

Switching to HFJV from HFOV

When a clinician contemplates switching to HFJV from HFOV the question arises, "How do I convert amplitude into PIP and PEEP?" The answer is the LifePort™ endotracheal tube adapter. Replacing the standard endotracheal tube adapter with the LifePort allows HFOV settings to be monitored via the Life Pulse. The Life Pulse displays amplitude as PIP and PEEP. In addition, mean airway pressure (MAP) is converted from the proximal measurement of HFOV to the more distal measurement monitored by the Life Pulse.

Description of the Process:

1. Set-up and test the Life Pulse (Jet) according to the normal procedures described in the Operator's Manual.
2. Choose the appropriate size LifePort adapter for the endotracheal tube (ET tube) being used on the patient. Refer to LifePort instruction sheet for details.
3. Replace the standard 15-mm adapter on the patient's ET tube with the LifePort adapter.
4. With the Jet in **Standby** mode, uncap the LifePort pressure monitoring tube and connect it to the barbed fitting on top of the Patient Box labeled: TO HI-LO PRESSURE MONITORING LUMEN. (Do not connect the Jet or conventional circuits yet.)
5. The airway pressures produced during HFOV will begin appearing in the upper left monitoring area of the Jet's front panel. Wait approximately 1.5 minutes for the displayed values to stabilize, then record the **PIP**, **ΔP**, **PEEP**, and **MAP** (mean airway pressure) from HFOV. The **MAP** will be particularly helpful later.
6. Set the **NEW RATE** on the Jet to a value that is appropriate for the patient's weight and compliance. Patient weight indicates which range of rates is appropriate. Patient compliance determines what rate in that range is appropriate. Slower rates for good compliance. Faster rates for poor compliance. The list below shows what range of rates is best suited to different patient weights.

HFJV Rate	Patient Weight
240 - 360 bpm	≥ 3.0 kg
360 - 540 bpm	1.0 - 3.0 kg
540 - 660 bpm	≤ 1.0 kg

7. Set the **NEW PIP** on the Jet to the PIP being monitored by the Jet from the HFOV. (The maximum available PIP is 50 cm H₂O.)

8. Leave the **NEW ON-TIME** on the Jet set at 0.020 sec.
9. Turn on the conventional ventilator and set the PEEP/CPAP while occluding the patient circuit connector. Also set appropriate IMV parameters such as PIP, I-time and Rate in the event that you may want to deliver a "manual breath" or add "background IMV" while the Jet is coming up to pressure.
10. Set the PEEP/CPAP on the conventional ventilator to a value equal to the PEEP monitored on the Jet from HFOV. If that value exceeds 10 cm H₂O and the infant has an active air leak, you may want to limit your starting PEEP to 10 cm H₂O or less. However, be forewarned that dropping the effective PEEP too much may lead to atelectasis and hypoxemia.
11. Connect the Jet circuit to the LifePort adapter by removing the white cap and inserting the male luer fitting on the green end of the circuit into the jet port.
12. Do the following three things in quick succession (you may want to use more than one person): Press **ENTER** on the Jet, disconnect the HFOV, and connect the conventional ventilator. You may then turn off the HFOV.
13. The Jet will take a few seconds to build up pressure, but the transition should take place fairly smoothly. If you are concerned that the patient needs more support during this period, you may deliver manual breaths from the conventional ventilator or switch it to IMV mode at 1-5 bpm. Keep in mind that the more manual or IMV breaths you deliver, the longer it will take the Jet to reach the **READY** condition.
14. Once the **READY** condition has been reached check the MAP displayed on the Jet and compare it to the valued you monitored from HFOV. The MAPs should be similar. Watch the pulse oximeter and adjust PEEP/CPAP, on the conventional ventilator, up or down to provide adequate oxygenation.

The starting parameters obtained by monitoring HFOV may not be the exact settings the patient needs on HFJV but they provide a reasonable starting point for making the transition. Observing the patient, watching the physiologic monitors (transcutaneous CO₂ and pulse oximetry) and obtaining blood gases will allow the HFJV settings to be fine-tuned.