

Protocol For Checking An Anaesthetic Machine Before Use

1. Gases
2. Rotameters
3. Vaporizers
4. Pre-Circuit Leaks
5. Breathing System Selection
6. Circle System

1. Bulk Gas Supply and Cylinders

- 1.1 Check the bulk gas warning lights.
- 1.2 "One Gas" test (this eliminates the possibility of crossed pressure hoses):-
 - a. Check that the high-pressure gas hose for oxygen is connected to the correct wall outlet or large cylinder regulator, and to the oxygen inlet on the machine.
 - b. Turn on the oxygen source and turn off all other gas sources.
 - c. After the other gases have been bled from the machine, open all rotameter controls and check that only oxygen flows.
- 1.3 Repeat the "One Gas" test for nitrous oxide, as per a, b and c.
- 1.4 Test oxygen supply warning device (if fitted).
 - a. With nitrous oxide supply connected and the oxygen supply turned off or disconnected, press the oxygen bypass button until all the oxygen has bled from the machine. The audible warning device should operate.
 - b. Restore the oxygen supply to the machine and the audible signal should cease.
- 1.5 Check the level of contents of all the cylinders on the anaesthetic machine. This also detects leaks and ensures that there is a key to fit each cylinder
- 1.6 Replace oxygen cylinders that are less than one quarter full.
- 1.7 Turn off reserve cylinders that are less than one quarter full.
- 1.8 Turn off reserve cylinders at the end of the test.

2. Rotameters

- 2.1 Ensure that each bobbin rises and rotates freely when its own gas is flowing.
- 2.2 Turn off each rotameter control and check the position of the bobbin with no gas flow.

3. Vaporizers

- 3.1 Check each vaporizer in turn
 - a. That it can be turned on
 - b. That it is turned off
 - c. That it contains a sufficient amount of the correct liquid agent
 - d. That filling and emptying ports are fully closed. If a Boyle's bottle is fitted, check that it is firmly attached and that the cord and washer are in place and the plunger is up.

4. Test for "Pre-circuit" Leaks

- 4.1 Turn on oxygen rotameter to two litres/min and occlude the common gas outlet for 10 seconds
- 4.2 If rotameter bobbin does not fall, take steps to detect sites of leakage
- 4.3 Repeat this test with each vaporizer turned "off" and "on" in turn

5. Breathing System Selection

- 5.1 Check that the gas supply is connected to the selected breathing system

6. Circle Absorption System

- 6.1 Soda Lime – Check that this is not exhausted. Renew if necessary and remove dust from soda lime before refilling the canister
- 6.2 Breathing hoses – Check that the breathing hoses are firmly and correctly connected
- 6.3 Valve function and leaks in the breathing system
 - a. Close the expiratory spill valve and attach a spare breathing bag to the patient connection part of the "Y" piece
 - b. Depress the emergency oxygen button to fill the breathing bag
 - c. Alternatively squeeze the two bags to ensure that oxygen passes from one bag to the other, and check visually that each unidirectional valve functions correctly.
 - d. Squeeze both bags simultaneously, to raise the pressure in the system. Maintain the pressure in the system for five seconds to check for leaks.
 - e. Open the spill valve and check that gas spills easily when the bags are squeezed
- 6.4 Disconnect the spare breathing bag

