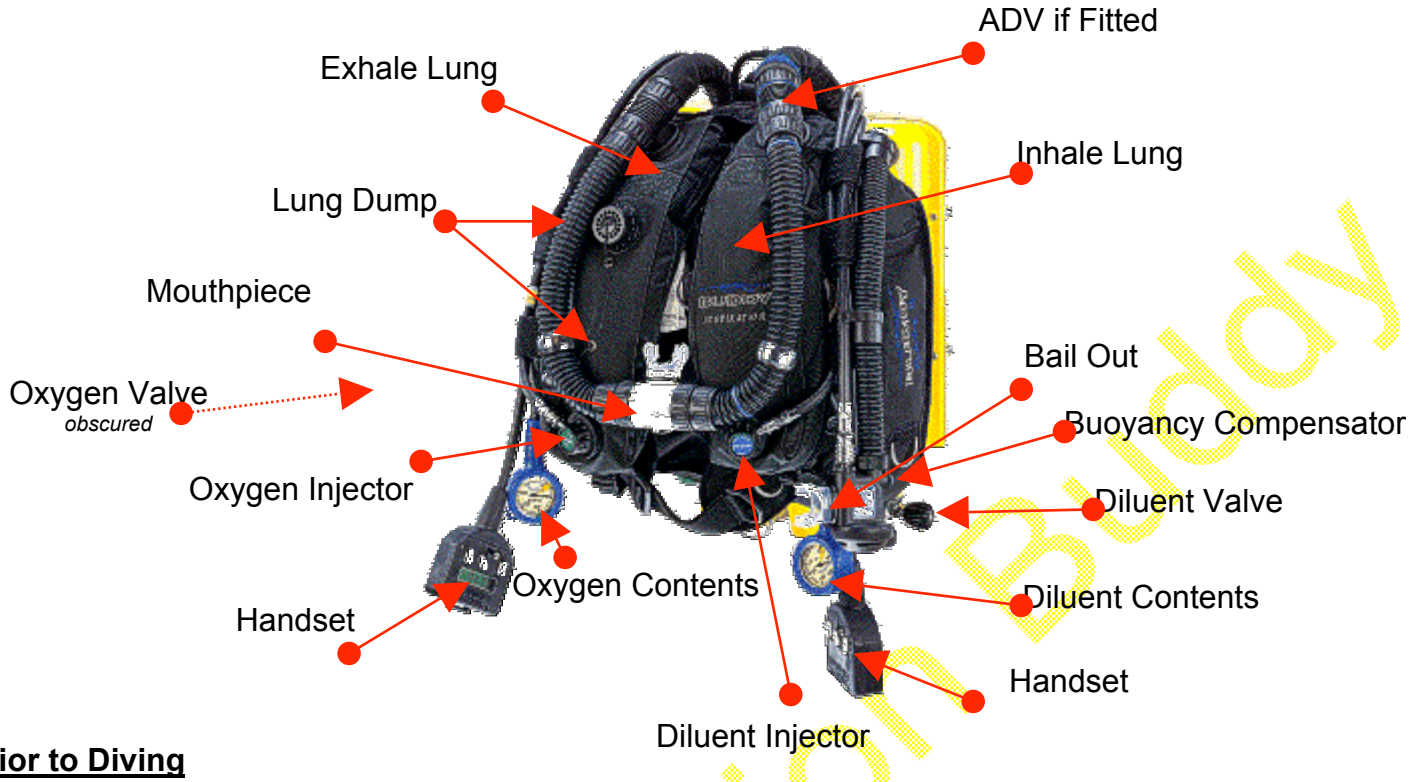
So You're Diving with an Inspiration wearing Buddy, Here's the Low-down on what to expect



Prior to Diving

The big difference here is in the pre -dive checks that an Inspiration user MUST do. On your open circuit set, you'll probably get away with just turning the gas on and going diving. This is not true on a rebreather. Each user will have a set sequence of tests they MUST do before entering the water, even if its only 5 mins since they came out (even more so in that case). Don't worry they won't take long, and are carried out in addition to the normal buddy checks which still need to be done. One of the myths of rebreathers is that they take ages to set up. This is not true

Positive Inflation Test.
The units buoyancy compensator and breathing loop are filled to maximum pressure, sealed and left for a time. They must not deflate. This tests for air leaks. This test is often done well before kit up time. The lung dump valve is tested at this time also (Min 3 mins)

Negative Inflation Test
The units breathing loop is sucked free of gas and sealed for a time. Often a hose is crushed. The system must not draw air back in and expand for some time. There should also be an audible gush of air into the mouthpiece when it is opened after the test. Again, this tests for air leaks. This test is often done well before kit up time (Min 3 mins)

Diluent side Checks
The diluent cylinder is turned on, the pressure gauge checked to make sure it has enough gas and the diluent injector tested (also the ADV (Auto Diluent Valve) if fitted). The fitted bail out DV should also be tested along with the buoyancy compensator and drysuit direct feeds. (30 seconds)

Oxygen Side checks
The oxygen cylinder is turned on (SLOWLY) and the pressure gauge checked to make sure there is enough gas. The Oxygen manual injector is also tested. (60 Seconds)

Electronics and initialisation
The master handset is turned on. There should be audible beeps to confirm the beeper works and then a click as the solenoid and batteries are tested under load. This test should always be done with the O_2 on and pressurised to be meaningful. The slave handset is then tested in the same way. The user will then precede through the electronics initialisation routines to get the handsets into dive mode. This may (and should daily) include a calibration check. They may also need to calibrate their computers (min 1 min, max 3 mins). This check is computer prompted and should involve another check of all valves

Pre-breath
The last and the most important test is to breath from the unit for at least 3 minutes prior to diving. This way if something is malfunctioning they will go unconscious while on the boat/shore and not in the water. This test is the most important and is a real lifesaver. Don't dive with them if they don't do it.

Checks for you to do

1. Do check up on your Inspiration equipped buddy
   Ask to see their contents gauges and make sure the gases are switched on and there is enough. Query them if they are not both full
2. Listen to hear if there are any warning beepers sounding. If they are then something is up and the unit is NOT divable. Do not accept any excuses
3. Check if they are carrying sufficient Open circuit bail out gas to abandon the dive at any point and complete the required decompression
4. Learn how to close the mouthpiece. if you have to rescue them you must close this if you remove it from their mouth as otherwise the loop will flood and loose buoyancy
5. Most importantly. Are they pre-breathing from the unit and have they been doing it for at least 3 mins. Don't dive if they didn't (this most simple check would have saved many lives if carried out)

During the Dive

Descending

This is a time of high task loading for the rebreather diver. As well as clearing their ears and filling the dry suit, they will need to monitor the handsets, inject diluent into the lungs and at some time swap from the low set point to high set point. They should also perform a stop at around 6m to check for bubbles and leaks (a good practice on OC). The main risk here is descending so fast that the O_2 level raises too quickly. Most rebreather divers are slower on descent than OC divers (unless they have an ADV fitted)

Bottom

Once on the bottom the rebreather diver will settle down. The unit works best at constant depth and so the only differences will be that a) your buddy swims around object rather than over and b) they should be checking their handsets regularly (about once a minute). There should be no bubbles from the unit at constant depth. Most rebreather owners will practice some drills at some time on most dives. Make sure that your buddy does check his handsets much more regularly than you check your contents gauge

Ascending

OK, now you will see some bubbles. As you ascend the rebreather diver will need to vent some of the expanding gas. They may do this several ways 1) through the lung dump valve (uncommon), 2) breathing out through their nose (common) or 3) breathing out through their mouth around the mouthpiece (common). They also needs to keep an eye on the gauges, as the pressure drops the PPO_2 will lower. This is again on top of decompression and normal ascent constraints. So again this is a time of high task loading. On the surface they need to continue to monitor the handsets

Post dive

The unit must be kept upright or laid on its lungs, never on the yellow back. This keeps the internal condensation away from the Sensors. The buddy may need to turn off the electrics and gases if there is a wait before diving again. If it's the last dive then he may remove the scrubber contents and dry the electrics. If it is being dived again on the same scrubber contents the mouthpiece is left shut to stop airflow. The exhale lung may be drained of fluid that has collected.

Some advanced points

Things an OC buddy should know

How to open and close the CC mouthpiece, the operation of the diluent and O_2 manual inject valves, (but normally leave the latter well alone), and recognise the terms and symptoms of hypoxia (Low O_2), Hyperoxia (High O_2) and hypercapnia (high CO_2).

There are numerous modes of failure of a rebreather. Most are simple to spot if the checks are done. But if not the first warning you may get as a buddy is hearing a warning beeper. If this happens you must ensure that the rebreather diver takes steps to rectify the problem. They should at least inspect the controls and analyse the situation. Give them an OK while pointing at the handsets and expect one back. Unfortunately the second symptom of failure is normally unconsciousness. What can you do in that case ?

a) Get them on a known gas supply. If conscious swap them to the bail out system and begin an ascent immediately. Make sure the mouthpiece is closed. If unconscious then flush the system with diluent while venting and begin to surface immediately

b) If you can inspect a handset check to see if the O_2 is high or low. If low make sure the oxygen is turned on. If high continue on the diluent or bailout.

"If in Doubt Bail them out!" And remember **"Friends don't let friends dive solo"**