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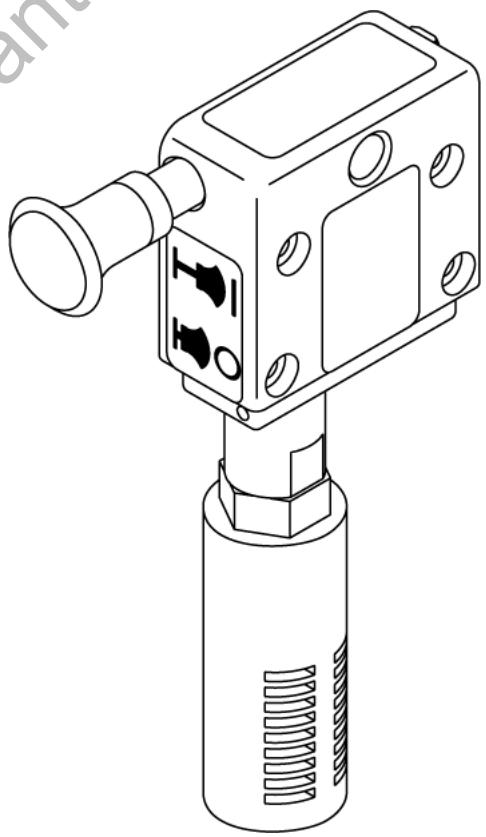
Venturi/Ejector Suction Module

Service Manual



User Responsibility

This Product will perform in conformity with the description thereof contained in this manual and accompanying labels and/or inserts, when assembled, operated, maintained and repaired in accordance with the instructions provided. This Product must be checked periodically. A malfunctioning Product should not be used. Parts that are broken, missing, plainly worn, destroyed or contaminated, should be replaced immediately. Should such repair or replacement become necessary, Ohio Medical recommends that a telephone call or written request for service advice be made to the nearest Ohio Medical Service Office. This Product or any of its parts should not be repaired other than in accordance with written instructions provided by Ohio Medical, or altered without the prior written approval of Ohio Medical's Safety Department. The user of this Product shall have the sole responsibility for any malfunction which results from improper use, faulty maintenance, improper repair, damage, or alterations by anyone other than Ohio Medical.

Important: U.S. Federal law restricts this device to sale by or on the order of a licensed medical practitioner.

Important: This document is not to be reproduced in any manner, nor are the contents herein to be disclosed to anyone without the express authorization of Ohio Medical.

Technical Competence

The procedures described in this service manual should be performed by competent individuals who have a general knowledge of and experience with devices of this nature. No repairs should ever be undertaken or attempted by anyone not having such qualifications.

Genuine replacement parts manufactured or sold by Ohio Medical must be used for all repairs.

Read completely through each step in every procedure before starting the procedure; any exceptions may result in a failure to properly and safely complete the attempted procedure.

Abbreviations used in this manual

mmHg	Millimeters of mercury (mmHg x 0.133 = kPa)
kPa	Kilo Pascal (kPa x 7.50 = mmHg)
CW	Clockwise
CCW	Counterclockwise (Anti-Clockwise)
DISS	Diameter Index Safety System
FSD	Full Scale Deflection
O2	Oxygen
PTFE	Teflon®
NPTF	National Pipe Thread Female (USA)
psi	Pounds Per Square Inch
l/min	Liters Per Minute
ISU	Intermittent Suction Unit
CVR	Continuous Vacuum Regulator
mm	Millimeters
oz	Ounces
°C	Degrees Celsius
°F	Degrees Fahrenheit
N-m	Newton Meter (N-m x .737 = ft-lb)
P/N	Part Number
ft-lb	Foot Pound Force (ft-lb x 1.356 = N-m)
psig	Pounds Per Square Inch Gauge

® Teflon is a registered trade mark of the E.I. DuPont Company.

Table of Contents

1/Precautions

1.1 Definitions

Note: A Note provides additional information to clarify a point in the text.

Important: An Important statement is similar to a note but of greater emphasis.

⚠ CAUTION: A CAUTION statement is used when the possibility of damage to the equipment exists.

⚠ WARNING: A WARNING statement is used when the possibility of injury to the patient or the operator exists.

⚠ Attention. Alerts you to a warning or caution in the text.

 = Pull knob out for ON

 = Push knob in for OFF

 = Supply gas inlet pressure

 = Use no petroleum based lubricants

VAC = Vacuum

 = CE 0086 European Union Representative

1.2 Warnings

This manual covers the operation of the venturi/ejector suction module only. Follow Vacuum regulator Pre-Use Checkout and Patient Set Up procedures also.

After patient use the venturi/ejector suction module may be contaminated. Handle in accordance with your hospital's infection control policy.

Clean and sterilize all suction equipment before shipment or service to ensure transportation personnel and/or service personnel are not exposed to any hazardous contamination.

Do not use this device in the presence of flammable anesthetics. Static charges may not dissipate and possible explosion hazard exists in the presence of these agents.

The Pre-Use Checkout Procedure must be performed before using this equipment on each patient. If the regulator fails any part of the Pre-Use Checkout Procedure, it must be removed from service and repaired by qualified service personnel.

The venturi/ejector suction module is only intended for use with Medical Air or Oxygen. Do not use the venturi/ejector suction module with any other gases.

Do not allow oxygen or oxygen equipment to be exposed to fire, sparks, or electrical equipment which may provide a source of ignition. DO NOT SMOKE IN THE AREA WHERE OXYGEN IS IN USE.

After disassembly always perform the Service Checkout Procedure.

1.3 Cautions

Do not use any [1]Loctite® products to seal the fitting and adapter port threads (or products which contain Methacrylate Ester as an active ingredient). Loctite may damage plastic components.

Only competent individuals trained in the repair of this equipment should attempt to service it.

To help prevent aspirate from entering the regulator, an Overflow Safety Trap should be attached prior to its use. Aspirate in the regulator will impair the operation. The use of the Overflow Safety Trap will help prevent this and extend the life of the suction equipment.

Use of lubricants other than recommended, may degrade plastic or rubber components.

[1]Loctite is the registered trademark of the Loctite Corporation.

2/Description and Specifications

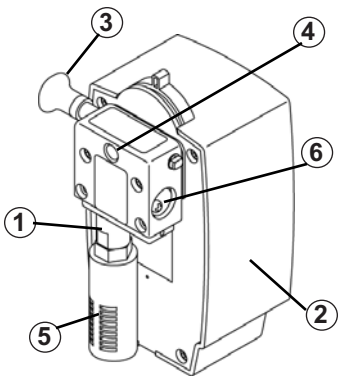
2.1 Description

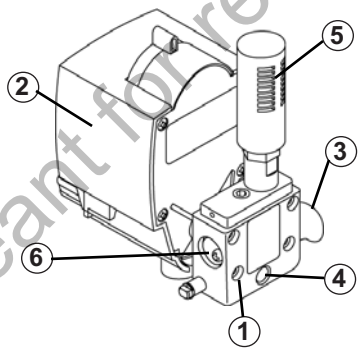
WARNING: ⚠ Do not use this device in the presence of flammable anesthetics. Static charges may not dissipate and possible explosion hazard exists in the presence of these agents.

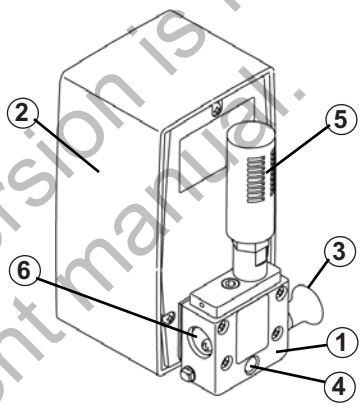
The venturi / ejector suction module is an accessory designed to generate a vacuum supply through the use of pressurized medical air or oxygen. The device is to be used with Ohio Medical vacuum regulators only.

Venturi/ejector suction module identification

1. Venturi/ejector manifold
2. Vacuum regulator
3. Venturi/ejector On/Off switch
4. Supply gas probe/adapter port
5. Exhaust muffler
6. Positive pressure relief valve







2.2 Specification

2.2.1 Technical Specifications

Supply gas pressure:	45- 80 psi- dynamic pressure
Gas Consumption Rate:	30- 50 l/min
Minimum Flow Rate (without fittings at full increase) :	25 l/min - Thoracic 30 l/min - ISU and CVR 30 l/min - Stand alone
Suction range available:	0 to 500 minimum mmHg / 0 to 66.5 minimum kPa or 0 to maximum range of vacuum regulator (whichever is lower)
Weight: (Less fitting and not installed on vacuum regulator)	8.6 oz / 240 grams
Dimensions: (Less fitting and not installed on vacuum regulator)	Height: 5.9 inches / 150 mm Width: 3.9 inches / 99 mm Depth: 1.0 inches / 26 mm

2.2.2 Environmental Specifications

Operating Temperature Range:	40°F (4°C) to 120°F (49°C)
Storage Temperature Range:	0°F (-18°C) to 160°F (71°C)
Operating and Storage Relative Humidity:	5 to 95%

2.2.3 Standards

Certified to ISO 10079-3 (1999)

3/Operation

3.1 Equipment Set up

If the venturi/ejector suction module is purchased separately, apply a small amount of [1]Lox-8™ paste or Teflon® (PTFE) pipe sealant tape to NPT threads of the adapter on the back of the unit. Tighten adapter securely to the vacuum regulator (minimum torque of 5.4 N-m). Ensure that the unit is vertical.

WARNINGS: ⚠ Connect supply gas adapter to a 310 to 552 kPa medical air or oxygen supply source only to prevent patient or operator injury and equipment damage.

⚠ Never mix adapters of different gases or vacuum. Cross connection can result in serious patient injury or damage to equipment.

⚠ To prevent patient injury, do not block the positive pressure relief.

CAUTION ⚠ To prevent fluid from entering the regulator and venturi/ejector suction module, use an Ohio Medical overflow safety trap and high flow suction filter. Flooding may impair operation.

Suction Filters:

Carton of	20	P/N 6730-0350-800
Carton of	200	P/N 6730-0351-800

1. Overflow safety trap
2. High flow suction filter

3.2 Mode Selection

O - No vacuum is supplied to the regulator.
I - Vacuum is continuously supplied to the regulator.

3.3 Pre-Use Checkout Procedure

WARNING ⚠ Perform the Pre-Use Checkout Procedure before using on each patient. If there is any failure, remove from service and repair.

1. Check that the positive pressure relief valve flips open easily. You may wish to use a finger nail or toothpick to access the relief valve flap, as long as the tool is not sharp enough to damage the flap.

2. Push venturi unit to O (off).
   Turn vacuum regulator to I (on).
   Rotate the suction control knob one full turn clockwise (increasing).
   Clamp tubing to occlude the fitting port. The gauge needle should not move.

3. Turn the vacuum regulator to O (off)
   Pull the venturi unit to I (on)
   Follow the pre-use checkout procedure given in the instructions for the vacuum regulator.

[1]Lox-8 is a trademark of Flouramiss Inc.

4.1 Cleaning

WARNINGS ⚠ After patient use, regulators may be contaminated. Handle in accordance with your hospital's infection control policy.

Always follow your hospital's policy for oxygen compatible cleaning; some cleaners are highly combustible in the presence of oxygen.

4.1.1 Routine Exterior Cleaning

Routine cleaning of the venturi/ejector suction module is recommended as a standard procedure after each use. Wipe all exterior surfaces with a solution of water and mild detergent.

4.1.2 Internal Component Cleaning

The venturi/ejector suction module requires cleaning if it becomes flooded with patient fluid as a result of misuse.

1. Refer to the Service - 6.2 Disassembly and Assembly instructions for disassembly.
2. All plastic and elastomer components may be cleaned with a solution of warm water and mild detergent. Clean all metal components with alcohol.
3. Dry all components with a lint free cloth before assembly.
4. Replace the muffler. It cannot be cleaned.
5. Refer to 6.2 for reassembly.

Refer also to the cleaning instructions for the vacuum regulator.

4.2 Sterilization

WARNING ⚠ Following sterilization with ethylene oxide, parts should be quarantined in a well ventilated area to allow dissipation of residual ethylene oxide gas absorbed by the material. Follow sterilizer manufacturer's recommendations for specific aeration periods required.

CAUTIONS ⚠ Do not steam autoclave or liquid sterilize the venturi/ejector suction module. Severe impairment to the operation of the venturi/ejector suction module will result. The only acceptable method of sterilization is with gas (ethylene oxide).

⚠ Sterilization with ethylene oxide mixtures may cause crazing (minute superficial cracking) of some plastic parts. Crazing will be more pronounced when mixtures containing Freon® are used.

Note: The venturi/ejector suction module should only be sterilized if it is contaminated or maintenance is to be performed. Sterilization is not recommended as a standard procedure after each use.

1. The venturi/ejector suction module should be sterilized with the gas supply valve in the ON position.
2. The only acceptable method of sterilization is with ethylene oxide. Ethylene oxide mixtures can be used at temperatures of 125 to 135°F (52 - 57°C). If this temperature cannot be obtained, room temperature sterilization with 100% ethylene oxide can also be used.
3. Adequately aerate the venturi/ejector suction module prior to disassembly, shipment or use. Aerate parts prior to reassembly.
4. After each sterilization check the operation of the venturi/ejector suction module by performing the Pre-Use checkout procedure.

®Freon is a registered trademark of the DuPont Company

5/Troubleshooting

Place the unit in the vertical position and connect to a dynamic gas supply of between 45 - 80 psi (310 - 552 kPa).

Problem	Possible Causes	Remedy
A. No gauge indication and no suction in any setting and no exhaust sound audible.-	1. Venturi switch is in the O (off) position-	1. Switch to I (On)
	2. No supply gas	2. Correct supply problem
	3. Poor connection	3. Check all connections and seals
	4. Blocked probe/adapter or outlet	4. Clean or replace probe /adapter
	5. Inlet filter blocked.	5. Replace inlet filter.
B. No gauge indication and no suction but exhaust sound is audible	1. Vacuum Regulator is off	1. Turn Vacuum regulator on
	2. Positive pressure relief valve not sealing	2. Clean or replace valve
	3. Venturi to vacuum regulator connection poor	3. Check all connections and seals.
	4. Problem with vacuum regulator	4. Refer to information on troubleshooting for the vacuum regulator.
C. Reduced Pressure or flow-	1. Venturi muffler is dirty or clogged	1. Replace muffler.
	2. Venturi pump dirty or clogged	2. Clean or replace pump.
	3. Positive pressure relief valve not properly seating	3. Check seating. Clean or replace valve if necessary.

6.1 Service tools needed

WARNING⚠ Never use any petroleum based lubricants in an oxygen environment, as these materials are highly combustible in the presence of oxygen. The only oxygen service lubricants recommended for this equipment are Sentinel® OPG or Ball Vac-Kote®.

CAUTION⚠ Use of lubrication other than recommended may degrade plastic or rubber components.

CAUTION⚠ Do not use any Loctite® (or any product which contains methacrylate ester) on any part of the venturi/ejector suction module or connected fittings. Loctite may damage plastic components.

The following items should be on hand during any service procedure.

- Open and adjustable wrenches (spanners)
- Torque wrench
- Screwdrivers
- Wooden toothpick (to remove o-rings)
- Oxygen service lubricants:
  Sentinal® OPG (Ohio Medical P/N 6700-0067-200) or
  Ball Vac-Kote® (Ohio Medical P/N 6700-0092-200)
- Oxygen service pipe thread sealant:
  Lox-8® paste (Ohio Medical P/N 6700-0069-200) or
  Teflon® (PTFE) Pipe sealant tape
- Pressure gauge: 100 psi accuracy +/- 1% of full scale deflection accuracy
- High Vacuum Calibration gauge, 760 mmHg (101.3 kPa) accuracy +/- 1% of full scale deflection (Ohio Medical P/N 6700-0352-800)
- Water Manometer or calibrated pressure gauge, 0-70 cm H2O (+/- 1 cm H2O)
- Supply gas valve (Ohio Medical P/N 0207-6023-300)
- 50 LPM Flowmeter (Ohio Medical P/N 6700-0355-800)
- Bubble leak tester
- 1/4” NPT Pipe Plug (Ohio Medical P/N 6600-0617-400)

6.2 Disassembly and Reassembly

See section 9 of this manual for exploded part views.

WARNINGS⚠ If the unit is repaired or disassembled in any manner, the Service Checkout Procedure must be performed before returning the equipment to service.

⚠ Clean and sterilize all multiple use suction equipment if contaminated before disassembly, to ensure service personnel are not exposed to hazardous contamination.

⚠ Prior to any servicing, disconnect the venturi/ejector suction module from the gas supply.

Note: On some units the venturi/ejector suction module On/Off switch may need to be removed to access the cover screws of the vacuum regulator. Refer to Gas Supply valve - Disassembly below for details.

6.2.1 Venturi/ejector suction module - Disassembly from Vacuum Regulator

6.2.1.1 CVR or accessory mounted

1. Remove the venturi/ejector suction module from the gas supply.

2. Hold the vacuum regulator in place. With a wrench unscrew the 1/8 - 1/8 male adapter (and venturi/ejector suction module) from the vacuum regulator.

3. With a wrench remove the 1/8-1/8 male adapter from the venturi/ejector suction module.

6.2.1.2 ISU or Thoracic

1. Remove the venturi/ejector suction module from the gas supply.

2. Remove the mounting screws (2 for thoracic mount- it may be necessary to remove the regulator cover to access the internal mounting nuts; 4 for ISU mount- see figure 6-2).

3. Pull the venturi/ejector suction module and gasket from the vacuum regulator.

4. Replace gasket if required.

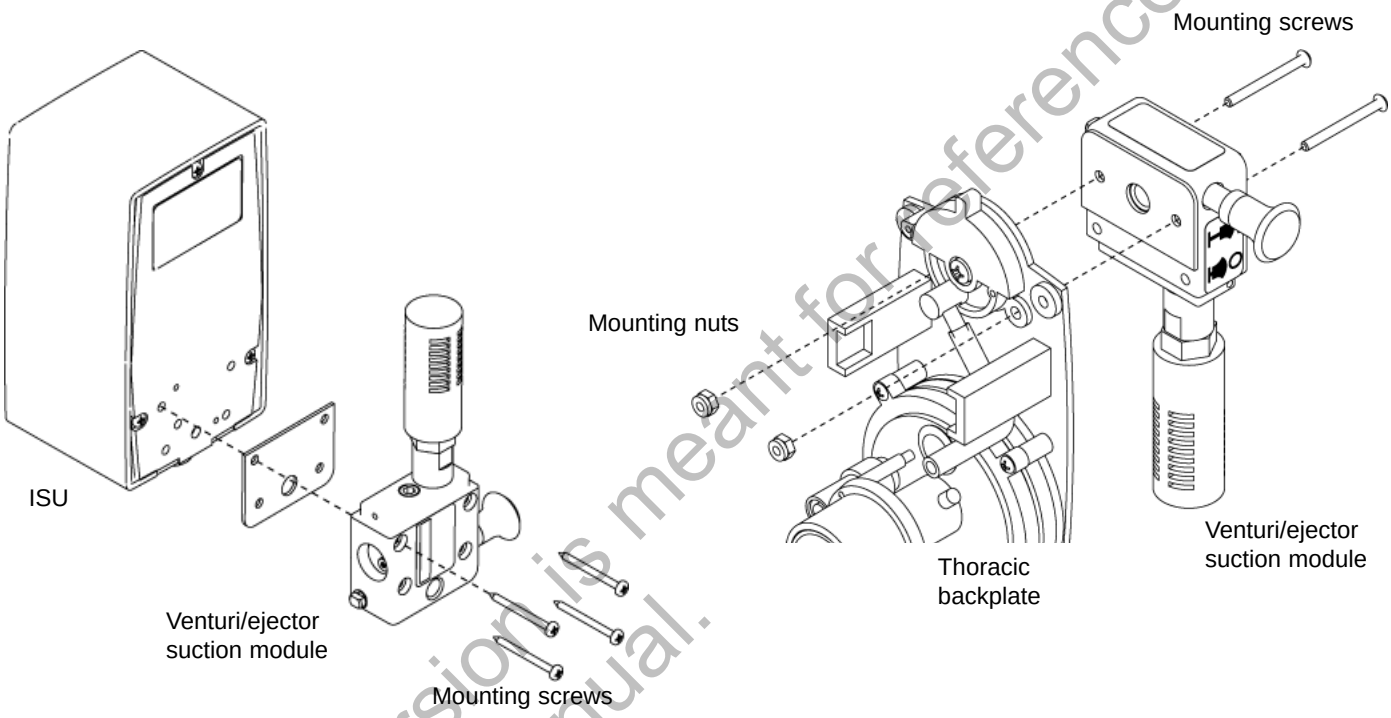


Figure 6-2
Venturi/ejector suction module mounting

6.2.2 Venturi/ejector suction module- disassembly/reassembly

6.2.2.1 CVR or accessory mounted

1. Apply a small amount of Lox-8 paste or Teflon (PTFE) pipe sealant tape to both pipe threads of the 1/8” x 1/8” adapter.
2. Tighten adapter securely to the venturi/ejector suction module vacuum port (minimum torque of 4 ft-lb).
3. Tighten adapter securely to the vacuum regulator (minimum torque of 4 ft-lb).
4. Continue tightening to align the venturi/ejector suction module vertically with the vacuum regulator.

6.2.2.2 ISU or Thoracic

1. Lightly lubricate both sides of the gasket.
2. Align the holes on the gasket with the holes on the venturi/ejector suction module manifold.
3. Install the mounting screws and tighten (on Thoracic you may need to hold the two nuts while tightening these screws- see figure 6-2).

6.2.3 Gas supply switch/Valve spool - Disassembly

1. Remove the venturi/ejector suction module from the gas supply.
2. Remove the retaining ring from the end of the valve assembly.
3. Pull the valve out from the knob side.
4. All o-rings for the valve are now accessible for inspection and replacement.

6.2.4 Gas supply switch/Valve spool - Reassembly

1. Lubricate the o-rings with a small amount of Sentinel OPG® or Ball Vac-Kote® O2 service lubricant.
2. Slide the valve assembly into the manifold from the same side as the On/Off Label.
3. Install the retaining ring.
4. Perform the service checkout procedure.

6.2.5 Muffler- Disassembly

1. Remove the venturi/ejector suction module from the gas supply.
2. With a wrench hold the interface adapter in place, use another wrench to remove the muffler.

6.2.6 Muffler- Reassembly

1. Screw the muffler into the interface adapter.
2. Perform Pre-use Checkout to ensure adequate flow.

6.2.7 Venturi Pump Disassembly

1. With a wrench remove the interface adapter.
2. Remove the venturi/ejector suction module pump.
3. All O-rings for the pump and adapter are now accessible for inspection and replacement.

6.2.8 Venturi Pump Reassembly

1. Lubricate the o-rings with a small amount of Sentinel OPG® or Ball Vac-Kote® O2 service lubricant.
2. Place the venturi/ejector suction module pump into the interface adapter (see 6-1 figure below for orientation), then tighten the interface adapter with venturi/ejector suction module pump into the manifold.

6.2.9 Relief valve - Disassembly

1. Remove the venturi/ejector suction module from the gas supply.
2. Remove the screw holding the rubber valve.
3. Remove the valve and replace if required.

6.2.10 Relief valve -Reassembly

1. Place the valve in the recess and align the screw hole.
2. Tighten retaining shoulder screw into manifold.

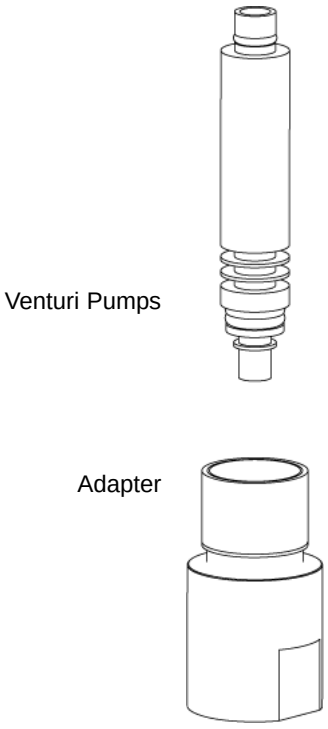


Figure 6-3
Adapter and pump orientation

6.2.11 Inlet Filter Removal

1. Remove the venturi/ejector suction module from the gas supply.
2. Remove the inlet adapter from the manifold.
3. Remove the inlet filter.

Important: It is recommended that the filter be replaced if it is removed from the manifold.

6.2.12 Inlet Filter Replacement

1. Place a new inlet filter in the manifold inlet port, making sure you install the filter straight in the hole. A 5/32” diameter or smaller dowel (cleaned and suitable for low pressure oxygen service) may be used to push squarely on the center of the new filter.

WARNING ⚠ If the venturi/ejector suction module is repaired or disassembled in any manner, the Service Checkout Procedure must be performed before using the equipment on the patient.

Important: This entire procedure must be performed in numerical order.

In addition to performing the service checkout procedure found in the venturi/ejector suction module service manual refer to the information provided with the vacuum regulator and perform the service checkout procedure as recommended.

7.1 Set-up

1. Verify that there is between 45 and 80 psi supply gas.
2. Install a valve between the gas supply and venturi/ejector suction module inlet port.

7.2 Flow test

1. Fully open supply gas valve.
2. Connect the patient port of the vacuum regulator (or vacuum port of the venturi/ejector suction module for accessory) to a flowmeter with tubing.
3. Turn the Venturi/ejector suction module to I (ON).
4. Turn the mode selector on the vacuum regulator to I (On).
5. Turn the suction control on the vacuum regulator to full increase.
6. Verify that the flow rate is at least (see table below):

Configuration	Flow l/min
Thoracic	25*
ISU and CVR	30*
Stand Alone	30*

*Flow without fittings and adapters. Common fittings and adapters may reduce flow by approximately 1 l/min.

7. Turn the venturi/ejector suction module to O (Off).
8. Disconnect the flowmeter.

7.3 Vacuum level test

1. Connect the patient port of the vacuum regulator (or vacuum port of the venturi/ejector suction module for accessory) to the high calibration gauge with tubing.
2. Turn the venturi/ejector suction module to I (On).
3. Verify that you receive at least (See table below):

Configuration	Static Pressure
Thoracic and Low CVR	Maximum range of Vacuum Regulator
Standard/High CVR and ISU	500 mmHg / 66.5 kPa
Stand Alone	500 mmHg / 66.5 kPa.

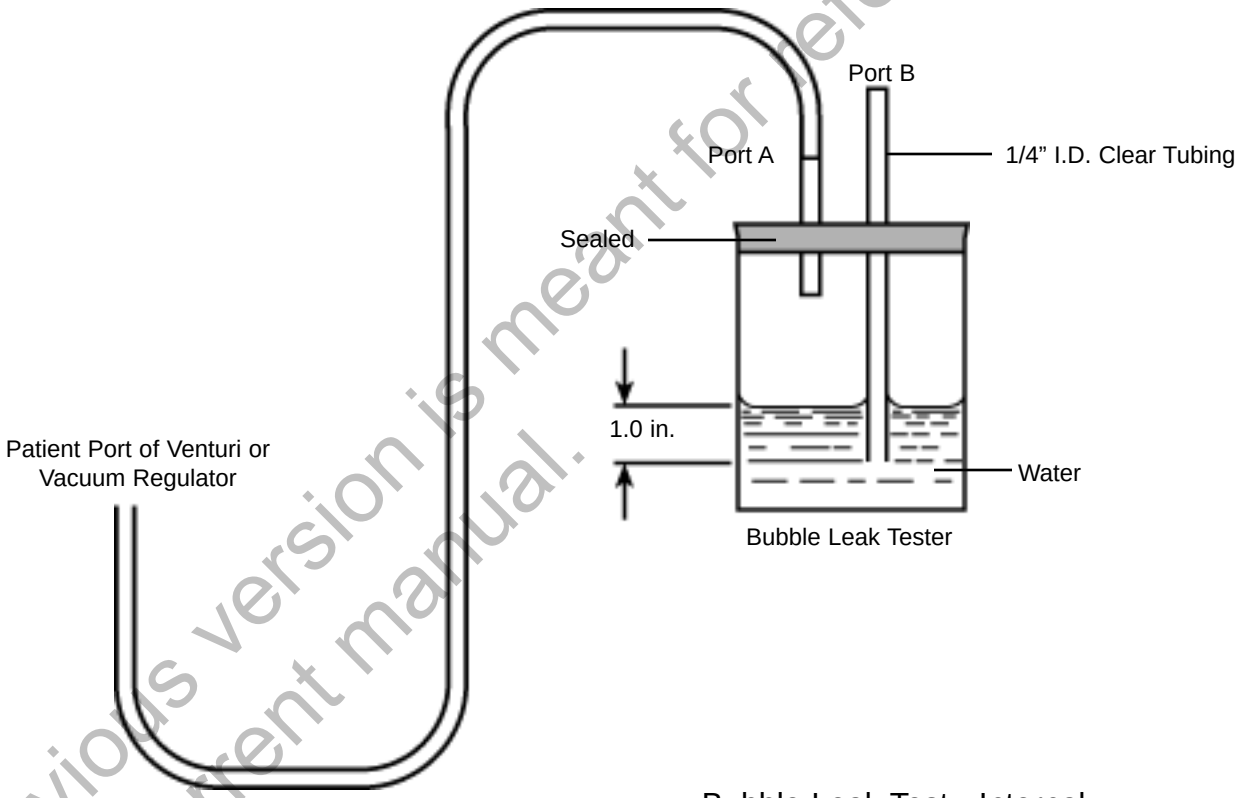
4. Push the venturi/ejector suction module switch to O (Off).
5. Disconnect the calibration gauge.

7.4 Leak test - Internal

1. Connect the patient port of the vacuum regulator to port ‘A’ of the Bubble Leak Tester with tubing. Allow port ‘B’ of the Bubble Leak Tester to be open to air.

2. Push the venturi/ejector suction module switch to O (Off).

3. No bubbles should appear in the next ten seconds.



Bubble Leak Test - Internal

Figure 7-1
Bubble Leak Test

7.5 Leak test - External Supply

1. Ensure supply gas valve is closed.

2. Securely attach leak test pressure gauge (100 psi) between supply gas valve and venturi/ejector suction module inlet. Ensure gas supply valve and leak test pressure gauge connections are leak free. An O2 compatible soap or leak detection solution can be used to detect leaks at pipe connections.

3. With the venturi/ejector suction module still in the O (Off) position, fully open the supply gas valve. The leak test pressure gauge should show the supply pressure.

4. Close the gas supply valve and immediately read leak test pressure gauge.

5. Observe that the leak test pressure gauge does not drop more than 5 psig in 5 minutes.

6. Close the gas supply valve, remove the leak test gauge and reconnect the supply gas valve to the venturi/ejector suction module inlet port.

7.6 Positive pressure Relief test

1. Connect the pressure gauge (0-70 cmH2O) to the patient port of the vacuum regulator (or vacuum port of the venturi/ejector suction module for accessory).

2. Remove Muffler from the venturi/ejector suction module exhaust port. Make sure to leave the interface adapter.

3. Apply a small amount of Lox-8 paste or Teflon (PTFE) pipe sealant to the 1/4” NPT pipe plug. Tighten the plug into the end of the interface adapter.

4. Open the supply gas valve.

5. Push the venturi/ejector suction module switch to I (On).

6. The pressure at the patient port should not exceed 1 kPa.

7. Remove the plug adapter and reinstall the muffler.

WARNINGS⚠ The Pre-Use Checkout Procedure must be performed before using this equipment on each patient. If the unit fails any part of the Pre-Use Checkout Procedure, it must be removed from service and repaired by qualified service personnel.

⚠ Clean and sterilize all suction equipment if contaminated before disassembly, to ensure service personnel are not exposed to hazardous contamination.

Venturi/ejector suction module units should be kept in use or used on a rotating basis. Internal parts of unused equipment may tend to deteriorate.

Maintenance of the venturi/ejector suction module device is as important as maintenance of the suction equipment. The use of Collection Bottles with reliable shut-off valves, Overflow Safety Trap assemblies and disposable suction filters will protect the regulator and venturi/ejector suction module device.

Routine maintenance and inspection are important to the performance of venturi/ejector suction module equipment. The following is a recommended list for care of venturi/ejector suction module equipment after each patient use.

1. Wipe all exterior surfaces with a solution of water and mild detergent.
2. Perform a careful visual inspection.
3. Check that the High Flow Disposable Suction Filter is clean and in good condition.
4. Check the floats in the Overflow Safety Trap and Collection Bottle for correct operation.
5. Perform the Pre-Use Checkout Procedure.

8.1 Recommended Maintenance Schedule

In addition to the Pre-use Checkout Procedure, the following periodic maintenance should be performed.

8.1.1 Maintenance Schedule

Item	Minimum Frequency	Comments
Service Checkout Procedure	3 Years or in accordance with your hospital policy	If the regulator does not pass the Service Checkout Procedure, refer to the Trouble-shooting Section of this manual. Repair as necessary
Components • O-rings • Mounting Gasket • Positive pressure relief valve • Inlet Filter	3 Years	Replace as necessary to minimize in-use failures.-Replacement interval will depend greatly on usage and condition.
Muffler	6 months	Inspect for discoloration or residue. Replace as necessary. Replacement interval will depend greatly on hours of usage and on condition of environment.
High Flow Disposable Suction Filter	Replace after each patient	Replace more frequently if flow rate deteriorates

8.2 Repair Policy

WARNING ⚠Clean and sterilize all multiple use suction equipment before shipment to ensure transportation personnel and /or service personnel are not exposed to any hazardous contamination.

CAUTION ⚠ Do not steam autoclave or liquid sterilize the Venturi/ejector suction module. Severe impairment to the operation of the venturi/ejector suction module will result. The only acceptable method of sterilization is with gas (ethylene oxide).

CAUTION ⚠ Only competent individuals trained in the repair of this equipment should attempt to service it.

Do not use malfunctioning equipment. Make all necessary repairs. Have the equipment repaired by qualified service personnel or by Ohio Medical. Parts listed in this service manual may be repaired or replaced by a competent, trained person who has experience in repairing devices of this nature. After repair, perform the Service Checkout Procedure to ensure that it is functioning properly, and complies with the manufacturer's published specifications.

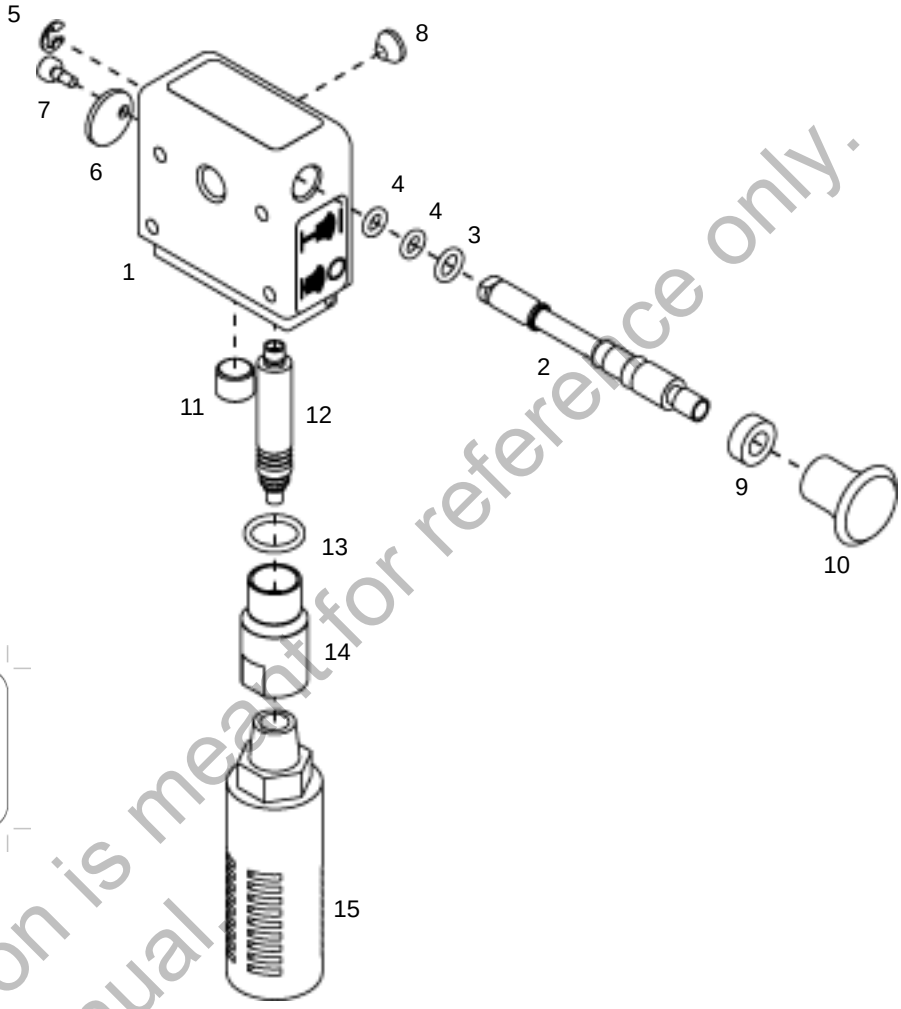
8.3 Technical Assistance

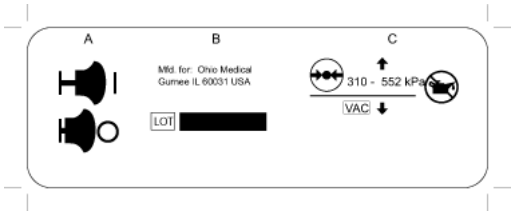
If technical assistance is required, contact your nearest Ohio Medical technical support representative.

8.4 Return Instructions

1. Call nearest Ohio Medical representative for a returned goods authorization.
2. Clean and sterilize the venturi/ejector suction module.
3. Package the venturi/ejector suction module securely for protection, preferably in the original container.
4. Include a letter describing in detail any difficulties experienced with the Venturi/ejector suction module. Include the person, title, and telephone number to contact for functional questions.
5. If the venturi/ejector suction module is less than one year old, include warranty information that came with the device and a copy of the invoice.
6. Include a purchase order to cover repair of a regulator not under warranty.
7. Ship the venturi/ejector suction module prepaid. Write your return address and billing address information on the package or letter that comes with the package.

9.1 Illustrated Parts





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1. Manifold . . . . . See Manifold kit
2. Valve Spool . . . . . See Valve Spool kit
3. Large Valve O-ring . . . . . See Valve Spool kit and/or O-ring kit
4. Small Valve O-ring . . . . . See Valve Spool kit and/or O-ring kit
5. Retaining Ring 6600-1168-400
6. Relief valve 6700-0311-500
7. Relief valve Screw 6700-0220-400
8. Inlet Filter 6700-0009-300
9. Spacer . . . . . See Valve Spool kit
10. Knob . . . . . See Valve Spool kit
11. Plug 0413-3510-335
12. Venturi Pump (2 pack) 6700-0664-850
13. Adapter O-ring . . . . . See O-ring kit
14. Adapter 6700-0308-500
15. Muffler 6700-0310-500
    4 Pack 6700-0668-850
16. Label kit 6700-0672-850

Parts not shown

CVR 1/8 x 1/8 NPT mounting adapter 6700-0561-800
Mounting Gasket Thoracic 6700-0313-500
Mounting Gasket ISU 6700-0312-500
Mounting Screws Thoracic 6700-0219-400
Mounting Screws ISU 6700-0153-400

9.2 Service Kits

Valve Spool kit 6700-0665-850
(includes spool, large valve O-ring, 2 small valve O-rings,
retaining ring, knob, spacer; O-rings, knob & spacer installed)

O-ring kit 6700-0666-850
(includes large valve O-ring, 2 small valve O-rings, and adapter O-ring)

Service Mounting Kit – Thoracic 6700-0669-850
(includes Thoracic gasket, 2 mountings screws)

Service Mounting Kit – ISU 6700-0670-850
(includes ISU gasket, 4 mounting screws)

Manifold Kit
(includes label, manifold and inlet filter) 6700-0667-850

Appendix

Installation procedure for Adapters/Probes and Fittings.

All adapters/probes and fittings should be sealed and installed properly to prevent leaks and to support the equipment when mounted. Both venturi ports are 1/8-27 NPTF tapered pipe threads. It is important to note that adapters/probes and fittings seal on the thread and may have threads exposed after they have been tightened properly.

Prior to installing the adapter/probe or fitting, seal the thread with 4Teflon® (PTFE) tape or one of the following lubricants:

Dow® 111 (Ohio Medical P/N 6700-0074-200)
5 Ball Vac-Kote (37951M) (Ohio Medical P/N 6700-0092-200)

CAUTION: Do not use any Loctite® products to seal the threads (or products which contain Methacrylate Ester as an active ingredient).

The torque range for installing adapters/probes and fittings is 4.0 ft-lb (5.4 N-m) minimum to 10.0 ft-lb (13.6 N-m) maximum.

Adapters/probes and fittings which are not keyed for specific orientation, should be torqued to approximately 6.0 ft-lb (8.1 N-m).

Adapters/probes and fittings that are keyed to specific orientation, must be torqued initially to 4.0 ft-lbs. Additional torque is applied only until orientation is correct.

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