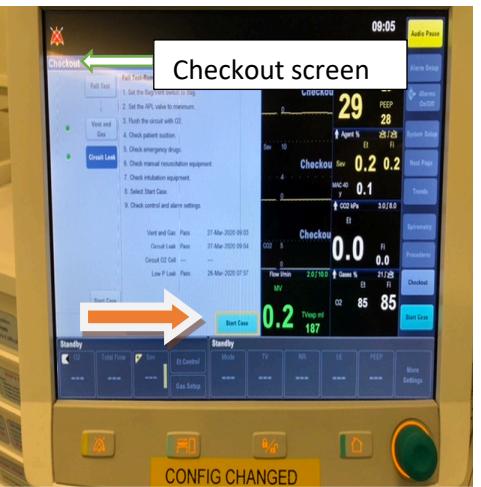
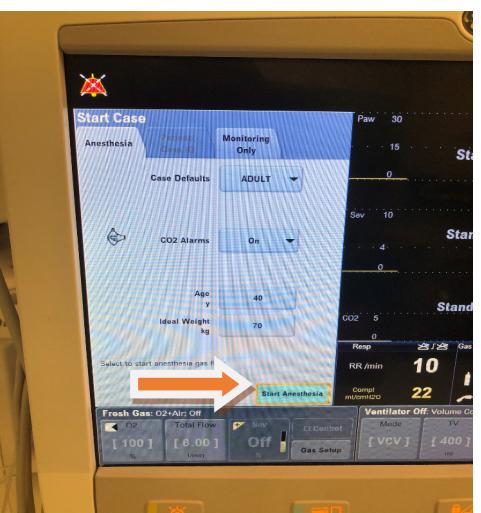




- To turn the system on, turn the system switch (red arrow) and confirm that the mains indicator light is green
- Perform a system check with the circuit, (including closed-suction) present.



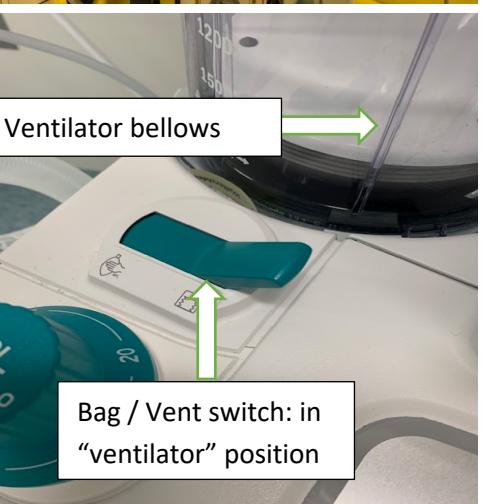
- Once the machine check is complete, the ventilator will be in either standby mode or the "checkout" screen will be displayed
- Use the touchscreen or com-wheel to navigate. All changes to settings need to be confirmed by pressing the com-wheel
- Press and confirm "Start Case"



- 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<sub>2</sub> 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:

- $\text{FiO}_2$  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<sub>2</sub>O
- PEEP 12cmH<sub>2</sub>O (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

- $\text{PaO}_2 > 8\text{kPa}$
- $\text{PaCO}_2$  no limit but aim to maintain  $\text{H}^+ < 60$  ( $\text{pH} > 7.2$ )
- $\text{Pinsp} < 30\text{cmH}_2\text{O}$

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<sup>2</sup> 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  $\text{FiCO}_2 > 0.5$ , increase FGF by 1l/min. If  $\text{FiCO}_2$  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 $\text{CO}_2$

The end-tidal  $\text{CO}_2$  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  $\text{EtCO}_2$  in combination with elevated  $\text{FiCO}_2$
- 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 $\text{FiO}_2$

- With low FGF, the oxygen demands of the patient may not be met
- If the measured  $\text{FiO}_2$  is lower than the dialed target, FGF should be 0.5 litres/min and the  $\text{FiO}_2$  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