ICM® Tx Unit NightFighter® Heads-Up Display System

OPERATION AND MAINTENANCE INSTRUCTIONS

NOTICE
These instructions must remain attached to the ICM Tx Unit or NightFighter Heads-up display system. The end user only is authorized to remove them from the device. – NFPA 1982 (1998 Edition), par 3.2.3

⚠ WARNING

Read this manual carefully if you have or will have the responsibility for using or servicing the product. These instructions pertain only to the use of the version of the ICM Tx Unit and NightFighter Heads-up display System which integrates with the SCBA. These instructions, in addition to the instructions supplied with the SCBA, must be carefully read and followed by all persons who use or maintain this product. This includes those who have any responsibility involving its selection or application. The ICM Tx Unit and NightFighter from MSA will perform as designed only if used and maintained according to the instructions. Otherwise it could fail to perform as designed and persons who rely on the SCBA could sustain serious personal injury or death.

Use of this device must be consistent with the requirements of NFPA 1500 Fire Department Occupational Safety and Health Programs.

The Nightfighter Heads-Up Display System is NIOSH and NFPA certified as an accessory for the Ultra Elite Facepiece for use with the MSA MMR, Firehawk MMR, and BMR breathing apparatus only.

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 repair, write or call 1-800-MSA-2222 during regular working hours.

The NightFighter Heads-Up Display System and ICM Tx Unit comply with Part 15 of the FCC Rules. Operation is subject to the following conditions:
(1) This device may not cause harmful interference and (2) This device must accept any interference that may cause undesired operation.

Changes and modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

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)

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DESCRIPTION

TABLE OF CONTENTS

Description 2
System Operations.....5
Using the ICM Tx Unit.....9
During Use.....13
Cleaning and Maintenance 15
Quick-Fill® System Operation.....17
URC Assembly Operation 21
Warranty 24

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.
N - Never substitute, modify, add, or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer.
S - Special or critical User's Instructions and/or specific use limitations apply. Refer to User's Instructions before donning.

Note: See NIOSH Approval Label, Inserted in the Users Instructions for complete list of CAUTIONS and LIMITATIONS for the Respirator.

S - SPECIAL OR CRITICAL USER'S INSTRUCTIONS

1. Misuse or abuse of the NightFighter Heads-Up Display System, the ICM Tx Unit, or the equipment to which they are attached, or using this equipment in a manner or situation not intended by the manufacturers, may result in damage to the equipment or may result in personal injury or death to user or persons dependent on the user.
2. Always inspect the NightFighter Heads-Up Display System and ICM Tx Unit for damage before use. If damage is found, immediately remove the device from service.
3. When NightFighter Heads-Up Display System is used as a gauge (Not in conjunction with standard pneumatic gauge) continuous operation mode must be used to maintain NIOSH approval.
4. Do not alter these components. Altering will void the Intrinsic-Safety rating and may affect the Intrinsic-Safety of the device.

Note: The NightFighter Heads-Up Display System Receiver is for use with an Ultra Elite® Facepiece only. It cannot be used without the proper installation of the Receiver, Facepiece Bracket and either NightFighter Transmitter or ICM Tx Unit from MSA.

5. The NightFighter Heads-Up Display System allows a user to clearly and easily see air cylinder content while wearing an SCBA equipped with the Ultra Elite Facepiece.

Note: The NightFighter Heads-Up Display can only be used with an Ultra Elite Facepiece.

6. The NightFighter Heads-Up Display consists of three (3) separate assemblies:
   - Bracket assembly attached to an Ultra Elite Facepiece.
   - Receiver mounted on the bracket assembly.
   - ICM Tx Unit or Transmitter assembled to the gauge line. (See Installation Instruction P/N 10035581, transmitter only).
7. The NightFighter Heads-Up Display System's Receiver shows the user the air cylinder content in one quarter cylinder increments, from a full cylinder to an empty cylinder, by an LED light pattern.
8. The NightFighter Heads-Up Display System's Transmitter is assembled to the gauge line hose. (The ICM Tx Unit serves as the transmitter). The transmitter sends a signal to the receiver (on the facepiece) of the air cylinder content.
9. The NightFighter Heads-Up Display System's Receiver has seven (7) LEDs that are used to form light patterns.
10. The NightFighter Heads-Up Display System's Receiver has a photo sensor for the LED lights to automatically adjust the brightness of the LED based on to the brightness as measured outside of the facepiece.
11. The NightFighter Heads-Up Display System's Receiver will indicate a low battery by a Yellow LED light for the receiver, ICM Tx Unit, or NightFighter Transmitter.

The NightFighter Heads-Up Display System operates using (4) standard AA alkaline batteries in the ICM Tx and (2) standard AA alkaline batteries in the receiver. When using a Nightfighter Heads-Up Display System with standard Transmitter (2) AAA alkaline batteries are needed. The NightFighter Heads-Up Display System notifies the user when the batteries need to be replaced.

⚠ WARNING

Use only Duracell MN2400, Energizer E92, or Eveready A92 AAA alkaline batteries in the TRANSMITTER. Use of other batteries, or a combination of batteries from different manufacturers, will affect the performance of the unit and will void the Intrinsic Safety Approval.

DESCRIPTION

⚠ WARNING

Use only Duracell MN1500 or Energizer E91 AA alkaline batteries in the RECEIVER and ICM Tx. Use of other batteries, or a combination of batteries from different manufacturers, will affect the performance of the unit and will void the Intrinsic Safety Approval.

Intrinsically-Safe Rating
The NightFighter Heads-Up Display System and ICM Tx Unit is certified Intrinsically-Safe in the United States for use in Class 1, Div. 1, Groups A, B, C, D, and hazardous locations, Temperature T1.

Note: The intrinsically-safe level of any system which uses the NightFighter Heads-Up Display System or ICM Tx Unit is that of the lowest intrinsically-safe rating of any single component in the system.

NOTES

SYSTEM OPERATIONS

NIGHTFIGHTER HEADS-UP DISPLAY SYSTEM FUNCTIONALITY

- The NightFighter Heads-Up Display System allows a user to clearly and easily see air cylinder pressure while wearing an SCBA equipped with the NightFighter Receiver and ICM Tx Unit or Nightfighter transmitter, and the Ultra Elite Facepiece.
- The NightFighter Heads-Up Display System Receiver is also a multi-mode, battery-powered, low-pressure warning device which gives visible warning that air cylinder pressure has reached approximately 25% of rated cylinder pressure remaining. The receiver will display one flashing red LED when this point has been reached.
- The NightFighter Heads-Up Display System Receiver has a photo sensor for the LED lights to automatically adjust the brightness of the LEDs based on the light level outside of the facepiece.
- The NightFighter Heads-Up Display System Receiver will indicate a low battery by a flashing yellow LED light for the receiver and ICM Tx Unit or Transmitter. See the During Use section for Low Battery Warnings.
- The NightFighter Heads-Up Display System Receiver operates using two standard AA alkaline batteries and notifies the user when the batteries need to be replaced.

Nightfighter Heads-UP Display System Receiver Display:

- The ICM Tx Unit or Nightfighter transmitter sends a signal to the NightFighter receiver (on the facepiece), which displays the air cylinder pressure in one quarter cylinder increments, by an LED light pattern. See chart 1.

Assembly of Receiver to Facepiece Bracket

With the facepiece laying on its side:

1. Turn receiver so the thumbscrew is at the bottom of receiver and MSA logo of the receiver is to the right.
2. Align the receiver's two slots with the bracket's guide rails.
3. Slide receiver's slots onto bracket guide rail. Thumbscrew of receiver should align with thumbscrew hole in bracket.
4. Thread thumbscrew into bracket finger-tight.

Functional Tests

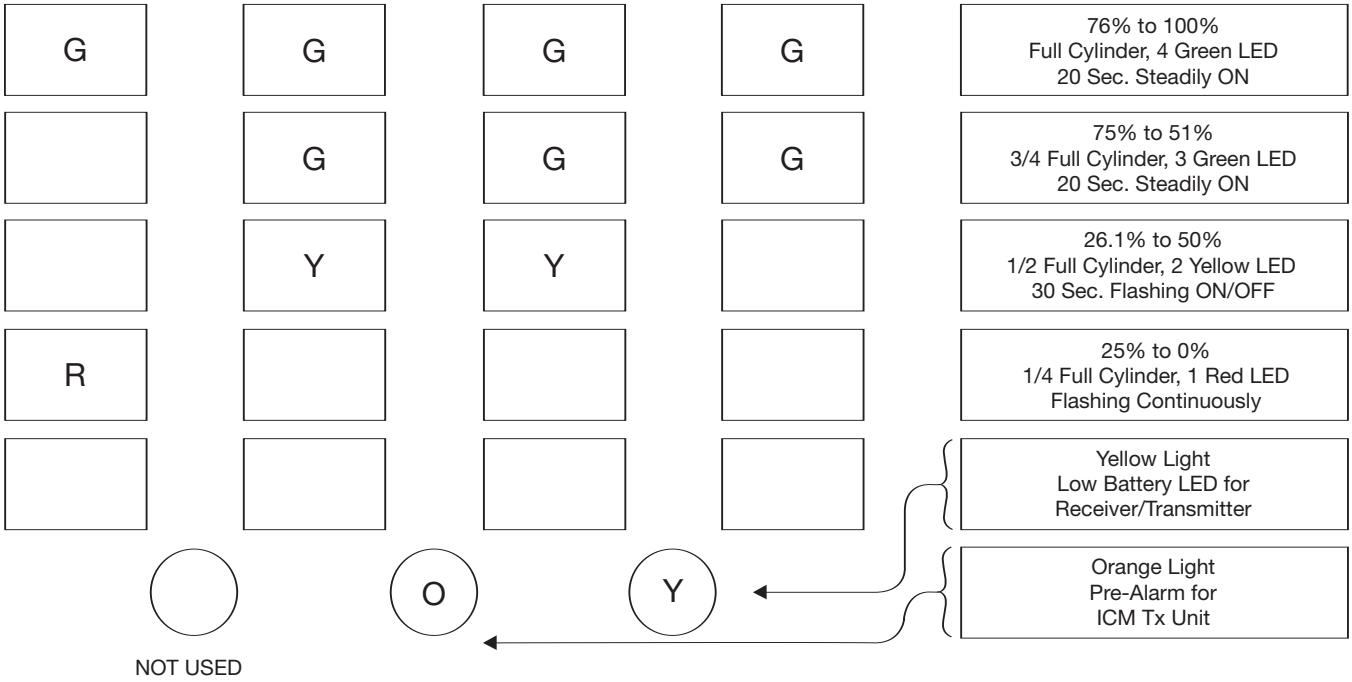
⚠ WARNING

Always test the NightFighter Heads-Up Display System Receiver and ICM Tx Unit to be sure the system operates properly before entering any hazardous atmosphere. Do NOT use this device unless it passes all inspection and functional tests. Failure to follow this warning can result in serious personal injury or death.

⚠ CAUTION

NightFighter Receiver and ICM Tx Unit or Transmitter must be within approximately 12 to 15 inches of each other for the Receiver's LED lights to work properly.

Chart 1: NightFighter Heads-Up Display System Receiver Cylinder Pressure LED Pattern



NOTES

ICM TX UNIT FUNCTIONALITY

- The ICM Tx Unit is assembled to the gauge line hose and serves as the transmitter for the NightFighter Heads-Up Display System.
- The ICM Tx Unit turns on automatically when the user opens the SCBA cylinder valve. As the pressure reaches approximately 200 psig, both visible and audible alarms activate automatically, indicating that the unit is functional. When the system is pressurized above 25% of the rated service pressure, the alarm enters the Monitor (normal) Mode. The unit remains in Monitor mode until the user shuts off the cylinder air and presses the reset button twice in quick succession.
- If the user is motionless for approximately 20 seconds, the ICM Tx Unit enters pre-alarm. During pre-alarm, the device sounds 3 progressively louder tones and the RED LED on the ICM Tx Unit flashes slowly. Also, during pre-alarm, an ORANGE LED will be displayed in the Nightfighter Receiver. Movement of the unit cancels the pre-alarm.
- If the user remains motionless for 30 seconds (approx.), the ICM Tx Unit enters full alarm. During full alarm, the PASS repeatedly sounds two high-pitched tones followed by a buzz. During full alarm the RED LED on the ICM Tx Unit also flashes rapidly.
- The ICM Tx Unit can be set into full alarm at any time (even without air pressure) by pressing the opaque alarm button.
- The ICM Tx Unit has three control buttons.
  - o 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.
  - o The center opaque lighted alarm button (green/red) activates the full alarm mode with or without air pressure.
  - o The top mode button (green) will refresh the receiver display, set the receiver to continuous mode, and change the ICM Tx Unit digital display mode between pressure remaining and calculated service life remaining. When the ICM Tx Unit is OFF, the mode button (green) can be used to scan an ID Tag into the ICM Tx Unit. See the “Using the ICM Tx Unit” section for details.
- The PASS function uses RED and GREEN light-emitting diodes (LEDs) behind the opaque alarm button to display its status visually:
  - o GREEN LEDs start to flash when the cylinder valve is opened and shows that the device is operational.
  - o RED LEDs flash slowly when the device is in pre-alarm and flash rapidly when the device is in full alarm.
- The ICM Tx Unit operates using four standard AA alkaline batteries and notifies the user when the batteries need to be replaced by emitting an audible beep (1 beep every 5 seconds), displaying and empty battery icon on the LCD screen, and by flashing a YELLOW LED on the Nightfighter Receiver Display.
- The ICM Tx Unit has a data logging feature that records information about the SCBA while the ICM Tx Unit is turned on. This data log memory can be accessed using the ICM Tx Reader / ID Tag Writer interface.
- The ICM Tx Unit contains an internal real time clock. This clock can be reset using the ICM Tx Reader / ID Tag Writer interface. By default, the internal clock is set to Eastern Standard Time.

NOTES

USING THE ICM TX UNIT

Note: Refer to chart 2 for the various audible and visual indicators.

ICM TX UNIT THERMAL ALARM (THERMISTOR) DEVICE TECHNICAL SPECIFICATIONS

⚠ WARNING

Although this thermal alarm provides an indication that the time-temperature curve is exceeded, the curve may not represent the threshold to injury due to variations in individuals and the protective clothing worn. Use this alarm as a reference only to increasing time-temperature. Do not use as a substitute for standard operating procedures regarding escape from time-temperature extremes. Failure to do so can result in serious personal injury or death.

The ICM Tx Unit can monitor temperature conditions if the Thermal Alarm option is purchased. If the wearer is exposed to more than a pre-set limit of time/temperature, the unit will sound a tone every 3 seconds.

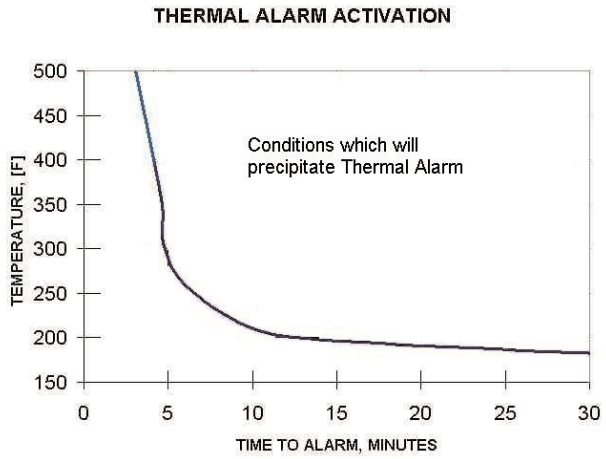
Chart 2: Audible/Visible Indicators

ACTION		AUDIBLE INDICATOR		VISIBLE INDICATOR (ICM)
		without Thermistor	with Thermistor	
Automatic Activation (with air cylinder pressure applied)		Single Rising Tone with Bee-Bop	Single Rising Tone with Bee-Bop	GREEN/RED Light Flash Front Panel
Manual Activation		Startup - Single Rising Tone with Bee-Bop (also Full Alarm)	Startup - Single Rising Tone with Bee-Bop (also Full Alarm)	GREEN/RED Lights Flash Front Panel - Red Light Flashing
Sensor Mode (with or without Pressure)		none	none	GREEN Light Flashes
PreAlarm (with or without Pressure	First 4 seconds (approx.)	Low Volume Rising Tone	Low Volume Rising Tone	RED Light Flashes
	Second 4 seconds (approx.)	Medium Volume Buzz	Medium Volume Buzz	
	Last 4 seconds (approx.)	High Volume Rise Tone Followed by Buzz	High Volume Rise Tone Followed by Buzz	
Full Alarm (with or without Pressure)		Two High Volume Tones Followed by Buzz	Two High Volume Tones Followed by Buzz	RED Light Flashes
Deactivation of Full Alarm	1st push of rest button	Bee	Bee	RED Light Flashes
	2nd push of reset button	Bee-Bop-Bop	Bee-Bop-Bop	GREEN Light Flashes
Deactivation of PreAlarm (with Shake or move Unit)		none	none	GREEN Light Flashes
Low Battery		1 Beep every 5 seconds	1 Beep every 5 seconds	none
Thermal Alarm Activation (see Thermal Alarm Activation Curve)		N/A	1 Beep every 3 seconds	none

USING THE ICM TX UNIT

Chart 3 shows the ICM Tx Unit thermal alarm activation curve. The time/temperature limits are based on the curve. The thermal alarm sounds if the pre-set limit exceeds the curve. The alarm will self-cancel depending on the severity of conditions. This may occur even though the temperature is above the thermal curve.

Chart 3: ICM Tx Unit Thermal Alarm Activation Curve



Note: This chart was generated from data obtained in a laboratory setting and is for reference only. Conditions are highly variable in an actual use scenario. Users of the ICM Tx Unit with the thermal alarm option should develop procedures for the use of this feature.

Optional ID Tag (PN 10058545), for use with ICM Tx Unit

The purpose of the ID Tag is to associate a user ID or jump seat location with the ICM Tx Unit. Once the ICM Tx Unit has read the ID data from a tag, that ID will remain associated with all future sessions of the ICM Tx Unit until another ID Tag has been swiped.

The ID Tag has a space for the user to place a label in which the ID information can be written on the outside of the ID Tag for easy identification. This space is located on the side of the ID Tag opposite the approval label.

⚠ WARNING

Any label attached to the ID tag must be less than 4 square centimeters in total area, otherwise the intrinsic safety approval is void.

Before using the ID tag, inspect for damage or cracks in the case. If damage is found, discard and replace the ID tag.

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

SPECIFICATIONS

Chart 4 shows the specifications for the ICM Tx Unit.

	SPECIFICATIONS
Weight	1.0 pounds (approximately 450 grams w/battery)
Alarm Output	Greater than 95dBA at 3 meters
Battery	Four AA Batteries
Battery Life	25 hours in full alarm mode
Electronics	Microprocessor controlled
Standards	Meets or exceeds NFPA 1982 (1998 Edition)
	Listed as intrinsically safe to ANSI UL 913
	NIOSH certified for use on MMR SCBA
	Not evaluated by MSHA for use in explosive atmospheres

Chart 4: ICM Tx Unit Specifications

Functional Check of the ICM Tx Unit

1. Don the SCBA following the instructions in the SCBA User's Instruction Manual.
2. When opening the cylinder valve to perform the SCBA "system checks," listen for the ICM Tx Unit automatic activation indicator as described in table.
3. Look through the facepiece lens at the LED panel, the LEDs should illuminate through the startup sequence as the SCBA is pressurized. The startup sequence is as follows:
   a. Four Green LED's ON/OFF.
   b. Three Green LED's ON/OFF.
   c. Two Yellow LED's ON/OFF.
   d. One Red LED ON/OFF.
   e. One Yellow LED ON/OFF.
   f. Current cylinder pressure.
4. Look to verify that the GREEN light on the ICM Tx Unit is slowly flashing.
5. Stand motionless for approximately 20 seconds. Listen for the pre-alarm to sound the low volume repeated tones. Look for the RED light on the ICM Tx Unit to alternately flash slowly.
6. Remain motionless until the full alarm activates. Listen for the alarm to sound the increasing loud repeated tones. Look for the light to flash RED rapidly.
7. Reset the ICM Tx Unit by pushing the RESET button on the side of the unit 2 times within approximately 1 second.
8. To check manual activation of the full alarm, push and HOLD the alarm button on the front of the unit.
9. Reset the Alarm. Press RESET button 2 times within approximately 1 second.

10. Stand motionless until the pre-alarm sounds. Shake unit to reset the alarm.
11. If the ICM Tx Unit passes these functional checks, complete all remaining SCBA donning steps in the SCBA user's instruction manual.
12. Disconnect the second stage regulator from the face-piece.
13. Close the cylinder valve fully.
14. At the appropriate pressure, the NightFighter Receiver should display one blinking red LED and the Audi-Larm should sound. Crack the bypass valve slowly to bleed off pressure until the ICM Tx Unit pressure reading drops below the following values:
    a. 530psig - approximately (2216psi system),
    b. 750psig - approximately (3000psi System),
    c. 1050psig - approximately (4500psi system)

A single flashing RED LED should be displayed in the Nightfighter Heads-Up Display System Receiver at the appropriate pressure listed above.

15. When the pressure falls below 200psig, turn the ICM Tx Unit off (Sleep Mode) by pressing the reset button 2 times in rapid succession.

NOTES

DURING USE

Note: Refer to chart 2 for the various audible and visual indicators for the ICM Tx Unit.

Optional ID Tag (PN 10058545), for use with ICM Tx Unit

Prior to pressurization of the SCBA and during inspection, the user can "tag in" by depressing and holding the top mode button (green) until the word "data" appears in the display. While "data" is displayed, hold the ID tag as shown in the picture below. The ICM will sound a single beep confirming that the ID data has been read. If the word "data" disappears before the ID tag has been read, the ICM Tx Unit has timed out and the top mode button (green) must be depressed and held again until "data" reappears.

Correct ID Tag Orientation.

⚠ CAUTION

The ID tag is not designed to be taken into a fire. The ID tag can also be used as accountability tag.

Pressure Display

1. Periodically check the pressure indicated on the ICM Tx Unit display. It will display either remaining cylinder pressure or calculated remaining service life.
2. When the pressure reaches 25% of the rated service pressure, the NightFighter Receiver will display one flashing RED LED.
3. When the NightFighter Receiver displays one flashing RED LED, or when the pressure reaches approximately 25% of the rated service pressure, return to fresh air.

Changing the ICM Tx Unit Display Mode

1. Press the top mode button (green) once. This will momentarily refresh the NightFighter Receiver display as well as light the ICM Tx Unit display.
2. While the ICM Tx Unit display is still lit, press the top mode button (green) again. This will toggle the display between remaining cylinder pressure and calculated remaining service life.

⚠ WARNING

The ICM Tx Unit has the ability to display calculated remaining service life counting down to 0 psi or 25% of the rated service pressure. The user must determine which option has been selected for the ICM Tx Unit in service. Failure to follow this warning can result in serious personal injury or death.

⚠ WARNING

Actual time remaining may be less than the calculated time displayed. Increases in breathing rate may reduce remaining time more than expected. Use time indicator as general guide only. The time displayed is based on the continuation of the average breathing rate over the last three minutes. Increases in the breathing rate after checking the displayed time may result in less remaining time than anticipated.

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

Starting Continuous Operations Mode

⚠ WARNING

In Continuous Operations Mode, the life of the batteries in the Nightfighter Receiver will be shortened.

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

Note: The Continuous Pressure Mode can only be activated when the system is pressurized. Activate the Continuous Pressure Mode as follows:

1. Push the top mode button (green) on the ICM Tx Unit and hold button in for 3 seconds (or push the Operation Button on the Nightfighter transmitter). Once LED's lights come on, release button.
2. Receiver will show air cylinder pressure level. LED lights will stay on to show air cylinder pressure level drop.

Turning Continuous Operations Mode OFF

Note: The Continuous Operations Mode will deactivate if low battery is present.

1. With the ICM Tx Unit in Continuous Operation Mode, push mode button (green) on the ICM Tx Unit and hold the button in for 3 seconds (or push the Operation Button on the Nightfighter transmitter). Release button once LED lights go off.
2. LEDs will revert to Automatic Mode showing only air cylinder pressure status at each 25% increment of full cylinder pressure.

Note: The NightFighter Heads-Up Display System will automatically turn itself OFF, approximately 60 seconds after the apparatus is depressurized. (The single red LED light will flash at this time).

DURING USE

Low Battery Warnings

⚠ WARNING

Replace the batteries in the appropriate device when the low battery warning sounds. Use only recommended battery types (see Description section of this manual). Change the battery in non-hazardous area only. Failure to follow this warning can result in serious personal injury or death.

Note: There are unique Low Battery Warnings for the NightFighter Receiver and ICM Tx Unit or Nightfighter transmitter which are each displayed by the NightFighter Receiver.

1. If there is a low battery in the receiver, one short Yellow LED will flash.
2. If there is a low battery in the ICM Tx Unit or Nightfighter transmitter, double short Yellow LED flashes will be displayed.
3. If there are low batteries in the receiver and ICM Tx Unit or transmitter, the Yellow LED will alternate single and double flashes.

Replacing the Batteries in the ICM Tx Unit

⚠ WARNING

Do not dispose of the battery in fire. It may explode. Failure to follow this warning can result in serious personal injury or death.

1. Loosen the four screws from the battery compartment of the ICM Tx Unit then remove the battery cover (two screws if Nightfighter Transmitter is in use).
2. Insert the four AA batteries following diagrams inside battery compartment (two AAA batteries if Nightfighter Transmitter is in use). Insert each battery base firmly into the case, then press down and in on the top of the battery.
3. Verify that the battery cover gasket is held in place and is free from damage and debris and is not twisted in the gasket retention groove in the battery cover.
4. Before replacing the battery cover, be sure that the rubber cover on the ICM Tx Unit is properly engaged with the plastic housing. The rubber cover has barbs that hold it firmly against the plastic housing.
5. Replace the cover. Make certain that the battery cover is oriented properly. Align the angled tabs near the battery cover screws with the battery cover. Check that the rubber cover is no bunched or pinched under the battery cover, otherwise the battery cover may not remain water tight.
6. Evenly tighten cover screws by moving in an X pattern (for ICM Tx Unit) around the cover. Be sure to tighten the battery cover screws enough to provide adequate compression on the battery cover gasket to prevent dirt and moisture from entering the battery compartment. A torque of 6 in lbs is suggested. Do not overtighten the screws. Do NOT use a thread sealant on the screws.
7. Dispose of, or recycle batteries in accordance with all applicable federal, state, and local regulations.

Replacing the Batteries in the NightFighter Receiver

⚠ WARNING

Do not dispose of the battery in fire. It may explode. Failure to follow this warning can result in serious personal injury or death.

1. Loosen the screws to open battery door.
2. Insert two AA batteries (Duracell MN1500 or Energizer E91) according to the battery orientation noted inside the compartment. (Older versions of the NightFighter Receiver use AAA batteries). The approved AAA battery is Duracell MN2400, Energizer E92, or Eveready A92.
3. Verify that the battery cover gasket is held in place and is free from damage and is not twisted in the gasket retention groove in the battery cover.
4. Align the battery cover to the RX housing and tighten the screws evenly from side to side. Be sure to tighten the battery cover screws enough to provide adequate compression on the battery cover gasket to prevent dirt and moisture from entering the battery compartment. Do not overtighten the screws. Do NOT use a thread sealant on the screws.
5. Dispose of, or recycle batteries in accordance with all applicable federal, state, and local regulations.

Turning the ICM Tx Unit Off After Doffing the SCBA

⚠ CAUTION

Turn off the ICM Tx Unit after doffing the SCBA; otherwise batteries will be drained. The ICM Tx Unit does not shut off automatically.

1. Upon returning to fresh air, close the cylinder valve completely and release all pressure from the system following the SCBA instruction manual.
2. When the pressure falls below 200 psig, turn the device off by pressing the reset button 2 times in rapid succession.
3. The ICM Tx Unit will beep 1 time when the button is pressed once. Pressing the button a second time will then sound three beeps (“bee-bop-bop”) to indicate that the unit is turned off. The lights will also stop flashing.

CLEANING AND MAINTENANCE

CLEANING AND DISINFECTING

1. Prepare a cleaning solution by adding Confidence Plus® Cleaning Solution (P/N 10009971) to water, following the instructions on the Confidence Plus Cleaning Solution container.
2. Cleaning by wiping with a damp sponge or cloth containing Confidence Plus Cleaning Solution from MSA. Follow the directions on the Confidence Plus Cleaning Solution container for mixing directions and recommended times.

CLEANING AND MAINTENANCE

The NightFighter Heads-Up Display System should be cleaned and disinfected after each use. Follow an established cleaning and disinfecting program. Failure to follow this procedure can damage the Nightfighter Heads-Up Display System.

Remove the Receiver from the Apparatus
Unthread the thumbscrew of NightFighter Heads-Up Display System Receiver and slide the receiver from the facepiece bracket.

INSPECTION OF THE NIGHTFIGHTER RECEIVER

1. Inspect the receiver module. Look for cracks or other signs of damage, which could allow contaminants to enter the module housing. Check that the battery compartment is clear of moisture or debris. Also check that the battery compartment Gasket is free of debris and not damaged or missing.
2. Reassemble the receiver module on the Ultra Elite Facepiece.
3. Function Check

Note: If a low battery is present in the receiver, ICM Tx Unit, or Nightfighter Transmitter, the LED Yellow light will flash after going through the start-up sequence, (see “Low Battery Warnings” in the “During Use” section of this manual).

INSPECTION OF THE ICM TX UNIT

Inspect the entire SCBA and the ICM Tx Unit after EACH use and MONTHLY.

Note: Most performance properties of the device cannot be tested by the user in the field.

1. Perform the ICM Tx Unit Functional Test (outlined in the “Functional Check of the ICM Tx Unit” portion of the “Using the ICM Tx Unit” section of this manual.
2. If all the steps are performed successfully, remove the SCBA and inspect the ICM Tx Unit as follows:
   a. Check for external cracks in the case or housing.
   b. Check for missing screws or loose covers.
   c. Check for signs of leaking covers or water retention in the case.
   d. Check rubber cover for damage.
   e. Check for damaged or missing buttons on the unit.
   f. Check for any visible signs of damage to components.
   g. Check for proper operation of buttons. The buttons should be free from damage or cracks.
   h. Check for proper and secure attachment of all components to the hose and gauge. If the SCBA passes all the inspections specified in the SCBA instruction manual, and the ICM Tx Unit passes all inspections specified above, the unit is ready to be placed in service.
   i. Check for low battery.

Note: If the battery in either the ICM Tx Unit or the NightFighter Heads-Up Display System Receiver is low, the Yellow LED will flash in the receiver display after going through the start-up sequence. (see “Low Battery Warnings” in the “During Use” section of this manual)

Note: If the SCBA and ICM Tx Unit do not meet all inspection requirements, the unit must be removed from service until those conditions which failed are corrected and the SCBA is re-inspected satisfactorily.

⚠ WARNING

All repair and replacement of subassemblies must be carried out by a trained repair person. Do not disassemble the ICM Tx Unit beyond the limits of this instruction manual. Failure to follow this warning will void the NFPA & NIOSH certifications and can result in serious personal injury or death.

STORAGE AND MAINTENANCE

1. In order to maintain the ICM Tx Unit and NightFighter Receiver, they should be cleaned after each use with a damp cloth using soap and water. DO NOT APPLY CLEANING SOLVENTS.
2. Units contaminated by chemical or radioactive materials must be decontaminated or disposed of according to all applicable regulatory standards.
3. In the event of any malfunction, return the unit for repair. Contact MSA Customer Service for return authorization.
4. Store the units in a cool, dry, ventilated area at ambient temperatures consistent with the battery manufacturer’s recommendations. To store the NightFighter Heads-Up Display System components, be sure that the ICM Tx Unit is in the OFF (LED is not illuminated). For prolonged storage, remove the batteries to prevent battery corrosion.
5. NFPA 1500 as well as ANSI Z88.2 and Z88.5 prescribe

SCBA inspections which are to be performed “After each use” and “Monthly”. The ICM Tx Unit inspections must also be performed during these SCBA inspections.
6. DO NOT PAINT the ICM Tx Unit or NightFighter Receiver.
7. Do not mark or etch the surface of the ICM Tx Unit or NightFighter Receiver.

Installing the Batteries Before Use
In continuous service, battery life will vary depending on user conditions. The batteries are not rechargeable.

⚠ WARNING

Use only Duracell MN2400, Eveready A92, or Energizer E92 AAA alkaline batteries in the Nightfighter TRANSMITTER. Use of other batteries, or a combination of batteries from different manufacturers, will affect the performance of the unit and void the Intrinsic Safety approval. Failure to follow this warning can result in serious personal injury or death.

1. Loosen the screws to open the battery doors in the Nightfighter Transmitter.
2. Insert two AAA batteries according to the battery orientation noted inside the transmitter compartment.
3. Close the battery door and tighten the screws.

Replacing the Batteries in the ICM Tx Unit

⚠ WARNING

Use only Duracell MN1500 or Energizer E91 AA alkaline batteries in the RECEIVER or ICM Tx Unit. Use of other batteries, or a combination of batteries from different manufacturers, will affect the performance of the unit and will void the Intrinsic Safety approval. Failure to follow this warning can result in serious personal injury or death.

1. Loosen the four screws from the battery compartment of the ICM Tx Unit.
2. Remove the battery cover (two screws if Nightfighter Transmitter is in use).
3. Insert the four AA batteries following diagrams inside battery compartment (two AAA batteries if Nightfighter Transmitter is in use). Insert each battery base firmly into the case, then press down and in on the top of the battery.
4. Verify that the battery cover gasket is held in place and is free from damage and debris and is not twisted in the gasket retention groove in the battery cover.
5. Before replacing the battery cover, be sure that the rubber cover on the ICM Tx Unit is properly engaged with the plastic housing. The rubber cover has barbs that hold it firmly against the plastic housing.
6. Replace the cover. Make certain that the battery cover is oriented properly. Align the angled tabs near the battery cover screws with the battery cover. Check that the rubber cover is no bunched or pinched under the battery cover; otherwise the battery cover may not remain water tight.
7. Evenly tighten cover screws by moving in an X pattern (for ICM Tx Unit) around the cover. Be sure to tighten the battery cover screws enough to provide adequate compression on the battery cover gasket to prevent dirt and moisture from entering the battery compartment. A torque of 6 in lbs is suggested. Do not overtighten the screws. Do NOT use a thread sealant on the screws.
8. Dispose of, or recycle batteries in accordance with all applicable federal, state, and local regulations.

Replacing the Batteries in the NightFighter Receiver
1. Loosen the screws to open battery door.
2. Insert two AA batteries (Duracell MN1500 or Energizer E91) according to the battery orientation noted inside the compartment. (Older versions of the NightFighter Receiver use AAA batteries). The approved AAA battery is Duracell MN2400, Energizer E92, or Eveready A92.
3. Verify that the battery cover gasket is held in place and is free from damage and is not twisted in the gasket retention groove in the battery cover.
4. Align the battery cover to the RX housing and tighten the screws evenly from side to side. Be sure to tighten the battery cover screws enough to provide adequate compression on the battery cover gasket to prevent dirt and moisture from entering the battery compartment. Do not overtighten the screws. Do NOT use a thread sealant on the screws.
5. Dispose of, or recycle batteries in accordance with all applicable federal, state, and local regulations.

Battery Disposal/Recycling
Dispose of or recycle batteries in accordance with all applicable federal, state, and local regulations.

⚠ WARNING

Do not dispose of the battery in fire. It may explode. Failure to follow this warning can result in serious personal injury or death.

QUICK-FILL SYSTEM OPERATION

The Quick-Fill System may be used for transfill operations as described in this manual. Standard operating procedures should be developed for use of the Quick-Fill System, unless using a 3000psi URC Assembly. The 3000psi URC Assembly cannot be used with Quick-Fill system.

⚠ WARNING

The 3000psi Operating System is NOT compatible with a 2216psi SCBA Cylinder. Failure to follow the above warnings may result in serious personal injury or death.

⚠ WARNING

Do not use the Quick-Fill System with 3000psig cylinders. Failure to follow the above warnings may result in serious personal injury or death.

⚠ WARNING

An air mask using the 3000psig URC Assembly without Quick-Fill System can receive (be a Receiver) cylinder pressure through the 3000psig URC Assembly. Do not use air mask with Quick-Fill System and 3000psig URC Assembly on the same air mask. Air mask with Quick-Fill System and 3000psig URC Assembly on same air mask will not allow the relief valve in the 3000psig URC Assembly to open as designed. Failure to follow the above warnings may result in serious personal injury or death.

⚠ WARNING

The Quick-Fill System is not to be used as a "Buddy Breather" such that two (2) users are sharing the air supplied by one (1) approved SCBA cylinder simultaneously; doing so will void NIOSH approval. Failure to follow the above warnings may result in serious personal injury or death.

The 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 System hose assemblies from MSA are used. Quick-Fill System hose assemblies and fittings are rated for a maximum working pressure of 4500psig.

NIOSH approval is maintained only when using the following hose assemblies:
485331, 802687, 802688, 802689, 802690, and 48332, for filling cylinders in IDLH atmospheres.

⚠ WARNING

For transfilling operations using the Quick-Fill System, do not use any transfilling hose assembly or fittings other than those supplied by MSA specifically for the 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. Failure to follow the above warnings may result in serious personal injury or death.

⚠ WARNING

Do not Transfill (be a Donor) using a 3000psi URC Assembly. The 3000psi URC Assembly has a Check Valve that does not allow cylinders to Transfill (be a Donor). Using the 3000psi URC Assembly to fill cylinders, the cylinder can only be filled to 2216psig. If the pressure exceeds 2216psig a relief valve in the URC Assembly will vent at approximately 2525psig or as low as 2400psig. A 3000psig cylinder can only be filled to 3000psig by using a secondary air source; the 3000psi URC Assembly cannot be used for filling a 3000psig Cylinder. Failure to follow the above warnings may result in serious personal injury or death.

⚠ WARNING

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 G7.1. TRANSFILLING AIR FROM A SECONDARY AIR SOURCE. Failure to follow the above warnings may 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 connect a Quick-Fill System equipped Low Pressure SCBA to an unregulated secondary air source with a pressure greater than 2216psig. The Quick-Fill System equipped low pressure air mask is rated for a maximum working pressure of 2216psig. As an additional safety feature, the SCBA has a pressure relief valve which automatically vents at 2525psig. Failure to follow the above warnings may result in serious personal injury or death.

QUICK-FILL SYSTEM OPERATION

⚠ WARNING

Do not connect a High Pressure SCBA to a secondary air source with a pressure greater than 4500psig. The high pressure air mask is rated for a maximum working pressure of 4500psig. Failure to follow the above warnings may result in serious personal injury or death.

PRECAUTIONS FOR USING QUICK-FILL SYSTEM

1. The Quick-Fill System can only be used to fill approved SCBA cylinders.
2. The Quick-Fill System is not to be used as a "Buddy Breather" such that two (2) users are sharing the air supplied by one (1) SCBA cylinder simultaneously doing so will void NIOSH approval.
3. 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 (2216psig or 4500psig).
4. Using the 3000psi URC Assembly to fill cylinders, the cylinder can only be filled to 2216psig. If the pressure exceeds 2216psig a relief valve in the URC Assembly will vent at approximately 2525psig or as low as 2400psig. A 3000psig cylinder can only be filled to 3000psig by using a secondary air source; the 3000psi URC Assembly cannot be used for filling a 3000psig cylinder.
5. The user also is responsible for connecting the Quick-Fill hose to an appropriate secondary air source.
6. The cylinder must be inspected for damage before charging.
7. If filling cylinders in fresh air using the Quick-Fill System topping off the cylinder is recommended after the cylinder has cooled from initial fill. Topping off a cylinder after it has cooled will ensure proper service time.

FILLING INSTRUCTIONS FOR QUICK-FILL SYSTEM

1. To connect the Quick-Fill System hose.
   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.
   a. Remove the rubber dust cap from the male inlet fitting on the SCBA. Be sure that the cylinder valve is fully opened.
   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 fitting snapped into place. Transfilling begins when the female fitting is snapped on the SCBA 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°F. The pressure gauge may show FULL immediately after transfilling, but cylinder pressure may decrease by as much as 190psig 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 male fitting 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 male fitting.
6. The SCBA cylinder is ready for service if the cylinder pressure gauge is on the corresponding color band.

QUICK-FILL SYSTEM EMERGENCY OPERATIONS

1. If you are transfilling in fresh air and the dust cover will not stay on the 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 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 male fitting. This will form a redundant seal.
   d. Open the cylinder valve and return to fresh air immediately. The dust cover prevents dirt, water,CAUTION

e. 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 is ringing or NightFighter Heads-Up Display System/ ICM Unit Gauge are flashing. Failure to follow this warning may result in shorter escape time to return to fresh air, causing serious personal injury or death.

The audible alarm begins ringing and NightFighter Heads-Up Display System begins flashing 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 begins ringing or NightFighter Heads-Up Display/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 NightFighter Heads-Up Display System/ICM Unit Gauge are not flashing and you have sufficient air to transfill air to a receiver, (greater than 1000psig for Low Pressure SCBA and greater than 2000psig 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 may 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 the SCBA 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.

QUICK-FILL SYSTEM EMERGENCY OPERATIONS

1. If the dust cover will not stay on the 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 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

URC ASSEMBLY OPERATION

All NFPA 1981-2002 approved SCBA are equipped with a URC Assembly (Universal Rescue Connection) fitting. The 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, unless using a 3000psi URC Assembly, the 3000psi URC Assembly cannot be used with Quick-Fill System.

⚠ WARNING

The URC Assembly is not to be used as a "Buddy Breather" such that two (2) users are sharing the air supplied by one (1) approved SCBA cylinder simultaneously; doing so will void NIOSH approval. Failure to follow the above warnings may result in serious personal injury or death.

⚠ WARNING

The URC Assembly must be used by trained Rapid Intervention Crews only using procedures developed for rapid intervention. Improper use can result in serious personal injury or death.

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

⚠ WARNING

An air mask using the 3000psig URC Assembly without Quick-Fill System can receive (be a Receiver) cylinder pressure through the 3000psig URC Assembly. Do not use air mask with Quick-Fill System and 3000psig URC Assembly on the same air mask. Air mask with Quick-Fill System and 3000psig URC Assembly on same air mask will not allow the relief valve in the 3000psig URC Assembly to open as designed. Failure to follow the above warnings may result in serious personal injury or death.

The URC Assembly 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. URC Assembly or Quick-Fill hose assemblies and fittings are rated for a maximum working pressure of 4500psig.

NIOSH approval is maintained only when using the following hose assemblies:
485331, 802687, 802688, 802689, 802690, and 48332, for filling cylinders in IDLH atmospheres.

⚠ WARNING

Do not Transfill (be a Donor) using a 3000psi URC Assembly. The 3000psi URC Assembly has a check valve that does not allow cylinders to Transfill (be a Donor). Using the 3000psi URC Assembly to fill cylinders, the cylinder can only be filled to 2216psig. If the pressure exceeds 2216psig a relief valve in the URC Assembly will vent at approximately 2525psig or as low as 2400psig. A 3000psig cylinder can only be filled to 3000psig by using a secondary air source; the 3000psi URC Assembly cannot be used for filling a 3000psig cylinder. Failure to follow the above warnings may result in serious personal injury or death.

⚠ WARNING

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

⚠ WARNING

Do not lubricate the URC Assembly 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 may 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 connect a High Pressure SCBA to a secondary air source with a pressure greater than 4500psig. The high pressure air mask is rated for a maximum working pressure of 4500psig. Failure to follow the above warnings may result in serious personal injury or death.

URC ASSEMBLY OPERATION

PRECAUTIONS FOR USING URC ASSEMBLY

1. The URC Assembly can only be used to fill approved SCBA cylinders.
2. The URC Assembly is not to be used as a "Buddy Breather" such that two (2) users are sharing the air supplied by one (1) SCBA cylinder simultaneously doing so will void NIOSH approval.
3. 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 (2216psig or 4500psig).
4. Using the 3000psi URC Assembly to fill cylinders, the cylinder can only be filled to 2216psig. If the pressure exceeds 2216psig a relief valve in the URC Assembly will vent at approximately 2525psig or as low as 2400psig. A 3000psig cylinder can only be filled to 3000psig by using a secondary air source; the 3000psi URC Assembly cannot be used for filling a 3000psig cylinder.
5. The user also is responsible for connecting the Quick-Fill hose to an appropriate secondary air source.
6. The cylinder must be inspected for damage before charging.
7. If filling cylinders in fresh air using the URC Assembly topping off the cylinder is recommended after the cylinder has cooled from initial fill. Topping off a cylinder after it has cooled will ensure proper service time.

FILLING INSTRUCTIONS FOR USING THE URC ASSEMBLY

For Rapid Intervention Crews:

Rapid Intervention Crews should use a separate air supply such as MSA's RescueAire™ portable air supply system to fill SCBA in a IDLH atmosphere.

1. To connect the URC Assembly to the Quick-Fill System hose (P/N 485391 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 URC Assembly:
   a. Remove the rubber dust cap from the male inlet fitting on the URC Assembly. Be sure that the cylinder valve is fully opened.
   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.
   d. Pull on the hose to be sure the fitting snapped into place. Filling begins when the female fitting is snapped on the URC Assembly.

⚠ 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 may result in serious personal injury or death.

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°F. The pressure gauge may show FULL immediately after transfilling, but cylinder pressure may decrease by as much as 190psig 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 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 URC Assembly male fitting.
6. The SCBA cylinder is ready for service if the cylinder pressure gauge is on the corresponding color band.

URC ASSEMBLY EMERGENCY OPERATIONS

⚠ WARNING

NIOSH Does NOT approve the use of the URC Assembly to transfer air from the cylinder of one SCBA to another SCBA. Failure to follow the above warnings may result in serious personal injury or death.

URC ASSEMBLY OPERATION

1. If you are in fresh air and the dust cover will not stay on the URC Assembly because air is leaking, correct the condition before using the SCBA.
2. If you are filling the URC Assembly in a contaminated atmosphere and the dust cover will not stay on the URC Assembly 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 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.

The audible alarm with URC Assembly begins ringing and NightFighter Heads-Up Display System begins flashing 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.

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

WARRANTY

WARRANTY INFORMATION

The ICM Tx Unit is warranted to be free from mechanical defects or faulty workmanship for two (2) years from first use or eighteen (18) months from the date code, whichever occurs first, provided it is maintained and used in accordance with MSA's instructions and/or recommendations. Refer to MMR Air Mask with Firehawk operation and instructions manual PN 10023638 for additional warranty information. For a copy of the complete warranty or for information on submitting a warranty claim, write to MSA, Customer Service Department, P.O. Box 426, Pittsburgh, PA 15230-0426 or call 1-800-MSA-2222.

For further information or training instructions contact your MSA representative or distributor.

For questions or comments regarding the certification of this product, contact Safety Equipment Institute:
1307 Dolley Madison Blvd.
Suite 3A
McLean, VA 22101