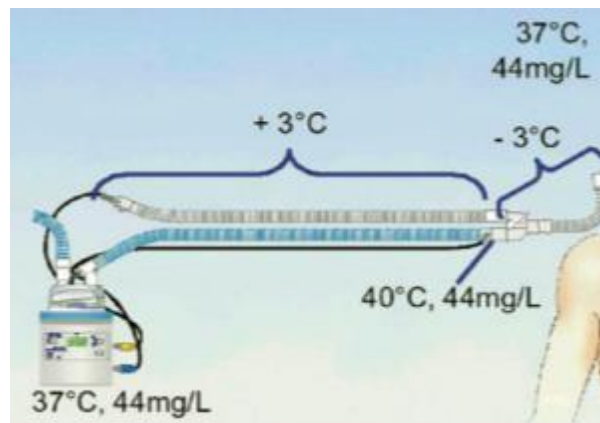


How to...

Problem Solving the MR850 Humidifier

Problem solving the Astral and humidifier will get easier with experience, but here are some general points:

1. **Your child comes first:** If you are having problems with equipment, always check your child is okay first.
2. **Be prepared:** If you are having technical problems, check you have everything you need in case the problem gets worse and/or you need to take your child to hospital.
3. **Safe learning:** With experience, you will recognise most problems and know how to fix them. Your health team will help you safely learn.
4. **Be systematic:** Some problems require you to carefully check things in a systematic way. Starting with your child, the circuit, accessories and other parts of setup, and then the ventilator. Does this resolve the problem? If you keep a diary or observation chart, write down details of any problems and how you resolved them.
5. **Get help:** Contact your health team or technical support. The more information you can give them, the better they can help. If there were alarms or error messages, write down the exact words (or take a photo with your smartphone). Try to describe exactly what was happening. Sometimes describing what else was going on at the time and any recent changes in setup, can be vital clues.



Problem Solving the MR850 Humidifier

General MR850 humidifier problem solving:

- **Consider the environment.** Optimum performance is with an ambient temperature of 18-26°C. Outside of this range, you may either get reduced humidification (no water droplets beading on the inside of the chamber) or excessive 'rainout' (water/condensation) in the breathing circuit. Cold air (fan/air conditioning) on the circuit tubing may also lead to excessive rain out.
- **Check the setup** including that there is enough water in the chamber, the placement of the temperature probes, and the heating wire leads. If condensation has formed on the probes – dry and re-insert them. Check the MR850 for warning lights. Temperature probe and heating wires are the most common components of the humidifier to fail. Consider replacing them.
- Always keep the humidifier chamber and circuit below the height of your child's mask/tracheostomy.
- Remember that while humidification is desirable, your child is not dependent on it in the short term. The MR850 can be left off or you can consider alternative means of humidification (HME or nebulisation).



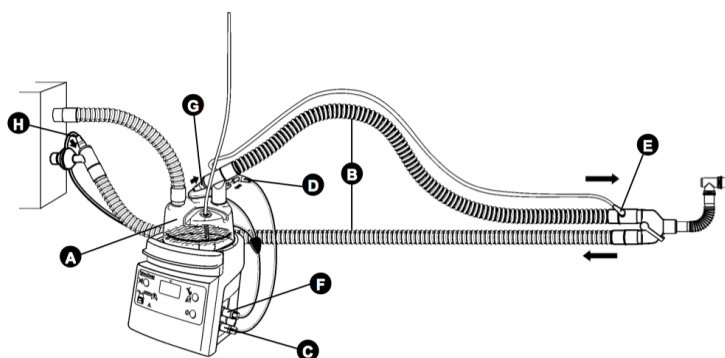
How to...

Problem Solving the MR850 Humidifier

SET UP

1. Slide humidification chamber (A) onto humidifier base and connect breathing circuit (B) (refer to humidification chamber and breathing circuit operating instructions for further details).
2. Connect the temperature probe plug (C) (REF 900MR86X) to the blue socket on the humidifier base until an audible click is heard.
3. Push the chamber probe (D) and airway probe (E) into the breathing circuit. Make sure the chamber probe is correctly located in its key-way and that both probes are pushed home. The probe lead can be restrained using breathing circuit clips.
4. Connect the heater wire adaptor plug (F) (REF 900MR8XX) to the yellow socket on the humidifier base until an audible click is heard.
5. Connect the other end(s) of the heater wire adaptor to the breathing circuit socket(s) (G) and (H).
6. The humidification system is now set up and ready for use. After power on, the humidifier will default to invasive mode.

ATTENTION: Refer to operating instructions which accompany each accessory.



THE FOLLOWING ACCESSORIES ARE REQUIRED:

- Humidification Chamber (e.g. MR290)
- Breathing Circuit (e.g. RT100)
- Temperature Probe (e.g. 900MR869)
- Heater Wire Adaptor (e.g. 900MR800)
- Mounting Bracket (to suit ventilator)

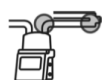
Choice will depend upon application. Please contact your local Fisher & Paykel Healthcare representative for recommendations.

OPERATION

MUTE

The mute button silences the humidifier's audible alarm for at least two minutes. The muted time depends on the alarm condition and the severity of its cause.

SET-UP INDICATORS



Chamber & Airway Probes

Lights if either the chamber probe or the airway probe is not inserted into the breathing circuit correctly.



Heater Wire

Lights if the heater wire adaptor or breathing circuit has not been connected, or is damaged.



Temperature Probe

Lights if the temperature probe is not correctly plugged into the MR850, or the probe is faulty.



Water Out

Lights when there is insufficient water in the chamber. Check water supply. Maximum time to alarm of 20 minutes.



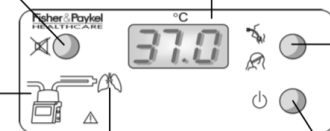
See Manual

The humidifier and all accessories should be immediately replaced and sent for servicing.

TEMPERATURE DISPLAY

Displays the saturated gas temperature (the lower of the airway and chamber temperatures in °C) delivered to the patient. This display will normally show the chamber temperature (around 37 ± 0.5 °C for invasive mode, and 31 ± 0.5 °C for noninvasive mode).

By pushing and holding the mute button for one second, the chamber outlet temperature is displayed. The display will then revert to normal operation.



LOW HUMIDITY ALARM

An audible alarm and flashing temperature display showing **35.5 °C or lower** (in invasive mode only). Caused by cold/draughty conditions or very high or low gas flows.

If the circumstances causing the low humidity alarm cannot be changed then the audible alarm acts as a reminder that the patient is receiving inadequate humidity and may require further intervention to maintain airway clearance.

HIGH HUMIDITY ALARM

A flashing temperature display showing **41 °C or higher**. The humidifier will discontinue heating of the chamber and circuit until the temperature decreases to within normal limits.

MODE BUTTON

This button switches between invasive and noninvasive mode.



Invasive Mode

This mode is for patients with bypassed airways. The humidifier delivers gas as close to body temperature saturated (37 °C, 44 mg/L) as possible.

Under cold or draughty conditions the chamber temperature may drop as low as 35.5 °C in order to maintain a dry breathing circuit.

WARNING: Ensure that invasive mode is set for patients that have bypassed airways



Noninvasive Mode

This mode is for patients receiving face mask or headbox therapy, and delivers a comfortable level of humidity.

ON/OFF BUTTON

The humidifier will power ON if this button is held down briefly, but must be held down for one second to turn the humidifier off. The humidifier will always default to invasive mode when it is turned on.

ROUTINE MAINTENANCE

Refer maintenance to qualified service personnel. A full technical description including routine maintenance and service data is contained in the Technical Manual which is available from your supplier or Fisher & Paykel Healthcare (REF 185041340)