

HIGH DESERT HEALTH SYSTEM AMBULATORY SURGICAL CENTER

SUBJECT: XII-100 ANESTHESIA MACHINE SAFETY DEVICES	POLICY #: 1275
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PURPOSE: To describe mechanisms utilized to ensure safe operations of anesthesia machines.

POLICY: Anesthesia machines utilized at the Ambulatory Surgery Center will be equipped with the safety devices described hereafter.

SAFETY DEVICES:

1. SCAVENGING OF ANESTHETIC WASTE GASES

All anesthesia gas machines are equipped with waste gas scavenging systems that meet the recommendations of NIOSH. The Scavenger interface directs the flow of waste gases from the breathing circuit and ventilator relief valves to the facility vacuum disposal systems (reserved exclusively for waste gas disposal).

Mode of Operation: The Scavenger interface affords complete control of the vacuum available at the anesthesia machine as well as provides for sub-atmospheric and positive pressure relief (present to 0.5 cmH₂O and 5 cmH₂O respectively). The sub-atmospheric and positive intake valve will automatically open at any time that the waste gas flow to the interface is less than the vacuum capacity at the output port of the interface. The intake relief valve will open allowing room air to enter the interface. This feature precludes the possibility of withdrawing breathing gas from the breathing circuit. Positive pressure relief valve operates automatically at any time the flow of waste gas exceeds the capacity of the vacuum system and the reservoir bag. The positive pressure relief system prevents buildup of back pressure at the APL valve.

2. OXYGEN ANALYZER

All anesthesia machines are equipped with oxygen analyzers, which measure oxygen concentration in the patient circuit. The oxygen concentration is displayed in percent oxygen and is continuously compared to present alarm limits. Should an alarm condition occur, both visible and audible indicators are produced.

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3. OXYGEN PRESSURE INTERLOCK

This system is built into the anesthesia machine that automatically shuts off the flow of the anesthetic gas if the flow oxygen decreases significantly.

4. PRESSURE AND DISCONNECT ALARM

- A. Oxygen supply pressure alarm is actuated if the oxygen supply pressure in the system decreases to below 30 psi.

- B. Minimum Ventilation Pressure Alarm is located at the left side of the flowmeter housing and consists of a selector switch and red warning lights. The selector switch has three alternate positions 8, 12 and 26 cmH₂O. The alarm consists of a breathing system pressure monitor, which will actuate the audio and visual signal when the maximum pressure amplitude in the system is less than the monitored pressure set at the selector switch. A decrease of maximum pressure below the monitor setting and the actuation of the warning signal may be the result of either disconnect of the patient or excessive leak in the system.

5. CONTINUING POSITIVE PRESSURE ALARM

This alarm is actuated in the event that a positive pressure of more than 40 cmH₂O is monitored for longer than 10 seconds in the system.

6. PIN INDEX SAFETY SYSTEM

All anesthesia machines are equipped with, at least, one oxygen yoke and one nitrous oxide yoke to facilitate attachment of gas cylinders. The Pin Index System (ANSI B57.1 1965) is used to prevent connect of a cylinder of incorrect type (cross connecting of different gas cylinders).

7. VAPORIZER INTERLOCK SYSTEM

The vaporizer interlock system consists of a mechanical interlock incorporated into the vaporizer mounting bracket, which limits the concentration adjustment to one vaporizer only. The interlock system requires all out of use vaporizers to be locked in the zero position.

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