

Millennium®

APR/CBRN RESPIRATOR

Respirator Application

P100 Respirator
GME-P100 Respirator

Gas Mask Application

Chin-Type Canister
CS/CN Canister

CBRN Application

APR/CBRN Respirator
PAPR/CBRN Respirator

OPERATION AND INSTRUCTIONS

WARNING

This manual must be carefully read and followed by all persons who have, or will have, the responsibility for using or servicing Millennium APR Respirator. These Millennium APR Respirators will perform as designed only if used and serviced according to the instructions; otherwise, the respirator could fail to perform as designed, and persons who rely on the Millennium APR Respirator could sustain serious personal injury or death.

The warranties made by MSA with respect to the product are voided if the product is not installed, used and serviced in accordance with the instructions in this manual. Please protect yourself and your employees by following the instructions, Please read and observe the WARNINGS and CAUTIONS inside. For any additional information relative to use or repair, write or call 1-800-MSA-2222 during regular working hours.

See separate insert for NIOSH Approval Information

P/N 10046605 (APR/CBRN), P/N 818373 (CS/CN), P/N 10035719 (P100, GME-P100), P/N 817241 (Gas Mask), P/N 10080165 (PAPR/CBRN), 10071373 (PAPR)

For More Information, call 1-800-MSA-2222 or Visit Our Website at www.MSAnet.com



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INTRODUCTION

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NIOSH APPROVAL INFORMATION CAUTIONS AND LIMITATIONS

Millennium Industrial and Gas Mask Applications

Note: All cautions and limitations do not apply to all applications. Refer to the NIOSH approval insert to verify the applicable 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.
- H- Follow established cartridge and canister change out schedules or observe ESLI to ensure that cartridges and canisters are replaced before breakthrough occurs.
- I- Contains electrical parts that may cause an ignition source 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's

Instructions for changing canisters.

- 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.

APR/CBRN Application

- A- Not for use in atmospheres containing less than 19.5 percent oxygen.
- I- Contains electrical parts that may cause an ignition source in flammable or explosive atmospheres.
- J- Failure to properly use and maintain this product could result in injury or death.

INTRODUCTION

- L- Follow the manufacturer's User's Instructions for changing canisters.
- 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.
- R- Some CBRN agents may not present immediate effects from exposure, but can result in delayed impairment, illness, or death.
- T- Direct contact with CBRN agents requires proper handling of the respirator after each use and between multiple entries during the same use. Decontamination and disposal procedures must be followed. If contaminated with liquid chemical warfare agents, dispose of the respirator after decontamination.
- V- Not for use in atmospheres immediately dangerous to life and health or where hazards have not been fully characterized.
- W- Use replacement parts in the configuration as specified by the applicable regulations and guidance.
- X- Consult manufacturer's User's Instructions for information on the use, storage, and maintenance of these respirators at various temperatures.
- 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, and 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.
- HH- Used when at defined occupational exposure limits, the rated service time cannot be exceeded. Follow established canister change-out schedules or observe End-Of-Service-Life Indicators to ensure that canisters are replaced before breakthrough occurs.
- QQ- Use in conjunction with personal protective ensembles that provide appropriate levels of protection against dermal hazard. Failure to do so may result in personal injury even when the respirator is properly fitted, used, and maintained.
- 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.

PAPR/CBRN Application

- A- Not for use in atmospheres containing less than 19.5 percent oxygen.
- F- Do not use powered air-purifying respirators if air flow 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 cartridge change schedules or observe ESLI to ensure cartridges and canisters are replaced before breakthrough occurs.
- I- Contains electrical parts that may cause an ignition source 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's Instructions for changing canisters.
- 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

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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, and death.
- S- Special or critical User's Instructions and/or specific use limitations apply. Refer to User's Instructions before donning.
- T- Direct contact with CBRN agents requires proper handling of the respirator after each use and between multiple entries during the same use. Decontamination and disposal procedures must be followed. If contaminated with liquid chemical warfare agents, dispose of the respirator after decontamination.
- 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, and 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 in 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.
- QQ- Use in conjunction with personal protective ensembles that provide appropriate levels of protection against dermal hazard. Failure to do so may result in personal injury even when the respirator is fitted properly, used, and maintained.
- UU- The respirator should not be used beyond eight (8) hours after initial exposure to chemical warfare agents

to avoid the 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.

CBRN Application

WARNING

- **This respirator provides LIMITED protection. It is NIOSH approved for respiratory protection against atmospheres containing CBRN (chemical, biological, radiological, and nuclear) warfare agents; however, it cannot protect against all possible warfare agents.**
- **Some CBRN agents may not present immediate effects from exposure, but can result in delayed impairment, illness, or death.**
- **DO NOT use without a complete understanding of the instructions and limitations for this respirator and proper training. Misuse can prevent the respirator from providing the necessary protection.**
- **CBRN agents may NOT be detectable by smell or sight. Don respirator before entering an area suspected of containing CBRN agent. Follow procedures established by proper authorities.**
- **DO NOT use this respirator beyond eight (8) hours after initial use in an atmosphere containing CBRN agents or beyond two (2) hours after initial use in an atmosphere containing CBRN agents in liquid or mist form; otherwise agent permeation may occur.**
- **DO NOT remove respirator until respirator and clothing are decontaminated; otherwise exposure to CBRN agent may result. Follow decontamination and disposal procedures established by appropriate authorities.**

INSTRUCTIONS FOR USE AND CARE

▲ WARNING

1. An adequate respiratory protection program must include knowledge of hazards, hazard assessment, selection of proper respiratory protective equipment, instruction and training in the use of equipment, inspection and maintenance of equipment, and medical surveillance.
 2. This respirator will perform as designed only if used and maintained according to the manufacturer's instructions. The Program Administrator and the users must read and understand these instructions before using or servicing this product.
 3. If the respirator does not perform as specified in this manual, it must not be used until it has been checked by authorized personnel.
 4. **DO NOT** alter, modify, or substitute any components.
 5. Inspect the respirator regularly and maintain it according to the instructions. Repairs must only be made by properly trained personnel.
 6. This respiratory protective device does not supply oxygen. Use only in adequately ventilated areas which conform to the appropriate standard.
 7. This respirator must be used in conjunction with the proper chemical or particulate canister/cartridge(s) for protection against specific contaminants. If you cannot determine that the filter canister/cartridge(s) used with this device is designed for the contaminant, or if you do not know the identity of the contaminant, do not use this device.
 8. Do not use when concentrations of contaminants are unknown.
 9. Do not use when appropriate exposure limit (PEL, REL, TLV, etc.) is not known.
 10. Leave the contaminated area immediately if:
 - a. Breathing becomes difficult
 - b. Dizziness or other distress occurs
 - c. You taste or smell the contaminant
 - d. You experience nose or throat irritation
 - e. Instructed by responsible individuals
 12. Use strictly according to the instructions, labels, and limitations pertaining to this device. Follow an established canister/cartridge(s) change-out schedule.
 13. This respirator may not provide a satisfactory seal with certain facial characteristics, such as beards or large sideburns, that prevents direct contact between the skin and the sealing surface of the facepiece. Do not use this facepiece if such conditions exist.
 14. **DO NOT** wear eyeglasses under the facepiece. The temples or sidebars on eyeglasses will prevent an air-tight seal. If you must wear glasses, install the spectacle kit.
 15. The user must perform a respirator fit test (Quantitative Test or Qualitative Test) and follow all warnings and limitations specified.
 16. Wear impermeable protective clothing to prevent exposure to gases and vapors which can poison by skin absorption.
 17. **DO NOT** use this full facepiece with self-contained breathing apparatus (SCBA).
 18. **DO NOT** use this respiratory protective device in explosive atmospheres.
 19. **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.
- Failure to follow all warnings, instructions, and established protective measures can result in serious personal injury or death.

INSTRUCTIONS FOR USE AND CARE

WARNING

- This respirator/filter provides **LIMITED** protection. It may help reduce exposure to airborne biological agents, including H1N1 (swine) flu virus, avian (bird) flu virus, other types of influenza, SARS, or other bacterial or viral biological agents and help reduce the risk for influenza infection during a pandemic, but will **NOT** eliminate the risk of exposure, infection, illness, or death.
- This respirator/filter is certified by NIOSH to comply with the requirements specified for the designated filter efficiency level; however, appropriate authorities have **NOT** established a safe level of exposure to biological agents. Therefore, the respirator may **NOT** prevent transmission of influenza virus.
- Refer to the Centers for Disease Control and Prevention (CDC) at www.cdc.gov for guidance on the use of respirators to help decrease exposure to 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 non-occupational setting. Neglecting these preparatory measures may cause an unsafe condition. Respirators used in an occupational setting **MUST** be used in accordance with a complete respiratory protection program as required by OSHA, which includes proper selection, training, fit-testing, and fit-checking. Detailed information on a respiratory protection program is available by contacting OSHA or visiting www.osha.gov.
- Do **NOT** remove respirator in contaminated areas. The outer surface of the respirator **MUST** be treated as if it is contaminated at all times. Tight-fitting safety goggles, or a full-face-piece respirator, may further help prevent transmission of influenza virus.
- The CDC recommends frequent hand washing and wearing gloves to help prevent transmission of disease due to exposure to surfaces where contaminants may be present, and also immediately following removal of the respirator.
- Do **NOT** reuse or share maintenance-free respirators. **ALWAYS** clean cartridge-style respirators before reuse in accordance with the instructions provided.
- This respirator/filter is **NOT** for use by (a) children, or (b) people with a medical condition that may be adversely affected by using it.

Failure to follow all warnings and instructions can result in serious personal injury or death.

CAUTION

When using filters in an application that produces sparks, ensure that they are protected by a shield. Contact with sparks can damage filters and reduce protection.

GENERAL DESCRIPTION

The Millennium APR/CBRN Respirator is an air purifying respirator intended for use in atmospheres which are not immediately dangerous to life or health (non-IDLH). This respirator is intended for applications which may require the user to enter or exit a hazardous area, or work within the area for a limited time.

Inhaled air is drawn through the canister/cartridge, which is designed to remove, neutralize, and/or trap specific contaminants as listed on the NIOSH approval insert. Exhaled air leaves the facepiece through the facepiece exhalation valve.

It is important that the user becomes familiar with the application and operation of the Millennium APR Respirator and ensures that it fits properly before use.

When properly fitted to the user, the Millennium full facepiece with noseclip and head harness, combined with the appropriate canister/cartridge, becomes a complete respiratory protective device.

The respirator consists of the following sub-assemblies:

- full facepiece (with noseclip)
- filter cartridge/canister

Facepieces are available in three sizes:
P/N 10051286 (small) with Clear Outsert

P/N 10051287 (medium) with Clear Outsert
P/N 10051288 (large) with Clear Outsert
P/N 10048811 (small) with Tinted Outsert
P/N 10048800 (medium) with Tinted Outsert
P/N 10048812 (large) with Tinted Outsert

Facepiece size is identified on the front of the facepiece above the lens area.

OTHER RESPIRATOR CONFIGURATIONS

This respirator can be used in other configurations that stated in these User's Instructions. Below is a list of these other configurations and the part number for the User's Instructions. Review the NIOSH matrix to verify the configuration that is being used is an approved configuration.

Approved Respirator	User's Instructions Part Number
C420 PAPR	10072074

RESPIRATOR USE LIMITATIONS

The wearer must comply with the following MSA respirator use limitations:

- A. **MAXIMUM USE CONCENTRATION** Do not exceed any of the following:

Canister for Chin-Type Gas Masks						
Part No.	MSA Canister Identification	Purifying Protection Code	Approval	Maximum Escape Conditions		Gas/Vapors
				% Volume	PPM	
10059903	PH/AM/CL/P100	PH/AM/CL	TC-14F-0274	0.5%	5000	Ammonia and Chlorine [†] Phosphine [†]
10067469	Organic Vapor/P100	OV	TC-14G-0279	0.15%	1500	
10067491	Hydrogen Flouride/P100	HF	TC-14G-0280	0.50%	5000	Organic Vapors
10067470	Formaldehyde/Acid Gas Chlorine Dioxide/Escape from Hydrogen Sulfide P100	FM/AG/CD/HS	TC-14G-0282	0.10%	1000	Hydrogen Fluoride [†]
				0.05%	500	Formaldehyde [†]
				0.50%	5000	Acid Gases and Hydrogen Sulfide [†]
				0.10%	1000	Chlorine Dioxide

[†]Canister contains a P100-Particulate Filter (99.97 filter efficiency level) effective against all particulate aerosols.

GENERAL DESCRIPTION

1. Routine Use
 - a. 50 times the exposure limit for the contaminants present if using a quantitative fit test method. Using a qualitative fit test may reduce the maximum use concentration. See the Respirator Fit Test section.
 - b. Immediately Dangerous to Life or Health (IDLH) concentration for any contaminant present.
2. Escape (for Gas Mask only)
- B. The limitations outlined in the applicable NIOSH approval
- C. Any applicable limitation contained in a standard established by regulatory agency (such as OSHA) with jurisdiction over the wearer.

WARNING

An appropriate cartridge change-out schedule must be developed by a qualified professional, unless the cartridge/canister utilizes an end-of-service-life indicator. 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 workers environment. If using against substances having poor warning properties, there is no secondary means of knowing when to replace the cartridge/canister. In such cases, take appropriate additional precautions to prevent overexposure, which may include a more conservative change-out schedule or using an air-supplied respirator or SCBA. Failure to follow this warning can result in serious personal injury or death. As a reference, a partial list of substances having poor warning properties follows:

Acrolein	Nitro compounds:
Aniline	Nitrogen oxides
Arsine	Nitroglycerin
Bromine	Nitromethane
Carbon monoxide	Ozone
Diisocyanates	Phosgene
Dimethyl sulfate	Phosphine

Hydrogen cyanide	Phosphorous trichloride
Hydrogen selenide	Stivine
Methanol	Sulfur chloride
Methyl bromide	Urethane or other
Methyl chloride	diisocyanate
Methylene chloride	containin paints
Nickel carbonyl	Vinyl chloride
Nitric Acid	

- D. MIXTURES OF CONTAMINANTS This gas mask can be used for protection against a mixture of contaminants that are present simultaneously or alternately against one contaminant then another (using the same canister) if the mixture meets the following conditions:
 1. The canister/cartridge must be approved for all contaminants present.
 2. NIOSH permits mixing of the following contaminants: organic vapors, chlorine, chloride dioxide, hydrogen sulfide, acid gases, ammonia, and carbon monoxide.
 3. Particulates can be mixed with any other particulate or any gas or vapor for which the canister is approved.
 4. Contaminants present simultaneously must be below IDLH levels for the specific contaminants. If any one contaminant in the mixture exceeds the IDLH concentration, then the entire mixture must be treated as IDLH and the respirator cannot be used (except for escape when using respirator in a gas mask configuration).
 5. Mersorb-P100 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.
- E. TIME USE LIMITATION
 1. Canister and cartridge with an N95 or R95filter 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

GENERAL DESCRIPTION

below 95%, or (b) that the total mass loading of the filter is less than 200mg for a single canister application or less than 100 mg each for a dual cartridge application).

2. GMHF-C-P100 and Hydrogen Fluoride/P100: Canister must be replaced after each use against hydrogen fluoride (not to exceed 12 hours) to ensure the integrity of the P100 filter.
- F MULTI-USE LIMITATIONS (OptiFilter XL only)
1. Approved as a high efficiency particulate air filter on approved Powered Air Purifying Respirators. Also, approved as a P100 filter, but ONLY when used with an approved negative pressure respirator. Do not exceed maximum use concentrations established by regulatory standards.

EXPOSURE LIMITS

A listing of applicable exposure limits from the following sources is provided in MSA s Response® Respirator Selector: available online at www.MSAnet.com.

- 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.

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) from the individual contaminant concentrations (C₁, C₂, C₃...) 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 T₁, T₂, T₃, ... are the individual contaminant TLVs and C₁, C₂, C₃... are the individual contaminant concentrations:

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

Only use these equations 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.

See MSA's Response Respirator Selector for additional information.

SIZE SELECTION

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

Fit test the respirator size relative to your facial features and dimensions. The Safety Administrator or Program Manager might assist in selecting the initial size to try.

Carefully don the respirator and conduct a negative pressure seal test. See donning instructions for procedure.

If the respirator does not pass the Negative Pressure Seal Test or feels uncomfortable, try the next nearest size relative to your face.

Passing the Negative Pressure Seal Test does not verify the size is correct. The size selected must be verified by successfully passing a Respirator Fit Test, either qualitative or quantitative. If the respirator passes a Negative Pressure Seal Test but DOES NOT pass a Respirator Fit Test, the next nearest size relative to your facial features and dimensions should be tried.

Once the proper size is selected, the respirator must pass a Negative Pressure Seal Test every time the mask is donned to ensure proper fit before using the respirator.

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

The respirator must also pass the tightness test before the user attempts to enter an toxic atmosphere.

The mask will not furnish protection unless all inhaled air is drawn through a suitable canister/cartridge(s).

RESPIRATOR FIT TEST

WARNING

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

A qualitative or quantitative respirator fit test must be routinely carried out for each wearer of this respirator to determine or confirm the amount of protection that the respirator provides. The fit test method chosen may impact the maximum use concentration.

Quantitative Test: — If a quantitative fit test is used:

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

Qualitative Test — If a qualitative fit test is used, only validated protocols are acceptable.

For use in a CBRN application only, the individual must pass a test designed to assess a fit factor of at least 2000.

Respirator fit tests are explained fully in the American National Standard Practices for Respiratory Protection, ANSI Z88.2-1992 which is published by the American National Standards Institute, 11 West 42nd Street, New York, New York, 10036 and Occupational Safety and Health Standards, OSHA 1910.134, which is published by the Occupational Safety and Health Administration, 200 Constitution Avenue, NW, Washington DC, 20210.

PREPARING THE RESPIRATOR FOR USE

CHECKPOINTS BEFORE USE

1. Check that all parts of the respirator are complete and undamaged. See the Inspection section for Inspections Procedures.
2. Check that the filter canister/cartridge approval is appropriate and effective against the contaminant in the environment.

INSTALLING/REPLACING THE CANISTER/CARTRIDGE

WARNING

Know the contaminant(s) in the environment before entering. Always check that the filter canister/cartridge(s) is appropriate for use in the environment. A filter canister/cartridge which is not designed for the contaminant present may not provide protection. Failure to follow this warning can result in serious personal injury or death.

After verifying that the canister/cartridge type is appropriate for use in the environment:

1. Verify shelf life expiration date on carton, bag, and canister/cartridge(s) label has not been exceeded.

WARNING

DO NOT use an expired canister/cartridge. Failure to follow this warning can result in serious personal injury or death.

WARNING

DO NOT use the canister/cartridge if the bag is opened, damaged, or missing. The canister/cartridge must be in its original packaging prior to use in a contaminated environment. Do not reuse the canister/cartridge. Failure to follow this warning can result in serious personal injury or death.

2. Remove canister/cartridge from its packaging.
3. Inspect the canister/cartridge to be sure that it is not damaged.
4. Thread the filter canister/cartridge into the facepiece port and hand-tighten.

Use the canister/cartridge immediately upon opening the bag. For gas mask canister, refer to the shelf life section for storing the canister outside the packaging. Discard canister/cartridge after each use.

Replace the canister/cartridge after each use. Follow the established canister/cartridge change-out schedules to ensure that canister/cartridge are replaced before breakthrough occurs. When used at defined occupational exposure limits, the rated service time cannot be exceeded.

The GMT cartridge must not exceed a 60 minute use time.

After using the respirator in a gas mask application for escape, the canister must be replaced before reusing the respirator.

For CBRN Applications Only

DO NOT use this respirator beyond eight (8) hours after initial use in an atmosphere containing CBRN agents or beyond two (2) hours after initial use in an atmosphere containing CBRN agents in liquid or mist form; otherwise, agent permeation may occur.

WARNING

DO NOT replace canister/cartridge in a contaminated area. Be sure to follow applicable decontamination procedures. Failure to follow this warning can cause inhalation of contaminated air, resulting in serious respiratory injury or death.

When the mask is adjusted properly, the wearer should not taste or smell the contaminant, or experience eye, nose, or throat irritation. The wearer's inhalation resistance should be as experienced during training.

PREPARING THE RESPIRATOR FOR USE

⚠ WARNING

If the respirator does not perform as specified, it must not be used until it has been checked by authorized personnel. Failure to follow this warning can result in serious personal injury or death.

⚠ WARNING

Return to a non-contaminated area immediately if you experience unusual sensations (nausea, dizziness, eye irritation, unusual odor or taste, excessive fatigue, or difficulty breathing). Failure to follow this warning can result in serious personal injury or death.

DONNING

▲ WARNING

DO NOT wear eyeglasses under the facepiece. The temples or sidebars on eye glasses will prevent an air-tight seal. If you must wear glasses, install an approved spectacle kit listed on the NIOSH approval matrix insert. Failure to follow this warning can cause inhalation of contaminated air, resulting in serious respiratory injury or death.

Verify that the respirator is properly prepared before donning. See Preparing the Respirator for Use section. Failure to follow this warning can result in serious personal injury or death.

DONNING PROCEDURES

1. Loosen the harness head straps on the facepiece so that the strap end tabs are approximately 1" from the buckles.



2. With the facepiece lens facing away, grasp the temple straps and neck straps in each hand.



3. Slightly expand the harness straps, place chin into the facepiece, and pull the harness over the back of the head.

4. Support the weight of the mask by holding the outlet valve assembly in the palm of one hand. With the free hand, adjust the facepiece securely to the face, making sure the chin and nose are seated securely.

5. While holding the facepiece securely in position, tighten one temple strap at a time by pulling straight back (not out) with small jerks until mask feels snug on that side.



6. Tighten the other temple strap in same manner until both sides feel the same.

7. Ensure facepiece is centered on face by looking down at the nosecup, it should be uniform on each side of the face. If not, readjust the temple straps.

Note: Ensure that no hair is under the tabs and sealing surface. Also, the straps should not cut into the ears.

8. Evenly tighten the neck straps by pulling them straight back.



9. Check that head pad is centered in the middle of the back of the head.



10. If necessary, tighten the top straps for best visibility and fit.



DONNING

NEGATIVE PRESSURE SEAL TEST

The Negative Pressure Seal Test must be performed each time the facepiece is donned. A good face-to-facepiece seal must be verified before entering a hazardous area.

Perform the test as follows:

1. Ensure respirator is assembled properly.
2. Block off canister/cartridge inlet using the palm of the hand.
3. Inhale gently and hold breath for 10 seconds. If the seal is good, the facepiece will collapse and remain collapsed against face. Remove hand and breathe normally.
4. If the facepiece did not remain collapsed during the test, or any leakage is noticed, readjust straps and perform Negative Pressure Seal Test again.
5. If this does not correct the leak, the mask will not provide protection. If the leakage is from the face seal, a different size mask may provide a good seal. If other than face seal leakage is detected, the condition must be corrected before performing another test.

▲ 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 negative pressure seal test must be conducted and passed before each use. Never remove the facepiece except in a safe, non-hazardous, non-toxic atmosphere. Failure to follow this warning can result in serious personal injury or death.

DONNING THE BUTYL COATED NYLON HOOD ACCESSORY

▲ WARNING

Ensure a complete Negative Pressure Seal Test is conducted and passed. Failure to follow this warning can result in serious personal injury or death.

1. Position the hood so that the lens opening of the hood is facing forward. Be sure that the hood is right side out with the drawstring exposed on the outside of the hood.
2. Fold the back panel of the hood upward to expose the inside of the hood at the lens opening. Next, in each hand, grasp the sides of the hood at the lens opening.
3. Expand and slide the lens opening of the hood over the cartridge/ canister component. Ensure the facepiece seal is maintained.
4. Using both hands, grasp the back panel of the hood and pull it over the facepiece and head. The lens opening of the hood should coincide with the lens opening of the facepiece. (Use a buddy for assembly if situation requires).



DONNING

5. Carefully tuck the elastic lens opening of the hood around the back of the facepiece lens rings, component housing assembly, and applicable accessory.



The rain shield of the hood should be uniformly over the upper lens ring of the facepiece. The elastic lens opening should be in contact with the rubber surface of the facepiece. Be sure to smooth out any wrinkles or folds that might exist along the edge of the elastic.

6. Conduct a successful Negative Pressure Seal Test.

7. Attach each of the arm straps to the front of the hood shroud using the Velcro attachment pads.



Adjust the arm strap, using the buckle slides, so that the arm straps provide a snug fit, but still allow for easy movement.

8. Tighten the drawstring cord by securing the bottom of the cord and sliding the cord tightener toward the front of the neck. The drawstring should provide a snug comfortable fit. Ensure drawstring is not twisted or knotted.



⚠ WARNING

Do not over-tighten the drawstring. Over tightening the drawstring can restrict breathing. Failure to follow this warning can cause serious injury or death.

9. Pull the shroud of the hood uniformly over the shoulders.



10. Repeat the Negative Pressure Seal Test to ensure a sufficient face-to-facepiece seal is achieved before exposure to a hazardous agent.

REMOVING THE RESPIRATOR

DECONTAMINATION

⚠ WARNING

DO NOT remove respirator until respirator and protective clothing are decontaminated; otherwise, exposure to contaminants may result. Follow decontamination and disposal procedures established by appropriate authorities. Failure to follow this warning may result in serious personal injury or death.

Once the protective equipment has been decontaminated, proper disposal of affected equipment must be performed. Disposal is to be performed as required by federal, state, and/or local laws.

PROCEDURE FOR REMOVING THE RESPIRATOR

1. To remove the facepiece, insert your thumbs under each of the harness head straps end tab and fully extend the harness head straps.
2. Grasp the facepiece by the component housing or bottom head harness straps (not the exhalation valve or canister/cartridge).

3. Pull it up and away from your face.



Note: Before the next use, check the respirator facepiece and if necessary, clean and disinfect. Always use a new canister/cartridge(s). Do not reuse the canister/cartridge.

CLEANING AND DISINFECTING

▲ CAUTION

DO NOT use alcohol as a germicide because it may deteriorate rubber parts.

Depending on the cleaning policy adopted, either a designated person or the user should clean the respirator after each use. Non-sudsing Confidence Plus® Cleaning Solution (P/N 10009971) from MSA is recommended. It is a germicidal cleaner that cleans and disinfects in one operation. It retains its germicidal efficiency in hard water to inhibit the growth of bacteria. It will not deteriorate rubber, plastic, glass, or metal parts. Refer to the label for use instructions. A solution as effective as Confidence Plus Cleaning Solution and compatible with MSA respirator components may be substituted. ANSI suggests that users be trained in the cleaning procedure.

▲ WARNING

Be careful not to breathe or touch the contaminant in handling the respirator or its parts. If necessary, use equipment disposal to protect you from the specific contaminant. Failure to follow this warning can result in serious personal injury or death.

1. Preparing Solution
 - a. Follow the instructions with the Confidence Plus Cleaning Solution.
 - b. If the Confidence Plus Cleaning Solution is not used, wash in a mild cleaning solution, rinse thoroughly, and submerge in a germicide solution for the manufacturer's recommended time.
2. Clean and Disinfect the Facepiece
 - a. Remove the canister/cartridge(s) from the facepiece.
 - b. Thoroughly wash the facepiece (and nose cup) in the cleaning solution. A soft brush or sponge can be used to clean the soiled facepiece. Be sure to include cleaning the exhalation valve

and seat.

- c. Rinse the facepiece and components in clean, warm (110°F), water (preferably running and drained).

▲ CAUTION

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

- d. Allow the facepiece to air dry. Do not dry the parts by placing them near a heater or in direct sunlight. The rubber will deteriorate.
- e. Operate the exhalation valve by hand to be sure it works properly.
- f. Harness (straps and buckles)
- g. The facepiece and components should be air-dried or hand-dried with a clean lint-free cloth.

▲ CAUTION

DO NOT force-dry the parts by placing them in a heater or in direct sunlight. The rubber will deteriorate. When facepiece is thoroughly dried, store the facepiece in the clam shell in which it was shipped.

LENS CLEANING PROCEDURE

Occasionally, Millennium Facepieces may experience a "fogging" of the lens. Usually this fogging is caused by a wax that is part of the urethane lens formulation. This wax serves as a mold release when the lens is manufactured. Under conditions of high temperature or low atmospheric pressure, the wax can migrate to the surface of the lens and cause the fogging. The wax can be removed with VM&P Naphtha or Stoddard Solvent. The VM&P Naphtha and Stoddard Solvent should be available in a paint store.

1. To remove the wax, pour a small amount of VM&P Naphtha or Stoddard Solvent onto a clean soft cloth.

CLEANING AND DISINFECTING

WARNING

Apply VM&P Naphtha or Stoddard Solvent to the lens **ONLY**. Do **NOT** apply the VM&P Naphtha or Stoddard Solvent to the entire facepiece. If it contacts parts other than the lens those components must be replaced. Failure to follow this warning can result in serious personal injury or death.

2. Gently rub the lens to remove the wax. It may take several applications to remove all of the wax.
3. Once the lens becomes wet from the solvent it is difficult to see where the lens was rubbed and where it was not.
4. The number of repeat procedures will depend on the amount of wax present.
5. After wiping the lens to remove the wax, the facepiece should be cleaned with a respirator cleaner such as MSA Confidence Plus Germicidal Cleaner. This will help to remove residual solvent from the facepiece.

WARNING

VM&P Naphtha and Stoddard Solvent have a distinct solvent odor that could be objectionable to respirator wearers. Individuals cleaning the facepieces should follow the use directions that come with the solvents, work in a well ventilated area, and use proper personal protective equipment. Failure to follow this warning can result in serious personal injury or death.

CAUTION

If the respirator is not properly cleaned after using VM&P Naphtha and Stoddard Solvent the wearer may experience discomfort.

INSPECTION

INSPECTION

(Before and After Each Use)

- Inhalation valve disc
- Exhalation valve disc
- Harness straps
- Lens
- Cartridge/canister
- Facepiece blank
- Accessories

INSPECTION PROCEDURES

1. Look for breaks or tears in the facepiece head-strap material.



2. Make sure all straps, fasteners, and adjusters are in place and not damaged.

3. Check the facepiece for dirt, cracks, tears, or holes that penetrate the rubber surface.

Note: Some superficial, surface cracks may become noticeable, when the rubber is significantly stretched, and are expected during the normal aging process. Rubber surface imperfections may be observed upon closer inspection of the mask and do not affect the performance of the mask. These imperfections are also noticeable due to a "streaking" appearance where the white residue wax additive does not come through the rubber. This rubber surface change is a result of the aggressive rubber primer used during the lens bonding process. It is required by the design to ensure a robust lens bond is made. These superficial, surface cracks are typical and acceptable due to the design.

Also, if there is any rubber cracking or separation greater than 1/16" along the edge of the mask, the mask should be removed from service. Cracking or separation of this

type may lead to greater cracking or separation under the greater stress applied during donning or doffing of the mask.

4. Check the lens for cuts, scratches, or damage which would impair vision. Squeeze the lens. It should collapse easily between your fingers. Check that the lens is secured in the facepiece.
5. Look at the shape of the facepiece for distortion due to improper storage.

6. Unthread the cartridge/ canister (if installed), and check that the spider gasket, inhalation valve, and deflector nose cup are installed and undamaged.



7. Grasp the spider gasket by the raised tabs and pull it gently out of the facepiece. The gasket must be free of cracks, tears, dirt, and distortion. The gasket must be soft and flexible.



8. Reach into the facepiece and remove deflector and inhalation valve. The deflector and inhalation valve must be free of cracks, tears, dirt, and distortion. The inhalation valve must be soft and flexible.



9. Set these parts aside in a clean location.

10. Insert the P/N 461828 spanner wrench into the side voicemitter retaining ring. Turn the ring counter-clockwise to unthread.



11. Remove the side voicemitter (smaller port on the side of the facepiece) from the port. The voicemitter may need pushed from inside of facepiece to remove.

INSPECTION

12. Inspect the side voicemitter for signs of damage which would let contaminant enter the facepiece.
13. Inspect the front voicemitter (large port in the center of the facepiece below the lens) for signs of damage which would let contaminant enter the facepiece.

14. Carefully remove the voicemitter gasket from the port. Gasket must be free of cracks, tears, dirt, and distortion. The gasket must be soft and flexible.



15. Set the gasket aside in a clean location.

16. Remove the rubber cover from the exhalation valve. Lift the valve and inspect the seat and valve for cracks, tears, dirt, and distortion. The valve must be soft and flexible.



17. Reinstall the rubber cover. Be sure that the cover lip surrounds the valve completely and that the tab is inserted through the cover.



18. Check the drink tube for cuts, abrasions, or other signs of damage. Grasp the knurled surface and pull the tube out of the cover to check it for signs of damage. Be sure the tube is reinstalled in its port completely.

19. Reinstall the voicemitter gasket in the side port. Be sure that it is flat.

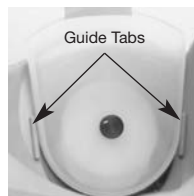


20. Place the voicemitter into the port.

Note: The voicemitter's crimped side faces out (up).

21. Thread the retaining ring into the port and tighten using the spanner wrench.
22. Place the deflector (with the inhalation valve in place on the post) into the facepiece.

23. Line up the deflector so that it is between the guide tabs molded into the facepiece.



24. While holding the deflector in place, press the spider gasket on to the post from outside the facepiece.

25. Insert the gasket groove into the port so that the groove captures the lip of the port completely. Run your finger around the gasket to be sure the gasket lays flat.



26. Thread the cartridge/canister into the port. (see Preparing the Respirator for Use section)
27. If any part is damaged or deteriorated, it must be replaced. Store only undamaged respirators for further use. When not in use, store the respirator in cool, dry, and clean ambient air. Keep new filters in their packing.

Note: Some cosmetic changes may become noticeable and are expected during the normal aging process. White residue may appear and is caused by an FDA approved wax additive that is in the rubber by design. This wax was chosen because it is not harmful should it contact the user's skin. The wax affords the rubber the required protection it needs during expected product use. It is normal for this wax to come to the surface and can be cleaned by using MSA Confidence Plus (P/N 10009971). Rubber surface imperfections may be observed upon closer inspection of the mask and are typically caused by the white wax residue. These imperfections are

INSPECTION

also noticeable due to a "streaking" appearance where the wax does not come through the rubber. This rubber surface change is a result of the aggressive rubber primer used during the lens bonding process. It is required by the design to ensure a robust lens bond is made.

STORAGE

Store only undamaged respirators for further use. When not in use, store the respirator in cool, dry, and clean ambient air.

Do not distort the facepiece during storage. When disposing of the respirator or its components, do so in accordance with local, state, and federal regulations.

Discard the canister/cartridge if the original bag or carton is opened or damaged. For gas mask application only, see Storage and Shelf Life information below.

Storage for CBRN Application Only

Cartridge/Canisters must be stored in ONE of the configurations listed:

- Cartridge/Canister must be stored in original, unopened foil bag and in the extended clamshell (P/N 10046578), or
- Cartridge/Canister must be stored in original, unopened foil bag and in the original, unopened carton.

Facepiece must be stored in ONE of the following clamshells:

- Extended clamshell (P/N 10046578), or
- Standard clamshell (P/N 10017571) The clamshell is provided as a convenient storage container to protect the facepiece and cartridge/canister. Replace the clamshell if it becomes damaged.

SHELF LIFE

Follow the shelf life expiration date stamped on the carton, bag, and/or canister/cartridge as applicable. The expiration date will only apply if factory sealed and undamaged or the proper procedure is followed, otherwise the canister must be discarded.

⚠ CAUTION

DO NOT use an expired canister/cartridge. Failure to follow this warning can result in serious personal injury or death.

Storage and Shelf Life for Canister Part Numbers 10067491, 10059903, 10067469, and 10067470 Stored Outside the Original Foil Packaging:

These canisters have a 5 year shelf life with the expiration date printed on the foil bag. The canisters may be stored outside the original factory packaging by using the following procedure:

Approved Storage Configurations Outside the Original Foil Packaging

Storage using the supplied cap/plug component

- Remove the canister from the box and bag.
- Locate the white block on the canister label.
- Mark on the canister, in the white block, an expiration date of 1 year (for formaldehyde canister an expiration date of 6 months) from the date the canister was removed from the packaging. This expiration date must not to exceed the original expiration date printed on the foil packaging.

- Using the enclosed cap and plug assembly, as shown in Figure A, place the cap end over the threaded outlet of the canister, as shown in Figure B.



Figure A



Figure B

- Insert the plug end in the inlet of the canister as shown in Figure C.



Figure C

STORAGE

- Using thumbs, press in the center of both the cap and the plug ends to ensure the cap/plug is firmly in place and the canister is sealed.
- Discard cap/plug after each use.

Storage in user supplied case

- Remove the canister from the box and bag.
- Locate the white block on the canister label.
- Mark on the canister, in the white block, an expiration date of 1 year (for formaldehyde canister an expiration date of 6 months) from the date the canister was removed from the packaging. This expiration date must not to exceed the original expiration date printed on the foil packaging.
- The canister must be attached to the facepiece with the plug side of the cap and plug component secured into position.

- The respirator must be placed upright in the plastic case.
- 10075204 Phosphine/Ammonia/Chlorine/P100
- 10075205 Hydrogen Flouride/P100
- 10075206 Formaldehyde/Acid Gas/Chlorine Dioxide/Escape from Hydrogen
- 10075207 Organic Vapor/P100
- Ensure the lid is snapped tight and the case is closed.

WARNING

DO NOT store the canister above 120°F. Failure to follow this warning can alter the performance of the canister and result in serious personal injury or death.

ACCESSORIES

The facepiece may be equipped with the following accessories:

1. ESPII Communication System
 2. Lens Shield(tinted), in small, medium, or large
 3. Spectacle Kit
 4. Butyl Coated Nylon Hood
- Lens Outsert User's Instructions for installation and use of the ESP II Communication System and Spectacle Kit are enclosed with the accessory.

⚠ CAUTION

Refer to the NIOSH Approval Matrix for a complete list of Approved Accessories. If you must wear corrective eyewear, install an approved spectacle kit, listed on the NIOSH approval matrix insert.

⚠ WARNING

Know the contaminant(s) in the environment before entering. Always check that the filter canister/cartridge(s) is appropriate for use in the environment. A filter canister/cartridge(s) which is not designed for the contaminant present may not provide protection. Failure to follow this warning can result in serious personal injury or death.

HYDRATION SYSTEM

⚠ WARNING

The hydration system is NOT approved in a CBRN application and must NOT be used. Failure to follow this warning can result in serious personal injury or death.

In an Industrial application only:

1. Return to an uncontaminated area before using the hydration system.

2. Grasp the knurled surface of the tube and pull the tube out of its cover (part of the exhalation valve cover)
3. Hold the tube with its inlet end up.



4. Push the tube inlet into the "NATO" canteen inlet.



5. Turn the canteen upside down. Its contents will flow by gravity.



6. Grasp the exhalation valve cover and press in at the top while pushing out at the bottom of the cover. This positions the drink tube outlet toward your lips.
7. After drinking, disengage the tube from the canteen and stow it in the exhalation valve port.

INSTALLATION OF OUTSERT ASSEMBLY

Install an outsert over the facepiece lens.

1. Line up the outsert tabs and centerline mark with the facepiece lens.
2. Slide the outsert tabs down over the top of the facepiece lens.



ACCESSORIES

3. Stretch the band down and under the facepiece voicemitter.



Spectacle Kit

Spectacle kits are available for the Millennium (P/N 454819 and 816137). The kit includes the support assembly, a rubber block, and the spectacle frame. Prescription lenses can be obtained locally or through MSA.

Adjusting the Spectacles

1. To move the spectacles closer to your face, pull the frame prongs out of the rubber block.
2. To move the spectacles farther from your face, push the frame prongs into the rubber block.
3. To move the spectacles up or down, slide the rubber block up or down on the support arms.

Spark Cover (P/N 10068152)

1. Remove canister and spark cover from the packaging.
2. Attach the canister to the facepiece or breathing tube depending on the configuration being used.

3. Once the canister is attached, align the feet of the spark cover with the inlet hole of the canister.



motion for attaching spark cover

4. Grasp the outside of the canister, twist and push on the spark cover. The spark cover will snap in place.



check for spark arresting optional material

Note: The spark arresting material inside the spark cover is optional.

5. To remove the spark cover, gently squeeze the outside of the cover, twist, and pull the spark cover off.
6. Check the spark cover before each use to ensure no sparks have created holes or warped the part. If holes are created or the part is warped, replace the spark cover with a new one.

Gas Mask Application Only

Attaching the Gas Mask Chin Canister to the Belt

This conversion kit consists of:

Qty	Item	Part Number
1	Belt Clip	10068195
1	Breathing Tube	10068129
1	Belt	473902, 9961, 492827
1	Spark Cover	10068152

Installation Instructions

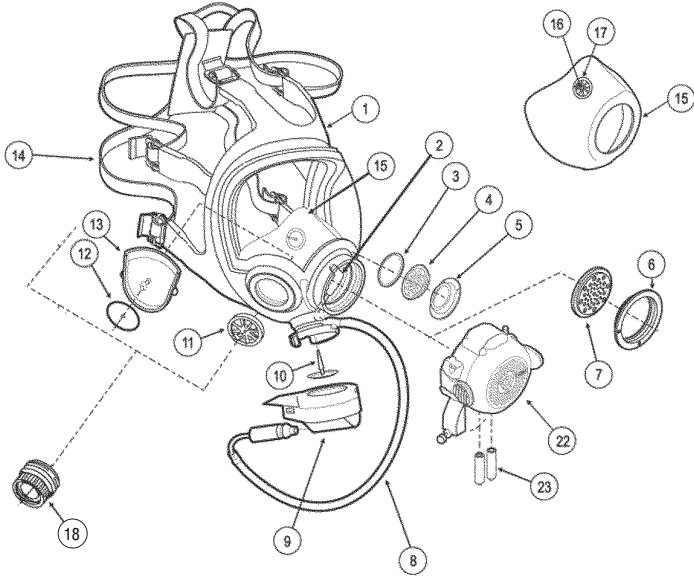
1. Attach the male thread end of the breathing tube securely to the facepiece coupling nut.
2. Slide the belt clip over the neck of the canister.
3. Securely fasten the female end of the breathing tube to the male end of the canister.
4. Attach the belt around the waist and attach the belt clip to the belt.

Approved Respirator	User Instructions Part Number
OptimAir 6HC PAPR	10045100
OptimAir 6A PAPR	490883
OptimAir MM2K PAPR	10020949
OptimAir TL pPAPR	10077289

Millennium®

Millennium Facepiece Assemblies

Part No.	Description
10051286	Small - with Clear Outsert
10051287	Medium - with Clear Outsert
10051288	Large - with Clear Outsert
10048811	Small - with Tinted Outsert
10048800	Medium - with Tinted Outsert
10048812	Large - with Tinted Outsert



Millennium® Facepiece			Millennium® Facepiece		
Item No.	Part No.	Description	Item No.	Part No.	Description
1	10006591	Small, Faceblank Lens Assembly	Approved Cartridges and Canisters		
	10006590	Medium, Faceblank Lens Assembly			
	10006592	Large, Faceblank Lens Assembly			
2	10008189	Internal Drinking Tube	Refer to separate insert for NIOSH Approval information		
3	10007979	Gasket			
4	805343	Voicemitter	Accessories and Optional Equipment		
5	10007991	Retaining Ring	22	10026265	ESP II Communication System
6	805111	Metal Retaining Ring	23		Batteries (2) Reired NEDA Type AAA Alkaline Cells
7	805103	Speaking Diaphragm		816137	Spectacle Kit - Recommended for Large Millennium Facepiece Assembly
8	10008191	External Drinking Tube		10029298	Spectacle Kit - Recommended for Medium and Small Millennium Facepiece Assemblies
9	10007997	Exhalation Valve Cover		10008907	Lens Outsert, Small, Clear
10	10007996	Exhalation Valve		10008906	Lens Outsert, Medium/Large, Clear
11	10007994	Spider Gasket		10008909	Lens Outsert, Small, Tinted
12	10007421	Inhalation Valve Assembly		10008908	Lens Outsert, Medium/Large, Tinted
13	10007388	Deflector		305022	Butyl Coated Nylon Hoard
14	10008587	Head Harness		10046578	Storage Case
15	10006824	Small, Nosecup Assembly		461828	Wrench
	10006823	Medium, Nosecup Assembly		10068152	Spark Cover
	10006825	Large, Nosecup Assembly			
16	305349	Nosecup Valve Disc			
17	305350	Nosecup Valve Seat			
18	96547	Adapter Assembly (required for Riot Control P100/CS/CN Canister p/n 817589)			

WARRANTY

Mine Safety Appliances Company General Express Warranty and Terms of Sale

- 1. Express Warranty** - MSA warrants that the product furnished under this order is free from mechanical defects or faulty workmanship for a period of one (1) year from first use or eighteen (18) months from date of shipment, whichever occurs first, 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, filament units, instrument filters, lamps fuses, helmet suspensions, limited-use clothing, gloves, etc. or to products whose life is controlled by government regulation such as cylinders. Safety Products Division rubber products including, but not limited to, facepieces, head harnesses, and nose cups are warranted against defects in workmanship for dry rotting of the rubber for a period of 5 years from the date of manufacture. 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 misuse of the product. No agent, employee or representative of MSA may bind MSA to any affirmation, representation or modification of the warranty concerning the goods sold under this contract. MSA makes no

warranty concerning components or accessories not manufactured by MSA, but will pass on to the Purchaser all warranties of manufacturers of such components. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, AND IS STRICTLY LIMITED TO THE TERMS HEREOF: MSA SPECIFICALLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.

- 2. 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 MS plant. Failure of MSA to successfully repair any non-conforming product shall not cause the remedy established hereby to fail of its essential purpose.
- 3. Exclusion of Consequential Damages** - Purchaser specifically understands and agrees that under no circumstances will MSA be liable to Purchaser for economic, special, incidental or consequential damages or losses of any kind whatsoever, including but not limited to, loss of anticipated profits and any other loss caused by reason of the nonoperation of the goods. This exclusion is applicable to claims for breach of warranty, tortious conduct or any other cause of action against MSA.