



Molecular Imaging Products Company

A Division of Summit Anesthesia Support

Anesthesia Technologies

Vaporizer Issues: Research Institutions

There are many misconceptions with respect to “servicing” of anesthesia machines and/or vaporizers. A separate document, SERVICE addresses the differences between “service” of an anesthesia “machine” and a vaporizer. This document will address issues with respect to service of the vaporizers. First, service of the vaporizer usually means Professional Cleaning and Calibration of the vaporizer—not simply a leak test nor an output test. This service cannot be successfully done in the field. The vaporizer is sent to a authorized Service Center which can perform the following:

1. Disassembly of the vaporizer.
2. Cleaning with an approved solvent.
3. Replacement of wicks and seals.
4. Repair and/or replacement of defective components.
5. Calibration to the drug for which the vaporizer is properly labeled.
6. Re-assembly and testing of the vaporizer for leaks and proper output.

This process is required on a periodic basis, but even the manufacturers disagree with respect to the time interval which is recommended between Professional Cleaning and Calibration:

Ohmeda (now GE HealthCare System) USA	Tec 5 vaporizers:	3 year service interval
Penlon England	Delta Sigma vaporizers:	10 year service interval
VSS (Vaporizer Sales and Service) USA	Tec 3 vaporizers:	1 year service interval
MSS (Medical Sales and Service) England	Tec 3 vaporizers:	3 year service interval
Drager(North American Drager) USA	Drager 19.1 vaporizers:	6 month interval
Ohmeda	vaporizers:	1 year service interval
Ohmeda	Ohio 100 vaporizers:	1 year service interval
Bickford USA	Vapomatic vaporizers:	1 year service interval
Matrx (now MidMark) USA	VIP 3000 vaporizers:	1 year service interval

Please note: The above time intervals were taken directly from the original manufacturer’s Operation Manual for the vaporizers.

The older Ohio 100, Tec 4, Foregger, Tec II, Drager, etc., all had a one year (or less in the case of Drager) service interval primarily because of the Halothane (Thymol) issue (Isoflurane was not available until 1980). Thymol is a preservative which was added to Halothane. It was left behind after halothane had volatilized. It was thymol which wicked up into the upper bearing plates of the halothane vaporizers and caused the dial to become sticky or even “glued” so that the dial could not be turned. In addition, thymol was corrosive to the internal components of the vaporizer. At the time, it was recommended by most manufacturers and service centers that the halothane be drained and discarded from a halothane vaporizer periodically (once a week was a common recommendation) to preclude the build up of thymol in the sump. The yellowish to tobacco brown color displayed in the site glass of some halothane vaporizers which had not been professionally serviced was another evidence of thymol build up.

In addition, in most cases, the issues related to liability in human medicine dictated that the vaporizers be Professionally Cleaned and Calibrated on a yearly basis.

I think that many of us in the veterinary community are perhaps clinging to outdated ideas with respect to inhalant anesthetics, especially those concerning professional cleaning and calibration. Just as we have learned that Isoflurane may not be as detrimental to human health as we once thought, especially to young women of child bearing age, I hope that we in the veterinary community can rethink the issue of annual professional cleaning and calibration of vaporizers—unless, of course, it is mandated by GLP Studies or some other regulatory agency.

It is my opinion that the Isoflurane vaporizers in veterinary medicine do not need to be professionally cleaned and calibrated on a yearly basis. I recommend professional cleaning and calibration of vaporizers somewhere within a 3 year window depending upon two major considerations:

1. Yearly inspection of the vaporizer to ensure that there are no leaks, no obvious broken parts, and that the vaporizer performs (output) within original manufacturer's specifications.
2. The comfort level of the institution and/or management of the facility.

I hope that this information is useful for you in deciding the appropriate time interval between Professional Cleaning and Calibration of vaporizers. If you have any additional questions and/or concerns, please do not hesitate to contact me.

Best regards,

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