

Custom Air[®] V

5-Minute Escape Apparatus

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 THIS 5-MINUTE ESCAPE APPARATUS. THIS 5-MINUTE ESCAPE APPARATUS WILL PERFORM AS DESIGNED ONLY IF USED AND SERVICED 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.

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

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



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INTRODUCTION

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NIOSH APPROVAL INFORMATION CAUTIONS AND LIMITATIONS

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

Approved for use at temperatures above 0°F. Approved only when the compressed-air container is fully charged with air meeting the requirements of the Compressed Gas Association Specification G-7 for quality verification level (grade) D air or equivalent specifications. The cylinder shall meet applicable DOT specifications.

Use with adequate skin protection when worn in gases and vapors that poison by skin absorption (for example: hydrocyanic-acid gas).

In making renewals or repairs, parts identical with those furnished by the manufacturer under the pertinent approval shall be maintained.

OSHA regulations (29 CFR, Part 1910.134) require that the user establish a maintenance program. This program must include cleaning and sanitizing, component inspection, and replacement of worn or damaged parts. See the parts list for correct replacement part numbers.

NIOSH Approval Information is included as a supplement to these instructions (P/N 10049446).

IMPORTANT NOTICE FOR RESPIRATORY PROTECTION PROGRAM ADMINISTRATORS

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. See OSHA regulations, [Title 29 CFR, Part 1910. 134, (b) (1).].
2. This 5-Minute Escape Apparatus may be used only after proper instruction and training in its use as specified in NFPA-1500 and OSHA regulations [Title 29 CFR, Part 1910. 134, (b) (3)].
3. 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 trying to use or service this product. We encourage our customers to write or call for information on this product before using it.
4. This respirator may be worn for escape only from atmospheres which are immediately dangerous to life or health as defined in Title 42 CFR, Part 84, or from which the wearer cannot escape without the aid of a respirator. Under no circumstances should the respirator be used as an underwater device.
5. Do not mark the 5-Minute Escape Apparatus, i.e., with stamps, labels, paint or other method. Use of such markings may interfere with apparatus use or may constitute a flammability hazard.
6. Be sure that no other equipment interferes with the Hood's neck band seal, or with the user's hands, or other necessary means of mobility.
7. Do not alter, modify, or substitute any components without the approval of the manufacturer. Alterations will void the NIOSH approval.
8. Inspect the respirator regularly and maintain it according to the manufacturer's instructions. Repairs must only be made by properly trained personnel.

For more information on self-contained breathing apparatus use and performance standards, please consult the following publications:

ANSI Standard Z88. 2, Practices for Respiratory Protection. American National Standards Institute, 1430 Broadway, New York, NY 10018.

INTRODUCTION

OSHA Safety and Health Standards (29 CFR 1910) (see specifically Part 1910. 134), available from the Superintendent of Documents, U. S. Government Printing Office, Washington, DC 20402.

Compressed Gas Association, Inc., 1725 Jefferson Davis Hwy., Suite 1004, Arlington, VA 22202.

WARNING

1. Read and observe all NIOSH and other approval limitations as they apply to using the breathing apparatus.
2. Do not use this 5-Minute Escape Apparatus as an underwater device.
3. This system must be supplied with respirable [Quality Verification Level (Grade) D, see ANSI/CGA G-7.1] or higher quality air; and a dew point not to exceed -65°F (24ppm v/v) [Compressed Gas Association Specification G-7.1 for Quality Verification Level (Grade) D Gaseous Air].

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

DESCRIPTION

GENERAL DESCRIPTION

The 5-Minute Escape Apparatus from MSA is approved by the National Institute for Occupational Safety and Health (NIOSH) for use as an escape device from hazardous atmospheres, including those which are immediately dangerous to life or health (IDLH). An IDLH atmosphere is defined as:

“conditions that pose an immediate threat to life or health or conditions that pose an immediate threat of severe exposure to contaminants, such as radioactive materials, which are likely to have adverse cumulative or delayed effects on health”. [Title 42 CFR, Part 84, Subpart A, par. 84.2(g)].

The 5-Minute Escape apparatus consists of a carrier containing a loose-fitting hood, a flow-control regulator and hose assembly, and an air cylinder and valve assembly. The air cylinder contains a 5-minute supply of air at a FULL pressure of 3000 psig.

The 5-Minute Escape Apparatus can be worn on the chest, hip or waist, and may be carried into or stored in an area that may be potentially hazardous. The hood is designed to be a reservoir of breathing air. It is not designed to provide splash protection or withstand exposure to direct flame or high heat.

There is an important difference between this 5-Minute Escape Apparatus respirator and pressure-demand self-contained breathing apparatus (SCBA). The service time of thirty- and sixty-minute SCBA may vary, because air flows to a tightfitting facepiece, and the service time depends greatly on the user’s breathing rate. With a 5-Minute Escape Apparatus, air flows to a hood constantly, and at a constant rate, whether the user inhales or exhales. This means that the cylinder will be empty after 5 minutes. Therefore, MSA recommends that the escape route be checked in advance to ensure that users will have an adequate supply of air.

There are significant differences between ESCAPE apparatus (like the Custom Air V) and self-contained breathing apparatus (SCBA).

5-Minute Escape Apparatus	SCBA
Air flows from cylinder to hood constantly until the cylinder is empty (5 minutes).	Air flows from cylinder to facepiece following user’s breathing rate (30 min. to 60 min.).
No audible alarm when cylinder is nearly empty.	Audible alarm warns user that cylinder is nearly empty.
Loose-fitting hood	Tight-fitting pressure demand facepiece. Service time: 30 to 60 minutes (depends on model).

Comparison: 5-Minute Escape Apparatus vs. Self-Contained Breathing Apparatus (SCBA)

DONNING

BEFORE USE

Thoroughly inspect this 5-Minute Escape Apparatus on receipt and before use.

Check the air cylinder to be sure it is FULL. The pressure gauge should read 3000 psig. at 70°F.

This Escape Apparatus is to be used only by trained and qualified personnel.

Read and understand these instructions before attempting to use this equipment. If you have any questions, call toll free 1-800-MSA-2222.

DONNING THE 5-MINUTE ESCAPE APPARATUS.

Note: The cylinder may be worn three ways:

Chest-Mounted

Hip-Mounted

Waist-Mounted

DONNING CYLINDER AND CARRIER

Chest-Mounted:

1. Check that the strap hook is attached to the bottom D-ring.
2. Adjust the carrier strap to fit comfortably over your head.



3. Slip the strap over your head so that it rests on the back of your neck.

Hip-Mounted:

1. Adjust the carrier strap so that it is fully extended.
2. Attach the strap hook to the top D-ring.



3. Slip one arm into the strap. Place the strap over your head and rest it on your shoulder.

Waist-Mounted (using the optional shoulder strap):

1. Attach the shoulder strap to the top D-rings.



2. Remove the carrier strap from the D-ring and adjust the strap to its full length.



3. Don the shoulder strap. Pull the adjusting strap for a snug, comfortable fit.

4. Attach the carrier strap hook to the D-ring.



5. Adjust the strap to your waist size.



DONNING

DONNING THE HOOD

1. Pull the hook-and-loop strip and fold the pouch cover out of the way.



2. Open the cylinder valve all the way (1-1/2 full turns counter-clockwise).

3. Pull the hood from the pouch and listen for the sound of air rushing inside the hood.



4. Stretch the neck band with both hands and pull the hood over your head so that the regulator hose is at the front.

5. Make sure there is nothing (such as clothing or hair) between the neck band and your neck to prevent a good seal.
6. Immediately exit to a safe atmosphere.

⚠ WARNING

This apparatus is designed to supply air for no more than five minutes. Do not remain in the hazardous atmosphere. Leave immediately and return to a safe atmosphere. Remove the hood when air flow stops. The rushing sound will stop, and the hood will begin to collapse around your head. Failure to follow this precaution may result in severe personal injury or death by suffocation.

REMOVING THE 5-MINUTE ESCAPE APPARATUS.

To Remove the Hood

1. Stretch the neck band with both hands and pull the hood up over your head.



2. Close the cylinder valve.
3. Remove the shoulder strap (and waist strap if used).

CLEANING AND DISINFECTING

CLEANING AND DISINFECTING

Depending on the cleaning policy adopted, either a designated person or the user should clean each device after each use. ANSI standards suggest that users should be trained in the cleaning procedure.

Confidence Plus® Cleaning Solution (P/N 10009971) from MSA is recommended. It 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 label for user instructions.

⚠ CAUTION

DO NOT use any cleaning substances that can or might attack any part of the apparatus.

⚠ CAUTION

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

⚠ CAUTION

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

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. Cleaning and Disinfecting the entire apparatus.

⚠ WARNING

Inspect the apparatus after it has been cleaned and sanitized. Be careful that you do not breathe or touch the contaminant in handling the apparatus or its parts. Use equipment designed to protect you from the specific contaminant. Failure to follow this precaution may result in exposure to the contaminant, and cause severe personal injury or death.

- a. Make sure that the cylinder valve is fully closed.
- b. Remove excess contaminant from the apparatus.

- c. Unscrew the hose nut and pull the hose fitting out of the hood inlet.



- d. Remove the muffler from the hood.

- e. Unscrew and remove the pressure regulator from the cylinder valve.



- f. Pull the two hook-and-loop strips to open the cylinder carrier and remove the air cylinder.
- g. Submerge the hood and carrier in the cleaning solution and scrub gently until they are clean.
- h. Rinse both hood and carrier thoroughly in clean, warm (110°F) water (preferably running and drained).
- i. Allow parts to air dry. Do not dry the parts by placing them near a heater or in direct sunlight. The rubber will deteriorate.
- j. Use a damp cloth or sponge to wipe the muffler, muffler cover, diffuser, hood hose, pressure regulator, cylinder valve, and air cylinder clean.

INSPECTION

COMPONENT INSPECTION (AFTER EACH USE AND MONTHLY)

Inspect the Hood:

1. Look for tears, holes, cuts, and abrasions.



2. Check the hood to be sure you can see clearly through it.
3. Check the elastic neck band for breaks. Stretch and release it. The neck band must spring back easily.

Check the hood inlet:

1. Check that no parts are broken or missing.
2. The cover must be intact and the diffuser and muffler must be in place.

WARNING

Do not use the apparatus if any parts are damaged or missing. The apparatus is used to sustain life in hazardous atmospheres. Failure to follow this precaution may result in severe personal injury or death.

Inspect the Regulator and Hose:

1. Look for cuts, cracks, or other damage.



2. Check to be sure there is an O-ring on the regulator inlet.

3. Check to be sure there is an O-ring on the nipple on the hood end of the hose.



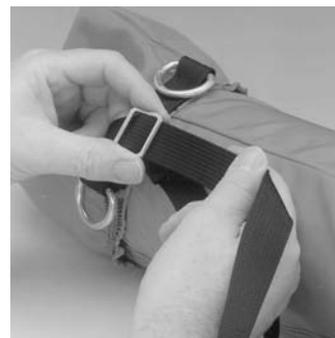
Inspect the Carrier (and Optional Shoulder Strap, if provided)

1. Look for tears, cuts, and abrasions.

Inspect the straps and strap hardware:

1. All D-rings and the strap hooks must be present and undamaged.

2. Check that the adjusting buckle slides easily, allowing full adjustment of the strap.



Inspection of the Cylinder

Note: Refer to the Charging Cylinder section for proper procedures.

Inspect the cylinder valve:

1. Look for broken or bent parts on the handwheel and pressure gauge.
2. Open and close the valve to be sure it works properly.

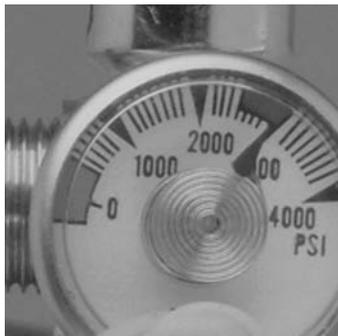
Inspect the pressure gauge:

1. The lens must not be cracked or broken.
2. The gauge face must be visible without distortion.
3. The gauge needle must operate.

INSPECTION

Inspection cylinder

1. Check the cylinder. It must be full (gauge reads 3000 psig).



Reassembling the Escape Mask:

1. Check to be sure there is an O-ring in the regulator inlet. Thread the pressure regulator on to the cylinder valve and tighten with a suitable wrench.



2. Place a full air cylinder in the carrier and close the hook-and-loop strips. Refer to the Changing Cylinder Section for proper procedures.

3. Install the muffler, diffuser and muffler cover in the hood.



4. Check to be sure there is an O-ring on the hood hose nipple.



5. Thread the hose nut on the hood inlet and handtighten only.



6. Crack the cylinder valve for a few seconds to make sure air flows to the hood. Close the valve tightly.

7. Slide the hose into the pocket. Fold the hood and slip it into the pocket also. Close the hook and loop strip on the pocket.



8. Place the apparatus in its location, ready for use.

CHARGING CYLINDERS

⚠ WARNING

1. Remove from service if cylinder shows evidence of exposure to high heat or flame: e.g., paint turned to a brown or black color, decals charred or missing, gauge lens melted or elastomeric materials distorted.
2. Use this device only after receiving proper training in its use. Use in accordance with this label and MSA apparatus instructions.
3. To maintain NIOSH approval, container must be fully charged with respirable air meeting the requirements of the Compressed Gas Association specification G-7.1 1 for Quality Verification Level (grade) D air or equivalent specification.
4. Do not use unless the cylinder is filled to the full pressure approved.
5. Do not alter, modify or substitute any components without approval of the manufacturer.
6. Inspect frequently. Maintain according to manufacturer's instructions. Repair only by properly trained personnel.

Failure to comply with these warnings can result in serious personal injury or death.

INSPECTION

SAFETY PRECAUTIONS FOR MSA SELF-CONTAINED BREATHING APPARATUS CYLINDERS

Breathing apparatus cylinders should be fully recharged as soon as practicable after use. Cylinders should not be stored partially charged for two reasons:

1. If used partially charged, the duration of the apparatus is reduced.
2. The pressure relief device is only designed to protect a fully charged cylinder from the effects of a fire. If the cylinder is not full, it may be damaged before the burst disc vents.

For maximum safety, the cylinders should be stored full or at a pressure above ambient but less than 100 psig. Prior to recharged, cylinders must be examined externally for evidence of high heat exposure, corrosion, or other evidence of significant damage.

Additional information of value when performing external and internal inspections of cylinders may be found in the latest editions of CGA Publication C-6: "Standards for Visual Inspection of Steel Compressed Gas Cylinders", CGA Publication C-6.1: "Standards for Visual Inspection of High Pressure Aluminum Compressed Gas Cylinders", and/or CGA Publication C-6.2: "Guidelines for Visual inspection and Requalification of Fiber Reinforced High Pressure Cylinders" available from the Compressed Gas Association, Inc., 1725 Jefferson Davis Highway, Suite 1004, Arlington, VA 22202-4102.

If there is any doubt about the suitability of the cylinder for recharge, it should be returned to a certified hydrostatic test facility for expert examination and testing.

Always check to be sure the retest date is within the prescribed period and that the cylinder is properly labeled to indicate its gaseous service.

New labels are restricted items which are not available except through certified hydrostatic test facilities. When replacing cylinder valves or after the retesting of cylinders, make sure the proper cylinder valve, burst disc and O-ring are installed prior to cylinder recharging. Establish the service pressure of the cylinder. All cylinders

shall be filled to the designated service pressure only (as found on the DOT approval or stamping). For cylinders manufactured under a U.S. DOT exemption (i.e., DOT-E-10915), the exemption should be consulted and is available from the Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, U.S. Department of Transportation, 400 7th Street, SW, Washington, D.C. 20590-0001.

Appropriately connect the cylinder to the filling system and refill. Terminate the filling when the pressure reaches the service pressure and allow the cylinder to cool to room temperature. If necessary, top-off the cylinder such that the service pressure is attained with the cylinder at a temperature of 70°F. Close the valves on the cylinder and the filling system and remove the cylinder. Apply a leak solution to determine if there is any leakage between the cylinder and the valve. If there is no leakage, the cylinder is ready for use.

STORAGE

Do not store the apparatus or spare cylinders within or near an area where the apparatus can or might be exposed to any substances that will or might attack any part of the apparatus, causing the apparatus NOT to perform as designed and approved.

WARNING

Be careful not to drop cylinder or bump valve knob. An unsecured cylinder can become an airborne projectile under its own pressure if the valve is opened even slightly.

Follow Inspection and Cleaning and Disinfecting Procedures outlined in this manual. Ensure the complete apparatus is clean and dry. Place the complete apparatus in the storage case or suitable storage location so it can be easily reached for emergency use. Store units in a cool, dry place.

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