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TEC 6 Power Cord Problem

To the Editor:—We wish to share with your readers a potentially serious fire hazard encountered with a 6-month-old TEC 6 (Suprane) vaporizer. The vaporizer, mounted on a North American Drager 2B anesthesia machine, was noted to be emitting sparks and smoke around the mains lead connection. The vaporizer concentration dial was set to the off position, but the vaporizer was on (*i.e.*, energized). The anesthesia resident quickly unplugged the vaporizer at the outlet. The machine, the vaporizer, and all the electrical connections were immediately sequestered for further study. No patient harm occurred.

The Hospital Biomedical Engineering Department findings showed the following:

1. The vaporizer and mains lead (power cord) connection had been installed properly by a North American Drager service representative.
2. An examination of the electrical power cord and the ceiling receptacle showed that the integrity had not been compromised, and both were found to be in compliance with existing national electrical Code Section 517.
3. The TEC 6 vaporizer was sent to the Ohmeda plant in England, and the following communication was received from the company:

> A visual examination of the vaporizer socket and mains lead showed the presence of charred plastic residue. This residue was cleaned from the vaporizer socket. Close scrutiny of the live pin of the socket showed the presence of pitting caused presumably by the reported arcing. This pitting was confined to the tip of the live pin.
>
> After the cleaning of the socket the vaporizer was powered up. The vaporizer went through the normal 'Warm-up' phase and into 'Operational'. At no time did the unit arc or smoke. The unit has now been powered up in excess of 12 hours with no abnormal effects.
>
> The position of the pitting indicates that the power cord plug was not fully engaged. This conclusion is reached because if a power cord plug were not to be properly engaged in the socket and the lead pulled then the pitted pin would be the first to break contact. This break in contact could produce arcing (pitting) and subsequent smoking caused by the degradation of the adjoining plastics.
>
> In conclusion, we could find no faults with the vaporizer that would cause arcing or smoking. We believe that the cause probably was a loose power cord plug.

Having personally observed the proper vaporizer installation in October, 1993, we believe that in its six months of use, the power cord plug became partially disconnected. Subsequently, we were informed by Ohmeda that there has been at least one other TEC 6 vaporizer arcing and smoking problem attributed to the same cause. We have therefore concluded that if the power cord connection is so critical as to be a potential fire hazard in the OR, then serious consideration should be made toward redesigning that connection to the vaporizer to prevent further partial disconnects.

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In Reply:—Ohmeda wishes to take this opportunity to respond to the letter from Farmer and Zelman. The authors describe a rare and unusual occurrence with the power cord connection on an Ohmeda TEC 6 vaporizer.

The connector and receptacle conform to IEC standards and are constructed from UL listed VO materials that do not support combustion when the source of ignition is removed. This is consistent with the two reports of this occurrence, when the presence of an odor and some smoke was reported, but no fire was observed.

The power cord connector and receptacle have been configured