

# CHEKLIST FOR ANAESTHESIA MACHINE: DATEX OHMEDA "AESTIVA 5"

LEVEL 2 CHECKS: ALL CHECKS DONE PRIOR TO EACH OT SESSION

LEVEL 3 CHECKS: CHECKS # 12 AND # 13 SHOULD BE DONE BETWEEN EACH PATIENT

## Machine Off

1. Check that the anesthetic machine is connected to electricity and switched off. Take note of any service labeling. See that the machine is **Plugged-in; Switched ON; & backup battery** is charged.

### 2. Check the High / Intermediate Pressure system

2.1. Check with a "tug test" that each pipeline is correctly seated and in the appropriate gas terminal.

2.2. Do all **pipeline pressure gauges** indicate 400 - 500kPa (55-60 psig)?

2.3. Are all cylinders securely seated and in off position?

2.4. Check cylinder pressure gauges. Is O<sub>2</sub> pressure > 50 x 100 kPa (1000 psig)?.

### 3. Test the ventilator circuit for leak:

a) Machine in off mode

b) Set Bag/Vent to Vent

d) Occlude circuit

e) Flush O<sub>2</sub> to fill the bellows.

Ensure that: a) pressure remains < 15cmH<sub>2</sub>O b) bellow falls < 100 ml/min.

### 4. Low Pressure Leak test (For each of these vaporizer settings:)

i. Both OFF

ii. 1<sup>st</sup> vaporizer 1%

iii. 2<sup>nd</sup> vaporizer 1%

follow steps 4.1 – 4.6 below:

4.1. Open auxiliary common gas outlet (below inspiratory unidirectional valve)

4.2. Test leak test device

Put your hand on inlet. Push hard for a good seal.

Remove all air from bulb.

The bulb should stay collapsed for at least 60 sec.

4.3. Set Bag/Vent to Bag.

4.4. Set the flow rotameters for O<sub>2</sub>, N<sub>2</sub>O and Air 1 ½ turn

4.5. Connect the device to auxiliary gas outlet

4.6. Compress and release bulb until it is empty. The bulb should stay collapsed for at least 10- 30s.

4.7. Turn vaporizer(s) off

4.8. Close auxiliary gas outlet !!

4.9. Turn Machine On

## Machine ON

### 5. Flowmeters and emergency O<sub>2</sub> flush

5.1. Flow rotameters should operate smoothly and bobbin move freely throughout its range.

#### 5.2. Anti-hypoxia device

5.2.1. Increase N<sub>2</sub>O flow: Note the increase of O<sub>2</sub> flow

5.2.2. Decrease the O<sub>2</sub>: Note the decrease of N<sub>2</sub>O flow

5.2.3. Ensure the FiO<sub>2</sub> remains > 21% throughout the full range.

#### 5.3. Check **O<sub>2</sub> failure alarm weekly** (Saturday only)

5.3.1. Set the O<sub>2</sub>, N<sub>2</sub>O, Air to mid-range

5.3.2. Disconnect O<sub>2</sub> pipeline:

a) N<sub>2</sub>O & O<sub>2</sub> should fall but O<sub>2</sub> last

b) Air flow continues

c) O<sub>2</sub> failure alarm should go off

5.3.3. Reconnect O<sub>2</sub> pipeline

#### 5.4. Turn O<sub>2</sub> flow on and push **O<sub>2</sub> bypass (flush)** button:

5.4.1. Oxygen analyzer should display 90%.

5.4.2. No significant decrease in pipeline pressure should occur.

5.4.3. Close O<sub>2</sub>.

### 6. Vaporizer(s)

6.1. Check that each vaporizer is adequately filled and not overfilled.

6.2. Check that

a) each vaporizer is correctly seated on the back bar;

b) locking mechanism is fully engaged;

c) control knobs rotate fully throughout the range(s)

d) only one vaporizer can be turned on at a time.

### 7. Check the **breathing system**

a) Inspect the system for correct configuration

b) Check the CO<sub>2</sub> absorber

### 8. Check **Ventilation system**

#### 8.1. A) **Automatic**:

##### 8.1.1. Set ventilator parameters

Mode	Tidal Volume	RR	P <sub>max</sub>	I:E	PEEP
Volume	400 ml	12	40	1:2	0

Alternative: use actual patient settings

8.1.2. Connect test lung & Set the Bag/Vent to Vent

8.1.3. Set the O<sub>2</sub> flow to minimum (25-75mL/min)

8.1.4. Flush to fill the bellows

8.1.5. Check: a) Ventilator displays correct data b) Bellows inflates & deflates

c) Bellows fills completely

8.1.6. Set O<sub>2</sub> flow to 5 L/min.

8.1.7. End expiratory pressure should read 0.

8.1.8. Check the correct operation of unidirectional valves:

8.1.8.1. The inspiratory valve rises on inspiration and falls in expiration.

8.1.8.2. The expiratory valve rises in expiration and falls in inspiration

8.1.9. Disconnect test lung: Is disconnection alarm working?

8.2. B) **Manual:**

- a) Connect test lung
- b) Set Bag/Vent to Bag
- c) Maintain O<sub>2</sub> flow of 5 L/min
  
- d) Set APL valve: 30
- e) Flush to fill the bag.
- f) Ventilate manually.
- g) Check for inflation and deflation of the test lung (appropriate feel of resistance and compliance?)
- h) Check again unidirectional valves as above (8.1.8)

**9. Test the Bag Circuit for leak:**

- 9.1. Close APL valve and set the Bag/Vent switch to Bag
- 9.2. Set the O<sub>2</sub> flow to minimum (i.e. up to 250ml/min). Occlude circuit. Flush O<sub>2</sub> to inflate bag to 30 cmH<sub>2</sub>O. Release flush button. The pressure must not decrease for at least 10s.
- 9.3. Open APL valve. The pressure should decrease.

**10. Ancillary O<sub>2</sub> supply, Suction and Anesthetic Gas Scavenging System (AGSS).**

- 10.1. Is suction working? Are connectors secure? Can it generate vacuum of 100-200 mmHg on regular?
- 10.2. Is scavenging circuit appropriately connected to the breathing system and switched on? Is AGSS indicator in the green sector?

**11. Monitoring. Devices connected, working, with appropriate size, frequency and alarm limits.**

- 11.1. Pulse Oximeter, ECG & NIBP.
- 11.2. CO<sub>2</sub> sensor (capnography) with tubing connected.
- 11.3. NMT
- 11.4. Temperature probe.

**12. Final Position:**

- 12.1. Vaporizer Off - Flowmeters Off - APL valve Open - Bag/Vent Switch in position 'Bag'
- 12.2. Ventilator setting appropriate for patient.
- 12.3. "Push and twist" all connections of breathing system (filter, angle piece, and face mask etc) - Flush system for 10s (to drain any condensate in CO<sub>2</sub> absorber and remove unwanted byproduct from system.)
- 12.4. Alternative means to ventilate the patient immediately available? (Adult & Pediatric self-inflating bag)
- 12.5. Can operating table be rapidly tilted head down?

**13. Check all ancillary equipment**

- 13.1. Laryngoscopes, intubation aids, intubation forceps, bougies etc.
- 13.2. Appropriate facemasks, airways, endotracheal tubes. Connectors checked for patency.

**14. Documentation:** Sign the Machine Logbook & each patient's Anesthesia Record