

High inspired carbon dioxide levels due to a faulty absorber engagement pin on a Dräger Fabius® GS machine

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To the Editor,

We wish to report the failure of the carbon dioxide (CO₂) absorber engagement pin on a Dräger Fabius® GS anesthetic machine (Dräger Medical Inc., Telford, PA, USA), which resulted in increased inspired CO₂ levels during a recent case at our institution. Our machines are fitted with an optional absorber attachment system, Dräger-sorb® CLIC Adapter (Dräger Medical Inc., Telford, PA, USA), which permits the use of disposable canisters of absorbent and allows canister replacement during operation. The “CLIC” mechanism utilizes a hinge design to remove the disposable canister and a mushroom-shaped pin to lock it in place when it is engaged (Fig. 1). During a recent case under general anesthetic, the anesthesia staff noted that the inspired CO₂ level was rising. Changing the CO₂ canister (Amsorb® Plus, Universal Bubble Can® Absorber, Armstrong Medical Ltd, Coleraine, Northern Ireland) and a routine check of the anesthetic machine for likely causes failed to diagnose the problem, thus our hospital biomedical technicians were notified to resolve the issue. The machine was quickly replaced and the patient suffered no adverse effects. Further examination of the CO₂ absorption system revealed that the engagement pin located on the “CLIC” connection ring was bent slightly inwards (Fig. 2). The angulation of the pin was quite subtle; the plastic tip was raised and it appeared as though the CO₂ canister was properly engaged with the anesthetic machine. However, gentle side to side pressure applied on the canister resulted in a rocking motion and formation of a small gap at the machine-canister interface. This incomplete connection resulted in a bypass of the CO₂ canister

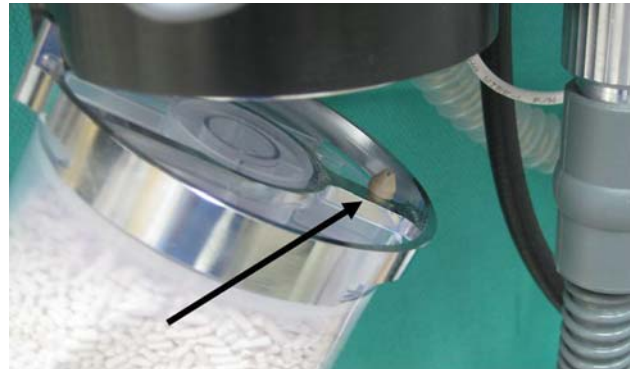


Fig. 1 Photograph of mushroom-shaped engagement pin on “CLIC” adaptor mechanism. Arrow points to an undamaged engagement pin

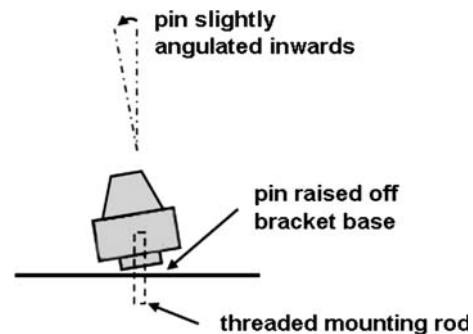


Fig. 2 Diagram depicting pin migration and angulation that caused CO₂ absorber bypass

and subsequent increase in CO₂ due to re-breathing. Replacement of the pin completely resolved the issue. Close inspection of the remainder of our fleet revealed that four other machines had this defect and were also at risk of incomplete CO₂ canister connection. Discussion with the manufacturer revealed that this engagement pin should be

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replaced on a yearly basis as part of preventative maintenance. This had not been done on our units due to a communication issue with a third party distributor of the machine. We wish to alert other users of this system of this subtle, yet preventable defect, which may be difficult to

diagnose in the clinical setting of high inspired CO₂ levels. Also, this incident illustrates the importance of preventative maintenance on highly utilized anesthetic machines.

Conflicts of interest None declared.