

Getting Started with Tafonius

FIRST USE & INITIALISATION ROUTINES



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Steps required to get going with Tafonius

- 1) Prepare the machine
- 2) Start up and Initialise Tafonius

Preparing Tafonius for use

You will need to:

- A) Connect the patient tubing and monitoring connectors
- B) Fill the Soda Lime canister and close the piston assembly
- C) Connect the piped gas supplies – Oxygen and Nitrous Oxide (if fitted)
- D) Connect the gas scavenging apparatus
- E) Connect the mains power supply through the RCD unit

Initialisation and Start up of Tafonius

You will need to:

- A) Start the Tafonius machine
- B) Launch the Tafonius Software
- C) Run the Zero Piston utility
- D) Run the Leak and Compliance test
- E) Configure the Tafonius screen
- F) Set up any monitoring alarms
- G) Set initial ventilation values

For use of Tafonius in Auxiliary mode only, see the document “TAFONIUS VENTILATOR, AUXILIARY MODE, A USERS GUIDE”

Preparing Tafonius for use

Connect the patient tubing and monitoring connectors

Connect the two 2" tubing connectors to the valve block on the swivel head and then fit the Y-piece to the other ends – Figure 1



Figure 1

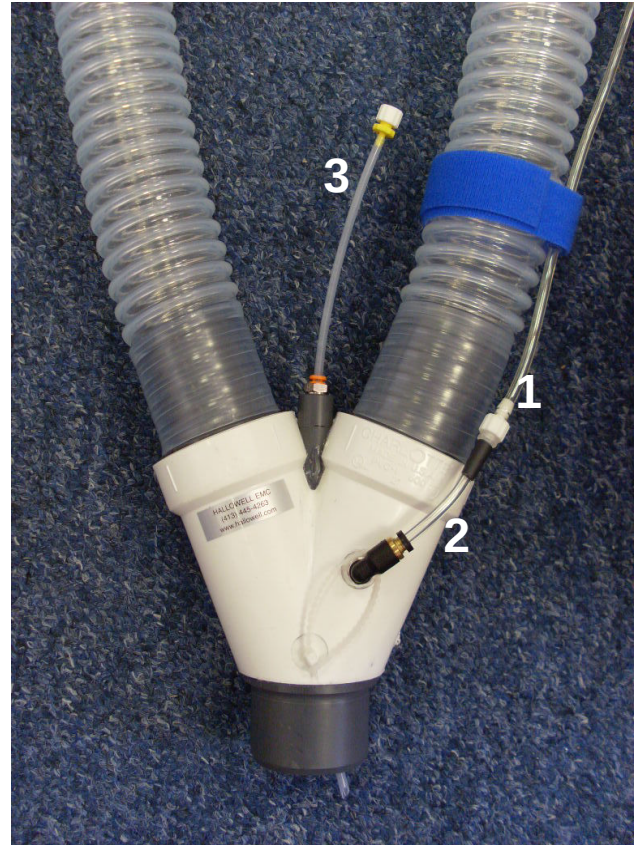


Figure 2

Fit the pressure monitoring line (1) to the luer connector at the end of the short pipe from the top of the Y-piece and fasten securely – Figure 2

Use the catheter (3) at the back of the Y-piece for CO₂ or airway sampling. For units using the mainstream IRMA breath analyser, this separate port is not used and should be capped off. The catheter can be advanced into the ET tube after intubation. To withdraw the catheter, push in and hold the orange ring around the connector, whilst pulling on the catheter. To prevent gas leaks the catheter must be capped when not in use.

Fill the Soda Lime tray and close the piston assembly

Open the piston assembly to reveal the soda-lime tray, by pulling each of the large black knobs at the rear of the machine (2) to release the piston assembly – Figure 3

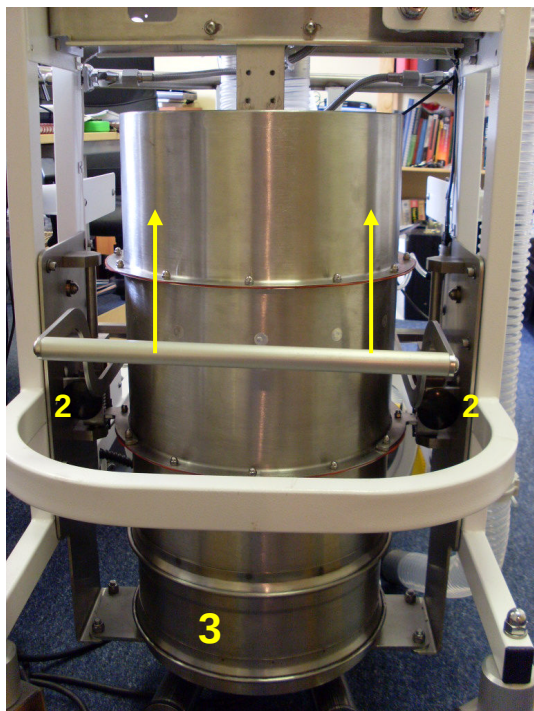


Figure 3



Figure 4

This will release the hinge mechanism so that the main handle springs upwards revealing the soda lime tray - 3 in Figures 3 & 4
Push the handle all the way up until it locks in to place – Figure 4

Remove the soda lime tray and make sure there is sufficient effective material for the procedure. Fill the tray to the level of the central divide and then replace the tray. The tray is symmetrical and can be fitted either way round. It is important that the sealed channel at the bottom of the tray runs in the same direction as the channel on the ground plate of Tafonius. With the soda lime tray in position, lower the handle and push down firmly to lock and close the piston assembly.

If the piston is too low to allow the soda lime tray to be easily removed, then delay this procedure until Tafonius has been powered and initialised. After initialisation, Tafonius will move the piston away from the soda lime tray when the cylinder is opened.

DO NOT UNDER ANY CIRCUMSTANCES FORCE THE PISTON UP. THIS MAY CAUSE IRREPERABLE DAMAGE

Connect the piped gas supplies – Oxygen and Nitrous Oxide (if fitted)

The piped gases connect to the rear of the machine just below the level of the door on the right hand side. Depending on the country of use these may be NIST or DISS fittings. Screw the pipelines securely to the appropriate connector and then attach the other end into the wall supply. Make sure the manual flow meters are turned off at this point to avoid gas wastage.

Universal Codes:

	UK/Europe	USA
Oxygen pipe	White	Green
Nitrous Oxide pipe	Blue	Blue
Medical Air	Black/White	Yellow
Vacuum/Suction	Yellow	White

Connect the gas scavenging apparatus

Gas scavenging can be via two routes with Tafonius: either via a 22mm scavenging system or via a piped suction/evacuation line

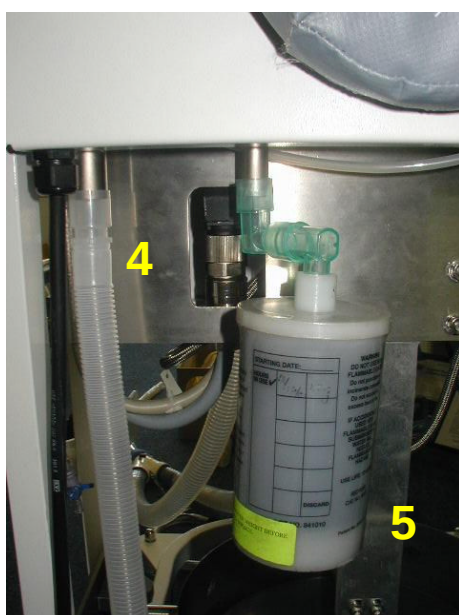


Figure 5

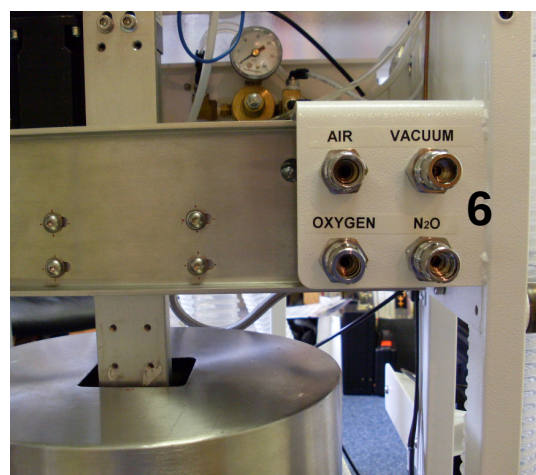


Figure 6

For a 22mm scavenging system (4), connect the 22mm scavenging pipe (passive or active) to a connector on the exhaust/waste manifold that is to be found at the bottom of the rear door on the left hand side. Fit a Charcoal canister (5) to the other pipe connection here.

When using a piped evacuation line, connect the pipe to the piped outlet at the back of Tafonius (6), below the level of the rear door on the right hand side – Figure 6. The front scavenging flow meter on the front of the machine can then be used to set the rate of gas withdrawal.

Gas scavenging mechanism

Waste gas from Tafonius is removed through a single evacuation or dump valve (7) that is fixed to the small manifold on the back door – Figure 7

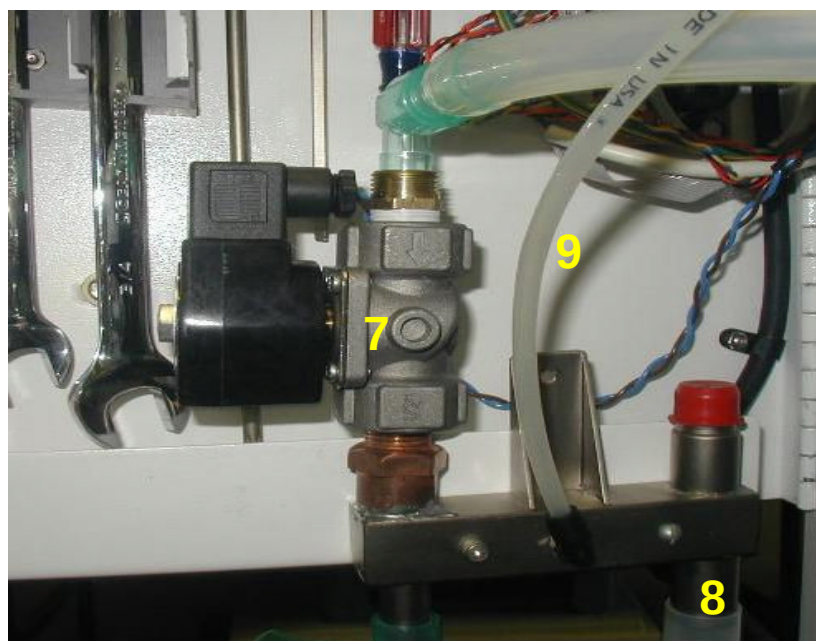


Figure 7

With a piped evacuation line the extraction rate is set by the flow meter on the front of Tafonius. If the Dump valve (7) is closed then no gas can leave the system and the scavenging flow will be made up of room air coming in through the charcoal canister and flowing up the scavenge pipe (9). Whenever gas is removed from the system by the action of opening the Dump valve this gas is preferentially taken away by the evacuation line. Should the scavenging flow rate be insufficient for peak flow rates then any excess gas will pass out via the charcoal canister and be inactivated. In this mode the 22mm port on the exhaust manifold (8 in Figure 7) should either be blocked off or, for further efficiency, be fitted with a 2.0L – 5.0L reservoir bag.

With a standard 22mm scavenging system the scavenging flow meter plays no part and should be fully closed (turned fully clockwise). In an active scavenging system the removal of waste gas is by the same mechanism as with a piped evacuation line – with the Dump valve closed room air is drawn into the scavenging system via the charcoal canister. When the Dump valve opens waste gas is drawn into the 22mm scavenging system. In a passive system waste gas passes along the 22mm scavenging system due to the driving pressure of gases being released from the patient circuit via the dump valve.

In all circumstances, if the extraction rate is excessive then room air is pulled in through the charcoal canister. If the extraction rate is too little then waste gas is neutralised by passing out to the atmosphere through the charcoal canister.

Connect the mains power supply through the RCD unit

Connect the long mains power cord to the mains supply at the wall and switch this supply on. Then make sure that the small grey RCD switch (9) at the back of the machine is pushed in and that the green LED (10) is lit. This will supply power to charge the batteries and run Tafonius at the same time. Fuses F1-4 are the supply fuses for the Tafonius machine. Both Live and Neutral are fused with 5A T, Time-delay/anti-surge fuses.

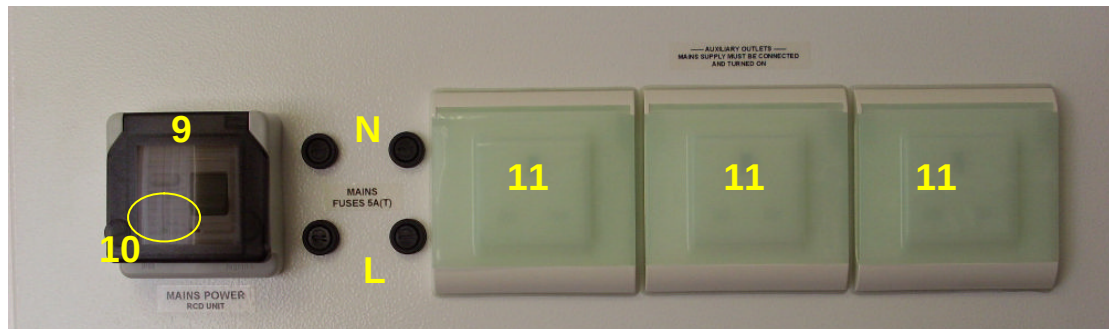


Figure 8

The power outlets (11) can be used for auxiliary mains equipment. Power is only available from these outlets when the mains supply is connected and the RCD switch (9) is ON.

Battery back-up

Tafonius can run on a set of fully charged batteries for approximately 6-8 hours depending on ventilation frequency and monitoring demands. It is intended that Tafonius would normally run whilst connected to the mains supply, so that battery usage is reserved for power loss situations or in situations where mains power is not available. The switch from mains power to battery power is seamless and should not interfere with performance of Tafonius in any way.

Initialisation and Start up of Tafonius

For systems not using the Windows monitoring software, see the document “Using Tafonius in Auxiliary Mode”

Start the Tafonius machine

Tafonius is started by pressing the large green square button on the right of the machine at the front, known as the Soft Mains ON/OFF Switch. This button will immediately light up at the same time as the small Auxiliary QVGA screen is lit up.

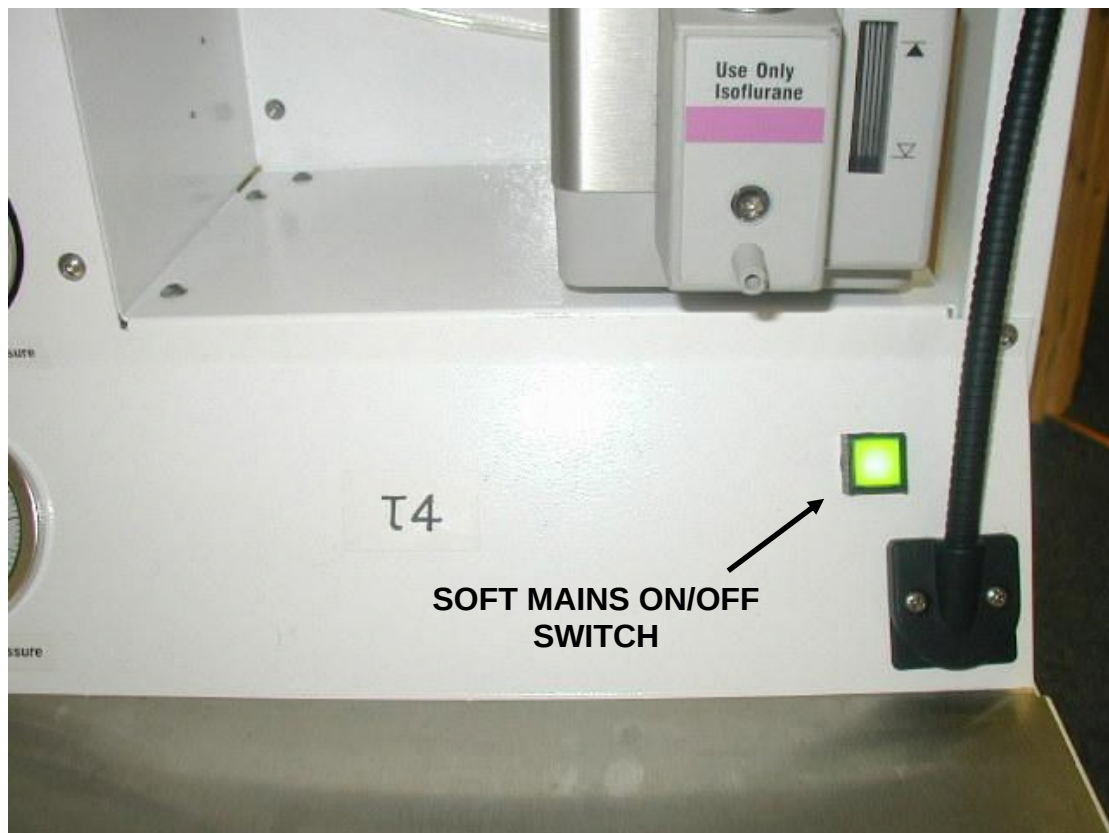


Figure 9

The initialisation procedure consists of:

- Initialising the power supplies
- Initialising the Motor controller
- Establishing and testing communication with different parts of the system
- Testing the motor controller and power supplies
- Establishing the zero reference for the piston position

All 5 of these procedures must execute and pass the initialisation tests before Tafonius can be used.



Figure 10

If Tafonius is fitted with the monitoring system then the Touch Screen PC will also start up at this point as indicated initially by the small blue light (12) at the front of the PC and then by the normal start up screens of a Windows based PC (13).

The Auxiliary screen shows each stage of the initialisation procedure and is accompanied by audible beeps at each stage of the initialisation. When the Auxiliary system has completed its initialisation, its behaviour depends on the presence of an active PC and whether the PC is running the Tafonius software.

For systems without a PC, the Auxiliary system will finish the system initialisation and then wait with the yellow IPPV switch flashing waiting to complete the piston initialisation procedure. Once the piston initialisation procedure is complete the Auxiliary unit will proceed directly to the control screen, announced by 3 short consecutive beeps. The Auxiliary system is then ready to use (see the section on running Tafonius using the Auxiliary system).

For systems with a PC, the Auxiliary screen will show the title TAFONIUS and then wait 2 minutes for the Tafonius software to connect and take over. If at the end of the two minutes a PC does not establish connection (or if the user pushes the Auxiliary IPPV switch button) then the Auxiliary system will resume control and proceed to piston initialisation.

Normally a PC is detected and the Auxiliary system waits. The PC will boot up straight into the Tafonius Shell screen. This screen has a large button labelled Tafonius.

Launch the Tafonius Software

Once the Tafonius shell appears click on the Tafonius button to launch the Tafonius program.

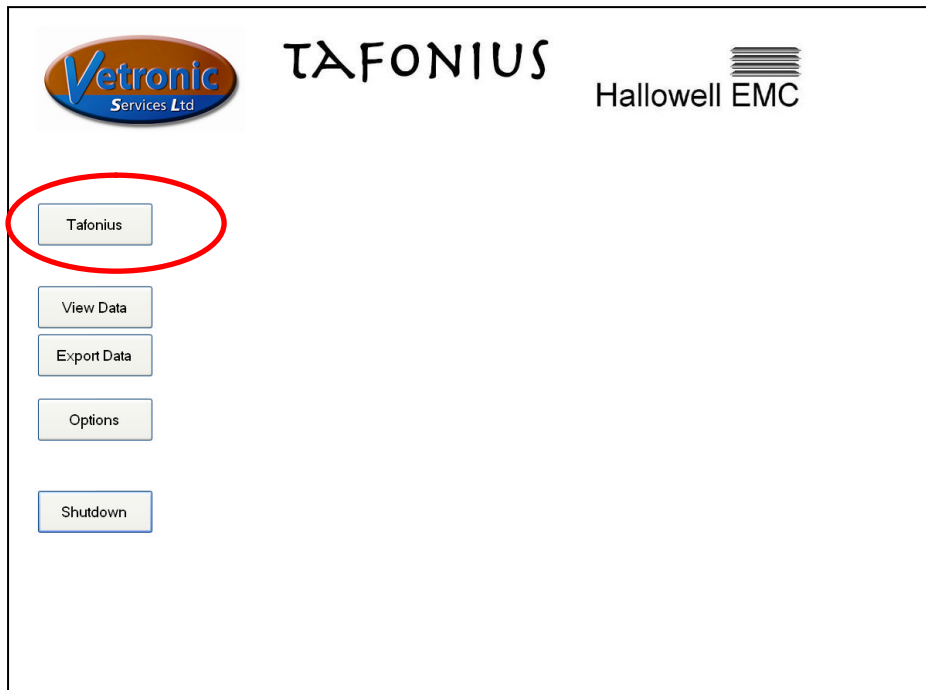


Figure 11

The Tafonius software will start and you will be presented with the following screen:

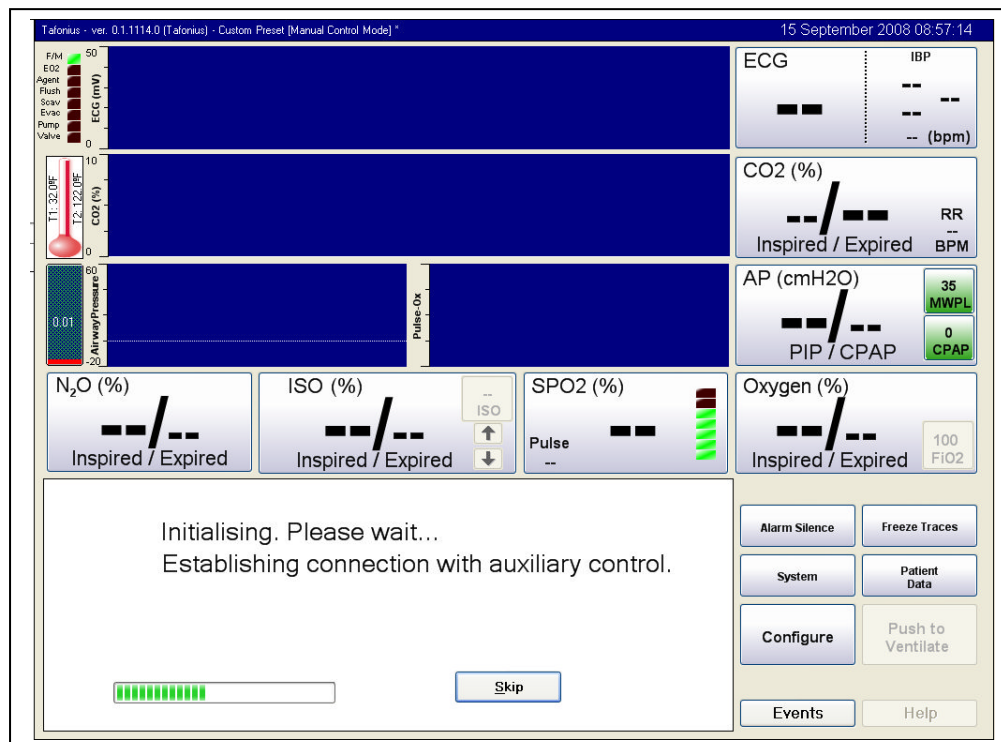


Figure 12

The Tafonius software will now establish a link with the Auxiliary controller and the white dialog box text will change to say “Disconnect Patient and Push Initialise”.

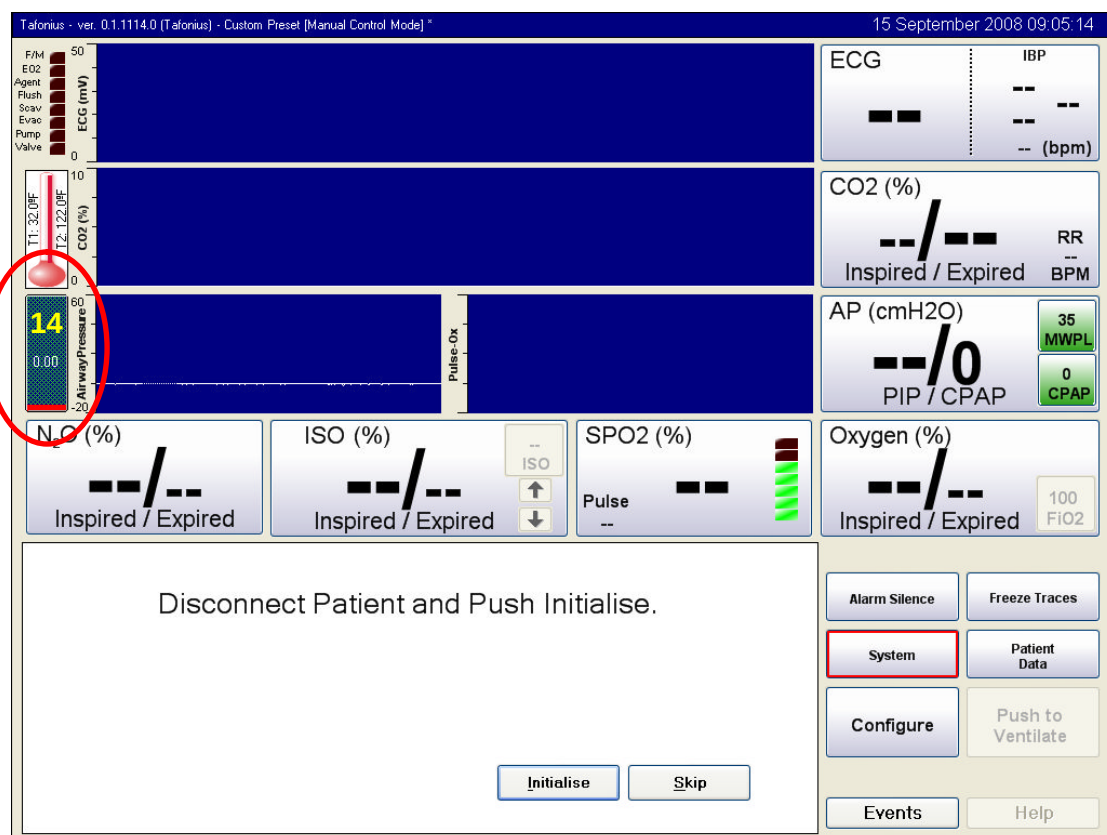


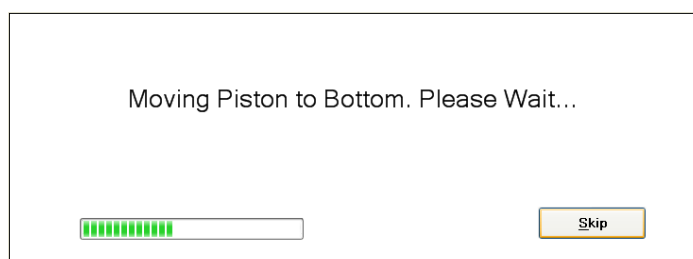
Figure 13

Run the Zero Piston utility

The dialog box now says “Disconnect Patient and Push Initialise”. Notice also that the Piston area (14) on the Tafonius screen is shown as a cross-hatched area. This indicates that the piston position has not been initialised.

It is possible to skip the initialisation procedure here but the ventilator cannot be used until the piston position has been initialised.

Make sure that there is nothing attached to the end of the Y-piece and that the piston mechanism is properly closed and then press the Initialise button. The piston moves slowly to the bottom of its travel.



When it reaches the bottom a piston-zero is performed and the Piston area on the screen turns green and has the value 0.0 in it. The piston now rests waiting and is ready for use. The large white dialog box now shows:

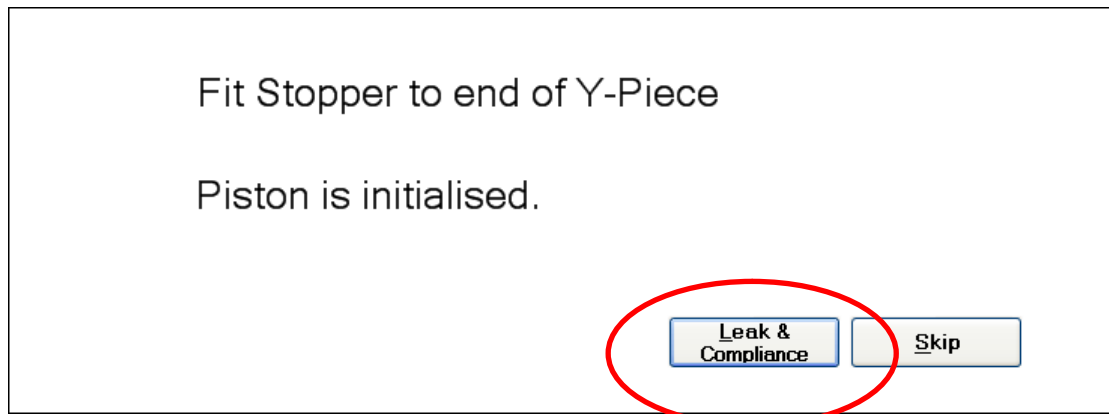


Figure 14

Run the Leak and Compliance test

Now the piston is initialised the system can be tested for leaks and for its compliance. To do this fit a stopper to the end of the Y-piece and then press the Leak & Compliance button. The piston moves to the middle of its travel and performs a leak test at 20cm H₂O pressure. On completion of this Leak test the value is displayed. If the value is acceptable then the system proceeds immediately to the two Compliance test positions and finishes the test. If the leak is excessive or there are errors during the compliance testing then the procedure will stop and you will be presented with the choice of repeating the tests or aborting the Leak & Compliance testing. If a compliance test is aborted then the last measured compliance values are used to calculate compliance compensation during IPPV.

If the system leak and compliance has already been tested then press Skip to go straight into the program.

The main Tafonius program is now ready to run and will begin immediately the Leak & Compliance procedures have finished.

Tafonius is now ready for use