

Veterinary Scavenger Interface

Installation and Operation Manual



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#### Safety Symbols

#### WARNING

These symbols may appear on your equipment Indicates a potentially hazardous situation which <u>could</u> result in serious injury if not avoided. and/or in the manuals.

# CUTION tes a

tes a potentially hazardous situation which <u>may</u> result in minor or moderate injury if not avoided. It may also be used to alert against unsafe practices.

#### pment Alert

Jites a potentially hazardous situation which could result in equipment damage if not avoided

## Symbol Glossary



Caution: This product contains natural rubber latex which may cause allergic reactions.

Amplifies a procedure, practice, or condition.

## Section 1 UNPACKING

#### 1.1 Examining Packaged Components

- Step 1: Examine shipping carton for external shipping damage.
- Step 2: Remove content from carton and examine for visible damage.
  - Note: Contact shipping company immediately if any damaged or broken parts are discovered.
- Step 3: Inspect and inventory parts as shown in illustration on this page.
  - Note: Notify your Midmark dealer representative if any parts are missing.



Figure 1. Packaged Components

## Section 2 INSTALLATION

## 2.1 Column Mounting Instructions



Figure 2. Column Mounting Instructions

# Section 2 INSTALLATION (cont.)

## 2.2 Wall Mounting Instructions



Figure 3. Wall Mounting Instructions





## Section 2 INSTALLATION (cont.)

## 2.3 Scavenging Hose Suspension Methods



## Section 3 DESCRIPTION & IDENTIFICATION

## 3.1 General Description & Component Identification

The Midmark Veterinary Scavenger Interface is a portion of a gas scavenging system that provides positive and negative pressure relief and reservoir capacity. The Veterinary Scavenger Interface includes the following (refer to Figure 6):

1. Two gravity loaded unidirectional relief valves for limiting positive and negative pressures. The unidirectional relief valves are white opaque polyester film disks seated against a circumferential knife edge seat. They minimize the effect on the breathing circuit of any excessive resistance or excessive suction from the disposal system.

The positive pressure relief value is set to not increase the resistance to expiration over and above that imposed by the breathing system by more than 50Pa ( $\approx$ .5cm-H<sub>2</sub>O) at a continuous flow of 30 L/min, or by more than 500Pa ( $\approx$ 5cm-H<sub>2</sub>O) at a continuous flow of 90 L/min.

The negative pressure relief value is set to not create a subatmospheric pressure of more than 50 Pa ( $\approx$ .5cm-H<sub>p</sub>O) within a gas collecting device.

2. An adjustable needle valve controls the suction applied to the Veterinary Scavenger Interface. The maximum flow rate through the adjustable needle valve is approximately 30 liters per minute when fully open. The adjustable needle valve allows the user to control the waste gas flow to the disposal system. This conserves the disposal system vacuum and reduces noise.

3. Three 19mm male inlet connectors for connecting a reservoir bag, and corrugated scavenging tubing (not shown).

The 19mm inlet connectors accommodate the gas scavenging tubes from an anesthesia machines Adjustable Pressure Limiting Valve (APL Valve, pop-off-valve) and an anesthesia ventilator (or capped if not used). A 3 liter reservoir bag with 19mm adapter attaches to an inlet connector to accommodate excessive gas volume for short periods of time. The reservoir bag contains a 19mm female adapter indicating its use in the scavenging system.

4. A hose assembly fitting for attaching a hose assembly from the veterinary scavenger interface to a proper waste anesthetic gas disposal system outlet (outlet station).

5. Mounting hardware for attaching the veterinary scavenger interface to a 13/4" or 2" diameter column (typically found on most veterinary anesthesia machines) or to a wall.

6. 19mm corrugated scavenging hose for connection between the anesthesia machine's APL Valve and/or outlet from a ventilator to the interface.



Figure 6. Component Identification

## Section 4 SETUP & OPERATION

## 4.1 Setup

Please read this section in its entirety before operating any anesthesia breathing circuits that are attached to the Midmark Veterinary Scavenger Interface.

Setup for use with a High Vacuum Disposal System (vacuum pump or high suction active systems capable of vacuum levels to 21" Hg. and flows as low as 1 cfm at each outlet station). One Veterinary Scavenger Interface is required for each anesthesia breathing circuit or anesthesia breathing circuit/ ventilator combination.



Figure 7. Setup Detail

## Section 4 SETUP & OPERATION (cont.)

#### 4.2 Operation

When using the Veterinary Scavenger Interface with a high vacuum disposal system (vacuum pump or high suction active system) it is important that the reservoir bag be prevented from filling to capacity.

The veterinary scavenger interface will function properly with the interface needle valve fully open (counter-clockwise [CCW]) however, properly adjusting the interface needle valve will conserve disposal system vacuum, and reduce noise.

The following procedure should be followed for proper operation of the veterinary scavenger interface (refer to Figure 8).



Figure 8. Operation Detail

Once gas flow to the breathing system has been established and the interface is properly adjusted, the interface reservoir bag may oscillate between half-full and completely empty during each normal breathing cycle.

If the source vacuum changes, the breathing circuit's gas flow changes, the reservoir bag fills to capacity, or there is a strong anesthetic odor, readjustment of the Veterinary Scavenger Interface needle valve may be required.

## Section 5 MAINTENANCE

#### 5.1 Leak Test - Veterinary Scavenger Interface

The leak test of the Veterinary Scavenger Interface (refer to Figure 9) will utilize a veterinary anesthesia machines pressure gauge and flowmeter. (If the veterinary scavenger interface is not used with a veterinary anesthesia machine, suitable equipment and procedures should be used to verify a leak rate, not to exceed 100ml/min during normal administration of anesthesia for the entire scavenging system).



Figure 9. Veterinary Scavenger Interface Leak Test Detail

## 5.2 Vacuum Level Test

The maximum allowable negative pressure in the scavenging system immediately downstream of the gas collecting assembly during normal administration of anesthesia shall be tested at an excess gas flow rate of zero and shall be 50Pa ( $\approx$ .5cm-H<sub>2</sub>O) or less (refer to Figure 10).



Figure 10. Vacuum Leak Test Detail

## 5.3 Leak Test - Veterinary Anesthesia Machine



Figure 11. Veterinary Anesthesia Machine Leak Test Detail

## 5.4 Troubleshooting

The following troubleshooting guide is helpful in analyzing problems. For any service questions contact Midmark Technical Support at 1.800.643.6275 or your Midmark dealer.

Problem	Solution	Reference
Fails Veterinary Scavenger Interface Leak Test	<ol> <li>Remove (4) truss head screws from bottom of interface body. Remove knife edge insert and white disc. Wipe off knife edge seat and white disc with a soft cloth, reassemble and retest.</li> <li>Replace white disc. Wipe off knife edge seat, reas- semble and retest.</li> </ol>	Knife Screw Disc Knife Edge Edge Edge Insert Seat
Fails Vacuum Level Test	<ol> <li>Remove (4) truss head screws from around dome. Remove dome and white disc. Wipe off knife edge seat and white disc with a soft cloth, reassemble and retest.</li> <li>Replace white disc. Wipe off knife edge seat, reas- semble and retest.</li> </ol>	Dome Screw Knife Edge Seat
Reservoir bag fills to capacity	1. Readjust veterinary scavenger interface needle valve.	Section 4.2
Strong anesthetic odor	1. Readjust veterinary scavenger interface needle valve.	Section 4.2

Figure 12. Troubleshooting Chart

#### 5.5 Maintenance Schedule

Every Month	Every 6 Months	Every 2 Years
Remove dome and white discs from the positive and negative pressure re- lief valves and wipe off with soft cloth. Wipe off knife edge seat (refer to page 6). Perform Veterinary Scavenger In- terface Leak Test (refer to page 9).	Perform Vacuum Level Test (refer to page 10).	Purchase and install Mainte- nance Kit and 19mm scavenging hose (refer to page 13) from your Matrx by Midmark dealer. Re- place any other worn or broken components as needed.

#### Figure 13. Maintenance Schedule Chart

5.6 Replacement Parts (Refer also to page 2 for additional part numbers of available components.)



Figure 14. Replacement Parts Exploded View

Rev. 06/21

# Section 6 INFORMATION & WARRANTY

#### 6.1 General Information

All repairs, unless otherwise specified, should be performed by an authorized Midmark service representative.

Call 1-800-MIDMARK for Customer Service.

#### 6.2 Return Goods Procedure

All returns must be made through an authorized Matrx by Midmark dealer. Units needing repair should be sent to Matrx by Midmark and packaged in the original shipping container if possible. Enclose a letter detailing the difficulties experienced and the repairs you feel are necessary. Please contact our Customer Service Department prior to shipping the unit prepaid.

Ship to:

Midmark Corporation 8560 St. Route 47 W Versailles, Ohio 45830 Attn.: Service Department (Repair Service Center)

For international returns, contact your local Midmark dealer.

#### 6.3 Warranty

This warranty is given in lieu of all other warranties, expressed or implied, of merchantability, fitness for a particular purpose, or otherwise.

No statement or claim about the product by any employee, agent, representative, or dealer of Midmark shall constitute a warranty by Midmark or give rise to any liability or obligation of Midmark.

Subject to the next sentences, Midmark warrants that each product be free from defects in workmanship and materials, under normal use and with appropriate maintenance, for the time listed below, commencing from the date of delivery to the customer.

Veterinary Scavenger Interface: 1 year

Midmark's obligations for breach of this warranty, or for negligence or otherwise, shall be strictly and exclusively limited to Midmark's choice of repair or replacement of the product. This warranty shall be void for any product on which the serial number has been altered, defaced, or removed.

Midmark shall not be liable for any damage, injury, or loss arising out of the use of the product, whether as a result of a defect of the product or otherwise, if, prior to such damage, injury, or loss, the product was (1) damaged or misused; (2) repaired, altered or modified by persons other than Midmark; (3) not installed in strict compliance with applicable codes and ordinances; or (4) not installed by Midmark or an authorized Midmark dealer.

Under no circumstances shall Midmark be liable for incidental or consequential damages as those terms are defined in the Uniform Commercial Code.

