

Pre-Anesthetic Preparation/Anesthesia Machine Preparation

By Michelle McConnell, LVT, VTS(A&A)

Proper planning facilitates improved performance, and any good anesthetist should have a pre-anesthesia checklist. This should include a checklist for your patient *and* your equipment. There are steps that should be performed on your anesthesia machine before EVERY patient is anesthetized. These steps include but are not limited to:

1. **Verify and ensure you have enough oxygen supply for the procedure and recovery.**
2. **Attach the correct size circuit and bag to the machine.**

Below is a chart to help you select the appropriate size based on the patient's weight. Always keep in mind to metabolic scale if necessary.

Bag Size

<i>Patient Weight</i>	<i>Bag Size</i>	<i>Patient Weight</i>
Body Wt Pounds		Body Weight Kilograms
<20#	0.5L - 1L	<9kgs
20# - 44#	2L	9kg - 20kg
44# - 75#	3L	20kg - 34kg
75# - 99#	4L	34kg - 45kg
>99#	5L	>45kg

Circuit Size

<i>Patient Weight</i>	<i>Circuit Size</i>	<i>Patient Weight</i>
<15#	Non-Rebreathing System	<8kgs
16# - 35#	Pediatric	9kg-16kg
>36#	Adult	>17kg

3. **Fill and ensure the vaporizer has the correct amount and type of agent.**
4. **Ensure the absorbent granules are not expired and the correct amount is being used.**

There is no set time for keeping track of the absorbent. Here's a rule of thumb to keep in mind: If the granules crumble easily, they are good. If they are hard and do not crumble, they are expired and need to be replaced before using the machine. Expired absorbent can lead to dangerous levels of CO₂ in the system.

5. **Pressure test the anesthesia machine.**
6. **Verify WAG Scavenging is connected and functioning properly.**

It is extremely important to leak test the anesthesia machine to ensure there are no leaks present. If the machine is leaking it can be difficult to keep the patient at a good plane of anesthesia or to assist in mechanical ventilation. Also, if there are leaks in the machine, the staff will be at an increased risk of harmful waste anesthetic gas exposure.

Follow these steps to pressure test your anesthesia machine:

1. Attach an adult breathing circuit and a bag.
2. Close the pop-off valve.
3. Occlude the patient side of the circuit with your thumb.
4. Using the flush valve, increase the manometer pressure in the anesthesia machine to 30 cm H₂O. If the manometer pressure continues to increase, there is a significant leak in the flowmeter and/or flush valve. The machine must be serviced before using.

5. If the manometer pressure drops, set the flowmeter to 200cc/min. The pressure on the manometer should remain constant or increase. If the manometer pressure continues to decrease, the leak must be isolated before attaching a patient.
6. Open the pop-off to release pressure from the machine and breathing circuit. It is important to open the pop-off first in order to ensure that all absorbent granules and dust do not get drawn into the breathing circuit and possibly end up in the patient's lungs. This also verifies that the WAG scavenging system is not occluded.

In conclusion, most anesthesia machine failures can be corrected before the anesthetic procedure. Even after performing the above steps, keep in mind that an anesthesia machine is not a "set it and forget it" piece of equipment. Close monitoring should continue through the anesthetic procedure because problems can arise at any time.

Works cited: Anesthesia for Veterinary Technicians by Susan Bryant

We would like to make a correction to the last published newsletter in October 2019. The correction pertains to the statement made regarding dead space in the expandable breathing circuit. The sentence should read "This circuit is great when you need a little more length but can also contract down to your required length to decrease resistance".

Employee spotlight:

Rick Trexler studied veterinary technology at San Diego Mesa College. He has degrees in liberal arts, biotechnology, and electronics from Johnson County Community College, and he studied zoology and marine biology at Humboldt State University. In addition to being a Registered Veterinary Technician, he's also a qualified veterinary dental technician (American Society of Veterinary Dental Technicians), an ABO certified optician, and a Certified Biomedical Equipment Technician, and has other equipment-specific certifications.

Rick Trexler grew up along the West Coast of the US. He is the youngest of 9 siblings and has a grown daughter who is an artist and a 12-year-old son who enjoys Boy Scouts and playing trombone. Rick likes Mexican food, Italian food, and more specifically, crêpes with either Nutella or crème au citron. He likes Elvis Costello and Bob Marley, and among his heroes is Jacques Cousteau.

Rick services machines for Vetamac in Kansas, Missouri and southeast Nebraska.

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