



How to measure the compliance value of a Tefonius Junior machine

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Scope: This document applies to Junior machines with gas and to Full Tefonius machines run in Auxiliary mode.

Note that Full Tefonius machines run in full Tefonius mode (with PC software) have automatic compliance measurement and compensation.

General

When ventilating patients using the Auxiliary system there is no automatic compensation for volume losses caused by the compliance of the system. This may mean that the delivered volume to the patient is less than the set Tidal Volume on the machine. By measuring the compliance of the system in use, it is then possible to compensate for the volume losses by increasing the set Tidal Volume appropriately. Before running the procedure below, test the machine for leaks and ensure a leak of less than 500mls/min before proceeding.

Method

In Auxiliary mode:

1. Set up the system in the normal way with Y-piece attached and pressure sensor connected to the Y-piece.
2. Fill the piston to around the mid-way position (10L)
3. Put a stopper on the Y-piece
4. Set TV initially to 1 L
5. Set IT to 4.0 seconds
6. Set RR to 6
7. Make sure MWPL is set to over 20
8. Press the RUN button
9. Run the machine and look at the Peak Inspiratory Pressure (PIP) on the auxiliary screen in brackets (not the manual manometer)
10. Adjust the TV to get a PIP of 20cm

Once you have a PIP of 20cm, the TV is the compensation volume needed when ventilating to 20cm and the actual compliance is the TV divided by 20 in mls/cm.

Specifically, compliance = $\frac{\text{Tidal Volume for a PIP of 20cm}}{20}$ in mls/cm H₂O

When ventilating a patient:

Compensation volume = Peak Inspiratory Pressure x measured compliance value
e.g. Compliance measured and found to be 41mls/cm

Patient is to be ventilated with a consistent PIP value of 23 cm H₂O

The volume lost to the compliance of the system is: $23 \times 41 = 943$ mls. Therefore add 1L to the required Tidal Volume for your patient.

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