



Veterinary Anesthesia Systems, Inc.

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VETERINARY ANESTHESIA CHECKLIST

SET-UP

- Gas Supply: Using tank wrench, turn knob on E tank(S) counter-clockwise and check pressure. (NOTE: A full oxygen tank will register approximately 2000 PSI and a nitrous oxide tank will register approximately 750 PSI.)
- When the pressure gauge registers lower than 200 PSI, the tank should be replaced with a full tank. If using a local source, (e.g., a G tank or central supply,) connect machine to outlet and check to make sure the attachment is secure.
- Connect breathing bag* and breathing circuit** to machine.
- Turn on flowmeter(s) to check that the gas supply is operational. Return flowmeter(s) to the off position, (*finger tight only, over tightening knob will damage flowmeter valve.*)
- Pressure check circuit by closing the pressure relief valve and place thumb over the patient connection of the Y-piece. Activate flush valve to fill system to a level of 20cm of H₂O registered on the circuit pressure gauge. Hold in this position a few seconds and if there are no leaks, the pressure will hold steady. However, if the pressure stabilizes at the 20 cm H₂O setting. (*This will determine the magnitude of leak and if more than 300 ml/min, an indication the leak(s) must be fixed.*)
- Place hand over all connections, the breathing circuit, and bag while system is pressurized, and feel for leaks. (*For hard to find problems, wet hand or use soapy water solution over connections. Evidence of bubbles will help locate leaks.*)

COMMON PLACES FOR LEAKS

- Breathing bag and/or breathing circuit
- Breathing Circuit point of connection to machine
- Unidirectional breathing valves
- CO₂ absorber gaskets
- Pressure relief valve
- Vaporizer inlet and outlet connections; filler cap
- Fresh gas delivery hose and connection to machine.

CARBON DIOXIDE ABSORBER

- Absorbent must be changed weekly. Select a day of the week for this to be routinely done.
- Refer to the absorber canister decal for absorbent volume. The usable volume of absorbent should be not less than 105 times the tidal volume, which is estimated to be 5ml/lb., therefore a 1000ml absorber filled fresh absorbent will function properly for an animal up to about 100lbs. (*As the absorbent is depleted, available chemicals will decrease as CO₂ is converted to HCO₃. If half of the absorbent in the center has changed color, it is prudent to refill the canister especially if the unit is to be used for a 100lb patient or larger.*)
 - Moisture content of absorbent must be maintained once package is opened. (*Water is essential for the chemical reaction to take place and will be lost if the machine is not used or if opened packages of absorbent are not properly resealed.*)

BREATHING VALVES

- Should be cleaned periodically with a clean cloth to remove accumulated water vapor. (*The exhalation valve may stick in the open position and lead to re-breathing of CO₂.*)

BREATHING BAG

- Bag size is governed by being able to fully expand the lungs with bag compression. A smaller bag will better register respiratory movement during spontaneous breathing in small patients as compared to using a large bag. In general, use small bags for small patients and large bags for large patients.

PATIENT WEIGHT	BAG SIZE
15 LBS. OR LESS	500 ML
15-30 LBS.	1 LITER
30-60 LBS.	2 LITER
60-100 LBS.	3 LITER
100 + LBS.	5 LITER

**BREATHING CIRCUIT

Patients less than 10 lbs.	Semi-open system (e.g., Bain, Ayres T Circuits)
Patients more than 10 lb	Semi-closed circle *CO ₂ absorption system

- Pediatric breathing hoses are recommended for patients less than 50lbs. When using a circle system. For larger patients, adult breathing hoses may be used.

FLOW RATES FOR BREATHING CIRCUITS

SEMI-OPEN SYSTEM: Minimum flow rate should be 300 ml/min. for patients 3lbs. or less. Maintenance flow rate is 100ml/lb. for patients with a normal breathing rate (avg. 30 breaths/min.) Flow rate must be increased to 1 liter/min. If breathing rate is more than 50 breaths/min.

Flow Rates for Semi-Open System	
5 lbs. or less	100 ml/lb.*
Normal 30 breaths/min	100 ml/lb.
Normal >50 breaths/min	1 liter/minute

- Less than 3lbs. : 300ml/minute

SEMI-CLOSED SYSTEM: Guideline for maintenance flow rate is 800ml/minute for patients up to 50lbs. Add 100ml/minute for each 10lbs. up to 100lbs. Flow rate during induction* is double that used for maintenance.

Flow Rates for Semi-Closed System		
Patient Size	Induction *	Maintenance
< 50 lbs.	1liter/minute	500 ml/minute
60lbs.	1.2 liters/minute	600 ml/minute
70lbs.	1.4 liters/minute	700 ml/minute
80lbs.	1.6 liters/minute	800 ml/minute
90lbs.	1.8 liters/minute	900 ml/minute
100lbs.	2.0 liters/minute	1 liter/minute
125lbs.	2.5 liters/minute	1.25 liters/min
150lbs.	3.0 liters/minute	1.5 liters/minute

- Induction of anesthesia is the initial delivery of inhalant following endotracheal intubation until loss of the palpebral reflex.