Care and Maintenance

Buoyancy Control Devices

by Keith Cardwell

Buoyancy Control Devices (BCDs) aka Buoyancy Compensators (BCs) – Care, Maintenance and a little bit of history and training

One of the funniest sights I ever saw in my early diving days (before BCs were the norm) was the use of an umbrella to bring a diver goodie bag to the surface. Awkward, but not as giddy as you'd think and possibly inspired by Julie Andrews in the musical Mary Poppins, it was one of those memorable dives that came close to drowning me. From laughing my reg out.

Although not advocated as compressed air elevators, the BCD is nevertheless that part of our equipment we can use for just that purpose. No effort ascent. But the BC should primarily be used for compensating for loss of buoyancy due to wetsuit compression not for pulling the diver up because of overweighting in the first place.

Shortly after seeing the 'bring-me-up' brolly a fantastic slim-line and relatively inexpensive device was produced. The Oceanair. This was the new 'you beaut' gadget that all divers now had to have. A slim, yellow plastic front mounted bladder with a waist and crotch strap and a long blue hose extending out from the bottom of the bladder with a mouthpiece at the end of it. The idea was to blow through the blue hose then tuck it in to any waist strap available to trap the air in. Release of any trapped air was by a thin one-way valve or just simply release the blue hose from where it'd been tucked and hold it above your head.

The only other option was a Fenzy lifejacket. This lifejacket cum BC was front-mounted with a small air cylinder attached at the base of the bladder for use in filling it. Absolute gold if you could score one! But things evolved quickly.

Early manufacture left a lot to be desired and failures were frequent. But things have improved a lot since those days!

It wasn't long before BCs evolved front to back and jacket type of arrangements with their own inclinations for keeping a diver face down or face up after reaching the surface. We've also seen better contouring to accommodate those of us with significant bumps on the front, and colours to suit our suits, fins, mask, or lipstick. Then there are the dual bladder arrangements and weight integration. Not to mention the extra buckles and pockets especially for the 'tekkies'.

But once a BC has been chosen for whatever duty the diver wants to put it, there is a certain amount of time that needs to be dedicated to adjusting the thing for comfort, and certainly, if weight integrated, how much weight to put and where.

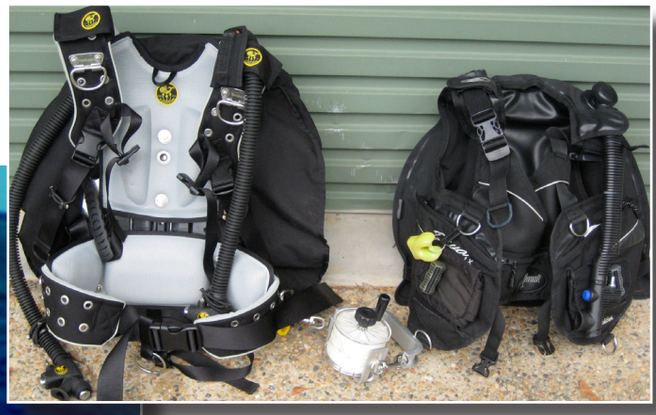
It doesn't matter what type of BC we get, the odds are it wasn't the cheapest item on our dive-shopping list. So care should be taken to keep it alive and well and the first thing to do is read and follow the manufacturer's instructions!

There are two basic phases in the caring stage for BCs: in use and out of use.

in use:

Setting up the BC on the tank is usually a no-brainer as long as (for most BCs) the tank band strap hasn't been completely undone and the webbing needs rethreading through and around the cam action clamp. Most manufacturers have placed a drawing on a piece of material stitched in a strategic place on the tank band to help those with poor recall. It's a good idea to learn how to do this without the 'cheat sheet'.

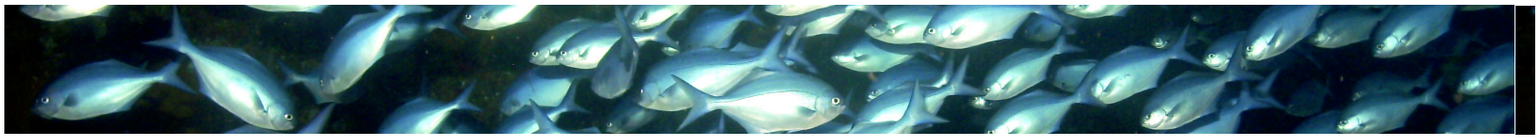
Good streamlining certainly makes getting through the water much more effortless. So with weights and stuff like safety sausages/slates/gloves/cell phones, place them in pockets in such a way as to maintain the streamlining integrity of the entire unit. That is, don't overstretch

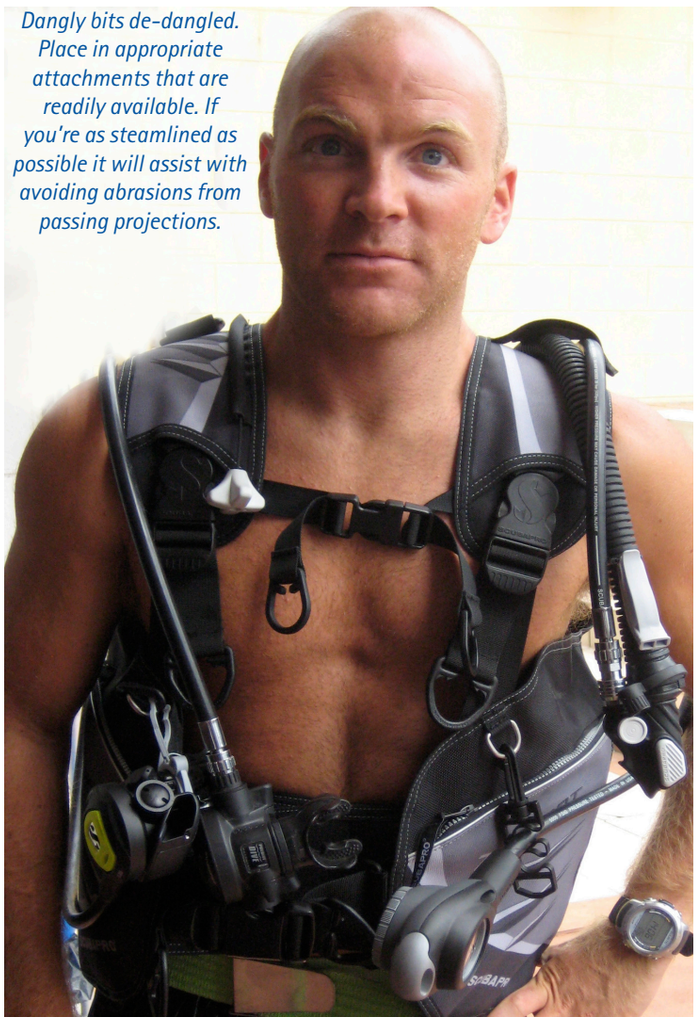


top: Spare BC?

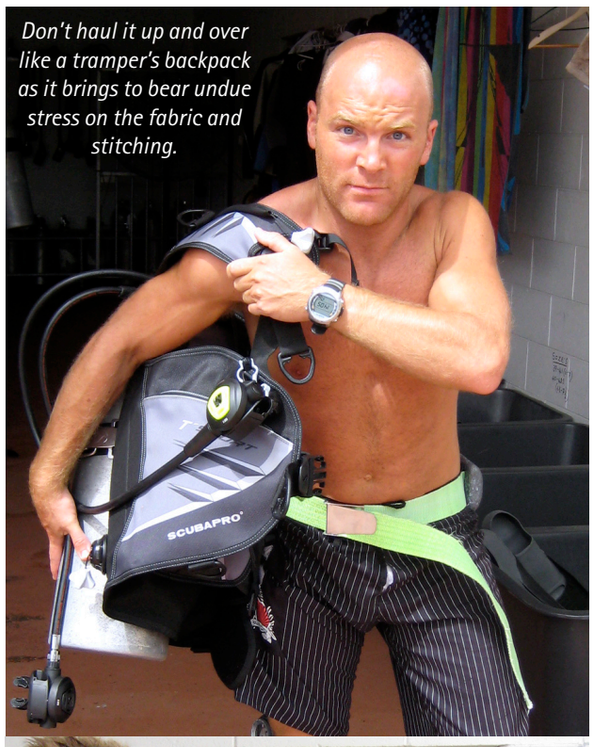
left: 3-4 breaths to inflate and 6 lbs of dynamic lift.

above: Evolved BCDs.

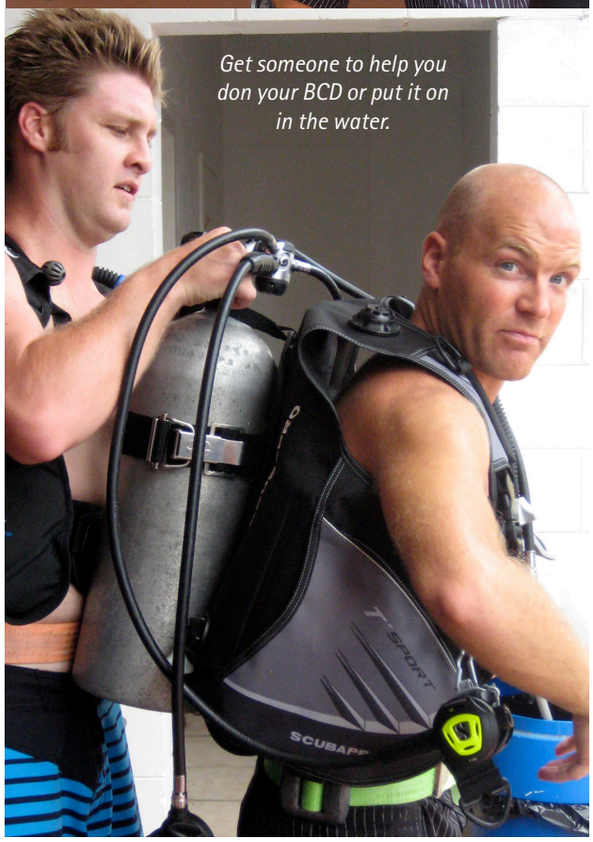




Dangly bits de-dangled. Place in appropriate attachments that are readily available. If you're as steamlined as possible it will assist with avoiding abrasions from passing projections.



Don't haul it up and over like a tramper's backpack as it brings to bear undue stress on the fabric and stitching.



Get someone to help you don your BCD or put it on in the water.

the fabric and stitching. If all pockets and gadgets attached to the BC are as streamlined as possible, this will also assist with avoiding abrasion from passing projections. So make sure all those dangly bits are placed in appropriate attachments that are readily available, if not already supplied with your BC.

And don't become one of those often seen idiots that use one side of the BC to haul it (and the now attached cylinder) up on the shoulder and wrestle it around to get the other arm through. It shouldn't be hauled up and over like a tramper's backpack. Hauling the BC up over the shoulder brings to bear undue stress on the fabric and stitching. And especially if the BC is weight integrated as well as holding the cylinder! The stress on the fabric and bladder is enormous and bound to shorten the BC's life. Get someone to help you or put it on in the water.

In the water

The BC's prime use is to enable the diver to become positive, neutral and negatively buoyant as the situation demands. Even with the earlier inference that the BC can make ascents easier, it's not to help in performing rocketman/woman impersonations. Use buttons and dump valves gently. Be cautious with inflation and don't use your thumb like a miniature hammer and if there's an internal wire connecting the inflator device to the dump valve, don't use it as a personal fitness device to test your bicep strength. These devices are designed ruggedly but last a lot longer with gentle use. If there are any leaks evident, be wary if still in use, ensure that the BC is still workable but get it serviced at the earliest opportunity by a qualified technician.

Correct weighting and BC use go hand in hand and it pays to take a bit of time to get this sorted out properly. Unnecessary stretching of the fabric and stitching underwater is not really an issue unless pockets are overloaded in weight integrated BCs because of poor prior preparation. This might not be as damaging as incorrectly handling the BC on land but nevertheless could contribute to unnecessary wear and tear. Okay, I might be reaching a bit here but this subject touches on one of my pet peeves. Please bear with me.

When divers start their initial training, some instructors overweight their students to compensate for the positive buoyancy experienced by constantly filled lungs. That's from the excessive breathing brought about by excitement of seeing things a bit larger underwater. This instructional ploy of overweighting beginners is often necessary to hurry up the teaching of the basic, initial skills of mask clearing and regulator recovery/clearing. But as the course progresses, more familiarity is gained and breathing settles down, weights often remain the same. It's just too easy to leave things as they are. And the beginner is now getting used to being constantly overweighted. It's normal to them.

So, if you see anyone swimming along at a 30-45 degree angle, just reflect on this point. With excitement, residual anxiety and working hard because of poor buoyancy control, is it really any wonder many divers (particularly beginners) run out of air so quickly?

Out of water

Again, have someone help with removing the BC off your back by lifting appropriately. Do this either by the integrated handle on the BC or by supporting the entire unit by the base of the cylinder until removed and gently placed on the ground. Detach all the bits and pack it away. Not much can be done at most dive sites but when back home the real care should begin. Rinse thoroughly with freshwater (preferably disinfected) inside and out. To clean the bladder, open the LP valve by depressing the button while at the same time having a gentle stream of water from a hose or tap enter it. When about a quarter full, inflate the bladder orally and fully. Then swish the water about and open the LP hose while holding it at the lowest point.

Compress the BC like a set of bagpipes and use the pressure of the air inside to blow the water out. Taste the water! If it's salty, repeat until it tastes as fresh as it does out of the tap or hose. Now place a small amount of air into the BC and hang up as if it was an expensive piece of clothing. It is. And use a proper hanger for it and somewhere out of the sunlight. Skinny wire or plastic ones can cause damage to the BC shoulders by acting like knife-edges. Use a broad shouldered hanger made for the purpose. Your dive shop should have them in stock. And while I'm at it, get a proper one for your wetsuit or drysuit while you're there!

The BC is fabulous at what it does and given good treatment can last many years. As a personal testimonial to that, the two stints I did in the Maldives saw me log 1800+ dives there. I was using the same BC I'd used for two years before going there and for a year afterwards. I changed only because of its now faded colour but now manufacturers have got even that covered by making them colour fast!

What a long way we've come from brollies and plastic bags!

top left: rinse thoroughly with fresh water (preferably disinfected) inside and out. top right: Compress like a set of bagpipes and use the pressure of the air inside to blow the water out. Taste the water, if salty repeat. above: Place a small amount of air into the BC and hang on a proper hanger, out of sunlight.