Mallard Medical

AB Medical Technologies, Inc.

Instruction Manual

(M210 Rev. 7-1-26)

Model 2400V
Small Animal Anesthesia Ventilator
(For Veterinary Use Only)

MALLARD
MEDICAL

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INTRODUCTION

The Mallard Model 2400V Small Animal Anesthesia Ventilator is designed to provide continuous mechanical ventilation for anesthetized patients. While it is a highly advanced tool for medical professionals, it remains straightforward to use, learn, and apply.

This manual serves to familiarize users with the unit's various functions, specifically those experienced in anesthesia ventilator support. Before operating the device in a clinical setting, the manual should be carefully reviewed and fully understood. Operators are advised to conduct practice sessions on a suitable test lung to thoroughly grasp the functionality and impact of the different controls.

NOTE:
Before clinical use, the Performance Verification Procedure must be completed to confirm the system integrity of this device. It requires both an electrical and pneumatic interface. The clinician should verify that the supply source and patient interface pneumatic connections are secure, and that external electrical connections meet the medical center's safety standards.

Product Warranty

AB Medical Technologies, Inc. (forthwith referred to as AB) warrants this product to meet the published specifications and to be free from defects in material and workmanship under normal use for a period of 2 years from the date of purchase. THE FOREGOING IS IN LIEU OF ANY OTHER WARRANTY, EXPRESS, IMPLIED, OR STATUTORY, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANT LIABILITY.

The sole liability of AB under this warranty is limited to replacing, repairing, or issuing credit at the discretion of AB for the products, equipment, or parts that fail to meet the published specifications, or which become defective during the warranty period, and which are, upon examination by AB found not to meet the published specifications or which become defective in material or workmanship. AB's limited warranty, stated above, will not apply unless the following provisions are strictly complied with:

(a) AB is promptly notified, in writing, upon discovery of the failure of said product or equipment to meet the published specifications or of defects in material or workmanship.

(b) The defective product, equipment, or part thereof is returned to AB, and transportation charges are prepaid by the buyer.

(c) The defective part is received by AB for examination no later than one (1) month following the expiration of the warranty period and provided.

(d) That examination by AB of said product, equipment, or part shall disclose to AB's satisfaction that such defect has not been caused by improper usage, accident, neglect, alteration, abuse, improper installation, or unauthorized repair.

Products, equipment, or parts replaced under this warranty are warranted only through the terms of the original warranty. AB neither assumes nor authorizes any other person or entity to assume for it any other warranty, obligation, or liability in connection with its products or equipment whatsoever, and this warranty can only be changed in writing by a duly authorized representative of AB.

AB makes no representations or warranties whatsoever as to the fitness or usefulness of the products or equipment manufactured by it for any medical treatment, physical condition, or other purpose whatsoever. In no event shall AB be liable for personal injury, property damage, or any special or consequential damages to any buyer, user or any other person whomsoever, including, but not limited to, loss of profits, loss of use of the product or equipment, or for damages of any other kind whatsoever based on a claim for breach of warranty other than a refund of the purchase price of any defective product or equipment.

Any authorization for repair or alteration by the buyer must be in writing from AB to prevent the voiding of this warranty. In the event AB or its representatives render any technical advice or service of any kind to the buyer or anyone else in connection with the equipment or products covered by this warranty, the buyer hereby releases AB from all liability of any kind whatsoever as a result thereof: and the warranty as herein before set forth shall not be enlarged or affected by said action by AB.

AB Medical shall not have any responsibility in the event of loss or damage in transit.

Recommended preventative maintenance, as prescribed in the service manual, is the responsibility of the user and is not covered by this warranty.

This warranty does not extend to: Malfunction or damage caused by improper use or man-made failure. Malfunction or damage caused by unstable or out-of-range power input. Malfunction or damage caused by force majeure events, such as:

(i) flood, fire and earthquake or similar elements of nature or acts of God;

(ii) riots, war, civil disorders, rebellions, or revolutions in any country; or

(iii) any other cause beyond the reasonable control of AB Medical. Malfunction or damage caused by improper operation or repair by unqualified or unauthorized service people. Malfunction of the instrument or part whose serial number is not legible. Other malfunction or damage not caused by instrument or part itself.

The housing, bellows and cosmetic parts shall be free of defects at the time of shipment and, therefore, shall not be covered under these limited warranty terms.

Products operated outside published maximum ratings will not be covered or damage resulting from use of non-AB Medical approved accessories.

Warranty service must be obtained through either AB Medical or an authorized dealer in the AB Medical product line for which warranty service is requested.

Warranty Enactment Form

Model:

Serial Number:

Where is this equipment to be used?

_____

Institution:

_____

Street Address: Phone:

_____

City: State: Zip Code:

Department:

_____

Supervisor:

_____

When received, did the device work properly?

Comments:

_____
_____
_____

Authorized Signature:

_____

Title: _____ Date: _____

Please send or email this form to:

AB MEDICAL TECHNOLOGIES, INC.
20272 SKYPARK DRIVE
REDDING CA 96002
support@mallardmedical.com

Cautions and Warnings

The Mallard Model 2400V Anesthesia Ventilator is a regulated medical device designed exclusively for use by trained professionals under the supervision of a licensed veterinarian.

It is the responsibility of operators to carefully read and fully understand all provided product documentation. Specific statements within the documentation carry particular importance, as outlined below:

Summary of all Warnings and Cautions:

Warning

Whenever a patient is on a ventilator, qualified personnel must provide continuous monitoring. While ventilators with built-in or additional alarm systems can help, they do not guarantee alerts for every possible malfunction in the ventilator or patient system. Furthermore, certain issues may demand immediate action.

Before using this device in a clinical setting, operating personnel must thoroughly familiarize themselves with the instructions provided in this manual.

The Mallard Model 2400V Anesthesia Ventilator is designed to meet the specifications and descriptions outlined in this manual and accompanying labels when properly assembled, operated, maintained, and repaired.

Do not assemble or operate this ventilator without first reading and fully understanding the instructions. The ventilator must be inspected periodically as outlined in this manual. A defective ventilator should never be used.

If repairs are needed, contact the authorized Mallard distributor who originally delivered the device. If you do not receive a suitable response within a reasonable time, reach out directly to our home office in Redding, California, U.S.A. This product must only be repaired in accordance with the manufacturer's written instructions and should not be modified in any way without written approval from the factory.

The user is solely responsible for any malfunction caused by improper use, inadequate maintenance, unauthorized or improper repairs, damage, or alterations made by anyone other than the manufacturer.

Warning

Always monitor oxygen concentrations with an accurate oxygen analyzer with high and low (FI02) alarms to be assured that the desired FI02 is being delivered to the patient.

Warning

Patient circuit compliance and subsequent compressed volume losses must be determined in order to adjust the Volume control accordingly to assure an adequate tidal volume delivery to the patient.

Warning

Breathing circuit components provided by the manufacturer are shipped in a clean but not sterile condition. Refer to “Cleaning and Sterilization” section of this manual for guidelines on the sterilization and/or decontamination of breathing circuit components available.

Warning

The described methods of cleaning and sterilization are acceptable for the components, but the effectiveness for any particular bacteriological situation is the responsibility of the user.

Warning

Only use replacement parts provided, or approved, by the manufacturer.

Warning

Oxygen vigorously accelerates combustion; to avoid an explosion hazard, do not use any service instruments or other equipment that may have been exposed to oil or grease contamination.

Caution

To ensure that the Mallard Model 2400V Anesthesia Ventilator continues to perform to all design specifications, the complete Performance Verification Procedure must be performed at least once a month by qualified service personnel.

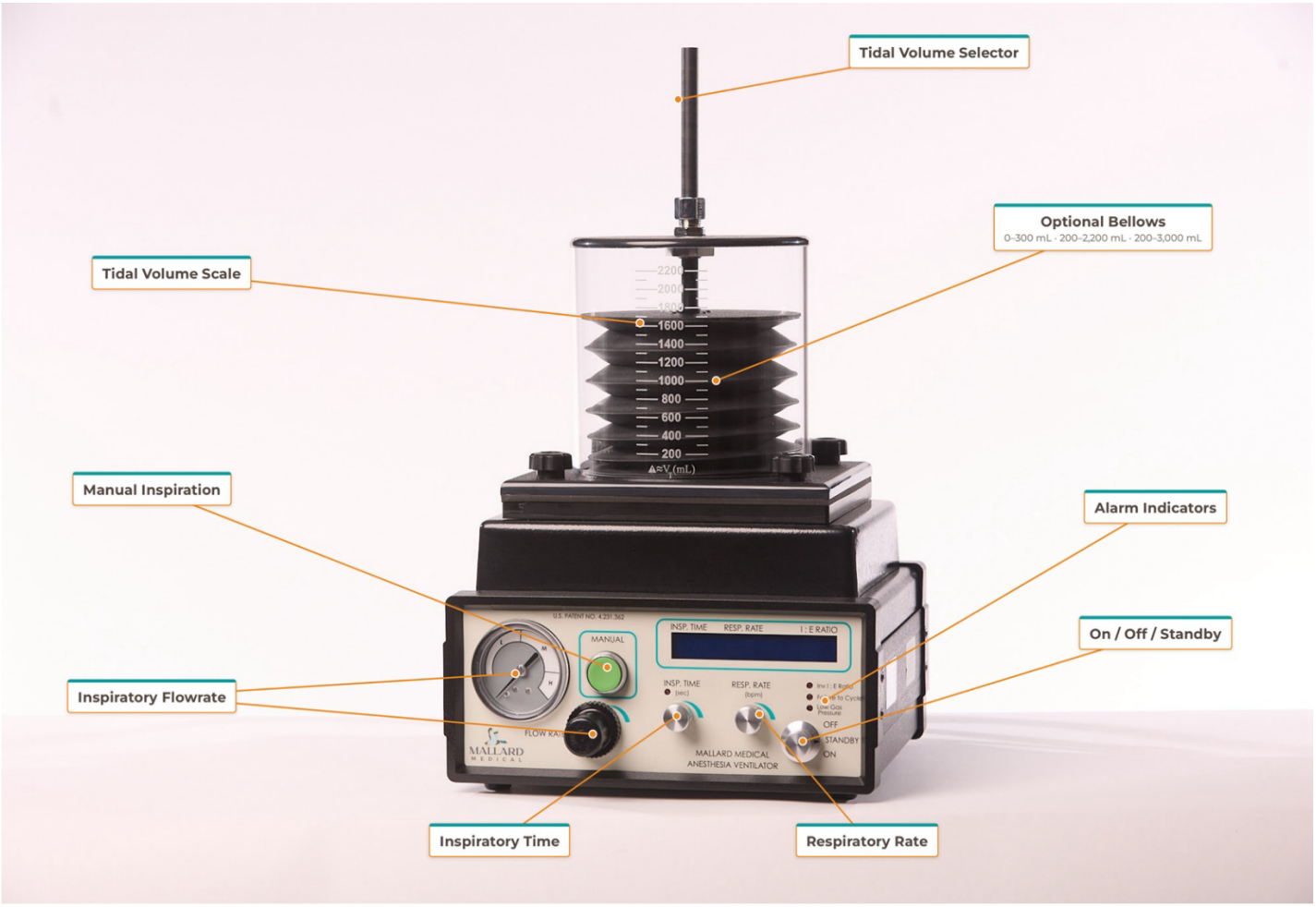
Caution

Ethylene oxide is toxic. Parts thus sterilized must be properly aerated to dissipate the residual toxic gas absorbed by the material. Follow the sterilizer manufacturer’s recommendations for the specific aeration periods required

Warning

The Mallard Model 2400V Anesthesia Ventilator should not be used in the presence of flammable anesthetic gases.

MALLARD
MODEL 2400V ANESTHESIA VENTILATOR



Operating Instructions

APPLICATION WITH ANESTHESIA MACHINE

Connect the gas source inlet to a gas supply providing 50 PSI at the female DISS connection. Plug the electrical power cord into a suitable outlet. Connect the gas scavenger hose to the outlet port labeled "scavenger".

DESCRIPTION OF VENTILATOR

The Mallard Model 2400V Anesthesia Ventilator is an electronically time-cycled, volume-limited device. Tidal volume is selected by restricting the upward expansion of the bellows. At this point, excess anesthesia gas is vented from the bellows and directed to the gas scavenger port.

The control console, located beneath the bellows canister, allows for mechanical ventilation control and displays patient airway pressure. It offers the clinician convenient control options and enhances patient monitoring safety.

DESCRIPTION OF CONTROLS AND DISPLAYS

ON/OFF STANDBY CONTROL

The ON/OFF Standby switch is located on the front panel of the control console. This three-position rotary selector allows for the selection of OFF, STANDBY, and ON. In the "STANDBY" position, the LCD display is illuminated, displaying values for rate (BPM), Inspiratory Time, and I: E Ratio. These values may be pre-selected prior to initiating mechanical ventilation by making adjustments before switching it into the ON mode.

TIDAL VOLUME

Adult Bellows:	200ml to 2,200ml
Pediatric Bellows:	50ml to 300ml
Optional Adult Bellows:	200ml to 3,000ml

Adjustment of this volume is achieved by positioning the vertical ½" diameter tube, extending from the canister top, to limit the upward expansion of the bellows. Loosen the chrome nut that grips the rod, located at the center of the top plate. Position the ½" diameter rod to the desired volume as indicated on the canister wall. Tighten the chrome nut once adjusted.

GAS BALANCE SYSTEM

This system functions in conjunction with the tidal volume rod height setting. As described above, the vertical ½" diameter adjustable tube limits the upward expansion of the bellows. This is accomplished by the opening of an umbrella valve located in the center of the bellows. The excess anesthetic gas is vented from inside the bellows and directed to the gas scavenger port.

INSPIRATORY TIME .1 TO 3 SECONDS

The inspiratory time control is located directly below the left side of the LCD display on the front panel. It consists of a custom ten-turn potentiometer. Clockwise rotation will increase its value; counterclockwise rotation will decrease its value. An LED located directly below the inspiratory time display is activated during the "ON" cycle. This gives a visual indication of inspiratory time cycling. The time is displayed in seconds.

RESPIRATORY RATE 2 to 80 BPM

The respiratory rate control is located directly below the middle of the LCD display on the front panel. This custom ten-turn potentiometer will increase its value when rotated clockwise. Counter-clockwise rotation will decrease its value. This determines cycles per minute.

I:E RATIO DISPLAY

Located to the right of the respiratory rate display, the I:E ratio provides an LCD display of the inspiratory/expiratory time relationship. The inspiratory time is given as a value of one, and the expiratory time is shown relative to it. For example, an I:E ratio of 1:1.5 indicates the expiratory time is one and one half times longer than the inspiratory time.

Directly below this display, an LED indicator light lights up if an inverse ratio is incorrect. An inverse I:E ratio is limited to 75% of the respiratory cycle.

INSPIRATORY FLOW RATE

The inspiratory flow rate control is the 1" (2.54 cm) diameter black control knob located below and slightly to the left of the green manual push button control. By turning it clockwise, the flow rate to the patient will increase from minimum to maximum. Be sure the knob is pulled out / unlocked before turning to adjust. The 2¾" (6.985 cm) diameter display gauge, located to the left and above this control, indicates the level of flow being delivered to the patient. The face of this gauge has low, medium, and high selection.

The maximum flowrate selectivity is limited by the maximum PSI at the ventilation inlet as indicated on the gauge on the back of the cart. Overturning and continuing to turn the flowrate control up after the needle has stopped will cause damage to it over time if done repeatably.

In other words, once the needle stops, do not turn the flowrate up anymore before increasing the pressure on the back of the ventilator. We designate 50 PSI (+/- 10 psi).

MANUAL BREATH PUSH BUTTON

Located on the front left side of the control console, this green push button may be used to develop inspiratory pressure whenever the gas supply is activated. The inspiratory pressure developed will be limited by the setting of the pressure relief valve. Inspiration will occur as long as the button is pushed and the bellows are descending. Do not continue to press once the bellows are fully descended.

Use of the manual breath control will not synchronize the electronic timing circuit. As a safety feature, in the event of an electrical power failure, the manual breath push button can be used to provide mechanical ventilation for the patient for the duration of the surgery.

SAFETY PRESSURE RELIEF VALVE

This overpressure valve is located on the back of the control console and is factory set at 80 cm H_2O. This is the maximum amount of pressure developed within the patient breathing system. It is fully adjustable by inserting a 5/32” (0.396 cm) hex driver into the center of the relief valve. By turning clockwise, you increase pressure; by turning counterclockwise, you lower pressure.

LED DISPLAY - INVERSE I:E RATIO

Inverse I:E Ratio refers to a comparison of inspiratory time to expiratory time. By selecting an inspiratory time which is longer than the expiratory time, an inverse ratio exists and will be indicated by the light. Normal mechanical ventilation has an inspiratory time and ratios of 1:1.5 or greater.

LED DISPLAY - FAILURE TO CYCLE

Located below the I:E ratio display, this light, along with an audible alert, will activate in the event of an internal electronic failure which prevents the ventilator from delivering a positive pressure breath.

LED DISPLAY - LOW GAS PRESSURE

Located below the Failure to Cycle LED, this light will display with an audible alert when the supply source pressure drops below 20 PSI.

EXHALATION VALVE ASSEMBLY

Located inside the control console, the exhalation valve operates automatically. During the inspiratory phase, it will be pneumatically closed to provide positive gas flow to the bellows chamber. During the expiratory phase, it will be pneumatically opened to vent positive pressure from the bellows chamber.

Excess anesthesia gases being vented from the patient breathing circuit will exit via the scavenger port. The gas scavenger tubing should be connected at this port. The gas scavenger system should create a slight sub-ambient pressure at this port to effectively remove excess gases from the room. The vacuum should be about -5cm H_2O or slightly less to sufficiently evacuate excess scavenger gas.

SPONTANEOUS VENTILATION

The Mallard Model 2400V Ventilator System will accommodate patient-initiated breathing during all modes of operation. The inverted bellows will augment the patient's inspiratory effort. As the patient begins to expire, the bellows will rise, allowing the patient's tidal volume to be observed directly from the volume indicator on the canister. Hypopnea or apnea will be observed due to limited or lack of movement of the bellows.

INSPIRATORY TIME AND RESPIRATORY RATE

These two controls regulate the length of inspiration and the frequency (breaths per minute) of the mechanical breath being delivered to the patient. Inspiratory time is selectable from 0.1 to 3 seconds in increments of .1 second. Respiratory rate is selectable from 2–80 breaths per minute. The LCD displays the correct value and may be adjusted by the control knob located directly below it.

VISUAL AND AUDIBLE ALERTS

The Mallard Model 2400V Ventilator System is designed to alert the clinician in the event of abnormalities during application. In the event of an electrical power failure, an audible beeper will be activated. This signal, powered by an internal capacitor, will activate for three (3) minutes.

In the event of a failure to cycle, as selected by the respiratory rate control, the LED labeled "Failure to Cycle" will illuminate, along with an audible beeper. Both signals are self-canceling once the situation is corrected. In the event of an electrical failure (power failure or failure to cycle), mechanical ventilation may be provided by pushing the manual button.

The Mallard Anesthesia Ventilator System is designed to operate at a pneumatic pressure of 50 psi. If supply source pressure should decrease during clinical application, an audible beeper will sound. At a pressure of 20 PSI, a red LED labeled “Low Supply Source Pressure” is lit and an intermittent audible beeper will sound, if the tidal volume being delivered by the ventilator is significantly reduced.

In the event of a disconnection within the patient breathing circuit, the bellows will fall to its baseline position and remain there. This provides a definite indication that a tidal volume is not being delivered to the patient.

Mallard Model 2400V
Ventilator Specifications

CLASSIFICATION

A microprocessor based, electronic, time cycled, pressure limited, volume ventilator.

BELLOWS ORIENTATION

Inverted

VOLUME

Selectable	200-2200ml
Optional Pediatric Bellows	50-300ml
Optional Larger Bellows	200-3000ml

CONTROLS

Inspiratory Time	.1-3 seconds
Inspiratory Flow	1-120 LPM
Inspiratory Pressure	10-80cm H_2O
Rate	2-80 BPM
Manual Push Button	YES

LCD DISPLAY

Inspiratory Time
Rate (BPM)
I:E Ratio

ALARMS AND ALERTS

LED Visual Indicators:	Visual
Failure to Cycle:	Visual-Audible
System Failure:	Visual-Audible
Low Pressure:	Visual-Audible

SAFETY SYSTEM

Overpressure Governor	80cm H_2O (adjustable)

GAS SCAVENGER

19mm port

DIMENSIONS

Height	19”	(48cm)
Width	12”	(30cm)
Depth	10”	(25cm)
Weight	10lbs	(4.5kg)

Performance Verification Procedure for Model 2400V Small Animal Ventilator

This Performance Verification Procedure provides a means of determining whether the Mallard Model 2400V Ventilator meets its design specifications. It is intended to be performed in a hospital by qualified technical personnel. **This procedure should be performed at least once a month** (or more frequently if desired). The checklist should be followed exactly. If the ventilator fails to meet any design specifications, it should be removed from use; service may be required.

NOTE: It is recommended that hospital personnel responsible for the Performance Verification keep records documenting these activities and that all tested equipment be appropriately identified.

Following the instructions on Page 9 “Application with Anesthesia Machine,” set up the Mallard Model 2400V Ventilator as described. Provide a flow of 4 to 6 liters per minute of air or oxygen from the gas machine to the anesthesia breathing circuit. Connect a test lung to the airway connector. Close the gas balance valves located within the gas machine flow with a standard wall outlet flow meter. Assure that the entire breathing circuit is leak free.

Select the following values for control settings on the Mallard Model 2400V:

Tidal Volume:	1000ml
Inspiratory Flowrate:	12 o’clock position
Inspiratory Time:	1 second
Respiratory Rate:	12 BPM

Position the master switch to “ON”. Observe that the mechanical test lung is being ventilated.

Inspiratory Time Control

Adjust the Inspiratory Time Control to a minimum and verify the timing of .1 second. Select inspiratory times of .5, 1, 1.5, 2, and 3 seconds and verify the accuracy of these values.

Inspiratory Flowrate Control

Select an inspiratory time of 1.5 seconds. Adjust the control to its minimum position (fully counterclockwise). The indicator needle will be below the “Low” white indicator, and no flow will be generated from the ventilator. Turn the control knob clockwise and note that the indicator needle advances upward through the Low, Medium, and High areas of the display gauge. The flow rate should increase correspondingly.

Respiratory Rate Control

Select an inspiratory time of .1 second. Select the following respiratory rates: 2, 10, 20, 40 and 80 seconds. Verify the accuracy of the rate control.

Manual Control (Push Button)

Turn A.C. power switch to the “OFF” position. Select the minimum position of the inspiratory flowrate control. Depress the green push button and hold. Advance the control from Minimum to Maximum and observe a corresponding pressure rise on the absorber circuit manometer. Upon releasing the button, the pressure should return to baseline. Verify that the button does not stick in the depressed position and that it moves freely.

A.C. Power Switch (Off/Standby/On Control)

Place the switch in the “OFF” position. Plug the power cord into a grounded A.C. receptacle. Switch the A.C. power “On”; the switch should not trip off. The LCD display should illuminate.

Tidal Volume Selector

Position the volume control tube at the following settings: 200 ml; 1,000 ml; 1,600 ml. Verify the bellows inflate to these volumes during the expiratory phase of ventilation.

Stability of Controls and Displays

Allow the ventilator to mechanically ventilate the test lung for five minutes and observe that volumes delivered are consistent and displays are accurate and stable.

Note: It is recommended that records be kept of this Performance Verification Procedure.

If a Mallard Model 2400V Ventilator System meets all the criteria of the above performance verification procedure, it can be considered suitable for clinical application. **If the unit does not meet the criteria of this procedure, service may be required.** Refer to the Trouble Shooting Guide for possible assistance.

Service Policy

A ventilator that does not meet the criteria of the Performance Verification Procedure should not be used until the unit has been checked again using this procedure or directly contacting Mallard Medical to determine that it is functioning according to specification.

To ensure safety and reliability, we recommend that any service of the Mallard Model 2400V Small Animal Ventilator be performed by an Authorized Mallard Service Representative. Authorized service is available directly from the home office of Mallard, in Redding, California.

Routine maintenance, as defined by this manual, may be accomplished by competent individuals within your medical facility or authorized distributors. Parts designated in this manual should be replaced only with parts manufactured or sold by the manufacturer.

If it is necessary to send a component to the home office for service, it should be adequately packaged. Components returned to the home office for repair (except where our warranty applies) will be repaired at the current Mallard list prices for replacement parts, plus a reasonable labor charge.

Routine Maintenance

Cleaning and Sterilization

This ventilator is shipped clean but NOT in a sterile condition. Clean the components as required by your own sterilization practices & standards.

Recommendations for disinfecting used components:

1. White vinegar and water. One-part white vinegar (available at grocery store) with four parts water.

Avoid using phenols, alcohols or harsh abrasives.

Caution

Parts sterilized with ethylene oxide must be properly aerated to dissipate the residual toxic gas absorbed by the material.

Follow the sterilizer manufacturer's recommendations for the specific aeration periods required.

Bellows Disassembly

The bellows are located within the transparent canister above the control console. It is recommended that a bacteria filter be used to isolate the bellows from patient contamination. The design of the Mallard Model 2400V Ventilator allows for quick and convenient disassembly for cleaning. Follow the instructions below to remove the bellows from the canister.

Assure that the ventilator is "OFF" and unplugged. Carefully disconnect the mainstream hose from the back of the canister inlet port. Remove the four hold-down screws with knobs from the skirt of the canister. Lift the canister straight up to clear the bellows guidepost. Remove the bellows assembly from the bottom plate. Inspect the bellows for any irregularities that may prevent a positive pressure seal.

During reassembly, ensure that the bellows assembly (pediatric or adult) is centered on the bottom plate between the six threaded holes in the platform. The gas balance system should be centered over the outlet port of the bottom plate. Lower the tidal

volume rod to about half-way and replace the canister with the volume indication numbers facing forward. **Be certain the volume selection tube is positioned over the vertical rod extending upward from the bellows.** Replace the four hold-down screws with knobs located on the canister. **Do not overtighten.** Only moderate pressure is required to create the proper seal.

Inject a volume of gas into the bellows, positioning the bellows at approximately 1,000 ml. Be certain the volume selector tube is positioned above this level. Block or cover the inlet tubing. The bellows should remain stable at the inflated level. Continue to inflate the bellows, until the volume tube is contacted with an inlet flow of 4 lpm. Excess gas should vent from the bellows with an increase in pressure not greater than 2cm H_2O above baseline.

Troubleshooting Guide

This troubleshooting guide is coordinated with the performance verification procedure. If a Mallard Model 2400V Ventilator does not meet a particular specification during the performance verification, refer to the appropriate section of the troubleshooting guide to determine what should be done.

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
Bellows not returning to selected volume during the expiratory phase	Leak within the patient's breathing system	Eliminate leak.
	Lack of flow from the anesthesia machine	Re-establish flow
	Overpressure valve on the anesthesia machine is venting gas	Close overpressure valve
The tidal volume delivered to the patient is low	Same as above	Same as above
No flow is being generated from the ventilator	Flowrate control turned off	Turn flow rate control on.
Flow rate is too low to deliver required volume	Flowrate control set too low	Increase flowrate setting to deliver desired tidal volume
Flow rate too high for laminar flow	Flowrate control set too high	Decrease flowrate setting to establish more laminar flow
Unable to generate sufficient inspiratory pressure	Leaks in the patient's breathing circuit	Correct leaks
	Leaks in the exhalation valve	Correct leaks

ON/OFF switch is not functional	Wall outlet inoperative Fuse failure Improper grounding Damage to ventilator Malfunction of P.C. board or component	Test wall outlet Examine the external fuse. Unplug power cord & then examine ground wire Examine and correct physical damage to electronics Contact factory
Low Gas Pressure Alarm	Supply source insufficient	Increase supply source pressure
Low Gas Pressure Alarm during inspiratory phase	Supply source gas pressure drops below 25 PSI during maximum gas consumption	Increase supply source pressure
Failure to Cycle the Alarm	Fail-safe electronic system activated	Contact the factory for correction
Respiratory rate number alternating	Control knob set at a digit advance point	Adjust control knob slightly
Inspiratory time number alternating	Same as above	Same as above
Manual inspiratory control nonfunctional	Inlet pressure line disconnected	Reconnect pressure line
Low flowrate from the ventilator	Leak within the pneumatic system	Examine pneumatics, correct leak
The bellows is low in volume.	Disconnection of the patient's breathing circuit	Reconnect the patient's breathing circuit and fill the bellows with the flush valve.

SPECIAL NOTE

Prior to clinical application, it is essential that the Performance Verification Procedure be performed to ensure the system integrity of this device. This device requires both an electrical and pneumatic interface. The clinician operator should also ensure that both supply source and patient interface pneumatic connections are intact and external electrical connections are in compliance with the existing medical center safety codes. Any discrepancies should be recorded and documented by the person performing the Verification Procedure and resolved prior to use.

Mallard Medical – Support Videos

https://mallardmedical.com/support/