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### High Leakage Current in New In-Line Blood Warmer

*To the Editor:*—The Hamilton DW 1220 Blood/Fluid Warmer\* is a new in-line blood warmer. Potential advantages proposed for the Hamilton unit over the Portex® coil include: 1) elimination of floor water container with its potential contamination; 2) triple thermostat regulating system.

A current report by Linko<sup>1</sup> indicated that the Hamilton warmer had considerably less warming efficiency and offered substantially more flow resistance than did the Portex coil. We recently also evaluated the Hamilton warmer DW 1000 series. Two trial units were provided. Although both functioned adequately at first, further use produced consistent activation of the line isolation monitor for one unit. This warmer was immediately removed from service for leakage-to-ground testing.

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\* Presently marketed by Hamilton Industries, a division of American Hospital Supply Corporation, Two Rivers, Wisconsin 54241.

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*In reply:*—With respect to the unit that Dr. Mantia reports as having developed high electrical leakage, we were able to secure its return and it has been analyzed. The higher than specified electrical leakage was the result of a change in the insulation resistance of one of the three heating elements used in the system. A review of our files indicates that this is the only failure of this type recorded since we started manufacturing. This one heater represents less than .05 per cent of those shipped.

As recognized by Dr. Mantia, control of electrical leakage is an important safety factor. For this reason,

Ammeter† readings indicated a 5,000-microamp leak-to-ground (maximum recordable), which is far above the 50 microamp maximum listed in the technical manual.

We have since returned our trial units to Hamilton Industries. We feel that safety inspection for leakage current prior to placing this unit in service is mandatory.

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#### REFERENCE

1. Linko K: Testing a new in-line blood warmer. *ANESTHESIOLOGY* 52:445-456, 1980

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† Instrutek Model LR-200 A.

all American Hamilton blood warmers are tested at the beginning and end of our two-day calibration and testing process. In addition, we recommend in our service manual that an electrical leakage test be made a part of a routine preventative maintenance program.

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