

HIGHLAND
ENGINEERED QUALITY



VALOR

HARNESS

OWNER'S MANUAL



Congratulations on the purchase of your Highland* Valor Harness. You can dive with confidence knowing that your harness is built to the highest standards. Your harness is the result of quality engineering, material selection and precise assembly methods. With proper care and maintenance, as prescribed in this manual, your harness will continue to provide you with many years of functionality and enjoyment.

Whether you use this harness for technical diving, recreational diving, or in the public safety realm, Highland knows that you have many exciting underwater adventures ahead of you. We are pleased to play a part in those adventures.

*Highland is a brand of XS Scuba, Inc.

Table of Contents

Definitions of Warnings, Cautions and Notes	04
Important Safety Information	05
Intended Use and Function of the Valor Harness	06
Valor Features Explained	07
Accessories to Build Out Your System	10
Air Cell and Cylinder Mounting Options	10
Proper Threading of a Cam Buckle	11
Customizing Shoulder Hardware	14
Mounting Accessory Pockets	14
Pre-Dive Inspection	16
Post-Dive Care and Storage	17
Warranty	18

Definitions of Warnings, Cautions and Notes

It is important to pay special attention to the information provided in warnings, cautions and notes, which are accompanied by the following symbols:



A **WARNING** indicates any situation that, if not avoided, could result in serious injury or death.









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



A **NOTE** is used to emphasize important points, tips, and reminders.

Important Safety Information

-  Do not use this harness if you have not received supervised 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.
-  Before using this harness, it is important to completely read and understand all of the instructions provided in this owner's manual, any accompanying inserts, and labels or markings affixed to the harness. Should you have any questions or do not completely understand these instructions, consult your Authorized XS Scuba Dealer.
-  Before diving with this harness in open water, it is important to familiarize yourself with it first in confined shallow water with the assistance and supervision of an instructor or experienced buddy. Do not enter open water until you have weighted yourself properly and have become comfortable with using all of its features and adjustments.
-  Before every dive, perform a complete pre-dive inspection following the instructions provided in this manual. Check to ensure that all hardware is functioning properly, and no signs of damage are present. If any signs of damage or malfunction are found, do not dive with the harness until the issue has been resolved.
-  Before entering the water, check to ensure that you can remove and ditch your weights (if applicable) quickly and easily, without any obstruction or entanglement with any hoses or accessories. In the event of an out-of-air emergency or uncontrolled descent, do not hesitate to remove and ditch your weights.
-  In the event of an uncontrolled rapid 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.

Intended Use and Function of the Valor Harness

The Valor Harness is the main component of a modular system. It is a chassis to which a diver can attach a variety of buoyancy air cells, known as wings, weight pockets, technical pockets, back plates, tank bands, and an array of different accessories. Components can be mixed and matched to create the ideal system for the type of diving that a diver wishes to do. In addition, it is easy to customize the system by adding or removing various pieces of hardware.

When an air cell (wing) gets added to the Valor Harness, it becomes a buoyancy compensator, hereinafter referred to as a BC.

The main purpose for wearing a BC is to achieve and maintain neutral buoyancy at all times while you are underwater, regardless of changes in depth or cylinder pressure. This allows you to be much more relaxed while you dive – and safer – since you won't need to struggle against the forces of positive and negative buoyancy. Modern jacket, back inflation, and wing style BCs provide the most effective and streamlined buoyancy control, since they are specifically designed to support the diver in a comfortably balanced, face-down position while swimming underwater. Stress and exertion can now be minimized, if not eliminated altogether.

Since the introduction of the jacket style, back inflation, and wing designs, the modern BC has evolved into a consolidated harness and pack system that carries the cylinder and serves as a fixture point for first stage regulators, instrumentation, and accessories. For even greater convenience and comfort, many models are now available with integrated weight systems that can supplement or replace the weight belt.

Your BC can also provide you with non-emergency flotation to help you rest on the surface, but you should never rely on it to function as a life preserver or personal flotation device (PFD). In order to meet approval by U.S. Coast Guard regulations, a PFD must be designed so that it automatically rights you to a face-up position and supports your head out of the water on the surface to prevent drowning. The design characteristics and intended function of a PFD are therefore very different from those of a BC, since a PFD is specifically designed to function on the surface and a BC is primarily designed to function underwater.

It is important to remember that other equipment you wear, in addition to your BC, including your cylinder, exposure suit, or weight system, will

also affect your position in the water. An empty cylinder, for instance, can create counter-buoyancy that could roll you into a face down position if you were to lose consciousness.

For this reason, XS Scuba / Highland recommends that you always dive with a buddy and remain close enough to them to be able to render assistance to each other in the event of an emergency. Do not depend on your BC, exposure suit, or any other equipment to hold your face above the surface in the event that you are rendered unconscious in the water while diving.

! WARNING: *A buoyancy compensator BC is NOT a life jacket! It is not designed to provide face-up flotation in all situations, and 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 may suffer serious injury or death from drowning.*

Valor Features Explained

Removable back pad – The back pad is held in place with hook-and-loop. Divers wearing thick wetsuits, or drysuits, may find that it is not needed and take it out. This will bring your cylinder inward, closer to your center of gravity.

Backplate allowance – The Valor is a plate-integrated harness, meaning the diver has the option of inserting a backplate inside of it. If you are using nuts and bolts to attach a cylinder or cylinders to the Valor Harness, then a backplate must be used. To insert a backplate, remove the back pad, open the flap at the bottom (fig. 1). Insert a backplate with the concave side towards the diver, until the central holes align with the Valor central grommets. Fasten the flap closed. Replace the back pad.



Adjustable crotch strap – The crotch strap is adjustable in length. Weave the tail of the webbing through the 3-bar slide to tighten or loosen it. After adjusting, try on the Valor over your wetsuit or drysuit. Lift your hands above your head. The strap should come up to the crotch without causing undue pressure. The front crotch strap D-ring is meant for scooter attachment while the rear D-ring is for mounting accessories, such as a lift bag.

Open shoulder design – The 2 in (50 mm) webbed shoulders can be unwoven to provide access to shoulder hardware. The shoulder hardware can be supplemented, removed, or replaced (fig. 2).



fig. 2

Removable chest strap – The chest strap fits across the sternum and prevents the shoulder straps from falling off of the shoulders. It has the option of being removed for those divers who find it unnecessary.

Open waist design – The 2 in (50 mm) webbed waistbands can be unwoven to give access to the waist hardware. The waist hardware can be supplemented, removed, or replaced (fig. 3).



fig. 3

Reflective, removable inflator hold-down – The inflator hold-down (epaulette) is covered with SOLAS tape for enhanced visibility. For those divers that do not use traditional hold downs, it may be removed.

Stainless steel waist buckle – The SS waist buckle may be moved left / right on the waistband webbing for a better fit and optimal positioning. It may also be configured for a left or right hand release.

Attachment Points

6 ea. 2 in D-rings – great for stage bottles, lift bags, SMBs

8 ea. 1 in D-rings – ideal for cannister lights and drysuit inflation systems

2 pr. knife / shear grommets – 4 in on center to accept popular cutting tools

Single or dual tank band capability – Tank band loops on the back of the Valor can accommodate either a single, or dual, tank bands. This is a quick and easy way to mount a cylinder to the Valor Harness without the need for a backplate (fig. 4-5).



fig. 4



fig. 5

Wing / cylinder mounting grommets – 2 sets of central grommets, 11 in on center, allow for alternate height adjustment when mounting a wing (fig. 6).



fig. 6

Accessories to Build Out Your System

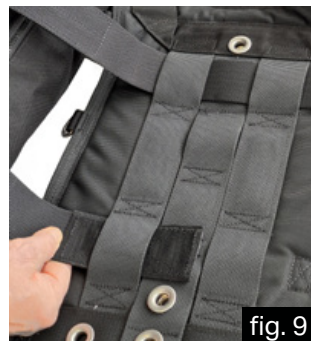
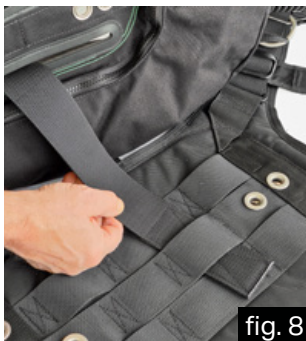
The following accessories are available through Highland to build your harness into a complete system. Be sure to visit ***highland-scuba.com*** to see the complete line of accessories available for your Valor harness.

- A. Backplates, stainless steel and aluminum, for strength and rigidity
- B. Air cell wings for both single and twin cylinders
- C. Single Tank Adapter (STA)
- D. Weight pockets, both side-slide and bottom-drop
- E. Technical pockets, specialized for different needs
- F. Pony mounts, brackets and bags
- G. Stage bottle strap kits
- H. Stainless book screws in varying lengths
- I. A large selection of stainless steel hardware including double-enders, billy-rings, shackles, and quick-links

Air Cell and Cylinder Mounting Options

There are multiple ways to mount an Air Cell and cylinder(s) to your Valor Harness.

- **Without the Use of a Backplate**
 - Slide the end of the tank band through the upper slot in the air cell (fig. 7)
 - If a 2nd tank band is used - slide end of tank band 2 through lower slot in the air cell.
 - If one tank band is used, run the band through the central open slot on the back of the Valor (fig. 8)
 - If two tank bands are used, run the bands through the dual upper and lower slots on the Valor (fig. 9)
 - Continuing routing them through the final slot(s) in the air cell.
 - Mount Valor, with air cell, to the cylinder.





NOTE: While not necessary, many find it useful to use a pair of book screws to attach the air cell to the Valor. This keeps the system from becoming unwieldy when not attached to a cylinder. A pair of book screws can be installed through upper and lower central grommets (fig10).



fig. 10

Proper Threading of Cam Buckle

The Highland SS Cam Buckles are not only strong, they provide excellent traction due to the Cobra Traction Pad which also serves to protect the paint finish of your cylinder.

After weaving the tank band through your BC, backpack or plate, pass the webbing through the wire bail and through the middle of the three slots (fig. 11).



fig. 11

Make a U-turn and pass the webbing through the slot closest to the wire bail (fig. 12).



fig. 12

Pull the webbing until snug. Close the buckle half way to hold the cylinder band taut (fig. 13).



fig. 13

While maintaining tension on the buckle, thread the free end of the band through the final slot in the end of the buckle (fig. 14).



fig. 14

Pull the cam buckle closed by gripping the webbing end for leverage to flip the buckle closed so that it lies flat against the cylinder (fig. 15).



fig. 15

Be sure that the enlarged protective webbing and Cobra Traction Pad lies behind the buckle to protect the cylinder and provide exceptional tank grip (fig. 16).



fig. 16

Your cylinder is now secured with tank band closed (fig. 17).



fig. 17

Using a Backplate

There are multiple ways to mount an air cell and cylinder(s) to your Valor Harness.

- Insert a steel or aluminum backplate inside the Valor Harness.
 - Remove the back pad.
 - Insert the backplate, concave side up, into the pouch, as far as it will go (fig. 18). You should be able to see daylight when looking



fig. 18

through the central grommets on the harness.

- Close the hook and loop tab. Leave back pad off for now.
- Single cylinder – Mount a Single Tank Adapter (STA), p/n HL802, to a single cylinder. Receiving bolts should be 11 in on center.
- Twin cylinders – Twin tank bands should be positioned on the cylinders so that the receiving bolts are exactly 11 in on center.
- Slide appropriate air cell (single or double) over the cylinder bolts.
- Highland air cells have dual sets of central grommets to allow for different height settings, based upon personal preference.
- Slide the Valor Harness, with plate installed, over these same bolts.
- Again, there are dual sets of central grommets to allow for different height settings, based upon personal preference.
- Add a flat washer to each bolt and secure with a traditional wing nut, or try Highland Speed Nuts!
- Replace the back pad.



Customizing Shoulder Hardware

The Valor Harness features an open shoulder design. This provides access to shoulder hardware.

- Remove reflective inflator hold-down if necessary.
- Unweave 2 in webbing through the 3-bar slide and the rectangular loop (fig. 19)
- Add, or remove, required hardware (fig. 20)
- Re-weave webbing back through rectangular loop and 3-bar slide (fig. 21 & 22)
- Replace reflective Inflator hold-down as needed.



Mounting Accessory Pockets

Highland offers a selection of accessory pockets, each designed for different applications. Each pocket has multiple attachment options.

The Valor Harness features semi-rigid plastic sheeting inside the fabric of its waistbands. This plastic sheeting supports these pockets when loaded with tools, hardware, and accessories.

A quick and easy way to mount, or change out, these pockets is to use the hook-and-loop alligator clamps on the back of each pocket. These alligator clamps connect to the 2 in webbing on the outside of the waistband panels. See images below (fig. 23 & 24). This can be done while the Valor is being worn.

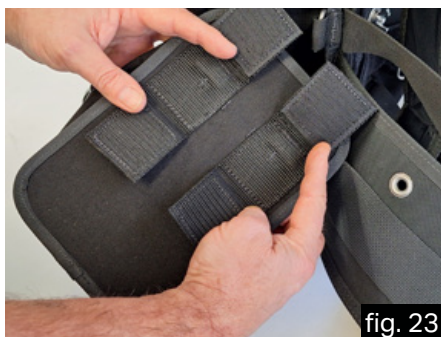


fig. 23



fig. 24



NOTE: *The hook-and-loop alligator clamps are strong. Due to the lateral sheer strength of hook-and-loop, these clamps withstand a pull force of 160 lbs (72.5 kg)!*

Highland accessory pockets also feature stainless steel attachment D-rings. You can use double-enders, quick links or other attachment hardware to attach these D-rings to the Valor Harness.

One popular option is to mount a pocket to the D-rings on the back, lower edge of the Valor Harness. This keeps it out of the way yet provides good accessibility (fig. 25).



fig. 25

Pre-Dive Inspection

Before each use, the Valor Harness, accompanying air cell, including its inflator and valves, weight pockets, and cylinder attachment must be visually inspected and tested. NEVER dive with a harness, or buoyancy compensator, that shows any sign of damage to its air cell, inflator or valves, weight pockets, or cylinder attachment until it has been serviced by an authorized XS Scuba dealer.

Pre-Dive Inspection Checklist

1. Connect the power inflator to your regulator via the inflator 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. Ensure that the air cell does not contain any water from a previous dive or from internal rinsing. An excessive amount of water inside the air cell can reduce the BC's internal air volume and lift capacity.
3. Manually operate each of the overpressure valves (OPVs) by pulling on the attached pull bobs to release air from inside the BC, and then fully inflate the BC until one of the OPV valve opens. Ensure that one or both opens to relieve excess pressure yet closes immediately afterward to allow the air cell to remain fully inflated.
4. Check the function of the oral inflator button, rapid exhaust (RE) valve (if present), and over pressure valve (OPV) to ensure a rapid and unobstructed exhaust from each valve. Fully inflate the air cell once again, and disconnect the Power Inflator to listen for any leakage.



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

5. Make a final check of the cylinder band's tension to ensure that it is as tight as possible, and the cylinder is securely held without any noticeable slippage. Retighten if necessary.
6. Before entering the water, check that lead weights are secure and will not fall out accidentally.



WARNING: *Involuntary release of lead weight can cause a sudden increase in buoyancy and rapid ascent and could lead to serious injury or death due arterial gas embolism or decompression illness.*

Post Dive Care and Storage

As with most scuba gear, your Valor Harness's life expectancy, performance and reliability depend upon its care and maintenance. XS Scuba recommends the following:

- Avoid prolonged exposure to direct sunlight and heat. The colorfastness and integrity of the harness can be compromised when subjected to intense ultraviolet radiation.
- Keep your harness away from sharp objects that could puncture it. Do not let your harness drag on rough surfaces as abrasion may weaken the fabric.
- Avoid repeated or prolonged use in chlorinated or brominated pool water. Rinse thoroughly and air dry after each pool use. To do otherwise can shorten the life of your harness.
- Avoid contact with fuel, oil, aerosols or chemical solvents.

Storage

- Store your harness on a non-rusting hanger that has wide shoulders.
- XS Scuba offers a variety of hangers dedicated for harness / BC storage.
- Remove all lead weight, both ditchable and non-ditchable, from the harness.
- Hang your harness in a clean dry area, out of direct sunlight, away from electric motors. Do not store in an enclosed space, such as the trunk of a car, where it can be subjected to extreme temperatures.

Warranty

Limited Two-Year Warranty

XS Scuba, Inc. warrants, to the original owner, this product to be free of defects in materials and/or workmanship for a period of two years from date of original purchase. Warranty applies only under normal diving use and with proper care and maintenance. This warranty is non-transferable and limited to repair or replacement at the discretion of XS Scuba. BC must be returned with proof of purchase.

What Is Covered

All hardware, grommet installation, fabrics and stitching are covered under this warranty. Should any part of your XS Scuba harness be found defective, XS Scuba, at its discretion, will repair or replace the item at no charge to you.

What Is Not Covered

- This warranty does not extend to abrasion, punctures, or tears.
- It does not cover seam separation caused by chemical attack; including, but not limited to prolonged exposure to chlorine or other pool chemicals.
- This warranty does not extend to damages caused by improper use, improper maintenance, neglect, unauthorized repairs, modifications, accidents, fire, or casualty.
- This warranty does not extend to equipment used for rental, commercial, or military purposes.

What You Need to Do

- Keep a copy of the original purchase receipt. Submit it along with any warranty claim.

This warranty gives you specific legal rights. You may have rights, which vary from state to state and country to country.

XS SCUBA 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, consequential, or indirect costs, expenses, or damages incurred while using this product, so this may not apply to you.

Returning Your BC for Service

Should your Valor Harness need warranty consideration, it is important to bring it to an Authorized XS Scuba Dealer. Be sure to provide the dealer with photocopies of your original sales receipt.

For the location of the dealer nearest you or additional information, visit our website at: www.XSscuba.com



VALOR

H A R N E S S