

USER'S MANUAL

AMBIENT AIR BREATHING APPARATUS (AABA) PUMPS

P/N 06-100



Read and understand all instructions before using this product.

**Open carton carefully and inspect product for damage caused by carrier.
If any damage is found, report and submit claim to carrier.**

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INTRODUCTION

This manual provides instructions for the use and maintenance of RPB RESPIRATORY Ambient Air Breathing Apparatus (AABA) Pumps. You must read and understand this manual and be trained in the proper use of the equipment before using it in a contaminated atmosphere.

There are many federal, state, and local codes and regulations governing sales, construction, installation, and/or use of products for certain purposes, which may vary. RPB RESPIRATORY cannot be held responsible for how the products are used and installed. Before purchase and use, the buyer must review the product application, and be sure that the product installation and use will comply with those regulations.

DESCRIPTION

RPB RESPIRATORY AABA pumps are designed to pump clean, breathable air from an ambient source to NIOSH approved Type C, Continuous Flow Supplied Air Respirators.

WARNINGS AND LIMITATIONS

CAUTION

NIOSH approved respirators and corresponding hose lengths must function at pressures generated by air pumps. Use only Type "C" (constant flow, low pressure) respirators with AABA pumps.

WARNING!

Exhaust filter DOES NOT remove dangerous organic vapors, gases, or particulate. DO NOT use this equipment if dangerous organic vapors, gases, or particulates are present.

WARNING!

Ambient air breathing pumps should only be used in areas containing sufficient oxygen to support life. Do not use where contaminants are Immediately Dangerous to Life and Health (IDLH).

SAFETY PRECAUTIONS

FOLLOW ALL WARNINGS AND CAUTIONS

ALL PUMPS:

DO NOT place oil-less air pump in an area that cannot GUARANTEE clean Grade D breathable air, per OSHA 29 CFR 1910.134 to the AABA inlet. See below for Grade D requirements.

DO NOT attempt to service the air pump while it is running or while it is connected to electrical or air power.

DO NOT oil or lubricate the pump.

DO NOT kink power cord and never allow the cord to come in contact with oil, grease, hot surfaces, or chemicals.

DO NOT use ungrounded electrical receptacles.

DO NOT use undersized electrical extension cords or wiring.

DO NOT use the pump as an air-filtering device for vapors, gases, or particulates.

DO NOT start pump without respirator(s) and hose(s) connected to pump.

DO NOT use Vortex type cooled respirators with RPB RESPIRATORY pumps.

DO check all airline hoses for weakness and wear before use.

DO Ensure that all hose and plumbing connections are secure.

DO Ensure that the power source conforms to the requirements of your equipment.

DO remove aluminum canister on exhaust filter assembly and check that exhaust filter is firmly seated in place before startup.

WARNING!

DO NOT run pump without attaching the breathing hose and respirator. Failure to do so may result in a "back pressure" causing damage and/or stalling the pump.

C.G.A. Grade-D Air Requirements

Oxygen	19.5 - 23.0 %
Hydrocarbons (condensed) in mg/m ³ of gas	5 mg/m ³ Max.
Carbon Monoxide	10 ppm Max.
Carbon Dioxide	1,000 ppm Max.
No toxic contaminants at levels which would make the air unsafe to breathe.	

USER'S INSTRUCTIONS

- 1) Ensure that the pump (or inlet extension filter) is in a clean uncontaminated air environment.
 - If clean air CANNOT be guaranteed at the pump inlet at all times, use the Inlet extension hose kit. See instructions on the Inlet extension kit below.
- 2) Ensure canister on the discharge filter assembly is firmly seated and secure before startup.
 - Discharge air passes through the HEPA outlet filter located inside the discharged filter assembly.
 - HEPA filter is NOT for use as protection against vapors and gases.
 - D.O.P. efficiency: 99.97% (0.3-0.6 micron particles)
- 3) Attach respirator/hood and air breathing hose to pump.
 - Check respirator/manufacturers' recommendation for inspection/operation procedures.
 - Never start pump without hose and respirator attached.
 - This may result in excessive back pressure that will lead to pump damage.
- 4) Ensure that air hoses are not tightly coiled or kinked.
 - This may cause some restriction of the air flow causing the pump to run at a higher PSI and overheat.
- 5) Plug the pump into proper electrical outlet and turn on the power switch.
- 6) Properly adjust pressure relief valve. (see instructions for PRV below)
 - Pumps are designed for multiple users and may require an adjustment to the pressure relief valve to fit the number of workers using the system.
- 7) Don the respirator as instructed per manufacturer user's instructions.
- 8) Ensure all users are receiving sufficient air to the respirator.
 - Use RPB RESPIRATORY "Flow test kit" to verify proper airflow (CFM) to the respirator.
 - Ambient air pump gauge indicates the dynamic air pressure (back pressure), NOT air volume.
- 9) Enter work/contaminated area.

PRESSURE RELIEF VALVE (RPV):

- 1) Before making any adjustments check with the respirator manufacturer for the required CFM to that specific respirator.
- 2) To adjust the relief valve, loosen the lock nut.
- 3) Turn the adjustment knob counterclockwise to "bleed-off" air.
 - This will decrease pump output to the respirators.
 - It is important to set the proper air flow to the respirator, too much air will over work the pump motor, causing it to overheat. Too little air will not provide sufficient air to the user.
- 4) Turn the adjustment knob clockwise to decrease air being bled off.
 - This will increase the pressure and air flow to respirators.
 - Care must be taken to ensure that the respirator and air hose are not disconnected while pump is running, when the PRV is set to this setting. Pump damage will occur.
- 5) Tighten lock nut.
 - PRV must be readjusted each time the number of users, respirator type or length of air hose is changed.

INLET EXTENSION KIT:

- 1) Locate the inlet filter where breathing air CANNOT be contaminated by harmful vapors, gases, or particulate and where it will be protected from excessive moisture.
 - o Inlet hose extensions may be used to increase distance from the inlet filter to the pump up to 250 feet.
 - o With the use of remote Inlet Extension Hose(s), noise level at the pump is greatly reduced.
 - o The noise will be transferred by the hose to wherever the Inlet Filter is located.
 - o Respirators must be supplied with clean breathable air at all times, per OSHA 29CFR 1910.134.
- 2) In order to achieve this requirement, it may be necessary to use the inlet extension to reach a clean air environment.
- 3) Remove the inlet filter assembly from the pump.
- 4) Install inlet extension hose to the pump inlet port, using the supplied reducers/ adapters.
- 5) Install the inlet filter assembly on the other end of the extension hose.
 - o The A300 pump will require an inlet filter assembly for use with the extension hose.
- 6) Place the extension hose in a clean, uncontaminated environment.

TOLERANCES AND WARNINGS

RPB RESPIRATORY ambient air pumps are precision pumps that have only .0015-.003 clearance between the top of the rotor and cylinder bore, and .003 or less clearance between end of the rotor and the end plate. Any thrust on the shaft such as mishandling or dropping the pump on its end will tend to close these clearances, causing the rotor to jam. Foreign particles, excessive dirt or dust build up may cause sluggish performance and eventual “jamming” of the pump. The pumps have carbon vanes and grease packed bearings. They **MUST NOT** be lubricated or flushed with petroleum base solvents.

All models have precision ground vanes inside the pump that take up their own wear and will last approximately 3,000 hours, depending upon workload, maintenance, speed and degree of pressure. Excessive dirt, foreign particles, or moisture could cause the vanes to stick in the rotor slots and even break. Periodic “flushing” could prevent this. Use the RPB SAFETY flushing cleaner in the pump chamber only.

CAUTION!

The basic materials used in the pumps are cast iron and steel. Consequently, any moisture will tend to corrode the interior, especially when pump stands idle for extended periods.

CAUTION!

Hazardous location equipment may be required in any area where the presence of flammable gases, vapors or finely pulverized dusts in the atmosphere is sufficient to create a threat of explosion or fire. It may also be required where easily ignitable fibers or flyings are present.

SPECIFICATIONS

The table shows the maximum allowable number of tight-fitting respirators or loose-fitting hoods.

PART NO.	MAX NO. RESP.	MAX NO. HOODS	POWER REQUIRED	LBS	HP	PSI	CFM
06-100	2	1	8.3A 115/230V	53	¾	0 - 15	0 - 10

INSPECTION

Regular inspection, cleaning filters, and “flushing” may prevent extensive repairs. Dirty or clogged filter elements can cause overheating (in excess of 200°F) and possible pump failure.

It is normal for the pump surface and immediate output air temperatures to reach 200°F when the unit is run continuously under a heavy load or high pressure settings.

- If there is evidence of overheating or excessive noise, stop immediately.
- High-pressure operation will shorten pump’s life.
- Keep external surfaces clean for proper heat dissipation.
- Do not allow pump to operate in ambient air temperatures excess of 40°C (104°F).

Failures due to pressure buildup are due to the following:

- Improper setting of pressure relief valve
- Leaks in airline connections
- Damaged filter canister threads
- Collapsed or kinked air lines, dirty filter elements
- Vanes sticking in the rotor slots

ELECTRICAL MOTORS:

Some electrical motors are equipped with a thermal protector that shuts motor down automatically when subjected to mechanical or electrical overloads. Ensure electrical power source corresponds to what is on the motor name plate.

MAINTENANCE

FILTERS:

- Change inlet filter every 200 running hours or if the pressure gauge shows a drop in pressure.
- Change discharge filter every 200 running hours or if the pressure gauge shows an increase in pressure.

FLUSHING INSTRUCTIONS:

1. Perform this procedure in a well ventilated area.
2. Wear solvent resistant gloves and eye protection while performing the flushing procedure.
3. Disconnect airline hose and respirator to prevent contamination.
4. Remove inlet filter assembly and pressure relief valve, to prevent damage to pump from back pressure.
5. Add 10-15 squirts of flushing solvent, through the inlet port opening.
6. Turn pump on and let run for 1 minute to flush out contaminants.
7. Repeat flushing procedure if pump is in extremely dirty or is under performing.
8. Replace inlet filter assembly and pressure relief valve.
9. Replace exhaust filter and inlet filter.
10. Reconnect airline hose and respirator, do not use respirator until all steps are complete.
11. Turn pump on for 10 minutes, this allows the flushing solution to dry out completely.

WARNING!

Keep face away from exhaust port. DO NOT flush unit with KEROSENE OR OTHER COMBUSTIBLE LIQUIDS. Personal injury and/or property damage will result.

VANE REPLACEMENT:

To replace vanes or inspect the pump interior:

1. Remove only the endplate by removing the six bolts holding the end plate to the body.
2. Remove the endplate and the four vanes, pay attention to the direction the vanes are facing.
3. Do not remove the rotor or loosen any electric motor “through-bolts.”
4. Inspect used vanes for signs of cracking due to backpressure.
5. Inspect interior surface of chamber and rotor, for any signs of scaring or metal to metal contact.
6. Ensure surface is smooth and free of rust or contaminants, sand down surface if needed.
7. Clean with appropriate flushing solution.
8. If necessary align body to set proper clearance.
9. Insert the vanes with the beveled edge fitting the contour of the body bore of the pump.
10. The rotor should be turned while setting clearance to assure that all points on the rotor clear the body.
11. Replace the endplate and endplate bolts securely. (Do not over-tighten).

PARTS & ACCESSORIES

- 9512-02 Electric cord with integrated switch.
- 9700-01 Inlet filter element (each)
- 9700-02 Exhaust filter element (Each)
- 9700-03 Pressure relief valve
- 9700-04 Pressure gauge
- 9700-05 Carrying handle
- 9700-06 Rubber foot (4 Ea. required)
- 9700-08 Inlet filter assembly
- 9700-09 Exhaust filter assembly (filter element incl.)
- 9700-11 Pump flushing liquid
- 9700-15 Exhaust filter canister (Canister only)
- 9700-50 Service kit (includes set of 4 vanes, filters & flushing liquid)
- 9700-65 Universal inlet hose kit (50 Feet)
- 9700-72 ½” Coupler, Hansen

TROUBLESHOOTING

ELECTRIC MODELS:

1) If motor fails:

- If motor is extremely cold.
 - Bring to room temperature before starting.
- Ensure respirator and hose are connected when pump is running; failure to do so may cause lock-up.
 - Loosen all six pump endplate bolts slightly. Re-tighten and try to run unit.
- Some motors are thermally protected. An electrical overload or mechanical failure may cause a thermally protected motor to stop running.
 - Let motor cool down (15-20 min.) and try restarting.
- If the motor fails to start or hums.
 - Pull plug and check for correct electrical current as shown on motor nameplate.
 - Check the wiring instructions on motor case or on thermal plate cover.
- If electrical motor hums but the air pump is not turning.
 - Turn off motor, loosen all six end plate bolts, then re-tighten and start unit.
 - If unsuccessful, remove endplate.
 - Check vanes and rotor for free movement.
 - Broken or chipped vanes should be replaced.

- If rust has formed in pump chamber due to exposure to moisture.
 - Sand down if necessary.
 - Clean chamber with approved solvents.
- If pump becomes noisy.
 - Check for sticking vanes.
 - Flush pump, if necessary replace vanes (see disassembly for instructions)

2) If output air hot or pump is running hot:

- If there is a drastic temperature increase on pump surface or air temperature coming out of the respirator.
 - Check alignment of pump rotor and housing. (see Maintenance section)
- If outlet pressure is too high.
 - Adjust pressure relief valve, while maintaining sufficient air flow to the respirator.
- Check inlet and/or exhaust filter for excessive dirt or dust.
 - Replace if necessary.
- Check airline hose.
 - Loosen hose coils to allow heat to dissipate.
 - Use NIOSH approved airline hose only.
 - Do not use more than 100 feet of airline hose per respirator user.
 - Joining separate lengths of airline hose to complete 100 feet will increase pressure and temperatures.

3) If there is a rise in outlet pressure:

- Check for kinked airline hoses.
- Make sure only NIOSH approved airline hoses are used
- Adjust pressure relief valve, to adjust for any change in number of users, or lengths of airline hose.
 - Check condition of filter elements.
 - Replace if necessary.

4) If there is a drop in outlet pressure:

- Check if exhaust filter housing and canister is cross-threaded or not seated firmly onto housing gasket.
 - Remove canister, inspect threads and gasket and reinstall.
- Check for dirty inlet filter element.
 - Replace if necessary.
- Check if vanes are sticking or worn out.
 - Flush pump with approved solvent.
 - If unsuccessful, follow instructions under **Disassembly**, to check vane condition.
 - Replace if necessary.
- Check adjustment of pressure relief valve.
 - Adjust if necessary.

WARNING!

Shut down pump and unplug before working on unit.