Anaesthetic Equipment: Safety Checks

Emma Archer RVN Dip AVN Surgical VTS Anesthesia
Anaesthesia Technician
Animal Health Trust

MACHINE CHECK LIST

All of the below checks should be carried out on every anaesthetic machine you will be using at the start of each working day. Many of the checks will need to be repeated between each patient.

Anaesthetic machine

- For piped gases: Connect the oxygen, nitrous oxide and medical air to the correct gas pipelines and perform a ‘tug test’ (pull to check the connection). Check there is a second supply of oxygen for emergencies (a full oxygen cylinder on the machine).
- For oxygen cylinders: Check there are 2 oxygen cylinders fitted to the anaesthesia machine, one full and one in use. Open the valve on the ‘in use’ cylinder.
- Turn the O₂ flowmeter on to maximum and off again, check the bobbin is rotating freely.
- Repeat above step for nitrous oxide and medical air if required.
- Check the machine for leaks: Turn on the oxygen to 4 L/min. Occlude the fresh gas outlet and check that the O₂ bobbin drops slightly. This should be performed with the vaporiser you wish to use in place on the back bar, and repeated if a different vaporiser is placed on the anaesthetic machine.
- Operate the emergency oxygen bypass control (flush). Ensure flow occurs and ceases when the control is released.
- Switch the oxygen off.
- Check that all pressure gauges for pipelines connected to the anaesthetic machine indicate 400 - 500kPa.

Vaporiser

- Check that the vaporiser(s) for the required volatile agent(s) is sitting correctly on the back bar of the anaesthetic machine and locked in place.
- Check that the dial turns fully through the full range. Turn dial off.
· Check that the vaporiser(s) are adequately, but not over, filled and that the filling port is tightly closed.

**Scavenging**

· Check that the active scavenging pipe is connected to ceiling outlet.
· Ensure that the end of the scavenging is correctly attached to the breathing system.
· Ensure the active scavenging system is turned on. A visual check of the flow indicator in the air brake receiver should confirm this.
· If active scavenging is not available, ensure the scavenging hose is connected to a charcoal absorber (Aldasorber). The Aldasorber should be regularly weighed to indicate the degree of absorption and replaced when the maximum weight is reached.

**Breathing system**

· Select the appropriate breathing system and check the bag is the appropriate volume for the patient (3 to 6 x tidal volume)
· Connect it to the fresh gas outlet, all connections should be secured tightly by pushing and twisting.
· Connect the scavenging tube to the circuit.
· Perform a leak test by closing the APL (adjustable pressure limiting) valve, and turning on the O₂ on.
· Occlude the “to the patient” end of the circuit with your hand. Let the bag fill completely with O₂ and squeeze it to check for leaks.
· Turn the O₂ off.
· **Open the APL valve.**
· When using a circle circuit, the soda lime should be checked for signs of exhaustion and the unidirectional valves checked to ensure they are moving.
· When using a Bain check the integrity of the inner tube by performing an occlusion test of the inner tube. Occluding the inner tube while oxygen is flowing should cause the bobbin to drop temporarily.
· All circuits with adjustable scavenging valves should be checked to ensure the valves open and close and then **leave the valves open.**

**Ventilator (if using)**

· Set the ventilator dials to your required settings as per the specific ventilator and patient’s requirements.
· Check the ventilator is plugged in and turned on to the electrical/gas supply.
• Turn on and check ventilator function using a rebreathing bag on the end of the circuit as ‘lungs’.

**Ancillary Equipment**

**Endotracheal tubes**
• Select the appropriate size (diameter and length) and type of tube. Prepare 2 or 3 tubes of different sizes for each patient.
• Check the cuffs for leaks. Inflate the cuff and leave it inflated for a few minutes to detect leaks. Deflate cuff.
• Ensure the lumen of the ETT is clean and free from debris.

**Laryngoscope**
• Insert the appropriate blade on the handle.
• Open it and check that the light is working.
• Ensure Intubeaze® is available (cats).
• Gather appropriate additional equipment if a difficult intubation is expected.

**Monitoring equipment**
• Check that the monitor is on and in the correct ‘work’ mode rather than standby.
• Check the required cables are plugged in to the monitor.
• Check the probes are suitable for your patient.