

# SUMMIT MEDICAL

## Equipment Company

### VAPORIZER ISSUES: FROM JIM HOUTS, SUMMIT MEDICAL EQUIPMENT COMPANY PRIVATE PRACTICE VETERINARIAN 12/1/2016

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 an authorized Service Center (Universal Vaporizer Support, INC) which can perform the following: Approximate cost: \$395.00 plus freight to and from Service Center.

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.

Technicians trained in this process use very sophisticated equipment (Laser Refractometer), and adhere to strict conditions of temperature and humidity.

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	Tec 4 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



# SUMMIT MEDICAL

## Equipment Company

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.

It is my opinion that the Isoflurane and Sevoflurane vaporizers in Private Practice Veterinary Medicine should be Professionally Cleaned and Calibrated on a three year time interval. There is justification to have the vaporizer serviced more frequently, in my opinion, because of the exposure of these vaporizers to heavy use, potential for foreign object and/or liquid contamination, and issues related to safety for the animals. Having said this, we are very sensitive to the needs of our customers—and we will perform this service based upon our customer’s comfort level. If the veterinarian does not wish to have his/her vaporizer Professionally Cleaned and Calibrated each year, at the very minimum we recommend the following:

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. Professional Cleaning and Calibration of the vaporizers on a 3 year time interval.

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,

Jim Houts  
Summit Medical Equipment  
65340 Concorde Lane  
Bend, Oregon 97703  
Cell: 503-789-2830  
e-mail: Summed@aol.com