Anesthesia Machine Pre-use Check
Ohmeda Aestiva 3000

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Anesthesia Machine Checkout

• The following checkout should be done every day
Verify Backup Ventilation Equipment is Available and Functioning
Check The High Pressure System

• Disconnect the pipeline supplies and close all cylinder valves -- alarms for low O2 supply pressure should sound
• Make sure that the cylinders are full--open O2 valve and verify that the cylinder is at least half full (1000 psig)
• Low O2 supply pressure alarm should disappear
• Close the cylinder and once the alarm again sounds reconnect the pipeline supplies
• Check that pipeline gauges read about 50 psig
Check The Low Pressure Systems

• Close flow control valves and turn vaporizers OFF
• Check fill level and tighten vaporizers’ filler caps
• Make sure that the vaporizers are connected to an electrical outlet
• Attempt to turn ON more than one vaporizer at a time
Use only Desflurane

Caution
- Do not remove covers.
- Refer servicing to qualified service personnel.
Use Only Isoflurane
Use Only Sevoflurane
Perform Leak Check of Machine Low Pressure System

• Make sure that the machine switch and flow control valves are OFF
• Turn on the auxiliary common gas outlet
• Attach the bulb to it
• Compress and release bulb until it is empty—if the bulb inflates in 30 seconds or less--there is a leak!
Test Each Vaporizer For Low Pressure Leaks

- Set the vaporizer to 1% and repeat the bulb test as previously described
- The last vaporizer must be turned off after the test is completed
• Remember that agent mixtures stay in the system after the low-pressure test so always flush the system with O2 (1L/minute for one minute is sufficient)

• After one minute turn the O2 to minimum flow
Turn The Machine ON!!
Test Flowmeters

• Test flow of all gases through their full range making sure that they function smoothly and that flowtubes are not damaged
Test The N2O Flow Control

• In the minimum flow as your starting point, slowly turn N2O flow control counterclockwise and make sure that the O2 flow increases in 3:1 ratio (N2O:O2)
• Similarly, to test the O2 flow, start with N2O at 9L and O2 at 3L and make sure that as you decrease O2 flow, N2O flow decreases as well
• Stop the O2 supply by disconnecting the pipeline supply and making sure that the cylinder O2 valve is closed

• Verify that the low O2 supply alarm sounds and that N2O, Heliox if available, O2 flow stop (LAST!), but air flow continues

• Reconnect the O2 supply
Vaporizer Back Pressure Test

• Set O2 flow to 6 L/minute
• Increase the vaporizer concentration from 0 to 1% one click at a time
• The O2 flow must not decrease more than 1 L/minute through the complete range
Power Failure Test

• Unplug the power source while the system is ON and verify that the power failure alarm comes ON

• Verify that the alarm cancels once the power cable is reconnected
Breathing System Test

- Check the breathing circuit thoroughly
- Verify that CO2 absorber is adequate
- Install accessories to be used during the case (PEEP valve, humidifier, etc.)
- Press the drain button for 10 seconds to eliminate moisture buildup
Calibrate O2 Monitor

• Ensure monitor reads 21% in room air
• Ensure that low O2 alarm is functioning
• Reinstall O2 sensor and flush breathing system with O2
• Verify that the monitor displays more than 90%
Perform Leak Check of the Breathing System

- Set all gas flows to minimum
- Close APL valve
- Occlude Y-piece
- Inflate the bag to 30 cm H2O with the O2 flush
- Verify that the pressure remains for at least 10 seconds and then open the APL valve
Test the APL Valve

• Close the APL valve completely and occlude the Y-piece
• Press the flush button and verify that the pressure on the gauge is less than 70 cm H2O
• Fully open the APL valve and make sure that the pressure decreases to 0
• Press the flush button again and verify that the pressure stays around 0
Test Ventilation System

- Test the ventilator circuit for leaks by setting the bag to Ventilator and decreasing all flows to minimum.
- Set the system switch to standby.
- Close the Y-piece and fill the bellows with O2 flush button.
- There is a leak if the bellows fall more than 100ml/min.
• Place a test lung (breathing bag) on Y-piece
• Set appropriate Vent settings for the patient
• Fill bellows with O2 flush after turning all other flows to minimum
• Turn Vent ON
• Verify that the bellows fill appropriately and that the ventilator displays correct data
• Repeat above with fresh gas flow at 5L/min making sure that the end expiratory pressure is 0 cm H2O
• Make sure that unidirectional valves function properly
• Switch to manual ventilation and verify inflation and deflation of artificial lungs
• Remove the second bag from the Y-piece
Monitors

- Check and set alarm limits of all monitors--capnometer, O2 analyzer, pulse oximeter, spirometer, pressure monitor-high and low airway pressure alarms
Scavenging System

• Verify that there is a proper connection between the scavenging system and BOTH APL valve and ventilator relief valve
• Verify that the scavenging system is connected to the wall vacuum
• Fully open APL valve and occlude the Y-piece

• With minimum O2 flow, observe the scavenger reservoir bag collapsing completely and the pressure gauge reading 0

• With the O2 flush activated, the scavenger bag is to distend fully and the gauge should read less than 10 cm H2O
Check Final Status of Machine

- Vaporizers are OFF
- APL valve open
- Selector switch to Bag
- All flowmeters to minimum
- Verify adequate suction is available
- Breathing system is ready to use
- Equipment ready for intubation, IV placement, emergency drugs ready