Scubapro's DC-12 & TRAC

Less conservative, but still not liberal

A few years ago, Scubapro cut a deal with Divetronic A.G., one of the two major Swiss dive computer manufacturers (the other one is Uwatec), to market Divetronic's DC-11. Although the DC-11 had many advanced features, its no-stop times were sometimes less than half those of other dive computers. DC-11 owners were usually the first back on the boat and had much longer surface intervals than those required by other dive computers. Fighting an uphill marketing battle, Scubapro argued that the DC-11's conservative approach reduced the likelihood of decompression sickness. The strategy was a bust in terms of sales. Under pressure from the competition, Scubapro purchased Divetronic. This move cut out other equipment manufacturers, such as Dacor, who had been purchasing Divetronic's products, and gave Scubapro full control of its own dive computer development.

The result of Scubapro's takeover of Divetronic is two new instruments: the DC-12, a wrist- or console-mounted instrument, and the TRAC. For Divers Who Actually Like Acronyms ("DWALAs"),TRAC stands for "Time Remaining Air Computer." Both run the same decompression algorithms, but the TRAC adds air-related information.

It's the "D" Word

The DC-12 and the TRAC are both called "decompression computers" by their owner's manuals. However, Scubapro apparently hopes that neither instrument will be used for stop-required (decompression) dives, at least here in the U.S., where the thrill of diving must be balanced against the risk of legal action. Each 50-page manual includes more than 30 separately labeled warnings, many of which advise against stop-required diving ("YOU MUST STAY WITHIN THE NO-DECOMPRESSION LIMITS TO AVOID POSSIBLE PROBLEMS"). There is an entire five-page chapter containing nothing but 18 back-to-back admonitions, including my personal favorites, "DO NOT DESCEND BELOW 100 FEET (30 METERS) ON ANY DIVE" and "ALWAYS DIVE WITH A PARTNER" — good advice, but not particularly relevant to dive computer operation.

Ironically, both the DC-12 and the TRAC are rated to 295 feet and are quite capable of handling fairly serious decompression requirements, presumably when incurred by residents of lawyer-less countries. According to their manuals, both computers flash the out-of-range warning only after total ascent time, including required stops, reaches 49 minutes, but do not actually drop out of range (no further stop time accumulated) until total ascent time reaches 90 minutes or the first stop depth exceeds 88 feet. Obviously, stops that long or that deep have nothing to do with recreational diving.

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By and large, the owner's manuals for both instruments are clear and complete, but there are many typos and ambiguities. One page in the high-altitude section states that the limit for deco calculations is 8,500 feet; the next page, 8,200 feet; and the design specifications say 8,250 feet. Although these mathematical discrepancies are minor, they don't belong in a manual for a life-support instrument.

A Display of Logic

I found the display layout on both instruments to be logical and complete without being too complex. Except for size, the decompression displays are essentially the same, combining graphic elements with an easy-to-read numerical data set that doesn't omit anything crucial. Neither gives you superfluous information underwater, unlike some dive computers that tell you not to get on an airplane while you're still 100 feet down. The TRAC has graphical and numerical air indicators that show tank pressure, predicted air time remaining underwater, and so forth. The deco and air sections are well integrated and unambiguous.

The TRAC's display is outstanding for someone with less than perfect vision underwater. The most important LCD elements on the TRAC are huge ($^3/_8$ inch for times, $^1/_2$ inch for depth). I had no trouble reading the entire display, and my buddy could even tell my deco and air status from ten feet away.

Air to Burn or Air to Save?

Remaining air time calculated by the TRAC was usually just about right during my field tests. As with most other dive computers that run air times, zero air time doesn't mean zero air. On stop-required test dives, if I started up when air time remaining showed zero and made the minimum required stops, I always surfaced with about 400–600 psi in my tank. If I extended any stop, I ended up with less at the surface because the extra time couldn't be included in the TRAC's calculations. However, since the TRAC tried to maintain a 500-psi safety margin, there was still some extra air to burn for those long, paranoid hangs on the line.

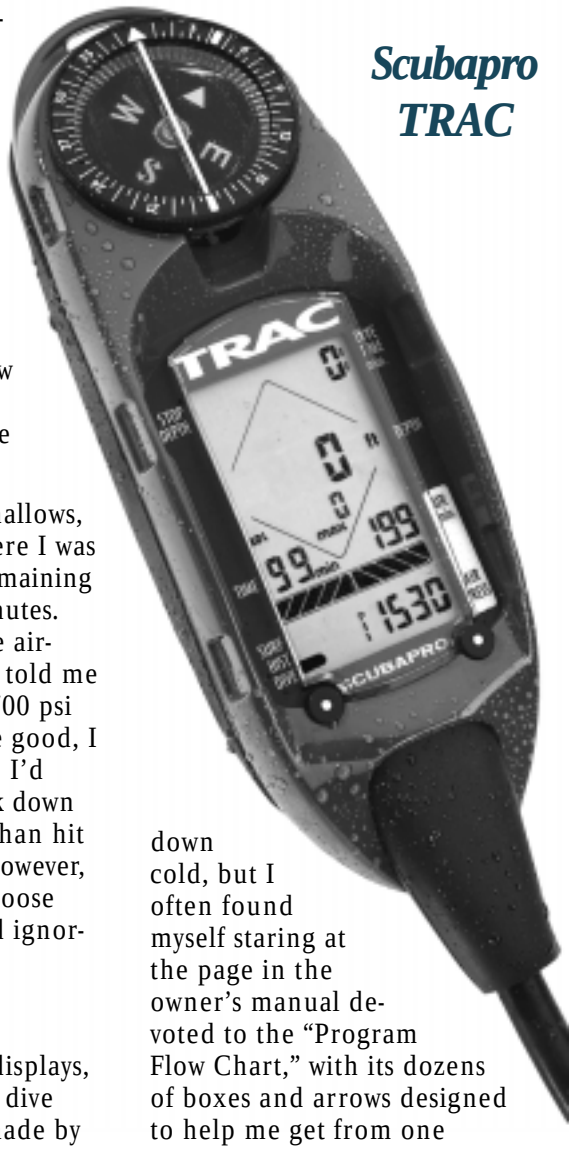
The TRAC's air data could lead to an incorrect decision underwater, however. For example, toward the end of a dive to 83 feet, I began my ascent with about 1,000 psi and a few minutes of air time remaining. I was back beneath the boat in 20 feet of water by the time my tank hit 700 psi. En route, I was breathing heavily enough at some point to reduce the predicted air time remaining to zero. As soon as that happened, the TRAC lit up its big warning arrow ("Low Air") pointing upward, and kept it on for the rest of the dive.

Scubapro DC-12

Once I reached the shallows, the TRAC figured out where I was and rolled back air time remaining from zero to about five minutes. Common sense — and the air-time-remaining display — told me that as long as I still had 700 psi and water conditions were good, I should make a safety stop. I'd much rather burn my tank down on a shallow tropical reef than hit the surface with 700 psi; however, divers shouldn't have to choose between making stops and ignoring safety warnings.

Once More, Slowly

Inquiries for surface displays, dive planner, sleep mode, dive recalls, and so forth are made by joining the metal contacts on the computer face with wet fingertips. Both computers were confusing to operate. Entering the sequence from the battery-conserving sleep mode required a one-second touch, whereas if I had already been in the dive-planning mode, I needed a 9-second touch. If I had wanted to enter the dive mode instead, an 18-second touch was called for, unless I had been in the middle of the sequence, in which case a 9-second touch would put me in the dive mode, or a 4-second touch would get me back to the start of the surface sequence, and so on. . . . Perhaps if I dived them all the time, I'd have the protocol down cold, but I often found myself staring at the page in the owner's manual devoted to the "Program Flow Chart," with its dozens of boxes and arrows designed to help me get from one operating mode to another.



Scubapro TRAC

Comparative Times

The DC-12 and the TRAC are still considerably more conservative than most other dive computers I've used, primarily between 50 and 90 feet, and especially on repetitive dives. Both allow less time for square single dives than even the Canadian DCIEM tables, which have gradually gained acceptance all over the world for their safety. A recreational diver who avoids stop-required dives and uses a DC-12 or TRAC will routinely return to shallow water or the surface a few minutes before a diver using most other instruments.

Although they're generous on first dives, other computers like the the Scan 4, OmniPro, and DatamaxPro all have an algorithm that severely penalizes deep, repetitive dives. If you had a TRAC and your buddy dived a Dacor OmniPro below 60 feet, he'd almost certainly have a lot more time available on a first dive, probably about the same time on a second dive, and he might just have to sit the third one out. The DC-12 and TRAC typically dropped into decompression around 5 to 10 minutes earlier than a Suunto Solution that I was diving for comparison. In some cases — especially deep, square dives — the Scubapros not only entered decompression a lot earlier, they stayed there longer.

Millennium Battery Change

The DC-12 and the TRAC have massive power supplies. By the time these sealed units need to go back to the factory for battery changes, they'll probably be collector's items. At 70 dives per year, the DC-12's battery is predicted to run for about 8 years; the TRAC's, 14 years. If those predictions are accurate, it'll be somewhere between A.D. 2006 and 2010 by the time either of them needs a battery, and I'll probably want to own a new dive computer anyway.

Mounting

The TRAC is integrated into a streamlined console that is larger than most; I guess if you want big displays, you gotta have big boxes. Newer versions of the console have a protective shield over the face of the TRAC; my loaner was recessed protectively below a couple of high ridges that seemed to do the job just fine. The compass is large and easy to read, though the bezel on the unit I had was very stiff to turn with wet hands.

The DC-12 should definitely be purchased with console or hose mounting in mind. It will need surface protection, though it does come with a clear adhesive sheet to guard the face against minor scratches. A wrist strap is available for the DC-12, but it's bulky, clunky, and difficult to open; it makes an otherwise compact instrument (less than 3/4 inch thick) into a plastic monster.

The Bottom Line

The DC-12 is a very compact dive computer with a correspondingly compact display. Readers with visual difficulties will want to confirm that they can read the critical elements underwater before purchasing the instrument. The TRAC has one of the largest, clearest displays ever built into a dive computer. Predicted battery life in both instruments is very good. The DC-12 would make an ideal backup to the TRAC, since they both run the same deco model and complement each other nicely. Both use the same decompression algorithm (a modified version of A. A. Buhlmann's Swiss tables, reformulated by Dr. Max Hahn) with decent high-altitude capabilities and conservative no-stop times. They have the capability for serious stop-required (decompression) diving, although their manuals recommend strongly against it. Their simple, uncluttered displays are intelligently laid out and unambiguous underwater, despite a daunting array of surface readout options. Two thumbs up.

Delmar Mesa

The DC-12 sells for about $270; the TRAC, with a compass, $770.

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No Cave Divers, Please

Here's a macabre recollection that may shed some light on why computer manufacturers are so ambivalent about decompression diving. In 1988, I attended a dive computer workshop put on by the American Academy of Underwater Scientists at Santa Catalina Island. At that workshop, the rather outspoken Ralph Osterhout of Tekna (Ocean Edge's predecessor) commented to Parker Turner — one of the world's preeminent cave divers — that he didn't want Parker or his hard-core cave diving buddies even *wearing* any Tekna gear. Ralph tactfully described cave divers as "booger-eating morons" during a plenary session and said that he would rather they used some other manufacturer's equipment because he didn't want to have Tekna stuff found on their bodies.

Since then, both Parker and his fellow explorer, Sheck Exley, have died on deep cave dives. I don't know if they were wearing any Tekna gear, but I do know that more and more legal action has taken place in the dive business. Consequently, manufacturers are dropping more and more warnings into their dive computer manuals. Oddly enough, the same manufacturers have been steadily increasing the decompression capabilities of their instruments. Most of today's recreational dive computers can handle much longer, deeper stops than their predecessors. From a legal standpoint, it seems better to warn people not to go deep and long, but also to build in the capacity to handle situations in which those warnings are ignored.

D. M.