



Practice lecture of anaesthetic equipments

O2 flush and O2 supply failure alarm

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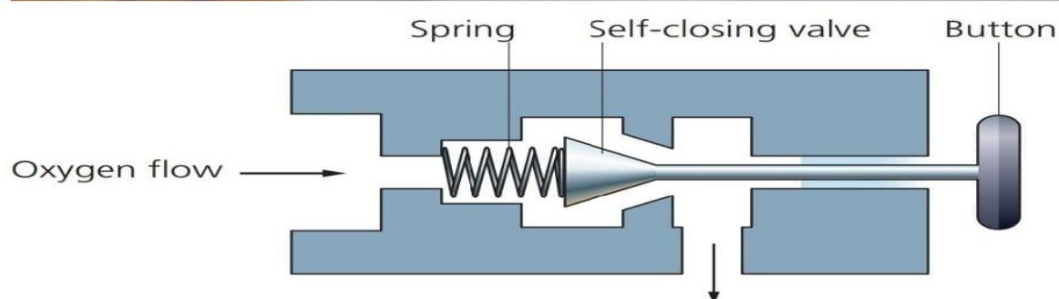
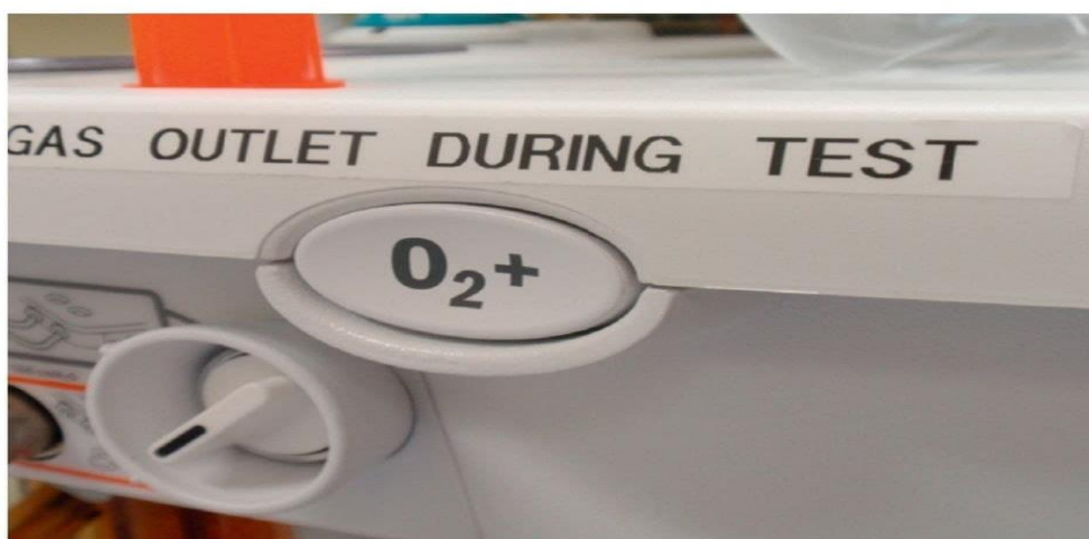
قسم التخدير المرحلة الثانية

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Emergency oxygen flush (O₂ flush)

This is usually activated by a **non-locking button**,

When pressed, pure oxygen is supplied from the outlet of the anaesthetic machine. **The flow bypasses the flowmeters and the vaporizers.** A flow of about **35–75 L/min** at a pressure of about **400 kPa** is expected.

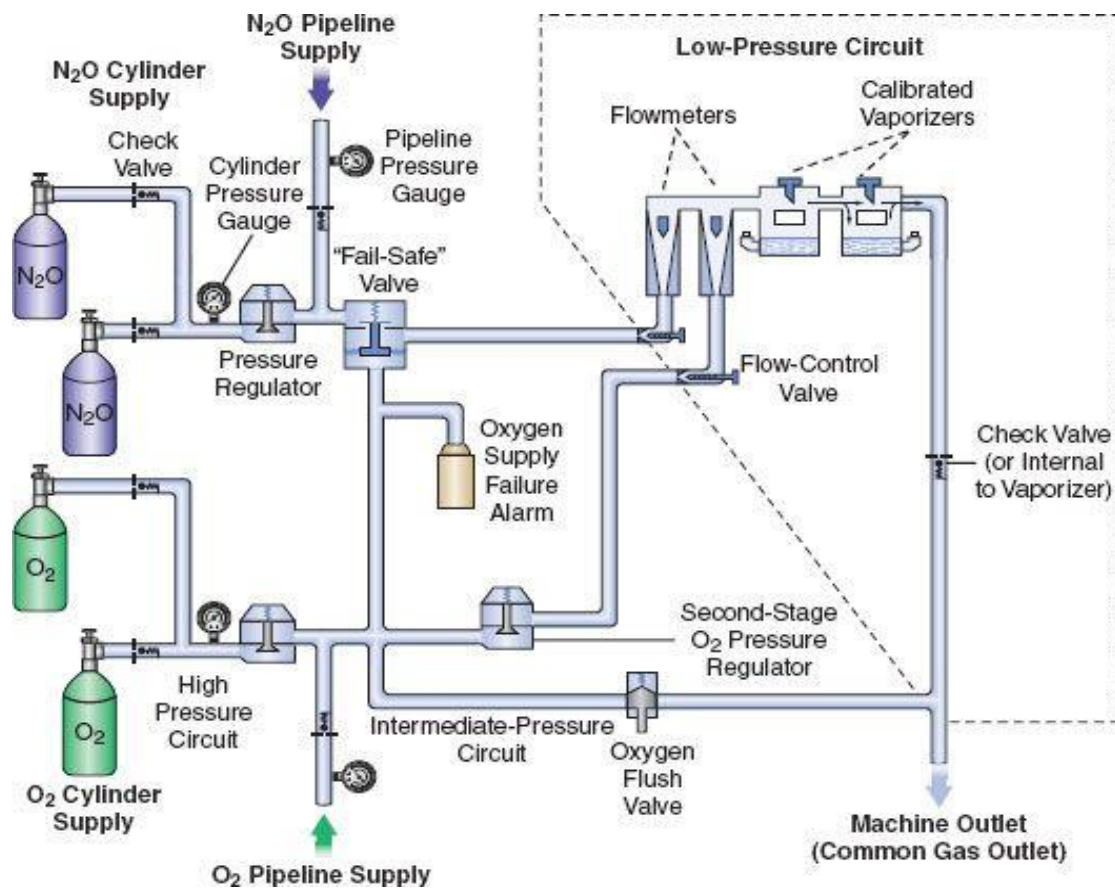


The emergency oxygen flush is usually activated by a non-locking button and using a self-closing valve. It is designed to minimize unintended and accidental operation by staff or other equipment.

The button is recessed in a housing to prevent accidental depression

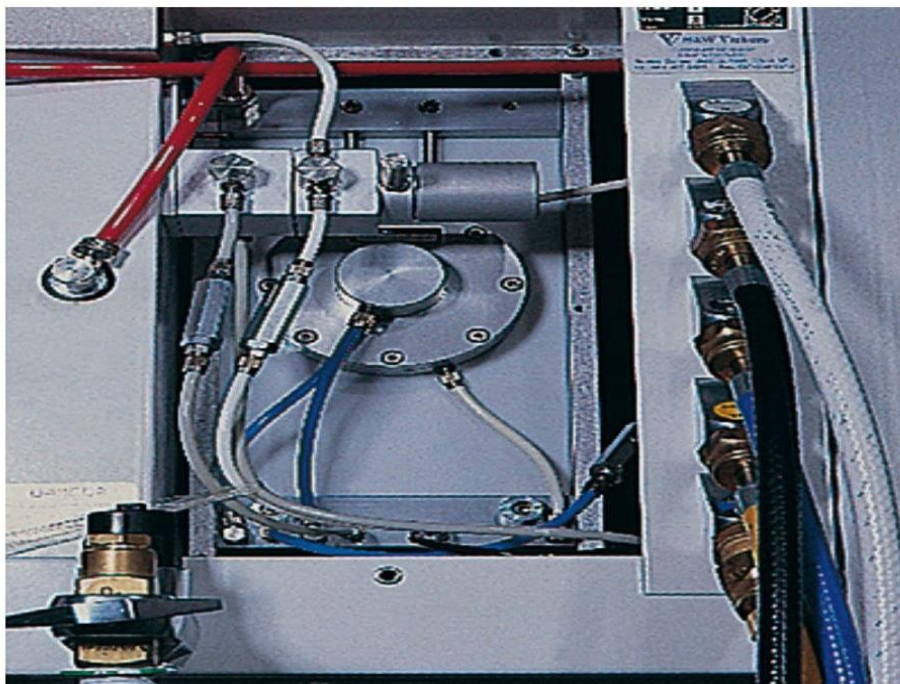
Problems in practice and safety features

1. The high operating pressure and flow of the oxygen flush puts the patient at a higher risk of **barotrauma**.
2. When the emergency oxygen flush is used inappropriately, it leads to **dilution of the anaesthetic gases and possible awareness**.



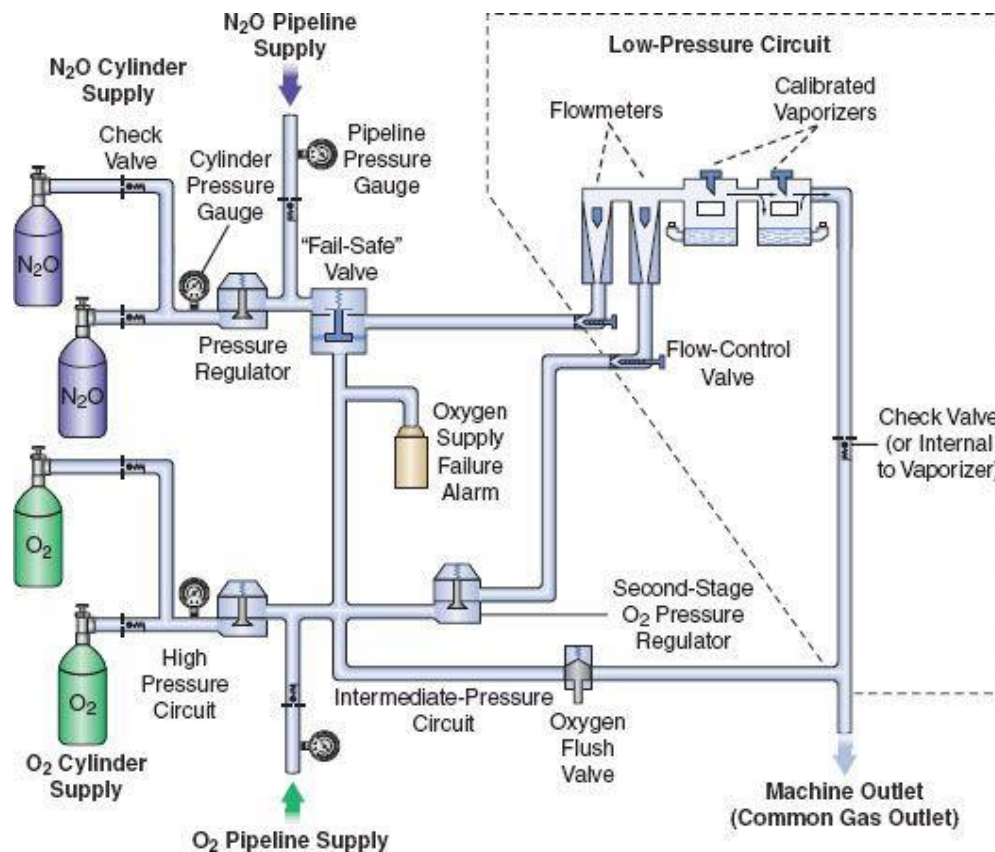
3. It should not be activated while ventilating a patient using a minute volume divider ventilator

Oxygen supply failure alarm



There are many designs available but, **the characteristics of the ideal warning device are:**

- 1-Activation depends on the pressure of oxygen itself.
2. It requires no batteries or mains power.
3. It gives an **audible and visible signal** of a special character and of sufficient duration(**7-10 sec**) and volume to attract attention.
4. It should give a warning of impending failure and a further alarm that failure has occurred
- 5-It should have pressure-linked controls which interrupt the flow of all other gases when it comes into operation. to resume anaesthesia until the oxygen supply has been restored.
6. The alarm should be positioned on the reduced pressure side of the oxygen supply line.



In modern machines, if the oxygen supply pressure falls below 200 kPa, the low pressure supply alarm sounds. With supply pressures below 137 kPa, the 'fail safe' valve will interrupt the flow of other gases to their flowmeters so that only oxygen can be delivered. The oxygen flow set on the oxygen flowmeter will not decrease until the oxygen supply pressure falls below 100 kPa.

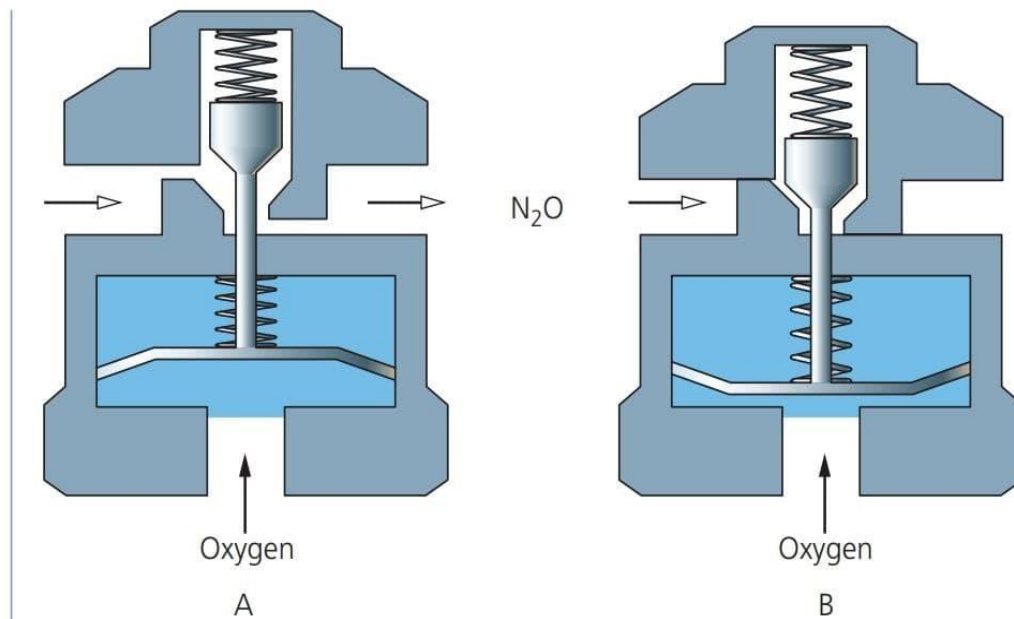
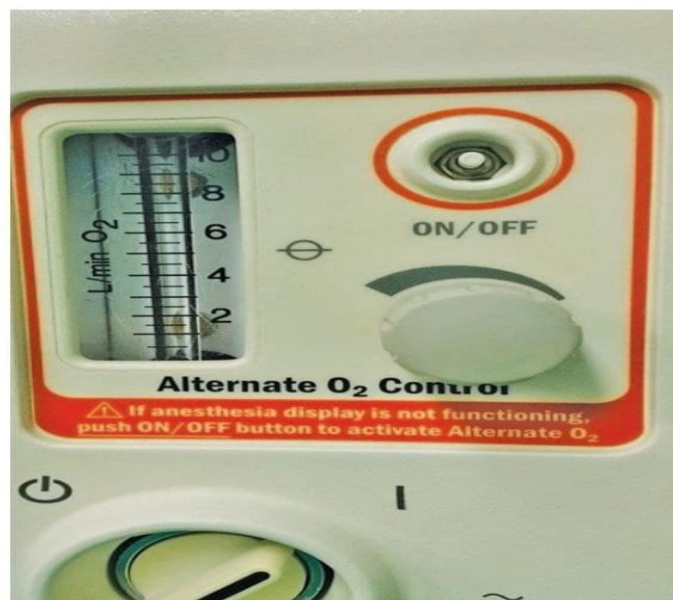


Fig. 2.28 Oxygen supply failure alarm mechanism of action. (A) O_2 pressure is high than 200 kPa so allowing N_2O flow (blue). (B) O_2 pressure is lower than 200 kPa so cutting off N_2O flow.

Alternate Oxygen (alternative O2 control)

As a safety backup in case of electronic failure of the gas mixer, the alternate O₂ provides a pneumatic back up O₂ delivery. It activates automatically in case of electronic failure of the gas mixer. It can also be activated manually.

The alternate O₂ control is available 20 seconds after the system is turned on. It can deliver a flow of 0.5–10 L/minutes through the flowmeter provided for that purpose. 100% O₂ and the selected concentration of agent can be delivered to the patient.



Alternate O₂ supply. Activates in case of electronic failure

Common gas outlet

This is where the anaesthetic machine 'ends'.

At the common gas outlet, the gas mixture made at the flowmeters, plus any inhaled anaesthetic agent added by the vaporizer, exits the machine and enters the fresh gas tubing that conducts it to the breathing system.

The common gas outlet is a conically tapered pipe with a 22 mm.

It can be fixed or on a swivelling connector. The connector of the common gas outlet should be strong enough to withstand a heavy equipments that may be attached to it.

