



**Operating Manual**  
**G1 Industrial SCBA**  
**NIOSH 42 CFR Part 84 Compliant**



Order No.: 10183894/02  
CR 800000035639



## **WARNING!**

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

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The warranties made by MSA with respect to the product are voided if the product is not installed and used in accordance with the instructions in this manual. Please protect yourself and your employees by following the instructions.

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

For alternate languages, please refer to part number 10183895.



*The Safety Company*

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For your local MSA contacts please go to our website [www.MSAafety.com](http://www.MSAafety.com)

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## 1 Safety Regulations

This SCBA complies with the National Institute for Occupational Safety and Health (NIOSH) regulation under 42 CFR Part 84 for open-circuit self-contained breathing apparatus.

### 1.1 NIOSH Approval Information

#### **WARNING!**

Read and obey all NIOSH approval limitations. Misuse can result in serious injury or death.

This pressure-demand, self-contained breathing apparatus (SCBA) is certified by NIOSH for use in atmospheres immediately dangerous to life or health (IDLH):

“Immediately dangerous to life or health” means conditions that pose an immediate threat to life or health or conditions that pose an immediate threat of severe exposure to contaminants, such as radioactive materials, which are likely to have adverse cumulative or delayed effects on health (42 CFR Part 84.2 Q).

This SCBA is not compliant with National Fire Protection Association (NFPA) Standard 1981. The air mask should not be used for fire-fighting applications where NFPA compliance is required. If NFPA 1981 approval is required, use an NFPA 1981 approved G1 respirator.

This SCBA is not NIOSH approved for use against Chemical, Biological, Radiological, or Nuclear (CBRN) live agents. If NIOSH CBRN agent approval is required, use a NIOSH CBRN agent approved G1 respirator.

#### **Certifying Agency Contact Information**

National Institute for Occupational Safety and Health (NIOSH)

Phone: 800-CDC-4636

#### **NIOSH Cautions and Limitations**

- D- Airline Respirators can be used only when the respirators are supplied with respirable air meeting the requirements of CGA G-7.1 Grade D or higher quality.
- E- Use only the pressure ranges and hose lengths specified in the User's Instructions
- J- Failure to properly use and maintain this product could result in injury or death.
- M- All approved respirators shall be selected, fitted, used and maintained in accordance with MSHA, OSHA and other applicable regulations.
- N- Never substitute, modify, add or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer.
- O- Refer to Users Instructions, and/or maintenance manuals for information on use and maintenance of these respirators.
- S- Special or critical User's Instructions and/or specific use limitations apply. Refer to user instructions before donning.

**NIOSH S - Special or Critical User Instructions**

- Approved for use at temperatures above -25°F (- 32°C).
- Approved only when the compressed-air cylinder is fully charged with air meeting the requirements of the Compressed Gas Association Specification G-7 for quality verification level (grade) D air or equivalent specifications. The cylinder shall meet applicable Department of Transportation (DOT) specifications.
- When used as a combination respirator, the respirator shall be supplied with respirable air through an air supply hose assembly with a minimum length of 9.5 inches and a maximum length of 300 feet within a pressure range of 70-110 psig. A maximum of 12 sections of straight or six coiled air supply hose may be used in making up the working length of hose. When using coiled hose, a maximum of six sections may be used and each section is considered to be 50 feet long. Hose sections vary from 9.5 inches to 100 feet lengths. The airline connection to the apparatus is to be made through approved quick connects only. The purity of the air supply is the responsibility of the user. The respirator is approved only with supplied air meeting the requirements of the Compressed Gas Association Specification G-7 for quality verification level (grade) D air or equivalent specifications.
- Use the SCBA with adequate skin protection when worn in gases and vapors that poison by skin absorption (for example: hydrocyanic-acid gas).
- Do not alter this SCBA.
- Do not mark the SCBA, i.e., with stamps, labels, paint, or other method. Use of such markings may interfere with apparatus use or may constitute a flammability hazard.

**1.2 Important Notice for Respirator Users and Respiratory Protection Program Administrators**

- Before occupational use of this respirator a written respiratory protection program must be implemented meeting all the local government requirements. In the United States employers must comply with OSHA 29 CFR 1910.134 which includes medical evaluation, training, and fit testing.
- An adequate respiratory protection program must include knowledge of hazards, hazard assessment, selection of proper respiratory protective equipment, instruction and training in the use of equipment, inspection and maintenance of equipment, and medical surveillance.  
[See OSHA regulations, Title 29 CFR, Part 1910.134 (c).]
- This respirator may be used only after proper instruction and training in its use as specified in OSHA regulations Title 29 CFR, Part 1910.134.
- Be sure that no other equipment interferes with the respirator facial seal, the user's ability to operate the respirator, or other necessary means of mobility.

**1.3 Reference**

For more information on the SCBA use and performance standards, consult the following publications:

- ANSI Standard Z88.2, Latest Edition, Practices for Respiratory Protection. American National Standards Institute, <https://webstore.ansi.org/Info/Sdolist>
- OSHA Safety and Health Standards (29 CFR 1910) (see specifically Part 1910. 134), Respiratory Protection, <https://www.osha.gov/law-regs.html>
- NFPA 1500, Standard on Fire Department Occupational Safety and Health Program. National Fire Protection Association, <https://www.nfpa.org/Codes-and-Standards>

**1.4 Contact Information**

For product concerns, contact your local MSA authorized repair center or distributor, who will provide the necessary information to MSA for issue resolution.

To report any serious concerns or to inquire about the products, use the following contact information:

<b>MSA North America Corporate Center</b>	<b>MSA Canada</b>	<b>MSA de Mexico, S A De C V</b>
1000 Cranberry Woods Drive Cranberry Township, PA 16066	16435 118th Avenue Edmonton AB T5V 1H2	Fraccionamiento Industrial Avenida Del Conde #6 76240 El Marques, Queretaro
Phone 1-800-MSA-2222	Phone 1-800-MSA-2222	Phone 01 800 672 7222
Fax 1-800-967-0398	Fax 1-800-967-0398	Fax +52-44 2227 3943

## 2 Description

The G1 Industrial SCBA - referred to hereafter as SCBA - is an open-circuit, pressure-demand, self-contained breathing apparatus (SCBA).

Breathable air is supplied to the user from a self-contained compressed air cylinder.

When the SCBA is equipped with an airline connection, the SCBA can be used as a supplied-air respirator (SAR). In this configuration, breathable air is supplied to the user from a remote air source. The remote air source may include one or more compressed air cylinders or a compressor system designed to meet the supply pressure requirements. The SCBA includes a broad range of facepiece, regulator, carrier, harness, and cylinder options.



The SCBA consists of the following major components:

- Facepiece
- Regulator
- Pressure Reducer with Low Pressure Warning Device
- Cylinder and Valve Assembly
- Remote Pressure Gauge
- Carrier and Harness Assembly

Optional components:

- Remote Cylinder Connection
- Airline Connection
- ExtendAire II
- ExtendAire II Airline Connection
- Remote Quick-Fill
- Quick-Fill Pouch
- Spectacle Kit

## 2.1 Facepiece



The facepiece is available in 3 sizes (small, medium, large) and the nosecup is available in three sizes (small, medium, large). The facepiece includes a large lens to optimize field of view. The facepiece includes a mechanical speech diaphragm to enhance speech communication.

When the facepiece is not connected to a regulator, an opening in the facepiece connection allows airflow to bypass the inhalation and exhalation valves, which decreases breathing resistance and further enhances speech communication. The facepiece includes a broad range of head harness design and material options. An optional spectacle kit is available.

## 2.2 Regulator



The regulator connects to the facepiece with a Push-To-Connect (PTC) connection. The regulator connection includes two independent release buttons.

The regulator is available with two cover options (purge, solid). The purge cover allows users to manually activate the regulator or deliver a quick burst of air. The regulator includes a bypass valve with a large and easily accessible bypass knob.

The regulator hose is available in three options (continuous, threaded, quick connect). The continuous hose provides an uninterrupted connection from the pressure reducer to the regulator. The threaded and quick connect hose options include a connection positioned on the chest to improve hose maneuverability and provide a hose separation point to simplify regulator removal for testing or repair.

### 2.3 Pressure Reducer, Low Pressure Warning Device and Remote Pressure Gauge

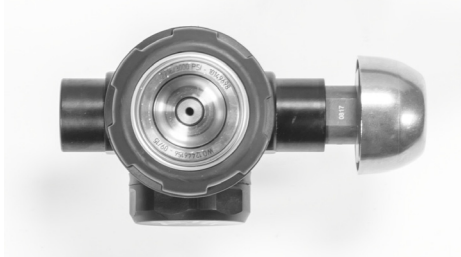


Fig. 1 Quick connect pressure reducer

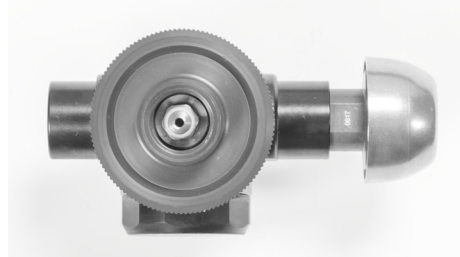


Fig. 2 Threaded connect pressure reducer

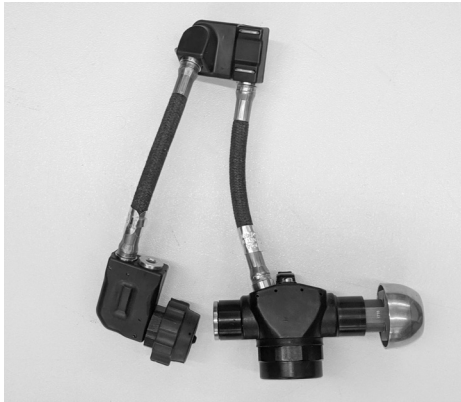


Fig. 3 Remote connect pressure reducer



Fig. 4 Standard remote pressure gauge

The pressure reducer incorporates a fail-open valve design to enhance safety.

The pressure reducer is available with three cylinder connection types (direct connect threaded, direct connect quick connect, or remote connect). Direct connect pressure reducers connect directly to the cylinder valve. Remote connect pressure reducers have an additional remote cylinder connection (threaded or quick connect) that connects to the cylinder valve from the side. All connection types include a sintered filter to capture particulates. The quick connect cylinder connection speeds cylinder attachment and removal. The pressure reducer includes a bell alarm low pressure warning device which actuates between 25 and 29% of the SCBA's rated service pressure during use. The remote pressure gauge includes a large photo luminescent gauge face and flexible hose to enhance visibility.

### 2.4 Cylinder and Valve Assembly



Fig. 5 Direct connect



Fig. 6 Remote connect

The cylinder and valve assemblies are available in two rated service pressures (2216 PSIG, 4500 PSIG). The 2216 PSIG cylinder and valve assemblies are available in one rated service time (30 minutes) and two material options (aluminum, carbon). The 4500 PSIG cylinder and valve assemblies are available in three rated service times (30, 45, 60 minutes) and one material option (carbon).

The cylinder valve is available with either a direct connect or remote connect cylinder connection. The selected cylinder valve connection option needs to match the equivalent pressure reducer design to be an approved configuration.

The cylinder valve includes a large pressure gauge with a photo luminescent gauge face. The cylinder valve handwheel is available in two types (standard, locking). The locking handwheel requires a single action to open and two actions to close the valve to minimize inadvertent closure. The cylinder valve includes a pressure relief device to safely vent pressure if the cylinder is over pressurized. The cylinder valve can be equipped with a quick connect adapter to enable connection to a quick connect pressure reducer.

## 2.5 Carrier and Harness Assembly



The carrier and harness assembly is designed to securely and comfortably position the SCBA on the user. The carrier and harness assembly includes an ergonomic backplate, cylinder band, and fully adjustable shoulder and waist straps. The backplate includes large handles to facilitate handling and storage. The cylinder band is available in two types (fabric band, metal band). The fabric band includes a latch that is quick and easy to operate. The metal band provides a rigid opening to enhance cylinder installation and removal. Shoulder straps and waist straps are available in different material types (standard, flame and heat resistant) and comfort options (standard, padded) to accommodate a broad range of SCBA applications. The shoulder straps can be fitted with an optional chest strap to enhance wearing comfort. An optional regulator retainer is available to secure and protect the regulator when not in use.



## 2.6 Optional Components

### Airline Connection



The airline connection enables the respirator to be used as a combination self-contained breathing apparatus and supplied-air respirator. The airline connection includes a quick connect that attaches to MSA approved air supply hoses. The airline connection includes a large sintered filter to remove particulate from the supplied air source. The airline connection includes a check valve to prevent loss of air through the hose when the cylinder valve is open (SCBA mode).

### ExtendAire II



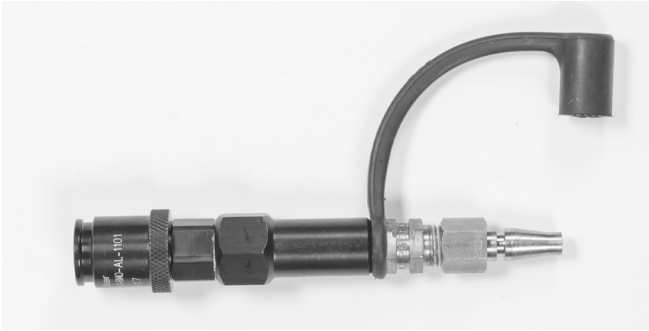
The ExtendAire II system allows two users to connect and share intermediate pressure air. The ExtendAire II includes a manifold, hose assembly, and pouch. The manifold includes both male and female quick connects to enable connection to a second ExtendAire II. The pouch is attached to the user's left side to store and protect the manifold and hose assembly. The pouch is held securely closed by a combination of hook and loop fasteners and snaps, but can be opened using one hand.

#### **⚠ WARNING!**

The SCBA is approved by NIOSH without inter-connecting two users to one apparatus. NIOSH does not certify "buddy breathers". Therefore, the attachment of the receiver's ExtendAire II to the donor's ExtendAire II voids NIOSH approval for both respirators.



### ExtendAire II Airline Connection



The ExtendAire II airline connection enables an SCBA equipped with ExtendAire II to be used as a combination self-contained-breathing-apparatus and supplied-air-respirator. The ExtendAire II airline connection attaches to the ExtendAire II manifold. The ExtendAire II airline connection includes a quick connect that attaches to MSA approved air supply hoses. The ExtendAire II airline connection includes a large sintered filter to remove particulate from the supplied air source. The ExtendAire II connection includes a check valve to prevent loss of air through the hose when the cylinder valve is open (SCBA mode).

### Remote Quick-Fill



The Remote Quick-Fill system provides the ability to connect the SCBA to a high pressure air source for emergency filling operations. The Quick-Fill system includes a manifold with Quick-Fill fitting and pressure relief valve. The manifold is located on the pressure gauge hose to enhance Quick-Fill fitting accessibility. The self-resetting pressure relief valve safely vents pressure if the SCBA is over-pressurized.

**Quick-Fill Pouch**

The Quick-Fill pouch is a storage pouch attached to the user's right side. It is similar to the ExtendAire II pouch, but is used to hold a Quick-Fill line or other items. The pouch is held securely closed by a combination of hook and loop fasteners and snaps, but can be opened using one hand.

**Spectacle Kit**

The spectacle kit provides the ability to mount prescription lenses inside the facepiece.

### 3 Size Selection

Regardless of facial dimensions and respirator sizing charts, an actual respirator fit test, either qualitative or quantitative must be performed to ensure the correct respirator size selection.

- (1) Fit test the respirator size relative to your facial features and dimensions. The safety administrator or program manager might assist in selecting the initial size to try.
- (2) Carefully don the mask and conduct a negative pressure seal test. See donning instructions for procedure.
- (3) If the facepiece does not pass the negative pressure seal test or feels uncomfortable, try the next nearest size relative to your face.

Passing the negative pressure seal test does not verify the size is correct. The size selected must be verified by successfully passing a Respirator Fit Test, either qualitative or quantitative. If the respirator passes a negative pressure seal test but DOES NOT pass a Respirator Fit Test, try the next nearest size.

Once the proper size is selected, the respirator must pass a negative pressure seal test every time the facepiece is donned to ensure proper fit before using the respirator.

If other than facial seal leakage is detected, the condition must be investigated and corrected before another test is made.

The facepiece must also pass the negative pressure seal test before the user attempts to enter a toxic atmosphere.

The facepiece will not furnish protection unless all inhaled air is drawn through the SCBA.

#### 3.1 Respirator Fit Test

##### **WARNING!**

The user must perform a respirator fit test (Quantitative Test or Qualitative Test) and follow all warnings and limitations specified. Failure to do so can result in serious personal injury or death.

A qualitative or quantitative respirator fit test must be carried out routinely for each wearer of this respirator to determine or confirm the amount of protection that the respirator provides.

##### **Quantitative Test**

If a quantitative fit test is used, a fit factor of at least 500, based on ambient aerosol fit test methods or equivalent, is required before any type of respirator is assigned to an individual.

##### **Qualitative Test**

If a qualitative fit test is used, only validated protocols are acceptable. The individual must pass a test designed to assess a fit factor of at least 500.

Use Quik Chek Kit (P/N 805078) to perform fit testing and following instructions provided with the kit. The fit test kit includes an adapter and instructions. Canister sold separately. Be sure the probe does not contact the face during fit testing. Failure to do so can result in false protection factor readings.

## 4 Visual Inspections

Conduct the visual inspections: Upon receipt, daily, and after use.

Inspect the entire SCBA after it is cleaned and disinfected.

### **WARNING!**

DO NOT inspect the SCBA before cleaning if there is danger of contacting hazardous contaminants. Clean and disinfect first, then inspect. Failure to follow this warning can cause inhalation or skin absorption of the contaminant and result in serious personal injury or death.

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### **WARNING!**

If the SCBA exhibits any of the conditions listed in the Visual Inspections section or if the SCBA does not function properly for all tests as described in the Functional Tests section, the SCBA must be removed from service and the condition must be checked and corrected by an MSA trained and certified repair person before using. Failure to follow this warning can result in serious personal injury or death.

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### **WARNING!**

Never substitute, modify, add, or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer. Failure to follow this warning can result in serious personal injury or death.

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### 4.1 All Components

- (1) Examine all components for deterioration, dirt, cracks, debris, tears, holes, stickiness, signs of heat- or chemical-related damage, or other visible signs of damage.
- (2) Examine all straps (shoulder pads, pull straps, lumbar pad, waist straps, facepiece head harness) for tears, cuts, wear, abrasion, and missing buckles or straps.
- (3) Do all of the following component-specific inspections.

### 4.2 Facepiece

- (1) Inspect the lens for cracks, scratches, deformation, and color change.
- (2) Check the facepiece rubber for a tight seal and secure fit to the lens ring.
- (3) Ensure the exhalation valve is clean and operates easily. The valve must move off the seat and return when released (from inside the facepiece).
- (4) Inspect the facepiece inlet for damage. Ensure the inhalation valve is in place.
- (5) Inspect the nose cup to ensure the check valves are in place and the nose cup is secure to the component housing.

### 4.3 Regulator

- (1) Ensure that no moisture or debris is present inside the regulator.
- (2) Ensure that the o-ring and seal ring are present and free of debris and damage.
- (3) If the SCBA is equipped with a quick connect hose:
  - a) Inspect the quick connect fittings.
  - b) Ensure that the openings are clear and free of debris and other contaminants.
  - c) Ensure that the quick connect fittings operate properly and are secured.

### 4.4 Pressure Reducer

#### **WARNING!**

Make sure to protect the quick-connect fitting and adapter from damage, dirt, and debris during cylinder replacement. Dirt and debris can cause the cylinder connection seals to leak. Failure to obey this warning can result in serious personal injury or death.

- (1) Disconnect the handwheel from the cylinder valve assembly.
  - **Threaded Connect:**
    - a) Unthread the handwheel coupling nut from the cylinder valve (if equipped).
    - b) Inspect the coupling nut for thread damage.
    - c) Before attaching the cylinder valve to the handwheel, check that the cylinder connection O-ring is present and free of damage. If the o-ring is damaged, it must be replaced before the SCBA is used.
    - d) Thread the handwheel coupling nut onto the cylinder valve threads. The handwheel should be hand-tight (no tools).
  - **Quick Connect:**
    - a) Turn the quick connect grip counterclockwise and pull grip away from the cylinder valve to release (if equipped).
    - b) Before attaching the cylinder valve to the handwheel, ensure there is no dirt or debris on the coupling and adapter. Ensure the adapter on the cylinder valve is tight.
    - c) Push the cylinder valve with adapter and the quick connect coupling together until an audible snap is heard. The handgrip will rapidly rotate indicating that the cylinder valve is connected to the handwheel. Pull the cylinder valve firmly away from the handwheel to ensure the handwheel is fully attached.
- (2) Ensure that the bell is properly aligned and that the screws are tight. The bell should not be able to be rotated or loose. If the bell is loose or can rotate, remove the SCBA from service.
- (3) Inspect the pressure relief valve (if equipped). Ensure that the relief holes are clear and free of debris or other contaminants. Ensure that the pressure relief valve is properly secured.
- (4) Inspect the hose connections. Ensure that the hoses are properly secured.

#### 4.5 Cylinder and Valve Assembly

##### **WARNING!**

Cylinder and valve assembly are available with either a direct or remote connect cylinder connection design. A given SCBA will have a pressure reducer that is either configured to accept the direct connect cylinder connection or the remote connect cylinder connection. Ensure cylinder and valve assembly used are equivalent to the pressure reducer design of a given SCBA. Using the incorrect cylinder and pressure reducer combination is not a NIOSH approved configuration and may not function as intended.

- (1) Check the hydrostatic test date on the cylinder approval sticker located on the cylinder neck. Cylinders must be tested every five years.
- (2) Ensure the needle and gauge face on the cylinder valve gauge are clearly visible and that the gauge stem is not bent.
- (3) Ensure the rubber boot is present and secure. If the boot is missing, remove from service until a new one is installed.
- (4) For remote connect cylinder valve make sure the dovetail feature is not cracked or damaged. If the dovetail feature is damaged, remove the cylinder from service.

Do all inspections and tests for SCBA cylinders in accordance with Department of Transportation (DOT) regulations. DOT regulations require that composite cylinders be removed from service after the 15<sup>th</sup> year. This does not include cylinder valve assemblies that can be reused. Contact an MSA distributor or sales associate for more information about this policy.

For external and internal inspections of the cylinders, refer to the latest edition of CGA C-6.2, Standard for Visual Inspection and Requalification of Fiber Reinforced High Pressure Cylinders.

#### 4.6 Carrier and Harness Assembly

- (1) Operate the cylinder band assembly to ensure that it opens and closes properly and that it holds the cylinder securely.
- (2) Inspect the pressure reducer cover. Ensure that the retaining hardware is present and properly secured.

#### 4.7 Airline Connector (if equipped)

- (1) Inspect the hose for any signs of visible damage.
- (2) Inspect the hose connections. Ensure that the hose is properly secured.
- (3) Inspect the quick connect fitting. Ensure that the fitting is secure and that its opening is clear and free of debris and other contaminants.
- (4) Inspect the pressure relief valve. Ensure that the relief holes are clear and free of debris or other contaminants. Ensure that the pressure relief valve is properly secured.

**4.8 ExtendAire II (if equipped)**

- (1) Inspect the hose for any signs of visible damage.
- (2) Inspect the ExtendAire II quick connect fittings. Ensure that the fittings are secure and that the openings are clear and free of debris and other contaminants.
- (3) Inspect the dust cover for rubber deterioration, dirt, cracks, tears, or tackiness.
- (4) Inspect the pressure relief valve. Ensure that the relief holes are clear and free of debris or other contaminants. Ensure that the pressure relief valve is properly secured.
- (5) Inspect the pouch for cuts, tears, abrasions, or signs of damage. Ensure that the pouch is properly secured and the hose and manifold are properly stored.

**4.9 ExtendAire II Airline Connector (if equipped)**

- (1) Inspect the ExtendAire II airline connect quick connect fittings. Ensure that the fittings are secure and that the openings are clear and free of debris and other contaminants.
- (2) Inspect the dust cover for rubber deterioration, dirt, cracks, tears, or tackiness.

**4.10 Remote Quick-Fill (if equipped)**

- (1) Inspect the Quick-Fill fitting. Ensure that the fitting is secure and that its opening is clear and free of debris and other contaminants.
- (2) Inspect the dust cover for pin damage, rubber deterioration, dirt, cracks, tears, or tackiness.
- (3) Inspect the high pressure relief valve for damage. Ensure the relief valve label is not damaged and that the relief valve ports are not showing. If damaged, remove the SCBA from service and replace the relief valve.

**4.11 Record Keeping**

Immediately following completion of the inspection, the date and initials of the designated inspector should be recorded. When the inspection data has been recorded, the SCBA is ready for functional tests.

## 5 Functional Tests

### **WARNING!**

If the SCBA does not function properly for all tests as described in the Functional Tests section, the SCBA must be removed from service and the condition must be checked and corrected by an MSA trained and certified repair person before using. Failure to follow this warning can result in serious personal injury or death.

If the SCBA has passed the visual inspection successfully, conduct the functional tests daily and after each use.

If any part of the SCBA fails the functional test, do not use the SCBA and return the device to a certified repair technician.

**NOTE:** The functional checks must be conducted with a full cylinder. Before starting the tests, check the pressure gauge on the cylinder valve to verify that the cylinder is full.

### 5.1 Check that the Regulator and Facepiece Can Hold a Negative Pressure

- (1) Close the cylinder valve and vent any air from the system using the bypass knob or the purge cover on the regulator. After venting, ensure that the bypass knob is fully closed (clockwise).
- (2) Hold the facepiece against the face to create an effective seal.
- (3) Attach regulator to the facepiece and inhale until the facepiece begins to collapse against the face.
- (4) Hold breath for approximately 10 seconds.
  - a) Negative pressure should be maintained and the facepiece should remain collapsed against the face for the entire 10 seconds.

Do not use the SCBA if negative pressure cannot be maintained in the facepiece.

### 5.2 Check Function of Regulator

- (1) Push the release buttons on the regulator to ensure the regulator is shut off.
- (2) Ensure that the bypass knob is fully closed (clockwise).
- (3) Open the cylinder valve and ensure the valve is completely open.
- (4) Open the bypass knob (counterclockwise).
- (5) Ensure that air flows from the regulator.
- (6) Close the bypass knob (clockwise).
- (7) Attach the regulator to the facepiece.
- (8) Ensure proper attachment by pulling on the regulator.
- (9) Don the facepiece or hold the facepiece against the face to create an effective seal.
- (10) Inhale sharply to start air flow.
- (11) Breathe normally.
  - a) Ensure proper regulator response.
  - b) The regulator should NOT make any unusual sounds including whistling, chattering, or popping



- (12) Remove the facepiece from the face.
- (13) Ensure that air flows freely.
- (14) Push the regulator release buttons.
  - a) Ensure that air flow stops.

If the regulator does not function properly, the SCBA must be removed from service.

### 5.3 Check Function of the Low Pressure Warning Device

- (1) Pressurize the system by opening the cylinder valve; first slowly and then normally.
  - a) Listen for the bell alarm to activate momentarily during pressurization.
- (2) Close the cylinder valve completely.
- (3) Slowly open the regulator bypass valve (counter clockwise) to vent the pressure until the remote pressure gauge reading drops below the following values:
  - 554 psi - 2216 psi system*
  - 1125 psi - 4500 psi system*
  - The bell alarm should start to ring when air pressure drops below the above values and continue to ring until air pressure is 290 psi or less.*
- (4) Further open the bypass valve to vent any remaining pressure in the system.
- (5) Close the bypass valve (clockwise).

If the bell alarm does not function properly, the SCBA must be removed from service.

## 6 Donning

### **WARNING!**

- ▶ If the SCBA does not function properly as described in this section, the SCBA must be removed from service and must be checked and corrected for proper operation by an MSA trained or certified repairperson before using.
  - ▶ This device may not seal properly with your face if you have a beard, gross sideburns or similar physical characteristics (see NFPA-1500 and ANSI Z88.2). An improper facial seal may allow contaminants to leak into the facepiece, reducing or eliminating respiratory protection. Do not use this device if such conditions exist. The face-to-facepiece seal must be tested before each use.
  - ▶ A nose cup must be installed in the facepiece.
  - ▶ In order to guarantee a proper fit for those wearing glasses, the G1 Industrial spectacle kit **must** be worn since ordinary glasses **cannot** be worn under the facepiece.
  - ▶ Never remove the facepiece except in a safe, non-hazardous, non-toxic atmosphere.
  - ▶ Users must wear suitable protective clothing and precautions must be taken so that the device is not exposed to atmospheres that may be harmful to it.  
Failure to follow these warnings can result in serious personal injury or death.
- 

### 6.1 Approval Verification

Before using the SCBA, ensure all NIOSH Approval Labels and Approval Inserts have been reviewed to ensure the configuration of the SCBA is an approved configuration. Refer to the Safety Regulations for more details and a complete list of CAUTIONS and LIMITATIONS for the SCBA. See Approval Insert (P/N 10183896).

### 6.2 Preparation

The device must have passed all visual inspections and functional tests (see previous chapters) before use.

- (1) Ensure that the cylinder is fully pressurized.
- (2) Check cylinder connection:



*Threaded connect:*

- ✓ Check that the coupling nut is hand-tight (no tools).



*Quick connect:*

- ✓ Pull the cylinder valve firmly away from the handwheel to ensure the handwheel is fully attached.



- (3) Pull on the cylinder band assembly to ensure the cylinder is attached securely.
- (4) Loosen the shoulder straps as far as possible.
- (5) Loosen the waist belt straps as far as possible.

### 6.3 SCBA Donning Procedure



- (1) Slide the right arm through the right shoulder strap.



- (2) Slide the left arm through the left shoulder strap.
  - a) Check correct orientation of shoulder straps.
  - b) Do not fasten the chest strap at this time.



- (3) Bend forward slightly; resting the carrier on the back.



- (4) Fasten the waist belt buckle and pull on the waist strap pull tabs to tighten for a snug fit.
  - a) Most of the SCBA weight should be carried on the hips.
  - b) The shoulder straps should remain loose.



- (5) Attach the chest strap buckle (if equipped). Adjust the strap length as desired.
  - a) Ensure the regulator hose is not caught under the strap.



- (6) Stand up straight. Pull down on the shoulder strap pull tabs to tighten straps. Readjust the waist belt if necessary.



- (7) Grasp the regulator and push the release buttons to remove the regulator from the regulator keeper (if equipped).



- (8) Ensure that the bypass knob is fully closed (clockwise).



- (9) Reach behind and fully open the cylinder valve; first slowly and then normally.
- a) Listen for the bell alarm to activate momentarily during pressurization.
  - b) No air should flow from the regulator. If it does, repeat steps 7 and 8.

**⚠ WARNING!**

When pressurizing the system, listen for any hiss or pop sounds from the system. If heard, remove the SCBA from service. Return it to a MSA trained or certified repair technician. Failure to follow these warnings can result in serious personal injury or death.

**⚠ WARNING!**

DO NOT use the SCBA if the bell alarm fails to activate. The SCBA must be checked and corrected for proper operation by an MSA trained or certified technician before using. Failure to follow these warnings can result in serious personal injury or death.





- (10) Check the regulator's bypass operation.
- Grasp the bypass knob and turn it counter-clockwise.
  - Listen for airflow and then turn it to the off position.
  - Ensure that the bypass knob is fully closed (clockwise).

**⚠ WARNING!**

There must be a continuous flow of air when the bypass knob is opened. If not, do not use the SCBA. Failure to follow these warnings can result in serious personal injury or death.



- (11) Close the cylinder valve.



- (12) Listen for air leaks and watch the remote pressure gauge for 10 seconds.

**⚠ WARNING!**

DO NOT use the SCBA if the pressure drops more than 100 psi in ten seconds. The SCBA must be repaired; otherwise, reduced service life may result.

Failure to follow these warnings can result in serious personal injury or death.

- (13) Open the cylinder valve fully.



## 6.4 Facepiece Donning Procedure



(1) Spread the harness with both hands.



(2) Position the chin into the chin cup.



(3) Pull the head straps over your head.  
a) Ensure that the harness is sitting correctly and is not twisted.



(4) Adjust facepiece and tighten the straps firmly and evenly.



**⚠ WARNING!**

Ensure that the top of the facepiece seal **directly** contacts the user's forehead. Ensure that there is no hair between the facepiece's seal and the user's skin.

Failure to follow these warnings can result in serious personal injury or death.

**Negative Pressure Leak Test****⚠ WARNING!**

- ▶ If the facepiece does not hold a negative pressure seal, remove the SCBA from service and return it to an MSA trained and certified repair technician.
- ▶ Do a negative pressure seal test before each use and before going into a toxic atmosphere. Failure to obey these warnings can result in serious personal injury or death.

In order to check the facepiece-to-face tightness a negative pressure leak test must be performed before each use.



- (1) Seal the inlet connector with the palm of your hand.



- (2) Test tightness.
- a) Inhale and hold breath for 10 seconds.  
*The facepiece must stay collapsed on face.*
  - b) Exhale.  
*The exhalation valve should open and release the pressure inside the facepiece.*
- (3) If necessary retighten the straps.  
***If the leak test fails the facepiece must not be used.***

## 6.5 Regulator Connection Procedure



- (1) Grasp the regulator and insert it into the facepiece by pushing inward.  
*If properly aligned the bypass knob will show on the right side of the user's facepiece.*



- (2) Check proper engagement by pulling on the regulator to ensure that the regulator is securely attached to the facepiece.

### **WARNING!**

Do NOT use the SCBA unless the regulator is connected correctly. A regulator that is not installed correctly can separate from the facepiece unexpectedly.

Failure to obey this warning can result in serious personal injury or death.

- (3) Inhale sharply to start the air flow.
- (4) Check the bypass operation again.
  - a) Grasp the bypass knob and turn it counter-clockwise.
  - b) Listen for airflow and then turn it to the off position.
  - c) Ensure that the bypass knob is fully closed (clockwise).

### **WARNING!**

There must be a continuous flow of air when the bypass knob is opened. If not, do not use the SCBA. Failure to follow these warnings can result in serious personal injury or death.

**NOTE:** If the SCBA passes all tests, it is ready for use. These tests must be performed every time before entering a hazardous atmosphere. If the SCBA fails to meet any of the tests, the condition(s) must be corrected before using the SCBA.

## 7 During Use

### **WARNING!**

**Before use, the product operability must be verified. The product must not be used if:**

- ▶ the function test is unsuccessful,
- ▶ the product is damaged,
- ▶ proper servicing/maintenance has not been made or
- ▶ genuine MSA spare parts have not been used.

**Take into account the following factors which may affect the duration or the service life:**

- ▶ the degree of physical activity of the user;
- ▶ the physical condition of the user;
- ▶ the degree that the user's breathing rate is increased by excitement, fear, or other emotional factors;
- ▶ the degree of training or experience which the user has had with this or similar equipment;
- ▶ whether or not the cylinder is fully charged;
- ▶ the presence in the compressed air of carbon dioxide concentrations greater than the .04% level normally found in atmospheric air;
- ▶ the atmospheric pressure; if used in a pressurized tunnel or caisson at 2 atmospheres (15 psi gauge) the duration will be one-half as long as when used at 1 atmosphere; at 3 atmospheres the duration will be one-third as long; the service life of the SCBA is based on 1 atmosphere of pressure.
- ▶ the condition of the SCBA.

**Leave a contaminated area immediately if:**

- ▶ Breathing becomes difficult
- ▶ Dizziness or other distress occurs
- ▶ You taste or smell the contaminant
- ▶ You experience nose or throat irritation
- ▶ SCBA not functioning according to the instructions or training

**DO NOT use the carrier and harness assembly** as a vertical raising or lowering device.

**Do NOT use this product** as a self-contained underwater breathing apparatus. This will result in a rapid loss of air which could result in serious injury or loss of life.

**Return to a safe atmosphere** immediately if discoloration, crazing, blistering, cracking, or other deterioration of the facepiece lens material is observed.

**Misuse or abuse** of the SCBA or the equipment which are attached, or using this equipment in a manner or situation not intended by the manufacturer, or may result in personal injury or death to user or persons dependent on the user or damage to the equipment.

**Misuse and/or failure to follow this warning can result in serious injury or death.**

Before using the SCBA, ensure all NIOSH Approval Labels and Approval Inserts have been reviewed to ensure the configuration of the SCBA is an approved configuration. Refer to the Safety Regulations for more details and a complete list of CAUTIONS and LIMITATIONS for the SCBA. See Approval Insert (P/N 10183896).

## 7.1 Standard Operation

Periodically check the pressure indicated on the remote pressure gauge during use. The primary low pressure warning device indicates when cylinder pressure drops below these approximate values:

- 554 psi - 2216 psi system
- 1125 psi - 4500 psi system

Immediately return to fresh air if:

- SCBA free-flows (provides air when not inhaling).
- Bell alarm sounds.
- If the air flow in the SCBA is reduced: Immediately open the regulator bypass. Immediately return to fresh air.

### CAUTION!

SCBA service life is greatly reduced when the regulator bypass is used.

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## 7.2 Cold Weather Operation

### WARNING!

- ▶ Before going into a hazardous environment, make sure there is no water, moisture, or dampness on or in any of the SCBA components. Any moisture on or in the SCBA components can freeze and result in a malfunction of the SCBA. Make sure all components operate correctly.
  - ▶ Before going into a hazardous environment, make sure there is no water or ice on the inner surfaces and components of the regulator, regulator buttons, and bypass valve. Make sure the buttons and bypass valve operate correctly.
  - ▶ Do NOT use a regulator that has water contamination on the inner surfaces or components. Remove the regulator from service, and dry all surfaces and components fully. Make sure all regulator components are fully dry before returning the regulator to service. Failure to obey these warnings can result in serious personal injury or death.
- 
- Any water on or in the SCBA components can freeze and restrict airflow. To keep moisture from entering the regulator, keep the regulator in the regulator keeper when it is not in use.
  - When the SCBA is away from heat, water spray can freeze on the regulator surface. Ice can build up and bind the side buttons or the bypass valve. Before entering or re-entering a hazardous atmosphere, make sure there is no ice on the side buttons or bypass valve, and that they operate correctly.
  - Periodically make sure there is no ice on the bypass valve.
  - Moisture can enter through the cylinder valve or coupling nut when cylinders are replaced on the SCBA. When replacing cylinders, make sure moisture or contamination does not enter the system. Remove any ice from these fittings.
  - Wipe the coupling nut threads and cylinder valve threads before installing a new cylinder. Water can contaminate the system and freeze.
  - When cleaning the SCBA, make sure water does not enter the facepiece or regulator.
  - Thoroughly dry the facepiece and facepiece mounted regulator after cleaning and disinfecting. Obey the Confidence Plus<sup>®</sup> Cleaning Solution instructions.

- The latch can freeze when moist. Clean and dry the latch before storing the SCBA at low temperatures.
- If moisture gets on the dove tail, the cylinder could get stuck in the dove tail if it freezes. Clean and dry the dove tail before storing the SCBA at low temperatures.
- Make sure that the UAC dust cap is in place before storing the SCBA.

Moisture can cause problems in the SCBA if it freezes. However, moisture can cause freezing problems even if the surrounding air is above freezing. Air flowing from the cylinder through the pressure reducer and regulator decreases from cylinder pressure to close to atmospheric pressure very quickly. This causes the air to expand and creates a cooling effect. Although the surrounding temperature may be warmer than 32°F (0°C), the temperature inside the regulator may be lower.

Prior to storage of the SCBA at temperatures below 0°F (-18°C), verify that the alkaline battery module has new batteries and that the rechargeable battery module is fully charged.

## 8 After Use

### WARNING!

- ▶ Do NOT doff the respirator until the respirator and protective clothing are decontaminated. Otherwise, exposure to contaminants can occur.
- ▶ Obey the decontamination and disposal procedures set by the applicable authorities.
- ▶ Do NOT examine the respirator before it is cleaned if there is a risk of exposure to contaminants. Clean and disinfect the respirator first, then examine it.  
Failure to obey these warnings can result in serious personal injury or death.

When protective equipment has been decontaminated, discard it as required by federal, state, and/or local laws.

### 8.1 Removing the SCBA



- (1) Grasp the regulator release buttons.



- (2) Push the release buttons and pull the regulator out of facepiece.



- (3) Close the cylinder valve fully.



- (4) Open the regulator bypass valve or press the purge button (if equipped) to vent system pressure. Close the bypass valve.



- (5) Stow the regulator in the regulator keeper (if equipped).





- (6) Disconnect the chest strap buckle (if equipped).



- (7) To remove the carrier and harness, disconnect the waist belt buckle.



- (8) To loosen the shoulder straps, grasp the pull tabs and push them out and away from the body.



- (9) Slip the left arm out of the shoulder strap first, then remove the harness.

**NOTE:** Be sure to replace the cylinder with a fully charged one. Complete Inspection, Cleaning and Disinfecting Procedures outlined in this manual. Ensure that the complete SCBA is clean and dry. Ensure that facepiece head harness straps and harness adjustment straps are fully extended. Place the complete SCBA in the storage case or suitable storage location so that it can be easily reached for emergency use. (See storage instructions.) In situations where users share the SCBA, the regulator must be cleaned and disinfected using a Confidence Plus® cleaning and disinfecting wipe to prevent cross contamination between users.

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## 8.2 Removing the Facepiece



- (1) Loosen the head harness by pulling the buckles forward using your fingers.



- (2) Grip the chin straps and pull the head harness forward over the head.



- (3) Grip the front of the facepiece (as shown) and pull the facepiece away and down from the user.



## 9 Cleaning and Disinfection

### **⚠ WARNING!**

- ▶ Do NOT use cleaning substances that can or might attack any part of the SCBA.
  - ▶ Do NOT use alcohol, which can cause deterioration of rubber parts.
  - ▶ Do NOT use cleaning products that contain hydrocarbons or solvents such as nitro-thinner.
  - ▶ Do NOT use radiant heat such as the sun or radiators to dry cleaned parts.
  - ▶ When a drying cabinet is used, make sure the temperature is not more than 140°F (60°C).
  - ▶ Make sure to rinse components thoroughly. The residue from cleaning agents can cause skin irritation.
  - ▶ Make sure there is no water, moisture, or dampness on or in the facepiece and regulator before returning the SCBA to service. Any moisture on or in the facepiece or regulator can freeze and result in a malfunction of the SCBA.
  - ▶ Failure to clean and decontaminate the SCBA correctly after each use can cause overexposure to contamination and result in illness, disease, or death.
- Failure to obey these warnings can result in serious injury or death.

Depending on the cleaning policy adopted, either a designated person or the user should clean the SCBA after each use to limit exposure to possible contamination that may be present on the unit after fire fighting activities. ANSI standards suggest that users should be trained in the cleaning procedure. Confidence Plus® Cleaning Solution (P/N 10009971) from MSA is recommended. It cleans and disinfects in one operation. It retains its germicidal efficiency in hard water to inhibit the growth of bacteria. It will not deteriorate rubber, plastic, glass, or metal parts. Refer to the label to prepare the Confidence Plus Cleaning Solution. If the Confidence Plus Cleaning Solution is not used, wash in a mild cleaning solution, rinse thoroughly. Submerge the facepiece in a germicide solution for the manufacturer's recommended time.

### 9.1 Cleaning and Disinfecting the Facepiece

#### **⚠ WARNING!**

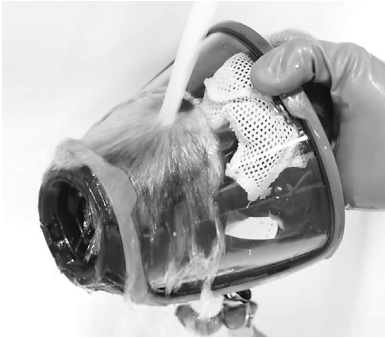
Perform a tightness test after every cleaning, disinfection and maintenance or after every exchange of parts.

Failure to obey this warning can result in serious injury or death.



- (1) Remove the facepiece mounted regulator from the facepiece.

**Cleaning and Disinfecting by Hand**



- (1) Prepare a bucket or sink with Confidence Plus<sup>®</sup> Cleaning Solution as described on the container.
- (2) The head harness can be removed to separate cleaning or as part of the facepiece.
- (3) Submerge the facepiece in Confidence Plus<sup>®</sup> Cleaning Solution for a minimum of 30 seconds. A soft brush or sponge can be used to clean the soiled facepiece.
- (4) Rinse the facepiece and components in clean, warm (110°F (43°C)) water (preferably running and draining).
- (5) Be sure to clean and rinse the pressure-demand exhalation valve by pressing in on the stem with a blunt object and flushing it with clean water.
- (6) Allow the facepiece to air dry. Do not dry the parts by placing them near a heater or in direct sunlight.
- (7) Operate the exhalation valve by hand to be sure it works properly.
- (8) Make sure there is no water, moisture, or dampness on or in the facepiece before returning it to service.
- (9) Perform a tightness test before putting the facepiece back in service.

## 9.2 Cleaning and Disinfecting the Remainder of the SCBA

If the SCBA is soiled (i.e. dirt accumulation) use a sponge damp with mild soap solution or use a soft/medium bristle brush to remove deposits, in a well ventilated area, from the following components:

- Harness (straps and buckles)
- Carrier (band assembly)
- Cylinder (handwheel, gauge, outlet connection)
- Pressure reducer (bell alarm and cylinder connection)

**NOTE:** Put a cover on the regulator outlet to prevent water, dirt, or debris from going into the regulator. Make sure there is no water, moisture, or dampness on or in any of the components before returning the SCBA to service.

Use the inspection procedures in Section 4 "Visual Inspections" to examine the entire SCBA as it is reassembled.

## 9.3 Using a Water Hose to Clean the SCBA

### **WARNING!**

Using a water hose to clean and decontaminate the SCBA increases the risk of water going into the regulator. If cleaning with a water hose is a requirement of local fire department procedures, obey the following instructions to clean and decontaminate the SCBA (not including the facepiece) and decrease the risk of water going into the pneumatic components (such as the regulator). Failure to obey these instructions can result in serious personal injury or death.

### **NOTICE**

- ▶ Do NOT use a pressure washer or fire hose to clean the SCBA.  
If it is a requirement of local fire department procedures to use a fire hose to do decontamination at the fire scene before a firefighter removes the SCBA, make sure to decrease the pressure of the fire hose to prevent damage to the equipment.
- ▶ Use a ½ in. water hose connected to a water supply source.  
Failure to obey these notices can cause damage to the SCBA components.

Water/moisture can cause problems in the SCBA if it freezes. Water/moisture can cause freezing problems even if the surrounding air temperature is above 32°F (0°C). Air flowing from the cylinder through the pressure reducer and regulator decreases from cylinder pressure to close-to-atmospheric pressure very quickly. This causes the air to expand and creates a cooling effect. Although the surrounding temperature may be warmer than 32°F (0°C), the temperature inside the regulator may be lower. Any water, moisture, or dampness inside can freeze and restrict airflow.

Do the following when using a water hose to clean and disinfect the SCBA:

- (1) Do NOT use a water hose to clean or decontaminate the facepiece. Refer to Section 9.1 "Cleaning and Disinfecting the Facepiece" for instructions.  
If it is a requirement of local fire department procedures to use a fire hose to do decontamination at the fire scene before a firefighter removes the SCBA, do the following:
  - Make sure to decrease the pressure of the fire hose to prevent damage to the equipment.
  - Make sure that the regulator stays attached to the facepiece and the firefighter does NOT doff the facepiece.

- (2) Keep the air cylinder connected to the SCBA during the cleaning process.
- (3) Protect the regulator from water contamination.
  - **Quick-disconnect hose:** If the regulator has a quick-disconnect hose, remove the regulator from the SCBA before using a water hose to clean the SCBA.
  - **Continuous hose:** If the regulator has a continuous hose, put a plastic bag over the regulator and seal the bag to protect the regulator from water contamination. Do NOT spray the plastic bag directly with water.

If it is a requirement of local fire department procedures to use a fire hose to do decontamination at the fire scene before a firefighter removes the SCBA, do the following:

    - Make sure to decrease the pressure of the fire hose to prevent damage to the equipment.
    - Make sure that the regulator stays attached to the facepiece and the firefighter does NOT doff the facepiece.
- (4) After cleaning the SCBA with a water hose, use the instructions in Section 9.2 "Cleaning and Disinfecting the Remainder of the SCBA" to clean the surface of the regulator and the remaining components.
- (5) After cleaning, use the inspection procedures in Section 4 "Visual Inspections" to examine the entire SCBA.
- (6) Make sure there is no water, moisture, or dampness on or in any of the components before returning the SCBA to service.

## 10 Cylinders

### 10.1 Safety Precautions for MSA Self-Contained Breathing Apparatus Cylinders

#### **WARNING!**

- ▶ To maintain NIOSH approval, the cylinder must be fully charged with respirable air meeting the requirements of the Compressed Gas Association specification G-7.1 1989 for Quality Verification Level (grade) D air or equivalent specification. In fire service applications, MSA recommends breathing air quality in accordance with NFPA 1989.
- ▶ DO NOT drop the cylinder or bump the valve knob. An unsecured cylinder can become an airborne projectile under its own pressure if the valve is opened even slightly.
- ▶ Never carry or move a cylinder by the handwheel. If a cylinder is removed from a horizontal shelf by grasping the handwheel, the weight of the cylinder can cause the cylinder to rotate downward causing the valve to open slightly.
- ▶ Avoid dropping the cylinder or bumping the handwheel.
- ▶ Use the handwheel only to open and close the cylinder valve.
- ▶ A valve could partially open causing the cylinder to become an airborne projectile under its own pressure and result in serious personal injury or death.
- ▶ Remove from service if cylinder shows evidence of exposure to high heat or flame: e.g., paint turned to a brown or black color, decals charred or missing, gauge lens melted, or elastomeric materials distorted.
- ▶ Use this device only after receiving proper training in its use. Use in accordance with this label and MSA apparatus instructions.
- ▶ Do not use unless the cylinder is filled to the maximum working pressure.
- ▶ Do not alter, modify, or substitute any components without approval of the manufacturer.
- ▶ Inspect frequently. Maintain according to manufacturer's instructions. Repair only by properly trained personnel.  
Misuse can result in serious injury or death.

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Breathing apparatus cylinders should be fully recharged as soon as possible after use.

#### **Cylinders should not be stored partially charged:**

- If used partially charged, the duration of the SCBA is reduced.
- The pressure relief device is only designed to protect a fully charged cylinder from the effects of a fire.

For maximum safety, the cylinders should be stored full or at a pressure above ambient but less than 100 psi.

Prior to recharging, cylinders must be examined externally for evidence of high heat exposure, corrosion, or other evidence of significant damage.

Additional information of value when performing external and internal inspections of cylinders may be found in the latest editions of CGA Publication C-6.2: "Guidelines for Visual Inspection and Requalification of Fiber Reinforced High Pressure Cylinders" available from the Compressed Gas Association, Inc., 1725 Jefferson Davis Highway, Suite 1004, Arlington, VA 22202-4102.

If there is any doubt about the suitability of the cylinder for recharge, it should be returned to a certified hydrostatic test facility for expert examination and testing.

Always check to be sure the retest date is within the prescribed period and that the cylinder is properly labeled to indicate its gaseous service. New labels are restricted items which are not available except through certified hydrostatic test facilities.

When replacing cylinder valves or after the retesting of cylinders, make sure the proper cylinder valve, burst disc, and o-ring are installed prior to cylinder recharging. Determine the maximum service pressure of the cylinder. All cylinders shall be filled to the designated service pressure only (as found on the DOT approval or stamping). For cylinders manufactured under a U.S. DOT exemption (i.e., DOT-E- #####), the exemption should be consulted and is available from the Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, U.S. Department of Transportation, 400 7th Street, SW, Washington, D.C. 20590-0001.

## 10.2 Installing Quick Connect Adapter to Cylinder

**NOTE:** A torque wrench with 24 mm open end is required for installation.



- (1) Use only a fully charged cylinder and inspect the external thread of the cylinder valve to ensure they are not damaged and free of dirt and debris.
  - a) The bore of the cylinder valve must be undamaged and free from dirt and debris.
  - b) If the cylinder valve is damaged, remove from service and return it to a MSA trained or certified repair technician.



- (2) Inspect the internal threads and nipple of the male adapter to ensure it is not damaged and free of dirt and debris.
  - a) Ensure that the o-ring is installed on the nipple and free of dirt and debris.



- (3) Thread the adapter onto the cylinder valve.



- (4) Securely hold the cylinder assembly and tighten the male adapter to the valve to a torque of 13 - 15 ft-lbs (156 - 180 in-lbs, 18-20 Nm) using the torque wrench.

### 10.3 Removing the Cylinder

- (1) Lay the backplate of the SCBA horizontal with cylinder facing up.
- (2) Ensure there is no pressure in the system before replacing a cylinder.
- (3) Close the cylinder valve.
- (4) Turn the regulator bypass counter-clockwise or press purge (if equipped) until air no longer discharges from the regulator.
- (5) Close the bypass valve by turning the knob clockwise.



*Threaded connect:*

- ✓ Unthread handwheel from cylinder valve assembly.

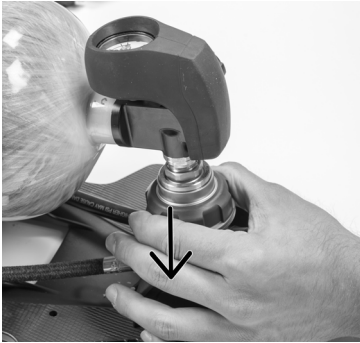






*Quick connect:*

- ✓ Turn the handgrip fully clockwise until it stops - hold in position.



- ✓ While rotated, push away from cylinder valve to release.







(6) Open the cylinder band latch.

**⚠ WARNING!**

The cylinder band latch can snap open quickly when the latch is released. Ensure your hands are not between the latch and the band when this occurs. Failure to follow this warning can result in serious injury.

---

(7) Slide the empty cylinder out of the carrier.

## 10.4 Attaching the Cylinder

### WARNING!

Cylinder and valve assembly are available with either a direct or remote connect cylinder connection design. A given SCBA will have a pressure reducer that is either configured to accept the direct connect cylinder connection or the remote connect cylinder connection. Ensure cylinder and valve assembly used are equivalent to the pressure reducer design of a given SCBA. Using the incorrect cylinder and pressure reducer combination is not a NIOSH approved configuration and may not function as intended.

- (1) Lay the backplate of the SCBA horizontal with pressure reducer facing up.



- (2) Slide the fully charged cylinder into the carrier, through the cylinder band, with cylinder valve gauge facing away from the backplate, and the cylinder outlet aligned with the pressure reducer cylinder connection or remote hand-wheel cylinder connection.

#### *Threaded connect:*

- ✓ Inspect the coupling nut for thread damage.
- ✓ Before attaching the cylinder valve to the pressure reducer, check that the cylinder connection o-ring is present and free of damage. If the o-ring is damaged, it must be replaced before the SCBA is used.



- ✓ Thread the handwheel coupling nut onto the cylinder valve threads. The handwheel should be hand-tight (no tools).



*Quick connect:*

- ✓ Before attaching the cylinder valve to the pressure reducer, ensure there is no dirt or debris on the coupling and adapter. Ensure the adapter on the cylinder valve is tight.



- ✓ Push the cylinder valve with adapter onto the quick connect coupling until an audible snap is heard. The handgrip will rapidly rotate indicating that the valve is connected to the pressure reducer. Pull the cylinder valve and handwheel firmly away from each other to ensure the handwheel is fully attached.





(3) Adjust the cylinder band to accommodate the cylinder.



(4) Close the cylinder latch.

(5) Inspect the cylinder to ensure that it is securely retained by the cylinder band.

**NOTE:** If the cylinder feels loose, check the band length adjustment and latch engagement. Do not use the SCBA if the cylinder is not held securely in the carrier.

**⚠ WARNING!**

Care must be taken to protect the quick connect coupling and adapter from damage, dirt, and debris during cylinder replacement. Dirt and debris can cause the cylinder connection seals to leak. Visually inspect the coupling and adapter prior to connection. If dirt or debris is observed, the material must be removed prior to connecting the cylinder. Failure to do so can result in serious personal injury or death.

### 10.5 Charging Cylinders

(1) Appropriately connect the cylinder to the filling system and refill.

**NOTE:** For quick connect cylinder, the adapter must be removed before filling unless the filling system has been adapted for the quick connect.

(2) Terminate the filling when the pressure reaches the maximum service pressure and allow the cylinder to cool to room temperature.

(3) If necessary, top-off the cylinder such that the service pressure is attained with the cylinder at a temperature of 70°F (21°C).

(4) Close the valves on the cylinder and the filling system and remove the cylinder.

(5) Apply a leak solution to determine if there is any leakage between the cylinder and the valve.

a) If there is no leakage, the cylinder is ready for use.

## 11 Remote Quick-Fill Operation

The Remote Quick-Fill system provides the ability to connect the SCBA to a high pressure air source for emergency filling operations. Only qualified, trained personnel should perform operations using the Quick-Fill fitting. Standard Operating Procedures should be developed for use of the Quick-Fill fitting.

### 11.1 Precautions

- The Quick-Fill fitting can only be used to fill approved SCBA cylinders.
- The user is responsible for the air supply, which must meet the requirements of Compressed Gas Association Specification ANSI/CGA G-7.1, Quality Verification Level (Grade) D Gaseous Air or better, with a moisture dew point of not greater than -65°F/-54°C (24ppm water vapor, normal). In fire service applications, MSA recommends breathing air quality in accordance with NFPA 1989. Pressures at the inlet of the Quick-Fill hose must not exceed that of the SCBA (2216 psi or 4500 psi).
- The user also is responsible for connecting the Quick-Fill hose to an appropriate secondary air supply.
- The cylinder must be inspected for damage before charging.
- If topping off the cylinder using the Quick-Fill fitting, it is recommended to wait until after the cylinder has cooled from initial fill. Topping off a cylinder after it has cooled will ensure proper service time.

#### **WARNING!**

- ▶ DO NOT use the Quick-Fill fitting as a “Buddy Breather” such that two users are sharing the air supplied by one approved SCBA cylinder simultaneously; doing so will void NIOSH approval.
- ▶ The Quick-Fill fitting must be used by trained personnel only.
- ▶ DO NOT lubricate the Quick-Fill fittings. Do not permit oil, grease, or other contaminants to come in contact with the Quick-Fill fittings.
- ▶ The hose assemblies and fittings are designed to be used with Quality Verification Level (Grade) D or better air as defined by ANSI/CGA G-7.1. **TRANSFILLING AIR FROM A SECONDARY AIR SUPPLY.** In fire service applications, MSA recommends breathing air quality in accordance with NFPA 1989.

Misuse can result in serious injury or death.

The Quick-Fill fitting must be used only by qualified, trained personnel who have carefully read and understood these instructions, cautions, and warnings.

### 11.2 Filling Instructions

A secondary air supply stores compressed breathing air until needed to refill SCBA air cylinders. When filling, the secondary air supply pressure must be greater than SCBA cylinder pressure. Examples of air supplies include: cascade air cylinder refilling systems; high pressure compressor systems with a fixed reservoir; or a portable air system such as the RescueAire™ System.

#### **WARNING!**

DO NOT connect a high pressure SCBA to a secondary air supply with a pressure greater than the rated service pressure of the SCBA. Misuse can result in serious injury or death.

**NOTE:** Rapid Intervention Teams should use a separate air supply such as MSA's RescueAire portable air supply system to fill the SCBA in an IDLH atmosphere.

- (1) Connect the Quick-Fill hose to the secondary air supply.
  - a) Turn the air supply on.

**⚠ CAUTION!**

If there are leaks from either female fitting, or along the hose, depressurize the hose and correct the problem. Such leakage can result in increased fill time.

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- (2) Attach the Quick-Fill hose to the Quick-Fill fitting:



- ✓ Remove the rubber dust cap from the male inlet fitting on the Quick-Fill fitting. Be sure that the cylinder valve is fully opened.
- ✓ Remove the rubber dust cap from the female fitting on the Quick-Fill hose.



- ✓ Push the female fitting of the hose onto the male fitting of the Quick-Fill fitting until it clicks in place.
- ✓ Pull on the hose to be sure the connection is secure.
- ✓ Filling immediately begins when the female fitting fully engages with the Quick-Fill fitting.
- ✓ After approximately 60 seconds, the pressure between the secondary air supply and the SCBA cylinder will be equal.

**⚠ WARNING!**

If serious leakage is noticed from either of the two female fittings, or anywhere along the hose, disconnect the female fittings and return to fresh air immediately. Misuse can result in serious injury or death.

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**NOTE:** If the secondary air supply does not have a sufficient volume of air, the SCBA cylinder will not reach full service pressure.





- (3) Compare the cylinder pressure gauge and the remote pressure gauge to the secondary air supply pressure gauge reading.
  - a) If the readings are the same, pressure is equal.
- (4) To disconnect the Quick-Fill hose after filling, pull the gray sleeve back.
  - a) The female fitting on the hose and the Quick-Fill fitting will separate.
  - b) A hiss or pop may be heard as the fittings separate and the high pressure air is sealed off.
  - c) Listen for any leaks from the Quick-Fill fitting.
- (5) Immediately install the dust cover on the Quick-Fill fitting.
- (6) The SCBA cylinder is ready for service if the cylinder pressure gauge needle is on the appropriate color band.

### 11.3 Leakage

When transfilling in fresh air and the dust cover will not stay on the male fitting because air is leaking:

- (1) Correct the condition before using the SCBA.

When transfilling in a contaminated atmosphere and the dust cover will not stay on the male fitting because air is leaking:

- (2) Immediately reconnect the Quick-Fill hose to seal off the leak and return to fresh air.
- (3) If the hose will not reconnect, reach behind and close the cylinder valve.
  - a) Air pressure in the regulator will drop, and the leak will slow down.
- (4) Quickly replace the protective dust cap on the male fitting.
  - a) This will form a redundant seal.
- (5) Open the cylinder valve and return to fresh air immediately.
  - a) The dust cover prevents dirt, water, and debris from entering the fitting, and acts as a redundant seal.



## 12 Airline Connection Operation

The airline connection enables the respirator to be used as a combination self-contained-breathing-apparatus and supplied-air-respirator. The airline connection includes a quick connect that attaches to MSA approved air supply hoses.

When used as a combination respirator, the respirator shall be supplied with respirable air through an air supply hose assembly with a minimum length of 9.5 inches and a maximum length of 300 feet within a pressure range of 70-110 psig. A maximum of 12 sections of straight or six coiled air supply hose may be used in making up the working length of hose. When using coiled hose, a maximum of six sections may be used and each section is considered to be 50 feet long. Hose sections vary from 9.5 inches to 100 feet lengths. The airline connection to the apparatus is to be made through approved quick connects only. The purity of the air supply is the responsibility of the user. The respirator is approved only with supplied air meeting the requirements of the Compressed Gas Association Specification G-7 for quality verification level (grade) D air or equivalent specifications.

The airline connection is NOT to be used in the hose section length and quantity calculations.

See Approval Insert (P/N 10183896) for a listing of approved connections.

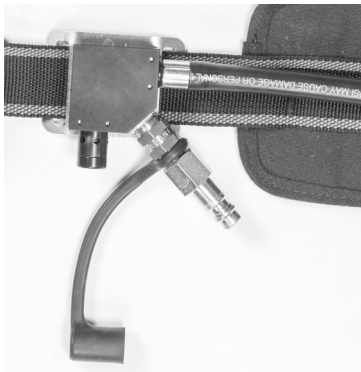
### 12.1 Preparation

The consecutive steps described below must be followed while donning of the apparatus and before entering a toxic atmosphere:

- (1) Ensure that combination type respirator is a NIOSH 42 CFR Part 84 approved configuration.
- (2) Ensure the airline source is Quality Verification Grade D breathable air with inlet pressure between 70 - 110 PSIG.
- (3) Air supply hose must be between 9.5" and 300 feet in length and supplied by MSA.
- (4) A maximum of twelve sections of air hose may be connected together to create the airline.

### 12.2 Use Of Combination Type Respirator, Airline Mode

- (1) Don the apparatus as described in the Donning section.
- (2) Turn on primary air source to pressurize the airline hose.



- (3) Remove dust cap from airline connection.





- (4) Connect the airline hose to the airline connection by pushing the airline quick disconnect firmly into the airline connection plug.

- (5) Breathe normally.

- (6) Pull on the newly formed coupling to ensure the connection is complete.



- (7) Close SCBA cylinder valve

**⚠ WARNING!**

The cylinder valve on the SCBA cylinder must be closed and remain closed during use in the airline mode. Failure to do so can result in depletion of the cylinder air. Misuse can result in serious injury or death.

**⚠ CAUTION!**

NIOSH limitations for this device require that not more than 20 percent of the cylinder air be used during entry before connecting to the airline.

**12.3 Use Of Combination Type Respirator, SCBA Mode**

For cylinder mode operation, see Donning and During Use sections.



## 12.4 Emergency Escape Operation

If the airline supply should fail for any reason as detected by interrupted breathing, perform the following:



- (1) Open the SCBA cylinder valve.



- (2) Disconnect the airline quick connect fitting from the airline connection.

- (3) If air is still not delivered to the facepiece, open the bypass valve.

- (4) Immediately return to fresh air.

### 13 ExtendAire II Operation

The ExtendAire II system allows two users to connect and share intermediate pressure air. The ExtendAire II includes a manifold, hose assembly, and pouch. The manifold includes both male and female quick connects to enable connection to a second ExtendAire II.

#### **WARNING!**

The SCBA is approved by NIOSH without inter-connecting two users to one apparatus. NIOSH does not certify "buddy breathers". Therefore, the attachment of the receiver's ExtendAire II to the donor's ExtendAire II voids NIOSH approval for both respirators.

#### **WARNING!**

Use this emergency escape breathing system for life threatening emergencies and simulated training exercises only. All other adequate means of escape must be considered before using this device.

- ▶ During use, the air supply and consequentially the remaining service time is reduced approximately in half. Before connecting two users make sure the air supply is sufficient for both users to escape; otherwise do not use the system.
- ▶ DO NOT use the system if the donor's low pressure warning device is alarming (ringing). Using the system at this time can result in both users running out of air during escape.
- ▶ Exercise extreme care while connected together. Mobility and range of motion will be limited when donor's and receiver's air masks are connected.
- ▶ Maintain slack in the air lines during maneuvering and while connected together. DO NOT pull on the hoses. Pulling on the rescue hose to the intermediate pressure hose could separate the hoses from fittings and result in air leaks.
- ▶ If the above measures cannot be followed or, to provide greater escape protection, use the Quick-Fill System. Use of Quick-Fill maintains approval while transfilling and does not exhibit the above hazards.
- ▶ The ExtendAire II system is available with either Snap-Tite/Parker or Rectus/CEJN quick-connect fittings. Do not try to connect Snap-Tite/Parker quick-connect fittings to Rectus/CEJN quick-connect fittings. Snap-Tite/Parker and Rectus/CEJN quick-connect fittings will not operate correctly together.

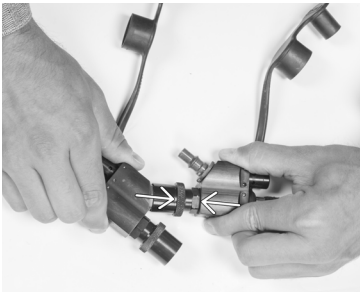
Failure to follow this warning can result in serious personal injury or death.

### 13.1 Quick Connect Fitting Instructions

The G1 ExtendAire II System contains two quick connect fittings, capable of connecting with both male and female fittings on another user's manifold.



- (1) Quick connect fittings require a single action to connect: Push the coupler firmly over the plug to engage.



- (2) Quick connect fittings require two actions to disconnect:
  - a) Push the two sides of the quick connect towards each other. The plug should advance into the coupler end an additional 1/8".



- b) Slide the coupler's outer sleeve away from the plug. Pull the plug out of the coupler. Ensure that the quick connect plug on the manifold black is protected by the supplied dust cap.

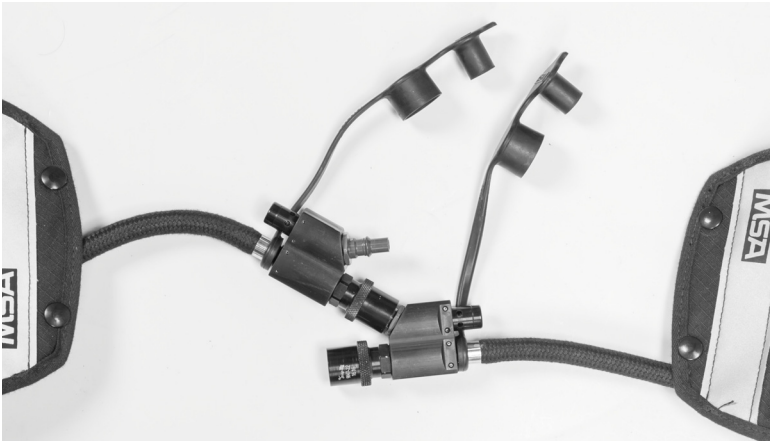
 **WARNING!**

DO NOT install or attempt to use any hose assembly or fitting other than those supplied by MSA for the G1 ExtendAire II System. Misuse can result in serious injury or death.

### 13.2 Providing or Obtaining Emergency Breathing Support

#### **WARNING!**

Follow these procedures to connect and disconnect the emergency breathing system hardware. Individual development of operating procedures and sufficient training is required to use this equipment in actual emergency conditions. Misuse can result in serious injury or death.



- (1) Open up the snaps and hook and loop fastener on the flap of the waist-mounted storage pouch.
- (2) Locate the manifold end of the emergency breathing hose and remove it from the pouch.
- (3) Remove the dust cover from the quick connect fittings on the donor's manifold.
- (4) Open up the snaps and hook and loop on the flap of the receiver's waist-mounted storage pouch.
- (5) Locate the manifold end of the emergency breathing hose and remove it from the receiver's pouch.
- (6) Connect the donor's and receiver's manifold blocks using a male and female quick connect fitting with a single action.

**NOTE:** Each manifold has both male and female quick connect fittings to either supply or receive air.

- (7) Check that the hose is properly routed and not tangled with any other part of the apparatus (for example neck strap, chest strap, etc.).
- (8) Check for full engagement by pulling on the quick connect to ensure that the female coupler does not separate from the male plug.
- (9) Upon reaching a safe, non-toxic atmosphere, a staging area or after performing other egress procedures, uncouple the receiver's hose at the quick connect.
- (10) Replace the dust cap on the manifold fittings.

#### **WARNING!**

The receiver's facepiece or regulator must be removed upon disconnection from the donor's air supply. Misuse can result in serious injury or death from suffocation.

## 14 ExtendAire II Airline Connection Operation

The ExtendAire II airline connection enables an SCBA equipped with ExtendAire II to be used as a combination self-contained-breathing-apparatus and supplied-air-respirator. The ExtendAire II airline connection attaches to the ExtendAire II manifold.

### Air Supply

When used as a combination respirator, the respirator shall be supplied with respirable air through an air supply hose assembly with a minimum length of 9.5 inches and a maximum length of 300 feet within a pressure range of 70-110 psig. A maximum of 12 sections of straight or six coiled air supply hose may be used in making up the working length of hose. When using coiled hose, a maximum of six sections may be used and each section is considered to be 50 feet long. Hose sections vary from 9.5 inches to 100 feet lengths. The airline connection to the apparatus is to be made through approved quick connects only. The purity of the air supply is the responsibility of the user. The respirator is approved only with supplied air meeting the requirements of the Compressed Gas Association Specification G-7 for quality verification level (grade) D air or equivalent specifications.

The ExtendAire II and ExtendAire II airline connection are NOT to be used in the hose section length and quantity calculations.

See Approval Insert (P/N 10183896) for a listing of approved connections.

### 14.1 Installation of the G1 ExtendAire II Airline Connection



- (1) Ensure system is not pressurized.
- (2) Remove dust cap from G1 ExtendAire II manifold, attach G1 ExtendAire II airline connection.

- (3) Coil G1 ExtendAire II hose counter-clockwise, inserting ExtendAire connection and G1 ExtendAire II assembly into pouch.



- (4) If the Combination SCBA/SAR Apparatus is to be used in tandem with other users, feed ExtendAire II airline connection through grommet in G1 Pouch (It may be necessary to feed dust cap through separately).

*This allows the connection to remain protected, but may be difficult for a solo user to connect/disconnect.*



- (5) If the Combination SCBA/SAR apparatus is to be used without other users, feed the ExtendAire II airline connection through the lower section of the pouch flap.

*This will allow ease of access for connection and disconnection, but will not leave the connection as protected as feeding the ExtendAire airline connection through the grommet.*



- (6) Fasten snaps on pouch to seal, ensure dust cover is attached.

The consecutive steps described below must be followed while donning of the apparatus and before entering a toxic atmosphere:

- (1) Ensure that combination type respirator is a NIOSH 42 CFR Part 84 approved configuration.
- (2) Ensure the airline source is Quality Verification Grade D breathable air with inlet pressure between 70 – 110 PSIG.
- (3) Air supply hose must be between 9.5” and 300 feet in length and supplied by MSA.
- (4) A maximum of twelve straight sections or six coiled sections of air hose may be connected together to create the airline.

### 14.2 Use Of Combination Type Respirator, Airline Mode

- (1) Ensure the ExtendAire II airline connection is connected to G1 ExtendAire II manifold.
- (2) Don the apparatus as described in the Donning section.
- (3) Turn on primary air source to pressurize the airline hose.
- (4) Remove dust cap from ExtendAire II airline connection.



- (5) Connect the airline hose to the ExtendAire II airline connection by pushing the airline quick connect firmly into the ExtendAire II airline connection plug.

- (6) Breathe normally.
- (7) Pull on the newly formed coupling to ensure the connection is complete.
- (8) Close SCBA cylinder valve.

**⚠ WARNING!**

The cylinder valve on the SCBA cylinder must be closed and remain closed during use in the airline mode. Failure to do so can result in depletion of the cylinder air. Misuse can result in serious injury or death.

**⚠ CAUTION!**

NIOSH limitations for this device require that not more than 20 percent of the cylinder air be used during entry before connecting to the airline.

**14.3 Use Of Combination Type Respirator, SCBA Mode**

For cylinder mode operation, see Donning and During Use sections.

**14.4 Emergency Escape Operation**

If the airline supply should fail for any reason as detected by interrupted breathing, perform the following:

- (1) Open the SCBA cylinder valve.



- (2) Disconnect the airline quick connect fitting from the G1 ExtendAire II airline connector.
- (3) If air is still not delivered to the facepiece, open the bypass valve.
- (4) Immediately return to fresh air.





## 15 Spectacle Kit

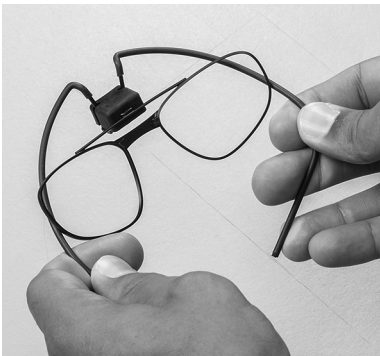
### WARNING!

Before using a spectacle kit, an optometrist must inspect the spectacle kit and prescribe the correct lenses to fit into the lens frame on the spectacle kit. Failure to follow this warning could result in serious personal injury or death.

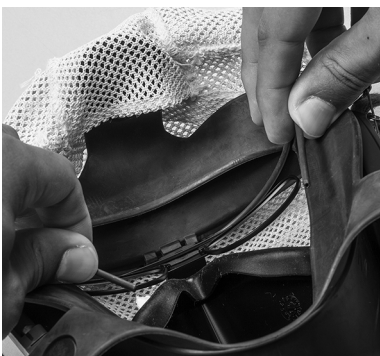


- (1) Flip the head harness over the front of the facepiece so the harness is covering the lens of the facepiece.

*This will open up the faceblank to make it easier to install the spectacle kit.*



- (2) Squeeze in on the wire frame of the spectacle kit at the large bends about 2" from the ends.



- (3) Push the top part of the frame into the lens. The faceblank has three rubber tabs to grab the frame.
  - a) Place the frame in the middle of the lens with the smaller tabs grabbing the wire frame.



- (4) Take one end of the wire frame and push it up into the facepiece so it follows the edge where the lens and the faceblank meet.

- a) The end of the wire frame must be positioned into small pockets in the faceblank on the edge of the lens.



- (5) Repeat step (4) on the opposite side.



- (6) The lens frame can be adjusted up/down and in/out depending on the facial features. Don the facepiece and adjust to optimize visibility.

## 16 Flow Test and Overhaul Requirements

The regulator and primary low pressure warning device must be flow tested at specific time intervals. These maintenance procedures must be performed by a certified repairperson or at an MSA service center. Contact your MSA sales representative or call the MSA Customer Service Center at 1-877-MSA-3473 for more information about these requirements.

Annual flow tests are stated as a requirement in NFPA 1852, Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus (SCBA), 2013 Edition, which further emphasizes their importance. Although this standard relates to SCBA used in the fire service, MSA requires that a flow test be performed at least annually on all fire service and non-fire service SCBA and combination respirators that use a regulator.

MSA recommends the routine inspection of all elastomeric materials including, but not limited to those in the Visual Inspection and Functional Check section of this manual.

A decision to retire apparatus should be based on an SCBA's performance data and whether that data meets the specified level of performance as defined in maintenance requirements from MSA.

MSA recommends overhauling the SCBA every 600 hours of on air usage.

## 17 Maintenance

This product should be regularly checked and serviced by trained specialists. Inspection and service records must be maintained. Always use original parts from MSA.

Repairs and maintenance must be carried out only by authorized service centers or by MSA. Changes to devices or components are not permitted and will result in an unapproved configuration.

MSA is liable only for maintenance and repairs carried out by MSA.

## 18 Safekeeping and Storage

### 18.1 SCBA

#### **WARNING!**

- ▶ DO NOT drop the cylinder or bump the valve knob. An unsecured cylinder can become an airborne projectile under its own pressure if the valve is opened even slightly. Misuse can result in serious injury or death.
- 
- Do not store the SCBA or spare cylinders within or near an area where the SCBA can or might be exposed to any substances that will or might attack any part of the SCBA, causing the SCBA to not perform as designed and approved.
  - Prior to storing the SCBA in a jump seat, ensure there is no interference between the SCBA and the seat. Ensure the SCBA and cylinder can be removed easily without damaging the components.
  - Do not store the SCBA with an empty or partially filled cylinder. Always install a fully-charged cylinder so that the SCBA is ready for use.
  - Complete Inspection and Cleaning and Disinfecting Procedures outlined in this manual. Ensure the entire SCBA is clean and dry.
  - Ensure the facepiece head harness adjustment straps are fully extended. Place the complete SCBA in the storage case or suitable storage location so it can be easily reached for emergency use.

### 18.2 Facepiece

For the safekeeping of the facepiece, a facepiece pouch or container should be used.

#### **WARNING!**

In order to avoid damage to or the deformation of the facepieces keep no additional loose objects in the facepiece container. Failure to follow this warning can result in serious injury or death.

MSA rubber products are protected by an anti-aging agent that can become visible as a light coating. This coating is harmless and can be removed during cleaning.

To ensure a long life of rubber components, follow ISO 2230 by storing them in a cool, dry place protected from ultraviolet radiation.

