

## Venting Overflow Gases from the Air Shields (Ventimeter) Ventilator

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In conversations with clinicians who are concerned about providing their anesthesia equipment with "scavenging" methods to vent excess gases from the operating room, a question that is frequently asked is, "How do you vent the Air Shields ventilator?" This brief note is to explain a simple way to do this. The average practicing anesthesiologist never has occasion to dismantle a ventilator, so is usually unaware of the location of the exhalation port. In the Air Shields unit, it is located within the gray, sheet metal box housing the mechanism. This may be opened simply by first removing the bellows assembly from the top of the unit, then releasing the mechanism from the top by removing the four small screws holding it in place. Next, the front and bottom plates of the containing box are released by removing the screws holding them in place. This allows the working mechanism of the unit to be brought into view. To the left of the portion connecting to the bellows may be seen a small rubber disc valve overlying the exhalation port, and covered with a cross composed of two retaining wires. The wires and rubber valve are removed, exposing the exhalation port of the ventilator. To the right and at a right angle to the port is a cylindrical Venturi device, which is threaded into the side of the block. This device is removed, and the small, threaded hole into which it was attached is then sealed with epoxy cement, so that no route of escape of overflow gases remains except the principal one on the top. This is then fitted with a metal cylinder, which is secured to the metal block with epoxy cement.

Figure 1 shows the unit after these changes have been made. All that remains is to cut a hole in the top part of the containing box to allow the exhaust tube to protrude through it, as shown in figure 2. To it may be attached an exhaust line to carry overflow gases and vapors from the operating room. This

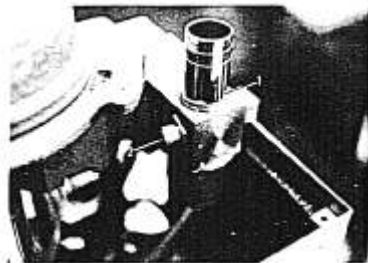


FIG. 1. Ventilator interior, showing attachment of metal cylinder over exhalation port (1) and place of attachment of Venturi device (2), which has been removed and the site sealed with epoxy cement.



FIG. 2. Ventilator reassembled, with metal cylinder protruding through opening made in containing box. Standard conducting tube is attached to this cylinder and led to exhaust air duct for the operating room.

modification makes it impossible to use the negative-pressure phase function of the ventilator but otherwise does not alter any aspect of performance. Seven units altered in this manner have performed satisfactorily in our hospitals for more than a year. The manufacturer will modify these ventilators for a cost of approximately \$350, utilizing a different method to evacuate overflow gases and vapors. For those who choose to do it themselves, our method is easy, effective and inexpensive.

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