

Mechanical Ventilation refers to the application of a device that provides patients varying degrees of ventilatory support. These devices range from simple (Figure 2) to complex (Figure 3), depending on the needs of the patient and the capabilities of the machine.ⁱ

Most Ventilators contain:

- A power source
- Cycling
- Parameters
- Ventilator Circuit
- Alarms

Ventilators may be negative pressure (reference the old iron lung, Figure 1) or positive pressure, although almost only positive pressure ventilators are used today. With a positive pressure ventilator tidal volume (V_t) is delivered at pressures greater than ambient pressure and is therefore paradoxical to spontaneous breathing. This brings several hazard potentials such as pneumothorax, subcutaneous emphysema, and decreased cardiac output.



Figure 1



Figure 2



Figure 3

AAOS, ACEP. (2011). *Critical Care Transport*. Pg. 171-179 (A. N. Pollack, MD, Ed.) Sudbury, Massachusetts, USA: Jones and Bartlett Publishers.