



Operating Manual
G1 Powered Air-Purifying Respirator (PAPR)
Full Facepiece Respirator



Order No.: 10192450/02
Print spec.: 10000005389(F)
CR 800000041171



WARNING!

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

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

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

For alternate languages, refer to part number 10192482.



The Safety Company

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For your local MSA contacts please go to our website www.MSAafety.com

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1 Safety Regulations

This respirator complies with the National Institute for Occupational Safety and Health (NIOSH) regulation under 42 CFR Part 84.

1.1 NIOSH Approval Information



WARNING!

Read and obey all NIOSH approval limitations. Failure to obey this warning can result in serious injury or death.

1.1.1 Certifying Agency Contact Information

National Institute for Occupational Safety and Health (NIOSH)

Phone: 800-CDC-4636

1.2 NIOSH 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.
- F- Do not use powered air-purifying respirators if airflow is less than four cfm (115 lpm) for tight fitting facepieces or six cfm (170 lpm) for hoods and/or helmets.
- H- Follow established cartridge and canister change schedules or observe ESLI to ensure that cartridges and canisters are replaced before breakthrough occurs.
- I- Contains electrical parts that may cause an ignition in flammable or explosive atmospheres.
- J- Failure to properly use and maintain this product could result in injury or death.
- L- Follow the manufacturer's User Instructions for changing cartridges, canisters and/or filters.
- M- All approved respirators shall be selected, fitted, used and maintained in accordance with MSHA, OSHA and other applicable regulations.
- N- Never substitute, modify, add or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer.
- O- Refer to User's 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's Instructions and/or specific use limitations apply. Refer to User's Instructions before donning.

1.3 NIOSH Cautions and Limitations of Use for Chemical, Biological, Radiological, and Nuclear (CBRN) Applications

- A- Not for use in atmospheres containing less than 19.5 percent oxygen.
- F- Do not use powered air-purifying respirators if airflow is less than four cfm (115 lpm) for tight fitting facepieces or six cfm (170 lpm) for hoods and/or helmets.
- H- Follow established cartridge and canister change schedules or observe ESLI to ensure that cartridges and canisters are replaced before breakthrough occurs.
- I- Contains electrical parts that may cause an ignition in flammable or explosive atmospheres.
- J- Failure to properly use and maintain this product could result in injury or death.
- L- Follow the manufacturer's User Instructions for changing cartridges, canisters and/or filters.
- M- All approved respirators shall be selected, fitted, used and maintained in accordance with MSHA, OSHA and other applicable regulations.

- N- Never substitute, modify, add or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer.
- O- Refer to Users Instructions, and/or maintenance manuals for information on use and maintenance of these respirators.
- R- Some CBRN agents may not present immediate effects from exposure, but can result in delayed impairment, illness, or death.
- S- Special or critical User's Instructions and/or specific use limitations apply. Refer to User's Instructions before donning.
- Y- This respirator provides respiratory protection against inhalation of radiological and nuclear dust particles. Procedures for monitoring radiation exposure and full radiation protection must be followed.
- Z- If during use, an unexpected hazard is encountered such as a secondary CBRN device; pockets of entrapped hazard or any unforeseen hazard, immediately leave the area for clean air.
- BB- Not for use for entry into atmospheres immediately dangerous to life or health.
- CC- For entry, do not exceed maximum use concentrations established by regulatory standards.
- GG- Direct contact with CBRN agents requires proper handling of the respirator after use. Correct disposal procedures must be followed.
- UU- The respirator should not be used beyond eight (8) hours after initial exposure to chemical warfare agents to avoid possibility of agent permeation. If liquid exposure is encountered, the respirator should not be used for more than two (2) hours.
- VV- PAPRS with TC-23C approvals may NOT be used for escape from IDLH atmospheres.

1.4 Important Notice for Respirator Users and Respiratory Protection Program Administrators

WARNING!

- ▶ This respirator supplies LIMITED protection.
- ▶ Before occupational use of this respirator, a written respiratory protection program must be implemented meeting all the local government requirements. In the United States, employers must comply with OSHA 29 CFR 1910.134, which includes medical evaluation, training, and fit testing.
- ▶ An adequate respiratory protection program must include knowledge of hazards, hazard assessment, selection of correct respiratory protective equipment, instruction and training in the use of equipment, inspection and maintenance of equipment, and medical surveillance.
- ▶ This respirator will perform as designed only if it is used and maintained strictly according to the manufacturer's instructions, labels, and limitations. The Program Administrator and the users must read and understand these instructions before using or servicing this device.
- ▶ Do NOT substitute, modify, add, or omit parts. Use only exact replacement parts in the configuration specified by MSA.
- ▶ Examine the respirator regularly and maintain it according to the instructions in this manual. Only MSA trained repair technicians can do repairs.
- ▶ If the respirator does not operate as specified in this manual, remove it from service and return it to an MSA trained repair technician.
- ▶ This respiratory protective device does not supply oxygen. Use the device only in areas that have sufficient ventilation.
- ▶ Use this respirator with the correct air filtration cartridge/canister for protection against specific chemical and/or particulate contaminants. Do NOT use this device if you cannot make sure that the air filtration cartridge/canister is applicable for the contaminant. The respirator will not supply protection unless all inhaled air is pulled through an applicable air filtration cartridge/canister.

- ▶ Do NOT use this device if:
 - The identity of the contaminant is unknown.
 - The concentration of the contaminant is unknown.
 - The permissible exposure limit (PEL), recommended exposure limit (REL), and/or threshold limit value (TLV) of the contaminant is unknown.
- ▶ An approved professional must supply an applicable change-out schedule for air filtration cartridges/canisters, unless the cartridge/canister has an end-of-service-life indicator. The change-out schedule must include all factors that have an effect on respiratory protection, including work practices and other conditions that are specific to the users' environment.
- ▶ If this respirator is used for protection against substances that have poor warning properties, there is no secondary method of notification about when to replace the air filtration cartridges/canisters. Obey applicable additional precautions to prevent overexposure, such as a more conservative change-out schedule or use of a supplied-air respirator (SAR) or self-contained breathing apparatus (SCBA).
- ▶ Do NOT use this device with urethane paints or other paints that have diisocyanates unless there is a change-out schedule for air filtration cartridges/canisters. Because of their poor warning properties, overexposure to these substances can occur without user awareness and result in severe permanent damage to the respiratory system.
- ▶ Go out of a contaminated area immediately if:
 - Breathing becomes difficult.
 - Dizziness or other distress occurs.
 - You taste or smell a contaminant.
 - You feel irritation of the nose or throat.
 - You are instructed to do so by responsible personnel.
- ▶ If you have a beard, large sideburns, or similar physical characteristics that prevent direct contact between your skin and the sealing surface of the facepiece, this device may not seal correctly with your face (refer to NFPA 1500, Standard on Fire Department Occupational Safety and Health Program, and ANSI Z88.2, Practices for Respiratory Protection). An incorrect facial seal can let contaminants leak into the facepiece, decreasing or removing respiratory protection. Do NOT use this device if such conditions exist.
- ▶ Do a negative pressure seal test before each use.
- ▶ Individuals who wear eyeglasses must use the G1 spectacle kit to guarantee a correct fit. Ordinary eyeglasses cannot be worn under the facepiece.
- ▶ Do NOT use this device in explosive or flammable atmospheres.
- ▶ Do NOT use this respirator, or air filtration cartridges/canisters for protection against exposure to radiation. They may not supply sufficient protection.
- ▶ The respirator can help decrease exposure to airborne biological agents, including the H1N1 (swine) flu virus, avian (bird) flu virus, other types of influenza, severe acute respiratory syndrome (SARS), or other bacterial or viral biological agents, and the risk of influenza infection during a pandemic. This respirator does NOT remove the risk of exposure, infection, illness, or death.
- ▶ The respirator is certified by NIOSH to comply with the requirements specified for the designated filter efficiency level. Applicable authorities have not, however, set a safe level of exposure to biological agents. Therefore, the respirator may not prevent transmission of the influenza virus.

- ▶ Refer to the Centers for Disease Control and Prevention (CDC) at www.cdc.gov for guidance about the use of respirators to help decrease exposure to the H1N1 virus or other airborne biological agents in community, home, and occupational settings. The CDC recommends fit testing, medical evaluations, and training for optimal effectiveness when a respirator is used in a nonoccupational setting. Failure to obey these preparatory actions can cause dangerous conditions. OSHA requires that the use of respirators in an occupational setting be in accordance with a complete respiratory protection program that includes correct size selection, training, and fit testing. For detailed information about respiratory protection programs, contact OSHA or go to www.osha.gov.
 - ▶ The CDC recommends frequent hand washing and wearing gloves to help prevent the transmission of disease from exposure to contaminated surfaces.
 - ▶ The CDC recommends that you wash your hands immediately after removing the respirator.
 - ▶ Do NOT remove the respirator in a contaminated area. Think of the outer surface of the respirator as contaminated at all times. Safety goggles that fit tightly or a full-facepiece respirator can help prevent transmission of the influenza virus.
 - ▶ ALWAYS clean cartridge/canister-style respirators before use in accordance with the instructions in this manual.
 - ▶ This respirator is NOT for use by (a) children or (b) people with a medical condition who may be adversely affected by using it.
 - ▶ When filters are used in an application that makes sparks, make sure that the filters are protected by a shield. Sparks can cause damage to filters and decrease the level of protection.
 - ▶ Do NOT remove the respirator until it and other protective clothing are decontaminated. Otherwise, exposure to contaminants can occur. In CBRN applications, this includes exposure to CBRN agents.
 - ▶ Do NOT replace the air filtration cartridge/canister in a contaminated area.
 - ▶ Obey the decontamination and disposal procedures set by the applicable authorities.
 - ▶ Make sure that there is no blockage of the air filtration cartridges/canisters.
 - ▶ The respirator has no user-serviceable parts except as instructed in this manual.
 - ▶ If the respirator falls to the ground during use, go out of the contaminated area immediately. Examine the device for damage. If the device is damaged, contaminants can get into the filtration system.
- Failure to obey these warnings can result in serious injury or death.
-

1.5 CBRN Applications

WARNING!

- ▶ Do NOT use this device without the correct training and a complete understanding of its limitations. Misuse can prevent the respirator from supplying the necessary protection.
 - ▶ This respirator supplies LIMITED protection. The device is approved by NIOSH for respiratory protection against atmospheres containing chemical, biological, radiological, and nuclear (CBRN) warfare agents; however, it cannot protect against all possible warfare agents.
 - ▶ Use this device with the applicable personal protective equipment and clothing necessary to supply protection against dermal hazards.
 - ▶ Wear impermeable protective clothing to prevent exposure to gases and vapors that can poison by skin absorption.
 - ▶ Exposure to some CBRN agents may not show immediate effects, but can result in delayed impairment, illness, or death.
 - ▶ CBRN agents may NOT be identified by smell or sight. Don the respirator before going into an area that may contain a CBRN agent. Obey the procedures set by the applicable authorities.
 - ▶ Do NOT use this respirator for more than 8 hours after initial use in an atmosphere that contains CBRN agents or more than 2 hours after initial use in an atmosphere that contains CBRN agents in liquid or mist form. Otherwise, agent permeation can occur.
- Failure to obey these warnings, in addition to all instructions and protective measures for CBRN agents, can result in serious injury or death.

1.6 References

For more information about the use and performance standards for the respirator, consult the following publications:

- ANSI Z88.2, Practices for Respiratory Protection. American National Standards Institute, New York, NY, 2015.
- CAN/CSA-Z94.4, Selection, Use, and Care of Respirators. CSA Group, Toronto, Canada, 2011.
- ISO 2230, Rubber Products - Guidelines for Storage. International Organization for Standardization, Geneva, Switzerland, 2002.
- NFPA 1500, Standard on Fire Department Occupational Safety and Health Program. National Fire Protection Association, Quincy, MA, 2013.
- Title 29 CFR Part 1910, Occupational Safety and Health Standards. Superintendent of Documents, US Government Printing Office, Washington, DC.
- Title 29 CFR Part 1910.134, Respiratory Protection Standard. Superintendent of Documents, US Government Printing Office, Washington, DC.

1.7 Contact Information

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

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

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

1.8 Warranty

Express Warranty

MSA warrants the G1 Powered Air Purifying Respirator (PAPR) and its accessories to be free from mechanical defects or faulty workmanship for a period of one (1) year from date of shipment, provided it is maintained and used in accordance with MSA's Instructions and/or recommendations. This warranty does not apply to expendable or consumable parts whose normal life expectancy is less than one (1) year such as, but not limited to, non-rechargeable batteries, and cartridges. Replacement parts and repairs are warranted for ninety (90) days from the date of repair of the product or sale of the replacement part, whichever occurs first. MSA shall be released from all obligations under this warranty in the event repairs or modifications are made by persons other than its own or authorized service personnel, or if the warranty claim results from product misuse, accident, abuse, or normal wear and tear. No agent, employee or representative of MSA may bind MSA to any affirmation, representation or modification of the warranty concerning the goods sold under this contract.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED, IMPLIED, OR STATUTORY, AND IS STRICTLY LIMITED TO THE TERMS HEREOF:MSA SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.

Exclusive Remedy

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

Exclusion of Consequential Damages

PURCHASER SPECIFICALLY UNDERSTANDS AND AGREES THAT UNDER NO CIRCUMSTANCES WILL MSA BE LIABLE TO PURCHASER FOR ECONOMIC, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES OF ANY KIND WHATSOEVER, INCLUDING BUT NOT LIMITED TO, LOSS OF ANTICIPATED PROFITS AND ANY OTHER LOSS CONCERNING THE GOODS SOLD BY MSA. THIS EXCLUSION IS APPLICABLE TO CLAIMS FOR BREACH OF WARRANTY, TORTIOUS CONDUCT OR ANY OTHER CAUSE OF ACTION AGAINST MSA.

2 Description

The G1 Powered Air-Purifying Respirator (PAPR), hereafter referred to as respirator or device, is for use in atmospheres that are NOT immediately dangerous to life or health (IDLH).

The respirator has a battery-powered blower assembly that pulls contaminated air through air filtration cartridges/canisters to purify it, then supplies the purified air to the facepiece for inhalation. Exhaled air is released through the exhalation valve.

For information about approved configurations, refer to the G1 PAPR Approval Insert (PN 10192481).

NOTE: The rubber neck strap (Model Number 7-2830-1) is not approved for use with the 4-point black cloth head harness (Model Number 7-3104-1).

The device has the following components:

- G1 facepiece
- APR adapter
- C420 respirator
- Air filtration cartridges/canisters

The device has the following optional component:

- G1 spectacle kit



2.1 G1 Facepiece



The facepiece is available in three sizes (small, medium, large). The nosecup is available in two designs (CBRN and non-CBRN) and three sizes (small, medium, large). The facepiece includes a large lens to optimize field of view and a mechanical speech diaphragm to enhance speech communication. When the facepiece is not connected to the APR adapter, an opening in the facepiece connection lets airflow bypass the inhalation and exhalation valves, which decreases breathing resistance and further enhances speech communication. The facepiece includes a broad range of head harness designs and material options. An optional spectacle kit is available.

2.2 APR Adapter



The APR adapter lets you install the respirator breathing tube on the facepiece. The APR adapter connects to the facepiece with a push-to-connect (PTC) connection and disconnects from the facepiece with a release button. The APR adapter has large Rd 40 threads that let you install the respirator breathing tube quickly and tightly.

2.3 C420 Respirator

The C420 respirator is a blower-assisted, air-purifying respirator referred to as a powered air-purifying respirator. The C420 respirator has a blower assembly, breathing tube, waist belt, battery, and airflow indicator.

The blower assembly is a waist-mounted, battery-powered, motor that pulls breathable air through two air filtration cartridges/canisters and supplies it to the user. There are two threaded inlet ports on the front of the blower assembly for the attachment of cartridges/canisters, an outlet port on the top of the blower assembly for the attachment of the breathing tube, and an ON/OFF power switch. The battery compartment is on the bottom of the blower assembly.



The breathing tube attaches to the top of the blower assembly and connects to the facepiece through the APR adapter. Breathing tubes are available in two lengths (30 and 36 in.).

The waist belt lets you attach the respirator to your waist tightly. Waist belts are available in two lengths (60 and 70 in.).

Single-use and rechargeable batteries are available. The single-use batteries are 6-volt lithium-sulfur dioxide (Li-SO₂). The rechargeable batteries are 4.8-volt rechargeable nickel metal hydride (NiMH). An MSA battery charger is included with the NiMH rechargeable battery.

The airflow indicator shows that the minimum airflow for safe usage is available. When the respirator is fully assembled and powered on, it supplies constant filtered airflow at a minimum flow rate of 115 liters per minute (lpm).

2.4 Air Filtration Cartridges/Canisters

The air filtration cartridge/canister contains adsorbents and a filter that removes or neutralizes specific contaminants.



CBRN Canister



GME Cartridge



HE Cartridge

2.5 G1 Spectacle Kit (Optional)



The G1 spectacle kit lets users mount eyeglasses inside the facepiece. Individuals who wear eyeglasses must use the G1 spectacle kit to guarantee a correct fit. Eyeglasses cannot be worn under the facepiece without the G1 spectacle kit.

3 Size Selection

NOTE: Individuals who wear eyeglasses must use the G1 spectacle kit to guarantee a correct fit. Ordinary eyeglasses cannot be worn under the facepiece.

Regardless of facial dimensions and respirator sizing charts, users must do an actual qualitative or quantitative respirator fit test to make sure that the correct respirator size is selected.

- (1) Do a fit test of the respirator size relative to your facial features and dimensions. Ask the safety administrator or program manager for help selecting the initial size to try.
- (2) Don the respirator. Refer to Section 7 "Donning" for instructions.
- (3) Do a negative pressure seal test. Refer to Section 7.3 "Testing the Negative Pressure Seal" for instructions.
- (4) If the respirator does not pass the negative pressure seal test or feels uncomfortable, try the next nearest size relative to your face.
- (5) Passing the negative pressure seal test does not verify that the size is correct. Do a qualitative or quantitative respirator fit test to verify the size. If the respirator passes a negative pressure seal test but does NOT pass a respirator fit test, try the next nearest size.

3.1 Respirator Fit Test

WARNING!

- ▶ Do quantitative or qualitative respirator fit tests routinely for each wearer of this respirator. Obey all specified warnings and limitations. Failure to do so can result in serious personal injury or death.
- ▶ Make sure the probe does not contact the face during fit testing. Failure to do so can result in false protection factor readings.

For information about respirator fit tests, refer to ANSI Z88.2-1992, Practices for Respiratory Protection, and Title 1910.134, Respiratory Protection Standard,

In addition to regular respirator fit tests, do a qualitative or quantitative respirator fit test after repairs or maintenance.

NOTE: The selection of a fit test method can have an effect on the maximum use concentration. Use the instructions and adapter in a Quik Chek Kit (PN 805078) to do respirator fit testing.

3.1.1 Quantitative Test

For use in a CBRN application, a fit factor of at least 2000, based on ambient aerosol fit test methods or equivalent, is necessary before any type of respirator is assigned to an individual.

3.1.2 Qualitative Test

Only validated protocols are acceptable. The respirator must pass a test designed to assess a fit factor of at least 2000 with the blower assembly power off and at least 10000 with the blower assembly power on.

4 Visual Examinations

WARNING!

- ▶ Do NOT examine the respirator before it is decontaminated, cleaned, and disinfected if there is a risk of exposure to contaminants. Obey the applicable decontamination procedures, clean and disinfect the respirator, then examine it.
 - ▶ If the respirator shows any of the conditions listed in Section 4 "Visual Examinations", remove the respirator from service and return it to an MSA trained repair technician.
 - ▶ Do NOT substitute, modify, add, or omit parts. Use only exact replacement parts in the configuration specified by MSA.
- Failure to obey these warnings can result in serious injury or death.

Do a visual inspection upon receipt, and before and after each use.

Examine the entire respirator after it is decontaminated, cleaned and disinfected.

4.1 All Components

Examine all components for deterioration, dirt, cracks, debris, tears, holes, stickiness, heat- or chemical-related damage, or other signs of damage.

Make sure that the respirator is complete and assembled correctly. Refer to Section 6 "Preparing for Use".

Do all of the following component-specific inspections.

4.2 G1 Facepiece

Examine the lens for cracks, scratches, deformation, or color changes.

Make sure that the facepiece rubber has a tight seal and is attached to the lens ring tightly.

Make sure that the exhalation valve is clean and operates easily. Make sure that the valve moves off the seat and returns when released (from inside the facepiece).

Examine the facepiece inlet for damage. Make sure that the inhalation valve is in position.

Examine the nosecup to make sure that the check valves or air guides are in position. Make sure that the nosecup is attached to the component housing tightly.

Examine the nosecup, inhalation port, inhalation valves, exhalation valves, and exhalation port for dust, Kevlar fibers, and other debris. If necessary, use the instructions in Section 10 "Cleaning and Disinfecting" to clean these components.

Make sure that the straps for the head harness are not torn, cut, worn, fraying, or missing buckles.

4.3 APR Adapter

Examine the APR adapter for cracks, scratches, deformation, or color changes.

Examine the adapter gasket (green), O-ring, and seal ring for wear or damage.

Remove the adapter cover to examine the exhalation valve. Make sure that the valve moves off the seat and returns when released.

Examine the Rd 40 threads for damage.

4.4 C420 Respirator

Make sure that the belt is not torn, cut, worn, fraying, or missing buckles.

Examine the blower assembly for cracks or damage. Make sure that all threads are in good condition.

Make sure that there are no loose objects rattling inside the blower assembly.

Make sure that the cap is installed tightly over the battery compartment.

Examine the breathing tube for cuts, holes, tears, cracks, or other signs of damage. Make sure that all threads and couplings are in good condition.

Make sure that the handwheel on the breathing tube can move freely and is not damaged.

Make sure that all gaskets and seals are in position and in good condition.

4.5 Air Filtration Cartridges/Canisters

Examine the air filtration cartridge/canister for cracks, scratches, deformation, or color changes.

Examine the Rd 40 threads for damage.

Look at the label on the air filtration cartridge/canister to make sure that the shelf life has not expired.

Make sure that the cartridges/canisters are effective and approved for the contaminants in the environment.

5 Before Use

5.1 Respirator Use Limitations

WARNING!

- ▶ An approved professional must supply an applicable change-out schedule for air filtration cartridges/canisters, unless the cartridge/canister has an end-of-service-life indicator. The change-out schedule must include all factors that have an effect on respiratory protection, including work practices and other conditions that are specific to the users' environment.
- ▶ If this respirator is used for protection against substances that have poor warning properties, there is no secondary method of notification about when to replace the air filtration cartridge/canister. Obey additional precautions to prevent overexposure, such as a more conservative change-out schedule or use of an SAR or SCBA.
Failure to obey these warnings can result in serious injury or death.

This is an approved PAPR ONLY when it is used in an approved configuration. For information about approved configurations, refer to the G1 PAPR Approval Insert (PN 10192481).

NOTE: The rubber neck strap (Model Number 7-2830-1) is not approved for use with the 4-point black cloth head harness (Model Number 7-3104-1).

Do not exceed the maximum use concentrations set by regulatory standards.

Users must comply with the following MSA respirator use limitations. Do not exceed the following maximum use concentrations during use:

- 1000 times the exposure limit for the contaminants in the environment if a quantitative fit test is used. Using a qualitative fit test can decrease the maximum use concentration.
- Immediately dangerous to life or health (IDLH) concentration for any contaminant in the environment.

The following is a PARTIAL list of substances that have poor warning properties.

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

5.2 Exposure Limits

Refer to the applicable exposure limits from the following sources:

- American Conference of Governmental 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.

5.3 Mixtures of Contaminants

WARNING!

If any one contaminant in a mixture is the same as or more than the IDLH concentration, the entire mixture is IDLH. Do NOT use the respirator, except for escape when the respirator is used in a gas mask configuration.

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

NIOSH approves of mixing the following contaminants: organic vapors, chlorine, chloride dioxide, hydrogen sulfide, acid gases, ammonia, and carbon monoxide.

Particulates can be mixed with any other particulate or any gas or vapor for which the air filtration cartridge/canister is approved.

This respirator can be used for protection against a mixture of contaminants in an environment at the same time or against one contaminant then another (using the same air filtration cartridge/canister) ONLY in the following conditions:

- The air filtration cartridge/canister is approved for all contaminants in the environment.
- Contaminants in the environment at the same time are less than the IDLH levels for the specific contaminants.

5.4 Exposure Limits for Mixtures

ACGIH publishes the following information to calculate the threshold limit value (TLV) of a mixture:

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

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

Use the following formula to calculate the TLV of the mixture, 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:

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

Use these equations ONLY if the contaminants in the environment are actually mixed. Some substances do not mix and may be in the environment separately, for example, in pockets or at different levels. In that case, use the lowest TLV of the substances in the environment to find the applicable respirator category for protection against all contaminants in the environment.

6 Preparing for Use

WARNING!

Make sure that all respirator components with threads are installed correctly. Cross-threading can cause a connection to feel tight, but does not supply a sufficient seal for protection.

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

Make sure that the device does not have any of the conditions listed in Section 4 "Visual Examinations".

Make sure that there are no parts missing from the assembled device.

Make sure that the air filtration cartridges/canisters are approved for and effective against all contaminants in the environment.

Make sure that the device is in an approved configuration. For information about approved configurations, refer to the G1 PAPR Approval Insert (PN 10192481).

Make sure that the head harness is in an approved configuration.

NOTE: The rubber neck strap (Model Number 7-2830-1) is not approved for use with the 4-point black cloth head harness (Model Number 7-3104-1).

Before going into a contaminated area, use the following factors to make an estimate of the maximum safe duration of use:

- The amount and type of contaminate in the air, and the capacity of the air filtration cartridge/canister to absorb or neutralize the contaminant. An average airflow of approximately 2 cfm will flow through each cartridge/canister during extended use.
- The number of airborne particles (dust) in the atmosphere.
- The charge contained in the battery.
- The physiological limits of the respirator user.

6.1 Installing the Waist Belt

WARNING!

Make sure that the waist belt is tight around your waist to keep the device in position during use. Failure to obey this warning can result in serious injury or death.



- (1) Put the belt through the male end of the buckle.



- (2) Remove the male end of the buckle from the belt.



- (3) Remove the keeper loop from the belt.



- (4) Put the belt through the two belt loops on the back of the blower assembly.



(5) Install the keeper loop on the belt.



(6) Install the male buckle on the belt.

6.2 Installing the Battery

WARNING!

Do NOT use any battery that shows signs of damage, bulging, swelling, disfigurement, or liquid in the plastic wrap.

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

6.2.1 Single-Use (Li-SO₂) Batteries

WARNING!

Do NOT let single-use (Li-SO₂) batteries fall to the ground or be damaged in any way that can cause a rupture. Single-use (Li-SO₂) batteries contain pressurized sulfur dioxide gas, which is toxic.

If you smell an odor like vinegar or rotten eggs from the single-use (Li-SO₂) battery, there is possibly a leakage of battery gas. Put on protective gloves before you touch the battery. Remove the battery. Obey the instructions in Section 11.1 "Discarding Single-Use (Li-SO₂) Batteries" to discard the battery. Obey the instructions in Section 6.2 "Installing the Battery" to install a new battery.

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

Use the black battery cap assembly supplied with the blower assembly. Each battery cap assembly has a retaining lanyard to prevent loss of cap.

6.2.2 Rechargeable (NiMH) Batteries

WARNING!

Do NOT let rechargeable (NiMH) batteries fall to the ground or be damaged in any way that can cause a rupture.

If the battery is damaged, remove it. Obey the instructions in Section 11.3 "Discarding Rechargeable (NiMH) Batteries" to discard the battery. Obey the instructions in Section 6.2 "Installing the Battery" to install a new battery.

Do NOT use the rechargeable (NiMH) battery for more than 4 hours. Doing so can result in significantly decreased airflow and permanent damage to the battery.

Do NOT let the rechargeable (NiMH) battery discharge fully.

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

Before you use the rechargeable (NiMH) battery for the first time, or if the battery has not been used for several months, do three 6-hour charge/4-hour discharge cycles to get the best battery performance. Do the discharge cycles with the blower assembly operating in a nonhazardous environment without the breathing tube or cartridges/canisters installed. Refer to Section 11.2 "Charging Rechargeable (NiMH) Batteries" for instructions.



- (1) Turn the black battery cap assembly counterclockwise to loosen and remove it.
- (2) Put the split ring on the retaining lanyard through the securing hole of the blower housing.

- (3) Remove the black battery cap assembly.
Keep the black battery cap assembly for possible future use.



- (4) Put the split ring on the retaining lanyard for the green battery cap assembly through the securing hole of the blower housing.
- (5) Install the green battery cap assembly, and turn it clockwise to hand-tighten it.

6.2.3 Installing the Battery in the Blower Assembly

NOTICE

To prevent damage to the battery, do NOT keep the power switch in the "ON" position when a battery is installed and the device is not in use.

- (1) Remove the battery from its packaging, if necessary.
- (2) Examine the battery for signs of damage, bulging, swelling, disfigurement, or liquid in the plastic wrap. If the battery shows any of these conditions, obey the instructions in Section 11.1 "Discarding Single-Use (Li-SO₂) Batteries" or Section 11.3 "Discarding Rechargeable (NiMH) Batteries" to discard the battery.
- (3) Make sure that the power switch is in the "OFF" position.
- (4) Turn the battery cap assembly counterclockwise to remove it from the blower assembly.



- (5) Look for the orientation label inside the battery compartment in the blower assembly.
- (6) To install the battery, put the contact end (metal ring) into the compartment first.
- (7) Install the battery cap assembly on the blower assembly, and turn it clockwise to hand-tighten it.

6.3 Installing the APR Adapter on the Facepiece



- (1) Push the APR adapter inward until you hear a click when it engages correctly in the facepiece. When the APR adapter is installed correctly and the facepiece is held in the as-worn position, the MSA logo is aligned horizontally.



- (2) Pull on the APR adapter to make sure that it is attached tightly to the facepiece.

6.4 Installing the Breathing Tube on the Blower Assembly



- (1) Remove the green protective plug from the inlet port of the breathing tube.
Keep the protective plug to use during storage.
- (2) Examine the gray gasket in the inlet port of the breathing tube. If the gasket is damaged or missing, replace it (PN B-10022-001).



- (3) Install the inlet port of the breathing tube in the outlet port of the blower assembly, and hand-tighten the connection.

6.5 Installing the Breathing Tube in the Facepiece and APR Adapter

WARNING!

Make sure that there is no debris on the breathing tube handwheel. Make sure that the handwheel can turn easily. If the handwheel cannot turn easily and the breathing tube is moved during use, the facepiece seal can leak.

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



- (1) Remove the green protective plug from the inlet port of the breathing tube.
Keep the protective plug to use during storage.
- (2) Install the APR adapter in the outlet port of the breathing tube.
- (3) Use the breathing tube handwheel to hand-tighten the connection.

6.6 Airflow Testing without Air Filtration Cartridges/Canisters

WARNING!

Failure to make sure that airflow from the blower assembly is sufficient can result in decreased performance of the device.

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



- (1) Make sure that an O-ring in good condition is installed on the airflow indicator. If the O-ring is damaged or missing, replace the airflow indicator.



- (2) Make sure that a new single-use (Li-SO₂) or fully charged rechargeable (NiMH) battery is installed in the blower assembly.
- (3) Tilt the airflow indicator from side to side, and make sure that the red ball moves freely from one end of the air column to the other. If it does not, replace the airflow indicator.

- (4) Remove the green protective plugs from the inlet and outlet ports of the blower assembly.
Keep the protective plugs to use during storage.



- (5) Push the airflow indicator into the outlet port of the blower assembly until the airflow indicator touches the bottom of the outlet port.



- (6) Put the blower assembly on a flat surface in an upright position so the airflow indicator is vertical on top of the blower assembly.
- (7) Move the power switch to the "ON" position.
- (8) Make sure that the device operates correctly.
- (9) Make sure that the red ball goes to the top of the airflow indicator. If it does not, do the following:
 - a) Replace the battery with a new single-use (Li-SO₂) or fully charged rechargeable (NiMH) battery, and do an airflow test again.
 - b) If the airflow test is unsatisfactory, replace the blower assembly, and do an airflow test again.
 - c) If the airflow test is unsatisfactory, remove the respirator from service.
- (10) Move the power switch to the "OFF" position.
- (11) Remove the airflow indicator.

6.7 Installing Air Filtration Cartridges/Canisters

WARNING!

- ▶ Use this respirator with the correct air filtration cartridge/canister for protection against specific chemical or particulate contaminants. Do NOT use this device if you cannot make sure that the air filtration cartridge/canister is applicable for the contaminant. The respirator will not supply protection unless all inhaled air is pulled through an applicable air filtration cartridge/canister.
 - ▶ Do NOT use an air filtration cartridge/canister with an expired shelf life.
 - ▶ Do NOT use the air filtration cartridge/canister if the packaging is opened, damaged, or missing. Make sure that the air filtration cartridge/canister is in its original packaging before use in a contaminated environment.
 - ▶ Do NOT use air filtration cartridges/canisters more than one time. Replace air filtration cartridges/canisters after each use.
 - ▶ Do NOT replace the air filtration cartridges/canisters in a contaminated area.
 - ▶ Obey the decontamination and disposal procedures set by the applicable authorities.
 - ▶ Do NOT use a respirator if the gaskets are damaged or missing from the blower assembly.
 - ▶ Do NOT tighten the cartridges/canisters too much. Doing so can cause damage to the gasket. If the gasket is damaged, leakage and exposure to contaminants can occur.
 - ▶ When used at specified occupational exposure limits, do NOT exceed the rated service time of the air filtration cartridge/canister.
- Failure to obey these warnings can result in serious injury or death.

Install two new MSA air filtration cartridges/canisters of the same type and part number before each use.

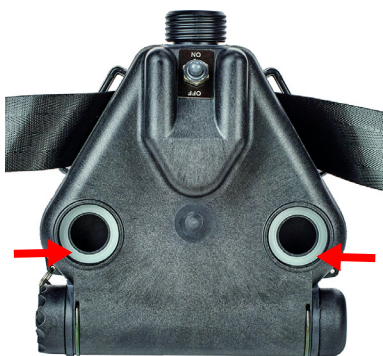
Use only approved cartridges/canisters. For information about approved configurations, refer to the G1 PAPR Approval Insert (PN 10192481).

Obey the change-out schedule for air filtration cartridges/canisters.

Use air filtration cartridges/canisters immediately after removal from the packaging.

- (1) Remove the air filtration cartridge/canister from the packaging.
- (2) Make sure that the air filtration cartridge/canister is not damaged. If the air filtration cartridge/canister is damaged, discard it according to the applicable authorities.
- (3) Make sure that the air filtration cartridge/canister is applicable for use against all contaminants in the environment.
- (4) Look at the label on the air filtration cartridge/canister to make sure that the shelf life has not expired. If the shelf life has expired, do NOT use the air filtration cartridge/canister. Discard it according to the applicable authorities.
- (5) Remove the green protective plugs from the inlet and outlet ports of the blower assembly.

Keep the protective plugs to use during storage.

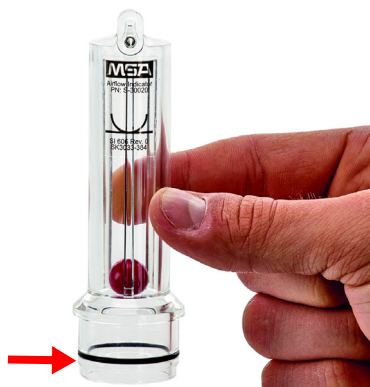


- (6) Examine the gray gaskets in the inlet ports of the blower assembly. If either gasket is damaged or missing, replace it (PN B-60026-002). When replacing the gaskets, be careful not to cause damage to the threads of the inlet ports. If the threads of the inlet ports are damaged, replace the blower assembly.



- (7) Install the air filtration cartridges/canisters in the inlet ports of the blower assembly, and hand-tighten the cartridges/canisters. Do NOT tighten the cartridges/canisters too much.
- (8) Discard used air filtration cartridges/canisters according to the decontamination and disposal procedures set by the applicable authorities.

6.8 Airflow Testing with Air Filtration Cartridges/Canisters



- (1) Make sure that an O-ring in good condition is installed on the airflow indicator. If the O-ring is damaged or missing, replace the airflow indicator.



- (2) Make sure that a new single-use (Li-SO₂) or fully charged rechargeable (NiMH) battery is installed in the blower assembly.
- (3) Tilt the airflow indicator from side to side, and make sure that the red ball moves freely from one end of the air column to the other. If it does not, replace the airflow indicator.
- (4) Remove the green protective plugs from the inlet and outlet ports of the blower assembly.
Keep the protective plugs to use during storage.
- (5) Install two new air filtration cartridges/canisters. Refer to Section 6.7 "Installing Air Filtration Cartridges/Canisters" for instructions.
- (6) Push the airflow indicator into the outlet port of the blower assembly until the airflow indicator touches the bottom of the outlet port.
- (7) Put the blower assembly on a flat surface in an upright position so the airflow indicator is vertical on top of the blower assembly.
- (8) Move the power switch to the "ON" position.
- (9) Make sure that the device operates correctly.
- (10) Make sure that the red ball goes above the line on the outside of the airflow indicator. If the red ball does not go fully above the line on the airflow indicator, do the following:
 - a) Replace the battery with a new single-use (Li-SO₂) or fully charged rechargeable (NiMH) battery, and do an airflow test again.
 - b) If the airflow test is unsatisfactory, adjust the position of the cartridges/canisters, and do an airflow test again.
 - c) If the airflow test is unsatisfactory, remove the respirator from service.

(11) Move the power switch to the "OFF" position.

(12) Remove the airflow indicator.

7 Donning

WARNING!

- ▶ If you have a beard, large sideburns, or similar physical characteristics that prevent direct contact between your skin and the sealing surface of the facepiece, this device may not seal correctly with your face (refer to NFPA 1500, Standard on Fire Department Occupational Safety and Health Program, and ANSI Z88.2, Practices for Respiratory Protection). An incorrect facial seal can let contaminants leak into the facepiece, decreasing or removing respiratory protection. Do NOT use this device if such conditions exist.
 - ▶ Do a negative pressure seal test before each use and before going into a toxic atmosphere.
 - ▶ Make sure that the correct noseclip is installed in the facepiece. For information about approved configurations, refer to the G1 PAPR Approval Insert (PN 10192481).
 - ▶ Individuals who wear eyeglasses must use the G1 spectacle kit to guarantee a correct fit. Ordinary eyeglasses cannot be worn under the facepiece.
 - ▶ Wear impermeable protective clothing to prevent exposure to gases and vapors that can poison by skin absorption.
 - ▶ Donning, doffing, and testing the negative pressure seal must be done in a safe, nonhazardous, nontoxic atmosphere.
- Failure to obey these warnings can result in serious injury or death.

NOTE: The rubber neck strap (Model Number 7-2830-1) is not approved for use with the 4-point black cloth head harness (Model Number 7-3104-1).

- (1) Make sure that the respirator is correctly prepared for use. Refer to Section 6 "Preparing for Use".
- (2) Make sure that the breathing tube is connected tightly to the facepiece and the blower assembly.
- (3) Make sure that the cartridges/canisters are installed correctly in the blower assembly.
- (4) Move the power switch to the "ON" position. Make sure that the device operates correctly.
- (5) Move the power switch to the "OFF" position.
- (6) If possible, ask a buddy to make sure that the respirator is donned correctly (e.g., the head harness is in the correct position, the blower assembly is in the correct position, the waist belt is attached tightly, and all components are assembled and tightened correctly).

7.1 Donning in Normal Weather

WARNING!

Make sure that the top of the facepiece seal is in direct contact with your forehead. Make sure that there is no hair between the facepiece seal and your skin.

Make sure that the breathing tube is not too tight or too loose.

- ▶ If the breathing tube is too tight, normal movement of the head and neck can be restricted. This can cause the facepiece to pull away from the face and break the facepiece seal.
- ▶ If the breathing tube is too loose, the slack in the breathing tube can catch on objects. This can cause the facepiece to pull away from the face and break the facepiece seal.

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



- (1) Hold the respirator by the waist belt and put the blower assembly in position on your waist. The blower assembly can be on either hip or on the lower back.
- (2) Connect the buckle, and adjust the waist belt.
- (3) Make sure that the outlet port of the blower assembly points upward.
- (4) Put the breathing tube in position.
 - If the blower assembly is on the lower back, put the breathing tube over either shoulder.
 - If the blower assembly is on the hip, put the breathing tube under the nearest armpit.
- (5) Make sure that the breathing tube is not too tight or too loose.
 - If the breathing tube is too tight, normal movement of the head and neck can be restricted. This can cause the facepiece to pull away from the face and break the facepiece seal.
 - If the breathing tube is too loose, the slack in the breathing tube can catch on objects. This can cause the facepiece to pull away from the face and break the facepiece seal.

- (6) If necessary, adjust the position of the blower assembly on the waist, or install a breathing tube with a different length to make or remove slack in the breathing tube.



- (7) Hold the facepiece, and loosen all of the head harness straps to within ¼ in. from the buckles.

- (8) For donning in cold weather, you MUST hold your breath before you start to put the facepiece in position in step 9 until after you tighten the harness straps in Step 15. If you do not, the facepiece can fog immediately.



- (9) Open the head harness with both hands and pull it over your head.



- (10) Pull down on the head harness pull tab.



- (11) Make sure that the head harness is flat on the back of your head.



- (12) Make sure that the head harness straps are not twisted.



- (13) Hold the respirator while you put the top of the nosecup in position on the bridge of your nose.
- Make sure that the nosecup is centered on your face.
 - Make sure that the nosecup does not prevent you from seeing clearly.



- (14) Make sure that your chin is fully engaged in the chin cup.



- (15) While you hold the respirator in position over your face, tighten the head harness straps one at a time in the following order. Tighten the straps by pulling straight back, not out away from the head.
- a) Both lower harness straps (neck)
 - b) Both upper harness straps (temple)
 - c) Top strap

NOTE: The 4-point head harness does not have an adjustable top strap.



- (16) For donning in cold weather, release your breath.
 (17) If necessary, tighten all straps a second time to make sure that the facepiece is tight.
 (18) Make sure that you can feel firm, even pressure from the nosecup to all points of contact with your face.
 (19) Make sure that the head harness tabs are flush to the face and not folded under the facepiece seal or head harness straps.
 (20) Make sure that the head harness straps do not cut into your ears.
 (21) Do a negative pressure seal test. Refer to Section 7.3 "Testing the Negative Pressure Seal".

7.2 Donning in Cold Weather

Users must know how to don the respirator in cold weather before using this respirator in cold weather. Use the instructions in Section 7.1 "Donning in Normal Weather" to don the respirator. For donning in cold weather, you **MUST** hold your breath (Section 7.1, Step 8) before you start to put the facepiece in position in Step 9 until after you tighten the harness straps in Step 15. If you do not, the facepiece can fog immediately.

To prevent the facepiece lens from fogging in cold weather, keep facial perspiration to a minimum before donning the respirator.

7.3 Testing the Negative Pressure Seal

WARNING!

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

To make sure that the face-to-facepiece tightness is correct, do a negative pressure seal test before each use.



- (1) Use the palms of your hand to seal the inlet ports of the air filtration cartridges/canisters.
- (2) Inhale and hold your breath for 10 seconds. Make sure that the facepiece stays collapsed on your face.
- (3) Exhale. Make sure that the exhalation valve opens and the pressure inside the facepiece is released.
- (4) If necessary, retighten the straps.

8 During Use

WARNING!

- ▶ Do NOT use the respirator if any of the following conditions occur:
 - The negative pressure seal test is unsuccessful.
 - The respirator is damaged.
 - Correct servicing/maintenance has not been done.
 - Genuine MSA replacement parts have not been used.
- ▶ Go out of a contaminated area immediately if:
 - Breathing becomes difficult.
 - Dizziness or other distress occurs.
 - You taste or smell a contaminant.
 - You feel irritation of the nose or throat.

- The respirator does not operate according to the instructions or training.
 - Airflow decreases or stops.
 - ▶ Return to a safe atmosphere immediately if discoloration, crazing, blistering, cracking, or other deterioration of the facepiece lens material occurs.
 - ▶ This respiratory protective device does not supply oxygen. Use the device only in areas that have sufficient ventilation.
 - ▶ Do NOT let the battery discharge fully.
 - ▶ Do NOT use the rechargeable (NiMH) battery for more than 4 hours. Doing so can result in significantly decreased airflow and permanent damage to the battery.
 - ▶ Do NOT use the single-use (Li-SO₂) battery for more than 8 hours. Doing so can result in significantly decreased airflow.
 - ▶ If the battery compartment becomes hot to the touch, go out of the contaminated area immediately and move the power switch to the "OFF" position. Obey the applicable decontamination procedures, clean and disinfect the respirator, then examine it.
- Failure to obey these warnings can result in serious injury or death.

If you go out of the contaminated area at any time, do an in-use airflow test and a negative pressure seal test before you go back into the contaminated area.

If the respirator is using a single-use (Li-SO₂) battery, do an in-use airflow test after 4 hours of use and again 2 hours later, after 6 hours of use.

If the respirator is using a rechargeable (NiMH) battery, do an in-use airflow test after 2 hours of use and again 1 hour later, after 3 hours of use.

8.1 In-Use Airflow Test

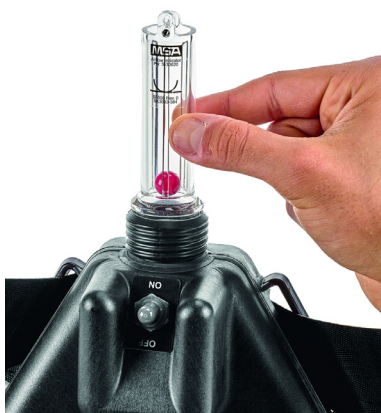
WARNING!

Do NOT use the respirator if the red ball does not go fully above the line on the airflow indicator. Failure to obey this warning can result in serious injury or death.

- (1) Go out of the contaminated area.
- (2) Move the power switch to the "OFF" position.
- (3) Obey the decontamination procedures set by the applicable authorities for the respirator and protective clothing.



- (4) Remove the breathing tube from the blower assembly.



- (5) Push the airflow indicator into the outlet port of the blower assembly until the airflow indicator touches the bottom of the outlet port.



- (6) Move the power switch to the "ON" position.
- (7) Make sure that the red ball goes above the line on the outside of the airflow indicator. If it does not, do the following:
- a) Replace the battery with a new single-use (Li-SO₂) or fully charged rechargeable (NiMH) battery, and do an airflow test again.
 - b) If the airflow test is unsatisfactory, adjust the position of the cartridges/canisters, and do an airflow test again.
 - c) If the airflow test is unsatisfactory, remove the respirator from service.
- (8) Move the power switch to the "OFF" position.
- (9) Remove the airflow indicator.



- (10) Install the inlet port of the breathing tube in the outlet port of the blower assembly, and hand-tighten the connection.
- (11) Do a negative pressure seal test before returning to a contaminated area. Refer to Section 7.3 "Testing the Negative Pressure Seal" for instructions.

8.2 Cold Weather Operation

WARNING!

Before going into a hazardous environment, make sure that there is no water, moisture, or dampness on or in any of the respirator components. Any moisture on or in the respirator components can freeze and result in a malfunction of the respirator. Make sure that all components operate correctly.

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

Water inside the facepiece, APR adapter, breathing tube, blower assembly, or air filtration cartridges/canisters can freeze into ice and restrict airflow. Make sure that moisture does NOT go into the facepiece, APR adapter, breathing tube, blower assembly, or air filtration cartridges/canisters when they are not in use.

In cold weather, use the instructions in Section 7.2 "Donning in Cold Weather" to don the respirator.

9 After Use

WARNING!

- ▶ Do NOT doff the respirator until the respirator and protective clothing are decontaminated. Otherwise, exposure to contaminants can occur.
- ▶ Do NOT examine the respirator before it is decontaminated, cleaned, and disinfected if there is a risk of exposure to contaminants. Decontaminate, clean and disinfect the respirator first, then examine it.
- ▶ Be careful with used air filtration cartridges/canisters, which can contain the contaminant that was in the atmosphere during use.
- ▶ Obey the decontamination and disposal procedures set by the applicable authorities. Failure to obey these warnings can result in serious injury or death.

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

9.1 Doffing the Respirator



- (1) Move the power switch to the "OFF" position.
- (2) Use your fingers to pull the buckles on the head harness forward and loosen them.



- (3) Holding the facepiece, pull the head harness forward over your head.



- (4) Holding the facepiece, pull the respirator away and down from your face.
- (5) Disconnect the buckles of the waist belt, and remove the respirator.
- (6) Do the procedures in Section 10 "Cleaning and Disinfecting".

10 Cleaning and Disinfecting

WARNING!

- ▶ Do NOT touch or inhale contaminants.
 - ▶ Do NOT use cleaning substances that can or might attack any part of the device.
 - ▶ Do NOT use alcohol, which can cause deterioration of rubber parts.
 - ▶ Make sure to rinse components fully. The residue from cleaning agents can cause skin irritation.
 - ▶ Make sure that there is no water, moisture, or dampness on or in the device components before returning the device to service. Any moisture on or in the device components can freeze and result in a malfunction of the device.
 - ▶ Failure to clean and decontaminate the respirator correctly after each use can cause overexposure to contamination and result in illness, disease, or death.
 - ▶ Be careful with used air filtration cartridges/canisters, which can contain the contaminant that was in the atmosphere during use.
- Failure to obey these warnings can result in serious injury or death.

NOTICE

Do NOT submerge the blower assembly. If the blower assembly is accidentally submerged, let it air-dry fully. Do an airflow test, with and without cartridges/canisters installed, to make sure that the blower assembly operates correctly. Refer to Section 6.6 "Airflow Testing without Air Filtration Cartridges/Canisters" or Section 6.8 "Airflow Testing with Air Filtration Cartridges/Canisters" for instructions.

Make sure that a designated person or the user cleans all components (facepiece, APR adapter, breathing tube, blower assembly, and waist belt) fully after each use. ANSI standards recommend that users be trained in the cleaning procedure.

MSA recommends the use of Confidence Plus Germicidal Cleaner (PN 10009971), which cleans and disinfects components in one operation; retains its germicidal efficiency in hard water to inhibit the growth of bacteria; and will not deteriorate rubber, plastic, glass, or metal parts. Refer to the label to prepare the Confidence Plus Germicidal Cleaner.

If the device has heavy smoke residue or dirt accumulation, use a sponge soaked with a mild soap solution or a soft/medium bristle brush to remove deposits that can interfere with operation of the PAPR.

If the Confidence Plus Germicidal Cleaner is not used, wash components in a mild cleaning solution and make sure to rinse them fully. When cleaning the respirator in normal weather, submerge the facepiece in a germicide solution for the manufacturer's recommended time.



- (1) Remove the air filtration cartridges/canisters.
- (2) Discard air filtration cartridges/canisters according to federal, state, and local regulations.



- (3) Turn the battery cap assembly counterclockwise to loosen and remove it.
- (4) Remove the battery, and do one of the following:
 - For single-use (Li-SO₂) batteries, refer to Section 11.1 "Discarding Single-Use (Li-SO₂) Batteries".
 - For rechargeable (NiMH) batteries, refer to Section 11.2 "Charging Rechargeable (NiMH) Batteries" or Section 11.3 "Discarding Rechargeable (NiMH) Batteries".



- (5) Use the instructions on the label to prepare a solution of Confidence Plus Germicidal Cleaner (PN 10009971) in a bucket or sink.
- (6) Loosen the breathing tube handwheel and remove the breathing tube from the APR adapter.



- (7) Remove the APR adapter from the facepiece.

- (8) Clean and disinfect the facepiece. Refer to Section 10.1 "G1 Facepiece" for instructions.

- (9) Clean and disinfect the APR adapter. Refer to Section 10.2 "APR Adapter" for instructions.



- (10) Use a cloth or sponge soaked with a solution of Confidence Plus Germicidal Cleaner to clean the breathing tube and blower assembly.

- (11) Clean the waist belt in a solution of Confidence Plus Germicidal Cleaner. If necessary, use a moist sponge or soft brush to remove debris.

- (12) Rinse the waist belt fully.

- (13) Use a cloth or sponge soaked with a solution of Confidence Plus Germicidal Cleaner to clean the battery compartment and the inlet and outlet ports of the breathing tube and blower assembly.

- (14) Make sure that there is no debris on the inlet and outlet ports that can prevent a correct seal during use.

- (15) Use the instructions in Section 4 "Visual Examinations" to examine all components. Replace any component that is damaged.

- (16) Let all components air-dry fully.

- (17) Make sure that there is no water, moisture, or dampness on or in any of the components.

- (18) Use the instructions in Section 6 "Preparing for Use" to assemble the device before storage.



10.1 G1 Facepiece

WARNING!

- ▶ Do NOT use cleaning products that contain hydrocarbons or solvents such as nitro-thinner.
 - ▶ Do NOT use radiant heat such as the sun or radiators to dry cleaned parts.
 - ▶ When a drying cabinet is used, make sure that the temperature is not more than 140°F (60°C).
 - ▶ Do a negative pressure seal test after every cleaning, disinfecting, and maintenance procedure, and after every exchange of parts.
- Failure to obey these warnings can result in serious injury or death.

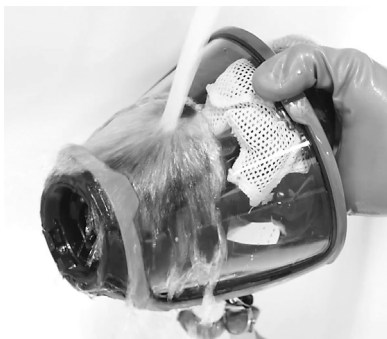
It is only necessary to clean and disinfect the facepiece after each use.

- (1) Use the instructions on the label to prepare a solution of Confidence Plus Germicidal Cleaner (PN 10009971) in a bucket or sink.

NOTE: The head harness can be cleaned as part of the facepiece or removed to be cleaned separately.



- (2) Submerge the facepiece in the solution of Confidence Plus Germicidal Cleaner for a minimum of 30 seconds. If necessary, use a moist sponge or soft brush to clean the facepiece.



- (3) Rinse the facepiece and components thoroughly in clean water that is not more than 110°F (43°C) and is preferably running and draining.



- (4) To clean and rinse the pressure-demand exhalation valve, use a blunt object to push in on the stem and flush the valve with clean water.

- (5) Let the facepiece air-dry. Do not put parts near a heater or in direct sunlight to dry.
- (6) Operate the exhalation valve manually to make sure that it operates correctly.
- (7) Make sure there is no water, moisture, or dampness on or in the facepiece before returning it to service.
- (8) Do a negative pressure seal test before returning the facepiece to service.

10.2 APR Adapter

WARNING!

- ▶ Do NOT use cleaning products that contain hydrocarbons or solvents such as nitro-thinner.
 - ▶ Do NOT use radiant heat such as the sun or radiators to dry cleaned parts.
 - ▶ When a drying cabinet is used, make sure that the temperature is not more than 140°F (60°C).
 - ▶ Do a negative pressure seal test after every cleaning, disinfecting, and maintenance procedure, and after every exchange of parts.
- Failure to obey these warnings can result in serious injury or death.



- (1) Use the instructions on the label to prepare a solution of Confidence Plus Germicidal Cleaner (PN 10009971) in a bucket or sink.



- (2) Remove the adapter cover.



- (3) Submerge the adapter in the solution of Confidence Plus Cleaner for a minimum of 30 seconds. If necessary, use a sponge or soft brush to clean the adapter.

- (4) Submerge the adapter cover in the solution of Confidence Plus Cleaner for a minimum of 30 seconds. If necessary, use a sponge or soft brush to clean the adapter cover.



- (5) Rinse the adapter and adapter cover thoroughly in clean water that is not more than 110°F (43°C) and is preferably running and draining.

- (6) Let the adapter and adapter cover air-dry. Do NOT put parts near a heater or in direct sunlight.



- (7) Operate the exhalation valve manually to make sure that it operates correctly.



(8) Install the adapter cover.

- (9) Make sure that the APR adapter connects to the facepiece correctly. Refer to Section 6.3 "Installing the APR Adapter on the Facepiece" for instructions.
- (10) Do a negative pressure seal test before returning the facepiece to service. Refer to Section 7.3 "Testing the Negative Pressure Seal" for instructions.

11 Batteries

11.1 Discarding Single-Use (Li-SO₂) Batteries

WARNING!

Do NOT try to charge single-use (Li-SO₂) batteries. Batteries can ignite.

Do NOT dispose of any battery in fire. Batteries can explode.

Do NOT dispose of any battery as ordinary trash.

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

Use the instructions on the battery label or the following to discharge the battery fully before discarding it.



- (1) Use the attached pull-tab to remove the warning label from the side of the battery next to the contact end.
- (2) Keep the battery with no label attached in a safe location for 5 days to make sure that it is discharged fully.
- (3) Discard the battery in accordance with federal, state, and local regulations.



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11.2 Charging Rechargeable (NiMH) Batteries

WARNING!

Use **ONLY** an MSA battery charger to charge the rechargeable (NiMH) batteries.

The positive and negative battery terminals are on the opposite end from the charging receptacle. To prevent a short circuit in the battery, do **NOT** connect the positive and negative battery terminals through any conductive element (including but not limited to conductive metals and liquids) without sufficient electrical load/resistance. A short circuit can cause leakage of the battery liquid electrolyte, heating, bursting, and fire.

Do **NOT** pull on the cord for the charger plug to remove it from the battery. Doing so can cause damage to wire connections of the charger plug housing and increase the risk of electrocution.

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

NOTICE

Do **NOT** connect the metal charging leads on the plug for the battery charger to a ground. Doing so can cause damage to the battery charger.

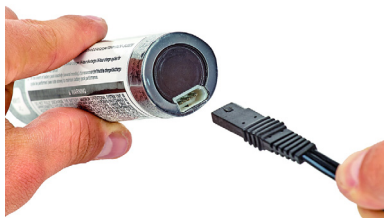
In a discharged condition (after approximately 4 hours of operational use), the battery will charge for approximately 6 hours. Charging times will be different for batteries in a partially charged state. The best charging time is 8 hours.

- (1) In a clean area (no dust) with a temperature between 32°F (0°C) and 100°F (38°C), put the charger on a horizontally flat surface. The best temperature is 70°F (21°C).



- (2) Connect the applicable power cord set (120 V or 230 V) to the IEC receptacle on the charger.

- (3) Connect the power cord to the applicable regulated 120 V or 230 V outlet. When there is no battery in the charger and during battery charging initialization, the orange LED comes on.



- (4) Align and connect the keyed charger plug with the charging receptacle in the battery. The red LED comes on to show that the battery is in Fast Charge mode.

- (5) If the red/green LEDs come on, there is a fault condition. Do the following:
 - a) Remove the battery from the charger immediately. To remove the battery from the charger, firmly hold the charger plug housing with your fingers and pull it from the battery. Do **NOT** pull on the cord for the charger plug to remove it from the battery.
 - b) Connect a different battery to the charger. If the red/green LEDs come on again, remove the charger from service.

- (6) A false indication of a full charge (green LED) can sometimes occur a few minutes into the charging cycle for new batteries and batteries that have been in storage for months. If this occurs, do the following:
 - a) Disconnect the power cord for the charger from the power source.
 - b) Connect the power cord for the charger to the power source.
 - c) Continue the charging cycle.
- (7) When the green LED comes on, the battery is fully charged and ready to use. If the battery is not removed from the charger for use, Trickle Charge mode goes into operation. Batteries can stay on the charger in Trickle Charge mode indefinitely.



- (8) To remove the charger plug from the battery, firmly hold the charger plug housing with your fingers and pull it from the battery. Do NOT pull on the cord for the charger plug to remove it from the battery.

Rapid Charger LED Illumination Sequence	
LED Color	Charging Status with ac Power Cord Attached
Orange	There is no battery attached, or the charging cycle is initializing.
Red	Fast Charge mode is in operation.
Green/Orange	Top-off Charge mode is in operation. The battery is almost fully charged.
Green	The battery is fully charged and ready to use. Trickle Charge mode is in operation.
Red/Green	There is a fault condition. Remove the battery from the charger immediately.

11.3 Discarding Rechargeable (NiMH) Batteries

The NiMH cells in the MSA rechargeable battery are classified by the federal government as nonhazardous waste and are safe for disposal as municipal waste.

The NiMH cells in the MSA rechargeable battery contain recyclable materials.



- (1) Attach a piece of nonconductive insulating tape across the battery contacts and ends of the charging pins.
- (2) Discard or recycle the battery in accordance with all applicable federal, state, and local regulations.

12 G1 Spectacle Kit

WARNING!

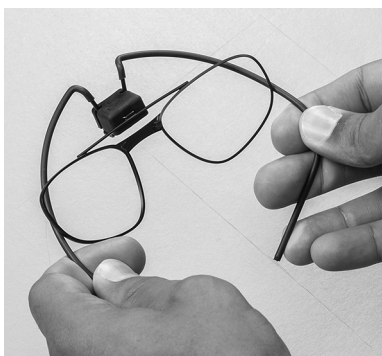
Before using a spectacle kit, an optometrist must examine the spectacle kit and prescribe the correct lenses to fit into the lens frame on the spectacle kit.

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

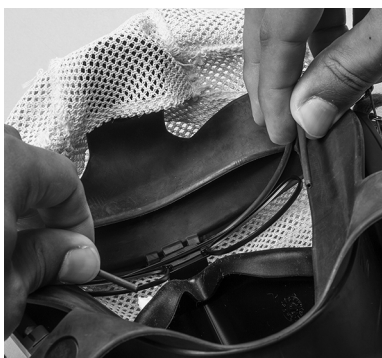


- (1) Turn the head harness over the front of the facepiece so the harness covers the lens of the facepiece.

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



- (2) Squeeze in on the wire frame of the spectacle kit at the large bends about 2 in. (5 cm) from the ends.



- (3) Push the top part of the wire frame into the lens of the facepiece.

The faceblank has three rubber tabs made to grab the wire frame.



- (4) Push one end of the wire frame up into the facepiece so the frame is in position along the edge where the lens and faceblank meet.



- (5) Make sure the end of the wire frame is in position in the small pockets in the faceblank on the edge of the lens.
- (6) Do Steps (4) and (5) on the opposite side.



- (7) Don the facepiece.
- (8) Adjust the lens frame up/down and in/out to optimize fit and visibility.

13 Maintenance and Recertification

MSA recommends that the G1 PAPR be recertified by MSA every 3 years. Recertification includes inspection of the blower assembly, replacement of the main seal and filter gasket, and verification of system performance.

Make sure that this device is examined and serviced regularly by an MSA trained repair technician.

MSA is liable only for maintenance and repairs performed by MSA.

Use only genuine MSA replacement parts.

Changes to devices or components are not permitted and will result in unapproved configurations. Keep detailed inspection and service records.

14 Safekeeping and Storage

NOTICE

Do NOT put the device in storage with a battery installed. If the battery is installed during storage, corrosion at the battery terminals can occur and cause permanent damage to the battery and blower assembly.

Make sure that the device operates correctly before putting it in storage.

- (1) Install a battery in the assembled device. Refer to Section 6.2 "Installing the Battery" for instructions.
- (2) Do an airflow test with and without cartridges/canisters. Refer to Section 6.6 "Airflow Testing without Air Filtration Cartridges/Canisters" or Section 6.8 "Airflow Testing with Air Filtration Cartridges/Canisters" for instructions.
- (3) Do the procedures in Section 4 "Visual Examinations". Replace any component that is damaged.
- (4) Remove the battery.

14.1 G1 Facepiece

WARNING!

To prevent damage to the facepiece, do NOT keep loose objects in the facepiece container. Failure to obey this warning can result in serious injury or death.

Keep the facepiece in a pouch or container.

Do not distort the facepiece during storage.

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

To extend the life of rubber components, keep them in a cool, dry place that is protected from ultraviolet radiation, according to ISO 2230, Rubber Products – Guidelines for Storage.

14.2 C420 Respirator

Install the green protective plugs in the inlet and outlet ports of the blower assembly.

Install the green protective plugs in the inlet and outlet ports of the breathing tube.

Keep the respirator in cool, dry, clean ambient air away from sunlight, heat, and moisture.

Keep this operating manual with the respirator.

14.3 Air Filtration Cartridges/Canisters

WARNING!

Do NOT keep air filtration cartridges/canisters in a storage area with temperatures that are more than 120°F (49°C).

Failure to obey this warning can change the performance of the air filtration cartridges/canisters and result in serious injury or death.

Obey the shelf life expiration date that shows on the carton, packaging, and/or air filtration cartridge/canister. The expiration date applies ONLY if the air filtration cartridge/canister is factory sealed and not damaged. Otherwise, discard the air filtration cartridge/canister.

Do NOT put air filtration cartridges/canisters with an expired shelf life in storage.

Discard air filtration cartridges/canisters if the original packaging is open or damaged.

14.4 Batteries

Keep batteries in cool, dry, clean ambient air away from sunlight, heat, and moisture.

The single-use (Li-SO₂) battery can have an extended shelf life when kept correctly in storage. The single-use (Li-SO₂) battery is not rechargeable.

The NiMH battery is rechargeable. Obey the instructions on the battery label, or refer to Section 11.2 "Charging Rechargeable (NiMH) Batteries" for instructions.

14.5 CBRN Applications

Keep air filtration cartridges/canisters in the original, unopened foil bag and the original, unopened carton.

Keep the facepiece in the bag (PN 10160855) or storage pouch (Model number 7-2954-1).

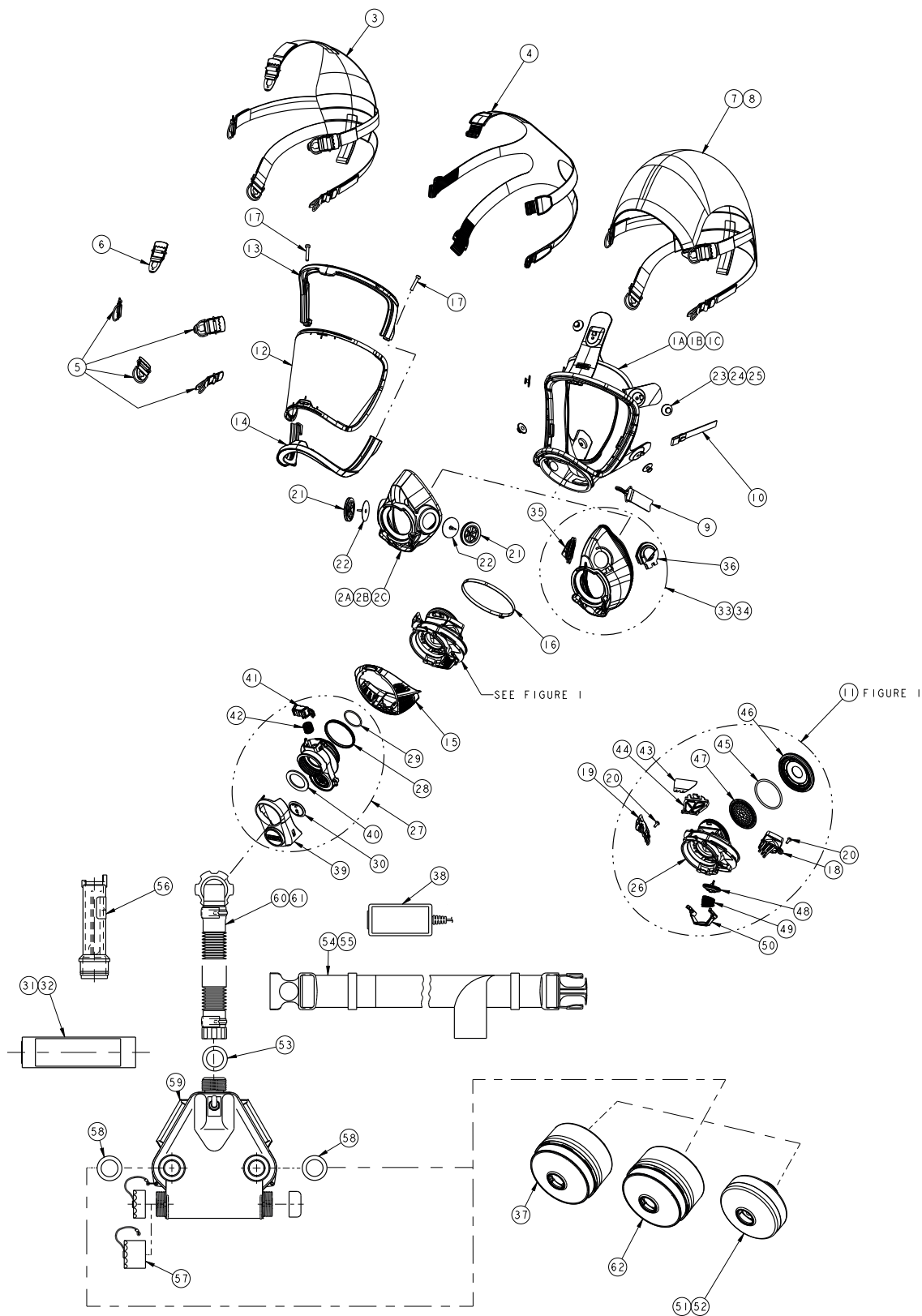
Keep the APR adapter in the original carton (PN 10070122).

14.6 Removing the Device from Service Permanently

If the respirator shows damage or deterioration and/or does not operate as specified in this manual, remove it from service permanently.

Discard the respirator and its components in accordance with local, state, and federal regulations.

15 Ordering Information



Item	Quantity	Description	Part Number
1A	1	Faceblank Small	10149577-SP
1B	1	Faceblank Medium	10149578-SP
1C	1	Faceblank Large	10149579-SP
2A	1	G1 Nose Cup Small	10149572-SP
2B	1	G1 Nose Cup Medium	10149573-SP
2C	1	G1 Nose Cup Large	10149574-SP
3	1	Harness, 5 Pt Adjustable	10144216-SP
4	1	Harness, Rubber	10144214-SP
5	4	Buckle D-Ring	10149551-SP
6	1	Buckle	10144217-SP
7	1	Harness, 4 Pt Adjustable, Polyester	10182346
8	1	Harness, 4 Pt Adjustable, Kevlar	10144215-SP
9	1	Neck Strap, Cloth	10144220-SP
10	1	Neck Strap, Rubber	10159699-SP
11	1	Component Housing Assembly	10144184-SP
12	1	Lens	10144194-SP
13	1	Lens Ring, Upper	10144195-SP
14	1	Lens Ring, Lower	10144196-SP
15	1	Cover, Component Housing	10144187-SP
16	1	Clamp, Component Housing	10144222-SP
17	2	Screw, Lens Ring	10144221-SP
18	1	Lightpipe Assembly, Left	10144180-SP
19	1	Lightpipe Assembly, Right	10144204-SP
20	2	Screw Delta Pt Screw Wn 5451, 30x8	10144233-SP
21	2	Inlet Valve Seat	10144192-SP
22	2	Inlet Valve	10144193-SP
23	5	Button, Headharness, Black	10144219-SP
24	5	Button, Headharness, Gray	10144235-SP
25	5	Button, Headharness, Green	10144234-SP
26	1	Component Housing	10144197-SP
27	1	Filter Adapter Assembly	10144231-SP
28	1	Gasket, Seal Ring	10146238-SP
29	1	O-Ring, Silicone, 70d, Size 024, Orange	10153639-SP
30	1	Valve, Exhalation	10025295
31	1	Li-SO ₂ Single-Use Battery	M-20020
32	1	NIMH Rechargeable Battery	S-20036
33	1	G1 CBRN Nosecup, Small/Medium	10189323
34	1	G1 CBRN Nosecup, Large	10189322
35	1	CBRN Airguide, Right	10191618
36	1	CBRN Airguide, Left	10191617

Item	Quantity	Description	Part Number
37	1	CBRN Canister	10046570
38	1	Rapid Battery Charger, NIMH, 100-240 Vac	B-20090-001
39	1	Cover, Filter Adapter	10194547
40	1	Washer, RD40, Green	10194548
41	1	Button, Filter Adapter	10194549
42	1	Spring, Button	10146237-SP
43	1	Inhalation Valve	10144207-SP
44	1	Retainer, Inhalation Valve	10144208-SP
45	1	O-Ring, 46 mm ID x 2.5 mm Thick	10144232-SP
46	1	Screw Ring	10144213-SP
47	1	Speaking Diaphragm	10144209-SP
48	1	Exhalation Valve Assembly	10144174-SP
49	1	Spring, Exhalation Valve	10144179-SP
50	1	Retainer, Exhalation Valve	10204369
51	1	HE Cartridge (6 Pack)	496081
52	1	HE Cartridge (20 Pack)	10042346
53	1	Gasket, Breathing Tube	B-10022-001
54	1	Belt Assembly, Webbing, 60"	S-30019
55	1	Belt Assembly, Decon, 70"	S-30021
56	1	Airflow Indicator	S-30020
57	1	Cap, NIMH Rechargeable Battery	B-30060-001
58	1	Gasket, Blower (2 Pack)	B-60026-001
59	1	Blower Assembly, C420	M-60031
60	1	Breathing Tube, G1, 30"	10193956
61	1	Breathing Tube, G1, 36"	10193957
62	1	GME Cartridge	10072237
Not Pictured:			
	1	Snoop Leak Detector	600920
	1	Carrying Case, G1 PAPR, Molded Plastic	B-10079-001
	1	Kit, Rapid Charger with 2 NIMH Batteries	B-20040-001
Contains			
	1	Rapid Battery Charger, NIMH, 100-240 Vac	B-20090-001
	1	Cap, NIMH Rechargeable Battery	B-30060-001
	2	NIMH Rechargeable Battery	S-20036
		User Instructions	

Item	Quantity	Description	Part Number
	1	Kit, G1 PAPR, 30" Tube, Li-SO ₂ Battery with Adapter	10204811
		Contains	
	1	Blower Assembly, C420	M-60031
	1	Airflow Indicator	S-30020
	1	Belt Assembly, Decon, 70"	S-30021
	1	Breathing Tube, G1, 30"	10193956
	1	Li-SO ₂ Single-Use Battery	M-20020
	1	Filter Adapter Assembly	10144231-SP
		User Instructions	
	1	Kit, G1 PAPR, 36" Tube, Li-SO ₂ Battery with Adapter	10204812
		Contains	
	1	Blower Assembly, C420	M-60031
	1	Airflow Indicator	S-30020
	1	Belt Assembly, Decon, 70"	S-30021
	1	Breathing Tube, G1, 36"	10193957
	1	Li-SO ₂ Single-Use Battery	M-20020
	1	Filter Adapter Assembly	10144231-SP
		User Instructions	
	1	Kit, G1 PAPR, 30" Tube, NIMH Battery with Adapter	10204813
		Contains	
	1	Blower Assembly, C420	M-60031
	1	Airflow Indicator	S-30020
	1	Belt Assembly, Decon, 70"	S-30021
	1	Breathing Tube, G1, 30"	10193956
	1	NIMH Rechargeable Battery	S-20036
	1	Filter Adapter Assembly	10144231-SP
		User Instructions	
	1	Kit, G1 PAPR, 36" Tube, NIMH Battery with Adapter	10204814
		Contains	
	1	Blower Assembly, C420	M-60031
	1	Airflow Indicator	S-30020
	1	Belt Assembly, Decon, 70"	S-30021
	1	Breathing Tube, G1, 36"	10193957
	1	NIMH Rechargeable Battery	S-20036
	1	Filter Adapter Assembly	10144231-SP
		User Instructions	

Item	Quantity	Description	Part Number
	1	Kit, G1 PAPR, 30" Tube, Li-SO ₂ Battery	10204815
		Contains	
	1	Blower Assembly, C420	M-60031
	1	Airflow Indicator	S-30020
	1	Belt Assembly, Decon, 70"	S-30021
	1	Breathing Tube, G1, 30"	10193956
	1	Li-SO ₂ Single-Use Battery	M-20020
		User Instructions	
	1	Kit, G1 PAPR, 36" Tube, Li-SO ₂ Battery	10204816
		Contains	
	1	Blower Assembly, C420	M-60031
	1	Airflow Indicator	S-30020
	1	Belt Assembly, Decon, 70"	S-30021
	1	Breathing Tube, G1, 36"	10193957
	1	Li-SO ₂ Single-Use Battery	M-20020
		User Instructions	
	1	Kit, G1 PAPR, 30" Tube, NIMH Battery	10204817
		Contains	
	1	Blower Assembly, C420	M-60031
	1	Airflow Indicator	S-30020
	1	Belt Assembly, Decon, 70"	S-30021
	1	Breathing Tube, G1, 30"	10193956
	1	NIMH Rechargeable Battery	S-20036
		User Instructions	
	1	Kit, G1 PAPR, 36" Tube, NIMH Battery	10204818
		Contains	
	1	Blower Assembly, C420	M-60031
	1	Airflow Indicator	S-30020
	1	Belt Assembly, Decon, 70"	S-30021
	1	Breathing Tube, G1, 36"	10193957
	1	NIMH Rechargeable Battery	S-20036
		User Instructions	

