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White Paper: What is O2 Conserve Mode?

Introduction

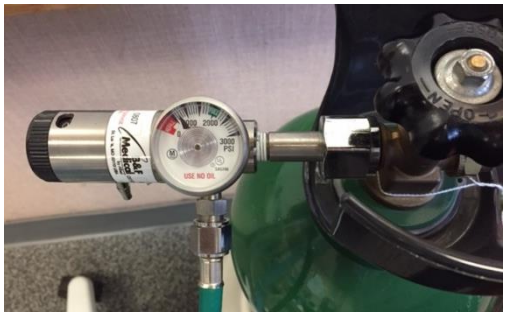
Oxygen Conserve Mode is a simple but effective feature, and unique to the AHP300 ventilator. This setting is for use in extended transport or disaster situations in which any available compressed gas must be conserved, or if no compressed O2 source is available, it allows the user to supplement the internal air compressor with up to 10 LPM low flow oxygen from an oxygen concentrator.

How it works

When the O2 conserve mode is enabled (by pressing the O2 Conserve button during use) the AHP300 will limit the O2 delivered to no higher than 10 LPM. This saves considerable gas and makes estimation of time left on the tank quite easy. Depending on the ventilation settings, this will override the user's O2% setting and instead deliver an oxygen concentration less than what was set by the user. Below the O2% setting you will see a black oval indicator with text stating that the O2% cannot be achieved at these settings. This oval lights up any time the O2 Conserve button is on and the vent settings are set to require it to deliver more than 10LPM of O2. This also means that delivered FiO2 is less than what the user has set. The user must change the settings to achieve the set O2 level, either by adjusting the FiO2 or the Tidal Volume, Inspiratory Time, etc. until the light turns off.

Using O2 Conserve with Compressed Oxygen Tanks

In addition to limiting the amount of O2 delivered, activation of the O2 Conserve feature also allows the vent to utilize about 25% more out of the compressed O2 tank. Most ventilators will shut off when they sense an inlet pressure of less than 38psi. This typically occurs when the oxygen tank has less than 500 psi of tank pressure remaining. Once an oxygen tank's pressure reaches this threshold, the oxygen regulator connected to the oxygen tank will struggle to maintain the necessary 38 psi supply pressure for most ventilators. This results in replacing an oxygen tank even though the tank still has as much as 25% of its capacity remaining.



Shown Above: Oxygen Regulator connected to a compressed oxygen tank that is nearing depletion.

When the O2 Conserve feature is activated, it allows the vent to utilize the compressed O2 down to an inlet pressure of as little as 3 psi, allowing the vent to utilize nearly all of the available O2 in the tank. This feature is especially crucial if one runs out of oxygen on a long ambulance transport or in the case of a disaster or pandemic.

Using O2 Conserve with Oxygen Concentrators

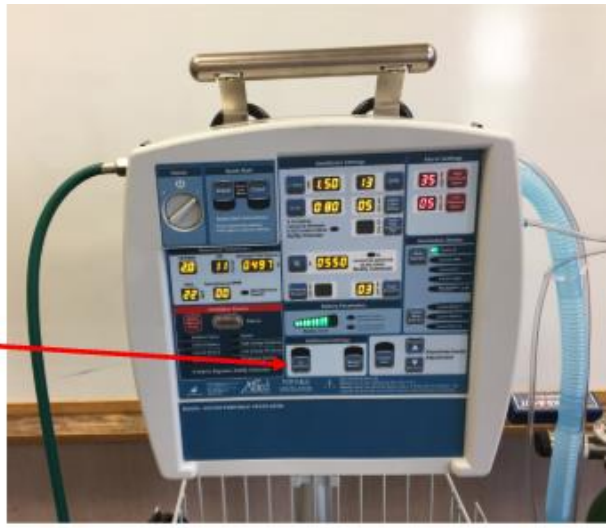
Oxygen concentrators are low pressure devices, generating less than 10 psi, and are designed to provide oxygen at flowrates up to 10 LPM. Oxygen concentrators do this by compressing room air and removing the nitrogen gas so as to enrich the concentration of oxygen in the provided patient flow. When using the AHP300's O2 Conserve Mode, an oxygen concentrator can be used as an alternative oxygen source in the event that compressed oxygen gas is unavailable. Potential examples of this are in event of disasters and pandemics, but may also include locations with limited local infrastructure such as remote areas or developing countries.

Shown Above: Example Oxygen Concentrator

How to Activate O2 Conserve Mode

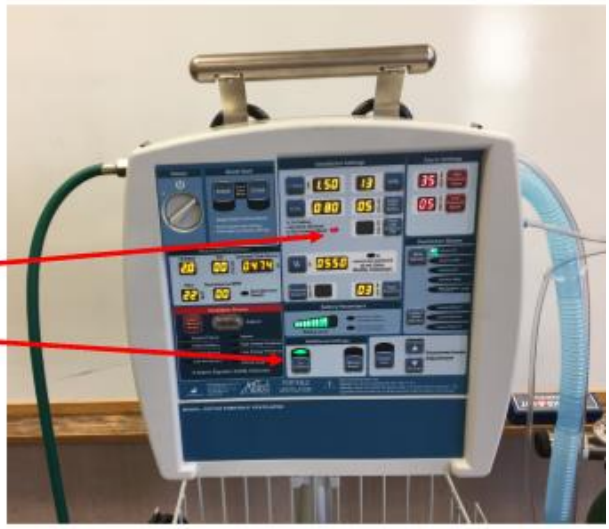
Step 1: Turn on O2 Conserve Mode

Press the O2 Conserve Mode button, located at the center bottom of the user interface panel, below the battery status indicator.



Step 2: Verify %FiO2 Setting

If the %FiO2 setting is too high to be able to achieve with 10 LPM of oxygen flow, the warning status light below the %FiO2 button will activate. This warning indicator states that "%O2 Setting cannot be achieved in O2 Conserve Mode, Notify Clinician"



Step 3: Adjust %FiO2 Setting to identify actual %FiO2

To identify the actual %FiO2 that is being delivered in O2 flow, reduce the %FiO2 setting so that the warning status light turns off. This is the oxygen concentration being delivered to the patient in O2 Conserve Mode. (Only 10 LPM of oxygen is being consumed.) Note: the user may also adjust other parameters, such as tidal volume, inspiratory time, and breath rate to optimize the 10 LPM limit of O2 Conserve Mode.