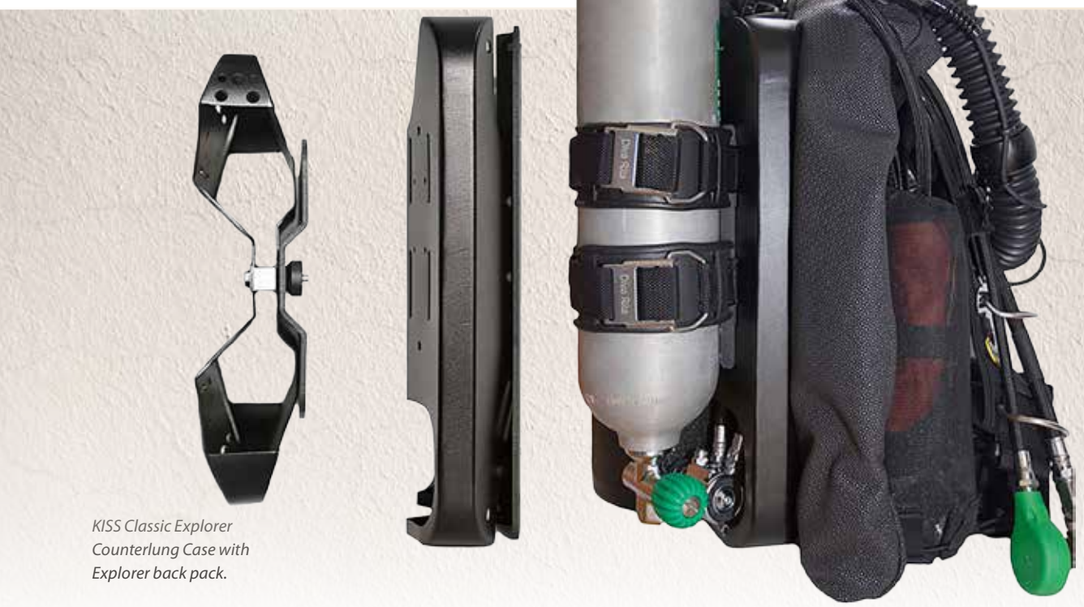

KISS Classic Explorer Counterlung Case with Explorer back pack.

KISS Classic Explorer mCCR.

Learning to Dive a Closed Circuit Rebreather

By Tony Howell
Images by Walt Stern.

It was a very exciting day when I took possession of my first CCR. I had been diving scuba since 1972 and had a couple of thousand dives. With that background I hoped it would be easy. What a rude shock awaited me – so, let's start at the beginning.

When we learn to dive a re-breather (CCR), we learn to dive all over again. The major difficulty we have is getting used to the buoyancy problems with a CCR compared to scuba. To be able to suck in a breath on a CCR, we need to have counter lungs. These are flexible bags, usually on the inhalation and exhalation sides. As we breathe in we breathe from the counter lungs and as we exhale, we breathe back into them. In the process, the breath is also drawn through the CO2 absorber where the CO2 is removed, and more O2 is added - but our combined displacement remains the same.

Unlike Scuba where we sink when we breathe out and rise when we breathe in – the CCR diver stays where they are. Once you have got used to this change in dive habit, another fact starts to register. The CCR cylinders aren't as large as Scuba cylinders which means we can't waste our gas. In theory, a three-litre cylinder of O2 will last about 10 hours. Most Scuba divers snort, huff, puff and blow their way around the ocean. To a CCR diver, they sound like an out-of-control steam train, very noisy indeed.

One of the bad Scuba habits, a CCR diver must rectify is breathing out the nose. "Nose blowing" is to be discouraged as we tend to waste our precious gas without realizing it. When we ascend or wish to reduce our loop volume, we nose blow. Those should be the only times you see bubbles from a CCR diver. Consequently, our dives are quiet, and we don't scare the fish – unlike you steam engines. You can get close enough to fish to take that award-winning photo.

One of the down-sides of being silent is – the boatman can't track us as we have no bubbles. Consequently I had to learn how to launch a surface marker buoy (SMB). When you are in a current and invisible, you could surface a long way from your boat. Later, when I became a CCR Trimix Diver, the SMB and reel were ideal for decompression stops or hang time.

Being able to recycle one breath has lots of advantages. The breath stays warm and moist. No more dry-mouth-after-diving! Because the breath remains warm, we hold our core body heat more efficiently than a Scuba diver. Of course the major advantage is it is just one breath that loses CO2 and gains O2 on each cycle. That is why our gas lasts so long.

Often, Scuba divers comment on the initial cost of a CCR, not realizing that the saving is in the running cost. Most CCR divers enjoy technology and have plans to use the CCR in locations that will justify buying it. In my case, I have 'saved' thousands of dollars by using a CCR on trips overseas and around New Zealand. If I am diving deep exploring a wreck, my trimix is almost free compared to a Scuba diver. To me, it is a sound investment.

Scrubber head.

A Scuba diver may pay US$300.00 for a twin cylinder fill plus deco gases – per dive. I have been on trips where I bought one cylinder of trimix (US$150.00) that lasted my entire trip of 22 dives – then I left most of it unused. A CCR is like a nitrox mixing machine which is why we get so long underwater for such a short decompression obligation. This is one clever machine.

I use a KISS mCCR and initially I thought I would have to inject oxygen into my KISS mCCR quite often. It didn't take long to realize that the KISS mCCRs hold their set point very well. At the deeper depths, they are particularly steady. I did need to top-up during ascent, but that is normal for all CCRs. The KISS is very impressive in the shallower depths as there is no solenoid to fight.

Managing my nitrogen and oxygen limits is made easy as I have integrated Shearwater computers into my KISS mCCR. These display essential data in clear easy to understand visuals. The NERD (near eye remote display) sits right at eye level while the back-up Petrel is wrist mounted. Both are wired into the heart of my KISS unit instantly displaying changes in PO2, depth, time, deco stops and other data.

During six years diving my KISS mCCR in NZ and on major expeditions overseas, I have not missed a dive through CCR malfunction. It does not require tools to break it down for cleaning and is simple to service.

One thing I did learn in 2007 is you should select the best CCR Instructor you can afford. Your life depends on it. A CCR Air Diluent course comprises about six hour's academic development, a session in a pool and up to seven hours in the sea. After this, you can dive a CCR to 30m using an air diluent. Just like Scuba, there is plenty to learn after that!

It might sound like a lot of money and effort if you only intend to dive for seafood. If hunting is the limit of your imagination and ability – so be it! CCR divers are well disciplined in their dive habits, are passionate about their CCRs, set their diving goals and get the best experiences the ocean has to offer.

Tony Howell is the Wellington based Dealer & Instructor for KISS mCCRs & Shearwater computers. He is a TDI Instructor Trainer and PADI Course Director in both Recreational and Technical disciplines. NZ Sea Adventures.

BEING ABLE TO RECYCLE ONE BREATH HAS LOTS OF ADVANTAGES.