

# Port Aire™

## Portable Air-Supply System for Pressure Demand Apparatus

part no.  
807052

### instructions

These instructions are intended to supplement the instructions supplied with the respirator to be used.

#### **WARNING**

This manual, including the Warnings and Cautions inside, must be read and followed carefully by all persons who will have or maintain the product, including those who have any responsibility involving its selection, application, service, or repair. This product 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.

Do not disassemble the unit. All repairs must be made by a trained Level II or certified Level III repairperson.

The warranties made by MSA with respect to the product are voided if the product is not installed, used, and serviced according to the instructions in this manual.

We encourage our customers to write or call for a demonstration of this equipment before use, or for any additional information relative to use or repairs. Call 1-800-MSA-2222 during regular working hours, or 1-800-MSA-5555 after working hours or during emergencies.

Manufactured by



MINE SAFETY APPLIANCES COMPANY  
PITTSBURGH, PENNSYLVANIA, U.S.A. 15230

## DESCRIPTION

The Port-Aire unit is a portable breathing-air supply system for pressure demand respirators. The Port-Aire system can supply a maximum of two users. It may be used with either low pressure (2216 psig) or high pressure (4500 psig) cylinders. A Quick-Fill™ accessory kit also is available to let the user refill cylinders quickly, or connect to a cascade system or high pressure compressor. An audible alarm warns users that a cylinder's pressure has dropped to 500 psig. When the alarm sounds, the second cylinder is opened while the depleted cylinder is refilled or replaced. See Operation for procedures.

The Port-Aire unit, less cylinders and air-supply hose, weighs 27 pounds. When equipped with two composite low pressure cylinders, the unit weighs 53 pounds, less air-supply hose. When equipped with two high pressure cylinders, the unit weighs 75 pounds, less air-supply hose. Each 50 foot section of neoprene hose adds about 11 pounds. In selecting air-supply hose, follow the instructions supplied with the respirator. They specify the size and length of air-supply hose, inlet pressure, as well as the number of sections permissible. The low pressure manifold is equipped with two male hose fittings.

The portable air-supply system has a handle in the center of each end for two people to carry the unit. If one person is to carry the Port-Aire, there are handles on each side, as well as on top of the unit.

A rubber strap (included) attaches quickly to a two-wheel dolly, and secures the top of the unit firmly to the dolly. This method should be used to carry the unit over rough terrain or up and down stairs.

The hose deck has convenient storage for two 50 foot lengths of air-supply hose. The hose is held tightly to the deck by four rubber straps, one at each corner of the deck and hooked at the center post.

The frame is convenient for dragging the unit as a sled. MSA recommends using the unit with the frame horizontal. However, if required, and secured with the rubber straps provided, the unit can be used in a vertical position.

## OPERATION

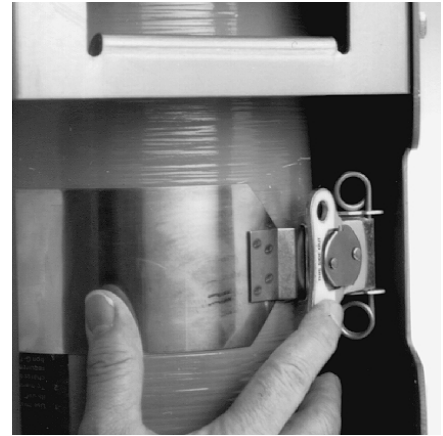
1. Place the Port-Aire portable air-supply system in a secure position.
2. Remove the rubber retainer straps from the center of the hose coil. Unwrap the air-supply hose from the hose deck. Let the straps hang down the sides.
3. Stretch the air-supply hose out as required.
4. Add additional hose if required. Follow the instructions supplied with the respirator.
5. Be sure to tighten all connections and leak-test, following the instructions supplied with the respirator.
6. Check the pressure reading on the cylinder gauges. The needles should be on the full mark. If not, install fully-charged cylinders before you use the portable air-supply system. Remember, a pressure reading lower than full will reduce service time.
7. Check that the lock tabs on the deck are fully engaged in the appropriate cylinder band slot positions.



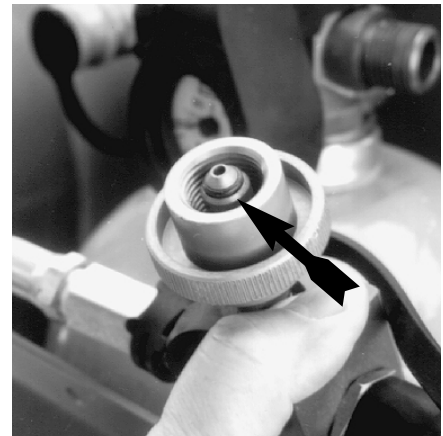
8. Slide a fully-charged cylinder into each band. The pressure gauges should face you.



9. Turn the latch wings clockwise to lock the cylinders in place. The ratchet mechanism will "click" as you turn the wing. Flip each latch wing over so that the side with the retro-reflective label marked "THIS SIDE OUT" faces out.



10. Place one hand on the "top" handle. Grasp each cylinder below the neck with the other hand. Try to pull the cylinder and valve assembly away from the deck to be sure the cylinder is secure in the band clamp.
11. Check that there is an o-ring inside each coupling nut. If the o-ring is damaged it must be replaced before the alarm is used.



12. Thread the coupling nuts on the cylinder valves and hand-tighten.

13. Make sure that the bleed valve is closed.



14. The portable air-supply system is now ready for service.
15. Open one cylinder valve fully to start the flow of air to the respirator(s). The Audi-Larm must ring briefly to indicate that it is cocked.
16. Check the low pressure manifold pressure gauge to assure that the air-supply hose inlet gauge receives the required pressure (the regulator is factory-set).



**⚠ WARNING**

**Do not try to adjust the regulator. Tampering may cause the regulator to fail to operate, resulting in serious personal injury, or death.**

17. The user is now ready to don the respirator and attach it to the air-supply hose. Follow the instructions supplied with the respirator to connect to an air-supply hose.
18. When the Audi-Larm bell rings, open the cylinder valve on the second cylinder.

**NOTE**

Cylinder life depends on many factors, such as how hard the user is working, the user's physical condition, the size of the cylinder, cylinder starting pressure, the condition of the respirator(s), and demand by the user or users (a maximum of two people).

The audible alarm sounds a continuous, loud warning for about four to six minutes when the cylinder pressure reaches about 500 psig.

MSA cylinders are rated at 30 or 60 minutes, as follows:

Type	Capacity Cubic Ft.	Pressure Psig	Service Minutes
Composite	45	4500	30
Composite	88	4500	60
Composite II	45	2216	30
Steel	45	2216	30

**⚠ CAUTION**

**If two people are connected to the air supply the rated service life may be cut as much as half.**

19. Close the valve on the first cylinder. Refer to sections on Cylinder Transfilling or Cylinder Replacement.

**⚠ WARNING**

**Contaminants can enter an air-line respirator system when air-supply hoses are disconnected and/or reconnected in a contaminated atmosphere. The user must determine the potential risk and take the necessary precautions, which may require that no disconnection or reconnection of air-supply hoses is permitted in a contaminated atmosphere. If in doubt, do not disconnect and/or reconnect. Failure to follow this precaution may result in serious personal injury or death.**

**CYLINDER REPLACEMENT**

1. Make sure the handwheel on the cylinder to be removed is FULLY closed (clockwise).

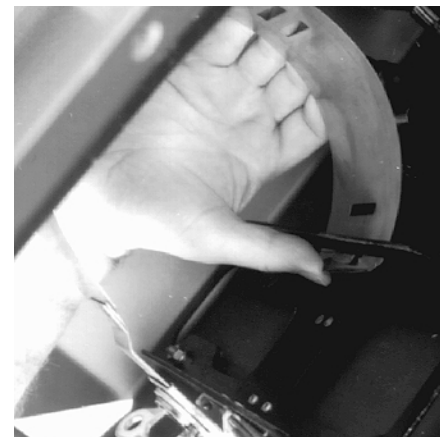
**⚠ WARNING**

**Do not disconnect the cylinder coupling nut when pressure is on the fitting. Close the cylinder valve fully (counter-clockwise). Release all pressure from the system by opening the bleed valve. Removing the coupling nut with the system pressurized may result in serious personal injury, death, or damage to equipment.**

2. Open the bleed valve and vent any pressure in the connector.



3. Unthread the Audi-Larm coupling nut (counter-clockwise) to disconnect the high pressure hose from the cylinder.
4. Lift and turn the latch wing to loosen the cylinder band.
5. Slide the cylinder up and out.
6. It is important that the stainless steel lock tab on the deck be fully engaged in the appropriate cylinder band slot position.



7. Slide a fully-charged cylinder into the band. The pressure gauge should face you.

- Turn the latch wing clockwise to lock the cylinder in place. The ratchet mechanism will “click” as you turn the wing. Flip the latch wing over so that the side with the retro-reflective label marked “THIS SIDE OUT” faces out.



- Place one hand on the “top” handle. Grasp the cylinder below the neck with the other hand. Try to pull the cylinder and valve assembly away from the deck to be sure the cylinder is secure in the band clamp.
- Check that there is an o-ring inside the Audi-Larm coupling nut. If the o-ring is damaged it must be replaced before the alarm is used.
- Thread the coupling nut on the cylinder valve and hand-tighten.

### ⚠ CAUTION

**Do not use tools to tighten the coupling nut. It is designed to be hand-tightened. Failure to follow this caution may result in damage to the coupling nut or the cylinder valve.**

- Make sure that the bleed valve is closed.
- The cylinder is now ready for service.

### PROCEDURES TO INSTALL THE QUICK-FILL KIT (P/N 807053)

The kit consists of:

2 Quick-Fill couplings	P/N 485070
2 O-rings	P/N 635068
2 Filters	P/N 485574
2 Dust covers	P/N 801164
1 Relief valve assembly	P/N 484892

- Close the cylinder valves.
- Open the bleed valves and make sure all pressure is expended.

- Remove the Quick-Fill port plugs using a 1” wrench.
- Install a Quick-Fill coupling in the open port of each cylinder valve connection by:
  - \* install o-ring on Quick-Fill couplings
  - \* apply a thin film of Krytox\* on the o-rings
  - \* insert filter into body making sure it is seated flat at the bottom of the body
  - \* install Quick-Fill coupling into body
  - \* using a 1” wrench, torque coupling to 70-75 Ft. Lbs.
- Install the dust covers.
- If the Port-Aire is equipped with 2216 psig cylinders, the relief valve must be installed in the high pressure manifold. Install the relief valve:
  - \* using a 3/4” wrench, remove the plug and o-ring from the high pressure manifold
  - \* apply a thin film of Krytox\* on the relief valve o-ring
  - \* using a 3/4” wrench, install the relief valve assembly in the open port and tighten to 120 ±20 inch pounds
- Test system for leaks using a leak test solution after pressurizing. Repair all leaks immediately.
- The system is now ready for use. Read and be sure you fully understand the instructions for operating the Quick-Fill System prior to use.
- See supplier for various lengths of MSA Quick-Fill hose assemblies available.

### ⚠ WARNING

**Do not attempt to repair any of the male or female Quick-Fill fittings, or the relief valve assembly supplied on MSA Air Masks.**

**If repairs are required on these components, contact your nearest MSA office toll-free at 1-800-MSA-2222.**

**Failure to follow this precaution may result in serious personal injury or death.**

### CYLINDER TRANSFILLING

The Port-Aire portable air-supply system requires a source of clean, respirable compressed air. The purity of the air source is the responsibility of the

user, and must meet the requirements of the Compressed Gas Association (CGA) Specification G-7.1-1989 for Quality Verification Level (Grade D) Breathable Air.

Port-Aire units equipped with the Quick-Fill kit P/N 807053 from MSA can be refilled with breathable air, or constantly supplied with a remote cascade. Follow the steps below.

### ⚠ WARNING

**The Quick-Fill kit is not permitted with 3000 psig cylinders. Do not fill any cylinder beyond its rated pressure. Failure to follow the procedures below can result in serious personal injury or death.**

**Do not use any transfilling hose assembly or fittings other than those supplied by MSA specifically for the Quick-Fill System. Use of any other transfilling hose assembly and/ or fitting may result in serious personal injury or death, and will void NIOSH/MSHA approval. Quick-Fill hose assemblies and fittings are rated for a maximum working pressure of 4500 psig.**

**Do not use the Quick-Fill System for applications other than transfilling fully-wound composite or steel air cylinders from MSA.**

**Do not lubricate the Quick-Fill fittings. Do not permit oil, grease, or other contaminants to come in contact with the Quick-Fill fittings. The Quick-Fill hose assemblies and fittings are designed to be used with Quality Verification Level (Grade D) or better air as defined by ANSI/CGA G-7.1.-1989.**

- Remove the rubber dust cap from the male inlet fitting on the empty cylinder.
- Remove the rubber dust cap from the female fitting on the Quick-Fill hose.
- Push the female fitting on the male fitting until it snaps in place. Pull on the hose to be sure the fitting snapped into place.

\*Krytox is a registered trademark of E.I. duPont De Nemours & Co.

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**⚠ CAUTION**

The hose assembly is now pressurized. If serious leakage is noticed from either of the two “female” fittings, or anywhere along the hose length, depressurize the hose assembly and correct the problem. Slight leakage from the unconnected “female” fitting is acceptable.

4. Open the cylinder valve on the Port-Aire unit.

**⚠ WARNING**

The cylinder contains air under extremely high pressure. Serious injury or death may result from damage or misuse!

Use this hose to transfill from a secondary air source to a Quick-Fill equipped SCBA manufactured by MSA only. Hose pressure must not exceed 4500 psi. Extreme care must be used when routing and securing hose to avoid hose from being damaged or severed which could result in severe injury to persons hit by the flailing hose. Carefully inspect hose before use. **DO NOT USE IF DAMAGED. Depressurize hose after use.**

5. Open the cylinder valve on the supply cascade cylinder or supply compressor.
6. When the Port-Aire cylinder is full (according to the calibrated pressure gauge on the supply compressor, cascade cylinder, or the FULL

mark on the Port-Aire cylinder), close the Port-Aire cylinder valve and disconnect the Quick-Fill supply hose. The hose fitting and the cylinder Quick-Fill fitting will separate. A hiss or pop may be heard as the fittings separate and the high pressure air is sealed off.

7. Immediately install the dust caps on the male cylinder fitting and on the female Quick-Fill supply hose fitting. The caps also serve as a redundant sealing feature, so always install them immediately after disconnecting.
8. The cylinder is now ready for service.

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