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# Quick Reference: LTV Ventilator

**What is a Ventilator?**

A ventilator is a machine that provides either full or partial breathing support to your child. The amount of support will vary with each condition.

The Respiratory Therapist may adjust the ventilator settings for the following reasons:

- Weaning (decreasing settings) to get off of the ventilator potentially
- Increasing settings like Pressure or Volume, if your child is becoming ill (pneumonia, tracheitis)
- Fine tuning to improve synchrony with the ventilator

**Why is the ventilator that my child uses at home different than the one they used in the Intensive Care Unit (ICU)?**

The home ventilator like the Trilogy is meant to be easily portable unlike most traditional ventilators that you may have seen in the ICU.

**Will my child always require a ventilator?**

Unfortunately, every child's diagnosis and prognosis is different to accurately answer this question. Please consult with your Doctor for further information.

**LTV Link:**

**https://www.vyaire.com/products/ltvtm-series-ventilators**

Things to take in consideration:

- Be patient. When on the ventilator the muscles become weaker and weaning can take a very long time because of this. Think of it as training for a marathon, you would not just get off the couch and run over 26 miles one day. If you did, you are not human. To train for such an event you would start small, this is the same for weaning the ventilator!

- Be a learner. The more knowledge you have of the ventilator the more comfortable you will be in taking care of your child in emergency situations. Ask questions, read this material, and most importantly keep learning.

- Be organized. Make checklists, schedules, and organize your equipment at home. It will help!

- Be proud. Being a caregiver is not easy. You will have great days and you will have not so great days. Keep the good vibes going. We are very proud of you!

What do the numbers mean?

- **Pressure/PIP**- The amount of force it takes to deliver a breath to the lungs (typically we want to keep this < 35 cwp to avoid damaging the lungs)
- **RR –** Respiratory Rate, how fast your child is breathing (be sure to know your child's baseline RR before going home)
- **Vte** - Tidal Volume Exhaled, amount of volume (air) exhaled each breath (this can be visually seen with chest rise)

  **Target Vte is based on age and weight**
  - Low birth weight infants- 4-6 ml/kg
  - Term infants- 4-8 ml/kg
  - Children- 6-10 ml/kg

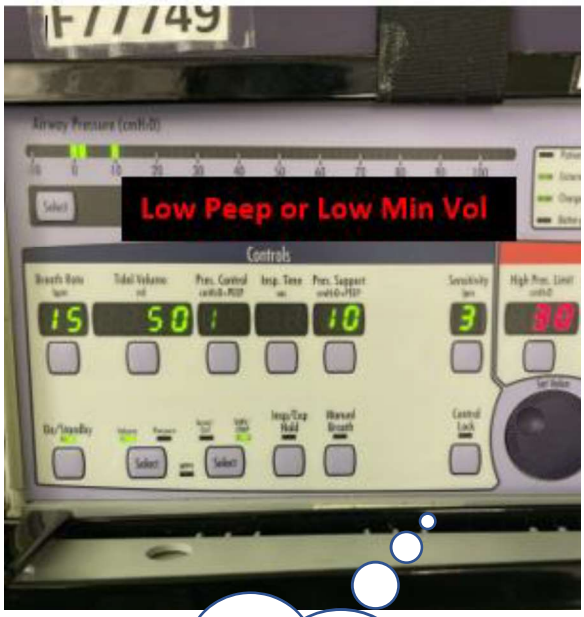
**Example:** You have a 1-year old child and they weigh 9kg or 20lbs (lb/2.2 = kg). Their target range would be 4-8 ml/kg (9kg x 4ml = 36ml, 9kg x 8ml = 72ml), so their ideal Vte range would be between 36ml – 72ml.

- **Pressure Support**- Provides extra support when spontaneously breathing, typically used for weaning off of the ventilator.
- **PEEP**- Positive End Expiratory Pressure, is used to prevent airway collapsing after exhaling (helps keep the lungs open)
- **Leak**- Amount of volume leaking from the circuit, because of the whisper swivel (allows for exhalation) there will always be a leak, generally this will be between 25-40ml.
- **I:E Ratio**- amount of time inhaling compared to the amount of time exhaling, typically between 1:2 - 1:4.
- **Peak Flow**- The rate at which gas is delivered during inhalation.
- **MAP**- Mean Airway Pressure, the average pressure in the lungs, this number is typically between 9-12 cwp.
- **MinVent**- Minute Ventilation, this value takes into account how much volume you inhale every minute. This value will change depending on the patients target Tidal Volume (as seen above).

## Possible Causes

Temp probe dislodgment, (most common cause). Reconnect, and push the silence/reset button to clear the alarms.

## Alarms




**Is the trach in?**

**Is the cuff deflated?**

**Check for Leaks!**

Trach dislodgment may cause the ventilator to alarm circuit disconnect (always check to see if the trach is in first when troubleshooting)

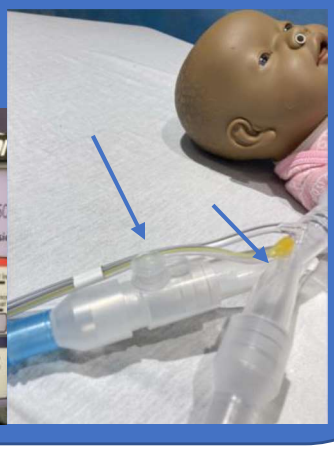
It is possible that your child may detach the trach pilot balloon by pulling or biting. If this happens, you must remove the trach and insert a

**Are the Alarms not clearing after pushing the silence reset multiple times?**

**Does your child not look to be in any respiratory distress?**

Try looking at the pressure lines for any condensation in the tubing. If you see droplets, then try pressing manual breath a few times, or change the circuit.

Be sure to keep the pressure lines facing up when possible to avoid this!

Your child is working harder to breathe. Make sure the trach is in, suction, or disconnect from ventilator and start bagging and investigate further.


Make sure the trach is in! If in, try suctioning.

If suctioning doesn't work:

- Could you pass the suction catheter? If not, remove the trach and place a new one in (could be plugged)!
- Look for kinks in the ventilator circuit/trach tube.
- Is your child coughing?
- Is there water in the circuit?
- Do they need a breathing treatment?

**If struggling to find the cause of the Ventilator Alarm and your child is in distress, use the resuscitator bag and call 911!**

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# Preparing for Transport: LTV

Items needed for travel while on an LTV:

1. Travel Case
2. LTV Ventilator
3. Sprint pack, or other compatible external battery.
4. Power Cord
5. Bacteria Filter
6. Ventilator Circuit
7. Omni-flex (accordion)
8. HME
9. Suction (inline) or Peep Keep Adaptor
10. Oxygen Tubing

Other:

-See Essential Items to Have When Traveling handout.

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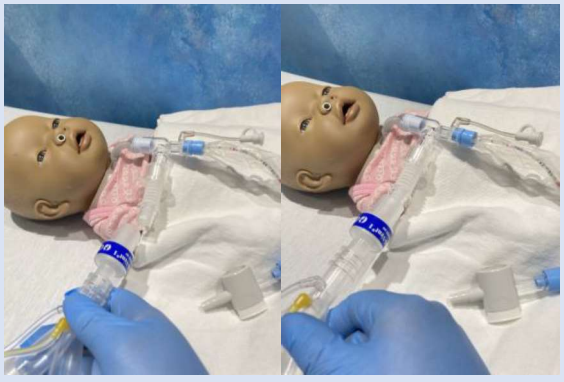


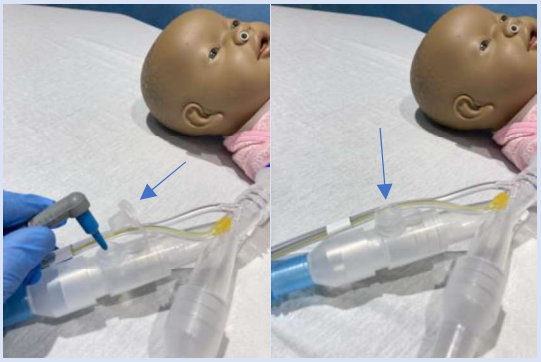
Grab the ventilator HME. Next, disconnect between the omni-flex and end of ventilator circuit at the "Y."

Connect the HME adaptor with the words facing towards the ventilator. If at first it does not connect, try flipping the HME over to the other side.

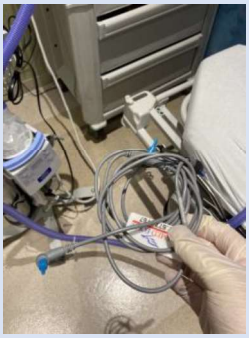
Turn off the heater by holding down on the power button (bottom right button) for around 1-2 sec.

Grab the connector plug for the ventilator circuit temp probe (if lost, grab one from a new vent circuit package). Then place in the same spot where you disconnected the temp probe.

Next, unplug both "pigtail" connections.



Disconnect the temp probe that it closest to your child and cover with the cap that is attached.



Unplug the temp probe that is attached to the heater, ravel it up, and keep close. Before connecting the temp probes again, be sure to clean it off with alcohol wipes.

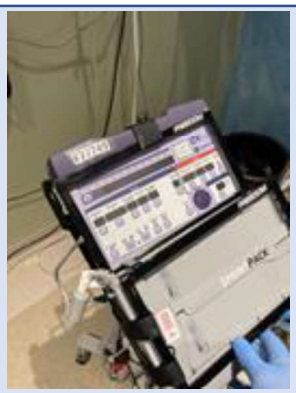
On the side of the ventilator, disconnect the "short" tubing between the bacterial filter and circuit.

Next, QUICKLY disconnect the "long" tubing from the humidifier and connect it directly to the bacterial filter on the side of ventilator.

To keep the circuit/humidifier clean while not in use connect the "short" ventilator tubing directly to the humidifier.


Unplug the power cord adaptor that is attached to the sprint pack battery.

DON'T FORGET TO TAKE THE POWER CORD WITH YOU!



Lift ventilator at an angle to release from the stand bracket.

When arriving back home, reverse the steps above from last to first.