

THE BAKER'S DOZEN REASONS... TO DE-INVERT YOUR CCR TANKS

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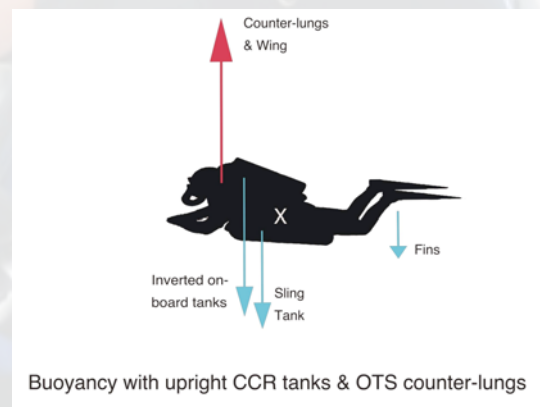
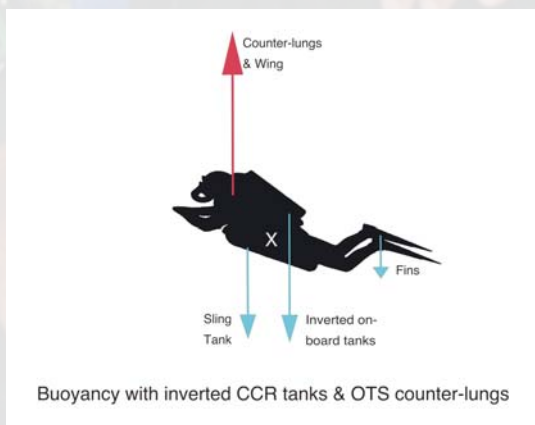
Most of the Closed-Circuit Rebreathers on the market come with inverted tanks. It helps the diver to easily reach their tank valves and close them in case of emergency. That's the main, if not the only benefit. Some rebreathers even come with upright tanks (Pelagian, RB80).

However many rebreather divers would like to have the opportunity to de-invert their tanks but only a handful of CCRs allow this modification (Megalodon, KISS, etc). For those who don't have their rebreather encased in a yellow box (or any other colour), here are some reasons why a CCR diver would like to have their tanks upright:

1. It provides an easier transition from Open Circuit scuba to CCR.

The tank valves are the same place than a twinset so the valve drill is very similar. If the tanks are properly set up, reaching the valves are not more difficult with a CCR than with normal tanks, whatever their size. If open Circuit divers can quickly grab their manifold and close their valves in case of a free flowing regulator for instance, why a rebreather shouldn't be able to do the same? As a matter of fact, OC cave divers frequently check their valves, when they go out of a restriction or if they accidentally bump into a ceiling. Their shoulders have the same flexibility than anyone else.

2. It gives a much better trim to many rebreather divers. Valves and regulators are on top of the unit, removing the need for trim weights to



avoid the butt-heavy position. Many rebreather divers complain about their trim with most of the rebreathers, especially with over-the-shoulder

counterlungs. Tank valves and 1st stages weight a few kgs/lbs, more than enough to change the diver's center of gravity and counter-

balance the excessive buoyancy one can have on the upper part of the body (counterlungs, wing, empty skull, etc).

3. **No risk of entanglement on the lower back of the diver.** A butt-heavy CCR diver is more prone to entanglement in caves and wrecks, as the tank valves are at the lowest part of the rebreather. As most of the cave explorers use upright tanks, they have a tendency to lay lines in the lower portion of the cave to avoid any potential entanglement in the tank valves. Therefore it becomes more a concern for CCR divers with inverted tanks.



4. **No more need for extra long hoses on the regulators.** With the tanks upright, all the hoses going from the 1st stages to the CCR are much shorter, giving a neater configuration. And shorter hoses mean less weight, something that travelling CCR divers appreciate. Custom-length hoses are nice to have but require special considerations.

5. **It's easier to hear any leak and bubble coming out.** With upright tanks, the tank valves and the 1st stages are very close to the diver's head. It's not the case when the tanks are inverted. If there is a leak, it comes more often from the regulator or the valve than from the bottom of the tank!

6. **It gives a lot of flexibility for travelling.** Many rebreather divers would prefer to rent their tanks when they travel, rather than carrying their own tanks in their luggage and paying what most airlines charge for the extra weight. Unfortunately not all dive destinations have small tanks for rebreathers. With an upright tank configuration, virtually any type of tank can be used. Otherwise it's almost impossible to invert two 80s or two 12L tanks, for the greedy divers who really want a lot of in-board gas...



7. **It's much more stable for the pre-dive phase.** Most of the units on the market don't stay vertical very easily on a boat, mainly because they stand on the canister only, and their balance is compromised by the wing, the back-plate, and the many (un-)necessary accessories clipped to it. With de-inverted tanks, the CCR can actually stand on the bottom of the tanks instead. No more need for a custom-made stand that adds unnecessary weight on the bottom.

8. **Stickers are easier to read.** The tanks are always upright, on the rebreather and when separated from the CCR. It means that all the tank markings and/or stickers are always readable, more convenient and less confusing than the upside down stickers. Tank content and M.O.D. labels can be read by everybody at all time (as long as the tanks can stand upright!)
9. **It's easier for the buddy to do a bubble check.** Bubbles coming from the tank valves and regulators are much easier to spot when the tanks are upright underwater. If the tanks are inverted, small bubbles can be left un-noticed, viciously hidden under the wing or the back-plate.
10. **It's also easier for the rebreather diver to spot these leaks by himself.** Even if you're not a solo diver, a small mirror is very convenient to see any bubble coming from the valves or the regulator. Sometimes a diver prefers to see the leak by itself rather than just trying to understand the hand signals of a team mate.
11. **And it's easier to fix a problem.** In case of major leak, it's sometimes difficult for an Open Circuit diver (or even for a rebreather diver!) to understand how to open or close an inverted tank valve on a CCR. It might be easier for someone else to come and help a rebreather diver to quickly close the valve of an upright tank if it's leaking.
12. **It might help in case of rescue.** Unfortunately, in the past, some fatalities involved rebreather divers using unusual procedures, one of them being to close one or both tank valves at some point during the dive. In case of rescue performed by an Open Circuit diver (you never choose who will rescue you), upright tanks might help the rescuer to quickly check/open the tank valves if necessary.
13. **And... it looks cool!** Obviously this is not a good reason. Unfortunately, some rebreather divers just change their equipment or use unnecessary equipment just because it sounds like a good idea. So don't try to de-invert your tanks if none of the 12 reasons above applies to you. If you find them far-fetched, stupid, or of no benefit, that's fine: if you're happy with your unit the way it is now, don't change it.

Remember that changing your gear configuration takes time and money. It's always a lot of trials and errors. Only try to improve and modify your rebreather if you have a specific need for that. Most of the time, there is a reason why manufacturers designed their units the way they are...