



# KISS CLASSIC REBREATHER

by Curt Bowen and Kim Smith

**G**ordon Smith, the founder of Jetsam Technologies Ltd., developed an interest in rebreathers around 1968 when he first read about Walter Stark and the Electrolung. But growing up in Denver, Colorado, he didn't have much of an opportunity to learn water sports. So years later, around 1979, having moved to Vancouver, on Canada's West Coast, he finally had the chance to take up diving. Never having lost his interest in rebreathers, he started building them for his own use around 1995. Aside from the interesting technology, Gordon was intrigued at the idea of longer bottom times, warm and moist air, silent diving, and three hours of gas at any depth!

Around that time in Vancouver, there was very little interest for recreational rebreather diving and the technology was not well known. But when Gordon showed up at the local dive sites with his new toys, his dive buddies became very interested. Interested enough to fork over some cash and demand that he build more units! It seemed like a good idea at the time and with over 8,000 square feet to work in and state of the art machinery at his fingertips, it made sense. This rebreather,

dubbed the KISS rebreather due to its simple and straightforward design, was completed in 1998 and five were initially sold.

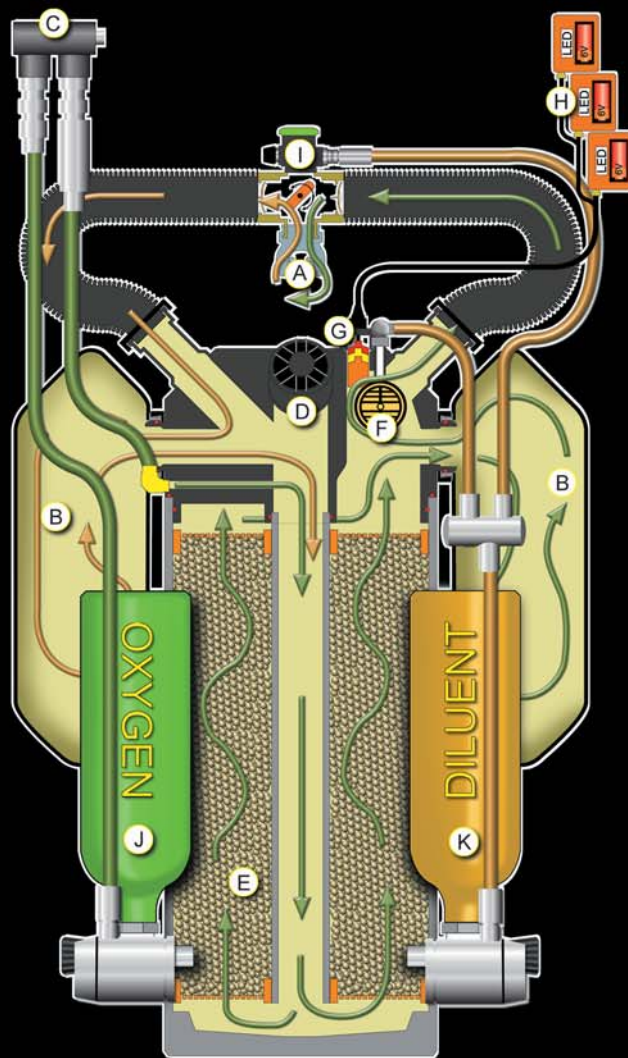
Shortly after, the KISS was redesigned into what is now known as the Classic KISS Closed Circuit Rebreather.



Photo C. Bowen



- A. DSV: Dive Surface Valve
- B. Counterlungs  
2 liter, 4 liter, or 6 liter
- C. Oxygen Manual Add Valve with  
15 micron filter
- D. Apeks Exhaust Valve
- E. Scrubber Canister  
approx. 6 lbs, (2.7 kg)
- F. ADV: Automatic Diluent Valve
- G. Triple Sensor Well  
R22D, teledyne sensors
- H. PPO2 Displays  
Three independent PPO2  
displays. Each with its own  
housing, battery and sensor.
- I. Bail-out Second Stage:  
The bail-out second stage is  
incorporated into the DSV. To  
switch from closed circuit to  
open circuit bail-out, simply  
close the breathing loop. The  
bail-out second stage is  
plumbed to the diluent tank.  
NOTE: The bail-out second  
stage is for getting a sanity  
breath only. Divers should  
carry a redundant bail-out  
system for emergencies.
- J. Oxygen Tank & First Stage:  
13 cuft tanks are recom-  
mended.
- K. Diluent Tank & First Stage:  
The Classic KISS is compatible  
with either air or trimix as a  
diluent gas. 13 cuft tanks are  
recommended.



The Classics started getting recognized after a UK diver, Steve Millard, developed an interest. Steve was diving off Canada's fabulous west coast and had an opportunity to take a KISS for a dive. Having had a great experience, he soon ordered a unit. It was the first unit to be sold in the UK and the first sold outside of Canada. That was around the spring of 2000. Thanks to Steve's efforts, news of the KISS rebreather spread quickly. As it turns out, there were many divers, most with previous rebreather experience, who liked the simplicity and reliability of the KISS system.

The KISS philosophy, Keep It Simple Stupid, came from Gordon's background. As a tool and die maker by trade and a designer and builder of molds, he knows that some of the most reliable machines are those that are straightforward, easy to use, and easy to repair. Knowing that he was building a machine that was to be taken underwater and that was life support equipment, he felt strongly about the KISS concept. The more he thought about adding clutter and electronics to the unit, the less comfortable he was. He couldn't help thinking, why make it more complicated than it needs to be, after all, you can't reboot underwater!

It's this philosophy that led to the development of the Classic KISS. The Classic is probably best known for its manual oxygen addition system. It is called "manual" as there are no electronic set point controllers to adjust and keep track of what the partial pressure of oxygen is in the loop. What it does have is a constant flow orifice. This orifice allows a small amount of oxygen, usually around 0.7 liters per minute, to be continually added to the breathing loop. Along with this constant flow, oxygen

can also be added to the loop by manually pushing the add valve button. What does all of this mean to the diver? Well, the orifice's job is to keep the diver from having to continuously add oxygen. When the diver reaches his desired diving depth, he'll need to manually adjust the partial pressure of oxygen to the desired level. Once there, as long as the diver isn't working hard or moving up and down in the water column, he'll probably not need to add oxygen again until he ascends.

Following the KISS philosophy, the Classic has been designed without alarms, lights or any other type of signaling devices which generally are used for alerting the diver to either a malfunctioning unit or a dangerous breathing mixture. When diving the Classic, the diver is solely responsible for keeping himself alive. If he doesn't remember to look at his displays, there aren't any reminders. Sound extreme? Maybe. But the likelihood of the diver forgetting, when he KNOWS that everything is dependent on himself, is slim. And if the diver has doubts on his ability to remember, well, not only shouldn't he be diving a rebreather, he shouldn't be diving at all!

Another feature that follows the KISS principle is the PPO2 displays. The Classic features a unique triple redundant display system, where each display has its own case, battery and reads only one sensor. If a problem arises with a display, there are two completely independent displays left to get the diver safely out of the water. For those divers who like the idea of a live deco computer, one of the displays can be removed and a dive computer, such as Delta P's VR3, can be added as a third display. The computer acts as the third PPO2 readout, just like the original display and also gives the diver "real-time" decompression information. When attaching a dive computer in this manner, the computer does not act as a set point controller or provide the diver with alarms. For those that really want these features, and understand the danger of complacency, there are a number of after market computers available, such as Kevin Juergensen's Hammerhead or Bruce Partridge's Shearwater.

Over the years, the Classic KISS remains unchanged. It still has the same robust scrubber head which has been machined from a solid block of Delrin, the scrubber canister is still made from PVC and the counterlung case is still built with marine grade aluminum which has been anodized and powder coated for durability. The Classic also still offers a variety of counterlung sizing to better match the divers own lung capacity. This greatly assists the diver in keeping proper buoyancy control. A few of the features have been refined, such as a smaller, lighter bailout mouthpiece, backlit displays, and a new molded manual add valve.

The Classic KISS is a compact, durable, closed circuit rebreather that has been designed for both recreational and technical diving and is rated to 250 feet (75 meters). When asked about the future of the Classic KISS now that the Sport KISS is in production, Gordon's comments are that as long as people want to buy them, he will build them. There are approximately 190 units worldwide.

[www.jetsam.ca](http://www.jetsam.ca)



Photo C. Bowen