

# BUOYANCY COMPENSATOR



## OWNER'S MANUAL



## CE CERTIFICATION INFORMATION

Eclipse/Explorer BC Systems

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EC Type approval conducted by SGS UK Ltd.

Ellesmere Port CH65 3EN, ENGLAND

Notified body number 0120.

Pioneer/Evolve BC Systems

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EC Type approval conducted by TÜV Rheinland

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# HALCYON BUOYANCY COMPENSATOR OWNER'S MANUAL

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## WARNINGS, CAUTIONS, AND NOTES

Pay special attention to information provided in warnings, cautions, and notes accompanied by these icons:



**A WARNING indicates a procedure or situation that, if not avoided, could result in serious injury or death to the user.**



**A CAUTION indicates any situation or technique that could cause damage to the product, and could subsequently result in injury to the user.**

**WARNING:** This manual provides essential instructions for the proper fitting, adjustment, inspection, and care of your new Buoyancy Compensator. Because Halcyon's BCs utilize patented technology, it is very important to take the time to read these instructions in order to understand and fully enjoy the features that are unique to your specific model. Improper use of your BC could result in serious injury or death.

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## GENERAL PRECAUTIONS & WARNINGS

\*Before using this Buoyancy Compensator (BC), you must receive instruction and certification in SCUBA diving and buoyancy control from a recognized training agency. Use of SCUBA equipment by uncertified or untrained persons is dangerous and can result in serious injury or death.

\*Read this owner's manual completely before attempting to use your BC, and become familiar with it first in a controlled environment, such as a swimming pool, in order to weight yourself properly and to become comfortable with using its many features and adjustments.

\*Before every dive, perform a complete pre-dive inspection according to the procedure prescribed in this manual, to ensure that all components are functioning properly and no signs of damage or leaks are present. If your BC is not functioning properly or is damaged, remove it from service until it can be repaired by an authorized Halcyon Dealer.

\*Before every dive, as part of your pre-dive inspection, ensure that all bolts and attachment components of your BC system are securely connected. This includes the Single Tank Adapter fasteners to assure your cylinder and STA are secured to the backplate.

\*Your BC is not a lift bag. DO NOT use it to bring heavy objects to the surface. Doing so may cause permanent damage to the BC, and could also result in an uncontrolled ascent.

\*DO NOT overinflate your BC. Control all ascents. A rapid, uncontrolled ascent may cause arterial gas embolism or decompression sickness and could lead to serious injury or death.

\*In the event of an uncontrolled ascent, it is important to immediately begin venting air from the BC. Continue venting air to slow your ascent rate if neutral buoyancy cannot be reestablished.

\*In an emergency such as an out-of-air situation or uncontrolled descent, it is important to remove and jettison weight immediately. DO NOT depend solely on using your BC's power inflator to lift you to the surface.

\*DO NOT inhale from your oral inflator. The BC may contain harmful contaminants or gasses, which could cause suffocation, serious injury, or infection of the lungs.

\*Disassembly, repair, or lubrication must not be attempted by persons who are not factory-trained and authorized by Halcyon. Unauthorized service will render the warranty null and void.

\*Factory prescribed service for this BC should be performed at least once annually by an authorized Halcyon Dealer. Annual service consists of a complete overhaul of the power inflator, and a general air leak inspection of the bladder and valve connections.



**WARNING: Your Buoyancy Compensator (BC) is NOT a lifejacket; it does not guarantee a head-up position of the wearer at the surface. It does not meet U.S. Coast Guard regulations for a life preserver or personal flotation device (PFD). If you become unconscious in the water without a buddy present to immediately assist you, you may suffer serious injury or death from drowning.**

Your buoyancy compensator is primarily designed to help you maintain neutral buoyancy while in a comfortably balanced, face-down swimming position underwater. It is also designed to provide you with flotation so that you can rest on the surface, but it is not designed to function as a life preserver or personal flotation device (PFD). In order to meet U.S. Coast Guard regulations, a PFD must be designed so that it automatically rights you to a face-up position and holds your head out of the water on the surface. The design characteristics of a personal flotation device are therefore different from those of a buoyancy compensator. The ability of any flotation device to float you in a face-up position can also be affected by other diving equipment you wear, including a cylinder or exposure suit, and whether it can be inflated before you lose consciousness.

For this reason, it is important to always dive with a buddy, and maintain close proximity with them at all times. Do not depend on any flotation device to hold your face above the surface in the event that you are rendered unconscious in the water while diving.



**WARNING: While this manual provides some basic guidelines for certain buoyancy control techniques, it is not a substitute for training from a professional diving instructor. Failure to weight yourself properly may create a hazardous condition that could lead to serious injury or death. If you are unsure how to weight yourself in order to achieve optimum buoyancy underwater and on the surface, do not dive until you have obtained the necessary instruction from your diving instructor or an authorized Halcyon Dealer.**

If you have any questions regarding your Buoyancy Compensator or these instructions, contact your Halcyon Dealer or Halcyon at: (386) 454-0811.

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## FITTING YOUR HALCYON BUOYANCY COMPENSATOR

The Halcyon Buoyancy Compensator system provides superior buoyancy control and trim adjustment for divers in any underwater environment. Each component of the BC system—the proper buoyancy wing, alternative lift device, weighting system, and Secure Harness—works together to provide you with safe, efficient control of your gear while under water and on the surface. The BC harness system is adjustable to fit all body types, providing for a much more precise fit than jacket-style BCs.

The Halcyon Buoyancy Compensator has two primary forms of adjustment. The classic adjustment system involves a semi-permanent fitting in which the diver tunes the harness to the appropriate size based upon their size and thermal protection. Meanwhile, the patent-pending Halcyon Cinch allows the diver to adjust the harness quickly, fine tuning it for each dive regardless of the thermal protection worn. The classic system can be upgraded by purchasing a Cinch Upgrade from your Halcyon dealer. Both systems are discussed in detail with the quick-adjust Cinch outlined on page 11.

To properly fit your Secure Harness before first use, begin by suiting up with the same thermal protection that you will use with your BC. If you plan to dive with a drysuit, make sure to include all undergarments. In addition to the thickness of the drysuit, a full set of thermal undergarments can add considerable bulk and have a dramatic impact on the sizing of the harness.

### Fitting Your Buoyancy Compensator – Classic Semi-permanent Fitting

You can adjust the Halcyon BC Secure Harness without the use of special tools by adjusting the triglide fasteners along the back of the backplate and on the crotch strap (figure 1). To adjust the shoulder straps, loosen the triglide fasteners on the back of the backplate where the webbing feeds through the slots (figure 2). Using equal amounts of webbing from both sides of the waist belt, adjust the straps so that several fingers can fit under the webbing along your shoulders (figure 3). The shoulder straps need to be loose enough to be comfortable with your thickest amount of thermal protection. The fit of the harness should facilitate easy doff/don, both in water and out of water, yet still remain snug enough so that your tanks are secure while stage bottles clipped off to the top D-ring stay close to the chest.

To finalize the fit of the harness shoulder straps, loosen the straps enough to allow easy movement of the backplate. Position the backplate for proper tank position, with the top of the backplate high enough to touch by reaching behind your head with either hand; if you can touch the backplate, you should be able to reach your valves when your rig is fully assembled (figure 4). With the backplate in position, tighten up the arm straps until you are able to fit two or three fingers underneath the strap. You should be able to easily slide the straps off of either shoulder. Be careful not to leave excessive slack in the harness straps. An exceedingly loose-fitting harness will allow the backplate to ride low on your back, making it nearly impossible to reach your valves.



Fig. 1: Rear view of crotch strap triglides



Fig. 2: Adjusting rear triglide fastener



Fig. 3:  
Allow for at least two fingers of spacing between the harness strap and your exposure suit.



Fig. 4:  
Proper placement of backplate

The crotch strap should be comfortable and allow you to reach your tanks. The waist belt should fit as snug as is comfortable. Do not overtighten the waist belt so much as to restrict breathing. When adjusting the waist belt, make sure to set the buckle so that it is off to your right side. With the buckle in this position, the crotch strap is unable to accidentally open the buckle. The waist belt buckle (and/or another buckle) can be used to hold your Explorer light canister in place.

To adjust the crotch strap, buckle the waist strap without running it through the crotch strap. Now pull the crotch strap up to the waist belt. Set the length so that the top of the crotch strap loop extends a half-inch (12mm) over the top of the waist belt.

While standing on land, your BC should be snug but not uncomfortably tight. In the water your harness should be snug enough to prevent notable motion of the cylinder as you change orientation, but not too tight so as to bind or restrict your complete range of shoulder and arm movement.

### Fitting Your Buoyancy Compensator – Cinch Quick-adjust Design

Adjustment of the Secure Harness while wearing the Cinch is quick and easy. Following similar guidelines, begin your first sizing in the exposure suit you will be diving in. Once finished, check placement of the D-rings as noted in the previous section, and be sure to trim the extra webbing after you've determined the best size range for your Cinch harness and quick adjust crotch strap.

- **To Tighten the Harness:** While using both hands, grasp the ends of the waist band webbing and pull up and outward (at roughly 45 degrees) from the body (fig. 13, p. 11).
- **To Loosen the Harness:** Grasp the webbing at the shoulder straps just above the waist. Push the harness out and up slightly from your waist (fig. 14, p. 11).

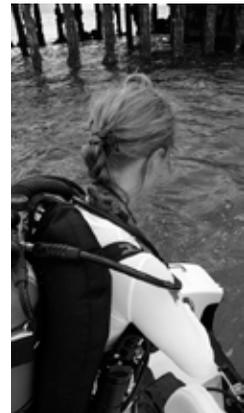
Detailed information on sizing and adjustment of the Cinch design can be found starting on page 11 of this manual.

## FINE-TUNING YOUR BC SYSTEM

The BC harness is the model of simplicity. The Secure Harness utilizes one D-ring on each side of the chest, avoiding the unnecessary clutter of multiple attachments. One D-ring is located on your left hip and single D-rings are placed on the front and back of the BC crotch strap. The hip D-ring is used to attach a pressure gauge, stage bottles, or small tools during a dive.

The knife is placed in a sheath on the waist belt left of the crotch strap, where it can be quickly deployed with either hand. The knife is small and designed as a tool for cutting line. Two backup lights are attached, one to each of the two chest D-rings. These lights are held to the strap by an elastic ring. This location puts the lights in a streamlined position against your chest while remaining completely accessible.

Once you have properly sized your Secure Harness, you will want to fine-tune the position of the five D-rings. The shoulder D-rings should be positioned relatively high on the shoulder straps, especially if you plan to utilize stage



bottles in your diving. If the D-rings are too low, the stage bottles will hang too far away from your body, causing significant drag and possibly damaging marine environments. The shoulder D-rings should also be high enough to allow for proper storage of your Scout back-up lights and to allow for ease of use of your wing's inflator hose to adjust trim and buoyancy, yet not so high that you can't clip an item off with the same-side hand as the clip.

To position the shoulder D-rings, extend your arms straight out to the side, parallel to the ground. Bend at the elbow and bring your thumb straight to the shoulder strap. The center of your thumb should intersect the center of the D-ring (figure 5). Next, reach across your body to (or almost to) your left shoulder with your right arm (figure 6). Make sure the right-side D-ring doesn't pinch between your arm and chest. Do the same with your left. If either D-ring pinches, adjust it upwards.

The waist D-ring is used for clipping off the SPG and for stage bottles. To position the waist D-ring, run your left thumb straight down your left side until it hits the waist strap. Your thumb should intersect the D-ring, very close to your hip bone. The position might need to be adjusted after your first dive with your BC system. In water, practice clipping/unclipping the SPG and, if you wear stage bottles, have your buddy check the position of the tanks. You do not want the waist D-ring positioned so far back that you can't comfortably clip or unclip your SPG, nor so far forward that a buoyant stage would become a hindrance or cause excessive drag.

The rear crotch D-ring is generally used for storing gear not used very often, such as reels or lift bags. This D-ring needs to be low enough that you can clip/unclip gear there (and not be blocked by the bottom of the tanks), yet high enough that the gear does not hang down too far. Typically, position the rear D-ring one hand-width down from the bottom of the backplate (figure 7).

The front crotch D-ring is only used with a tow-behind scooter. Gear should never be clipped to this D-ring, as it will hang in the slipstream and pose significant entanglement hazards.



Fig. 5: Locating the proper location for the chest D-rings



Fig. 6: Checking final placement of the chest D-ring



Fig. 7: Rear D-ring placement



Fig. 8: Assembled Eclipse BC System with accessories.



Fig. 9: Placement of the 6-lb. Convertible Weight inside the STA Channel



Fig. 10: Correct strap position on single cylinder

## FINAL ASSEMBLY OF YOUR BC SYSTEM

Final assembly includes attaching the Halcyon Single Tank Adapter (STA) to the wing and backplate with the two supplied fasteners/bolts. If you are using the 6-lb. Convertible Weight, be sure this is in position in the STA (figure 9) and be sure the straps are correctly configured on the STA. Place the wing on top of the STA through the bolts, then the backplate on top of the wing. Tighten both bolts and fasteners securely. Slide the cam straps over your cylinder and tighten at desired position in relation to the cylinder's valve (figure 10). When diving with doubles, the backplate is bolted to the cylinders with an Explorer or Evolve buoyancy wing sandwiched between the backplate and cylinders. The bolts on the cylinder bands thread through the two grommets on the wing (figure 11).



**WARNING:** The cam straps may stretch after they become wet. Always wet the straps prior to making the final adjustment, and apply enough tension to ensure that the cylinder is held completely secure. Ensure the bolt fasteners between the STA and the backplate are secure. Test these connections before every dive. If the cylinder were to slip free from the BC while you are diving, you may lose your air supply, which could lead to serious injury or death.



**WARNING:** Halcyon BC wings are specifically designed for either single or double cylinders. Always use the appropriate wing for the designated cylinder type(s). Failure to use the appropriate amount of lift for a given cylinder configuration can result in negative buoyancy, which could lead to serious injury or death. Always test your fully rigged and weighted BC system in a controlled environment such as a pool before attempting a dive.



Figure 11. Evolve double BC System



Figure 12. Assembled Eclipse BC with Scout lights and knife.

## HALCYON CINCH QUICK-ADJUST HARNESS

Halcyon has a long history as an industry leader in BC design, offering simple and robust designs for more than a decade. Our newest innovation is the Halcyon Cinch (patent pending). The Cinch redefines what it means to dive a backplate, building upon a platform of simplicity while providing unprecedented security and ease of adjustment. Halcyon developed the Cinch to save divers time and effort while sizing, fine-tuning and resizing your diving harness. Now you can change suits or divers and adjust the Cinch in a flash; all this without compromising the harness integrity or our trademark, continuous piece of webbing. Adjustments to the Halcyon Cinch occur by simply sliding the harness through a unique, patent-pending assembly. Now divers can easily adjust the fit of their plate in or out of the water—a simple push or pull is all it takes. If you need a quick way to get out of your dive system; if you regularly change the thickness of your diving suit; or if you train new students in Halcyon rental equipment, this new invention will change the way you dive.

## Dividing with the Cinch

If you are installing a Cinch upgrade, be sure to use new webbing and check that it is free of blemishes. This manual contains detailed assembly instructions to assist in properly fitting the Cinch upgrade.

### Adjustment of the Cinch Harness

Adjustment of the Secure Harness while wearing the Cinch is quick and easy. Be sure to trim the extra webbing once you've determined the best size range for your Cinch harness and quick-adjust crotch strap. The Cinch harness can be adjusted in or out of the water and can be used with single or double cylinders. It is best to adjust the Cinch while the cylinders are supported, such as sitting on a bench, table edge, tail gate, or similar.

- **To Tighten the Harness:** While using both hands, grasp the ends of the waist band webbing and pull up and outward (at roughly 45 degrees) from the body (fig 13).
- **To Loosen the Harness:** Grasp the webbing at the shoulder straps just above the waist. Push the harness out and up slightly from your waist (fig. 14).

It is possible to overtighten the harness. If desired, a triglide can be put in place as a "stopper" on the webbing to allow a full stop of sizing when the harness has reached it's desired fit (see fig. 15). (Please see Cinch assembly instructions for additional detail.)

- **Left D-Ring:** Adjustment of the left hip D-ring position can be done by moving the triglide/D-ring forward or backward on the assembly .
- **Right Light Retainer Assembly:** Attachment of the light assembly will be necessary if you choose to dive a waist-mounted canister light with the Cinch. Consult the Cinch installation section for full instructions.
- **Adjustment of the quick-adjust crotch strap** is done quickly by moving the webbing through the quick-adjust, slide buckle as shown in figure 16. A rear D-ring is included on the crotch strap; you may remove this if you choose.
- **BC Storage Pad:** Undo the bottom bolts to allow access to the pocket if storing a lift device in the backplate storage pad (fig. 17).
- **BC Shoulder Pads:** Adjustment of pad placement is done by moving the velcro tabs up or down in the corresponding slots on the pad, then attaching the tabs around the harness (fig. 18).
- **Dividing Double Cylinders:** You may need to use the Cinch Bolt Extender on the lower tank band bolt. We suggest you check this when you first set up your Cinch assembly to your backplate if using double cylinders. We do not suggest using the Bolt Extender on the top tank band or if you are not diving a Cinch assembly.

Fig. 13, 14, 16



A triglide may be put into place to act as a sizing guide to prevent overtightening the harness. Figure 15 shows the optional triglide placement to prevent overtightening. Right is pictured without.



Fig. 17: Backplate Pad with built in Storate Pak



Fig. 18: Shoulder Pad Adjustments



Complete instructions on installation and sizing of the Cinch and quick-adjust crotch strap can be found at the end of this Cinch manual section.

## HALCYON CINCH COMPONENTS



1. **Cinch Adapter Plate** - High-quality, molded ABS plate is uniquely designed to fit the contours of your Halcyon backplate, providing unprecedented adjustability without the risk of quick-release buckles or the hassle of dangling webbing.
2. **D-Ring Assembly** - Allows the secure harness webbing to slide freely without affecting the position of the left-hip D-ring.
3. **Doubles Bolt Extender** - Extends a short bottom bolt, allowing the Cinch System to fit a variety of double tanks. Available in metric (5mm) or imperial (5 <sup>16</sup>/<sub>18</sub>).
4. **Bolts Kit** - Comes with four (two 1/4 - 20 by 3/8, two 1/4 - 20 by 5/8) SS bolts with weldmate nuts. Two wingnuts also come with the Infinity System.
5. **Light Retainer Assembly** - Allows the secure harness webbing to slide freely without affecting the position of a light mounted to the right hip.
6. **Weight Pocket Attachment (Pair)** - Secures the Halcyon ACB integrated weight system to the harness and allows the secure harness webbing to slide freely without affecting the placement of the ACB.
7. **Quick-adjust Crotch Strap** - Features a quick-adjust, sliding buckle for easy crotch strap sizing.

## INSTALLING THE CINCH

If you are upgrading to the Cinch, it is important that you start with new harness webbing when retrofitting the Halcyon Cinch to an older backplate. New webbing allows the Cinch to slide freely whereas old webbing will catch at the indents left from previous triglide/D-ring placement.

- Remove all webbing accessories starting with the waist belt, including the SS waist buckle, left D-ring/triglide, ACB weight pockets, and knife sheath.
- Remove the tri glides from behind the plate and pull the webbing through the lower backplate slots.
- Finish removing the webbing from the top slots after removing the D-rings.
- Start with a new set of webbing that is free from indents or blemishes.
- Align the Cinch plate assembly to the backplate and attach it using the provided bolts. The Light Retainer Fixture attaches using the right bolt, which also holds the Cinch to your backplate. If using the the light fixture, secure the left (3/8") bolt first. You can insert the right bolt when installing the light fixture. If you are not using the light fixture, you may secure both bolts (3/8") at this time (fig. 19 & 20).



Fig. 19



Fig. 20

### Attaching the D-Ring (Left) and Light Retainer Assembly (Right)

The D-ring and light-retainer assemblies allow you to adjust your webbing freely without affecting the position of the light and/or D-ring.

**Left** (as worn by the diver): You will be using the left, outermost slot of the Cinch plate to attach the d-ring fixture. Thread the webbing of the D-ring through the outer Cinch slot and then through both sections of the triglide. Adjust length as desired. After the waist band is assembled, feed the waist belt through the slot on the D-ring holder (fig. 21-24).

**Right** (as worn by the diver): If you are using a waist mounted light canister, it is necessary to attach the light retainer assembly. In this case you will be using the right, outermost slot on the Cinch to secure the light assembly. The same bolt secures both the assembly piece and the Cinch plate.



Fig. 21



Fig. 22



Fig. 23



Fig. 24

## To install the Light Retainer Assembly:

- Insert the rigid webbing grommet hole through the right outer slot on the Cinch (fig. 25).
- Fold the webbing and align the grommet with the hole on the Cinch. Secure both items with the 5/8" bolt & tighten snugly (fig. 26).
- Thread the waist band webbing through the backplate slots.
- Slide the buckle fixture on to the waist band with the open end of the buckle facing the backplate. The buckle is secured to the tab of webbing protrudes from the attached light fixture (fig. 27).
- The buckle can be adjusted and the light positioned according to individual preference (fig. 28).



Fig. 25



Fig. 26



Fig. 27



Fig. 28

## Attachment of ACB integrated weight pockets to the Cinch

- Insert the ACB attachment webbing through the triglide on the pocket. Adjustment of this triglide position determines placement on the waist. The extra webbing should be tucked into the slot after attachment (fig. 29-30).
- Insert the webbing grommet hole through the (R or L) outer slot on the Cinch (fig. 31).
- Fold the webbing and align the grommet with the hole on the Cinch. Secure both items with the 5/8" bolt & tighten snugly (fig. 32).
- Thread the waist band webbing through the ACB slots (fig. 33).

Repeat the process on the opposite side, then reassemble your harness & components.



Fig. 29



Fig. 30



Fig. 31



Fig. 32



Fig. 33

## Final assembly

Verify that the Cinch is secure on the backplate with the light, ACB weight pockets, or D-ring fixtures attached as desired. Ensure the webbing is threaded properly through the Cinch (fig. 34-35) and any installed fixtures. Install the knife pocket and waist buckle to the desired positions. Trim excessive webbing from the ends of the waist but remember to leave room for various suit/undergarments.



Fig. 34



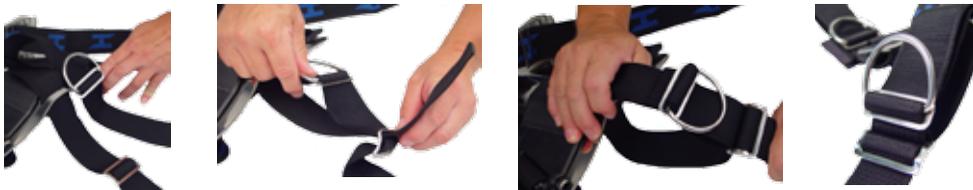
Fig. 35

## Quick-adjust Crotch Strap

### Installing the Quick-adjust Crotch Strap

If retrofitting an existing Halcyon plate, unweave the crotch strap from the tri-glide. Remove the tri-glide/D-ring and remove the webbing from the backplate. Run the end of the webbing into the quick-adjust slide buckle with the buckle curve facing downward as shown. Thread the webbing through the backplate from the front to the back of the plate as shown (fig. 36). The D-ring is placed between the tri-glide and webbing after threading it through the plate, as seen in fig. 36, so it will be secured under all the webbing. Then thread the webbing through the quick-adjust triglide, then back through both slots of the standard triglide (fig. 37-38). Adjust the length as needed to insure a proper fit. Figure 39 shows the recommended D-ring location roughly a hand's width from the bottom of the backplate. Adjusting the triglide close to the backplate as discussed above provides additional room to refine the quick-adjust buckle position.

Fig. 36-39



### Positioning the Quick Adjust

Once the crotch strap length is sized correctly, you may find the crotch strap quick buckle adjust sits incorrectly, e.g. too far from the plate (fig. 40). To correct this, maintain the proper length of crotch strap and move the quick adjust buckle up toward the backplate, creating a loop of webbing behind the triglide. Pull the webbing through the triglide until the extra webbing is all the way through and the quick adjust buckle remains an appropriate distance from the backplate (fig. 41). Keep the triglide/D-ring and the quick adjust fairly close together, then thread the webbing back through the triglide. Cut off excess webbing "tail" leaving enough for future length adjustments as necessary (figures 42-43)

Fig. 40-43



Confirm that your hardware is in the correct place by trying on your backplate. D-ring should sit appropriately from the bottom of the plate. Sizing of the quick-adjust crotch strap is now done quickly by sliding the webbing through the quick-adjust buckle (fig. 44).

Fig. 44



Any excess webbing tail may be tucked back through the backplate and secured with a section of the EPDM band off the crotch strap if it's necessary to keep it longer, e.g., when using the System in Rental or Training (fig. 45). You will need to undo this when using the quick-adjust, so be aware of this when sizing on a new diver.

Fig. 45



## Doubles Bolt Extender

The Cinch can easily be used with double cylinders. If you have shorter bolts on any set of tank bands, you may need to use the extension bolt on your bottom tank band. Simply screw the extension bolt to the bottom bolt of the tank band (snugly) onto the bottom tank band, and set up your backplate as normal. Note: It is not desirable to use the bolt extender on the top bolt.



## Installation of Halcyon Deluxe Harness Pads

Halcyon offers a Deluxe Harness upgrade featuring a set of shoulder pads and a backplate pad for the ultimate comfort while diving in thinner exposure suits. Our deluxe shoulder pads allow the diver to customize D-ring position by way of movable velcro tabs (fig. 49-50). The backplate pad also features a BC Storage pocket allowing the diver to carry a surface marker or lift bag in a streamlined position.

### To Install Your Shoulder Pads:

Please note that the shoulder pad sits below the harness and is secured by three Velcro tabs on each shoulder. These tabs can be adjusted up or down to customize their location and make room for chest D-rings.

1. Open the large Velcro tab which is positioned at the end of the shoulder pad. Thread this tab between the harness and the backplate slot. The Velcro should be facing up and run through the same backplate slot as the harness. Secure the large Velcro tab. The end of the pad should be attached to the plate.
2. Position the harness strap above the shoulder pad and line up the small vinyl tabs so they fit appropriately while allowing room for the D-ring and providing a secure attachment for bottom of the pad.
3. We recommended you fold the “loop” (softer part of the Velcro) side of the Velcro in half to create a smooth surface which simplifies insertion of the tabs through the slot on the shoulder pad. Do not force the vinyl tab through the slots in the shoulder pad.
4. You can place the Velcro tabs along any of the slots in the shoulder pad but you should verify the pad is secured evenly with the D-ring and accessory attachments (EPDM bands for Scouts, etc.) in their proper position.



Fig. 49 - 50

### To Install the Backplate Pad:

1. Secure the top two holes on each side of the plate by inserting the nut in the hole on the face of the backplate. Wrap the tab of the pad around the plate and secure the bolt by screwing into the nut that rests in the backplate mounting hole.
2. Repeat step one for the top two holes on each side of the backplate.
3. The third set of bolts is usually attached by folding the tab under the pad so it sits on the face of the backplate (see Fig. 51). This provides additional room for lift devices. If you are not using lift devices you may use the same method as detailed in step one. If you are using the storage pocket in the pad the nut is sandwiched between the tab and the pad and is aligned with the third backplate hole. The bolt runs from the back side of the plate and attaches to the nut. This is also the recommended method of attachment if you will be using a Cinch Quick-adjust harness.
4. The final bottom bolts (at the bottom of the plate) should be left undone if using the backplate Storage pak. If you will not be using the Storage Pak you can attach the bottom tabs.
5. Be sure you check your bolts are securely fastened. It is recommended to check the tightness of your bolts regularly, particularly for the first few dives after assembly.



Fig. 51

## DIVING YOUR HALCYON BC SYSTEM

### Using a Lift Device with your BC System

The optional BC Storage Pak (fig. 52) provides stealth storage for alternate lift and signaling devices. Storing devices in the Pak eliminates the possibility of accidental damage or entanglement on land, in a boat, or in the water. The Storage Pak bolts onto your rigged Secure Harness backplate with the eight supplied bolts. Alternate lift devices are carried in the Pak folded flat, with the snap connected to the left waist D-ring. To deploy the device, simply detach the bolt snap with your left hand and then pull down and to the left. Once the device has cleared the Pak it can be inflated using the low-pressure hose from your BC inflator or by using a low-pressure hose connected to a separate air source such as a dry suit inflator (fig. 53).



Fig. 53: No-Lock Inflator

The BC Backplate Pad (part of the Deluxe Harness kit) also features a built-in Storage Pak and provides additional padding if desired. Alternative lift devices include Diver Alert Markers (safety sausages), Surf Shuttles, Lift Bags, and the Halcyon Diver's Life Raft. A complete list of Halcyon lift devices is available in this manual's appendix.



Fig. 52

### Weighting your Halcyon BC System

The Halcyon Buoyancy Compensator provides for quick and easy adjustment of your ballast. Once properly fitted, your Harness and backplate can be used with any of the Halcyon single-cylinder wings or double-cylinder wings, with only minor adjustments of the harness to account for different exposure suits and by the selection of the appropriate weighting system. The goal of any SCUBA configuration is to create a system that allows a diver control at both the beginning and end of a dive.

Proper weighting involves balancing a number of factors, including: increased surface buoyancy (particularly in a neoprene suit before compression); the weight of your breathing supply (reduced as the dive continues); and the need to remain neutral at 10' (3m), assuming an empty cylinder (or cylinders). Typically, more than 80% of the weight a diver wears to sink a neoprene suit is needed only within the first atmosphere. At depth, compression of the material forces the diver to offset the reduction in lift with additional buoyancy. Furthermore, divers must ensure sufficient weight to counteract empty cylinders near the surface where the neoprene suit is not compressed and will begin to exert additional lift.

Halcyon's BC system has the flexibility to allow divers a range of weighting options to achieve proper balance; these options include the Active Control Ballast™ (ACB) integrated weight system (fig. 54, 55), canister lights, v-weights (placed beneath the back plate on doubles), weighted single tank adapters, backplates in stainless or aluminum, Halcyon Trim Weights (placed on the back of a single tank), and/or the use of a traditional weight belt.

For example, an Eclipse system might be configured with a combination of releasable and fixed ballast. Six pounds (3 kg) of fixed ballast are accounted for with the Halcyon stainless-steel backplate. You may also adjust non-releasable weighting by choosing Halcyon's aluminum backplate or the weighted Halcyon Single Tank Adapter (6 lb/2.7 kg) (fig. 56). An additional two to ten pounds (1-4 kg) can be positioned directly on your tank using Halcyon's Trim Weight pockets (fig. 57-58). When properly configured and tested, tank trim weighting may assist in facilitating a heads-up position while at the surface. However, you should not consider the BC system as a replacement for a life jacket; it is not designed to function in this capacity. Proper placement of tank-mounted Halcyon Trim Weights also promotes stable and consistent horizontal trim during the dive. The remainder of the necessary weighting can be fine-tuned through the use of Halcyon's ACB integrated weight system, configurable with up to 20 pounds (9 kg) of releasable weight.



Fig. 54: ACB20 Integrated weight pocket, mounted on Secure Harness waist belt



Fig 56: Single Tank Adapter weight insert, and Stainless Steel STA channel.



Fig 57: Use of soft weights with the Trim Weight Kit



Fig. 55: ACB20 Integrated weight pocket, mounted on Secure Harness waist belt.



Fig 58: Halcyon Trim Weight placement



**CAUTION:** It is important not to overweight the diving rig with too much fixed weight; this configuration may not allow sufficient removable weight, preventing the diver from “ditching” the weight and swimming to the surface during an emergency.



**CAUTION:** You should be certain through in-water testing prior to a dive that, without any air in your buoyancy compensator, you are capable of swimming against the weight of you configuration with full tanks and all weight in place. You need to verify that you are able to manage your scuba configuration in the event of a buoyancy failure.

## MATCHING YOUR WING TO THE PROPER CYLINDER

With the appropriate balanced rig, the Eclipse 30-lb. (13.6-kg) and the Eclipse 40-lb. (20.2-kg) wing are both designed for light to medium weight aluminum and steel single cylinders, such as a single 20-litre or aluminum-80 cylinder.

Halcyon’s Explorer double cylinder wings are available in 40-lb (20.4-kg) and 55-lb. (25-kg) lift sizes; the Evolve wings are available in either 40-lb. (20-kg) or 60-lb. (27-kg) lift sizes. The Explorer and Evolve 40 wings are primarily designed for use with double aluminum-80 (10-liter) cylinders. The Explorer 55 and Evolve 60 wings are suitable for use with a wide range of aluminum and steel double cylinders, including 12/15 litre and 95/104 cubic foot steel cylinders. The Evolve 60 is suitable for twin 20-litre cylinders.

Explorer and Evolve wings should not be used in any single-cylinder configuration.



Diving an Eclipse Single Tank BC System

## ASSEMBLY OF BC SYSTEM WEIGHTING OPTIONS

Halcyon offers a variety of ways to weight your BC system. Fixed-weight options include the Convertible 6-lb. weight that fits into the Single Tank Adapter (fig. 56, p. 18), and of course the choice of the 6-lb. SS backplate or the 2-lb. aluminum backplate. In addition, our Trim Weight pockets are designed to be attached to the Single Tank Adapter (STA) cam straps, providing 5 lb. per pocket of additional fixed ballast on your System (fig. 57-58, p. 18).

### Assembly of the STA with Convertible 6-lb. Weight

1. Disassemble your BC System so the STA is separate from the BC. Save these STA bolts for use when diving without your Convertible weight, and keep the fasteners and bolt retaining washers\* for use after assembly.
2. Remove, or loosen, the cam straps to place the convertible weight into the STA channel.
3. Insert the weight into the channel, placing the bolts through the STA bolt holes. Replace cam straps.
4. Reassemble your BC system by placing the bolts back through the wing and backplate then secure with the bolt holder and fasteners. Be sure to securely tighten the STA bolt fasteners and check them before each dive.

\*Halcyon's Single Tank Adapter now features a set of plastic retaining washers on the STA bolts to keep the bolts in place on the STA when assembling your gear.

To complement the use of fixed weight to create a "balanced rig," we offer ACB Integrated Weight Pockets. These are designed to replace the need for a conventional weight belt. The ACB is comprised of two weight pockets attached to the harness waist belt (see fig. 55, p. 18). Each pocket features an internal pocket, with handle, for convenient transport between dives. The left pocket has an integrated D-ring that replaces the D-ring on the harness. Both pockets have a simple, and secure tri-glide attachment to the waist band to prevent the pockets from sliding forward while you are in a proper horizontal swimming position.

### Attaching the ACB Integrated Weight System to your Secure Harness

1. If needed, separate the backplate/harness from the wing.
2. Remove the buckle and D-ring from the left side of the waist strap.
3. Start with the right pocket and thread it through the triglide on the pocket and onto the right waist strap. The buckle and handle of the weight pocket should be pointing to the front of you on the ACB20, or downward with the ACB10 style pockets.
4. The left pocket is then threaded through the tri-glide on the pocket and onto the left side waist strap with the handle facing the front of you. Notice that the D-ring on the left ACB weight pocket replaces the original left hip D-ring.
5. Replace the buckle on the left waist strap.
6. Loading weights into the pockets is very simple. Remove the inner weight pocket and add the desired amount of soft or solid lead weight. Replace the inner pocket. We suggest fastening the outer buckle through the weight pocket handle.
7. Secure each buckle before your dive.

### Releasing the ACB Integrated Weight Pockets

To remove the weight pockets, release the buckles on the outer pockets and slide the inner pockets out and away from your body. Make certain that the weighted inner pockets are free from any entanglements, then release (fig. 59-61, p. 20).



Fig. 59 - 61: ACB weight pocket release

## PRE-DIVE BC SYSTEM INSPECTION

Before each use, the BC must be given a thorough visual inspection and functional test. Never dive with a BC that shows signs of damage to its bladder or valving until it has received a complete inspection and service from an Authorized Halcyon Dealer. Periodically it is advised to check the buoyancy compensator OPV for damage or corrosion and the Secure Harness webbing for signs of wear. If your Secure Harness shows significant wear at the shoulder or waist slots on the backplate, replace the webbing before diving.

### Inspection Checklist

1. Connect the wing's power inflator to a clean air source, via the LP quick-disconnect hose. Depress and release the inflator button intermittently to ensure that the airflow is unobstructed, and that the airflow stops completely when the button is released.
2. Manually operate the overpressure (OP) valve by pulling on the attached string to test spring and valve integrity. Fully inflate the buoyancy wing until the OP valve opens. Regular inspection of the OP valve for corrosion or damage is recommended.
3. Examine the operation of the OP valve by repeatedly inflating the wing to ensure that the valve opens to relieve excess pressure, yet closes immediately afterward to allow the bladder to remain taut and fully inflated.
4. Check the function of the oral inflator button, rapid exhaust valve, and overpressure/manual dump valve to ensure a rapid and unobstructed exhaust from each valve. Listen closely for any leakage with the wing fully inflated but not



**WARNING: If any leakage can be heard, or if the bladder begins to deflate within 5-10 minutes, DO NOT attempt to use the BC until it has received factory prescribed service from an Authorized Halcyon Dealer.**

connected to a low-pressure air source. If there is any suspicion of leak, submerge and, once equalized to depth, check for continued bubbling.

5. Make a final check of tension of both cam straps on the SCUBA cylinder to ensure that they have not loosened due to stretching. Confirm tightness of fastener bolts that attach the backplate to the Single Tank Adapter if diving singles, or to the double-tank bands if diving dual cylinders. Retighten as necessary.
6. Before entering the water, check both ACB system pockets to ensure that they are correctly fastened to the BC with the Fastex buckles.



**WARNING: Loss of the ACB System pockets can occur if the buckles are not securely latched. Unintentional release of both weight pockets underwater may lead to an uncontrolled ascent, and could result in serious injury or death.**

## BC SYSTEM CARE AND MAINTENANCE

With proper care, your Halcyon BC will provide many years of reliable service. The following preventative maintenance must be performed to extend the life of your BC.

### Preventative Maintenance

Avoid repeated or prolonged use in heavily chlorinated water. Prolonged exposure to chemically treated water can damage the BC's material.

Do not allow the BC's wing to chafe against any sharp objects or rough surfaces that could abrade or puncture the bladder. Do not set or drop heavy objects, such as block weights, on the BC's wing. Store the wing partially inflated to reduce the possibility of puncture.

Avoid prolonged exposure to direct sunlight and extreme heat. Nylon fabric may fade when exposed to the sun's ultraviolet rays, and extreme heat may damage the integrity of the BC's welded seams.

Avoid any contact with oil, gasoline, or other solvents or contaminants.



**CAUTION: Recommended working pressure of the Halcyon BC inflator is 120 psi (8.3 bar) to 160 psi (11 bar).**



**CAUTION: Operating temperature range of the Halcyon BC system is -20 celsius (-4 fahrenheit) to 70 celsius (158 fahrenheit). All prudent/known safeguards and procedures should be observed when diving in near or sub-freezing temperatures on the surface and below.**

### Post-dive Maintenance

To prevent permanent damage from corrosion, salt crystals, or chlorine attack, thoroughly rinse the BC inside and out with fresh water after every day of use, using the following procedure:

1. Pressurize the power inflator with low-pressure air, via the quick-disconnect hose.
2. Using a garden hose or other fresh water source, direct water through the oral inflator to flush the interior of the bladder, and then thoroughly rinse the exterior of the BC.



**CAUTION: Before rinsing, ensure that the power inflator is pressurized with air. This will prevent foreign particles and contaminants from entering the valve mechanism in the event that the inflator button is accidentally depressed.**

3. Completely drain the bladder of water, either through the oral inflator or through the overpressure valve, being careful to avoid operating the power inflator.
4. Inflate the BC and allow it to dry inside and out before storing. Store the BC partially inflated, away from direct sunlight, and in a cool, dry, clean area.

## **APPENDIX 1**

### **BUOYANCY COMPENSATOR SYSTEM COMPONENTS**

#### **Buoyancy Wings**

Eclipse Single Cylinder Wing, 30-lb. (13.6 kg) lift  
Eclipse Single Cylinder Wing, 40-lb. (18 kg) lift  
Explorer Double Cylinder Wing, 40-lb. (18 kg) lift  
Explorer Double Cylinder Wing, 55-lb. (25 kg) lift  
Evolve Double Cylinder Wing, 40-lb. (18 kg) lift  
Evolve Double Cylinder Wing, 60-lb. (27.2 kg) lift

#### **Alternate Lift and Surface Marking Devices**

BC Storage Pak for alternate lift device  
Diver's Life Raft  
Surf Shuttle  
Big Diver's Alert Marker, 4.5' long, 40-lb. (18 kg) lift, with OPV  
Super Diver's Alert Marker, 5.9' long, 52-lb. (23.6 kg) lift, with OPV  
Small Diver's Alert Marker, Closed Circuit with SS D-ring  
Lift Bag SCC 60-lb. (27.2 kg), Semi-Closed Circuit with OPV  
Lift Bag 80-lb. (36.3 kg), Closed Circuit with OPV  
Lift Bag 185-lb. (84 kg), Closed Circuit with OPV

#### **Secure Harness Accessories**

Stainless Steel Backplate (standard or small size), Harness & Knife Pocket. (with adj. crotch strap)  
Aluminum Backplate (standard or small size), Harness & Knife Pocket (with adj. crotch strap)  
Right Zippered Pocket (attaches to harness strap)  
Stainless Knife for Halcyon Harness Knife Pocket  
Deluxe Harness Pads (shoulder and backplate)

#### **Weighting Systems**

ACB 10 Integrated Weight Pockets - 5 lb. (2.2 kg) per side  
ACB 20 Integrated Weight Pockets - 10 lb. (4.5 kg) per side  
Trim Weight Kit w/ releasable ballast (10 lb./4.5 kg max)  
V-Weight for Double Cylinders, 8 and 11 lb. (3.6 and 5 kg), cast lead  
Weighted Single Tank Adapter, 6 lb. (2.7 kg)

#### **Gear Bags**

Gear Bag, Textilene / Cordura®

#### **Halcyon Guideline Devices**

Defender Delrin safety/gap/jump spools  
Coldwater Defender jump spools  
Pathfinder Primary Reels, 400', 800', and 1200' versions (122, 244, and 366 meters)

#### **Halcyon Lighting Systems**

Explorer 10 and 21 watt HID/NiMH Systems  
Apollo Video Lighting Systems  
Scout Back-up Lights in LED or Xenon

## APPENDIX 2

### WARRANTY INFORMATION

All warranty requests must be accompanied by proof of original purchase from an Authorized Halcyon Dealer. Be sure to save your sales receipt, and present it whenever returning your BC for warranty service.

HALCYON warrants, to the original purchaser only, that the HALCYON Buoyancy Compensator will be free of defects in materials and/or craftsmanship under normal diving use for one year from the date of purchase, provided proper care is performed on all materials as described within this manual. Should your HALCYON BC prove to be defective for any reason (other than those listed in the limitations section below) it will be repaired or replaced (at HALCYON's discretion) free of charge excluding shipping and handling charges. All correspondence concerning this warranty must be accompanied by a copy of the original sales receipt. Repair or replacement is HALCYON's only responsibility and your only remedy under this warranty.



**WARNING:** It is dangerous for untrained and inexperienced persons to use the equipment covered by this warranty. Therefore, use of these products by an untrained person renders any and all warranties null and void. Use of scuba equipment by anyone who is not a certified diver, or receiving training through a recognized certification agency, shall render void all warranties, expressed or implied.

ALL WARRANTIES, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED IN DURATION TO A PERIOD ENDING ONE YEAR FROM THE DATE OF PURCHASE.

Some states in the U.S. and certain foreign countries do not allow limitations on the duration of implied warranties, so this may not apply to you. This warranty gives you specific legal rights. You may have rights that vary from state to state and country to country.

HALCYON MANUFACTURING DISCLAIMS AND EXCLUDES ANY LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. SOME STATES IN THE U.S. AND CERTAIN FOREIGN COUNTRIES DO NOT ALLOW EXCLUSIONS OR LIMITATIONS OF LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS MAY NOT APPLY TO YOU.

The following restrictions apply to this warranty.

1. This warranty extends to all power inflator parts and to the seams of the BC wing bladder.
2. This warranty does not extend to abrasion, punctures, or tears of the bladder, or seam separation caused by chemical attack, including prolonged exposure to chlorine.
3. This warranty does not extend to damages caused by improper use, improper maintenance, neglect, unauthorized repairs, modifications, accidents, fire, or casualty.
4. Cosmetic damage, such as scratches, fraying, and nicks are not covered by this warranty.
5. This warranty does not extend to equipment used for rental, commercial, governmental, or military purposes.
6. This warranty covers products purchased in the United States. For warranties that may apply elsewhere, please contact your local representative.
7. Failure to meet any of the above requirements will render the warranty null and void.

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