

*Lightning*enterprises

MODEL VAC-1 Vacuum Pump Operation Manual



M1002, Rev. AD

www.lightningenterprises.com

Congratulations on your choice of the **VAC-1** Vacuum Pump by Lightning Enterprises. With its Gast™ medical grade compressor, we believe this vacuum system to be the finest of its kind on the market. Designed for the hearing aid industry to extract ear wax and other damaging debris from hearing instruments, this unit is built to meet the rugged demands of any manufacturing and repair environments. With its handsome features, the VAC-1 is also designed to be used in the Hearing Health Clinic as an essential servicing tool. The VAC-1 is capable of 25" Hg vacuum and may be used with Slip-Luer Filter and needle to extract debris. The VAC-1 may also be configured with an optional Desiccator chamber to dehumidify instruments as well as an Aspirator Option for ENT applications. We are proud to offer the VAC-1 vacuum unit to you and are confident you will be delighted with its' performance. (Desiccator and Aspirator options sold separately. Refer to applicable manual for instructions).

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READ ALL CAUTIONS AND WARNINGS BEFORE USING THIS PRODUCT

CAUTION: (Continued)

1. Do not disassemble vacuum pump. Disassembly or attempted repairs if accomplished incorrectly can create electrical shock hazard.
2. Connect unit to a grounded 120V AC outlet only (preferably GFI protected).
3. Keep power cord away from heat and away from places where it can be pinched or stepped on.
4. Never block any air openings (inlets) of this product or place on a soft surface where openings may be blocked. Keep all openings free of lint, dirt, or other foreign objects.
5. Never use this product while drowsy or sleeping.
6. Never insert fingers or other objects into pump openings.
7. Do not operate this product where oxygen is being administered.
8. This unit may be thermally protected and may automatically restart when motor resets. Always disconnect power source before servicing.
9. Wear safety glasses or goggles when operating this equipment.
10. Use only in well ventilated areas.
11. Do not use any tool or attachment without first determining maximum air pressure for that tool or attachment.
12. Never point any air nozzle or attachment toward any person or any part of the body.
13. All electrical products generate heat. To avoid serious burns never touch unit during or immediately after use.

DANGER: To reduce the risk of explosion or fire...

1. Do not use this product in or near explosive atmospheres or where aerosol (spray) products are being used.
2. Do not pump anything except atmospheric air.
3. Do not pump combustible liquids or vapors with this product or use in or near an area where flammable or explosive liquids or vapors may exist.
4. Do not use this product near flames.

CAUTION: To prevent injury...

1. Close supervision is necessary when this product is used near children or invalids. Do not allow children to operate this unit.
2. Do not operate this product if it has a damaged or frayed power cord or plug, if it is not working properly, if it has been dropped or damaged, or if it has fallen into water. Return this product for service and examination /repair.

WARNING: To reduce the risk of electrocution...

1. Do not leave this product unattended when plugged in.
2. Always unplug this product immediately after use and store in a cool dry place.

3. Do not use this product in or near water, or where the danger exists of the unit falling or being pulled into water.
4. Do not reach for this unit if it has fallen into liquid. Unplug immediately.
5. Never operate this product in the rain or in a wet areas.

**FAILURE TO OBSERVE SAFETY PRECAUTIONS COULD RESULT IN SEVER
BODILY INJURY OR DEATH IN EXTREME CASES.**

INSTALLATION:

1. Carefully remove all parts from box and check parts list to ensure all parts are included.
2. Locate a stable flat area on which to place the vacuum pump.
3. Connect shorter end of Tube Assembly to pump Hose Barb.
4. Connect free end of Tube Assembly to the Slip-Lier Filter Assembly.
5. Ensure pump power switch is in the “OFF” position. Plug pump power cord into a 120V grounded outlet.

VACUUM PUMP OPERATION

Using The Slip-Luer with Needle Tips

1. The VAC-1 is equipped with 5 tips (3 steel tips and 2 polypropylene). The steel tips are for removing wax and debris from the receiver and microphone ports of the hearing instrument. The polypropylene tips are for removing debris from the vent track. Varying sizes are for different size openings.
2. Push the desired tip onto the Slip-Luer fitting on the end of the Filter.
3. Turn the pump power switch to the “ON” position.
4. Gently insert the needle tip into the desired location to remove any debris. **USE CAUTION** when using the steel tips to avoid damaging internal hearing instrument components.

TROUBLESHOOTING / MAINTENENCE:

The VAC-1 Vacuum Unit contains an oilless diaphragm which means no routine maintenance is required. This pump is designed for trouble-free use and should give you years of worry-free service. If you do experience a problem refer to the troubleshooting section of this manual, or call Lightning Enterprises.

Interpreting Gauge Readings:

Your vacuum gauge can help determine if and what kind of vacuum problem you might have. Listed are a few readings you will find during normal operation:

All readings are +/- 1.5" Hg

CONDITION:	GAUGE READING:
Nothing connected to tube end	3" Hg
Slip-Luer Filter connected to tube end:	5" Hg
Syringe connected to Hand Wand	21.5 " Hg
Maximum attainable vacuum	25" Hg

To check maximum attainable vacuum:

Plug needle or tubing end with your finger. Vacuum gauge should read 25" Hg, +/- 1.5".

Some Common Problems:

Problem: Not able to reach maximum vacuum.

Solution: Leak in the line or loose fittings. Ensure fittings are tight and tubing secure. The less vacuum the bigger the leak.

Problem: When the pump is on the gauge reads max. vacuum.

Solution: The supply line is plugged. The most common cause is a clogged needle tip. To check, disconnect the tip. If the gauge reads 5" Hg the tip is clogged. Unclog tip using supplied Reaming Needle and reinstall. If the gauge still reads 25" Hg the obstruction is elsewhere in the line.

Parts List:

Part Number:

Vacuum Unit Assembly:

Vacuum Pump	DOA-V273-AA
Cross	102A-B
Plug	109CS-B
Vacuum Gauge	AA640
Hose Barb, Straight	201A-4B
Handle	AF870

Hose Assembly:

Tubing	3-8ODX1-4ID
Filter	86011
O-Ring	9452K14-1
Luer Fitting – Threaded	XMLRL-6

Needle Packet:

Syringe, 20 Gauge, steel	97227
Syringe, 18 Gauge, steel	97226
Syringe, 15 Gauge, steel	97225
Syringe, 18 Gauge, poly	97230
Syringe, 15 Gauge, poly	97229
Reaming Needle, small	RM-S
Reaming Needle, large	RM-L

Options:

Suction Cup Feet	AF584A
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This equipment has been manufactured using the highest quality components and techniques. In the unlikely event it should need service, see warranty information and procedures below. For questions call Customer Service 9:00 AM to 6:00 PM EST
Mon. - Fri. : (207) 637-3668

WARRANTY :

Lightning Enterprises warrants this product to be free from defects in workmanship and material under normal use and conditions for a period of 3 years from the date of purchase, except any tubings, Filter, Fittings and needle tips which are covered under warranty for 90 days. Should service be required by reason of any defect or malfunction during the warranty period, Lightning Enterprises will repair, or at its discretion, replace this product, with proof of purchase, without charge (except for a \$15.00 charge for shipping and handling).

When returning this product use the following procedure:

- 1) Pack the unit in a well padded, heavy corrugated box intended for shipping.
- 2) Enclose a photocopy of your receipt, credit card statement, or other proof of date of purchase.
- 3a) WARRENTY REPAIRS: Enclose a check for \$15.00 payable to Lightning Enterprises.
- 3b) OUT OF WARRENTY REPAIRS: Enclose a check for \$15.00 for shipping and handling payable to Lightning Enterprises. A written estimate will be provided for repair approval.
- 4) Send the unit to:

Lightening Enterprises
18 Harlan Drive
Limington, ME 04049

Please Note: This warranty is only valid in the USA Any applicable implied warranties are also limited to 90 days and Lightning Enterprises will not be liable for consequential damages. Some states do not allow limitations on implied warranties or exclusions of consequential damages, so these restrictions may not apply to you.. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.