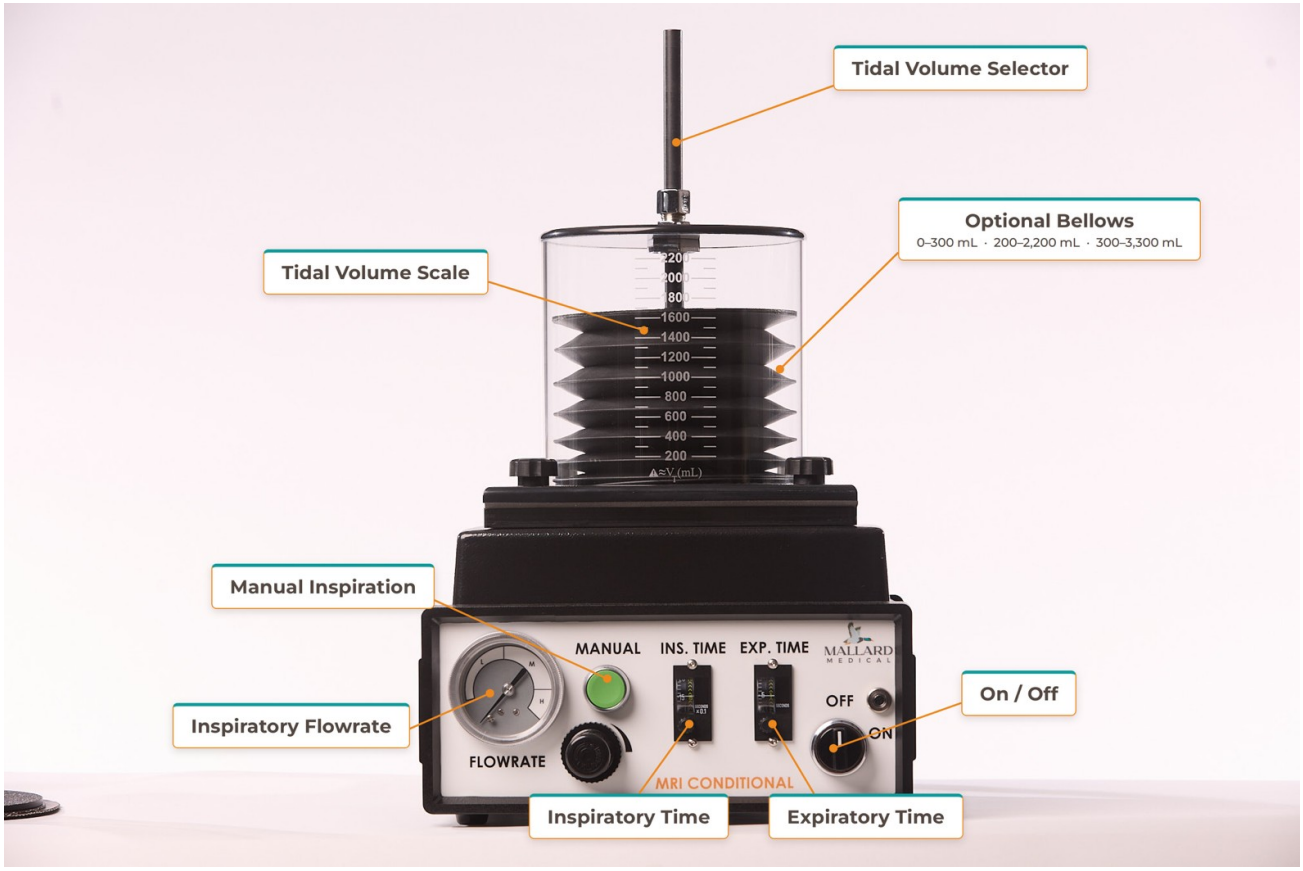
MODEL 2400V & 2200B MANUAL ADDENDUM FOR PNEUMATIC VENTILATOR

(Used for MRI conditional applications)

(M317 Rev. 7-1-26)

FOR VETERINARY USE ONLY



Addendum to Mallard Medical MRI Conditional Models 2400V & 2200B

For Use with MRI Conditional Anesthesia/Ventilator Units

This addendum provides supplemental guidelines for operating Mallard Medical's MRI Conditional Models 2400V and 2200B in MRI environments. These models are specifically engineered to minimize MRI interference by excluding electronics and ferrous materials.

Important Safety and Usage Instructions for MRI Conditional Models

1. **Positioning Requirements** - For optimal safety and performance, always place MRI Conditional models as far away from the MRI machine as possible. This positioning reduces potential interference and maximizes safety. Ensure the unit remains at **least 3 feet (1 meter) away from the MRI machine at all times.**

2. **Compatibility with MRI** - Mallard Medical's MRI Conditional models are pneumatically operated and constructed to prevent interference with MRI scanning processes. This design makes them suitable for MRI suites, but adherence to distance guidelines is critical.

3. **Regular Inspection** - Periodically inspect the device for any signs of wear that could compromise its MRI compatibility, particularly checking fittings and hoses. Avoid placing any magnetic or electronic components near the device when in proximity to MRI equipment.

4. **Personnel Awareness** - Ensure all operators and nearby personnel are aware of the device's MRI Conditional specifications and these distance requirements. Only MRI-safe accessories and supplies should be used with this equipment in the MRI suite.

5. **Additional Considerations** - For settings with higher magnetic field strengths or increased interference sensitivity, you may wish to position the equipment even further from the MRI scanner while maintaining proper connection to the animal patient. If closer proximity is required, use 36-inch hoses to extend your breathing circuit instead of moving the machine itself closer to the MRI magnet. This will help maintain safe distances while ensuring proper functionality.

Front Panel of Pneumatic Controller

These instructions are provided as a supplement to the Model 2400V Instruction Manual enclosed. The pneumatic ventilator is free of electronics and ferrous metals that may cause interference during MRI scanning. Always position equipment such as this as far away from the MRI unit as feasible.

Mounting of the ventilator is the same as the existing electronic ventilator. Use the extended screws provided to mount through the four feet of the enclosure as required.

Rear Panel of 2400V Pneumatic Controller

On the rear of the ventilator, connect the mainstream hose to the canister, your facility scavenger hose to the scavenger fitting, and your gas supply, regulated down to 50 to 60 psi, to the gas inlet fitting.

Supply source requirements are 50 to 60 psi medical grade air or oxygen. An inlet pressure gauge is located on the back of the ventilator at the supply source inlet.

Description of Ventilator Controls and Displays

ON/OFF CONTROL

This two-position pneumatic switch is turned to the 12:00 o'clock position for OFF and right to the 3:00 o'clock position for ON.

INSPIRATORY FLOWRATE DISPLAY AND CONTROL

This gauge and black control knob are located on the left side of the controller front panel. This controls the driving gas flowrate from the controller to the bellows canister, which determines how fast the bellows will compress. The upper limit of the gauge setting is determined by the maximum line pressure coming into the Model 2400V. At 60 psi inlet pressure the dial indicator will be within the "H" or high range. This setting or lower is sufficient for most applications.

Please note that after the maximum dial setting is achieved, you are still able to turn the flowrate control in the increase direction. Do not overturn this control or damage can result. Should you pass the maximum setting, as you turn back in the decrease direction, the indicator dial will not move downward until you reach the point of its maximum setting.

As with all pneumatic devices, it is important that your gas supply source have sufficient volume at any given pressure setting. With maximum setting on the ventilator, a pressure drop of less than 8 psi should be observed when the ventilator cycles on. There is a psi gauge located on the back of the unit.

MANUAL BREATH PUSH BUTTON

Located on the front left side of the control console, this green push button may be used to develop inspiratory flow and will deliver a manual breath whenever the control is pressed. The inspiratory pressure developed will be limited by the setting of the inspiratory pressure relief valve. Inspiration will occur if the button is pushed and the bellow is descending. Do not continue to press once the bellows is fully descended. Think of it as squeezing the bag. The manual breath push button may be used to provide mechanical ventilation for the patient when the ventilator is turned off. It is very helpful during patient weaning.

SAFETY PRESSURE RELIEF VALVE

This overpressure valve is located on the back of the control console and is preset at approximately 80cm H_2O. This controls the maximum range of pressure developed within the patient breathing system. This is fully adjustable by inserting a ¼" hex drive into the center of the relief valve. Turning clockwise increases pressure; turning counterclockwise lowers pressure.

INSPIRATORY TIME SELECTION

Please note the indicated time is in seconds times (x) 0.1. Thus, a selection of 15 equals 1.5 seconds. The selection range is 0.1 sec to 3.0 sec.

EXPIRATORY TIME SELECTION

This is in seconds and allows you to have an Expiratory time of up to 30 seconds or a rate of 2 BPM.

VENTILATOR CYCLING RATE BPM

Please refer to the following chart for the selection of Inspiratory time along with the Expiratory time to give you any desired rate. Inspiratory time is based on the size of the patient and is up to the discretion of the anesthesiologist or veterinarian.

SELECTING VENTILATOR RATE / BPM

Patient Weight Range (P.W.R.)
Insp. and Exp. Times in seconds

	Small Animals				Large Animals				
	P.W.R.		P.W.R.		P.W.R.		P.W.R.		P.W.R.
P.W.R. Rate BPM	Insp.	Exp.	Insp.	Exp.	Insp.	Exp.	Insp.	Exp.	Insp. Exp.
2	.5	29.5	1.0	29	1.5	28.5	2.0	28	3.0 27.0
4	.5	14.5	1.0	14	1.5	13.5	2.0	13.0	3.0 12.0
6	.5	9.5	1.0	9.0	1.5	8.5	2.0	8.0	3.0 7.0
8	.5	7.0	1.0	6.5	1.5	6.0	2.0	5.5	3.0 5.0
10	.5	5.5	1.0	5.0	1.5	4.5	2.0	4.0	3.0 3.0
12	.5	4.5	1.0	5.0	1.5	3.5	2.0	3.0	Reverse I:E Ratio
14	.5	3.5	1.0	4.0	1.5	3.0	2.0	2.5	
16	.5	3.0	1.0	2.5	1.5	2.0	2.0	1.75	

TIDAL VOLUME SELECTION

A volume delivered from the ventilator may be read from the label on the bellows canister. Increasing or decreasing this tidal volume is a function of Inspiratory Flowrate and Inspiratory Time. They may be used together or independently.

Dimensions: Pneumatic Ventilator Only

Height 16 inches	(41 cm)
Width 12 inches	(30 cm)
Depth 11 inches	(28 cm)
Weight 10 lbs	(4.5 kg)