MMR Air Mask with Firehawk™ Regulator

Low/High Pressure

OPERATION AND INSTRUCTIONS

⚠ WARNING

THIS MANUAL MUST BE CAREFULLY READ AND FOLLOWED BY ALL PERSONS WHO HAVE OR WILL HAVE THE RESPONSIBILITY FOR USING OR SERVICING THIS SCBA. This Air Mask will perform as designed only if used and serviced according to the instructions; OTHERWISE IT COULD FAIL TO PERFORM AS DESIGNED, AND PERSONS WHO RELY ON THE AIR MASK COULD SUSTAIN SERIOUS PERSONAL INJURY OR DEATH.

This Self-Contained Breathing Apparatus (SCBA) is certified by the National Institute of Occupational Safety and Health (NIOSH).

The warranties made by MSA with respect to the product are voided if the product is not installed, used and serviced 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 repairs, write or call 1-800-MSA-2222 during regular working hours.

MSA Safety Products Division • ISO 9001 CERTIFIED Quality System • MSA Instrument Division

For More Information: Call (1-800-MSA-2222) or Visit Our Website at (www.MSAnet.com)

MSA Be Sure. Choose MSA.

MINE SAFETY APPLIANCES COMPANY
PITTSBURGH, PENNSYLVANIA, U.S.A. 15230

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INTRODUCTION

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NIOSH APPROVAL INFORMATION CAUTIONS AND LIMITATIONS

I- Contains electrical parts which have not been evaluated as an ignition source in flammable or explosive atmospheres by MSHA/NIOSH.
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 Users Instructions and/or specific use limitations apply. Refer to user instructions before donning.

S - SPECIAL OR CRITICAL USERS INSTRUCTIONS

Approved for use at temperatures above -25˚F. Approved only when the compressed-air container 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 DOT specifications.

When equipped with the cylinder charging system transfilling coupling on the 7-1215-1 pressure gauge and hose assembly, the apparatus must also be equipped with the 803534 first stage regulator and Audi-Larm assembly.

Approval is maintained while transfilling air only if MSA Quick-Fill® Hose Assembly 485331 or 485332 is used. Include 488703 cylinder charging system Hose if using with encapsulated suit. A Quick-Fill equipped apparatus is not approved for use with the 7-1008-1 cylinder and valve assembly.

Do not alter this unit. Altering will void the Intrinsic-Safety rating and may affect the Intrinsic-Safety of the device.

Do not attempt to transfill air (using Quick Fill URC Assembly or Quick-Fill System connectors) if donor's audible alarm is ringing.

Use with adequate skin protection when worn in gases and vapors that poison by skin absorption (for example: hydrocyanic-acid gas).

In making renewals or repairs, parts identical with those furnished by the manufacturer under the pertinent approval shall be maintained.

NIOSH Approval Information is included as a supplement to these instructions (P/N 10024128).

IMPORTANT NOTICE FOR RESPIRATORY PROTECTION PROGRAM ADMINISTRATORS

1. 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, Subpart I, Par. 1910. 134 (c).]
2. This SCBA may be used only after proper instruction and training in its use as specified in NFPA-1500 and OSHA regulations Title 29 CFR, Part 1910. 134, Subpart 1, Par. 1910. 134 (b) (3).
3. This SCBA must be secured by a positive mechanical means if stowed within an enclosed seating area of fire department vehicles, or in a compartment with a positive latching door. The method of holding the SCBA in place must be designed to minimize injury to persons in the vehicle in the event of accident, rapid deceleration, or acceleration.
4. 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.
5. Be sure that no other equipment interferes with the SCBA facial seal, or with the users hands, or other necessary means of mobility.

For more information on self-contained breathing apparatus use and performance standards, please consult the following publications:

NFPA Standard 1500, Fire Department Occupational Safety and Health Programs (Chapter 5) and NFPA 1981 Standard, on Open-Circuit SCBA's for Fire Service. Above publications are available from the following: National Fire Protection Association, Batterymarch Park, Quincy, MA 22269.

ANSI Standard Z88. 5, Practices for Respiratory Protection for the Fire Service; and, ANSI Standard Z88. 2, Practices for Respiratory Protection.

American National Standards Institute, 1430 Broadway, New York, NY 10018.

OSHA Safety and Health Standards (29 CFR 1910) (see specifically Part 1910. 134), available from the Superintendent of Documents, U. S. Government Printing Office, Washington, DC 20402.

Compressed Gas Association, Inc., 1725 Jefferson Davis Hwy., Suite 1004, Arlington, VA 22202.

⚠ WARNING

1. **Read and follow all NIOSH and other approval limitations.**
2. **Do not use the air mask as an underwater device.**
3. **This system must be supplied with respirable [Quality Verification Level (Grade) D, see ANSI/CGA G-7.1-1989] or higher quality air; and a dew point not to exceed -65°F (24ppm v/v) [Compressed Gas Association Specification G-7.1 for Quality Verification Level (Grade) D Gaseous Air].**
4. **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. Never remove the facepiece except in a safe, non-hazardous non-toxic atmosphere.**
5. **Return to a safe atmosphere immediately if discoloration, crazing, blistering, cracking or other deterioration of the lens material is observed.**
6. **Users must wear suitable protective clothing and precautions must be taken so that the air mask is not exposed to atmospheres that may be harmful.**
7. **Take into account the following factors which may affect the duration or the service life.**
   a. **the degree of physical activity of the user;**
   b. **the physical condition of the user;**
   c. **the degree that the user's breathing rate is increased by excitement, fear, or other emotional factors;**
   d. **the degree of training or experience which the user has had with this or similar equipment;**
   e. **whether or not the cylinder is fully charged;**
   f. **the presence in the compressed air of carbon dioxide concentrations greater than the .04% level normally found in atmospheric air;**
   g. **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;**
   h. **the condition of the apparatus.**

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

BEFORE USE

Thoroughly check out this air mask on receipt and before use.

This air mask is to be used only by trained and qualified personnel.

Read and understand these instructions before attempting to use this equipment. If you have any questions, call toll-free 1-800-MSA-2222.

NOTES

DESCRIPTION

DESCRIPTION

The air masks from MSA are pressure-demand, self-contained breathing apparatus (SCBA) or Quick-Fill® URC Assembly (Universal Rescue Connection) and Pressure Gauge certified by the National Institute for Occupational Safety and Health (NIOSH) for use in atmospheres immediately dangerous to life or health:
``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" [Title 42 CFR, Part 84.2, (Q)]
Additionally, the air masks are designed to comply with the NFPA-1981 Standard.

MMR breathing apparatus consists of the following major sub-assemblies.

- first stage regulator
- second stage regulator
- air cylinder and valve
- Audi-Larm audible alarm or Quick-Fill URC Assembly
- carrier and harness
- facepiece
- ICM Unit Gauge

FIRST STAGE REGULATOR

The first stage regulator is a "balanced-type" pressure reducer that keeps the pressure to the mask-mounted regulator at approximately 80 psig throughout the entire operating pressure range of the cylinder The regulator has a redundancy feature to minimize the possibility of a first stage failure. The regulator uses a large sintered filter which is easy to replace. The filter captures particulates that may be in the air stream.

SECOND STAGE REGULATOR

This is a pressure-demand regulator, which keeps a positive pressure in the facepiece all the time. A slide button (top release button) on top of the regulator stops air flow. To stop airflow, push the button in. To restart the regulator, inhale sharply. The regulator attaches to the facepiece with a push to connect connector. The regulator delivers large flow rates accurately and quickly.

AIR CYLINDER AND VALVE

Capacity Cubic Ft.	Pressure psig	Rated Svc* Life (Min.)
45	4500	30
88	4500	60
45	2216	30
45	2216	30
60	3000	30
66	4500	45

*as approved by NIOSH

The air cylinder and valve consists of a tank and a cylinder valve assembly. The cylinder valve includes a valve body, cylinder valve inlet tube, handwheel, safety disc (burst disc), and pressure gauge. The pressure gauge shows the air pressure in the cylinder continuously. The gauge is calibrated in 100 psig increments. For example, a gauge reading of 20 is read as 20 x 100 or 2,000 psig. A handwheel is used to open and close the cylinder valve.

AUDI-LARM™ AUDIBLE ALARM OR QUICK FILL URC ASSEMBLY

The Audi-Larm audible alarm rings when there is approximately 25% of the SCBA's rated service time remaining. The alarm also rings when the cylinder valve is first opened, providing an audible indication that the alarm is properly "cocked.' A high pressure hose delivers air at cylinder pressure from the alarm to the first stage regulator.

Cylinder	Approx. Remaining Service Time
30-min. 2216 psig	7 min.
30-min. 4500 psig	7 min.
45-min. 4500 psig	11 min.
60-min. 4500 psig	14 min.
30-min. 3000 psig	7 min.

QUICK FILL URC ASSEMBLY

All NFPA approved SCBA are equipped with an audilarm body that includes a Quick Fill URC Assembly (Universal Rescue Connection) Fitting. The Quick-Fill URC Assembly is a male quick-fill inlet for use by Rapid Intervention Crews for emergency filling of SCBA. Also included with the Quick-Fill URC Assembly is a pressure relief valve for protection of the cylinder burst disc. The Quick-Fill URC Assembly may also be used for transfill operations.

DESCRIPTION

CARRIER AND HARNESS

The carrier consists of a backplate, a cylinder band with latch to hold the cylinder, and a harness, consisting of shoulder pads, chest strap (optional), adjustable pull-straps, waist-strap, and belt mounted regulator retainer.

FACEPIECES

The facepiece is available in three sizes.

The facepiece lens is super-hardcoated to meet the requirements of NFPA 1981. This process gives the clear polycarbonate lens superior abrasion and chemical protection.

The facepiece has a low-resistance, pressure-demand exhalation valve designed for easy cleaning. An inhalation check valve in the inlet housing keeps moisture and contaminants out of the mask-mounted regulator. The facepiece has a speaking diaphragm for clear, short-range communication. The facepiece is stocked with nose cup and SpeeD-ON® head harness. This harness is made of flame and heat resistant (FHR) materials, and features a five-point suspension. A five-point adjustment rubber head harness is also available.

PRESSURE GAUGE/ICM® 2000 UNIT/ICM® 2000 PLUS UNIT GAUGE

The Pressure Gauge/ICM 2000 Unit/ICM 2000 Plus Unit are multi-mode, battery-powered, low-pressure warning devices which gives audible and visible warning that air cylinder pressure has reached a pre-set level (approximately 25% of service time is remaining).

ICM 2000 PLUS UNIT/ICM 2000 UNIT

The ICM 2000 Plus Unit and ICM 2000 Unit Gauge attaches to the SCBA gauge hose. See installation instructions for proper installation procedures.

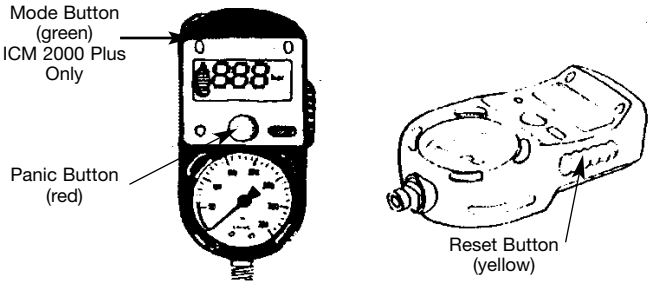
The ICM 2000 Plus Unit and ICM 2000 Unit Gauge are also a multi-mode, battery-powered, low-pressure warning device which give audible and visible warning that air cylinder pressure has reached approximately 25% of service life. There are two warning indicators:

- The pressure gauge face and the digital display blink
- An audible alarm repeats single tone bursts

Note: The visual warning indicators in conjunction with the Air Mask audible alarm with Quick Fill URC Assembly (ringing bell) provide compliance with the NFPA 1981 Standard. The audible alarm with Quick Fill URC Assembly feature (repeated tones alarm) incorporated with the Pressure Gauge/ICM 2000 Plus Unit and ICM 2000 Unit provide additional user low pressure warning.

Follow the procedures for the ICM 2000 Unit/ICM 2000 Plus Unit Gauge.

The ICM 2000 Plus Unit and ICM 2000 Unit Gauge turns on automatically when the user opens the SCBA cylinder valve. The GREEN light on the unit flashes to signal that it is activated and operating.



The ICM 2000 Plus Unit Gauge has 3 control buttons. The ICM 2000 Unit Gauge has 2 control buttons.

The RESET/OFF yellow button resets the device from the full alarm mode. It also shuts the unit off after the cylinder valve is closed and all air pressure is bled from the unit. The center red (alarm) button activates the full alarm mode **with or without** air pressure.

The ICM 2000 Plus Unit Gauge mode button (green) will change the digital display window. See the during use section for details.

DONNING

DONNING THE AIR MASK

- Remove the facepiece from the case.

⚠ WARNING

Do not use a cover lens in a high-temperature environment, such as firefighting. High temperatures may distort the cover lens. Or, moisture trapped between a cover lens and the facepiece lens may condense and distort vision. Always remove the cover lens before donning the facepiece. Failure to follow this warning can result in serious personal injury or death.

- Check that the cylinder is fully pressurized.
- Testing the ICM Unit Gauge.

⚠ WARNING

Test the ICM Unit Gauge for damaged parts before each use of the SCBA. Do NOT use this device unless it passes all operational tests indicated below. Failure to follow this warning can result in serious personal injury or death.

- Open SCBA cylinder valve fully to pressurize the system, then close the cylinder valve.
- Looking through the facepiece lens at the LED panel, all LED's must illuminate.

ICM UNIT GAUGE

The PASS function uses RED and GREEN light-emitting diodes (LEDs) to display its status visually:

GREEN	LEDs start to flash when the cylinder valve is opened and shows that the device is operational.
RED	LEDs flash slowly when the device is in pre-alarm; LEDs flash rapidly when the device is in full alarm.

⚠ CAUTION

Do NOT use a partially full cylinder. If the cylinder is not full, the service time is reduced accordingly.

- Reach inside the right shoulder straps and grasp the redundant alarm and pressure gauge, slide left arm through left shoulder straps.
- Bend forward slightly, rest it on your back.
- Attach the chest strap (optional).
- Fasten the waist-strap and pull it tight for a snug fit.
- As you straighten up, pull the shoulder strap tabs out. Hike the unit up for a comfortable fit.
- The shoulder straps and waist-strap ends must be tucked in and lay flat across the body.

USING THE ICM UNIT GAUGE, AUDI-LARM ALARM, OR QUICK-FILL URC ASSEMBLY

1. Grasp the mask-mounted regulator and push the slide button.

2. Check that the red bypass knob is fully closed (clockwise).

3. Reach behind and open the cylinder valve fully. Listen for the audible alarm with Quick-Fill URC Assembly to ring briefly as pressure in the system increases.

⚠ CAUTION

Listen for any hiss or pop sounds from the Audi-Larm Alarm with Quick-Fill URC Assembly, do not use the SCBA. Return it to an MSA trained or certified repairperson.

4. As the pressure rises from 50 to 200 psig, both visible and audible alarms activate automatically, indicating that the alarms are functional and "cocked." When the system is fully pressurized, the alarms enter the Monitor (normal) mode.

⚠ WARNING

If the alarm with Quick-Fill URC Assembly fails to ring, ICM Unit Gauge, fails to light and tone, do not use the apparatus. The SCBA must be checked and corrected for proper operation by an MSA trained or certified repairperson before using. Failure to follow this warning can result in serious personal injury or death.

5. No air should flow from the regulator. If it does, repeat steps 1 and 2.

6. Check the Pressure Gauge, ICM Unit and Cylinder Gauges. It should be within 110 psig for 2216 psig; 150 psig for 3000 psig; 225 psig for 4500 psig.

⚠ CAUTION

If your readings do not agree with these cylinder values, do not use the SCBA. Return it to an MSA trained or certified repairperson.

7. Check for bypass operation. Grasp the red knob and turn it counter-clockwise. Listen for airflow, then turn it OFF. Close cylinder valve fully.

8. Check for air leaks. Open cylinder valve fully to pressurize system, then close the cylinder valve and watch the pressure gauge, or ICM Unit Gauge.

⚠ CAUTION

If the needle drops more than 100 psi in 10 seconds, do not use the SCBA. The SCBA must be repaired, otherwise, reduced service life may result.

9. Crack the bypass valve slowly to bleed off pressure until the ICM Unit Gauge drops below:
   530 psig - approximately (low-pressure system) or,
   1175 psig – approximately (high-pressure system)
   The ICM Unit Gauge and Audi-Larm Alarm or Quick Fill URC Assembly will sound.
10. When the pressure falls below 200 psig, turn the ICM Unit Gauge off.

⚠ WARNING

If the Audi-Larm Alarm or Quick-Fill URC Assembly fails to ring, ICM Unit Gauge fails to light or tone, or fails to continuously ring to 200 psig, do not use the apparatus. The SCBA must be checked and corrected for proper operation by an MSA trained or certified repairperson before using. Failure to follow this warning can result in serious personal injury or death.

Note: Before donning, check that the regulator sealing ring is seated properly in its groove, and that it is not torn, gouged, or nicked.

DONNING THE FACEPIECE
THE SPEED-ON HEAD HARNESS

⚠ WARNING

Do not wear eye glasses under the facepiece. The temples or sidebars on eye glasses will prevent an airtight seal. if you must wear glasses, install the spectacle kit. Failure to follow this warning can cause inhalation of contaminated air, resulting in serious respiratory injury or death.

1. Extend the facepiece straps fully place neck-strap around your neck and don the facepiece by inserting your chin first.
2. Pull the head harness completely over your head and tighten the lower (neck) straps.
3. Tighten the lower (neck) harness straps first, by pulling them straight back, **not out**. Tighten the temple straps the same way. Tuck in the ends of the straps so that they lay flat across the head.
4. Push headband pad towards neck, tighten the front strap for best visibility and fit. Tuck in the ends of the straps so they flat across the head.

FACEPIECE FIT CHECK

Note: Check the inhalation valve, inhale. If you do not receive sufficient flow of air, do not use facepiece. The facepiece must be repaired or replaced.

1. To check for facepiece fit, hold the palm of your hand over the inlet facepiece adapter and inhale. Hold your breath at least 10 seconds. The facepiece should collapse and stay collapsed against your face. If it does not, readjust the facepiece and test again. **If this does not correct the leak, do not use the facepiece.**
2. Test the exhalation valve, take a deep breath and hold it. Block the inlet facepiece adapter with the palm of your hand and exhale. If the exhalation valve is stuck, you may feel a heavy rush of air around the facepiece.

You may need to exhale sharply to open the valve. If this does not release the valve, **do not** use the facepiece.

DONNING

⚠ WARNING

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. Never remove the facepiece except in a safe, non-hazardous non-toxic atmosphere. Failure to follow this warning can result in serious personal injury or death.

3. Open the cylinder valve fully. Push in on the slide button to stop air flow.

4. Listen for any sound of hissing or popping from the Audi-Larm Alarm with Quick-Fill URC Assembly. If heard, return the SCBA to an MSA Trained or Certified repairperson.

INSTALLING SLIDE MASK MOUNTED REGULATOR

1. Grasp regulator and orient regulator so that red bypass knob is pointing to the right and slide button is on top.

2. Slide regulator onto rail (fast track) of facepiece cover. Slide regulator down the rail cover until regulator stops.

3. Insert regulator into facepiece adapter by pushing inward.

4. Check proper engagement by pulling on the regulator to ensure regulator is securely attached to facepiece adapter.

⚠ WARNING

Do not use the SCBA unless the regulator is connected properly. A regulator that is not installed correctly can separate from the facepiece unexpectedly. Return the SCBA to an MSA trained or certified repairperson to correct the condition. Failure to follow this warning can result in serious personal injury or death.

5. Inhale sharply to start the airflow.
   a. Check the bypass again by turning the red knob counter-clockwise until you feel increased airflow. Close the bypass.

⚠ WARNING

There must be a continuous flow of air when the bypass knob is opened. If not, do not use the apparatus. The SCBA must be checked and the condition corrected by an MSA trained or certified repairperson before it can be used. Failure to follow this warning can result in serious personal injury or death.

Note: If the Air Mask passes all tests, the unit is ready to use. Remember, you must perform these tests every time before you enter the hazardous atmosphere. If the unit fails to meet any of the tests, the condition(s) must be corrected before using the apparatus.

INSTALLING FIREHAWK PUSH-TO-CONNECT MASK MOUNTED REGULATOR

1. Grasp regulator and insert regulator into facepiece adapter by pushing inward. Check proper engagement by pulling on the regulator to ensure regulator is securely attached to facepiece adapter.

⚠ WARNING

Do not use the SCBA unless the regulator is connected properly. A regulator that is not installed correctly

can separate from the facepiece unexpectedly. Return the SCBA to an MSA trained or certified repairperson to correct the condition. Failure to follow this warning can result in serious personal injury or death.

2. Inhale sharply to start the airflow.
3. Check the bypass again by turning the red knob counter-clockwise until you feel increased air flow. Close the bypass.

⚠ WARNING

There must be a continuous flow of air when the bypass knob is opened. if not, do not use the apparatus. The SCBA must be checked and the condition corrected by an MSA trained or certified repairperson before it can be used. Failure to follow this warning can result in serious personal injury or death.

Note: If the apparatus passes all tests, the unit is ready to use. Remember, you must perform these tests every time before you enter the hazardous atmosphere. If the unit fails to meet any of the tests, the condition(s) must be corrected before using the apparatus.

USING THE AIR MASK

Periodically check the pressure indicated on the ICM Unit pressure gauge. It continually displays the cylinder pressure. When the needle reaches the red zone, the Audi-Larm Alarm or Quick Fill URC Assembly will begin ringing and or ICM Unit Gauge will begin to light or tone. When the bell starts ringing or when the pressure reaches approximately 25% of the rated service pressure, return to fresh air.

ICM Unit Gauge, and Audi-Larm Alarm or Quick-Fill URC Assembly activate when cylinder pressure drops below approximate values:

530 psig approximately for low pressure
1175 psig approximately for high pressure

when the ICM Unit Gauge or Audi-Larm Alarm activates, immediately return to fresh air.

Note: Apparatus service life is reduced greatly when the bypass is used.

- Reduced air flow — **Immediately** open the bypass. immediately return to fresh air.
- Air mask free-flows: — **Immediately** return to fresh air.
- Audi-Larm Alarm with Quick-Fill URC Assembly Rings: — **Immediately** return to fresh air.
- ICM Unit Gauge Lights and Flashes — **Immediately** return to fresh air.

REMOVING THE AIR MASK

REMOVING THE AIR MASK
DISCONNECTING THE SLIDE REGULATOR

1. Grasp top of regulator.

2. Push the release buttons and pull regulator down and out of facepiece adapter.

Note: Regulator can hang on cover rail in a stand-by mode.

3. Slide regulator up cover rail until regulator slide button is free of cover rail.

4. Close the cylinder valve fully. Open the bypass to release system pressure. Close the bypass.

5. When the pressure falls below 200 psig, turn the ICM Unit Gauge off.

6. Stow the regulator with slide button at bottom in the STAND-BY belt mount when it is not in use.

7. To remove the facepiece, fully loosen the harness straps and pull the facepiece up and away from your face.

8. To remove the carrier harness, press the belt buckle release button IN.
9. Disconnect the chest strap (if used).
10. To loosen the shoulder straps, grasp the release loops. Push them out and away from your body.
11. Slip your right arm out of the shoulder pad first, then remove the harness.

Note: Be sure to replace the cylinder with a full one. Complete Inspection and Cleaning and Disinfecting procedures outlined in this manual. Ensure complete apparatus is clean and dry. Ensure that facepiece head harness straps and harness adjustment straps are fully extended. Place the complete apparatus in the storage case or suitable storage location so it can be reached easily for emergency use. (See storage instructions.)

DISCONNECTING THE FIREHAWK PUSH-TO-CONNECT REGULATOR

1. Grasp top of regulator.
2. Push the release buttons and pull regulator out of facepiece adapter.
3. Close the cylinder valve fully. Open the bypass to release system pressure. Close the bypass.
4. When the pressure falls below 200 psig, turn the ICM Gauge off by pressing the alarm switch 2 times in rapid succession.

   An extended single tone will sound indicating the unit has been turned off.

REMOVING THE AIR MASK

5. Stow the regulator in the STAND-BY belt mount when it is not in use.
6. To remove the facepiece, fully loosen the harness straps and pull the facepiece up and away from your face.
7. To remove the carrier harness, press the belt buckle release button IN.
8. Disconnect the chest strap (if used).
9. To loosen the shoulder straps, grasp the release loops. Push them out and away from your body.
10. Slip your right arm out of the shoulder pad first, then remove the harness.

Note: Be sure to replace the cylinder with a full one. Complete Inspection and Cleaning and Disinfecting procedures outlined in this manual. Ensure complete apparatus is clean and dry. Ensure that facepiece head harness straps and harness adjustment straps are fully extended. Place the complete apparatus in the storage case or suitable storage location so it can be reached easily for emergency use. (See storage instructions.)

CHANGING THE CYLINDER

⚠ WARNING

Be careful not to drop cylinder or bump valve knob. An unsecured cylinder can become an airborne projectile under its own pressure if the valve is opened even slightly. Failure to follow this warning can result in serious personal injury or death.

1. Be sure there is no pressure in the system before replacing a cylinder. Disconnect the Audi-Larm Alarm or Quick-Fill URC Assembly coupling nut.

2. Lift and turn the latch wing to loosen the cylinder clamp.
3. Slide out the empty cylinder and install one that is fully charged. Be sure that the adjustable cylinder band and latch is in the proper slot before you insert a new cylinder. Make sure that the lock tab on the carrier is fully engaged in the appropriate cylinder band slot position.
4. Slide the fully charged cylinder into the carrier, with gauge facing out, turn the latch wing clockwise to tighten fully. Fold over the latch wing toward backplate, locking latch wing in place.

Note: Be sure to tighten the latch wing fully each time a cylinder is installed.

5. To check that the cylinder is secure, place one hand on the backplate and grasp the cylinder valve with the other. Try to pull the cylinder and valve down and out away from the carrier. Make sure that the band and latch holds the cylinder securely in the carrier.

Note: If the cylinder feels loose, re-check that the band and latch is in the proper slot; that the lock tab is fully engaged in the slot; and that the latch wing is fully tightened and flipped over with the label side OUT. **Do not use** the Air Mask if the cylinder is not held securely in the carrier.

6. Check that the O-ring is inside the Audi-Larm Alarm with Quick-Fill URC Assembly coupling nut. If the O-ring is damaged it must be replaced before the alarm is used.
7. Thread the Audi-Larm Alarm or Quick-Fill URC Assembly coupling nut to the cylinder valve and hand-tighten (no tools).

CHARGING CYLINDERS

⚠ WARNING

1. **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.**
2. **Use this device only after receiving proper training in its use. Use in accordance with this label and MSA apparatus instructions.**
3. **To maintain NIOSH approval, container 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.**
4. **Do not use unless the cylinder is filled to the full pressure approved.**
5. **Do not alter, modify or substitute any components without approval of the manufacturer.**
6. **Inspect frequently. Maintain according to manufacturer's instructions. Repair only by properly trained personnel.**

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

REMOVING THE AIR MASK

SAFETY PRECAUTIONS FOR MSA SELF-CONTAINED BREATHING APPARATUS CYLINDERS

Breathing apparatus cylinders should be fully recharged as soon as practicable after use. Cylinders should not be stored partially charged for two reasons:

1. If used partially charged, the duration of the apparatus is reduced.
2. 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 psig.

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: “Standards for Visual Inspection of Steel Compressed Gas Cylinders”, CGA Publication C-6.1: “Standards for Visual Inspection of High Pressure Aluminum Compressed Gas Cylinders”, and/or CGA Publication C-6.2: “Guidelines for Visual inspection and Requalification of Fiber Reinforced High Pressure Cylinders” available form 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.

Establish the service pressure of the cylinder. Type 3 AA (steel) cylinders that bear a plus (+) sign after the latest retest date may be recharged to a pressure, i.e. a cylinder stamped 3AA2015 with a plus (+) sign after the test date may be recharged to 2216 psig. (this applies to steel cylinders only). Steel cylinders without the plus (+) sign stamped after the latest test date must be removed from service. All other cylinders which are not 3AA type 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.

Appropriately connect the cylinder to the filling system and refill. Terminate the filling when the pressure reaches the service pressure and allow the cylinder to cool to room temperature. If necessary, top-off the cylinder such that the service pressure is attained with the cylinder at a temperature of 70˚F. Close the valves on the cylinder and the filling system and remove the cylinder. Apply a leak solution to determine if there is any leakage between the cylinder and the valve. If there is no leakage, the cylinder is ready for use.

STORAGE

Do not store the apparatus or spare cylinders within or near an area where the apparatus can or might be exposed to any substances that will or might attack any part of the apparatus, causing the apparatus NOT to perform as designed and approved.

⚠ WARNING

Be careful not to drop cylinder or bump valve knob. An unsecured cylinder can become an airborne projectile under its own pressure if the valve is opened even slightly. Failure to follow this warning can result in serious personal injury or death.

Do not store the alarms for extended periods with the batteries installed. Do not store the apparatus with an empty or partly filled cylinder. Always install a fully-charged cylinder so that the apparatus is ready for use. Complete Inspection and Cleaning and Disinfecting procedures outlined in this manual. Ensure the complete apparatus is clean and dry. Ensure the facepiece head harness adjustment straps are fully extended. Place the complete apparatus in the storage case or suitable storage location so it can be easily reached for emergency use.

NOTES

COLD WEATHER OPERATION

SUGGESTED PROCEDURES FOR COLD WEATHER OPERATION

Moisture can cause problems in SCBA if it freezes. However, moisture can cause freezing problems even if the surrounding air is above freezing. This is due to air flowing from the cylinder through the regulator drops from cylinder pressure to close to atmospheric pressure very quickly. As it does so it expands, causing the air and the regulator to become colder. Although the surrounding temperature may be warmer than 32 degrees F, the temperature inside the regulator may be lower. Any water inside could turn to ice and restrict airflow.

1. To keep moisture from entering the mask-mounted regulator. Stow the regulator in the STANDBY belt mount.
2. Use the neck strap. The neck strap keeps the facepiece upside down on the user's neck. Water does not collect in the facepiece. If not used correctly, the facepiece can act as a funnel, catching and directing water into the regulator.
3. When the SCBA is away from heat, water spray can freeze on the regulator surface. Ice can build up and freeze the shut-off button, bypass valve, and the release tabs. Before entering or re-entering a hazardous atmosphere, make sure the shut-off button, release tabs, and bypass valve are ice-free and operating properly. Periodically, check the bypass to be sure it is ice-free.
4. Moisture can enter through the cylinder valve or coupling nut when cylinders are replaced on the SCBA. When replacing cylinders, be careful to prevent moisture or contamination from entering the system. Remove any ice from these fittings. Wipe the coupling nut threads and cylinder valve threads dry before disconnecting the cylinder. Water can contaminate the system and freeze.
5. NIOSH certification requires a nosecup at temperatures below 32 degrees F. The nosecup reduces lens fogging and must be used whenever freezing conditions are encountered.
6. During cleanup at the station, be careful to keep water from entering the facepiece or mask-mounted regulator when washing fire trucks at the station.
7. Thoroughly dry the facepiece and mask-mounted regulator after cleaning and disinfecting. Follow ConfidencePlus™ Cleaning Solution instructions.

NOTES

QUICK-FILL URC ASSEMBLY OR QUICK-FILL SYSTEM OPERATION

QUICK FILL URC ASSEMBLY OR QUICK-FILL SYSTEM OPERATION

All NFPA 1981-2002 approved SCBA are equipped with a Quick-Fill URC Assembly (Universal Rescue Connection) fitting. The Quick-Fill URC Assembly is a male quick-fill inlet for use by Rapid Intervention Crews for emergency filling operations. The system also includes an automatically-resetting pressure relief valve. The SCBA can also be equipped with a shoulder-mounted quick-fill system.

Note: The Quick-Fill URC Assembly may be used for transfill operations as described in this manual. Standard operating procedures should be developed for use of Quick-Fill URCs Assembly or Quick-Fill System.

The Quick-Fill URC Assembly or Quick-Fill System must be used only by qualified, trained personnel who have carefully read and understood these instructions, cautions, and warnings. NIOSH approvals of SCBA from MSA are maintained while transfilling air ONLY if appropriate Quick-Fill hose assemblies from MSA are used. Quick-Fill URC Assembly or Quick-Fill hose assemblies and fittings are rated for a maximum working pressure of 4500 psig.

⚠ WARNING

The Quick-Fill URC Assembly must be used by trained Rapid Intervention Crews only using procedures developed rapid intervention. Improper use can result in serious personal injury or death. Failure to follow this warning can result in serious personal injury or death.

⚠ WARNING

For transfilling operations using the Quick-Fill URC Assembly or the Quick-Fill System, do not use any transfilling hose assembly or fittings other than those supplied by MSA specifically for the Quick-Fill URC Assembly or Quick-Fill System. Use of any other transfilling hose assembly and/or fitting may result in serious personal injury or death, and will void NIOSH approval.

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 Quick-Fill 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 SOURCE.

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

A secondary air source stores compressed breathing air until needed to refill SCBA air cylinders. Secondary air source pressure must be greater than air mask cylinder pressure. Examples of air sources include: Cascade air cylinder refilling systems; high-pressure compressor systems with a fixed reservoir; and an SCBA air cylinder which is not installed on an SCBA.

⚠ WARNING

Do not use the Quick-Fill URC Assembly or Quick-Fill System with 3000 psig cylinders because the pressure relief valve on the Quick-Fill System vents at approximately 2525 psig.

Do not connect a Quick-Fill System equipped Low Pressure SCBA to an unregulated secondary air source with a pressure greater than 2216 psig. The Quick-Fill System equipped Low Pressure Air Mask is rated for a maximum working pressure of 2216 psig. As an additional safety feature, the SCBA has a pressure relief valve which automatically vents at 2525 psig.

Do not connect a High Pressure SCBA to a secondary air source with a pressure greater than 4500 psig. The High Pressure Air Mask is rated for a maximum working pressure of 4500 psig.

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

The user is responsible for the air source, which must meet the requirements of Compressed Gas Association Specification ANSI/G-7.1, Quality Verification Level (Grade) D Gaseous Air or better, with a moisture dew point of not greater than -65°F (24ppm water vapor, normal). Pressures at the inlet of the Quick-Fill System hose must not exceed that of the SCBA (2216 psig or 4500 psig). The user also is responsible for connecting the Quick-Fill hose to an appropriate secondary air source.

1. To connect the Quick-Fill URC Assembly or Quick-Fill System hose (P/N 485391 Quick-Fill URC Assembly or Quick-Fill System fitting installed on the air source):
   a. Push the female fitting on the male fitting until it snaps in place. Pull on the hose to be sure the fitting snapped into place.
   b. Turn the air source 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.

2. To attach the Quick-Fill System hose to the SCBA or Quick Fill URC Assembly:
   a. Remove the rubber dust cap from the male inlet fitting on the SCBA or Quick Fill URC Assembly. Be sure that the cylinder valve is fully opened.

Note: The shut-off button may be either open or closed, depending on whether the SCBA is donned.

   b. Remove the rubber dust cap from the female fitting on the Quick-Fill System hose.
   c. Push the female fitting on the male fitting until it snaps in place. Pull on the hose to be sure the fit-

ting snapped into place. Transfilling begins when the female fitting is snapped on the SCBA or Quick Fill URC Assembly male fitting.

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

After approximately 45-60 seconds, pressure between the secondary air source and the SCBA cylinder will be equal.

⚠ CAUTION

Cylinder temperature will increase by approximately 45 degrees F. The pressure gauge may show FULL immediately after transfilling, but cylinder pressure may decrease by as much as 190 psig after the cylinder cools to room temperature. Actual service time may be reduced accordingly.

3. Compare the SCBA pressure gauge or ICM Unit reading to the secondary air source pressure gauge reading. If the readings are the same, pressure is equal.
4. To disconnect the Quick-Fill System hose after transfilling, pull the gray sleeve back. The hose fitting and the SCBA or Quick Fill URC Assembly will separate. A hiss or pop may be heard as the fittings separate and the high-pressure air is sealed off.
5. Immediately install the dust cover on the SCBA or Quick-Fill URC Assembly male fitting.
6. The SCBA cylinder is ready for service if the cylinder pressure gauge is on the corresponding color band.

EMERGENCY OPERATIONS

1. If you are transfilling in fresh air and the dust cover will not stay on the SCBA or Quick-Fill URC Assembly male fitting because air is leaking, correct the condition before using the SCBA.
2. If you are transfilling in a contaminated atmosphere and the dust cover will not stay on the SCBA or Quick-Fill URC Assembly male fitting because air is leaking:
   a. Immediately reconnect the Quick-Fill System hose to seal off the leak and return to fresh air.
   b. If you cannot reconnect the hose, reach behind and close the cylinder valve. Air pressure in the regulator will drop, and the leak will slow down.
   c. Quickly replace the protective dust cap on the SCBA or Quick-Fill URC Assembly male regulator fitting. This will form a redundant seal.
   d. Open the cylinder valve and return to fresh air immediately. The dust cover prevents dirt, water, and debris from entering the fitting, and acts as a redundant seal.

TRANSFILLING BETWEEN SCBA FROM MSA (EMERGENCY BREATHING SYSTEM)

Note: The SCBA with the higher pressure reading is the donor. The SCBA with the lower pressure is the receiver.

Transfilling between users of SCBA should be performed only during life-threatening emergencies, or simulated training exercises. Both **donor** and **receiver** must return to fresh air immediately following the procedure.

⚠ WARNING

Do not transfill if the donor's audible alarm with Quick Fill URC Assembly is ringing or ICM Unit Gauge are flashing. Failure to follow this warning can result in shorter escape time to return to fresh air, causing serious personal injury or death.

The audible alarm with Quick-Fill URC Assembly begins ringing to indicate that the pressure in the cylinder has been reduced to 25% of its rated working pressure. Remaining service time must be used for escape to fresh air. If the **donor's** audible alarm or Quick Fill URC Assembly begins ringing or ICM Unit Gauge begins flashing during transfilling, the **donor** should disconnect and preserve his escape time.

1. If the donor's alarm is not ringing or ICM Unit Gauge are not flashing and you have sufficient air to transfill air to a receiver, (greater than1000 psig for Low Pressure SCBA and greater than 2000 psig for High Pressure SCBA), follow these steps.
   a. Remove the 3 foot emergency transfill hose from its protective pouch.
   b. Remove the rubber dust cover from both female fittings on the Quick-Fill System hose assembly.
   c. Remove the rubber dust cover from the male Quick-Fill System fitting.
   d. Push the female fittings on to the male fittings until they click in place. Pull on the hose to be sure it snapped in place.

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

   e. After approximately 30-60 seconds, pressure between the SCBA cylinders will be equal.
   f. Disconnect the Quick-Fill System hose from both SCBA or Quick Fill URC Assembly by pulling the gray sleeve back on both ends. A hiss or pop may be heard as the fittings separate and the high pressure air is sealed off.
   g. Immediately install the dust cover on the Quick-Fill

System male fitting. The dust cover prevents dirt, water, and debris from entering the fitting, and acts as a redundant seal.

EMERGENCY OPERATIONS

1. If the dust cover will not stay on the SCBA or Quick-Fill URC Assembly male fitting because air is leaking:
   a. Immediately reconnect the Quick-Fill System hose to seal off the leak and return to fresh air.
   b. If you can not reconnect the hose, reach behind and close the cylinder valve. Air pressure in the regulator will drop, and the leak will slow down.
   c. Quickly replace the protective dust cap on the SCBA or Quick-Fill URC Assembly male fitting. This will form a redundant seal.
   d. Open the cylinder valve and return to fresh air immediately.
2. Preparing the Quick-Fill System for Storage:
   a. Press in on the center of the quick-disconnect dust cap to release any pressure in the Quick-Fill System hose.
   b. Roll up the hose and place it in its protective pouch.

Note: Only persons trained in MSA Maintenance are authorized to repair or disassemble the Quick-Fill System. If repairs are required, contact your nearest MSA office. Call 1-800-MSA-2222.

NOTES

CLEANING AND DISINFECTING

CLEANING AND DISINFECTING

Depending on the cleaning policy adopted, either a designated person or the user should clean each device after each use. ANSI standards suggest that users should be trained in the cleaning procedure.

ConfidencePlus 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 label for user instructions.

⚠ CAUTION

DO NOT use any cleaning substances that can or might attack any part of the apparatus.

⚠ CAUTION

Alcohol should not be used as a germicide because it may deteriorate rubber parts.

⚠ CAUTION

If not rinsed thoroughly, cleaning agent residue may irritate the wearer's skin.

1. Preparing Solution
   a. Follow the instructions with the ConfidencePlus Cleaning Solution.
   b. If the ConfidencePlus Cleaning Solution is not used, wash in a mild cleaning solution, rinse thoroughly, and submerge in a germicide solution for the manufacturer's recommended time.
2. Clean and Disinfect the Facepiece
   a. Remove the mask-mounted regulator from the facepiece.
   b. Thoroughly wash the facepiece (and nosecup) in the cleaning solution. A soft brush or sponge can be used to clean the soiled facepiece.
   c. Rinse the facepiece and components in clean, warm (110˚F), water (preferably running and drained).
   d. Clean the pressure demand exhalation valve by pressing in on the stem with a blunt object and flushing with clean water.
   e. Allow the facepiece to air dry. Do not dry the parts by placing them near a heater or in direct sunlight. The rubber will deteriorate.
   f. Operate the exhalation valve by hand to be sure it works properly.

Note: Do not force-dry the parts by placing them in a heater or in direct sunlight. The rubber will deteriorate. When the facepiece is thoroughly dry, store the facepiece in the plastic bag that it was shipped in.

3. In general, only the facepiece requires cleaning and disinfecting after each use. If the apparatus is soiled (i.e. heavy smoke residue, or dirt accumulation) use a sponge damp with mild soap solution or use a soft/medium bristle brush to remove deposits that may interfere with normal operation of:
   a. Harness (straps and buckles)
   b. Cylinder carrier (band & latch assembly)
   c. Cylinder (hand-wheel, gauge, outlet connection)
   d. Audi-Larm Alarm or Quick-Fill URC Assembly (bell or coupling nut connection)
   e. Pressure gauge/ICM Unit Gauge
   f. MMR remote gauge lens
   g. First stage regulator
   h. MMR second stage regulator. Cover outlet of the MMR second stage regulator to prevent water, dirt or debris from entering.
4. Inspect the entire apparatus as you reassemble it. Follow the Inspection Instructions.
5. Thoroughly dry the facepiece and regulator after cleaning and disinfecting. The facepiece can trap water, which could enter the regulator.

NOTES

INSPECTION

INSPECTION

Inspect the entire SCBA after it is cleaned and disinfected. NFPA-1500, as well as ANSI Standards Z88.2 and Z88.5, describe three levels of inspection procedures which are to be performed. Refer to these documents, or to an inspection program prepared by a health professional in establishing an inspection program. Detailed repair procedures are located in Users Maintenance Instructions. (P/N 10024089)

⚠ WARNING

If the apparatus does not function properly during any of the following inspections, it must be removed from service.

Do not inspect the apparatus before cleaning if there is danger of contacting hazardous contaminants. Clean and disinfect first, then inspect.

Failure to follow the above warnings can cause inhalation or skin absorption of the contaminant and result in serious personal injury or death.

COMPONENT INSPECTION
(AFTER EACH USE and MONTHLY)

1. Don the air mask following the instruction procedures. These steps make up the Air Mask Functional Test.
2. If all steps are performed successfully, remove the Air Mask and inspect it following the steps below.
3. Facepiece
   a. Inspect the facepiece for rubber deterioration, dirt, cracks, tears, holes, or tackiness.
   b. Check the harness headstraps for breaks, loss of elasticity, missing buckles or straps. Check the straps for signs of wear.
   c. Inspect the lens for cracks, scratches, and a tight seal with the facepiece rubber.
   d. The exhalation valve must be clean and operate easily. The valve must move off the seat and return when released.
   e. Inspect the facepiece coupling for damage. Also check to be sure the spider gasket, and valve disc are present.
4. Cylinder Gauges
   a. Be sure you can see both gauge needles and face clearly through the lens. Also be sure the gauge stem is not bent.
   b. Inspect the gauge hose for any visible damage.
5. Audible Alarm with Quick-Fill URC Assembly/ICM Unit Gauge
   a. Check that the alarm rings briefly and the ICM Unit Gauge tones when the cylinder valve is opened. This test assures that the alarms are operating.
   b. Check that the bell is in the proper alignment and on tightly.
   c. If the bell is loose, remove the alarm from service.
   d. Unscrew the Audi-Larm Alarm or Quick-Fill URC Assembly coupling nut from the cylinder valve. Inspect the coupling nut for thread damage. Also be sure there is an O-ring, and that it is not damaged. Replace the insert O-ring if it is damaged.
   e. Check Audi-Larm Alarm or Quick-Fill URC Assembly and Quick-Fill URC's Assembly Relief Valve for any damage. Check Relief Valve latch for damage.
6. High Pressure Hose
   Check the high-pressure hose between the alarm and the first-stage regulator. Look for cuts or severe abrasions. If present, replace the hose. The hose fitting should be tight.
7. Cylinder
   Breathing apparatus cylinders should be recharged as soon as possible after use. Cylinders should not be stored partially charged for two reasons:
   - If used without recharge, the service life of the apparatus is reduced.
   - The cylinder burst disc vents excess pressure if a full cylinder is over exposed to fire or heat. If the cylinder is not full, it may be damaged before the burst disc vents.

It is also essential that the required inspections and tests be performed on all SCBA cylinders in accordance with Department of Transportation (DOT) regulations. DOT regulations require that composite cylinders be retired from service after the fifteenth year. Please note this does not include cylinder valve assembly which may be reused. Steel and aluminum cylinder service life is indefinite if proper inspection and hydrotest procedures are followed and they indicate that the cylinder may remain in service. Please contact your MSA distributor or sales associate if you have questions or if you need additional information regarding this policy.

Note: ANSI Z88.5 recommends checking cylinder pressure weekly. For maximum safety the cylinders should be stored full or empty (pressure above ambient but less than 100 psig).

   a. If the cylinder is less than FULL, recharge it before storing it. Cylinder air must be at least CGA Quality Verification Level (Grade) D respirable air.
   b. Inspect the cylinder valve for signs of damage. The valve may be opened slightly to be sure it operates properly. Be sure to fully close the valve.
   c. Inspect the cylinder body for cracks, dents, weakened areas, corrosive agent, causing the fibers to break or peel, or signs of heat-related damage. If the cylinder is damaged return it to an MSA Service Center. Call 1-800-MSA-2222 for instructions.
   d. Check the hydrostatic test date on the cylinder approval sticker located on the cylinder neck. Composite cylinders must be tested every three years. Steel cylinders must be tested every five years.

8. Harness
   a. Inspect all harness components for cuts, tears, abrasion or signs of heat or chemical related damage. Check that the tee nuts, washers, and screws, if any, are secure.
9. Carrier
   a. Inspect the cylinder band and latch to be sure it holds the cylinder securely. Operate the latch wing to be sure that it opens and closes properly and that it holds the cylinder securely If the cylinder band and latch is locked, the latch wing should not turn.
   b. Inspect back plate for cracks, weakened areas, or signs of heat or chemically-related damages.
10. Record Keeping
    Following inspection, the date and initials of the designated person should be recorded on an inspection tag. A more detailed record of the operations performed can be noted on an inspection and maintenance log. Inspection tags and inspection and maintenance logs are available from MSA. When the inspection data has been recorded, the breathing apparatus is stored in a ready position.

FUNCTIONAL TESTS

FUNCTIONAL CHECKS
After Each Use and Monthly

1. Check that the regulator works properly The regulator outlet should be sanitized before and after testing.
   a. Check that the cylinder valve and slide button are closed, and that the system is not pressurized.
   b. Gently inhale through the regulator outlet and hold your breath for about 10 seconds. If the negative pressure is maintained, there is no leakage.
   c. Gently exhale through the regulator outlet for about 10 seconds. If the positive pressure is maintained, there is no leakage.
   d. Do not use the apparatus if airflow through the regulator is detected in either test. Return the regulator to a Certified repair person.
2. Inspect the slide button, and bypass valve.
   a. With the regulator pressurized, operate valve to be sure it operates. Venting of pressure relief valves (or a continuing flow of air through the regulator when the user is not inhaling) indicates that the regulator needs to be repaired.
   b. Listen to the regulator. Any unusual sounds, such as whistling, chattering, clicking, or rattling mean that the regulator should be checked further.
   c. If any of these symptoms occur, the apparatus must be removed from service. Return the regulator to a Certified repairperson.
3. Audible Alarm or Quick-Fill URC Assembly
   a. MSA recommends that the function of the Audi-Larm Alarm or Quick-Fill URC Assembly, ICM Unit warning device be checked by observing the Pressure Gauge or ICM Unit Gauge at which the alarms ring and tone. This test should be performed with a minimum cylinder pressure of 1,200 psig for the Low Pressure SCBA, and 2,000 psig for the High Pressure SCBA.
   b. Pressurize the system by opening the cylinder valve for a moment, then close it. The alarms should ring or tone, indicating they are cocked and armed.
   c. Open bypass slowly.
   d. Watch the drop in pressure on the Pressure Gauge or ICM Unit gauge and the point at which the Audi-Larm Alarm or Quick-Fill URC Assembly begins to ring. Nominal gauge readings at which the alarm should start to ring and tone or flash are listed below.

      530 psig approximately (low pressure system)
      1175 psig approximately (high pressure system)

   e. The alarms should continue until the air pressure is approximately 200 psig or less. If the Audi-Larm Alarm or Quick-Fill URC Assembly, ICM Unit Gauge does not function properly, the apparatus must be removed from service.
4. Audi-Larm Alarm or Quick-Fill URC Assembly Body
   a. Check that the bell is on tightly and is in the proper alignment.
   b. Check Quick-Fill URC Assembly and Relief Valve for damage or leaks.
   c. Close the cylinder valve completely. Be sure that nothing blocks the regulator outlet.

⚠ WARNING

Do not disconnect the Audi-Larm coupling nut when pressure is shown on the regulator gauge. Release all pressure from the regulator by opening the bypass valve. Removing the coupling nut with the regulator pressurized can result in serious personal injury, death, or damage to equipment.

   c. Open the bypass valve slowly to release trapped air. Close bypass valve.
   d. Unscrew the Audi-Larm coupling nut from the cylinder valve. It is hand-tight and should not require tools.
   e. Inspect the coupling nut for thread. Also be sure there is an o-ring and that it is not damaged.
   f. Replace the o-ring if it is damaged.

FLOW TEST AND OVERHAUL REQUIREMENTS

FLOW TEST AND OVERHAUL REQUIREMENTS

Your SCBA Regulator and Audi-Larm Alarm or Quick-Fill URC Assembly Alarm must be flow tested and overhauled at specific time intervals. These Maintenance Procedures must be performed by a trained repairperson or at a Certified Service Center. Contact your MSA sales representative or call the MSA Customer Service Center at 1-800-MSA-2222. They will supply the information you need to meet these requirements.

The recommended replacement/overhaul schedule for self-contained breathing apparatus from MSA is based on apparatus usage on an individual basis. The frequency required for SCBA preventative maintenance depends upon how often the apparatus is used. Users of MSA breathing apparatus should flow test and overhaul their equipment based on their actual level of usage, rather than on time alone. Thus, each fire department or industrial user can determine its own appropriate frequency for flow testing and overhaul for its SCBA. The following table summarizes MSA's recommended frequency for flow testing and overhaul as they relate to SCBA usage:

Average SCBA Usage*	Recommended Overhaul Frequency	Recommended Flow Test Frequency
1 cylinder per day or greater	Every 3 years	Every year
1 cylinder every other day	Every 8 years	Every year
1 cylinder per week or less	Every 15 years	Every two years

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

*The unit of SCBA use is defined as the consumption of one 30 min. cylinder of air. Example: If three cylinders of air are in one SCBA, the SCBA would be considered to have been used three times.

If an assessment of a SCBA's usage can not be estimated or determined, then it is recommended that the SCBA be flow-tested annually and the recommended overhaul be performed every three years.

Mine Safety Appliances Company

SCBA Lifetime Warranty
and Terms of Sale

1. **Express Warranty**—SCBA and/or components furnished under this order carry a Lifetime Warranty against material defects and/or faulty workmanship, with the exception of those components specifically identified herein. MSA shall be released from all obligations under this warranty in the event repairs or modifications are made by persons other than its own or authorized service personnel or if the warranty claim results from abuse, misuse, or normal wear and tear of the product. No agent, employee or representative of MSA may bind MSA to any affirmation, representation or modification of the warranty concerning the goods sold under this contract. MSA makes no warranty concerning components or accessories not manufactured by MSA, but will pass on to the Purchaser all warranties of manufacturers of such components. *THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTEES, EXPRESS, IMPLIED OR STATUTORY, AND IS STRICTLY LIMITED TO THE TERMS HEREOF: MSA SPECIFICALLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.*

Product Description	Warranty Period	Routine Air Mask Maintenance
SCBA (less Cylinder)	Lifetime	MSA requires that the SCBA be maintained as specified in the Operations and Instructions Manual; however, the warranty coverage is for material defects and/or faulty workmanship only, and is not dependent on performing routine maintenance. The material and labor costs of overhaul procedures and other routine maintenance are the responsibility of the purchaser and are not covered by the warranty.
SCBA Cylinder	Until end of service life as controlled by gov't. reg/DOT	
SCBA Replacement Parts	Lifetime	
SCBA Critical Repair Parts	Lifetime	

2. **Exceptions**—The products below are excluded from MSA's Lifetime Warranty:

Product Description	Exception	Warranty Period
Facemask Blank, Breathing Tube, Harness, & Nose Cup	Rubber Product	5 Year Limited/Age Deterioration
Electronic Speech Communication	Manufacturer's Warranty	1 Year
ICM Unit		
Non-Rechargeable Batteries	Expendable and/or Consumable Parts	N/A

3. **Exclusive Remedy**—It is expressly agreed that the Purchaser's sole and exclusive remedy for breach of the above warranty, for any tortious conduct of MSA, or for any other cause of action, shall be the repair and/or replacement, at MSA's option, of any equipment or parts thereof, that after examination by MSA are proven to be defective. Replacement equipment and/or parts will be provided at no cost to the Purchaser, F.O.B. Purchaser's named place of destination. Failure of MSA to successfully repair any nonconforming product shall not cause the remedy established hereby to fail of its essential purpose.

4. **Exclusion of Consequential Damages**—Purchaser specifically understands and agrees that under no circumstances will MSA be liable to Purchaser for economic, special, incidental, or consequential damages or losses of any kind whatsoever, including but not limited to, loss of anticipated profits and any other loss caused by reason of the non-operation of the goods. This exclusion is applicable to claims for breach of warranty, tortious conduct or any other cause of action against MSA.

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