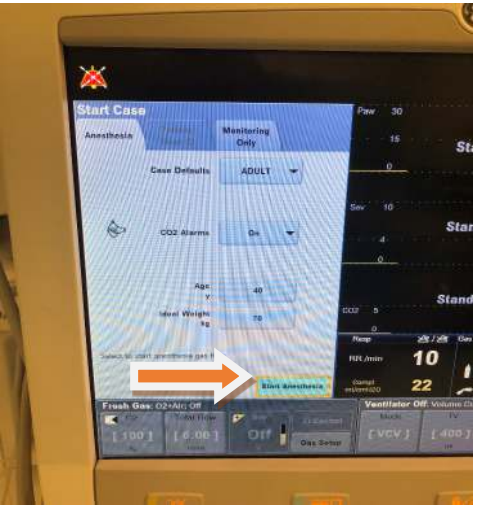
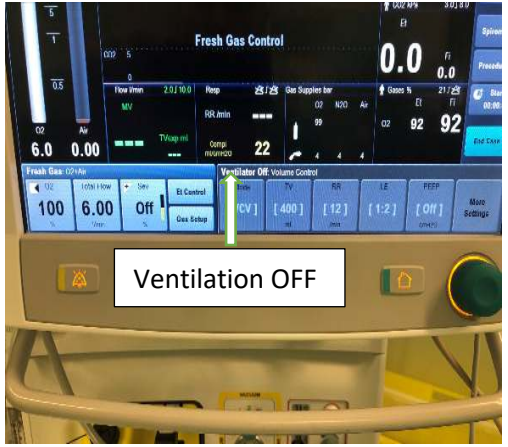
- To turn the system on, turn the system switch (red arrow) and confirm that the mains indicator light is green
- Perform a system check with the circuit, (including closed-suction) present.

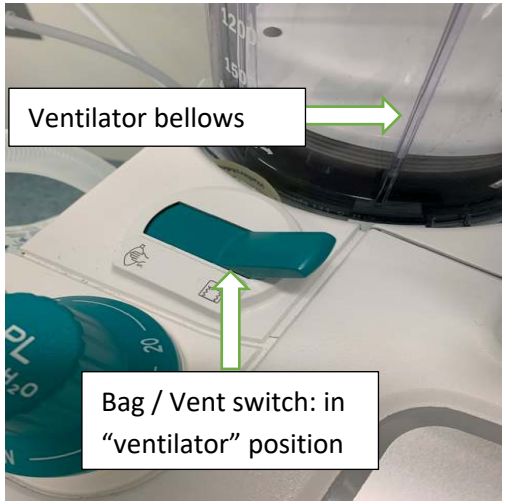
- Once the machine check is complete, the ventilator will be in either standby mode or the ”checkout” screen will be displayed
- Use the touchscreen or com-wheel to navigate. All changes to settings need to be confirmed by pressing the com-wheel
- Press and confirm “Start Case”



- After you select “Start Case” you will be shown this window
- Use the touchscreen or com-wheel to select “Start Anaesthesia”
- Ensure bag/ventilator switch is toggled to bag. The machine will not activate otherwise (see picture 5)



- Following this you will be confronted with the following screen. You are not yet ventilating the patient. These are the default settings.
- Initial settings should be changed to O_2 100%, flow rate either 3 (low-flow) or 6 (high-flow) litres/min
- Volatile should be OFF



- Push the bag/ventilator switch to the right to activate the ventilator
- The ventilator bellows should start to move up and down
- If the bellows do not reach the top of the container within 10 secs, increase the flow rate temporarily to 10 litres/min until this is achieved

- The default ventilator setting is VCV
- Use the touch screen and comwheel to adjust the settings (medical team will usually do this)
- Preferred vent mode is SIMV PVC-VG (see reverse for setting appropriate targets)

TROUBLESHOOTING

VENTILATION

The patient can be ventilated either using the green bag (green switch to the right) or the mechanical ventilator (green switch to the left)

Initial Settings:

- FiO_2 100%, fresh gas flow 3 (COVID) or 6 (Non-COVID) litres/minute
- Mode – SIMV PCV-VG
- Tidal Volume – initially 400mls and then adjusted to 6mls/kg
- Respiratory rate 20-24 bpm
- Pressure support 5cmH_2O
- PEEP 12cmH_2O (COVID likely to require high PEEP)
- Ratio 1:1.5 (change this in the "**More Settings**" tab

Settings will be adjusted by the medical team based on the admission ABG

VENTILATION GOALS

- PaO_2 >8kPa
- $PaCO_2$ no limit but aim to maintain H^+ <60 (pH >7.2)
- Pinsp <30cmH_2O

The above targets will be different in neuro-intensive care patients and will be defined at the bedside by the medical team

FRESH GAS FLOW

- The AISYS CS^2 can either be run at higher flows (>6-8l/min) or low flows (1-3l/min) with a soda lime canister in the circuit
- If not using soda lime and if $FiCO_2$ >0.5, increase FGF by 1l/min. If $FiCO_2$ does not reduce and FGF >10l/min, change to soda-lime in the circuit and reduce flows to 6l/min

BELLOWS

- The bellows should move up and down with each breath set by the ventilator
- If they fail to reach all the way to the top of the plastic casing, this indicates there is a leak or break in the circuit
- Increase the FGF to 10l/min and perform a prompt visual check of the circuit and connections.
- If no leaks are identified, return to the baseline flow but increase by 0.5l/min
- Ask for a medical review if no leaks are identified

END TIDAL CO_2

The end-tidal CO_2 will calibrate periodically with a message saying so in its place. This usually only last 10-15 seconds

PAUSING FRESH GAS FLOW

- Select the procedure tab (right-hand side of the screen), then "Pause Gas Flow"
- The gas flow will pause for 60 seconds or until "Restart Gas Flow" is confirmed

BACKUP PLAN: DISCONNECT THE VENTILATOR AND OXYGENATE USING A C-CIRCUIT AND 100% OXYGEN. CALL FOR IMMEDIATE HELP.

SODA LIME

- Low fresh gas flows can only be used with soda lime, which will need changed every 8-24 hours
- Signs that the soda lime needs changing include increasing $EtCO_2$ in combination with elevated $FiCO_2$
- There will be a temporary reduction in pressure when the soda-lime canister is changed
- Increase the flows to 10l/min during this or clamp the COETT

FALLING FiO_2

- With low FGF, the oxygen demands of the patient may not be met
- If the measured FiO_2 is lower than the dialed target, FGF should be 0.5 litres/min and the FiO2 rechecked after 5 minutes
- If the difference persists, d/w the medical team

BREAKING THE CIRCUIT

- Disconnections should be minimised
- If a disconnection occurs, the circuit should be reconnected immediately.
- FGF will need to be temporarily increased to 10 litres/min until the bellows refill

REMEMBER CAUSES OF HYPOXIA: DOPES

D Displaced tube **O** Obstruction **P** Pneumothorax
E Equipment **S** Stacked Breaths