

esthetic solution mixed with 15  $\mu\text{g}$  of epinephrine would be optimal for use as a test dose.

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### Blistering of Epoxy Material of Narco Airshields® Ventilator

*To the Editor:*—We would like to call attention to a potential problem of materials deteriorating in Narco Air Shields\* ventilators. The main casting (bellows-chamber base) of the ventilator is made of aluminum, and is coated with a black epoxy-like material. The epoxy coating is said to be used in order to assure an electrically conductive patient breathing circuit. After less than three years of use, 13 out of 26 Ventimeter® Controller ventilators were found to have areas of blistering or outpouching of epoxy from the main casting, as shown in figure 1. The ventilators used most showed the largest such areas.

The epoxy which has separated from the main casting is hard and brittle to the touch. If the blisters break and the epoxy flakes, it is possible for particles to enter the patient breathing circuit. The company claims that there is little danger of this event occurring, and also suggests using a breathing circuit filter.

The company points out that in their "Operator's Manual," instructions are given that the ventilator should be disassembled and cleaned after each use. For proper cleaning of the casting, the cage, cylinder, bellows, and overflow valve must first be removed. It is the moisture and/or anesthetic agent remaining on the casting which most likely causes the epoxy to separate from the aluminum. The company has promised, however, that they will send replacements for all of the deteriorated main castings, without charge.

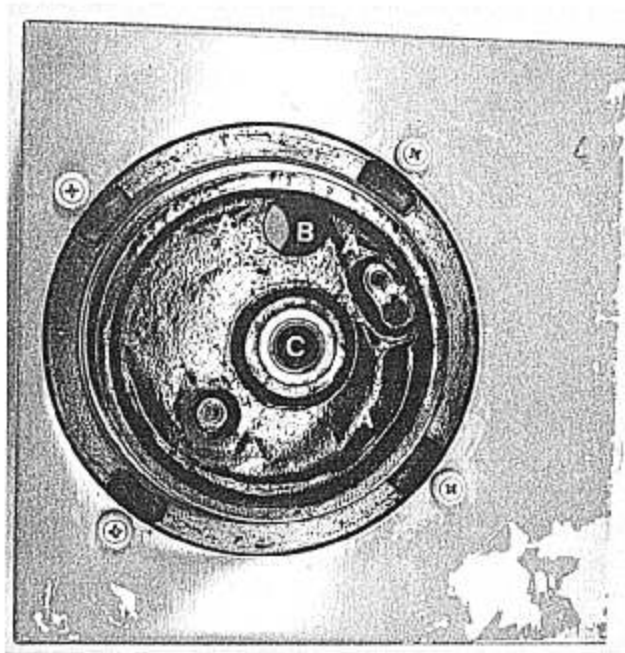


FIG. 1. Top view of Air Shields Ventimeter Controller ventilator with bellows and overflow valve removed. A = areas of epoxy blistering; B = port-to-patient breathing circuit; and C = overflow outlet port.

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