HALCYON

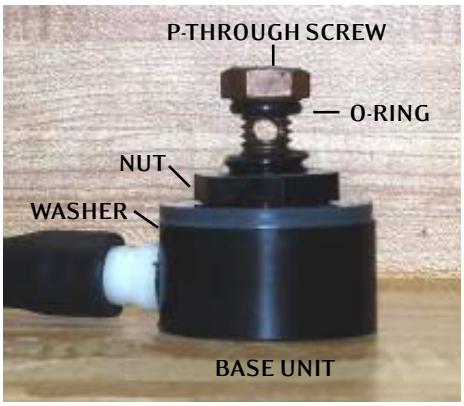
P-VALVE

Owner's Manual

Congratulations on your purchase of the Halcyon P-Valve

You can be confident that every effort has been made to ensure that it will function flawlessly, even under the most rigorous of conditions. We consistently use our products in the most extreme environments– a ripe testing ground for any potential problems. For instance, Halcyon representatives have repeatedly relied on this p-valve for 20-plus hour immersions. While such long immersions may not be in your future, they allow us to guarantee that our products will serve you faithfully. Welcome to a new era in equipment manufacturing– products built by explorers *for the explorer in you.*

TYPES OF P-VALVES

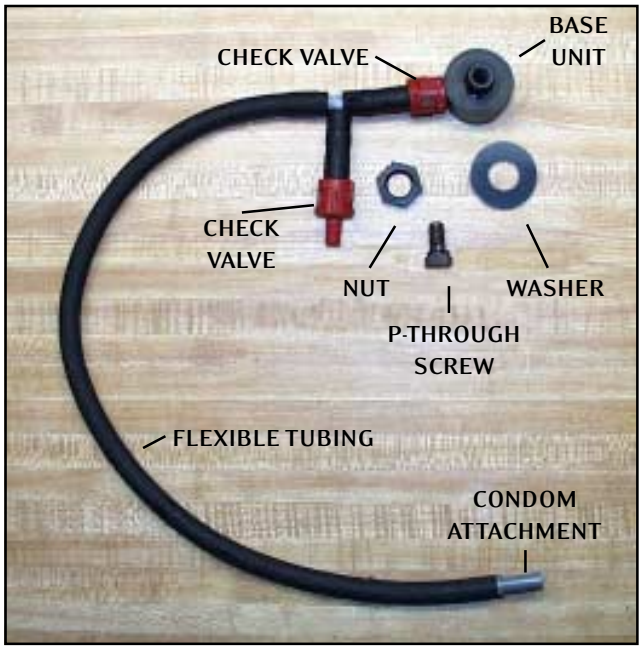


P-VALVE WITH P-THROUGH SCREW

There are two types of Halcyon p-valves: balanced and unbalanced. Both units are similar in design and installation procedures. The balanced system is machined from a solid piece of delrin with a small threaded nipple that protrudes about ”from the outside of the suit. The included washer is placed over the nipple and rests on the suit. The entire assembly is then held in place by tightening a nut over the threaded nipple. A suitable sealant such as Aquaseal is used to ensure watertight reliability. A hollowed screw allows individuals to vent out of the suit through a condom catheter and flexible tubing, or to easily seal off the outside water by turning the screw down to the o-ring seal, preventing water from entering the suit. In the unbalanced version water cannot come into the suit unless the attachment system (condom catheter and tubing) is disconnected. If this does occur, the hollowed or p-through screw must be turned down to the o-ring to prevent water from entering the suit.

Both units contain a delrin base, a p-through screw on the outside of the base and a connection tube that attaches to a condom catheter. The “no frills” unbalanced version relies on the connection from the condom to the delrin base to prevent water from entering the suit while the p-through screw is in the open position. Some divers leave the p-through screw open while diving and depend on this connection to prevent water inflow. Other divers keep the p-through screw closed, choosing to open it only when using the unit. Generally, the connection from condom catheter to the delrin base has proven a reliable means of preventing water inflow. However, divers can close the screw entrance in the event a failure occurs in the connection system. A failure is most likely to occur if the condom catheter hose kinks and the diver continues to use the unit, which increases the pressure and forces the condom catheter off.

The Halcyon balanced design is constructed to prevent any water from entering the connection assembly and to reduce the resistance of water pressure (thus the name balanced). This is accomplished through the installation of one-way check valves. A one-way check valve screwed into the delrin base only allows fluid to flow out of the suit, preventing water from entering the connection assembly whether the condom attachment system remains in place or not. A final safety measure exists in the p-through screw included with this unit that can



BALANCED P-VALVE

be turned into place, sealing off the ambient water. However, the need for the screw is unlikely since the connection hardware AND the check valve must fail to allow water into the suit. Divers may opt to leave the screw in position but open, or to carry it in a pocket as a reserve measure. A second check valve allows air in the suit to equalize with air in the connection/catheter assembly. This check valve eliminates the resistance of water pressure while the diver expels, reducing the risk of a connection failure. The balanced check valve assembly not only allows for greater redundancy and ease of operation, but prevents ambient water from entering the connection/catheter system. The elimination of ambient water in the connection system is particularly beneficial in cold water or questionable water sources.

Due to the necessary addition of the two check valves, the balanced unit is slightly larger than the unbalanced version. Most divers consider the additional size to be well worthwhile, but some individuals prefer the smaller, more compact design of the unbalanced valve. In either case, the installation process is essentially identical.

INSTALLATION

You will need the following:

1) Halcyon P-valve
2) Aquaseal
3) Applicator capable of spreading the Aquaseal, such as a clean, thin rod or the cap to a pen
4) Adjustable Wrench
5) Device capable of creating a hole in your suit such as a punch or pencil soldering iron
6) Suit
7) Assistant (very helpful, though not necessary)

BALANCED P-VALVE & INSTALLATION TOOLS

ROUTING CONNECTION TUBE ASSEMBLY
WHILE CHOOSING VALVE LOCATION

Installation of the assembly is a fairly simple process once one overcomes the resistance to putting a hole in his suit.

1) The diver must carefully choose the area where he wants to place the valve body. Location is most commonly on the inner thigh.

It is important to note that divers vary in their preference for the connection tube location. Some individuals prefer to point "themselves" down and to one side or the other. This preference would dictate a location on the left or right thigh. Others prefer to angle "themselves" up with the connection tube running over their underwear and down to the delrin base. Still others prefer to forgo the use of underwear beneath an insulation garment, reducing the risk of a kink in the hose assembly. Most dry suit divers use undergarments with a front zip

design and therefore will either have to cut another hole in the insulation (not particularly recommended) or run the tubing up over the lowest part of the zipper and down to the base unit. In any case, care should be taken to choose the location of the base unit so that unnecessary holes do not have to be repaired later. The hose that comes with your Halcyon valve will be too long for most users, but is designed to allow individuals to trim the length in accordance with the discharge location.

DETERMINING THE P-VALVE POSITION

2) Creating a hole.

A hole may be placed in the suit in one of several ways. It may be punched into the suit with a professional punch or even an appropriately sized shell casing (spent shell, of course). In this situation, place a board on the inside of the suit to support the suit and prevent accidental holes. Be careful not to damage the inside of the suit with the support. With a hammer, use the punch to place a very neatly sized hole into the suit. This method is especially recommended for fabric-style dry suits, although it is very effective for neoprene as well. Using a hole punch is more efficient, easier and safer for your suit than most other methods of creating a hole. However, many divers have successfully used a variety of methods. Be certain that the method you use gives you control over the size and shape of the hole.

USING A PUNCH TO MAKE A HOLE
-PREFERRED METHOD-

PENCIL SOLDERING IRON
-POSSIBLE METHOD-

A hole may also be burned into the suit with a pencil-style soldering iron, but great care should be taken not to burn any other areas of the suit. For this method, place a small hole on the mark made during the location selection from step one. Slowly work that hole outward by making ever-widening circles in the material. Remember that most materials will stretch, so the hole should be a little smaller than the actual size of the threaded nipple (especially with neoprene).

3) Installing the valve

Before actually installing the valve, verify that the connection assembly will point in the desired direction and that the tubing will be comfortably placed on its path to the condom catheter connection. Once the location of the base unit is established, the unit should be prepared for installation. All surfaces that will touch the suit are to be glued and should be prepared with a light sanding and then a good cleaning with a solvent such as Cotol. Prepare the base unit for installation by applying a liberal film of Aquaseal on the inside of the delrin base (the part that will be touching the inside of the suit) and up to the first couple threads of the nipple. Push the threaded nipple through the hole in the suit, being careful not to brush off the glue onto the inside of the suit. Once the base unit is installed generouslyapply Aquaseal on the lower portion of the threaded nipple, ensuring that the entire lower area of the nipple below the nut will be covered in Aquaseal. Coat the side of the washer that is to touch the inside portion of the suit with Aquaseal and place it over the threaded nipple, screwing the nut down until it is tightened against the base from the other side. Position the suit so that none of the Aquaseal areas will rest on the suit while it is drying. Let the Aquaseal dry to manufacturer specs. Then, go diving and enjoy a new level of comfort and freedom!

INSTALLATION STEPS

1. Locate p-Valve position

2. Punch hole

3. Sand base unit

4. Sand washer

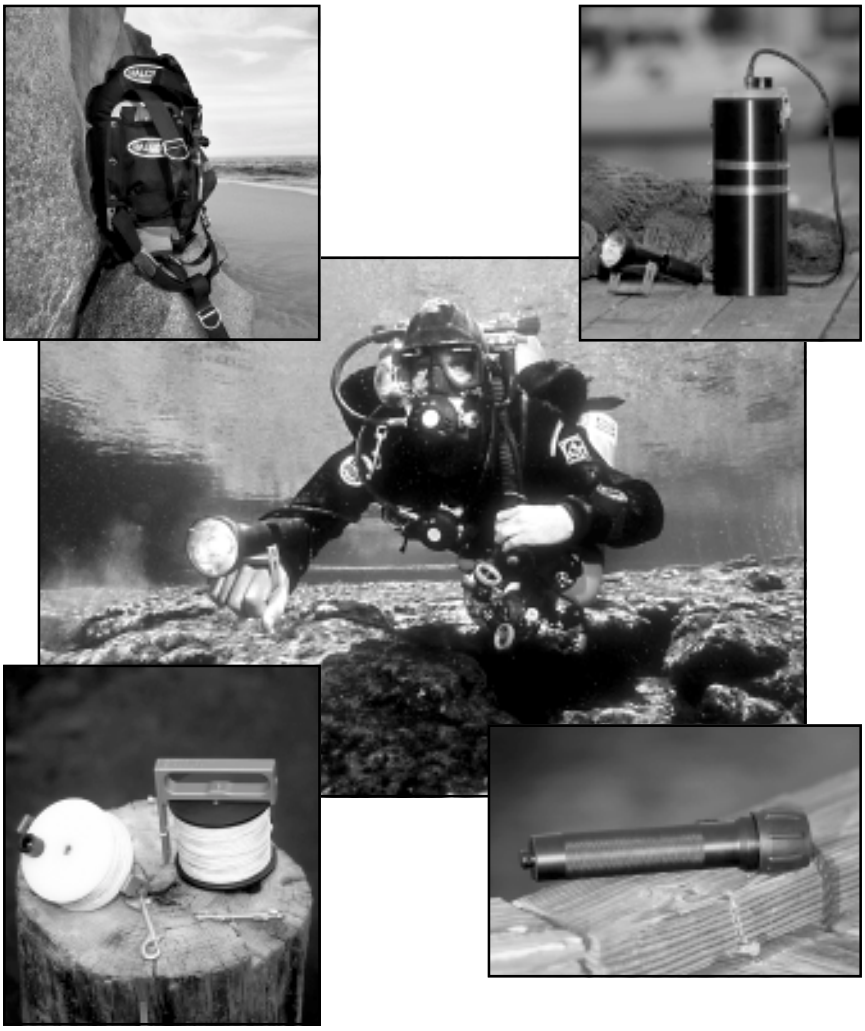
5. Glue base unit

6. Place unit

7. Glue washer

8. Place washer over unit

9. Tighten nut



Additional Halcyon products from our growing line of high quality diving equipment include: back plate with harness and BC, Extreme Exposure HID Primary Light, Scout back-up light, and Pathfinder guideline devices. To receive more information about our growing product line, please call Halcyon at 800.378.7820 or visit us at www.halcyon.net on the world wide web.