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A Potentially Serious Anesthesia System Malfunction

To the Editor:—We wish to alert readers who use anesthesia machines with Ohmeda GMS CO₂ absorbers about a potentially serious malfunction. This malfunction can occur only in GMS absorbers with adjustable-height breathing bag arms. The following clinical case describes this problem.

Prior to anesthetizing a patient with a year-old Ohmeda Modulus II[®] anesthesia machine, a routine equipment and circle system breathing circuit precheck was performed. No problems were detected. After an uneventful intravenous induction and tracheal intubation, the adjustable-height breathing bag arm was lowered. The breathing circuit was attached to the endotracheal tube, and it was discovered that manual ventilation of the patient's lungs was impossible. Squeezing the breathing bag produced no gas flow from the bag. It seemed that a total block in gas flow existed somewhere in the inspiratory side of the circle system. No obvious source of the block could be detected but, oddly enough, it was quickly noted that only *manual* ventilation was impossible. Turning the GMS switch from "Bag-APL" to "Ventilator" produced normal gas flow when the ventilator was operated. It was then discovered that only when the adjustable bag arm was lowered did manual ventilation become impossible. The patient experienced no significant period of apnea and was uneventfully anesthetized for the remainder of the case.

Later, with the cooperation of Ohmeda service personnel, it was determined that the normal gas flow (fig. 1 A, B, and C) in the GMS adjustable bag arm "tube-in-a-tube" was blocked due to the absence of a locking C-ring, which keeps the lower rubber gasket in place below the gas inlet holes. The lack of the C-ring resulted in the eventual upward migration of the gasket above the inlet holes. Then, when the bag arm was lowered, gas flow from the bag was totally blocked (fig. 1D). This did not cause any problem with the ventilator mode.

We recommend that any remaining GMS absorbers with *adjustable* bag arms be either modified or replaced with fixed-height bag arms to prevent this serious malfunction from occurring.

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In reply:—Ohmeda wishes to take this opportunity to respond to the letter by Dr. Springman and Mr. Malischke. The authors describe an extremely unusual oc-

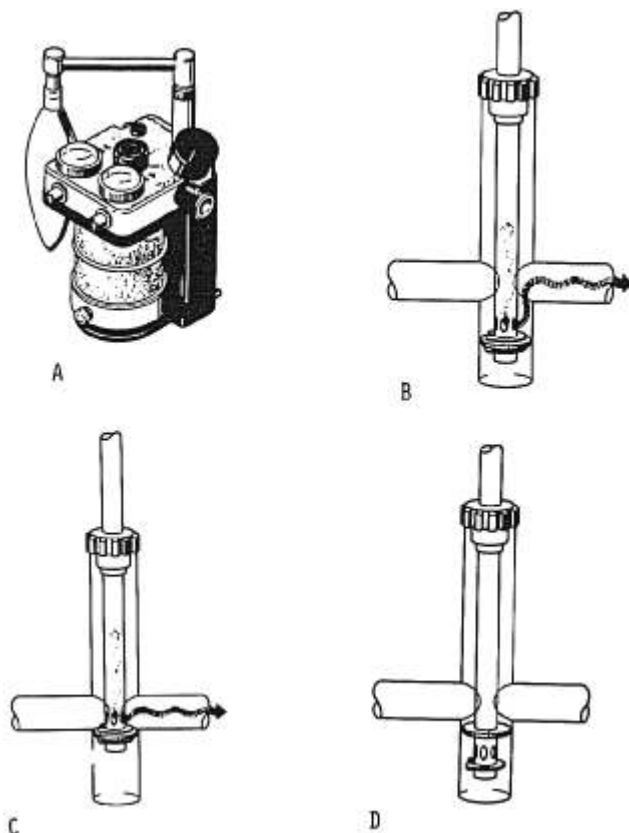


FIG. 1. A. GMS Absorber. B. Down position of bag arm, proper function with bidirectional gas flow. C. Up position, proper function. D. Down position. Migration of gasket with blocked gas flow due to missing C-ring.

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currence with an Ohmeda GMS Absorber with an adjustable height bag arm that lacked a locking ring.

This appears to be an isolated incident. Ohmeda has