

## SIDEMOUNT CONFIGURATION FOR REBREATHER DIVERS

*By Cedric Verdier*

It has been a year now since I started to exclusively side-mount the off-board tanks of my Rebreather (either a Megalodon CCR or an Evolution CCR). Why? Simply because it's much more convenient! Let me explain the rationale.

### 1. A Sidemount kit for Open Circuit Divers

A few years ago, there was no commercially available Sidemount kit for open circuit cave explorers. In the dark ages of cave diving, those who want a Sidemount configuration had to build their own equipment, mainly based on BCs and inner tubes. Then some kits like the Armadillo or the Dive Rite came into the market and gained in popularity as there are definitely some good points in using this kind of configuration:

- Carrying each tank on the side, under the armpits, allows avoiding the large bulkiness of a twinset strapped on your back. So it gives a very streamlined profile when swimming horizontally or exploring low passages for a long time.
- With an easy-to-remove attachment system, each tank can be brought in front of the diver when the time comes to go through a major restriction.
- In some place, you can't find a twinset with an isolation manifold. A Sidemount configuration is a good alternative to the traditional independent tanks.
- It's simple, reliable and much easier to carry than a Twinset, a clear benefit when you have to carry all the equipment for a long distance, either for sump diving, or for a long trip to an unexplored Cenote deep into the Mexican jungle.

But like everything in diving, it needs some training and experience as the diver has to manage two independent gas supplies instead of the traditional twinset configuration with an isolation manifold. Not really DIR but used by a fair amount of Open Circuit cave divers worldwide.

### 2. A Sidemount kit for Rebreathers Divers

- **Sidemount rebreather:** Unfortunately only very few (homebuilt) rebreathers can be truly side-mounted. Tanks and canisters are worn on one or both sides of the body to streamline the all rig. Some manufacturers speak about a Sidemount rebreather as the ultimate solution for a bail-out rebreather but nothing is commercially available yet.

So for most of the units, the canister has to be carried on the back. Therefore mounting any cylinder on the side doesn't really change anything about streamlineness, does it? Only partially true.

- **Sidemount on-board tanks:** Most of the CCRs use very small on-board cylinders either inside an ABS or Fiberglass box or simply attached to a central canister. In both cases, side-mounting these tanks doesn't add any real benefit. You can save a little bit of space on your back but you need longer LP hoses everywhere and it becomes difficult to keep your rebreather as simple as possible. I tried it and didn't like it.

- **Sidemount off-board/Bail-out tanks:** a Sidemount kit becomes really interesting to change the position of the sling tanks that almost every single rebreather diver carries with them. Most of the divers rely on the Open Circuit bail-out option as the last chance to come back to the surface alive, and it often means carrying at least one or two tanks. They are usually clipped on the chest and waist D-rings and honestly, it's not the best place. Their valves protrude and the cylinders push on the front-mounted counterlungs, increasing the Work Of Breathing and uselessly opening the OverPressure Valve.



### 3. Anatomy of a Sidemount kit

- **The "butt-plate":** the core of the kit is an additional plate attached to the bottom of the usual backplate as an extension to clip the lower part of the tanks. The upper part of the tanks is simply hold by a big bungee loop coming from the top of the backplate. The goal is to hold the tanks just under the armpit in the same line than the rest of the body.





- **The off-board tanks:** Instead of a sling tank rig, the attachment is very simple. A cam-band with a dog clip is positioned in the middle of the tank (depending on the size of the tank and the diver). This clip will be connected to the “butt-plate”. No hardware is really necessary on the tank valve as the bungee loop does all the work. Nevertheless some people prefer to have a clip here, mainly when they carry the tank on land or want to stage it somewhere. The cam-band can also be used to put a lead weight to offset the buoyancy of the tank. With an aluminium 80 (11L), it's only necessary for an Open Circuit diver who will breathe the gas in the tank. A full bail-out tank (that is not supposed to be used during the dive) will stay neutrally buoyant all dive long.

- **The regulators:** 1<sup>st</sup> stage and 2<sup>nd</sup> stage, a small SPG and a LP hose with a quick connect fitting (if the rebreather has this option). That's it. It could also be convenient to configure two regulators symmetrically when two tanks are carried. It helps to have both 2<sup>nd</sup> stages and LP hoses at the place.

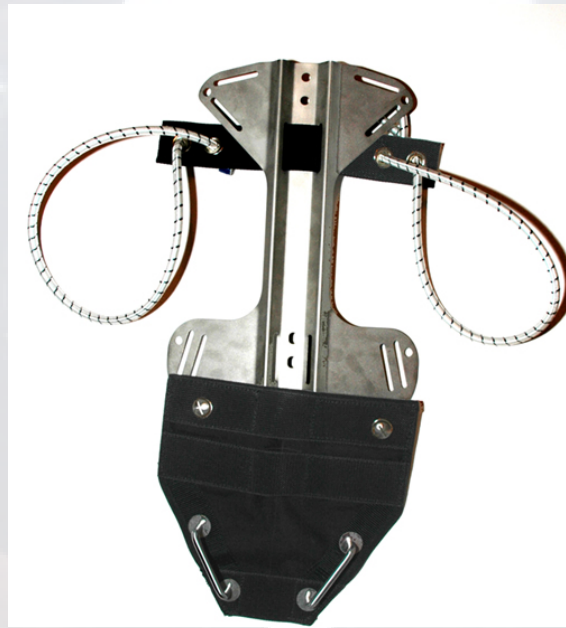


#### 4. How to use it

I played with the idea of a Sidemount kit for my CCRs since quite a while. My first attempt was a homebuilt project based on an old OMS butt-mounted EDS (the soft plate you use to store SMBs and small canister) I found in Thailand. The idea was good but the final result didn't last more than 20 dives. Everything fell apart during a dive. Enough for me to be convinced that the configuration was clearly interesting for a rebreather diver but the making had to be much stronger.

My next project was to use the local Thai industry and to find a small workshop that could understand my poor drawing skills and my even poorer Thai language and

transform it into a shiny and almost indestructible Stainless Steel “butt-plate”. The concept of a Sidemount configuration is quite simple and I became the happy owner of a Sidemount kit. The result was not that bad, but not as cheap as I expected in this part of the world. The plate looked nice, but the welded D-rings were not extremely convenient. The only black bungee I found came from a motorbike shop and the quality was questionable.



*My homebuilt project vs the Golem Gear CCR Sidemount kit*

The kit I use now is the Armadillo CCR Sidemount kit designed by Jakub Rehacek. It comes from a completely different world and I sometimes wonder why people like me try to built their own equipment when people like Jakub can do it much better for almost the same price and in much less time and hassles!

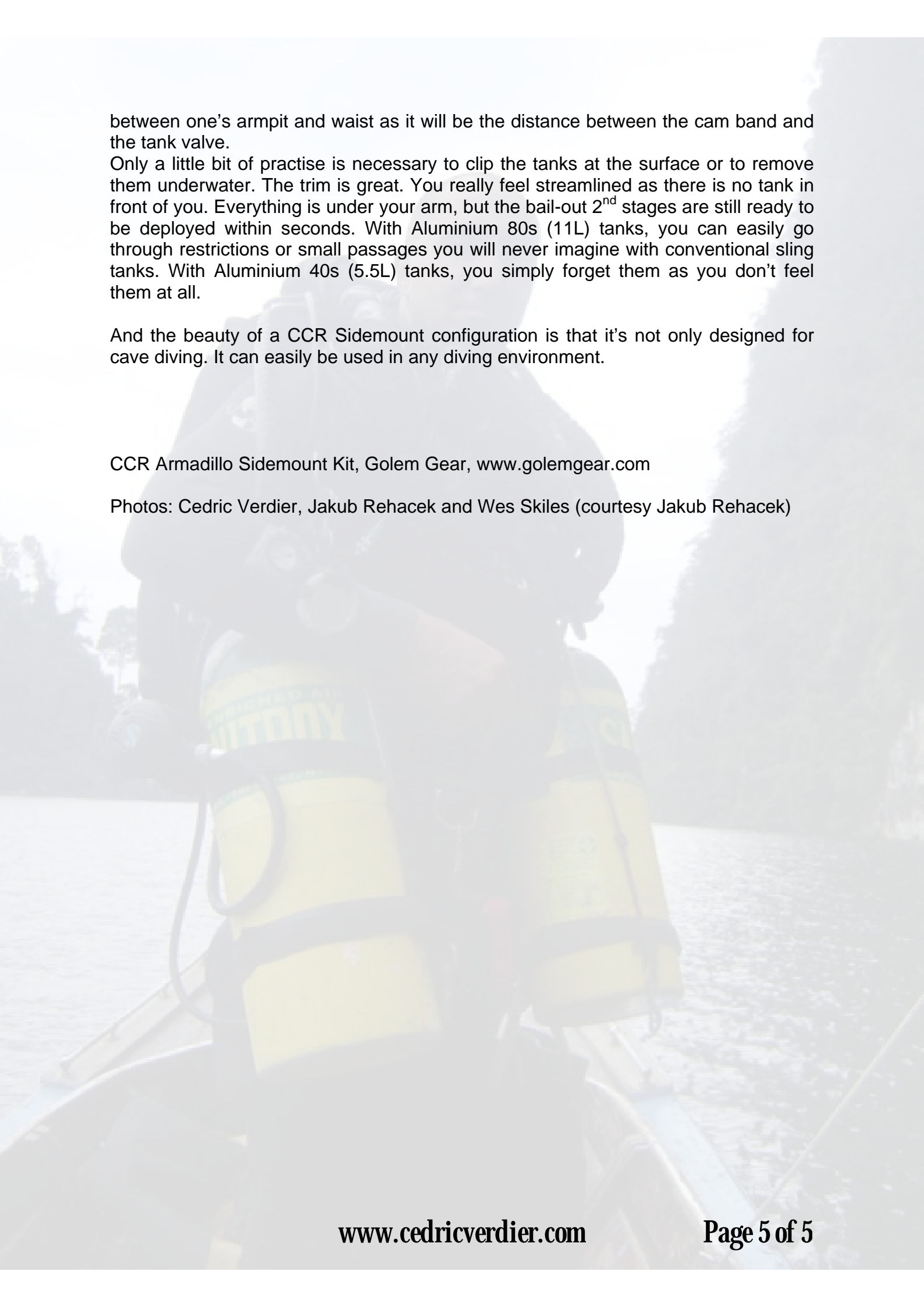
First of all, the butt-plate is not in metal, doesn't hurt my back anymore, and doesn't add any weight to the usual butt-heavy rebreather diver position. So the trim is better and the rig is still as robust as my previous one. The 2 rings where the tanks are clipped to are much more accessible as they slightly protrude on the back. And there's even a place to put the crotch strap!

The attachment strap holds 2 bungee loops that are actually much thicker and more elastic than the ones I used, and it definitely helps to quickly and safely attach the tank valves. How many times did I catch my fingers between the valve and the bungee before?

So all in all, Jakub made a wonderful kit really adapted to rebreather divers. I would have preferred black bungee but nothing dramatic...

The CCR Sidemount kit is clearly simple to use but most divers need a few dives to properly adjust the tanks and the regulators. A good idea is to measure the distance



A diver is shown from the back, wearing a CCR sidemount configuration. Two yellow aluminum tanks are mounted on the diver's back, secured with black straps. The diver is wearing a black BCD and a black mask. The background is a bright, overexposed outdoor setting, possibly a boat deck or a pier, with some foliage visible on the right side.

between one's armpit and waist as it will be the distance between the cam band and the tank valve.

Only a little bit of practise is necessary to clip the tanks at the surface or to remove them underwater. The trim is great. You really feel streamlined as there is no tank in front of you. Everything is under your arm, but the bail-out 2<sup>nd</sup> stages are still ready to be deployed within seconds. With Aluminium 80s (11L) tanks, you can easily go through restrictions or small passages you will never imagine with conventional sling tanks. With Aluminium 40s (5.5L) tanks, you simply forget them as you don't feel them at all.

And the beauty of a CCR Sidemount configuration is that it's not only designed for cave diving. It can easily be used in any diving environment.

CCR Armadillo Sidemount Kit, Golem Gear, [www.golemgear.com](http://www.golemgear.com)

Photos: Cedric Verdier, Jakub Rehacek and Wes Skiles (courtesy Jakub Rehacek)