

SCUBA News

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Welcome to SCUBA News. This month a guest article by Jill Heinerth - founding entrant of the Women Divers' Hall of Fame and winner of the Royal Geographical Society's Medal for Exploration.

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What's New at SCUBA Travel?



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Featured Liveaboard - SpoilSport

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Review of the Liberty Sidemount Rebreather from DiveSoft, by Jill Heinerth





About 15 years ago, I tinkered with two Meg rebreathers, attempting to construct a sidemount oriented rig that might buy me space in tight cave environments. I was intent on building a dual, redundant platform that could minimize some of the bailout gas that I was otherwise carrying. I learned two things from that process. The first is that I destroyed the great work of breathing of the unit and the second is that by the time I put everything together I was unsuccessful in making a measurable reduction of my profile in the water. I still needed independent oxygen and diluent tanks, scrubbers and breathing loops. But my interest in sidemount rebreathers was not lost. I continued reviewing options at dive shows.

Fast forward through the years, and I was offered an opportunity to dive with and keep a Liberty Sidemount Rebreather from DiveSoft. I have been using it for a while now and have the following thoughts to offer.

First, the Liberty SM is a beautifully engineered piece of equipment. It is robust and dependable. All the parts have been carefully and meticulously designed and specified to fit together like a tight jigsaw puzzle of parts, minimizing the overall size. Although I am often a little worried about how extremely high-tech, electronic solutions will manage in the field, I have not had any issues with electronics.



Diving with the Rebreather

The Liberty SM is one of the easiest rebreathers to trim and dive that I have ever used. Within minutes, I was able to run through essential skills and felt my buoyancy and trim were immediately excellent. That said, the unit needs to be secured to your body correctly to optimize trim and work of breathing. No sidemount rebreather in the world will be as good as an over-the-shoulder counterlung rig for work of breathing. As of this writing, I am not aware of a single sidemount rebreather that has passed the CE EN14143

spec for work of breathing. It is physically impossible. Your lung centroid is too far from the center of the breathing loop (including the canister which is down below your hip), and unless you are in perfect horizontal trim all the time, then you will notice the increased resistance, especially at the end of inhalation in normal diving positions. Work of breathing is not just crucial to the "feel" of a rebreather. It is considered critical for life support specifications, especially when deep diving. Increased work of breathing can lead to carbon dioxide buildup that can be deadly. So bear in mind, **any time you are diving any sidemount rebreather, you are in test-pilot territory**. If a unit does not pass the CE test, then the CE authorities do not believe it operates in a safe envelope for life support in their specifications.

To lessen risk and optimize work of breathing, ensure that the unit is well aligned with your body and that the counterlungs are as high up under your armpit as possible. The stainless triggers snaps that come with the unit are well placed, but I added a bungee at the top to snug it even closer to my lung centroid. When I don't bungee the rig tight, I find the difference in breathing to be noticeable. I wear the rebreather with a Hollis Katana sidemount unit. It provides a clean profile with sufficient lift in the right places. If I use a steel tank for bailout, then a 4-pound counterweight on the CCR side, gives me perfect trim. With an aluminum tank, I use no lead in a dry suit and moderate undergarments in fresh water.

Work of breathing is not just altered through hydrostatic effect - meaning the lung centroid's relative position to the rebreather, such as head down, horizontal or head up. Work of breathing includes the resistive circuit - the twists and bends in the breathing hoses, valves and counterlungs. One of the things I love most about the Liberty is something that unfortunately contributes to a bit of a messy resistive breathing circuit. I love the clean vertical alignment of the hoses coming up to the mouth, but the gas must pass through a 90-degree bend to come and go from the diver surface valve. The mouthpiece feels very secure in this configuration, and the manual add valves on either side of the mouthpiece are nothing short of brilliant. They are easy to access, simple for metering a dose of gas and intuitive in their functionality. The position of these levers makes it easy to breathe open loop and intuitive for understanding the gas path.

The proprietary computer system is not specific to the Liberty sidemount rig. It is provided on all Liberty rebreathers. Menus are well organized and easy to operate. With little instruction, one can easily navigate the menus and activate essential features like the pre-dive checklist. Positive feedback and a timer on the checklist helps a diver know whether they are holding appropriate positive and negative pressure in the loop.

Before you dive ANY sidemount rebreather, ensure you fully understand the concept of work of breathing and recognize that you are a test pilot as you head into deeper dives. Finally, as with any rebreather, your chosen unit is only as good as your backup plan. Use your checklists properly and plan to carry a bailout quantity that will support you in the worst case scenarios you might encounter.

[Read the full article at our web site...](#)

About the author



Jill Heinerth is a hard-core tech diver, a speaker on environmental issues and an accomplished artist. Jill was a founding entrant of the Women Divers' Hall of Fame was awarded the inaugural Sir Christopher Ondaatje Medal for Exploration by The Royal Canadian Geographical Society in 2013 in recognition of her contributions to our

understanding of Earth's underwater cave systems and its hidden freshwater.

Diving News From Around the World

Our round up of the best underwater news stories of the past month. For breaking news see our [Twitter page](#) or [RSS feed](#)



[Where to dive in May?](#)

The seasons are beginning to change around the world in May and bring favourable dive conditions for some of the best destinations in the world.



[Jellyfish inspire self-healing electronic skin](#)

Just like a jellyfish, the electronic skin is transparent, stretchable, touch-sensitive and self-healing in aquatic environments. Its applications range from water-resistant touchscreens to aquatic soft robots.



[Global warming hits sea creatures hardest](#)

Global warming has caused twice as many ocean-dwelling species as land-dwelling species to disappear from their habitats.



[Epic Pacific survey reveals mixed fortunes for green and hawksbill turtles](#)

Green turtle numbers are increasing in the Pacific basin but hawksbill turtle is still very much critically endangered

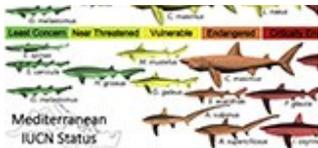


[Turtles struggle years after unexplained die-off](#)

First-of-its-kind study documents heavy metals and other evidence of poor health



[Official stats hide shark and ray species caught in the Mediterranean and Black seas](#)

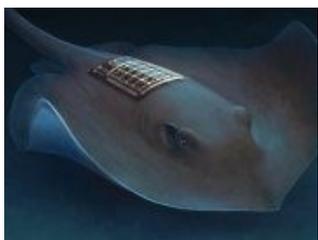


A new study reveals that 97 per cent of the sharks and rays caught and brought to market domestically by fleets from the European, North African and Middle Eastern countries are not reported by species.



Swelling amount of plastic in the ocean confirmed by new study

A new study used log books from 60 years of plankton research to document the increase in the amount of plastic in the ocean.



Marine tagging system dives deeper

A pioneering tagging system that monitors the movement and local environment of sea animals can now reach deeper depths and higher sensitivities.

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