Drager Primus
Questions and Answers

This presentation is provided for both nursing and medical staff wishing to widen their knowledge of the functions and capabilities of the Drager Primus anaesthetic machine. Users should carefully follow the links provided.

Select Link

* Questions (1)
* Questions (2)
* Quiz
* So you think you know the “Primus” ????
* Acorn
* ANZCA Recommendations
* Disclaimer

This presentation compiled by:
K Leeming RN, Theatre Box Hill Hospital

Grateful thanks to:
T Edgeworth Nurse Educator
S Hoff CNS
D Beilby Director of Anaesthesia
for their assistance
The information contained in this package is intended for use only by appropriately qualified health professionals in the Eastern Health Group. Anyone else who seeks to rely on the information does so entirely at his or her own risk. While considerable care has been taken in preparing the information in this package, the Eastern Health Group does not warrant that it is accurate or current. The Eastern Health Group accepts no responsibility for information on any linked website. Before relying on any information in this package you should exercise your professional judgment and, where appropriate, seek further advice.
How do I perform the daily full machine self test prior to the commencement of a theatre list?

The Drager fails a self test, what should I do?

How do I perform a leak test?

The Drager fails a leak test, what should I do?

How do I dismantle the “Block” to send to CSSD

How do I change the Soda Lime Canister?

How do I change / aspirate the water trap?

How do I change a parameter?

How do I check the gas scavenger?
So you think you know the Primus????

More Questions

- What is the difference between “Pressure Control” ventilation and “Synchronised Pressure Control” ventilation?
- What is the difference between “Volume Control” ventilation and “Volume auto flow” ventilation?
- How can you perform CPAP? (other than by the APL valve)
- How is the “Low MAC” alarm set?
- Can you disable the “CO₂ apnoea alarm”?
- What does the “Log Book” function do?
- What is the maximum system leak tolerated?
- How can you tell if there is a leak during IPPV?

Return to: Home Page
Changing a Parameter (1)

- Select parameter to be changed by pushing button
- Colour will change from green to yellow
- Instigate change by turning rotary knob to desired new setting

Select: Next Screen
Depress rotary knob to confirm new setting.

Colour of parameter will change from yellow back to green once confirmed.

Return to: Questions (1)
How do I check the gas scavenger?

- Open doors at rear of unit
- Locate scavenging system at base of unit
- Ensure that rotometer is between black lines as indicated by adjusting suction as required

Return to: Questions (1)
How do I change / aspirate the water trap?

- To change water trap grasp firmly at points indicated and pull outwards
- Date when last changed
  Select: Next screen
- To aspirate water trap grasp firmly at points indicated and pull outwards
  Select: Next Screen

Return to: Questions (1)
How do I change / aspirate the water trap???

- Insert 20ml syringe at point shown and aspirate fluid
- Replace water trap into holder as shown before

Select: Previous Screen
How do I change / aspirate the water trap??

Date and relocate new water trap over holder and push firmly into place.

Select: Previous Screen
Changing the Soda Lime Canister (1)

This should be carried out when “inCO₂” is > 2

- Depress indicated point on canister retaining mechanism

Select: Next Screen
- Retaining mechanism will release as shown
- This will allow the old canister to be slid out and the new canister to be inserted
- Following insertion of new canister push upwards to relock retaining mechanism

Return to: Questions (1)
Points of failure will be highlighted as indicated.

The yellow dots meaning that the machine may only be used “conditionally”.

Follow instructions as indicated.

Return to: Questions (1)
Failed Self Test

- Points of failure will be highlighted as indicated.
- The red dots mean the machine cannot be used.
- Follow instructions as indicated.

Return to: Questions (1)
Mode + Gas Flow???

Select: Answer
Select: Answer
Man Spont Mode

- Man. Spont. Mode
- Fresh Gas Flow Present

Return to: Questions (2)
- Monitoring Mode

- No fresh gas delivery

Return to: Questions (2)
- Volume AF Mode

- Alarms as indicated

Return to:
Questions (2)
Select: Answer
Ventilation Mode + Alarms???

Select: Answer
- Volume Mode
- Alarms as indicated

Return to: Questions (2)
Select: Answer
- Indication that these alarms are off

Return to: Questions (2)
How do I perform a full machine self test?

This must be done at least once every 24 hours

- If the machine is on switch off and then back on again
  See Picture

- Check List Screen will be displayed
  See Picture

Follow Check List
- To locate and check cylinder pressures – open doors at rear of machine
  See Picture

- Turn Cylinders on, look for pressure reading on Check List Screen then turn cylinders off again and close doors
  See Picture

- Locate and check the: O₂ Flush Button
  Safety O₂ Control
  Auxiliary O₂ Flowmeter
  See Picture

- Check Vaporisers
  See Picture

Return to:
Home Page
Questions (1)
Quiz
If changing or installing a new vaporiser ensure it is fitted over points (a) and (b) as indicated and locked into position using locking mechanism.

See next picture

Select: Previous Screen
Vaporisers

- Locking Mechanisms
  “Ensure these are securely in place”

- Also check “Fill Levels”

Select: Previous Screen
- Auxiliary Flow Meter
- O₂ Flush Button
- Safety O₂ Control

Return to: Previous Screen
How do I perform a leak test?

- From the “Standby Screen” select leak test

See Picture
Standby Screen

Select:

- Next Screen
Follow instructions on screen

Select: Next Screen

Before starting the leak test, close the Y-piece and connect the sample line. If vaporizer leaks need to be tested, open respective vaporizer to at least 0.2 Vol.%. Press ✓ to start the leak test.
The Leak Test is now in progress.

Select: Next Screen
The Green dots indicating that the machine is operational without conditions

The Leak Test is now complete. Follow instructions as indicated.

Return to: Questions (1)
Cylinder Pressures

Select: Previous Screen
Cylinders

Return to: Previous Screen
**Check List Screen**

### Check List

**Gas Supply**
- **pipeline pressure**
  - $O_2$: 4.2 kPa
  - Air: 4.2 kPa
  - $N_2O$: 3.8 kPa

**cylinder pressure**
- $O_2$: 131 kPa
- Air: 0 kPa
- $N_2O$: 56 kPa

Open cylinder valves to check pressure. Close valves after check.

**Vaporizers**
- Correctly locked in position?
- Set to zero?
- Fill level OK?
- Safety filler locked?

**Breathing Circuit**
- Fully assembled?
- Correctly connected?
- Gas scavenger connected and flow adjusted?
- Soda lime OK?
- Last Soda lime change: 2 Sep. 2008 11:57

**Miscellaneous**
- Water trap fill level OK?
- Suction OK?
- Emergency resuscitator present and functional?

**Prepare for the self test:**
- Set APL valve to MAN.
- Adjust APL valve to 30.
- Occlude the Y-piece.
- Connect the sample line.
- Close safety $O_2$ flow control.

Press to start the self test, or press "cancel test" for emergency operation.

---

Return to: [Previous Screen](#)
On this screen are the alarms switched on or off?

Where is the auxiliary gas flow outlet to connect - for example - a Paediatric T Piece Circuit?

Where is the emergency $O_2$ flush button and what flow will the $O_2$ be delivered at?

What does APL stand for and where is the APL valve?

What mode is the Drager in here and what alarms are indicated?

What mode is the Drager in here and what alarms are indicated?

What mode is the Drager in here and is there fresh gas flow?

What mode is the Drager in here and is there fresh gas flow?
Dismantling the “Block” (1)

- Remove Circuit and soda lime canister
- Depress button (A) and pull unit out from machine using handle (B)

Select: Next Screen
- Insert “Allen Key” into locking mechanism

Select: Next Screen
Dismantling the “Block” (3)

- Unlock all 5 points on top of unit

Select: Next Screen
- Lift Section off

Select: Next Screen
Lift next section off
Dismantling the “Block” (6)

- Using “Allen Key” unlock points indicated x 3

Select: Next Screen
Lift next section off
Lift out rubber piston liner

Select: Next Screen
Dismantling the “Block” (9)

- Unscrew circuit ports x 2

Select: Next Screen
Dismantling the “Block” (10)

- Remove flow sensors x 2
- Place flow sensors x 2 in 70% alcohol solution for 10 minutes Do not send to CSSD
- Remove and allow to dry prior to reassembly of circuit

Select: Next Screen
Dismantling the “Block” (11)

- Take assembled equipment to CSSD

Return to: Questions (1)
Auxiliary Gas Flow Outlet

Return to: Questions (2)
The Drager Primus has an integrated power back up of:

c) At least 30 minutes, typically 90 minutes irrespective of ventilation mode

d) At least 50 minutes, typically 95 minutes irrespective of ventilation mode

e) At least 30 minutes, typically 90 minutes dependent on ventilation mode

7. Before commencing a system check the APL Valve must be set to:

h) 30
i) 60
j) 90

12. If there is a “Gas Mixer Fail” alarm you should do one, all, or a combination of the following:

m) Check the vaporizer setting

× Use the safety O₂ knob to set an adequate flow

o) Change the machine

p) Both a and b

× In the event of N₂O failure the Primus will deliver:

× 100% air

× 100% O₂
2. Is it possible to change the soda lime canister during a case?
   c) No
d) Yes, dependent on the mode of ventilation
e) Yes

7. How do I confirm a change of setting?
h) Push the respective soft key twice
i) Change of setting will automatically confirm after 10 seconds
j) Push the rotary knob to bottom right of screen

12. If the soda lime canister loses humidity one, all, or a combination of the following may occur:
   ⊝ Has no effect
   ⊝ Can cause reduced CO₂ absorption
   ⊝ Can cause formation of CO
   ⊝ Both b and c
   ⊝ In the event of O₂ failure the Primus will deliver 100% air:
s) True
t) False
Drager Quiz (Page 3)
Test your knowledge of The Drager Primus

Under each statement listed below there are several different answers. Read each statement then click on the answer that you think is correct.

2. How long are the alarms silenced for when the acoustic alarm key is pressed?
   c) 1 minute  
   d) 2 minutes  
   e) 30 seconds

7. Should the gas cylinder valves be closed following checking of pressure during full system check?
   i) No. Leaving the valves open will have no effect the cylinders  
   j) Yes. If the valves are left open whilst the machine is connected to sufficient central supply, gas may also be used from the reserve cylinders

13. LED Displays will light green if:
   - $O_2$ Pressure $> 10kPa \times 100$ and $N_2$ Pressure $> 20kPa \times 100$
   - $O_2$ Pressure $> 20kPa \times 100$ and $N_2$ Pressure $> 10kPa \times 100$
   - $O_2$ Pressure $> 10kPa \times 100$ and $N_2$ Pressure $< 20kPa \times 100$

   In the event of air failure the Primus will deliver 100% $O_2$: 
   s) True  
   t) False
Drager Quiz (Page 4)

Test your knowledge of The Drager Primus

Under each statement listed below there are several different answers. Read each statement then click on the answer that you think is correct.

1. The Drager Primus will tolerate breathing system and hose leaks of?
   b) Up to 40 mls a minute
   c) Up to 80 mls a minute
   d) Up to 150 mls a minute

6. To change one or both flow sensors it is first necessary to dismantle “The Block”?
   g) True
   h) False

10. The “Econometer” indicates the qualitative utilization of fresh gas flow. This will indicate “surplus” if the fresh gas delivery is?
    k) >1l/min above gas consumption
    l) >2l/min above gas consumption
    m) >2.5l/min above gas consumption

15. In the event of anaesthetic gas failure and no backup supply being initiated:
    p) An audible alarm will sound
    q) The corresponding LED below the screen will light up red

Return to:
Home Page
Questions (1)
Questions (2)
Congratulations
Correct Answer
Sorry
Wrong Answer

X

Please try again
What does APL stand for and where is the APL valve?

- APL stands for Adjustable Pressure Limit
- Valve Position

Return to: Questions (2)
Close Up Of APL Valve Set at 30

Return to: Previous Page
Where is the emergency O\textsubscript{2} flush button? What flow will the O\textsubscript{2} be delivered at?

- Button position
  O\textsubscript{2} will be delivered at > 35 l / min

Return to: Questions (2)
Location of On / Off Switch

- On / Off Switch

Select: Previous Screen
Econometer

Return to: Previous page