

# **ADVANTAGE<sup>®</sup> 3000 Series**

## **APR RESPIRATOR**

### **Model 3100 SINGLE-PORT Full Facepiece Respirator**

#### **RESPIRATOR APPLICATION**

P100 Respirator

GME-P100 Respirator

#### **GAS MASK APPLICATION**

Chin-Type Canister

CS/CN Canister

### **Model 3200 TWIN-PORT Full Facepiece Respirator**

#### **RESPIRATOR APPLICATION**

Advantage 3200 Respirator

#### **GAS MASK APPLICATION**

CS/CN Canister

## **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 Advantage 3000 APR Respirators. These Advantage 3000 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 Advantage 3000 APR Respirators 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:

Model 3100: P/N 10035719 (P100, GME-P100), P/N 817241 (Gas Mask), P/N 818082 (CS/CN)

Model 3200: P/N 10029528 (Advantage 3000 Series Respirator), P/N 818082 (CS/CN)

For More Information, call 1-800-MSA-2222 or Visit Our Website at [www.MSAsafety.com](http://www.MSAsafety.com)



**MINE SAFETY APPLIANCES COMPANY**  
**CRANBERRY TWP., PENNSYLVANIA, U.S.A. 16066**

# INTRODUCTION

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## NIOSH APPROVAL INFORMATION

### CAUTIONS AND LIMITATIONS

#### Advantage 3000 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 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.

#### S- Special or Critical User's Instructions

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.

Mersorb-P100 respirators utilize an end-of-service-life indicator for use against metallic mercury vapor. The band around the side of each Mersorb-P100 cartridge consists of chemically-treated paper. In use, as the paper is exposed to metallic mercury vapor it changes from orange to brown. When the indicator color changes to brown, the cartridge is beginning to lose its effectiveness against metallic mercury vapor and must be replaced. Thus, the wearer has a constant, positive check on the condition of the cartridge.

Do not enter any atmospheres with this respirator unless you know that; you are not colorblind and can distinguish between the beginning and ending colors of the end-of-service-life indicator (when using Mersorb-P100/Mersorb respirators only).

#### Special Instructions for P100 with Splash Guard:

- a) Test for Tightness – Support the cartridge from behind using your fingers and depress the button with your thumb. Gently inhale so that the facepiece collapses slightly and hold breath for ten seconds. The facepiece will remain collapsed while the breath is held, unless there is a leak in the seal.

**NOTE:** If a leak is detected, adjust the straps or reposition the facepiece, ensure the push button is completely depressed, and repeat test until no leakage is detected.

# 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.

## **⚠ 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](http://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](http://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-facepiece respirator, may further help prevent transmission of influenza virus.
- The CDC recommends frequent hand washing and

## INSTRUCTIONS FOR USE AND CARE

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 Advantage 3000 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.

The Advantage 3000 Respirator, Model 3200, consists of a full-facepiece mask, with Twin-Port, the use of noseclip provided with facepiece is optional.

The Advantage 3000 Respirator, Model 3100, consists of a full-facepiece mask, with Single-Port, the use of noseclip provided with facepiece is optional.

<b>Twin-Port Version</b>	<b>Single-Port Version</b>
Small 10028995	Small 10028999
Medium 10028996	Medium 10028998
Large 10028997	Large 10029000

Inhaled air is drawn through the canister/cartridge(s), which contains adsorbents and a filter that removes or neutralizes specific contaminations. Exhaled air leaves the facepiece through the exhalation valve.

It is important that the user becomes familiar with the application and operation of the Advantage 3000 APR Respirator and ensures that it fits properly before use.

When properly fitted to the user, the Advantage 3000 full facepiece with noseclip and head harness, combined with the appropriate canister/cartridge(s), becomes a complete respiratory protective device.

The respirator consists of the following subassemblies:

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

Facepiece size is identified on the front of the facepiece on the lower left head harness attachment.

## **⚠ WARNING**

**These facepieces do not pertain to the NIOSH-approved CBRN application. Contact MSA at 1-800-MSA-2222 for the correct facepiece. Failure to follow this warning can result in serious personal injury or death.**

## **FILTER(S) / CARTRIDGE(S)**

See separate inserts for NIOSH Approval Information (P/Ns 10029528 and 817241).

## **ATTACHING FILTER CARTRIDGE**

### **Model 3200, Twin-Port Respirator**

Carefully attach filter cartridges to facepiece connectors (bayonets) by first aligning the cutouts on the cartridges with the lugs on the bayonets and then turning the cartridge clockwise by hand until tight. Align the small lug on the connector with the match-mark located on the cartridge body. (see Replacing Cartridges).

### **Model 3100, Single-Port Respirator**

Thread the cartridge into receptacle carefully. Hand-tighten to prevent damage to threads. To ensure a good seal, tighten cartridge by slowly turning the cartridge until tight.

### **Attaching the Snap-On Filters**

1. Place a filter in each filter cover. Never load filters into the receptacles.
2. Snap filter cover onto both cartridges taking care not to damage the filter.

**Note:** If using the Comfo/Advantage Adapter, follow the instructions supplied with the Comfo/Advantage Kit.

## **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:

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.

## GENERAL DESCRIPTION

### 2. Escape (for Gas Mask only) –

Canister for Chin-Type Gas Masks						
Part No.	MSA Canister Identification	Purifying Protection Code	Approval	Maximum Escape Conditions		Gas/Vapors
				% Volume	PPM	
815994	GMA-C-N95	OV	TC-14G-0197	0.50%	5000	Organic Vapors*
815996	GMC-C-N95	OV/CL/SD	TC-14G-0196	0.50%	5000	Organic Vapors and Chlorine/Sulfur Dioxide*
816051	GMF-C-N95	CL/SD/FM	TC-14G-0207	0.50% 0.05% 0.15%	5000 500 1500	Chlorine/Sulfur Dioxide* Formaldehyde* Phosphine*
815993	GMD-C-N95	AM	TC-14G-0198	0.50%	5000	Ammonia*
815995	GML-C-N95	CL2	TC-14G-0199	0.50%	5000	Chlorine*
915999	GMDL-C-N95	OV/CL2/AM	TC-14G-0200	0.50%	5000	Ammonia, Chlorine, and Organic Vapors*
815998	GMR-I-P100	OV/I2	TC-14G-0204	0.50%	5000	Organic Vapors†
816000	GMHF-C-P100	HF	TC-14G-0239	0.10%	1000	Hydrogen Fluoride†
10059903	Phosphine/ Ammonia/Chlorine/ P100	PH/AM/CL	TC-14G-0274	0.50% 0.15%	5000 1500	Ammonia and Chlorine† Phosphine†
10067469	Organic Vapor/ P100	OV	TC-14G-0279	0.50%	5000	Organic Vapors†
10067491	Hydrogen Fluoride/P100	HF	TC-14G-0280	0.10%	1000	Hydrogen Fluoride†
10067470	Formaldehyde Chlorine/Sulfur Dioxide/Chlorine Dioxide/Hydrogen Sulfide/P100	FM/CL/SD/CD/HS	TC-14G-0282	0.05% 0.50% 0.10%	500 5000 1000	Formaldehyde† Chlorine/Sulfur Dioxide† and Hydrogen Sulfide† Chlorine Dioxide†

\*Canister contains an N95-Particulate Filter (95% filter efficiency level) effective against particulate aerosols free of oil.

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

- 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 respira-

**tor 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**

**Aniline**

**Arsine**

**Bromine**

**Carbon monoxide**

**Diisocyanates**

**Dimethyl sulfate**

**Hydrogen cyanide**

**Hydrogen selenide**

**Methanol**

**Methyl bromide**

**Methyl chloride**

**Methylene chloride**

**Nickel carbonyl**

**Nitric Acid**

**Nitro compounds:**

**Nitrogen oxides**

**Nitroglycerin**

**Nitromethane**

**Ozone**

**Phosgene**

**Phosphine**

**Phosphorous trichloride**

**Stivine**

**Sulfur chloride**

**Urethane or other**

**diisocyanate**

**containin paints**

**Vinyl chloride**

## GENERAL DESCRIPTION

- 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 must be approved for all contaminants present.
  2. NIOSH permits mixing of the following contaminants: organic vapors, chlorine, chloride dioxide, hydrogen sulfide, sulfur dioxide, 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. Canisters and cartridges with an N95 or R95 filter shall be limited to 8 hours of use (continuous or intermittent) against particulates. (Service time can be extended by performing an evaluation in the specific workplace setting that demonstrates (a) that the extended use will not degrade the filter efficiency below 95%, or (b) that the total mass loading of 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.MSAafety.com](http://www.MSAafety.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 ( $C_{\text{Mixture}}$ ) from the individual contaminant concentrations ( $C_1, C_2, C_3, \dots$ ) using the following formula:

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

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

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

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 a toxic atmosphere.

The respirator 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.

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.
2. Check that the filter canister/cartridge(s) approval is appropriate and effective against the contaminant in the environment.

## INSTALLING/REPLACING THE CANISTER / CARTRIDGE(S)

### **⚠ 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.**

After verifying that the canister/cartridge(s) 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(s). Failure to follow this warning can result in serious personal injury or death.**

### **⚠ WARNING**

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

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

If applicable, place a new filter in each filter cover. Never load filters into the receptacles.

Use the canister/cartridge(s) 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(s) after each use.

Replace the canister/cartridge(s) after each use. Follow the established canister/cartridge(s) change-out sched-

ules to ensure that canister/cartridge(s) are replaced before breakthrough occurs. When used at defined occupational exposure limits, the rated service time cannot be exceeded.

Replacement of the Mersorb-P100 cartridge must occur at or before the end-of-service-life indicator turns brown in color.

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.

### **⚠ WARNING**

**DO NOT replace canister/cartridge(s) 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.

### **⚠ 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.**

### **⚠ 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.**



# DONNING

## DONNING THE RESPIRATOR WITH RUBBER HARNESS

1. Loosen the two bottom harness straps. Grip the straps by inserting thumbs through the straps.



2. Insert chin well into the lower part of facepiece, then pull the harness back over head.



3. Pull the back of harness downward toward the neck until centered at the back of your head.



4. If necessary, hold the facepiece component housing with one hand and position the harness with the other hand, until obtaining a firm and comfortable fit against the face at all points.



5. Tighten the two neck-straps so that the mask is snug against face.

**Note:** Make sure the back of the harness is centered on the back of the head.



6. The top two harness straps must be flat against the top of head.

**Note:** Both top straps should be adjusted with button in the same position so straps are equal in length.

7. If the mask does not feel snug up against face, loosen the bottom straps and reposition the back of the harness. Make sure that the back of the harness is positioned on the back of the head. If the mask does not become snug against the face, remove the mask and adjust the length of the top two straps.

### Adjusting the Top Straps

1. Remove the strap from the button by pulling the loose end of the strap away from the button.

2. Move the slide away from the lens ring to allow the strap to slide through the lens ring connection. Adjust the length of the strap. Secure the strap in position by pulling the strap onto the button.



3. Smooth the straps so that they are flat. Move the slide so that it is located at the lens ring connection.



# DONNING

## DONNING THE RESPIRATOR WITH PLASTIC ADVANTAGE HARNESS

### Instructions to Don the Mask

**Note:** There are two recommended donning procedures.

#### Donning Procedure A:

1. Completely loosen the two bottom straps. Spread the straps of the head harness with both hands and place chin into the mask. Pull harness over head all the way, until plastic cradle lies flat on back of head.
2. Tighten neck straps evenly so that the mask is snug against face.
3. If necessary, adjust the mask and tighten harness by pulling loop on the back of harness.

#### Donning Procedure B:

1. Completely loosen the two bottom straps, insert fingers and hold the loop on the back of the harness.
2. Place chin into the mask.
3. Pull harness over head with the loop, pull harness down to the back of the head, until plastic cradle lies flat on back of head.
4. Tighten neck straps evenly so that the mask is snug against your face.

## TEST FOR TIGHTNESS

Test for tightness before each use, using the following methods:

### 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.

### Positive Pressure Seal Test

Place your palm lightly over exhalation valve cover and component housing and greatly inhale. If the facepiece did not remain collapsed during the test, or any leakage is noticed, readjust straps and perform Negative Pressure Seal Test again. If this does not correct the leak, the mask will not provide protection.

Perform the test as follows:

1. Ensure respirator is assembled properly.

2. Block off canister/cartridge(s) inlet using the palm(s) of the hand(s).



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. 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.

### P100 with Splash Guard Method

Support the cartridge from behind using your fingers and depress the button with your thumb. Gently inhale so that the facepiece collapses slightly and hold breath for ten seconds. The facepiece will remain collapsed while the breath is held, unless there is a leak in the seal.

**NOTE:** If a leak is detected, adjust the straps or reposition the facepiece, ensure the push button is completely depressed, and repeat test until no leakage is detected.



### ⚠ 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.

## REPAIR

### REMOVING THE RESPIRATOR WITH RUBBER HARNESS

#### To remove the facepiece:

1. Push the bottom buckles forward to loosen and fully extend the bottom straps.



2. Insert thumbs under the bottom harness straps. Pull it up and away from face.

### REMOVING THE RESPIRATOR WITH PLASTIC ADVANTAGE HARNESS

1. To loosen the harness, push the bottom buckles forward and loosen.
2. Grasp the mask by the connector or filter and pull mask backward off the head.

### MAINTENANCE

This respirator must be kept in good condition to function properly. When any respirator shows evidence of excessive wear or damage, it must be replaced immediately. This respirator, when not in use, should be stored in a clean dry location, such as its storage bag. 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.

### REPAIR

**Note:** All repair procedures assume that the respirator is clean and free of contaminant and that the filter(s)/cartridge(s) are removed.

#### Component Housing Cover Disassembly & Reassembly

1. To remove the cover, squeeze sides of component housing cover at the bottom, lift out and up on cover by using the bottom cover tab, disengaging the component housing tab.

2. Slide the cover up to remove it from top tabs of the component housing.



3. To install the cover, insert the top tab of component housing into the top slot of cover, press the bottom of cover down over the bottom tab of the component housing until it snaps into place.



#### Component Housing Disassembly Twin Port Disassembly

1. To remove the component housing from the facepiece, remove the component housing cover and nosecup (if used).
2. Insert thumbs into the notches on either side of "U" Retainer and slightly spread outward to disengage the retainer.
3. Slide the "U" Retainer down to notches and lift the retainer up to remove it from the component housing.
4. To remove the component housing from the facepiece, push in on the bottom of component housing pushing it into the facepiece.
5. Remove component housing from the inside of the facepiece.
6. Using your fingers to remove the O-ring, press in firmly on both sides of the O-ring, slide fingers up the O-ring, and grasp the O-ring. Roll the O-ring out of component housing groove.

#### **⚠ CAUTION**

**DO NOT use a sharp object to remove the O-ring. A damaged O-ring will not form an adequate seal with the facepiece.**

7. To remove the nosecup (if used) from the component housing, grasp the nosecup and pull to disengage it from the component housing.
8. To remove the exhalation valve from the component housing, gently pull one edge out of the center hole of the exhalation port.

# INSPECTION

## For Model 3200

1. To remove the inhalation valves, gently pull one edge and lift it off the post on the inside of the lens bayonet connector.
2. Remove the bayonet connector gaskets by stretching the gasket slightly and lifting it off the bayonet connector.

## For Model 3100

1. Grasp the spider gasket by the raised tab 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.
2. Ensure the white inhalation disc valve is attached to the spider gasket. The disc must be free of cracks, tears, dirt, and distortion.
3. While holding the spider gasket in one hand, gently stretch the inhalation valve disk onto the post in the center of the spider gasket.

## Component Housing Reassembly Twin-Port Housing

### ⚠ CAUTION

**Be sure to inspect all parts for damage before reassembly.**

1. Replace the exhalation valve on the component housing
  - a. Line up the hole in the valve with the hole in the exhalation port.



- b. Press the valve arrow into component housing hole on the boss sides.

**Note:** When fully installed, the center of the valve will rest flat against the component housing boss.

- c. Lift the valve to ensure that it is fully seated on the boss.

## For Model 3200

- a. To replace the inhalation valves on the lens bayonet connectors, line-up the holes in the valves with the posts on the back of the Lens bayonet connectors and gently stretch the valve openings to slip over the posts.

## For Model 3100

- a. To replace the inhalation valves on the spider gasket, line-up the holes in the valves with the posts on the back of the lens bayonet connectors and gently stretch the valve openings to slip over the posts.
  - b. Install the spider gasket into the inlet port with the white inhalation valve disk into the facepiece. Check around the entire gasket to be sure the gasket lays flat and that the groove in the gasket is entirely captured by the component housing rim.
2. Reinstall the O-ring.

- a. Place the O-ring into groove of the component housing.



- b. Run a finger along the O-ring to ensure the O-ring is sealed in the component housing groove.

**Note:** The component housing is installed from the inside of the facepiece.

4. Reinstall the component housing in the facepiece
  - a. Insert the component housing from the inside of the facepiece.

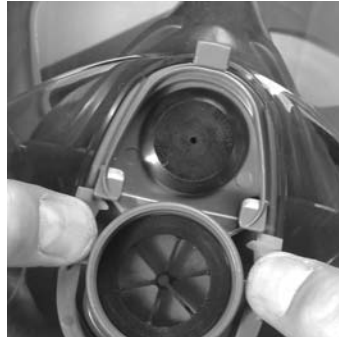
- b. Slide the large tab on the top of the component housing into the matching notch on the outside of the lens.



- c. When the tab is inserted into the notch on the outside, press the component housing into the facepiece firmly until the small tab on the bottom of the housing is inserted into the notch in the bottom of lens.
- d. Holding the component housing in place, place the "U" Retainer into its notches (flat side down).
- e. Push the base of the retainer up to snap it in place.
- f. Press on the component housing to be sure it is firmly engaged in the lens.

# INSPECTION

- If the nosecup was removed, reinstall it on the inner flange of the Exhalation Port.
  - Stretch the nosecup's inner lip slightly to place it over the flange.



- Press the lip in place until it completely "captures" the flange.

- Reattach the Component Housing Cover
  - Insert the top tab into the slot in the cover.
  - Press the bottom down over the tab until it snaps into place.
- Replace the bayonet connector gaskets by stretching the gaskets slightly and lifting them over the bayonet connectors.

## LENS DISASSEMBLY

To remove the lens from the facepiece blank, first disassemble the Component Housing parts as described above.

### Model 3200 - Bayonet Gaskets

- Remove the bayonet connector gaskets by stretching the gasket slightly and lifting it off the bayonet connector.



- Replace the bayonet connector gaskets by stretching the gaskets slightly and lifting them over the bayonet connectors.

### Lens Rings

- Using a Philips screwdriver, unthread and remove the two screws which secure the lens rings.
- Separate the lens rings.
- Fold back the facepiece blank and remove the lens.

## LENS REASSEMBLY

### ⚠ CAUTION

Before installing a new lens, check the blank groove for dirt or other debris, which may interfere with a seal between the lens and blank.

- Insert the top of the lens into the top of the facepiece blank.



- Mold the blank around the lens, checking to be sure that the lens is centered in the facepiece blank.

- Stretch the blank enough to insert the bottom of the lens into the blank.
- Guide the lens into the blank groove all the way around the lens. Make sure the lens is fully captured in the blank groove.
- Guide the top lens ring over the outside of the facepiece blank lens groove, making sure that the harness straps are at the back of the facepiece.
- Guide the bottom lens ring over the outside of the bottom facepiece blank lens groove.

- Work the lens rings down on to the facepiece blank to line-up the threaded ends as close as possible without bending the lens.



- Install one Philips screw in the top lens ring mounting flange and screw it about halfway into the opposite lens ring flange.



## INSPECTION

9. Install the remaining Philips screw in the other lens ring mounting flange and screw it about half way into the opposite lens ring flange.
10. Alternate tightening the screws until the lens is secure.
11. Reinstall the Component Housing parts as described above.
12. Don the facepiece and perform the Tightness Test to be sure the facepiece seals correctly and is leak-tight.

### RUBBER HARNESS STRAPS DISASSEMBLY

#### Top Straps

Unbutton the top straps and slide the straps back through retainer. Pull the top straps through slot in lens rings.



#### Bottom Straps

Unthread both bottom straps through the buckles.

#### Buckles

The bottom buckles are detachable. Grasp the buckle and the facepiece tab and push them together until the button is free.



### RUBBER HARNESS STRAPS REASSEMBLY

1. Place the new harness on a flat surface with the MSA logo facing "right-side up." In this position, the straps above the logo are the top straps.
2. Grasp one top strap and fold the end-tab in half.
3. From the "face" side of the facepiece, insert the end tab under the slot in lens ring.
4. Thread the end-tabs up through the lens ring slots and pull strap through several inches.

### Attach the bottom straps to the bottom, detachable buckles:

1. Place the buckle's button-hole over the button.
2. Grasp a facepiece tab and buckle in each hand and pull them apart until the button snaps into the button-hole.
3. Make sure the strap is not twisted, and that the boss on end-tabs side is facing up (away from the inside of the facepiece).
4. Thread the end tabs with the boss facing up, through the bottom slot of buckles, then over center bar, down through top slot of buckles.
5. Pull straps through buckles.
6. Don the facepiece and perform the Negative Pressure Seal Test.

### PLASTIC ADVANTAGE HARNESS DISASSEMBLY

#### Top Straps:

**Note:** Fold the mask rubber (blank) in against the lens.

1. Push top of straps, close to Adapter Clip, down against the mask rubber.
2. Pull straps down, and out of the Adapter Clip, ensuring not to damage the Adapter Clip.

#### Bottom Strap:

1. Grasp the buckle and the mask tab and push them together until the button is free from buckle.

#### Adapter Clip:

**Note:** All procedures are from the "lens" side of the mask.

1. Slide a small flat bladed screwdriver between the top of the Adapter Clip and Lens Ring.
2. Slowly lift up on the screwdriver until Adapter Clip is free of Lens Ring.

### PLASTIC ADVANTAGE HARNESS REASSEMBLY

#### Top Straps:

Place the new harness on a flat surface with the MSA logo facing "right-side up". In this position, the straps above the logo are the top straps.

**Note:** All procedures are from the "face" side of mask.

1. Fold the mask rubber against lens.
2. Slide the slotted part of top strap under the Adapter Clip, push the slotted part into Adapter Clip. Pull on strap to ensure it is secure in Adapter Clip.
3. Make sure the strap is not twisted and ensure the strap moves freely.

# INSPECTION

## Bottom Straps:

Attach the bottom straps to the bottom, detachable buckles:

1. Place the buckle's button-hole over the button then grasp a mask tab and buckle in each hand and pull them apart until the button snaps into the button hole.
2. Make sure the strap is not twisted, and that the boss on end-tabs side is facing up (away from the inside of the mask).
3. Don the mask and perform the Tightness Test.

## Adapter Clips Reassembly

**Note:** All procedures are from "face" side of mask.

1. The adapter clips are identified with an "R" or "L". "R" is for right side. "L" is for self side of lens ring.
2. With the "R" or "L" must face into the center of the mask and to the back of lens ring.
3. Push the new adapter clip over the boss of the lens ring.
4. Ensure the adapter clips are tight on lens ring.



# 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(s)).
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(s).



## 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.**



## 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(s) if the original bag or carton is opened or damaged. For gas mask application only, see Storage and Shelf Life information below.

### SHELF LIFE

Follow the shelf life expiration date stamped on the carton, bag, and/or canister/cartridge(s) 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.

#### **⚠ WARNING**

**Do not use an expired canister/cartridge(s). Failure to follow this warning can result in serious personal injury or death.**

#### **Storage and Shelf Life for Canister Part Numbers 10059903, 10067469, 10067491 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 exceed the original expiration date printed on the foil packaging.



- The respirator must be placed upright in the plastic case).

- 10075204 Phosphine/Ammonia/ Chlorine/P100
- 10075205 Hydrogen Fluoride/P100
- 10075206 Formaldehyde/Chlorine/Sulfur Dioxide/ Chlorine Dioxide/Hydrogen Sulfide/P100
- 10075207 Organic Vapor/P100
- Ensure the lid is snapped tight and the case is closed.



- 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.



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



- 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

## STORAGE

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.

### 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. Cover Lens (clear or tinted), in small, medium, or large
2. Spectacle Kit

### ⚠ 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.

#### Installing the Nosecup for Advantage 3000 Facepiece

1. Place nosecup into facepiece with notch of nosecup facing the bottom of facepiece.
2. Place bottom of nosecup under facepiece seal.
3. Stretch nosecup over Inhalation Valve Housing ensuring notch of nosecup is over tab of inhalation valve housing.
4. Stretch nosecup around lip on inhalation valve housing ensuring nosecup is in place.

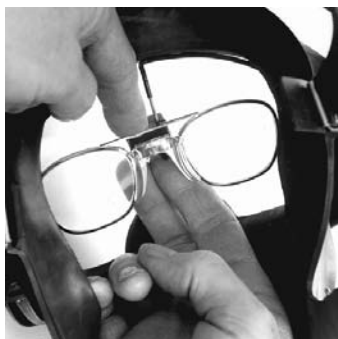
#### Spectacle Kit

Spectacle kits are available for the Advantage 3000 (P/N 10029298). 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.



#### Attaching the Gas Mask Chin Canister to the Belt

This conversion kit consists of:

Quantity	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 component housing.
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.

#### Spark Cover (P/N 10068152)

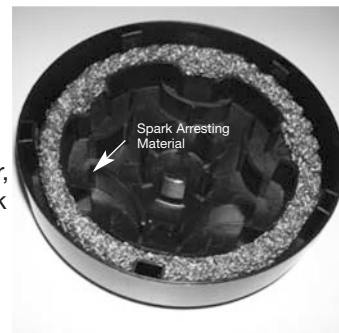
1. Remove canister and spark cover from the packaging.
2. Attach the canister to the facepiece or breathing tube depending on the configuration being used.
3. Once the canister is attached, align the feet of the spark cover with the inlet hole of the canister.

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



motion for attaching spark cover

5. To remove the spark cover, gently squeeze the outside of the cover, twist, and pull the spark cover off.



check for optional spark arresting material

## ACCESSORIES

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.

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

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### OTHER RESPIRATORY CONFIGURATIONS

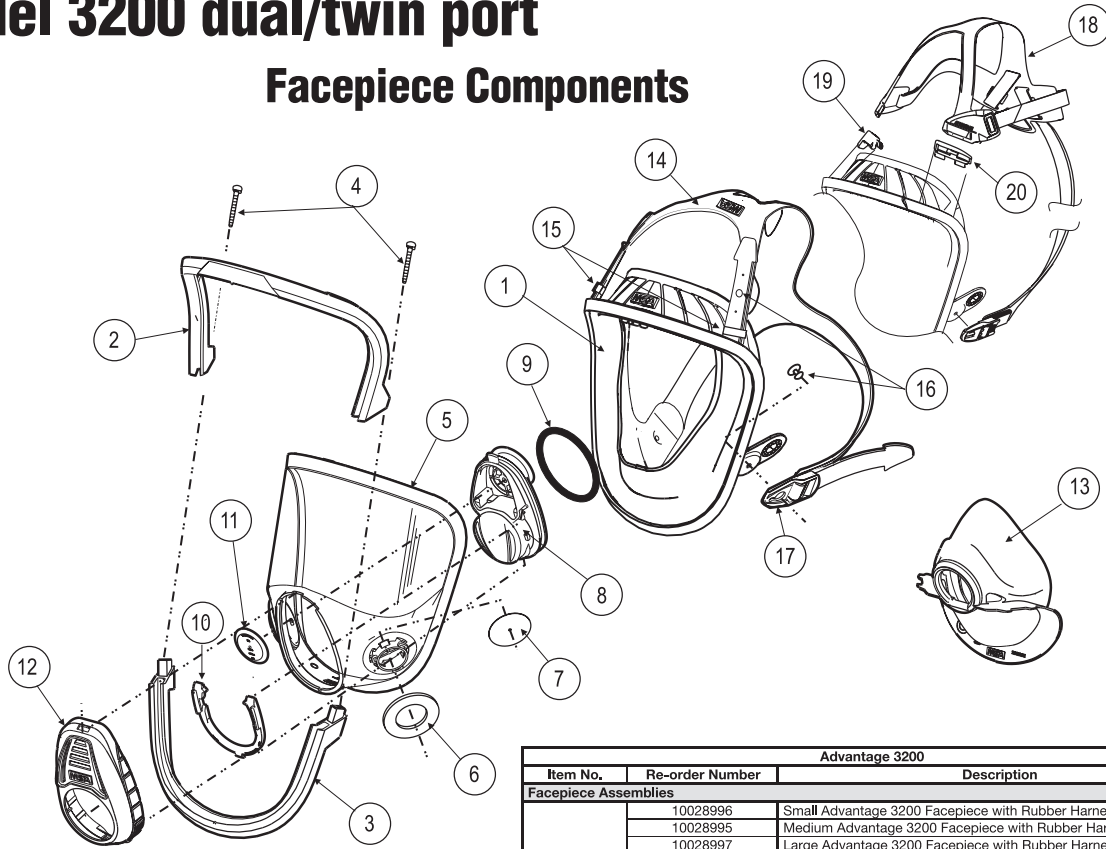
This respirator can be used in other configurations that stated in these User's Instructions. Below is a list of these other configurations and the part number for the User's Instructions. Review the NIOSH matrix to verify the configuration that is being used is an approved configuration.

Approved Respirator	User Instructions Part Number
OptimAir 6HC PAPR	10040590
OptimAir 6A PAPR	490883
OptimAir MM2K PAPR	10020949
OptimAir Mask-Mounted PAPR	10090982
OptimAir TL PAPR	10077289

# ADVANTAGE® 3000

## model 3200 dual/twin port

### Facepiece Components



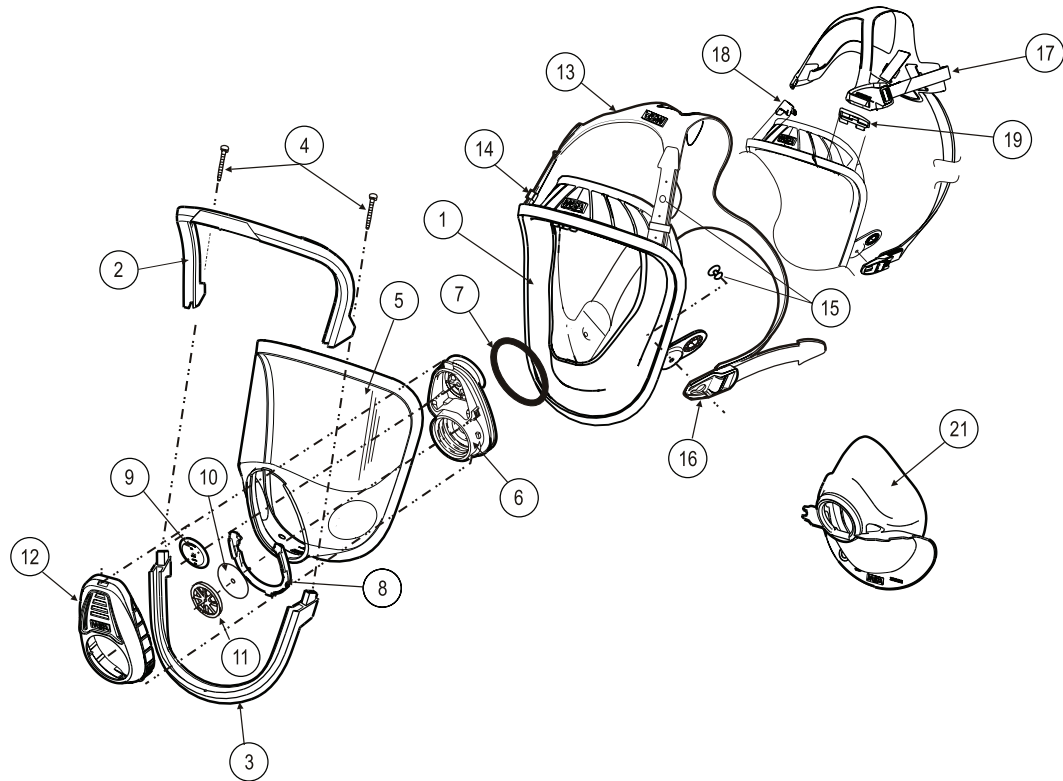
Advantage 3200		
Item No.	Re-order Number	Description
<b>Facepiece Assemblies</b>		
---	10028996	Small Advantage 3200 Facepiece with Rubber Harness
	10028995	Medium Advantage 3200 Facepiece with Rubber Harness
	10028997	Large Advantage 3200 Facepiece with Rubber Harness
	10031340	Small Advantage 3200 Facepiece with Advantage Plastic Harness
	10031309	Medium Advantage 3200 Facepiece with Advantage Plastic Harness
10031341	Large Advantage 3200 Facepiece with Advantage Plastic Harness	
<b>Facepiece Components</b>		
1	10025280	Small Silicone Advantage 3000 Face Blank
	10025258	Medium Silicone Advantage 3000 Face Blank
	10025259	Large Silicone Advantage 3000 Face Blank
Kit	10030785	Lens Ring Kit
2	*	1 - Upper Lens Ring
3	*	1 - Lower Lens Ring
4	*	2 - Lens Ring Screw
5	10030786	Dual/Twin Port Lens with Bayonet Connectors, Gaskets, and Valves
6	10030787	Dual/Twin Port Bayonet Gasket(10018496), 10 per Package
7	10030788	Inhalation Valve(10030061), 10 per Package
Kit	10030790	Dual/Twin Port Housing Replacement Kit
8	*	1 - Dual Port Housing (10025289)
9	*	1 - O-ring (10025297)
10	*	1 - Retainer Clip (10025296)
11	10030789	Exhalation Valve(10025295), 5 per Package
12	10025291	Cover
Kit	10030794	Classic Rubber Harness Kit
14	*	1 - Rubber Harness (10025286)
15	*	2 - Slide (10029406)
16	*	4 - Harness Button (10025288)
17	*	2 - Buckle (10025287)
15	10030797	Slide (10029406) for Classic Rubber Harness, 10 per Package
16	10030795	Harness Button (10025288), 12 per Package
17	10030796	Buckle (10025287) for Classic Rubber Harness, 6 per Package
Kit	10030798	Advantage Harness (Plastic) Kit
18	*	1 Advantage Harness (10027778)
19	*	1 Right Adapter Clip (10028302)
20	*	1 Left Adapter Clip (10027774)
<b>Cartridges</b>		
Refer to separate NIOSH Approval insert for approval information		
<b>Accessories</b>		
13	10030792	Medium/Large Nose Cup (10025293)
	10030793	Small Nose Cup (10025294)
Not Shown	10029298	Spectacle Kit
Not Shown	10031542	Cover Lens, Clear (10029294), 25 per Package
Not Shown	10031543	Cover Lens, Smoke (10031176), 25 per Package

\* Item Available in Kit

# Advantage® 3000

## model 3100 single port

Advantage 3100 Facepiece Assemblies	
Part No.	Description
10028999	Small with Rubber Harness
10028998	Medium with Rubber Harness
10029000	Large with Rubber Harness
10031343	Small with Advantage (Plastic) Harness
10031342	Medium with Advantage (Plastic) Harness
10031344	Large with Advantage (Plastic) Harness



Advantage 3100 Facepiece Components			Advantage 3100 Facepiece Components		
Item No.	Part No	Description	Item No.	Part No	Description
1	10025280	Small, Faceblank Silicone	14	*	2 – Slide
	10025258	Medium, Faceblank Silicone	15	*	4 – Harness Button
	10025259	Large, Faceblank Silicone	16	*	2 – Buckle
-Kit-	10030785	Lens Ring Kit	14	10030797	Slide for Classic Rubber Harness, 10 per Package
2	*	1 - Upper Lens Ring	15	10030795	Harness Button , 12 per Package
3	*	1 - Lower Lens Ring	16	10030796	Buckle for Classic Rubber Harness, 6 per Package
4	*	2 – Lens Ring Screw	-Kit-	10030798	Advantage (Plastic) Harness Kit
5	10032113	Single Port Lens	17	*	1 Advantage Harness
-Kit-	10030791	Single Port Housing Replacement Kit	18	*	1 Right Adapter Clip
6	*	1 – Single Port Housing	19	*	1 Left Adapter Clip
7	*	1 - O-ring	<b>Cartridge</b>		
8	*	1 - Retainer Clip	Refer to separate NIOSH Approval insert for approval information		
9	10030789	Exhalation Valve, 6 per Package	<b>Accessories</b>		
10	10030788	Inhalation Valve, 10 per Package	21	10030792	Medium/Large Nose Cup
11	10025292	Spider Gasket		10030793	Small Nose Cup
12	10025291	Cover	Not Shown	10029298	Spectacle Kit
-Kit-	10030794	Classic Rubber Harness Kit	Not Shown	10031542	Cover Lens, Clear, 25 per Package
13	*	1 - Rubber Harness	Not Shown	10031543	Cover Lens, Smoke, 25 per Package

\* Item Available in Kit

# 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 regulations such as cylinders. 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 con-

cerning 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. 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.

- 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.

