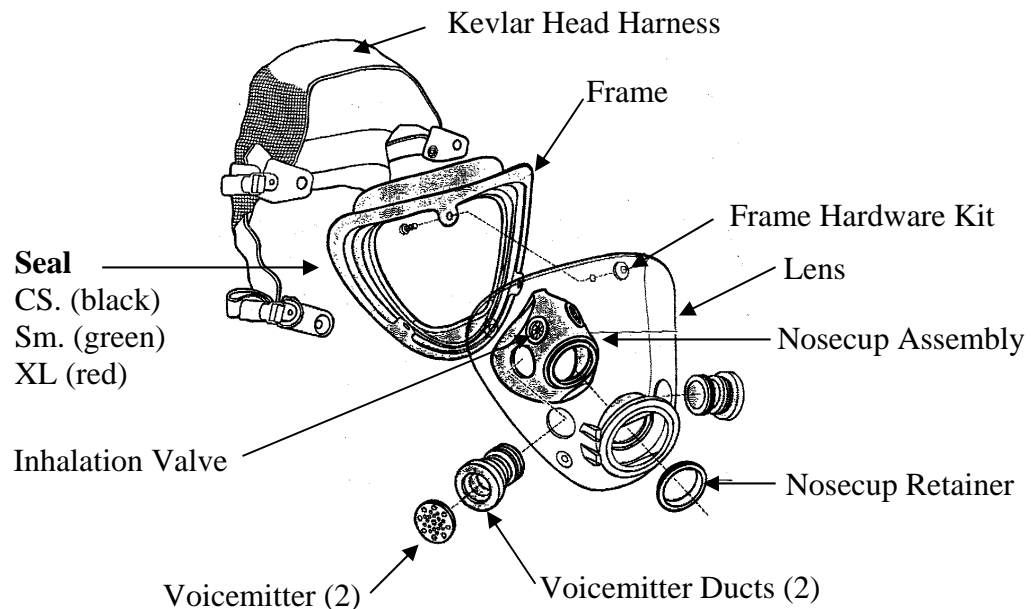
**NOTE:** The HUD and vibralert work independently and may not activate at precisely the same time. It is the individuals’ responsibility to know their work and exit times of the SCBA.

- C. When the batteries require changing, the round low battery indicator at the far right of the display will light for twenty (20) seconds and then begin to flash slowly at once a second. When the low battery indicator is actuated, the batteries still have sufficient life to operate the HUD longer than the longest duration cylinder installed in the SCBA. However, the batteries must be changed immediately upon termination of use of the SCBA, or before re-entry into the hazardous atmosphere.

### 3.9 FACEPIECE (Figure 14)

- 3.9.1 The Scott AV 2000 is manufactured in three (3) sizes that are color coded. The size and colors are :
  - ◆ Small size - Green color face seal
  - ◆ Comfort Seal - Black color face seal
  - ◆ Extra Large size - Red color face seal
- 3.9.2 All members are fit tested as part of the respiratory protection policy and must wear the correct facepiece size, that they were fit tested for. Members issued a personal facepiece, should wear that facepiece. When a member's facepiece is placed out-of-service, it must be returned to MSU with an RT-2 attached. Six (6) comfort seal facepieces are provided for all SCBA riding positions. They are etched with the company designation and affiliated SCBA number.
  - A. Divisions have been issued small and extra large facepieces to be used as spares for units under their command. Units requiring a spare small or extra large facepiece shall contact their Division.
- 3.9.3 The outer edge of the lens is fitted with a frame. The rubber seal is molded to form a chin cup at the lower part of the facepiece where the member's chin rests during use. The remainder of the rubber seal continues around the upper part of the facepiece and has the ability to conform to various facial contours. Failure to get a positive seal will allow air to escape from around the facepiece.
- 3.9.4 A Kevlar head net and strap assembly is fastened to the facepiece. The net is designed to conform to the member's scalp. Two pull straps are attached to each side of the facepiece; pulling the straps, first the bottom and then the top snug, will ensure a proper facepiece to face seal. A buckle-thumb release is attached to each pull strap and facilitates the loosening of the straps prior to facepiece removal.
- 3.9.5 Nose cup assembly is designed to be an integral part of the facepiece and **must** be in place. Inhalation valves, voicemitters, voicemitter ducts, and nosecup retainer must all be present to ensure proper inhalation of breathing air. These components help remove carbon dioxide from within the facepiece.
- 3.9.6 Split ring, attached to a head net tab "D" ring on the user's right side, is provided to secure the facepiece during a stand-by position and while the SCBA is stored on the apparatus.

- 3.9.7 SCBAs should not be worn when conditions prevent a good face to facepiece seal. Such conditions may include, but not limited to, growth of beards, side burns, a skull cap that projects under a facepiece or temple pieces on glasses. Also, the absence of one or both dentures can seriously affect the fit of the facepiece. Use of the SCBA without a good face to facepiece seal may reduce the duration of use and/or expose the user to the atmosphere the SCBA is intended to protect against.



**Figure 14**

### 3.10 REMOTE CONSOLE ASSEMBLY WITH PAK-ALERT SE 7

- 3.10.1 The Scott Pak-Alert SE 7 is intended to be integrated only with the Scott Air-Pak 4.5 Self Contained Breathing Apparatus (SCBA). The Pak-Alert SE 7 is a Personal Alert Safety System (PASS) intended to assist in locating a member who is incapacitated or in need of assistance. The terms Pak-Alert SE 7 and PASS are used interchangeably.
- 3.10.2 The Pak-Alert SE 7 consists of a motion sensor module mounted to the bottom of the SCBA backframe, a pressure switch mounted between the cylinder and gauge line, and a Control Console mounted on the right shoulder strap at the pressure gauge location. (Figure 15)





Figure 15

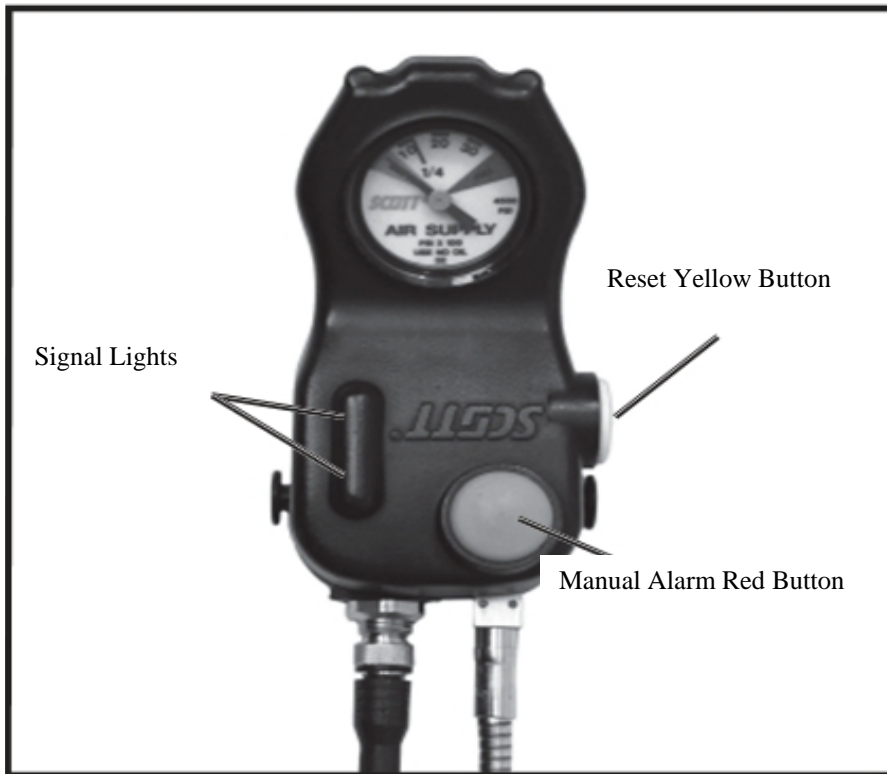


Figure 16

- 3.10.3 The Control Console, which is located on the right shoulder strap, contains a cylinder air pressure gauge, a console lens, a manual alarm button (red indicator), and a reset button (yellow indicator) located on the side of the console. (Figure 16)

A break in the Control Console tube will result in a slight air leak. While this leak will not greatly reduce the member's breathing air, **the member must notify their officer and immediately leave the contaminated area.** This member must be accompanied to a safe area by another member using a SCBA.

The vent holes on the back of the Control Console should **NEVER** be plugged or sealed in any way, regardless of a suspected air leak. If a leak is suspected, **the member must notify their officer and immediately leave the contaminated area.** This member must be accompanied to a safe area by another member using a SCBA. There are two (2) lights on the back of the Pak Alert SE 7 called buddy lights that flash green in normal mode and red in alarm mode.

- 3.10.4 Provided proper batteries have been installed and the cylinder contains air, the Pak Alert SE 7 is automatically activated when the SCBA is pressurized by opening the cylinder valve. Once activated, the Scott Pak-Alert SE 7 will remain activated until:

- A. The cylinder is turned off and the residual air pressure purged from the regulator, **and**
- B. The reset button has been pressed twice.

- 3.10.5 In the automatic mode, the Scott Pak-Alert SE 7 constantly monitors motion of the SCBA backframe. The motion sensor is located in the sensor module along with the audible alarm. If the sensor module does not sense motion of the SCBA for 20 seconds, the Pak-Alert SE 7 will signal a pre-alarm condition. If there is still no motion of the SCBA for the next 12 seconds, the full alarm will sound.

- A. The audible alarm has a variable pitch that helps eliminate audible alarm saturation. It allows for an easier way to hone in on the audible alarm and reduces reflective alarm sound.

#### 3.10.6 PRE-ALARM

- A. Once the SCBA is pressurized, the Pak-Alert SE 7 will automatically sound a pre-alarm if the SCBA remains motionless for more than 20 seconds. When a pre-alarm occurs, the green flashing light on the control console is replaced by a red light which flashes approximately once per second and is accompanied by an ascending/descending alarm that increases in decibels during the pre-alarm cycle.
- B. If the user is **not incapacitated or not in need of assistance**, the pre-alarm is normally reset by movement of the SCBA. When reset, the red flashing light will be replaced by the green flashing light and the ascending/descending tone will stop.
- C. A pre-alarm may also be reset by pressing and holding the reset button until 3 quick audible chirps are heard and the red flashing light on the control console is replaced by the green flashing light.

- D. The motion sensor is in the sensor module under the air cylinder valve and not in the control console, so that actual movement of the SCBA backframe is required for reset. Shaking the control console will not reset the Pak-Alert SE 7. Buckling and tightening the SCBA waist strap will decrease pre-alarm activations.

### 3.10.7 FULL ALARM

- A. If the Pak-Alert SE 7 is not moved, the Pak-Alert SE 7 will go into full alarm 12 seconds after the pre-alarm starts.
- B. Full alarm is indicated by a loud, almost continuous, 3-tone alarm from the sensor module accompanied by flashing of the red signal light on the control console and buddy lights. The full alarm condition can only be cleared by manually pressing the reset button twice, located on the side of the control console.
- C. After the full alarm has been silenced by pressing the reset button twice, the Pak-Alert SE 7 will remain activated with the green light flashing once per second. In the activated or "automatic" mode, it will again go into pre-alarm followed by full alarm unless there is movement of the SCBA at least once every 20 seconds for as long as the SCBA is pressurized.

### 3.10.8 MANUAL ALARM

- A. If a member requires immediate assistance, the Pak-Alert SE 7 provides a red manual alarm button located on the front of the control console on the user's right shoulder.
- B. The manual alarm causes the full alarm signal to be given. Provided working batteries are in the Pak-Alert SE 7, the manual alarm may be activated by pressing the manual alarm button at any time, **even when the SCBA is not pressurized**. If the manual alarm button has been pressed without the SCBA pressurized, the alarm can be silenced by pressing the reset button twice. The Pak-Alert SE 7 is now on and in an automatic mode. To turn the unit off, press the reset button twice again while the unit is not in the alarm mode.

### 3.10.9 TURNING THE PAK-ALERT SE 7 OFF

- A. The Pak-Alert SE 7 cannot be turned off if the cylinder valve is open and/or pressure remains in the SCBA. Pressing the reset button when the SCBA is pressurized will only reset an alarm condition and return the Pak-Alert SE 7 to automatic mode. When use of the Pak-Alert SE 7 and SCBA is no longer required, first close the cylinder and then vent the residual air from the SCBA by opening the regulator purge valve. After waiting until the airflow stops, close the regulator purge valve and turn-off the PASS by pressing the reset button twice. The green flashing light will go out and a 15 second beep sequence will be heard from the sensor module as residual air bleeds from the system. After the air has been completely bled off the system, the unit will sound a quick two-tone chirp indicating the Pak-Alert SE 7 is deactivated.

- B. If the SCBA is turned off and de-pressurized without pressing the reset button twice, the Pak-Alert SE 7 will continue to monitor motion in automatic mode. This means that the Pak-Alert SE 7 may be used to monitor motion after the SCBA is turned off and de-pressurized. Resetting the full alarm after the SCBA has been de-pressurized **will not** turn off the Pak-Alert SE 7. The reset button must be depressed twice with no alarm condition to turn off the Pak-Alert SE 7 (the 15 second beep sequence and two tone chirp should be heard).

#### 3.10.10 LOW BATTERY

- A. If while using the SCBA, the batteries begin to approach the end of their useful life, the sensor module will begin to sound a chirp every two seconds and the green light on the control module will go out. This is a low battery condition. In this condition, the Pak-Alert SE 7 will continue to operate normally, going into pre-alarm after 20 seconds with no motion, and full alarm after 12 more seconds of no motion.
- B. While in low battery condition, the Pak Alert SE 7 will continue to operate for a period of time greater than the longest duration cylinder available for the SCBA. However, the batteries must be replaced before using the SCBA again.
- C. **Failure to replace the batteries and/or continuing with multiple uses of the SCBA after the Pak-Alert SE 7 has indicated the low battery condition, may result in failure of the Pak-Alert SE 7 during use.**

#### 3.10.11 BATTERY TEST

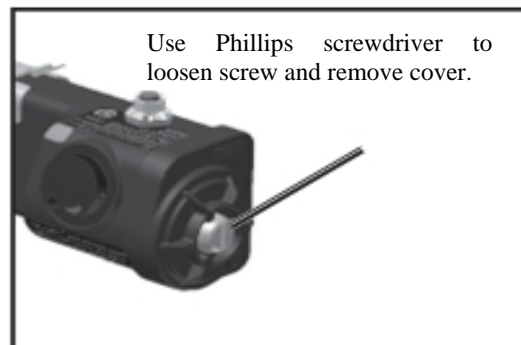
When the Pak-Alert SE 7 is in the off condition (cylinder valve closed with no green flashing light on the control console), the batteries can be checked by pressing and holding the reset button on the console. A green light will illuminate on the console to indicate sufficient battery power remaining; a red light indicates that the batteries must be replaced before the SCBA is used again.

#### 3.10.12 BATTERY REPLACEMENT

**WARNING** The Pak-Alert SE 7 is intended to assist in locating a member who may be in a life-threatening situation. Failure to follow the instructions for opening, changing the batteries, and closing the battery compartment may result in damage, which could cause failure of the PASS during a life-threatening situation, or could cause a fire or explosion in a flammable or explosive atmosphere possibly resulting in injury or death.

- A. Before replacing batteries, close SCBA cylinder valve, open SCBA purge valve to vent out residual air, close SCBA purge valve and press the reset button twice. A 15 second beep sequence occurs as the residual air bleeds off. Unit will sound a two-tone chirp and green light will go out indicating unit is inactive. Never remove or replace batteries with system pressurized or damage may occur to electronic components.

- When replacing batteries on SCBA equipped with harness and backframe, place SCBA in a clean, non-hazardous area.
- With a Phillips screwdriver, carefully remove the battery housing cover and set it aside. (Figure 17)
- Remove used batteries from battery compartment by sliding them out of the battery compartment. (Figure 18)
- Install six (6) new AA batteries of the same brand. (Eveready Energizer Alkaline E91 or EN91, or Duracell Alkaline PC1500, MN1500 or MX1500) Do not mix battery brands. Always replace all batteries at the same time. The battery holder is marked with the style and orientation of the batteries required. (Figure 4).
- Verify correct orientation of batteries as shown by labels inside the battery holder.

**Figure 17****Figure 18**

- B. The battery cover must be installed so that it is watertight after replacement. Clean the sealing rib around battery compartment and sealing face of the cover by wiping with a clean damp cloth to remove any dirt or foreign matter which might prevent a proper seal. Check cover gasket for tears or cuts. If damage is found, SCBA shall be removed from service, tagged with an RT-2 and forwarded to MSU.
- C. Install battery cover and tighten the cover screw until snug. After replacement of batteries, perform a Regular Operational Inspection before returning SCBA to service. Except for the replacement of batteries, no attempt shall be made to do maintenance, or to make adjustments or repairs.
- D. Do not mark, paint, etch or drill any of the Pak Alert components or housing in any way.
- E. Requisition replacement batteries for the PAK Alert SE 7, by faxing an RT-2 to MSU at 212-360-4453.

### 3.10.13 BATTERY LIFE

- A. New AA Batteries (Eveready Energizer Alkaline E91, EN 91, Duracell Alkaline PC 1500, MX 1500 or MN 1500) will provide the following:
- In Automatic (green flashing light; no sound) – Approx. 1000 hours
  - In Full Alarm (95 dBa sound and red flashing light) – Approx. 8 hours

### 3.10.14 INTRINSICALLY SAFE LISTING

- A. The Pak-Alert SE 7, when installed on a Scott SCBA, is listed as intrinsically safe in Class I Division 1 Groups A, B, C and D hazardous locations.
- B. To maintain an intrinsic safe listing, the SCBA with Pak-Alert SE 7 must be inspected regularly as per SCBA inspection procedures. Pak-Alert SE 7 components must not be tampered with in any manner. The battery compartment must only be opened in an area known to be free of flammable or explosive hazards.
- C. If the Pak-Alert SE 7 is used in an area of explosive or flammable hazards, failure to regularly inspect as instructed, failure to correct damage before use or the installation of incorrect batteries may lead to a fire or explosion, possibly resulting in personal injury or death.

## 3.11 CLEANING, MAINTENANCE, AND STORAGE

3.11.1 Cleaning, maintenance and storage of a SCBA with a Pak-Alert SE 7 shall be done as part of the normal SCBA post use inspection and cleaning.

3.11.2 The exterior of the Pak-Alert SE 7 may be cleaned while cleaning the exterior of the SCBA by wiping with a damp sponge and thoroughly wiping dry. The lens on the front of the control console should be cleaned after every use to insure maximum light intensity at all times. Do not use solvents for cleaning or attempt to paint the exterior surfaces of the Pak-Alert SE 7.

- A. If during use, the SCBA and/or Pak-Alert SE 7 is suspected of being contaminated with a hazardous substance, the contaminate must be identified and properly removed or the contaminated component(s) must be replaced before next use.
- B. The Pak-Alert SE 7 and SCBA must be stored in a clean dry area with an air temperature that does not drop below freezing.

## 4. INSPECTIONS

### 4.1 INSPECTION TIMES

4.1.1 SCBAs must be inspected:

- Immediately after the 0900 and 1800 hour roll calls,
- Immediately before the start of Multi-Unit Drill,
- After each use.

**Note:** In addition to the 4.2 Inspection Procedures, the following procedure shall apply following contamination from the products of combustion.

Remove SCBA cylinder from the harness assembly. Clean the cylinder and the harness assembly using warm soapy water and a soft or medium bristled brush. Results of several studies have demonstrated that using a brush along with the soapy water effectively reduces polycyclic aromatic hydrocarbons (PAH) contamination. (Exposure to PAH's have been linked to certain types of cancer in addition to cardiovascular disease.)

4.1.2 At the start of each tour, members will be assigned an SCBA for their use. The Company Officer will supervise the inspection of each SCBA by the assigned member, and then make an entry in the Company Journal of this event indicating SCBA #, names of inspecting members, and the results of inspection.

4.1.3 Place defective SCBAs out of service and replace with a battalion spare. Defects found must be included on the SCBA Record Card (Form SD-30). When repairs to SCBAs are required, the officer on-duty will prepare one invoice and one receipt on Form RT-2. Defective items and RT-2 forms will be delivered by messenger to the Mask Service Unit. Form RT-2 must include the SCBA serial number and specify defects. Small replacement parts for SCBAs may be requested from MSU by telephone. Delivery of such items will be accomplished through the bag. Requesting unit will hold defective item until replacement is received, then return defective part in receiving envelope for charge-off at MSU.

## 4.2 INSPECTION PROCEDURES

4.2.1 Remove SCBA from apparatus mounting bracket and rest wire frame on a clean, dry surface with cylinder on top and straps spread out.

4.2.2 Check the cleanliness and condition of the entire SCBA assembly:

- A. Backframe - no deformities or breaks at weld spots.
- B. Harness Assembly - no cuts, rips or frayed straps. Remove the ends of the waist straps and buckle from the belt retainers. Squeeze alligator clips on waist belt and pull straps, so both ends overlap each other evenly. Ensure that shoulder straps are fully extended.

## 4.2.3 Facepiece

- A. Disinfect and Clean.
- B. Inspect head net and straps for fraying and elasticity. Check that buckle thumb leavers are in working order.
- C. Inspect **internal parts**:
  - 1. Check rubber seal around lens, be sure there are no deformities, cracks or tears.
  - 2. Inspect for presence of nose cup assembly.
  - 3. Inspect inhalation valves in nose cup assembly, be sure they are both present and lay flat against the nose cup.
  - 4. Make sure voicemitter ducts are present and not deteriorated.
- D. Inspect **external parts**:
  - 1. Inspect for cracks, scratches, dirt and debris that would prevent a good seal or distort vision.
  - 2. Look for the presence of two voicemitters and that the edges are sealed by the rubber duct.
  - 3. Check that the five head harness retaining buttons are present. Check for their tightness by trying to move them with thumb and forefinger.

**Note:** If either the nose cup assembly or voicemitter is found to be damaged or missing during inspection or at any other time, the facepiece shall be placed out of service and forwarded to the Mask Service Unit for repair. The officer on duty shall forward a letterhead report to the Chief of Operations via the chain of command stating full particulars. Report shall include name of member discovering the facepiece and name of member who last used and/or inspected the facepiece. The officer shall interview all members involved in order to ascertain how the nose cup or voicemitter became damaged or missing.

- E. Check Facepiece seal:
  - 1. With the facepiece attached to the regulator assembly, hold regulator in left hand, close eyes and blow into facepiece to clear it of any dust particles. With chin into chin cup, place facepiece against face and inhale. During this action facepiece should close in and hold onto the member's face, indicating that the regulator's diaphragm is functioning. If there is not a proper seal, reposition the facepiece and try again. If the leak persists, there may be a problem with the regulator and/or facepiece. The member may require a different size facepiece. Have a member who can achieve a good seal with a standard facepiece check this unit. Small and extra-large facepieces are available through the Division or Mask Service Unit. Follow procedures outlined in this bulletin if a defect in regulator is suspected. In the event a member can not achieve a good seal with any of the facepieces available, the following action shall be taken:
    - a. Safety Command and the Mask Service Unit will be immediately notified by telephone.



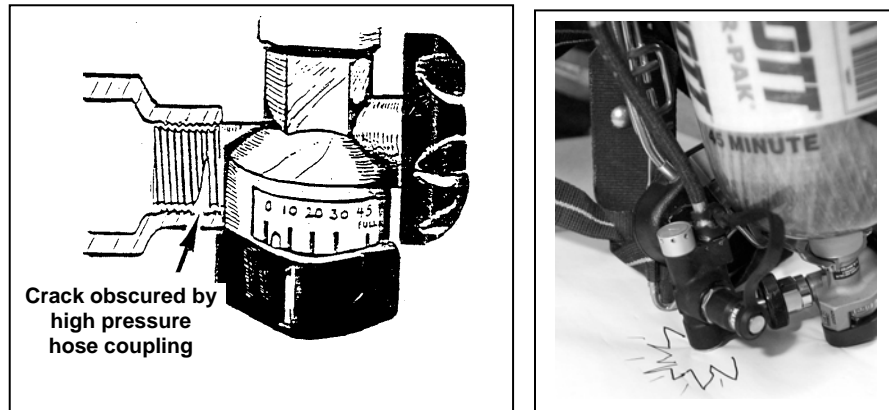
- b. A report giving details and actions taken is to be forwarded by the Company Commander to the Bureau of Operations. The Bureau of Operations will forward a report to the Safety Command.
  - c. Member is not to operate in areas requiring SCBA until problem is resolved.
2. During the initial inhalation, a click should be heard at the regulator assembly. This click indicates the functioning and ON position of the manual shut-off switch. (If the SCBA was supplied with air, it would then flow into the facepiece). Before removing the facepiece, pause breathing and press the manual shut-off switch on the regulator assembly.
- F. Place the facepiece out-of-service for any problems. Complete an RT-2 and forward to MSU.

#### 4.2.4 CYLINDER INSPECTION

- A. Remove Cylinder from back frame for full inspection.
1. Be sure SCBA is purged before disconnecting high pressure hose
  2. Uncouple high pressure hand coupling.
  3. Unsnap and lift cylinder band toggle, push down cylinder retaining latch, push cylinder toward top of backframe, then with two hands, pull cylinder towards you.
  4. Check cylinder hydrostatic test date. Cylinders require hydrostatic testing every five years and have a service life of 15 years.
  5. Check cylinder gauge for a full reading, if not replace it with a full one.
  6. Inspect cylinder for dents, cracks, gouges, or any damage on the outside of the cylinder including composite over wrap.
  7. Check for charred or missing decals, melted rubber, bulging, peeling or distorted fiber. Look for discoloration of paint that has turned brown or black.
  8. Inspect cylinder valves for physical damage; ensure pressure gauge reads the same on both sides of gauge.
  9. Inspect cylinder valve threads for damage or missing threads. Cracks are indicated by a bright silver line along the cylinder threads. Cracks are caused by strain exerted on the cylinder threads, if an assembled SCBA is dropped at the high pressure hose coupling. (Figure 19)  
**Caution:** If cylinder threads are cracked, pressure from the opened cylinder could cause the threads to break away, thus causing the high pressure hose coupling to be blown off the cylinder. DO NOT touch the cylinder threads, since although not immediately visible, a metal sliver may pierce the skin like a splinter.
  10. If no defects are found with the cylinder after inspection, replace on the back frame and connect to the cylinder hanger.

11. If a cylinder is found defective, it shall be immediately depressurized to a slight positive pressure, placed out-of-service, tagged with an RT-2 and returned to MSU.

**Note:** Compressed air is dangerous. When servicing cylinder, position it so that it does not fall or roll away. Do not open the cylinder valve when the cylinder is not in the back frame or secured in some other manner. When opening a cylinder valve of a secured cylinder, be sure not to direct airflow at yourself or any other individual



**Figure 19**

#### 4.2.5 HIGH PRESSURE HAND COUPLING AND RIC-UAC

- A. Inspect condition of high pressure hose and high pressure hand coupling. Check for presence and tightness of nipple seal (nylon "O"-ring). The "O"-ring is held in place and tightened with a 1/8" Allen screw and 7/16" open end wrench.
- B. Check the condition of UAC by removing the dust cover and visually inspecting the UAC for damage or deformities. Damage to or dirt in the connection may cause failure of use with Fast Pak. Assure that the dust cover is securely replaced after inspecting the UAC. If the UAC shows any sign of damage or the dust cover is missing, the SCBA shall be placed out-of-service, tagged with an RT-2 and returned to MSU.
- C. Reconnect the high pressure hand coupling to the cylinder valve, coupling is hand tight. Secure cylinder, adjust cylinder band slide as needed, and secure with toggle.
- D. Inspect spare cylinders the same.

#### 4.2.6 PRESSURE REDUCER ASSEMBLY (PRA)

- A. Check PRA for visible damage.
- B. Check high pressure hose for fraying and visible damage.

#### 4.2.7 LOW PRESSURE HOSE

- A. Check that the low pressure hose is not damaged, is connected to the PRA and swivels freely at purge valve.

- B. Check that the quick disconnect is engaged properly by tugging on the coupling and that the HUD plug is properly aligned and fitted into the mating socket.

#### 4.2.8 REGULATOR ASSEMBLY

- A. Check that the HUD visor and manual shut-off switch boot is intact, not damaged, or distorted.
- B. Inspect the regulator cover to ensure there are no signs of cracks, or heat damage.
- C. Remove the facepiece from the regulator to check that the regulator gasket is present and seated, not chipped, or torn.
- D. Check the regulator locking latch that both screws are present and the latch slides smoothly.
- E. Make sure manual shut-off switch is depressed and the purge valve tip is in the 12 o'clock position, so air is not lost when cylinder is turned on.
- F. Connect regulator to facepiece:  
With purge valve at 12 o'clock to the facepiece, align the flats of the regulator and facepiece together, insert and turn regulator ¼ turn clockwise.

#### 4.2.9 OPERATIONAL INSPECTION OF SCOTT PAK-ALERT SE 7

- A. Inspection and test of the Scott Pak-Alert SE 7 is to be conducted along with inspection and test of the SCBA. If during the inspection any malfunction of the SCBA or the Pak-Alert SE 7 is noted, remove the SCBA from service and tag for repair by MSU.

#### B. BATTERY TEST

When the Pak-Alert SE 7 is in the off condition (cylinder valve closed with no flashing green light on the control console), the batteries can be checked by pressing and holding the reset button on the console. A green light will illuminate on the console to indicate sufficient battery power remaining. A red light indicates that the batteries must be replaced before the SCBA is used again.

If the low battery condition (a steady chirp every two seconds with no flashing lights) occurs at any time during regular operational inspection, do not use the SCBA. Change the battery in the sensor module immediately and repeat the regular operational test or take the SCBA out of service until the batteries are changed and the regular operational test is successfully performed.

- C. In several of the inspection procedures, a full alarm will be observed. The full alarm condition includes an audible tone that can exceed 95 decibels at approximately 10 ft. The alarm should be reset immediately on verification that it is functioning properly. Hearing protection should be worn if prolonged exposure to a full alarm condition is anticipated.

- D. While performing the visual inspection of the SCBA:  
Visually inspect all Pak-Alert SE 7 enclosures, lenses, and wire conduits for cracks, wear or other damage.
- E. Before pressurizing the SCBA by opening the cylinder valve:  
Check the Pak-Alert SE 7 manual alarm feature by pressing the manual alarm button, located on the front of the control console. The manual alarm shall begin sounding a loud continuous 3-tone alarm accompanied by flashing of the red signal light on the control console. Reset the manual alarm by pressing twice on the reset button located on the side of the control console. Unit will sound three chirps and the green light will flash. Turn the unit off by pressing the reset button twice again. Unit will sound a two-tone chirp and a green light will go out.
- F. When opening the cylinder valve:  
The Pak-Alert SE 7 shall sound 3 quick chirps and the light on the control console shall begin flashing green approximately once per second. The 3 chirps will sound at approximately the same time the vibralert in the mask-mounted regulator actuates briefly. Also at this time, hold regulator in hand to visually check that all five lights on the HUD have illuminated for 20 seconds. After 20 seconds, only 2 green lights shall remain lit, indicating a full cylinder.
- G. Check pre-alarm:  
With SCBA pressurized but with airflow stopped (with manual shut-off switch depressed on regulator), leave SCBA motionless for 20 seconds. The green flashing light shall be replaced by a red flashing light. An ascending/descending tone will sound, increasing in volume.
- H. Check pre-alarm reset:  
With the SCBA pressurized but airflow stopped, leave the SCBA motionless until pre-alarm occurs. Move or turn SCBA backframe within 12 seconds of pre-alarm. This will cause the Pak-Alert SE 7 to reset. The red flashing light shall be replaced by a green flashing light and the ascending/descending tone shall stop. Continue with regular operational inspection. During the inspection, the SCBA must be moved or turned every 30 seconds or less to prevent the sounding of the full alarm.

**AFTER COMPLETION OF ALL SCBA CHECKS AND BEFORE TURNING OFF CYLINDER VALVE:**

- I. Check manual reset of pre-alarm:  
With SCBA pressurized and airflow stopped, leave SCBA motionless until pre-alarm condition occurs. Within 12 seconds, press and hold reset button. Three (3) chirps shall sound, then release button. The Pak-Alert SE 7 shall reset to the automatic mode and the red flashing will be replaced by a green flashing light.

- J. Check full alarm:  
Leave SCBA motionless until pre-alarm condition occurs. Do not reset. Within 12 seconds a loud, continuous 3 tone alarm shall begin, accompanied by the flashing of the red light on the control console.
- K. Check alarm reset:  
While in full alarm, fully press reset button, release, and press again. The Pak-Alert SE 7 shall reset to the automatic mode. The loud alarm shall stop and the red flashing light shall be replaced by a green flashing light.

#### 4.2.10 OPERATIONAL CHECK OF REGULATOR

- A. With chin into chin cup, place facepiece against face. Member should then inhale sharply to start the flow of air and then breathe normally, as a functional check of the regulator inhalation/exhalation valve. If the exhalation valve is stuck or a fluttering sound is heard, the SCBA shall be removed from service, tagged with an RT-2 and forwarded to MSU. **DO NOT TAKE THE REGULATOR ASSEMBLY APART.**
- B. Slowly remove facepiece from face and air should flow freely. Stop the flow of air by pressing the manual shut-off.
- C. Check the regulator purge valve by rotating purge valve counter-clockwise, air should flow freely from the regulator. Then place purge valve back to 12 o'clock position to stop airflow.

#### 4.2.11 OPERATIONAL CHECK OF THE PAK-ALERT SE 7, HEADS-UP DISPLAY

- A. After finishing all SCBA checks involving airflow, turn off cylinder valve. While observing the lights on the Heads-Up Display, **slowly** open the purge valve releasing trapped air. The rectangular indicator lights will simulate four levels of air supply starting at:

Full - two green lights;

$\frac{3}{4}$  full - one green light;

$\frac{1}{2}$  full - one yellow light flashing slowly;

$\frac{1}{4}$  full - one red light flashing rapidly (EOSTI).

Return purge valve to off position (12 o'clock)

The Pak-Alert SE 7 shall remain active with green light flashing. Do not move SCBA. Pre-alarm shall occur within 20 seconds. Move SCBA backframe slightly, pre-alarm shall reset and green light shall start flashing again.

## B. Turn Pak-Alert SE 7 off:

With cylinder valve closed and all residual air purged from SCBA, press reset button twice. The green flashing light will go out, followed by a 2 tone chirp. If there is air pressure left in the system, a 15 second beep sequence will be heard from the sensor module as residual air bleeds off. When air has bled completely from the system, unit will sound a two tone chirp. The Pak Alert SE 7 is now in the "OFF" condition.

## 4.2.12 PERSONAL ADJUSTMENTS

- A. With bunker gear on, pick up the entire SCBA assembly and don SCBA. Connect the quick release buckle and evenly pull the loose ends of both waist belt straps. Waist straps should be adjusted to fit the member and to distribute the weight of the entire SCBA assembly. Most of the SCBAs weight will be carried by the waist belt, thus removing the weight from the member's shoulders, thereby reducing fatigue.

Adjust the shoulder straps until the backframe touches the member's back. The strap adjustments will serve as a functional check of the harness assembly.

**Note:** Waist straps should be fully extended using the adjustable slide on the buckle strap. Waist belt adjustments shall be made using the alligator clips **only**.

- B. Fully loosen the shoulder straps, unbuckle the waist belt and remove the SCBA.
- C. Upon completion of inspection, if no defects are found to warrant taking the SCBA out-of-service, return the SCBA to the apparatus mounting bracket. SCBA assembly is stored with the facepiece preconnected to the regulator assembly. The facepiece split ring should be hooked over the left shoulder strap alligator clip, similar to the standby position.
- D. If during the SCBA inspection any defects are noted, the inspecting member must alert the officer on duty immediately.

## 4.2.13 OUT OF SERVICE SCBA

If you find any damage to the SCBA such as worn parts, frayed webbing, improper check of Pak-Alert, HUD, or if the SCBA fails to operate properly in any way during your inspection, it must be placed out-of-service, forwarded to MSU with RT-2 attached stating problem.

## 5. DONNING AND REMOVAL PROCEDURES

### 5.1 DONNING SCBA (from standing position)

- 5.1.1 Remove the SCBA assembly from its apparatus mounting bracket, by pulling evenly on the two shoulder straps.
- 5.1.2 With bunker coat fully snapped and helmet on, hold SCBA in front of legs from the upper part of each shoulder strap with palms down. Backframe of SCBA should face outward and cylinder towards body.
- 5.1.3 Look over left shoulder to ensure that either no person or object is within the SCBA swing range.
- 5.1.4 In one continuous motion, swing SCBA over left shoulder, allowing arms to pass through respective shoulder strap loops. Left hand should continue to hold onto left shoulder strap, until SCBA rests on back.
- 5.1.5 While bending forward, reach back and grasp both ends of the waist belt. Lift the entire SCBA assembly to allow the belt to rest on hips. Connect the quick release buckle of the pre-adjusted waist straps.
- 5.1.6 Adjust the shoulder straps until the backframe touches the member's back. **DO NOT** pull too tight since this will transfer the SCBA's weight from the hips to the shoulders, increasing fatigue.
- 5.1.7 Reach back with right hand and turn cylinder valve **FULLY** counter-clockwise. Listen for the momentary activation of the vibralert alarm, Pak Alert, and look for the five lights in the HUD.  
**Note:** The activation of the vibralert alarm is **NOT** an indication that the valve is fully open. The valve handle must be turned counter clockwise until it reaches the open stop position. If the cylinder valve is not fully opened, it will restrict air flow, possibly causing an extremely dangerous condition, similar to SCBA shutdown.
- 5.1.8 At this point, the facepiece will either be donned or placed in a standby position. **Never** allow the facepiece to hang free.

### 5.2 DONNING SCBA FROM SITTING POSITION

SCBA can be partially donned from an apparatus jump seat equipped with an SCBA bracket mounted behind the member. Other riding positions where the SCBA is mounted next to the member do not allow partial donning, since members must remain in a seated and belted position while responding.

- 5.2.1 Pass arms through the respective shoulder straps.
- 5.2.2 Grab hold of the upper part of the left shoulder strap with left hand.

5.2.3 Lean body forward while getting out of jump seat, allowing body motion to pull SCBA from mounting bracket, as hand continues to hold left shoulder strap.

5.2.4 Step off apparatus and complete donning procedure.

### 5.3 STANDBY POSITIONS WITH SCBA DONNED

5.3.1 While awaiting orders prior to the anticipated entry into a contaminated area, members are to place facepiece in the Standby Position. This position will prevent the facepiece from dangling and possible damage.

5.3.2 A split ring is attached to the facepiece's right side.

5.3.3 During the standby position, the split ring is hooked over the open tab of the left shoulder strap alligator clip.

5.3.4 When the standby position is used, the open side of the facepiece should be placed against the member's chest, so that debris cannot enter.

### 5.4 DONNING AND REMOVAL OF FACEPIECE

Refer to Addendum 9

### 5.5 REMOVAL OF HARNESS ASSEMBLY

5.5.1 While bending forward, squeeze and fully extend both shoulder strap alligator clips.

5.5.2 Slip right arm through right shoulder strap.

5.5.3 With left hand grasping left shoulder strap, press button on waist belt quick release buckle with right hand.

5.5.4 As left hand continues to grasp shoulder strap, stand straight and allow SCBA to swing over left shoulder to front of body.

5.5.5 Lay entire SCBA assembly down.

5.5.6 Shut down the cylinder valve and purge all residual air from the SCBA system.

5.5.7 Change cylinder if gauge reads less than (45) FULL.

5.5.8 Inspect SCBA.



## 6. EMERGENCY PROCEDURES WHILE OPERATING

When a member becomes entangled or trapped where he/she needs to perform an emergency procedure, that member MUST transmit a MAYDAY. Waiting to give a MAYDAY transmission after you have attempted to free yourself may be too late for members to assist you. Cancel the MAYDAY after you have become free and safe.

### 6.1 QUICK RELEASE ESCAPE

If while operating, the SCBA assembly becomes entangled in the rear, the quick release escape must be used to free oneself. Transmit a MAYDAY for assistance.

6.1.1 Leave the facepiece ON if operating in a contaminated area.

6.1.2 Squeeze alligator clips and fully extend both shoulder straps.

6.1.3 With left hand grasp left shoulder strap as high as possible.

6.1.4 Slip right arm through right shoulder strap and unbuckle waist belt.

6.1.5 As left hand continues to grasp shoulder strap, member should turn to their left 180 degrees to face the entangled SCBA.

6.1.6 With free right hand sweep entire SCBA to locate obstruction.

6.1.7 Free SCBA from entanglement. If a cutting tool is to be used, it is best to be kept in the right pocket of the bunker coat. This allows control of the SCBA with the left hand.

6.1.8 Place both hands on shoulder straps and back away from the obstruction.

6.1.9 Re-don SCBA. Buckle waist belt then shoulder straps. When continuing with firefighting operations, cancel the MAYDAY when member becomes safe.

### 6.2 LOW PROFILE MANEUVER

There are times where it may be necessary to pass beneath low clearance overhead obstructions. Generally, this may be when crawling through or operating in a confined area.

6.2.1 Leave the facepiece ON if operating in a contaminated area.

6.2.2 Squeeze and fully extend both shoulder strap alligator clips.

6.2.3 With left hand grasp left shoulder strap as high as possible.

6.2.4 Slip right arm through right shoulder strap and unbuckle waist belt.

- 6.2.5 As left hand continues to grasp shoulder strap, allow SCBA to swing over left shoulder to front of body.
- 6.2.6 Lay SCBA assembly down on cylinder and push ahead, as body follows behind. The left hand should always continue to grasp shoulder strap as a means of orientation.
- 6.2.7 Once overhead obstruction is cleared, redon SCBA. Buckle waist belt then shoulder straps.

### 6.3 REDUCED PROFILE MANEUVER

A reduced profile maneuver is used when a member finds it difficult to maneuver past an obstacle, within a structure or on a fire escape, with the SCBA donned.

- 6.3.1 Leave the facepiece ON if operating in a contaminated area.
- 6.3.2 Squeeze and fully extend the right shoulder strap alligator clip.
- 6.3.3 Slip the right arm through right shoulder strap and grasp waist belt without unbuckling.
- 6.3.4 While right hand grasps waist belt buckle and left hand grasps cylinder at the rubber bumper, twist the entire SCBA assembly as far left as necessary to pass obstacle.
- 6.3.5 Use right hand as a guide while passing through obstacle.
- 6.3.6 After passing obstacle, return SCBA assembly to its normal position on members' back.
- 6.3.7 Reach back and pass right arm through right shoulder strap.
- 6.3.8 Adjust the right shoulder strap for wearing comfort.

### 6.4 SWIM MOVE

There may be a need to get through a narrow opening such as wall studs without removing the SCBA. If the swim move cannot be performed, use the reduced profile maneuver.

- 6.4.1 Place right knee, right shoulder, and head through studs. (placing left shoulder through first, may cause low pressure hose to get pinched on the object you are trying to pass, cutting off air supply). (Figure 21)
- 6.4.2 Bring left arm over left shoulder in swimming motion. (Figure 22)

**Figure 21****Figure 22**

## 6.5 DAMAGED FACEPIECE

If the facepiece is damaged while operating, the positive pressure feature will compensate for a leak and continue to maintain positive pressure within the facepiece. This will result in an outward flow of air. The larger the opening, the quicker the air supply will be depleted.

- 6.5.1 Leave the facepiece ON to continue to provide respiratory protection.
  - 6.5.2 Conserve as much breathing air as possible by covering the damaged area with one hand.
  - 6.5.3 If the leak is more than can be controlled with one hand:
    - A. Continue to cover as much of the damaged area as possible.
    - B. Press the manual shut-off switch after each breath to further limit the loss of breathing air.
    - C. If damaged area is too large to allow the regulator shut-off to release, then use the purge valve in an ON and OFF motion for each breath. This action helps to conserve the limited amount of breathing air necessary for escape.
  - 6.5.4 Notify Officer and immediately leave the contaminated area. This member MUST be accompanied to a safe area by another member using an SCBA.
- Note:** If a member runs out of air, that member should remove the regulator from the facepiece. The donned facepiece will provide some protection to the skin on the face.
- 6.5.5 A member experiencing a failure of the facepiece lens which results in bubbling or a hole, must not touch or attempt to cover the opening. Doing so can cause the hole in the lens to enlarge as the polycarbonate can be wiped away or can stick to a member's gloved hand as the lens melts.  
Failure of a facepiece lens can expose a firefighter to toxic gases and can result in burns to the respiratory tract as well as asphyxiation. Documented problems include holes and extensive crazing as well as bubbling and deforming of lenses. In several SCBA-related deaths, degraded masks were found affixed to the faces of victims who suffered thermal burns to their airways.

## 6.6 FACEPIECE SHARING

6.6.1 Sharing facepieces with other members or civilians is **PROHIBITED**.

6.6.2 Facepiece sharing with other members and/or civilians is **PROHIBITED**. Facepiece sharing hampers the search for an exit and depletes the limited air supply in less time, thus posing risk to both member or civilian and rescuer. Facepiece sharing increases the exposure to airborne contaminants such as Carbon Monoxide (CO), Hydrogen Cyanide (HCN), as well as numerous other carcinogenic toxins. Therefore, the member or civilian should be removed from the contaminated area as soon as possible, to a location where proper medical treatment can be administered.

6.6.3 If it is not possible to remove the member or civilian from the contaminated atmosphere, then one of the following options can be used to provide an air supply while freeing the trapped individual.

A. For trapped members, utilize the nearest available FAST Pak.

B. For civilians, utilize a FAST Pak other than the one assigned to the FAST Unit.

C. Utilize a spare SCBA to provide air strictly to the trapped member or civilian.

**Note:** Donning a facepiece in an IDLH/smoke environment, may make it difficult to create the negative pressure needed to release the regulator manual shut-off switch. The red purge valve may have to be turned on, to provide/initiate an air flow.

## 7. COMMUNICATION

### 7.1 COMMUNICATION WITH FACEPIECE DONNED

Communication among members operating with donned facepieces is necessary to jointly accomplish tasks. More importantly is the need to maintain respiratory protection while operating in toxic atmospheres. Therefore, at no time shall a member remove their facepiece to communicate.

### 7.2 USING THE HANDIE-TALKIE WITH THE SELF CONTAINED BREATHING APPARATUS

7.2.1 Remove the microphone from the harness clip.

7.2.2 Place the microphone **directly on** the voicemitter.

7.2.3 After completing radio transmission, the microphone can be returned to the harness clip.

### 7.3 COMMUNICATION BY HAND/TOUCH SIGNALS

7.3.1 Speaking between members with facepieces donned is sometimes impractical because of the high noise levels on the fireground from power saws, stream impact, ventilation, etc.

7.3.2 Units should have prearranged hand/touch signals to communicate orders for routine movements. Touch signals will be especially useful when smoke or other factors make visibility poor.

7.3.3 Engine companies can establish signals as outlined in Firefighting Procedures Volume II: Fire Tactics and Procedures - Engine Company Operations.

7.3.4 Ladder, Rescue, and Squad Companies can establish signals similar to those of Engine Companies to communicate orders for search, ventilation, etc.

#### 7.4 EMERGENCY TOUCH SIGNAL

7.4.1 When one member forcibly strikes another member with four distinct blows on the shoulder and then pulls that member in a specific direction, the second member will recognize that the other member knows of an emergency and should promptly follow in that direction.

7.4.2 The standard signal to communicate emergencies (such as mayday transmissions) shall be known, understood and used by all members.

#### 7.5 EMERGENCY DISTRESS

A member who is in distress and unable to communicate shall immediately activate the emergency button of the Personal Alert Safety System (PASS/Pak-Alert) alerting members to the need for assistance.

When a PASS alarm is activated in the full cycle for ten seconds, the member hearing the alarm should immediately notify the Incident Commander. An immediate investigation of the alarm must be made to determine the cause. The results of the investigation must be transmitted to the Incident Commander as soon as possible.

**Note:** All members must be teamed-up when operating within an IDLH atmosphere. When a member needs to leave the IDLH area to service their SCBA, they **MUST** notify their Officer and be accompanied to a safe area by another member using an SCBA. *All members shall comply with the provisions of Firefighting Procedures, Volume 4, Book 1, Chapter 1 titled Safety Team.*

### 8. DISINFECTION AND CLEANING PROCEDURES

#### 8.1 DISINFECT AND CLEAN SCBA<sub>s</sub>

8.1.1 During roll call inspection, after members have each been assigned an SCBA for the tour, and after each use.

## 8.2 DISINFECTING SOLUTIONS

- 8.2.1 A hypochlorite solution consisting of one-quarter cup of household chlorine bleach to one gallon of water (1:100 dilution) is recommended by the Center for Disease Control. Technical Services distributes bleach packages, use one package to one gallon of water. This solution is to be used in routine disinfecting procedures and to disinfect SCBA parts contaminated with blood or body fluids.
- 8.2.2 NEVER INCREASE THE CONCENTRATION OF HOUSEHOLD BLEACH IN THE DILUTION BEYOND THE RECOMMENDED AMOUNT. Stronger amounts of the solution will prematurely deteriorate rubber and severely corrode metallic parts. Both solution concentration and duration of immersion must be strictly adhered to.
- 8.2.3 Certain cleaning and disinfecting agents such as quaternary ammonium compounds (Ammonium Chlorides) found in glass cleaner, will cause damage, deterioration, or accelerated aging to parts of the SCBA. Use only the recommended cleaning and disinfectant solution.
- 8.2.4 Wear goggles to protect eyes when preparing or using a hypochlorite solution.

## 8.3 GROSS DECONTAMINATION

- 8.3.1 Contaminated SCBAs or components that can't be cleaned or disinfected due to blood or other body fluids shall:
- A. be placed in a double sealed clear plastic bag with a biohazard label attached;
  - B. a tag shall be attached to the bag noting details of the incident including known and suspected contaminants;
  - C. be placed on the apparatus in an appropriate location to preserve the integrity of the bag, and shall be transported back to quarters;
  - D. at quarters, bag shall be placed in a light traffic area;
  - E. notify SOC for pick-up.
- 8.3.2 When decontaminating, bagging, or handling such equipment to be sent to SOC, members shall wear BSI (Body Substance Isolation).

## 8.4 CLEANING SOLUTION

- 8.4.1 When cleaning SCBA parts, use household strength soap or detergent mixed with warm water. Use of strong industrial strength cleansers, abrasive soap pads or brushes are damaging and not recommended.
- 8.4.2 Never mix disinfectant or cleaning solutions, or their respective cloths and sponges.

## 8.5 FACEPIECE CLEANING PROCEDURE

- 8.5.1 Remove facepiece from regulator assembly.
- 8.5.2 Put on goggles and rubber gloves to protect eyes and hands from hypochlorite solution.
- 8.5.3 Immerse facepiece in the hypochlorite solution for five minutes, wiping lens with cloth. Never allow facepiece to remain immersed for longer than five minutes.
- 8.5.4 Remove facepiece from solution and thoroughly rinse under cold running water.
- 8.5.5 Wash facepiece with cleansing solution and sponge, and again thoroughly rinse under cold running water.
- 8.5.6 Nose cup is designed to be an integral part of the facepiece and does not need to be disassembled for cleaning and disinfecting.
- 8.5.7 In the event the nose cup is removed for cleaning or inspection, make certain it is reassembled behind the chin pocket of face seal and properly seated between the flanges of the voicemitter ducts.
- 8.5.8 Shake off remaining water droplets from facepiece. The facepiece shall be dried; drying shall not be done in direct sunlight or in high heat.
- 8.5.9 Clean remaining SCBA parts of dirt and debris with damp sponge.
- 8.5.10 Areas where SCBAs are stored should also be kept thoroughly clean of dust and dirt.
- 8.5.11 Place the Kevlar head net inside of the facepiece lens. In order to achieve a proper facepiece seal when donning the SCBA, Kevlar head nets shall be stored on the inside of the facepiece. This will prevent the head net straps from entangling with the thumb buckles

## 8.6 REGULATOR DISINFECTING PROCEDURE

- 8.6.1 Supplies needed:
  - 70% Isopropyl Alcohol in a spray bottle.
  - Drinking (potable) water - running or in a spray bottle.
- 8.6.2 Remove the breathing regulator from the facepiece by rotating the regulator 1/4 turn clockwise.
- 8.6.3 Remove any obvious dirt from the external surfaces of the regulator using 70% Isopropyl Alcohol with a sponge or soft cloth.

- 8.6.4 Inspect the inside of the regulator assembly through the regulator opening (Figure 23). If excessive dirt or soil is present, return the entire SCBA with a completed RT-2 to MSU, noting reason. Do not insert any foreign objects into the opening.
- 8.6.5 Depress the manual shut-off, close the purge knob by turning fully clockwise and spray a minimum of 6 full pumps of 70% Isopropyl Alcohol into the regulator opening. Make sure to also wet the immediate area around the opening (Figure 23). Swirl to completely cover internal components. Turn regulator opening face down and shake excess liquid out. Allow for 10 minutes of contact time to disinfect prior to rinsing.
- Note:** Alcohol and water should not be directed into the spray bar ports.



Figure 23

- 8.6.6 Rinse regulator with drinking water using a spray bottle or softly running water. The inside of regulator must be **thoroughly rinsed** after applying the 70% alcohol. Failure to thoroughly rinse may cause a number of adverse effects. Rinsing is a key component to the SCBA integrity after disinfecting.
- 8.6.7 Shake excess water out of regulator. Completely air-dry the regulator before use. Perform regulator check by opening the purge valve and observe the air flow from the regulator spray bar. Droplets of water indicate the regulator is not dry. If this occurs, repeat drying procedure and regulator check.
- Note:** Under no circumstances should the face of the regulator be banged against a hard surface to expedite the removal of water. It may damage the spray bar ports or crack the exterior surface of the regulator. Shaking and opening the purge valve is the only acceptable way to remove water.

## 9. PREVENTIVE MAINTENANCE PROGRAM / INVENTORY

- 9.1 A calendar year Preventive Maintenance Program has been implemented for each SCBA. The intent is to flow test and ensure the operational condition of each SCBA.



- 9.1.1 MSU will perform a complete annual inspection, repair and flow test of each SCBA and FAST Pak (including the UAC) on one of the following occasions:
- A. Units scheduled by Fleet Services for apparatus PMP (only at Randall's Island). These SCBAs will remain on the apparatus and transported to Randall's Island. The serviced SCBAs will be returned with the Unit's apparatus and placed back in-service.
  - B. Units scheduled for training at the Fire Academy.
  - C. If a Unit's SCBAs do not receive an annual inspection on one of the above occasions, MSU will notify the unit and make other arrangements.
- 9.1.2 The month and year of the last service date is recorded on the surface of the PRA where the High Pressure Hose connects. (Figure 24)
- 9.1.3 Squads, SOC Support Ladders, CPC Ladders, and Haz-Mat Tech Units should include the 2 SCBAs assigned to the second piece with the annual PMP.
- 9.1.4 Battalion Spare SCBAs - each battalion is assigned 12 spare SCBAs. An RT-2 stating annual PMP should be attached and forward with the spares to MSU on the following schedule;
- |                 |                   |
|-----------------|-------------------|
| January 1 ..... | Spares 1, 2, 3    |
| April 1 .....   | Spares 4, 5, 6    |
| July 1 .....    | Spares 7, 8, 9    |
| October 1.....  | Spares 10, 11, 12 |
- 9.1.5 Borough and Division assigned SCBAs are forwarded April 1.
- 9.1.6 Battalion assigned SCBAs are forwarded August 1.
- 9.1.7 Each reserve Engine, Ladder and Rescue are assigned their own SCBAs and facepieces. The unit responsible for the maintenance of these reserve apparatus should forward the reserve SCBAs along with the company SCBAs.
- 9.1.8 Apparatus assigned to the Division 8 do not get Apparatus PMP at Randall's Island. They will be contacted when scheduled for PM Tactical Training and given instructions to visit MSU before the start of Tactical Training. Company SCBAs will be serviced and returned to units upon completion of training.
- 9.1.9 Units should record date of SCBA PMP on SCBA Record card SD-30.



**Figure 24**

9.2 INVENTORY/STATUS

- 9.2.1 An SCBA Status Report is to be completed annually by each Unit Commander. The report is due November 1<sup>st</sup>.
- 9.2.2 This report should include company SCBA numbers and date of last PMP performed by MSU.
- 9.2.3 At this time, any SCBA that has not had PMP performed by MSU for that calendar year, shall be forwarded to MSU. SCBAs must have an RT-2 attached stating annual PMP.
- 9.2.4 Battalions should list the status and PMP date of each spare.

10. IDENTIFICATION

- 10.1 The Pressure Reducer Assembly on all SCBAs are labeled with both unit identification and sequential numbering within the unit. (Figure 25)
- 10.2 The labeling allows for quick identification of SCBAs at operations, as well as, individual assignment of SCBAs at the start of the tour.
- 10.3 SCBA labels are coded with white numerals on colored backgrounds. The colored backgrounds indicate the type of unit to which the SCBA is assigned to, as follows:

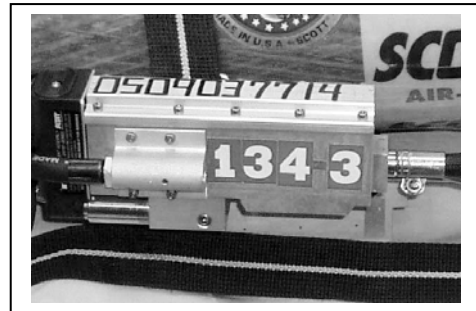


Figure 25

<u>UNIT</u>	<u>COLOR CODE</u>	<u>COMPANY</u>	<u>EXAMPLE</u>
Engine	Black	E-245	245-1
Ladder	Red	L-25	25-1
Rescue	Blue	R-2	2-1
Haz Mat	Blue	HM-1	HM-1-1
Squad	Yellow	Sq-1	1-1
Battalion	Yellow	Bn-57	57-1
Battalion Spare	Orange	Bn-33	33-1
Marine	Green	M-6	6-1
MSU Spare	Black	MSU	MS-1

- 10.4 Labels are not to be removed by members.
- 10.5 Worn or missing labels will be replaced by the Mask Service Unit.

- 10.6 All SCBAs are being marked in a manner similar to the handie-talkies. The numbering system duplicates the handie-talkie number designations. For example, #1 is the Officer, #2 is the chauffeur, etc.
- 10.7 Each SCBA is labeled in the center of the upper section of the back plate on the side that rest against the member's back. The marking is on a 3/4" wide marking tape, and is covered with a clear 4" X 2" protective label. The markings will be visible when the SCBA is properly mounted in the SCBA bracket on the apparatus.

For example, SCBAs in Engine 264 and Ladder 134 would be labeled as following:

<b>SCBA#</b>	<b>Label Wording</b>		<b>SCBA#</b>	<b>Label Wording</b>
264-1	Officer		134-1	Officer
264-2	Chauffeur		134-2	Chauffeur
264-3	Nozzle		134-3	Roof
264-4	Back-Up		134-4	OV
264-5	Control		134-5	Irons
264-6	Door		134-6	Can

## 11. CONCLUSION

- 11.1 Members are cautioned against jeopardizing their health by non-compliance with these procedures or by the use of unauthorized modifications or adapters. The practice of intermittent use of SCBA while in smoke or toxic atmospheres and/or the use of "cheaters" is expressly forbidden.
- 11.2 Unauthorized variations or a modification of this equipment or its related procedures and/or the use of unauthorized adapters or other equipment with the SCBA is strictly prohibited.

**Warning:** Only those options and or accessories authorized by SCOTT and approved by NIOSH and where required, by NFPA may be installed on this SCBA. The use of unauthorized and or unapproved options or accessories could cause partial or complete failure of the SCBA which may result in injury or DEATH.

- 11.3 If a problem arises with an SCBA, and the information required to resolve the difficulties are not covered in this bulletin, unit shall contact the Mask Service Unit and be guided by their instructions.