Advantage â 3000 Series

Model 3200 TWIN-PORT Full Facepiece Respirator

Instructions for Use and Care

WARNING
This manual, including the warnings and cautions inside, must be read and followed carefully by all persons who use or maintain this product, including those who have any responsibility involving its selection, application, service or repair. This respirator will perform as designed only if used and maintained according to the instructions. Otherwise, it could fail to perform as designed, and persons who rely on this product could sustain serious personal injury or death.

See separate insert for NIOSH Approval Information. (P/N 10029528)

See inside for Instructions, Warnings and Limitations. Please call 1-800-MSA-2222 during regular working hours.

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NIOSH APPROVAL INFORMATION

1. Protection

P100—Particulate Filter (99.97% filter efficiency level) effective against all particulate aerosols.

N95—Particulate Filter (95% filter efficiency level) effective against all particulate aerosols free of oil; time use restrictions may apply.

R95—Particulate Filter (95% filter efficiency level) effective against all particulate aerosols; time use restrictions may apply.

AM - Ammonia
CD - Chlorine dioxide (escape)
CL - Chlorine
FM - Formaldehyde
HC - Hydrogen chloride
HF - Hydrogen fluoride
HS - Hydrogen sulfide (escape)
MA - Methylamine
MV - Mercury vapor
OV - Organic Vapor
SD - Sulfur dioxide
SA - Supplied Air

2. 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 schedules or observe ESLI to ensure that cartridges and canisters are replaced before breakthrough occurs.

J. Failure to properly use and maintain this product could result in injury or death.

K. The Occupational Safety and Health Administration regulations require gas-proof goggles be worn with this respirator when used against formaldehyde.

L. Follow the manufacturer's Users Instructions for changing cartridges and/or filters.

M. All approved respirators shall be selected, fitted, used, and maintained in accordance with MSHA, OSHA, and other applicable regulations.

N. Never substitute, modify, add, or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer.

O. Refer to User's Instructions and/or maintenance manuals for information on use and maintenance of these respirators.

P. NIOSH does not evaluate respirators for use as surgical masks.

S. Special or critical user's instructions and/or specific use limitations apply. Refer to User's Instructions before donning.

S - SPECIAL OR CRITICAL USER INSTRUCTIONS

1. Special Instructions for Mersorb-P100/ Mersorb® Cartridges —

   a. Mersorb-P100/Mersorb cartridges can be used against a mixture of chlorine and mercury that are both present simultaneously, but cannot be used if alternating between mercury-contaminated atmospheres and chlorine-contaminated atmospheres.

   b. Service Life Indicator - The Mersorb-P100 Mersorb respirator utilizes an End of Service Life Indicator (ESLI) for use against metallic mercury vapor. The ESLI must be readily visible to the wearer of this respirator without manipulation of either the respirator, cartridges, facepiece or the indicator. If you can not readily see the indicator, do not wear the respirator. The ESLI band around the side of each Mersorb-P100/Mersorb cartridge consists of chemically treated paper. In use, as the paper is exposed to metallic mercury vapor, it changes from orange to brown. When the indicator color changes to brown, the cartridge is beginning to lose its effectiveness against metallic mercury vapor and must be replaced. Thus, the wearer has a constant, positive check on the condition of his cartridge.

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

INSTRUCTIONS FOR USE AND CARE BY PROPERLY TRAINED AND QUALIFIED PERSONNEL

WARNING!

1. This device does NOT supply oxygen, and must only be used in adequately ventilated areas containing at least 19.5 percent oxygen.

2. **This respirator must be used in conjunction with the proper chemical or particulate cartridges for protection against specific contaminants.**
3. **Do not use when concentrations of contaminants are unknown or immediately dangerous to life or health (IDLH).**
4. **Do not use when appropriate exposure limit (OSHA PEL, NIOSH REL, ACGIH TLV, etc.) is not known.**
5. **Leave area immediately if:**
   - **A. Breathing becomes difficult.**
   - **B. Dizziness or other distress occurs.**
   - **C. You taste or smell contaminant.**
   - **D. You experience nose or throat irritation.**
6. **Use strictly in accordance with instructions, labels, and limitations pertaining to this device.**
7. **This respirator may not provide a satisfactory seal with certain facial characteristics, such as beards or large sideburns, that prevent direct contact between the skin and the sealing surface of the facepiece. Do not use this respirator, if such conditions exist.**
8. **Never alter or modify this device.**
9. **This respirator is for use by trained, qualified personnel only.**

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

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

RESPIRATOR USE LIMITATIONS

The wearer must comply with the following respirator use limitations:

1. MAXIMUM USE CONCENTRATION —

   Do not exceed any of the following:

   A. 100 times the exposure limit for the contaminants present.

   B. Immediately dangerous to life or health (IDLH) concentration for any contaminant present.

2. The limitations outlined in the applicable NIOSH approval.

3. For respirators with class N or R filters: Replace filters after no more than 8 (eight) hours of use (continuous or intermittent) or sooner if excessive breathing resistance occurs while inhaling. Service time can be extended by performing an evaluation in the specific workplace setting that demonstrates (a) that the extended use will not degrade the filter below the efficiency level for which it is approved, or (b) that the total mass loading of the filter is less than 200 mg.

4. For respirators with class P filters: Replace filters when excessive breathing resistance occurs while inhaling.

5. For respirators with chemical cartridges:

   a. Users must follow an appropriate cartridge change-out schedule developed by a qualified professional. The change-out schedule must take into account all factors that may influence respiratory protection including specific work practices and other conditions unique to the works environment. Cartridges equipped with an end-of-service-life indicator for a specific contaminant present must be replaced when the indicator changes to the specified color or sooner if using the respirator against a mixture and the cartridge change-out schedule specifies an earlier replacement.

b. If using the respirator against substances having poor warning properties, over exposure can occur without user awareness. Take appropriate precautions to prevent over exposure, which may include an earlier cartridge change-out, or using an air-supplied respirator or SCBA. For further information refer to MSA's *Response Respirator Selector*.

c. Replace cartridges every shift or sooner, if indicated by change-out schedule or end-of-service-life indicator. Use beyond one shift could result in shorter than expected service time and over exposure due to contaminant desorption and migration through the cartridge when not in use. If using the respirator for escape, replace cartridges after each escape. Once the user breathes through the respirator in a contaminated atmosphere, the cartridges may not provide adequate protection for additional escapes. Additionally, once the cartridges are initially placed into service or carried by the user in anticipation of escape, they must be replaced based on an appropriate cartridge change-out schedule. Extended exposure of the cartridges to nuisance levels (below the PEL) of the contaminant may prevent the cartridges from providing adequate escape protection.

6. For respirators with combination cartridges (chemical cartridges with filters): The limitations specified above for chemical cartridges as well as the applicable filter class apply for combination cartridges.

7. Applicable respirator use requirements as specified in the OSHA Respiratory Protection Regulation 29 CFR Part1910.134 (or other requirements established by the Regulatory Agency with jurisdiction over the wearer). Additional OSHA Regulations may also apply for certain contaminants (See MSA's *Response Respirator Selector*).

EXPOSURE LIMITS

A listing of acceptable exposure limits from the following sources is provided in MSA's *Response® Respirator Selecto*r:

— 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)

EXPOSURE LIMITS FOR MIXTURES

NIOSH allows this respirator to be used for protection against a mixture of contaminants that are present simultaneously or used alternately against one contaminant then another (using the same cartridges or filters) if the mixture meets the following conditions:

a. The cartridge/filter must be approved for all contaminants present.

b. 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 from particulates with appropriate filter).

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

First determine the total concentration of the chemical mixture (C Mixture) from the individual contaminant concentrations (C1, C2, C3...) using the following formula:

$$C_{Mixture} = C1+C2+C3+\ldots$$

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 Mixture).

$$T_{Mixture} = \frac{C_{Mixture}}{\frac{C1}{T1} + \frac{C2}{T2} + \frac{C3}{T3} +}$$

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.

RESPIRATOR FIT TEST

A qualitative or quantitative respirator fit test must be carried out for each wearer of this respirator to determine the amount of protection it will provide.

Respirator fit tests are explained fully in the *American National Standard for Respiratory Protectio*n, ANSI Z88.2, which is published by the American National Standards Institute, 11 West 42nd Street, New York, New York, 10036.

QUANTITATIVE TEST - If a Quantitative Fit Testis used, a fit factor that is at least 1000 shall be obtained before that respirator is assigned to an individual.

QUALITATIVE TEST - If a Qualitative Fit Test is used, only validated protocols are acceptable. The individual must pass a test designed to assess a fit factor of at least 1000.

Regardless of facial dimensions and respirator sizing charts, respirator fit testing, either qualitative or quantitative, must be performed to ensure the respirator selected provides an adequate fit.

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

GENERAL DESCRIPTION

The Advantage 3000 Respirator, Model 3200, 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 nosecup provided with facepiece is optional.

Twin-Port Version:

Small	-	10028995
Medium	-	10028996
Large	-	10028997

The Advantage 3000 Respirator, Model 3320, when equipped with the appropriate filter(s), becomes a complete air-purifying respiratory protective device.

PRINCIPLE OF OPERATION

The Advantage 3000 Respirator, Model 3200, must be used with appropriate filter(s) to provide respiratory protection. When the wearer inhales, the contaminated air is drawn through the air-purifying filter(s), which remove the hazardous vapors, gases and/or particulate matter, depending on the elements used. The inhalation valves open and the exhalation valve remains closed to prevent contaminated air from entering the facepiece. During exhalation, the exhalation valve opens and the inhalation valves close to prevent exhaled air from passing back through the air purifying elements. The exhalation valve permits exhaled air to exit from the respirator.

FILTER(S) / CARTRIDGE(S)

See separate insert for NIOSH Approval Information (P/N 10029528).

PREPARATIONS FOR USE

The following inspection points must be checked before donning the respirator. A respirator that fails the inspection must not be used. The respirator must be repaired or replaced.

1. Headbands: Check to see that the headbands still have their elasticity. Inspect for cracks or tears and make sure all buckles are in place and working properly.
2. Facepiece: Check facepiece for dirt, cracks, tears or holes. Inspect the shape of the facepiece for possible distortion that may occur from improper storage and make sure the rubber is flexible, not stiff.
3. Inhalation and exhalation valves: Check for cracks, tears, distortion, dirt or build-up of material between valve and valve seat.
4. Cartridge receptacle(s): Check to make sure gaskets are in place and check for cracks and damage to threads or bayonets.
5. Cartridges and/or filters: Make sure cartridges and filters are clean. Never try to clean a filter or cartridge by washing it or using compressed air. Inspect

cartridges for dents, scratches or other damage, particularly the sealing bead around the bottom.

ATTACHING FILTER CARTRIDGE

Advantage 3000, 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 facepiece connectors and then turning the cartridge clock-wise by hand until tight. Align the small lug on the connector with the match-mark located on the cartridge body. (See Replacing Cartridges.)

To attach particulate filters (P100, Flexi-Filter®, Pad, etc.) or pre-filters, place the filter over the outer surface of the cartridge and press into place.

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

DONNING THE RESPIRATOR

1. Loosen the two bottom harness straps. Grip the straps by inserting thumbs through the straps. (Figure 1) Insert chin well into the lower part of facepiece, then pull the harness back over head. (Figure 2)

Figure 1

Figure 2

2. Pull the back of harness downward toward the neck until centered at the back of your head. (Figure 3) 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.

Figure 3

Figure 4

3. Tighten the two neck-straps so that the mask is snug against face. (Figure 4) Make sure the back of the harness is centered on the back of the head. 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.

4. 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.

Figure 5

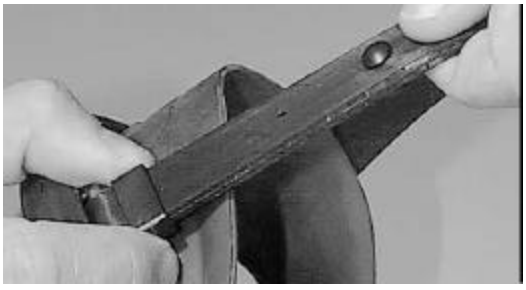

Figure 6

To adjust top straps:

- Remove the strap from the button by pulling the loose end of the strap away from the button.
- 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. (Figure 5)
- Smooth the straps so that they are flat. Move the slide so that it is located at the lens ring connection. (Figure 6)

TEST FOR TIGHTNESS BEFORE EACH USE

The respirator must be subjected to the Tightness Test before each use by one of the following Methods:

Negative Pressure Method — Place your palms over the cartridges lightly. Gently inhale so that the facepiece collapses slightly and hold your breath. The facepiece will remain collapsed while the breath is held unless there is a leak in the seal.

Positive Pressure Method — Place your palm over the exhalation valve cover lightly. Gently exhale so that a slight positive pressure builds up inside the respirator and hold your breath. The positive pressure will remain while the breath is held unless there is a leak in the seal.

If any leakage is detected around the facial seal, readjust head harness straps and repeat the test until there is no leakage. If other than facial seal leakage is detected, investigate and correct the condition before testing again. The respirator must pass one of the tightness tests above before the respirator is used. The respirator will not furnish protection unless all inhaled air is drawn through suitable cartridges.

WARNING
Do not enter any atmosphere with this respirator unless you know that:

1. **You have read, understood and followed all instructions and warnings pertaining to the respirator.**
2. **The respirator and conditions meet the requirements outlined.**
3. **The cartridges are the proper type for the contaminant or contaminants present.**
4. **The amount of oxygen is sufficient to support life (that is, at least 19.5 percent oxygen by volume at sea level). Do not use if an oxygen concentration sufficient to support life is questionable.**
5. **Respirator does not leak (see Test for Tightness).**
6. **Cartridges do not need to be replaced. Discard exhausted cartridges.**
7. **You are not color blind and can distinguish between the beginning and ending colors of the service life indicator (when using the Mersorb-P100 respirators only).**

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

REMOVING THE RESPIRATOR

1. Return to an uncontaminated area before removing the respirator. Check that the respirator and your clothing are free from contaminant before removing the respirator.

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.

To replace twin-port cartridges:

1. Remove the expended cartridges and dispose of properly.
2. Remove the replacement cartridges from storage bags.
3. Place cartridges on connectors (bayonets) carefully. Line up match-mark on cartridge with small lug on the connector (on facepiece). Make sure cartridge connector lugs align with the cartridge opening. Push down and tighten cartridge clockwise until the stops are engaged. To ensure a good seal against the facepiece, tighten each cartridge by gripping as much of the circumference of the cartridge as possible and then slowly turning the cartridge until tight.

To replace filters:

1. Remove the filter covers and dispose of filters properly.
2. Place a new filter in each filter cover. Never load filters into the receptacles.
3. Replace filter covers taking care not to damage the filters.

CLEANING AND DISINFECTING

Respirators should be cleaned and disinfected after each use. MSA recommends using Confidence Plus™ Cleaning Solution. 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.

CAUTION
Alcohol should not be used as a germicide because it may deteriorate rubber parts.

1. Preparing the cleaner.
   a. Follow the instructions with the Confidence Plus™ Cleaning Solution

b. If the Confidence Plus™ Cleaning Solution is not used, prepare in accordance with the instructions provided with cleaning products.

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

CAUTION
Do not force-dry the parts by placing them in a heater or direct sunlight. This will cause the rubber to deteriorate.

2. If the facepiece is to be cleaned, remove the cartridges. The facepiece should be cleaned and disinfected after every use with MSA Confidence Plus® Cleaning Solution (P/N 10009971). Rinse thoroughly in plain warm water (110ºF to avoid possible overheating and distortion of parts) and then air dry. ANSI suggests that users should be trained in cleaning procedure.

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

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. Refer to the Preparations for Donning section for proper inspection of the respirator. 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 Housing Cover at the bottom, lift out and up on cover by using bottom cover tab, disengaging Housing Tab.
2. Slide cover up to remove cover from top tabs of Housing.
3. Install Component Housing cover, insert the top tab of Housing into the top slot of cover, press the bottom of cover down over the bottom tab of Housing until it snaps into place.

Component Housing Disassembly

Twin Port Disassembly

- To remove the Housing from the facepiece, remove the Housing Cover and Nosecup (if used).
- Insert thumbs into the notches on either side of “U” Retainer and slightly spread outward to disengage the Retainer. Slide "U" Retainer down to notches in Retainer, lift the Retainer up to remove it from the Housing.
- To remove the Housing from the facepiece, push in on the bottom of Housing pushing Housing into the facepiece.
- Remove Housing from the inside of the facepiece.
- To remove the O-ring, using your fingers, press in firmly on both sides of O-ring, slide fingers up the O-ring, grasp O-ring and roll O-ring out of 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.

- To remove the Nosecup (if used) from the Housing, grasp the Nosecup and pull to disengage it from the Housing.
- To remove the Exhalation Valve from the Housing, **gently** pull one edge out of the center hole of the exhalation port.
- To remove the Inhalation Valves, **gently** pull one edge and lift it off the post on the **inside** of the Lens bayonet connector.
- Remove the bayonet connector gaskets by stretching the gasket slightly and lifting it off the bayonet connector.

Component Housing Reassembly

Twin-Port Housing

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

- To replace the Exhalation Valve on the Housing, line-up the hole in the valve with the hole in the exhalation port and press the valve arrow into Housing hole on the boss sides. When fully installed, the center of the valve will rest flat against the Housing boss. Lift the valve to ensure that it is fully seated on the boss.

- 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.

- Reinstall the O-ring, place O-ring into groove of the Component Housing, run finger along O-ring to ensure O-ring is sealed in Component Housing groove.

Note: The Component Housing is installed from the inside of the facepiece.

- Reinstall the Component Housing in the facepiece: Insert the Housing from the inside of the facepiece, slide the large tab on the top of the Housing into the matching notch on the outsdie of the Lens. When the tab is inserted into the notch on the outside, press the 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.

- Holding the Housing in place, place the Retainer "U" into its notches (flat side down), then push the base of the Retainer up to snap it in place. Press on the Housing to be sure it is firmly engaged in the Lens.

- 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, then press the lip in place until it completely "captures" the flange.

- Reattach the Component Housing Cover by inserting the top tab into the slot in the cover, then pressing 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

Twin-Port

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

Bayonet Gaskets

a. Remove the bayonet connector gaskets by stretching the gasket slightly and lifting it off the bayonet connector.
b. Replace the bayonet connector gaskets by stretching the gaskets slightly and lifting them over the bayonet connectors.

Lens Rings

a. Using a Philips screwdriver, unthread and remove the two screws which secure the lens rings.
b. Separate the lens rings.
c. 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.

1. 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.
2. Stretch the blank enough to insert the bottom of the lens into the blank, then guide the lens into the blank groove all the way around the lens. Make sure the lens is fully captured in the blank groove.
3. 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.
4. Guide the bottom lens ring over the outside of the bottom facepiece blank lens groove.
5. Work the lens rings down on to the facepiece blank to line-up the threaded ends as close as possible without bending the lens.
6. Install one Philips screw in the top lens ring mounting flange and screw it about half-way into the opposite lens ring flange.
7. Install the remaining Philips screw in the other lens ring mounting flange and screw it about half way into the opposite lens ring flange.
8. Alternate tightening the screws until the lens is secure.

9. Reinstall the Component Housing parts as described above.
10. Don the facepiece and perform the Tightness Test to be sure the facepiece seals correctly and is leak-tight.

Harness Straps Disassembly

Top Straps:

Unbutton the Top Straps, slide straps back through retainer, pull top straps through slot in Lens Rings.

Bottom Straps:

Unthread both bottom straps through buckles.

Buckles:

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

Harness Straps Reassembly

- 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.
- Grasp one top strap and fold the end-tab in half. From the "face" side of the facepiece, insert the end-tab under the slot in Lens Ring, thread the end-tabs up through the Lens Ring slots and pull strap through several inches.

To attach the bottom straps to the bottom, detachable buckles:

- Place the buckle's button-hole over the button then grasp a facepiece tab and buckle in each hand and pull them apart until the button snaps into the buttonhole.
- 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).

- Thread end-tabs with boss facing up, through the bottom slot of buckles, then over center bar, down through top slot of buckles. Pull straps through buckles.
- Don the facepiece and perform the Tightness Test.

Advantage 3000 Spare Parts List

Part Number	Title	Contains
10030785	Lens Ring Kit, Advantage 3000	1 Upper lens ring, 1 Lower lens ring and 2 Screws in a bag with label
10025282	Lens, Single Port	Single port Lens
10030786	Lens, Dual Port, Replacement, Advantage 3000	Twin/Dual lens assembled with bayonets & gaskets in a bag with label
10030787	Gasket, Dual Port, 10 per bag, Advantage 3000	10 of 10018496 Gaskets in a bag with a label
10030788	Valve, Inhalation, 10 per container, Advantage 3000	10 of 10030061 Inhalation Valves in a container or bag with a label
10030789	Valve, Exhalation, 5 per container, Advantage 3000	5 of 10030061 Inhalation Valves in a container with a label
10025292	Spider Gasket	1 Spider Gasket
10025297	O-ring	1 O-ring
10025291	Cover	Component housing cover
10030790	Dual Port Housing Kit, Replacement, Advantage 3000	1 Dual Port Housing, 1 O-ring and 1 Retainer Clip in a bag with label
10030791	Single Port Housing Kit, Replacement, Advantage 3000	1 Single Port Housing, 1 O-ring and 1 Retainer Clip in a bag with label
10030792	Nose Cup, Medium/Large, Replacement, Advantage 3000	1 Medium/Large Nose Cup 10025293 in a container with label
10030793	Nose Cup, Small, Replacement, Advantage 3000	1 Small Nose Cup 10025294 in a container with label
10030794	Harness, Classic, Rubber, Complete Replacement, Advantage 3000	1 Rubber Harness 10025286 assembled with 2 Buckles, 2 Slides, and 4 Buttons in a bag with a label
10030795	Button, Classic Rubber Harness, 12 Per, Replacement, Advantage 3000	12 of 10025288, Button, in a bag with a label
10030796	Buckle, Classic Rubber Harness, 6 Per, Replacement, Advantage 3000	6 of 10025287, Buckle, in a bag with a label
10030797	Slide, Classic Rubber Harness, 10 Per, Replacement, Advantage 3000	10 of 10029406, Slide, in a bag with a label
10030798	Harness, Advantage, Plastic, Replacement, Advantage 3000	1 Advantage Harness Plate 10027775 assembled with 2 Buttons 10025288, 2 Buckles 2091001, 1 Right Adapter 10028302, 1 Left Adapter 10027774, 2 Metal Slides (need P/N from Klaus), 1 Temple Strap 10027771 and1 Neck Strap 10027772 in a bag with a label
10029298	Spectacle Kit	1 Spectacle Kit