



EMS System for Metropolitan Oklahoma City and Tulsa 2023 Medical Control Board Treatment Protocols



Approved 9/14/22, Effective 1/16/23, replaces all prior versions

3L – MECHANICAL VENTILATION ADULT & INTER-FACILITY PEDIATRIC

EMT
EMT-INTERMEDIATE 85
ADVANCED EMT
PARAMEDIC

Indications:

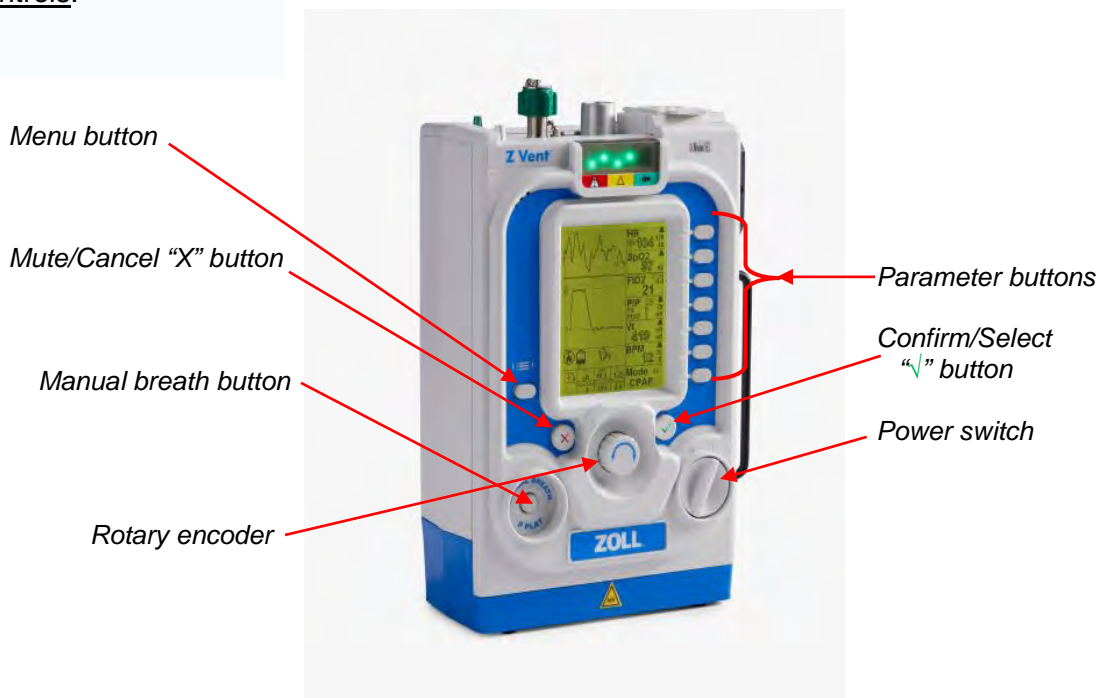
1. Respiratory/Cardiac Arrest Adult.
2. Any Medical Etiology of Dyspnea or Airway Management Requiring Intubation - Adult
3. Any Trauma Etiology of Dyspnea or Airway Management Requiring Intubation (except suspected pneumothorax) - Adult.
4. Pediatric Dyspnea Requiring Intubation - Inter-Facility Continuation of Care.

Contraindications:

1. Pediatric Dyspnea - Non-Inter-Facility/Non-Continuation of Care.
2. Adult dyspnea of lesser severity able to be managed without mechanical ventilation.
3. Suspected or impending pneumothorax/tension pneumothorax.

Technique (Zoll Z Vent):

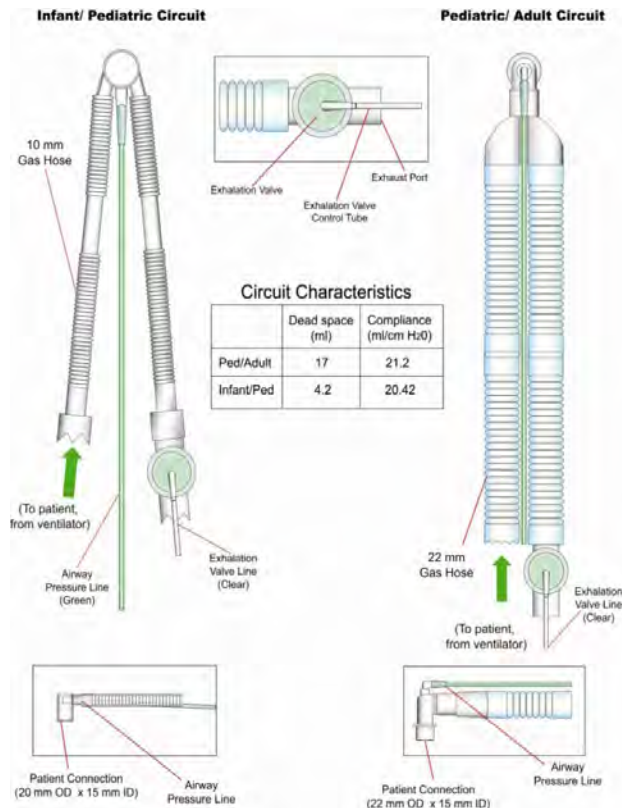
Controls:



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PROTOCOL 3L: Mechanical Ventilation - Adult & Inter-Facility Pediatric, cont.

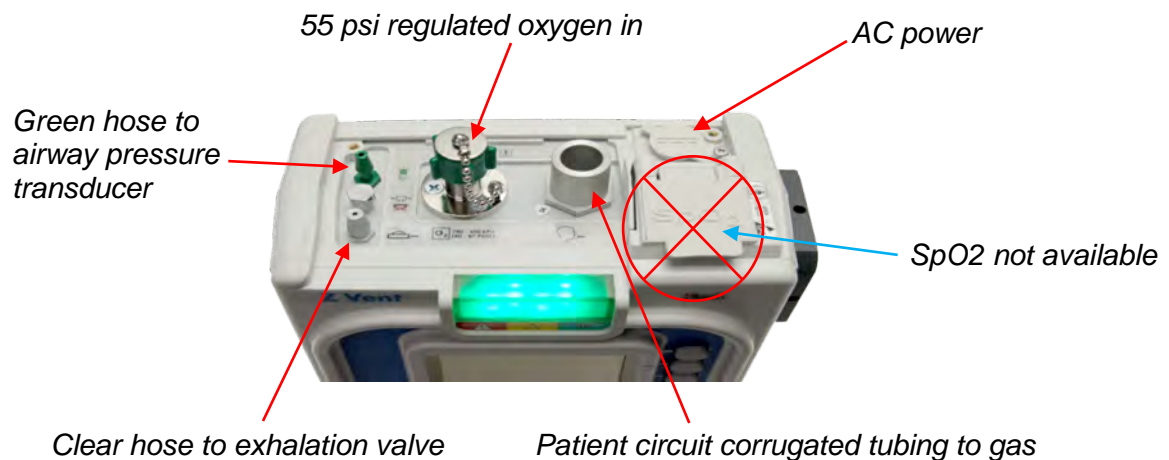
Circuits:



- Zoll Z ventilator circuits feature a low dead space design that minimizes CO₂ re-breathing.
- Note: dead space (circuit and HME) should never be greater than **25%** of the patient's tidal volume (set or spontaneous).
- The 2 standard ventilator circuits cover the range of patient from infant through adult.
 - Pediatric/adult – patients 20 kg through adult, minimum tidal volume 200 mL; *****Ventilator use in pediatrics restricted to inter-facility transport only.*****
 - Infant/pediatric – 5 through 30 kg, maximum tidal volume 300 mL. *****Ventilator use in pediatrics restricted to inter-facility transport only.*****

Connections- check the ventilator for proper operation before connecting to patient:

Step 1: Connect ventilator circuit (use test lung whenever possible) oxygen hose to 55 psi regulated output.



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Step 2: Power:



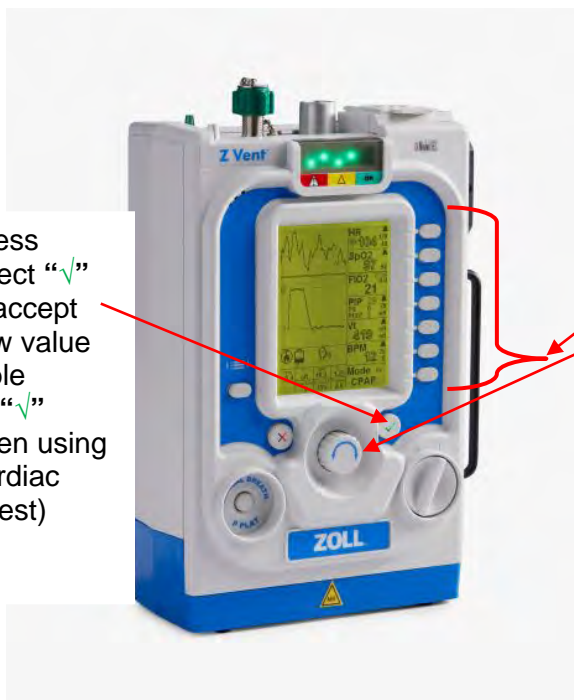
Turn power switch to "ON"

- Unit performs a Self-Check and AUTO-CAL of the internal transducers.
- Zoll Z then begins operation using the default settings.
- AUTO-CAL is performed every 5 minutes thereafter or when an altitude or temperature change is detected.
- Start-up settings may be changed during operation at any time.

Factory Defaults:

- | | |
|--------------------------|------------------------|
| • <i>FiO2:</i> | 21% |
| • <i>High PIP Limit:</i> | 35 cm H ₂ O |
| • <i>PEEP:</i> | 5 cm H ₂ O |
| • <i>Vt:</i> | 450 ml |
| • <i>BPM:</i> | 12 |
| • <i>I:E</i> | 1:3 |
| • <i>Mode:</i> | AC (V) |

Step 3: Changing a Primary Parameter:



3. Press select "✓" to accept new value (Double tap "✓" when using Cardiac Arrest)

1. Current value is highlighted.
2. Turn rotary encoder to desired value.
 - Adult
 - Pediatric
 - NIPPV
 - Custom (Cardiac Arrest)
 - Last setting

Remember: "Touch, Turn, Confirm"TM



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“Custom” (For Adult Cardiac Arrest ONLY):
(Figure 1)

- *FiO2*: 100%
- *PIP*: 25 cm H2O (Max 50 cm H2O)
- *PEEP*: 3 cm H2O
- *Vt*: 400-500 ml (titrate *PIP* to keep tidal volume within this range.)
- *BPM*: 10
- *I:E*: 1:3
- *Mode*: SIMV (P)

Once Ventilator Powered On;

- Select “Custom” from Start Menu
- Press select “√” green check twice (double tap) at startup
- Confirm Correct Pre-programmed Settings
- Titrate only *PIP*, other settings remain as specified above



Figure 1

Safety notes:

- Initial airway management and ventilation must not be compromised while preparing mechanical ventilation equipment.
- If problems arise during Zoll Z vent use or if there is uncertainty about the adequacy of oxygenation and ventilations with the Zoll Z vent, then STOP and ensure oxygenation and ventilation with the usual methods.
- Using the Zoll Z vent mechanical ventilation device will give the ability to determine early changes in pulmonary compliance, such as may be detected using a bag-ventilation technique.
- The incidence of a pneumothorax is increased in the presence of chest trauma with any form of positive pressure ventilation.
- Gastric distention can cause resistance to mechanical ventilation. Gastric distention should be suspected in patients with an acutely distended abdomen after non-intubate positive pressure ventilation. Relieve gastric distention impairing respiratory mechanics with either a nasogastric or orogastric tube with low suction until distention is relieved.
- Continuous waveform capnography is indicated for mechanical ventilation utilizing the Zoll Z. If transporting a patient with a home ventilator that remains on baseline settings the use of continuous waveform capnography is optional.