

PremAire®

INSTRUCTIONS FOR DUO-TWIN MODE OF OPERATION

System



MSA

⚠ WARNING

THIS MANUAL MUST BE READ CAREFULLY BY ALL PERSONS WHO HAVE OR WILL HAVE THE RESPONSIBILITY FOR USING OR SERVICING THE PRODUCT. Like any complex piece of equipment, the Duo-Twin from MSA will perform as designed only if used and serviced according to the instructions. OTHERWISE, THE PRODUCT COULD FAIL TO PERFORM AS DESIGNED, AND PERSONS WHO RELY ON THE PRODUCT COULD SUSTAIN SERIOUS PERSONAL INJURY OR DEATH.

The warranties made by MSA with respect to the product are voided if the product is not used and serviced according to the instructions in this manual. Please protect yourself and your employees by following the instructions. Please read and observe the WARNINGS and CAUTIONS inside. We encourage our customers to write or call for a demonstration of this equipment prior to use, or for any additional information relative to use or repairs. During regular working hours, call 1-800-MSA-2222.

See separate Insert for NIOSH Approval information
(P/N 3094-50 and 816922)



MSA

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Choose MSA.

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

INTRODUCTION

TABLE OF CONTENTS

NIOSH Approval Information.....	2	Donning and Using the Respirator.....	9
Special or Critical User Instructions.....	2	Air-tightness Test.....	11
Respirator Use Limitations.....	5	Activating the Air-Purifying Capability.....	11
Exposure Limits.....	5	Removing the Apparatus.....	11
Exposure Limits for Mixtures.....	5	Cartridge/Filter Use Life.....	13
PremAire Respirator System Symbols.....	6	Filter/Cartridge Replacement.....	13
PremAire System Options.....	6	Replacing Filters.....	13
Description.....	7	Maintenance.....	13
Operating Principles.....	7	Cleaning and Disinfecting.....	15
Respirator Fit Test.....	7	Inspection.....	17
Attaching Filters or Cartridges.....	7	Functional Checks.....	19
Donning the Facepiece.....	9		

NIOSH APPROVAL INFORMATION CAUTIONS AND LIMITATIONS

- A- Not for use in atmospheres containing less than 19.5 percent oxygen.
- B- Not for use in atmospheres immediately dangerous to life or health.
- C- Do not exceed maximum use concentrations established by regulatory standards.
- D- Air-line respirators can be used only when the respirators are supplied respirable air meeting the requirements of CGA G-7.1 Grade D or higher quality.
- E- Use only the pressure ranges and hose lengths specified in the user instructions.
- G- If air flow is cut off, switch to filter and/or cartridge and immediately exit to clean air.
- H- Follow established cartridge and canister change schedules or observe ESLI to ensure that cartridge and canisters are replaced before breakthrough occurs.
- I- Contains electrical parts which have not been evaluated as an ignition source in flammable or explosive atmospheres by NIOSH.
- J- Failure to use and maintain this product properly could result in injury or death.
- L- Follow the manufacturer's User Instructions for changing cartridges and/or filters.
- M- All approved respirators shall be selected, fitted, used, and maintained in accordance with 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 User Instructions, and/or maintenance manuals for information on use and maintenance of these respirators.
- P- NIOSH does not evaluate respirators for use as surgical masks.
- S- Special or critical user instructions and/or specific use limitations apply. Refer to User Instructions before donning.

S - SPECIAL OR CRITICAL USER INSTRUCTIONS

1. Special Instructions for Mersorb-P100/ Mersorb® Cartridges —
 - a. Mersorb-P100/Mersorb cartridges can be used against a mixture of chlorine and mercury that are both present simultaneously, but cannot be used if alternating between mercury-contaminated atmospheres and chlorine-contaminated atmospheres.
 - b. Service Life Indicator - The Mersorb-P100 Mersorb respirator utilizes an End of Service Life Indicator (ESLI) for use against metallic mercury vapor. The ESLI must be readily visible to the wearer of this respirator without manipulation of either the respirator, cartridges, facepiece or the indicator. If you can not readily see the indicator, do not wear the respirator. The ESLI band around the side of each Mersorb-P100/Mersorb cartridge consists of chemically treated paper. In use, as the paper is exposed to metallic mercury vapor, it changes from orange to brown. When the indicator color changes to brown, the cartridge is beginning to lose its effectiveness against metallic mercury vapor and must be replaced. Thus, the wearer has a constant, positive check on the condition of his cartridge.
 - c. Do not enter any atmospheres with this respirator unless you know that; you are not colorblind and can distinguish between the beginning and ending colors of the end-of-service-life indicator (when using Mersorb-P100/Mersorb respirators only).
2. This approval applies only when the device is supplied with respirable air through 8 to 300 feet of air supply hose within the pressure range.
3. When used at temperatures below 32°F, nose cups are required.
4. A maximum of 12 sections of air supply hose may be used in making up the maximum working length of hose. Each section of coiled hose, regardless of length, is considered 50 feet in length (max.: 6 sections).
5. Thoroughly check out the apparatus when received and before use.

INTRODUCTION

6. This respirator is for use by trained qualified personnel only.
7. Do not enter any atmosphere with this respirator unless you know that:
 - you have read, understood, and followed all instructions and warnings pertaining to the respirator;
 - the respirator and conditions meet the requirements outlined;
 - the cartridges are the proper type for the contaminants present;
 - the respirator does not leak (see Test for Tightness);
 - cartridges do not need to be replaced; discard exhausted cartridges;
 - you are not color-blind and can distinguish between the beginning and ending color of the Service Life Indicator (Mersorb P100 respirators only);
8. Leave area immediately if:
 - breathing becomes difficult
 - dizziness or other distress occurs
 - you taste or smell contaminant
 - you experience eye, nose or throat irritation.
9. This respirator may not provide a satisfactory seal with certain facial characteristics such as beards or large side burns, that prevent direct contact between the skin and the sealing surface of the facepiece. Do not use this respirator if such conditions exist.
10. If the respirator is worn through a decontamination shower (as in asbestos abatement applications), P100 filter cartridges must be replaced at least weekly. Other filters, cartridges or combination cartridges must be replaced after each use.
11. Do not use a filter or cartridge if they show any visible signs of damage.
12. Contaminants can enter an air-line respirator system when air-line supply hoses are disconnected and/or reconnected in a contaminated atmosphere. The user must determine the potential risk and take the necessary precautions, which may require that NO disconnection or reconnection of air-supply hoses are permitted in a contaminated atmosphere. If in doubt, DO NOT disconnect and/or reconnect.
13. Do not use for firefighting.
14. Do not use as an underwater device.
15. Do not use compressed oxygen with this device.
16. Do not disconnect when pressurized. Release all pressure from the regulator by opening the bypass valve. Removing the regulator when pressurized may result in serious personal injury, death, or damage to equipment.

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

INSTRUCTIONS FOR USE AND CARE BY PROPERLY TRAINED AND QUALIFIED PERSONNEL

WARNING

1. **This device does NOT supply oxygen, and must only be used in adequately ventilated areas containing at least 19.5 percent oxygen.**
2. **Do not use when concentrations of contaminants are unknown or immediately dangerous to life or health (IDLH).**
3. **Do not use when appropriate exposure limit (OSHA PEL, NIOSH REL, ACGIH TLV, etc.) is not known.**

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

WARNING

Do not use for urethane paints or other paints containing diisocyanates unless an appropriate cartridge change-out schedule is developed. Due to their poor warning properties, over exposure can occur without user awareness and result in severe permanent damage to the respiratory system. If unable to develop an appropriate change-out schedule, use an air-supplied respirator or SCBA.

LIMITATIONS

RESPIRATOR USE LIMITATIONS

The wearer must comply with the following respirator use limitations:

1. **MAXIMUM USE CONCENTRATION** —
Do not exceed any of the following:
 - A. 100 times the exposure limit for the contaminants present.
 - B. Immediately dangerous to life or health (IDLH) concentration for any contaminant present.
2. The limitations outlined in the applicable NIOSH approval.
3. For respirators with class N or R filters: Replace filters after no more than 8 (eight) hours of use (continuous or intermittent) or sooner if excessive breathing resistance occurs while inhaling. Service time can be extended by performing an evaluation in the specific workplace setting that demonstrates (a) that the extended use will not degrade the filter below the efficiency level for which it is approved, or (b) that the total mass loading of the filter is less than 200 mg.
4. For respirators with class P filters: Replace filters when excessive breathing resistance occurs while inhaling.
5. For respirators with chemical cartridges:
 - a. Users must follow an appropriate cartridge change-out schedule developed by a qualified professional. The change-out schedule must take into account all factors that may influence respiratory protection including specific work practices and other conditions unique to the works environment. Cartridges equipped with an end-of-service-life indicator for a specific contaminant present must be replaced when the indicator changes to the specified color or sooner if using the respirator against a mixture and the cartridge change-out schedule specifies an earlier replacement.
 - b. If using the respirator against substances having poor warning properties, over exposure can occur without user awareness. Take appropriate precautions to prevent over exposure, which may include an earlier cartridge change-out, or using an air-supplied respirator or SCBA. For further information refer to MSA's Response Respirator Selector.
 - c. Replace cartridges every shift or sooner, if indicated by change-out schedule or end-of-service-life indicator. Use beyond one shift could result in shorter than expected service time and over exposure due to contaminant desorption and migration through the cartridge when not in use. If using the respirator for escape, replace cartridges after each escape. Once the user breathes through the respirator in a contaminated atmosphere, the cartridges may not provide adequate protection for additional escapes. Additionally, once the cartridges are initially placed into service or carried by the user in anticipation of escape, they must be replaced based on an appropriate cartridge change-out schedule. Extended exposure of the cartridges to nuisance levels (below

- the PEL) of the contaminant may prevent the cartridges from providing adequate escape protection.
6. For respirators with combination cartridges (chemical cartridges with filters): The limitations specified above for chemical cartridges as well as the applicable filter class apply for combination cartridges.
 7. Applicable respirator use requirements as specified in the OSHA Respiratory Protection Regulation 29 CFR Part 1910.134 (or other requirements established by the Regulatory Agency with jurisdiction over the wearer). Additional OSHA Regulations may also apply for certain contaminants (See MSA's Response Respirator Selector).

Time Use Limitation

N and R filters shall be limited to 8 hours of use (continuous or intermittent) against particulates. [Service time can be extended by performing an evaluation in the specific workplace setting that demonstrates (a) that the extended use will not degrade the filter efficiency below 95% or (b) that the total mass loading of a pair of filters on a respirator is less than 200 mg.]

EXPOSURE LIMITS

A listing of acceptable exposure limits from the following sources is provided.

- American Conference of Government Industrial Hygienists (ACGIH)
 - Occupational Safety and Health Administration (OSHA)
 - National Institute for Occupational Safety and Health (NIOSH)
 - American Industrial Hygiene Association (AIHA)
- Contact MSA at 1-800-MSA-2222 for information.

EXPOSURE LIMITS FOR MIXTURES

The American Conference of Governmental Industrial Hygienists (ACGIH) publishes the following information to determine the TLV of a mixture.

First, determine the total concentration of the chemical mixture (C_{Mixture}) from the individual contaminant concentrations (C_1, C_2, C_3, \dots) using the following formula:

$$C_{\text{Mixture}} = C_1 + C_2 + C_3 + \dots$$

The TLV of the mixture is found by using the following formula where T_1, T_2, T_3, \dots are the individual contaminant TLVs and C_1, C_2, C_3, \dots are the individual contaminant concentrations:

$$T_{\text{Mixture}} = \frac{C_{\text{Mixture}}}{\frac{C_1}{T_1} + \frac{C_2}{T_2} + \frac{C_3}{T_3} + \dots}$$

LIMITATIONS

Use these equations only if the contaminants present are actually mixed. Some substances do not mix and may be present separately, for example, in pockets or at different levels. In that case, the lowest TLV of the substances present must be used to determine the appropriate respirator category for protection against all contaminants present.

Following is a partial list of gaseous materials for which chemical cartridge respirators should not be used for respiratory protection regardless of concentration or time of exposure: this far-from -complete list is only as a guide to proper evaluation of the many contaminants found in industry. Contact MSA for further information on other specified materials.

Acrolein	Nickel carbonyl
Aniline	Nitric Acid
Arsine	Nitro Compounds:
Bromine	Nitrogen oxides
Carbon monoxide	Nitroglycerin
Diisocyanates	Nitromethane
Dimethylaniline	Phosgene
Dimethyl sulfate	Phosphine
Hydrogen cyanide	Phosphorous trichloride
Hydrogen selenide	Stibine
Methanol	Sulfur chloride
Methyl bromide	Urethane or other
Methyl chloride	diisocyanate
Methylene chloride	containing paints
	Vinyl chloride

PREMAIRE RESPIRATOR SYSTEM SYMBOLS

Symbols are used to direct you to other instructions, warnings and guidelines that apply to the type of option(s). It is important that you familiarize yourself with these symbols, along with the corresponding instructions before attempting to operate the respirator.



**Duo-Twin
Capability
(P/N 818370)**



**Pressure-Demand
Supplied-Air
Respirator
(P/N 496958)**



**Vortex Tube
Capability
(P/N 497231)**



**Escape Cylinder
Capability
(P/N 800808)**



**Dual-Supply
Capability
(P/N 497230)**

PREMAIRE SYSTEM OPTIONS

The PremAire Respirator is a pressure-demand, Type C supplied-air respirator as de-fined by 42 CFR Part 84, Subpart J. The respirator's unique waist-mounted manifold, which serves as the air distribution center for the system.

These options can be combined or used individually. A list of all possible respirator configurations can be found on the PremAire System Quick Reference Chart (P/N 802999).

DESCRIPTION

DESCRIPTION

The Duo-Twin option for the PremAire Respirator converts the supplied-air respirator into a combination supplied-air/air-purifying device. Featuring a Duo-Twin facepiece, the respirator is equipped with two air-purifying cartridges or filters which are mounted on the facepiece. The device also features a “switchable” demand/pressure-demand exhalation valve that lets users switch from the supplied-air mode to the air-purifying mode with little change in exhalation resistance. As a result, wearers can move freely from station to station without being tethered to an air-supply hose, yet still be able to breathe easily through the device’s air-purifying cartridges or filters.

The respirator also can be equipped with combination chemical and particulate filter cartridges for jobs that require protection against both gases or vapors and particulates.

The Duo-Twin option is approved by NIOSH for use with either particulate filters and/or combination chemical cartridges for respiratory protection against specific contaminants.

OPERATING PRINCIPLES

In operation, the supplied-air mode enables the user to work for long periods of time in contaminated atmospheres without depleting the filters or cartridges. The air-purifying mode can be used for entry, egress and moving from station to station in a contaminated atmosphere. It also can be used for continuous use when an air supply is not available.

In the air-purifying mode, inhaled air is drawn into the facepiece through the filters or cartridges. To minimize fogging, inhaled air is directed over the lens. Exhaled air leaves the facepiece through the exhalation valve and is not re-breathed. An inhalation flapper valve prevents the exhaled air from passing through the filters or cartridges.

⚠ WARNING

The demand/pressure-demand (D/PD) exhalation valve makes switching from the supplied-air mode of operation to the air-purifying mode possible. When the air-supply hose is disconnected, the user must switch the valve from the “IN-AIR-LINE” position to the “OUT-FILTER/CARTRIDGE” position. When the air-supply hose is reconnected, the exhalation valve must then be switched back to the “IN-AIR-LINE” position.

Note: Training using the Duo-Twin option must include a familiarization period where employees are allowed to use the device in both modes. This allows employees to recognize the higher exhalation resistance associated with the “IN-AIR-LINE” position of the D/PD exhalation valve

and provides them the opportunity to practice switching the valve from one position to the other.

RESPIRATOR FIT TEST

Fitting the Duo-Twin Facepiece

A qualitative or quantitative fit test must be conducted for each wearer of the respirator to determine the amount of protection it will provide. Respirator fit tests are explained fully in the American National Standard for Respiratory Protection, ANSI Z88.2, which is published by the American National Standards Institute.

Quantitative Test

If a quantitative fit test is used, a fit factor that is at least 1,000 shall be obtained before that respirator is assigned to an individual.

Qualitative Test

If a qualitative fit test is used, only validated protocols are acceptable. The individual must pass a test designed to assess a fit factor of at least 1,000.

Duo-Twin Respirators must be qualitatively or quantitatively fit tested in a negative-pressure mode. This will cover use of the respirator in both air-purifying and air-supplied modes of operation.

⚠ WARNING

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

Respirator fit tests are explained fully in the American National Standard “Practices for Respiratory Protection,” ANSI Z88.2, published by the American National Standards Institute.

⚠ WARNING

The user assumes all risks of death or serious bodily injury which may result if a fit test is not performed or the respirator limitations are not followed.

ATTACHING FILTERS OR CARTRIDGES

1. Cartridges: Thread cartridges into facepiece receptacles carefully. Hand-tighten to prevent damage to threads. To ensure a good seal against the gaskets, tighten each cartridge by gripping as much of the circumference of the receptacle as possible and then slowly turning the cartridge until tight.

Note: Make sure cartridges and filters are clean. Never try to clean a filter or cartridge by washing it or using compressed air. Inspect cartridges for dents, scratches, or

DESCRIPTION

other damage, particularly the metal sealing bead around the bottom.

2. Filters: Insert the appropriate filter into the appropriate filter cover.



Never load filters directly into the filter receptacles. Snap filter covers on to receptacles taking care not to damage the filters.

DONNING

DONNING THE FACEPIECE

⚠ WARNING

Do not wear eyeglasses 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 precaution may 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 and repeat step 2. If necessary, tighten the front strap for best visibility and fit. Tuck in the ends of the straps so they lay flat across the head.

DONNING AND USING THE RESPIRATOR

⚠ WARNING

Before donning and using the respirator, you must test the apparatus for any leaks in the supplied-air system. The respirator must be pressurized to conduct these tests. See instruction manual for the required leak test procedures. Failure to follow this procedure may result in serious personal injury or death.

⚠ WARNING

This device may not seal properly with your face if you have a beard, gross sideburns or similar physical characteristics (see 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.

1. Connect the air-supply hose to the “Main” inlet of the PremAire manifold to initiate air flow.
2. To connect the Quick-Connect regulator to the facepiece, push the regulator into the facepiece adapter. Turn the regulator so that the red by-pass knob is pointing upward.
 - a. Rotate the regulator 1/4 turn. The regulator can be rotated in either direction to orient the by-pass knob.
 - b. Listen for the release tab to “click” as the regulator locks onto the facepiece.
 - c. Verify proper engagement by rotating the regulator until it contacts the release tab and stops. The regulator must only swivel 70 degrees.
 - d. Double check proper engagement by pulling on the regulator to ensure that the regulator is securely attached to the facepiece.

⚠ WARNING

Do not use the respirator unless the regulator is connected properly. The regulator must swivel approximately 70 degrees, but must **NOT** rotate beyond the tab stops. Do **NOT** use the respirator if the regulator does not swivel approximately 70 degrees or rotates beyond the tab stops. Return the respirator to an MSA trained or certified repairperson to correct the condition. A regulator that is not installed correctly can separate from the facepiece unexpectedly. Failure to follow this precaution can result in serious personal injury or death.

3. Inhale sharply to start the air flow. The shut-off button should pop out automatically.
 - a. Check the bypass again. Turn the red knob counter-clockwise until it locks in position.
4. If the apparatus passes all tests, the PremAire is ready to use. Remember, you must make these tests every time before you enter the hazardous atmosphere. If the unit fails to meet any of these tests, the condition(s) must be corrected before using the apparatus.

DONNING

⚠ WARNING

There must be a continuous flow of air when the bypass knob is opened. If not, do not use the apparatus. The PremAire must be checked and corrected for proper operation by an MSA trained or certified repair-person before using it. Failure to follow this precaution may result in serious personal injury or death.

Note: If using the PremAire Respirator with any of the following options, see the sections indicated for proper instructions for use.



See PremAire Supplied-Air Respirator Instruction Manual for use instructions (P/N 496958).



See PremAire Escape Cylinder Instruction Manual for use instructions (P/N 800808).



See PremAire Dual-Supply Instruction Manual for use instructions (P/N 497230).



See PremAire Vortex Tube Instruction Manual for use instructions (P/N 497231).

Note: If a decontamination procedure, created by a certified health and/or safety professional, has been established for the application in which this respirator is used, that procedure should take precedence.

CHECKING INLET PRESSURE

Like all PremAire Respirators, units equipped with the Dual-Supply option require an inlet pressure of 60 to 100 psig. Before use, it is important to check the inlet pressure to see that it is within the NIOSH-approved range.

⚠ CAUTION

Stop operation immediately if the system pressure cannot be brought within this range. Inspect the system for restrictions, such as a partially-closed valve or a clogged air-line filter.

DOFFING

AIR-TIGHTNESS TEST

Note: This facepiece tightness test must be conducted before each use.

1. With the Duo-Twin facepiece, the tightness test must be conducted by holding the hands tightly over the inlets of the filters on the facepiece.

Note: The mask-mounted regulator must be engaged into facepiece.

2. Inhale gently and hold your breath for 10 seconds. The facepiece should collapse against your face and stay collapsed for as long as you hold your breath. The facepiece must pass this air-tightness test before the user attempts to enter any toxic atmosphere.

ACTIVATING THE AIR-PURIFYING CAPABILITY

1. To use the respirator in the air-purifying mode, place the D/PD exhalation valve in the "OUT-FILTER/ CARTRIDGE" position.



2. When using the respirator in the supplied-air mode, place the valve in the "IN-AIR-LINE" position.



3. When the air-supply hose is disconnected, or if the air source is lost for any reason, the user must switch the exhalation valve back to the "OUT-FILTER/CARTRIDGE" position to use the respirator in the air-purifying mode.

Note: If you disconnect the air-supply hose from the manifold, place the dust cover on the manifold MAIN quick-connect to prevent contamination from entering.

⚠ CAUTION

When wearing the PremAire Respirator in the air-purifying mode, leave the contaminated area immediately if:

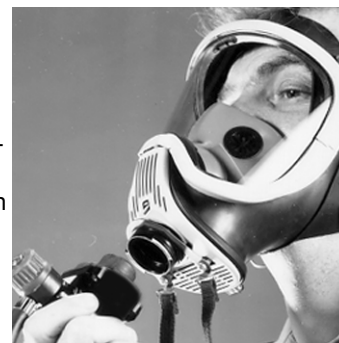
1. leakage is detected by smell, taste, or eye, nose, or throat irritation;
2. high breathing resistance is sensed, indicating a problem with the filter or cartridge;
3. feelings of nausea or dizziness develop.

REMOVING THE APPARATUS

Note: When ready to leave the work area, proceed to an area not requiring respiratory protection*. Remain connected to the air-supply hose or remain in air-purifying mode until this "safe" area is reached. Then remove the facepiece. The air-supply hose can then be disconnected.

1. To disconnect the regulator, pull the release tab away from the facepiece.

- a. Rotate the regulator 1/4 turn. Pull the regulator away from the facepiece as you turn it so that it slides out of the groove.



2. Press the shut-off to release system pressure.
3. Press the shut-off button IN. Stow the regulator in the STAND-BY belt mount when it is not in use.

Note: Air will flow from the second stage briefly until system pressure is relieved.

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



Note: 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.

*If a decontamination procedure, created by a certified health professional, has been established for the application in which the respirator is used, that procedure should take precedence.

OPERATING PRINCIPLES

AIR-SUPPLY HOSE AND PRESSURE GAUGE

The PremAir System can be used with a wide range of MSA air-supply hoses, which can be interconnected up to a maximum length of 300 feet. A maximum of 12 sections of air-supply hose may be used in making up the maximum 300 feet working length of hose. MSA also offers an inlet pressure-gauge assembly that enables a user to check pressure at the inlet of the MSA air-supply hose, assuring that the air pressure is within the NIOSH approved range. The gauge is supplied with quick-disconnect fittings to accommodate your particular air-line system.

⚠ WARNING

MSA air-supply hoses have various temperature limitations. DO NOT use the PremAir System whenever ambient or inlet-air temperatures exceed the limits specified below for each hose material.

HOSE MATERIAL

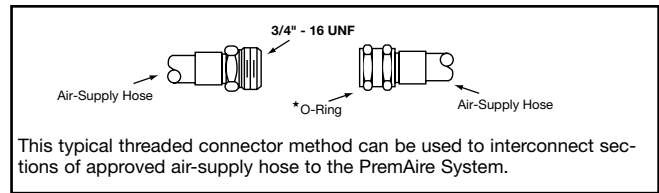
Polyvinyl Chlorine
Neoprene
Nylon

RECOMMENDED TEMPERATURE LIMITS

32°F/120° F
-25°F/212° F
-20°F/180° F

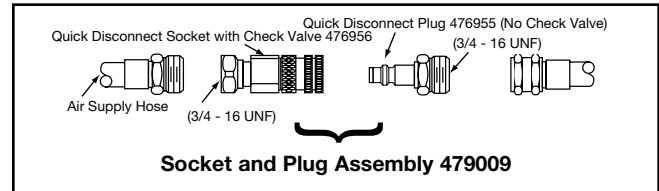
INTERCONNECTING AIR-SUPPLY HOSES

MSA air-supply hoses can be interconnected up to a maximum length of 300 feet without voiding the NIOSH approval. MSA offers both threaded and locking-type quick disconnects.

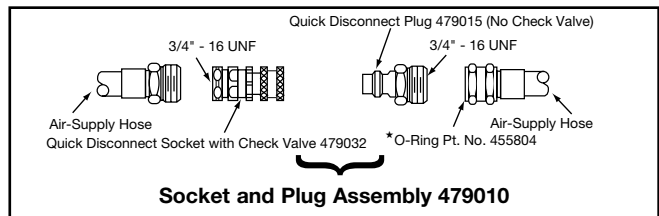


This typical threaded connector method can be used to interconnect sections of approved air-supply hose to the PremAir System.

CEJN - Chrome



SNAP-TITE — Aluminum



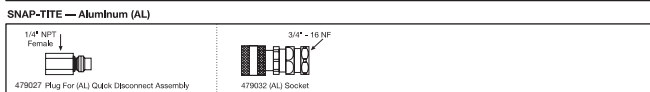
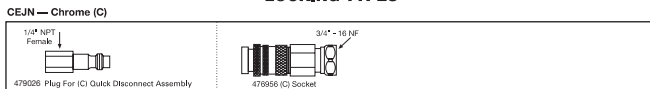
Locking quick-disconnects easily connect by pushing the plug and socket together. To separate, push the plug and socket together, then pull the sleeve from the plug.

⚠ WARNING

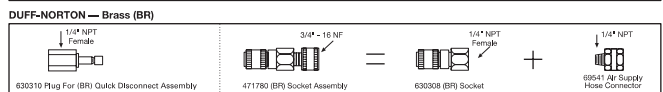
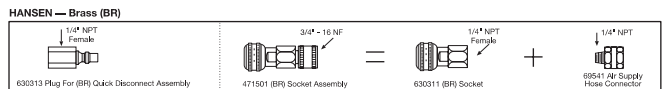
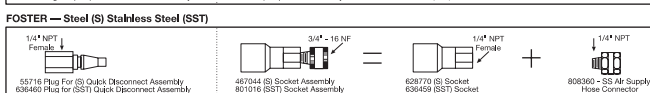
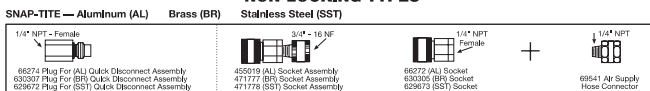
Hoses must only be interconnected with either the threaded connector (3/4 16 UNF) or the locking-type quick-disconnects listed above. DO NOT use nonlocking quick disconnects to interconnect air-supply hoses.

Quick Disconnects Table Chart

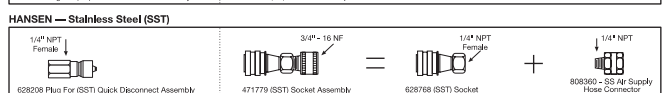
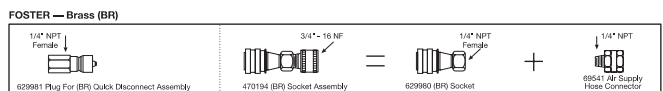
LOCKING TYPES



NON-LOCKING TYPES



NON-LOCKING TYPES — WITH CHECK VALVE IN PLUG



CARTRIDGE / FILTER USE

CARTRIDGE/FILTER USE LIFE

The length of time a cartridge or filter will give protection depends on the concentration of the contaminant and the rate of breathing while in the air-purifying mode.

When the facepiece is properly adjusted, the following conditions are indications that the cartridge or filter has served its useful life and should be replaced:

Cartridges: Odor or taste of gases or vapors; eye, nose, or throat irritation.

Note: The Mersorb P100 cartridge is equipped with a passive end-of-service-life indicator (ESLI). See Special or Critical Users Instructions.

Follow established cartridge and canister change schedules or observe ESLI to ensure that cartridge and canister are replaced before breakthrough occurs.

The ESLI must be visible when worn without manipulating the respirator or the indicator. The Mersorb P100 cartridge is for use against metallic mercury vapor. The band around the side of each Mersorb P100 cartridge consists of chemically-treated paper. In use, as the paper is exposed to metallic mercury vapor, it changes from orange to brown. When the indicator color changes to brown, the cartridge is beginning to lose its effectiveness against metallic mercury vapor and must be replaced. Thus, the wearer has a constant, positive check on the condition of this cartridge.

Filters: Excessive breathing resistance during inhalation or when the time use limitation has been reached.

FILTER/CARTRIDGE REPLACEMENT

The following instructions cover procedures for replacing used filters or cartridges.

REPLACING CARTRIDGES

1. Remove the expended cartridge and discard.
2. Remove the replacement cartridges from storage bags and insert into the threaded receptacles making sure gaskets are in place in the cartridge receptacles.
3. Carefully hand-tighten the cartridges to prevent damage to threads. To ensure a good seal against the gaskets, tighten each cartridge by gripping as much of the circumference of the receptacle as possible and then slowly turning the cartridge until tight.

WARNING

1. **Protection voided if sealing gaskets are not in their proper place.**
2. **Do not use a filter or chemical cartridge if there are any visible signs of damage.**

Failure to follow this precaution may result in serious personal injury or death.

REPLACING FILTERS

1. Remove the filters covers and discard expended filters.
 2. Place a new filter in each filter cover. Never load filters into the receptacles.
 3. Snap the filter covers in place taking care not to damage the filters.
-

MAINTENANCE

Refer to the PremAire Supplied-Air Respirator Instruction Manual (P/N 10017251) for respirator maintenance and repair instructions.

CLEANING AND DISINFECTING

CLEANING AND DISINFECTING

Respirators should be cleaned and disinfected after each use. If the facepiece is to be cleaned, remove the filters or cartridges (if used). The facepiece should be cleaned and disinfected after every use. MSA recommends using ConfidencePlus® Cleaner Solution (P/N 10009971). Refer to the label for user instructions. ANSI suggests that users be trained in cleaning procedure.

▲ CAUTION

Cleaning and disinfecting at or below 110°F temperature will avoid possible overheating and distortion of parts which would require replacement.

▲ CAUTION

DO NOT use any cleaning substances that can or might attach 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.

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.

PREPARATION

1. MMR second stage regulator (bypass, shutoff button, or quick-connect buttons). Use a #4 rubber stopper (P/N 60380) in the outlet of the MMR second stage regulator to prevent water, dirt or debris from entering.
2. Inspect the entire apparatus as you reassemble it. Follow the Inspection Instructions.
3. Thoroughly dry the facepiece and regulator after cleaning and disinfecting. The facepiece can trap water, which could enter the regulator.

INSPECTION

INSPECTION

Inspect the respirator by sight and sound for normal operations after it has been cleaned and disinfected. When any part shows evidence of damage, wear, or any other adverse condition explained in this section, it must be replaced and the condition corrected before the respirator can be used again.

Note: Replacement or repairs shall be done only by qualified persons, using only MSA parts designed for the respirator. No attempt shall be made to make adjustments or repairs beyond the manufacturer's recommendations. Parts shall not be interchanged among devices of different manufacturers. MSA authorizes levels of maintenance and repair for the PremAire Respirator System. (See users maintenance manual P/N 10017251.)

If there is no MSA Service Center in your area, return the unit to MSA for service. Call 1-800-MSA-2222 for instructions.

WARNING

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

Inspect the entire apparatus after it is cleaned and disinfected. 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 PremAire Users Maintenance Instructions.

WARNING

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

Component Inspection

(AFTER EACH USE and MONTHLY)

1. Don the respirator following the instruction procedures. These steps make up the Functional Test.
2. If all steps are performed successfully, remove the respirator 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 strap serrations 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, O-ring, and valve disc are present.
4. Harness
 - a. Inspect all harness components for cuts, tears, abrasion or signs of heat- or chemically-related damage. Check that the tee nuts, washers, and screws, if any are secure.
5. 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 apparatus is stored in a ready position.

FUNCTIONAL CHECKS

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 shut-off button is closed.
 - 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 air flow through the regulator is detected in either test. Return the regulator to a Certified repair person.
2. Inspect the shut-off button, and by-pass valve.
 - a. With the regulator pressurized, operate each valve to be sure it operates.
 - 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 repair person.

WARNING

Do not disconnect when pressurized. Release all pressure from the regulator by opening the bypass valve. Removing the regulator when pressurized may result in serious personal injury, death, or damage to equipment.



Be Sure.
Choose MSA.

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