RAZOR 4

SIDE MOUNT SYSTEM

MANUAL

EDITION 1.2 / 22.06.2022

RAZOR 4

HARNESS

MANUAL

EDITION 1.2 / 22.06.2022

TABLE OF CONTENTS

1 GENERAL INFORMATION

1.1 IMPORTANT WARNINGS

WARNING
It is strongly recommended that you read the entire manual and notice the respective images to understand the various parts and assembly process instructions before you assemble the Razor 4 Side Mount System.

WARNING
This manual must be read and understood entirely before using the product. It is advised that you keep this manual in your possession during the entire life of your Razor 4 Side Mount System.

FAILURE TO READ, UNDERSTAND AND FOLLOW THE PRECAUTIONS LISTED IN THIS MANUAL COULD RESULT IN SERIOUS INJURY OR DEATH.

WARNING
When diving you must follow the rules and apply the skills taught by a recognized scuba diving certification agency. Before taking part in any diving activity, it is mandatory to have successfully completed a scuba diving course covering both theoretical and technical aspects of diving.

WARNING
This instruction manual does not replace a diving instruction course! We strongly recommend a sidemount course with an official Razor instructor or an instructor who is familiar with the system.

WARNING
In accordance with European standards, our BCs can only be considered certified where all components are present, as per the original RAZOR configuration, including the low pressure hose supplied. Any variation of the original configuration invalidates conformity to European certification standards.

WARNING
Ensure you have fully understood the Razor 4 Side Mount System function and features, and adjust the Razor 4 Harness appropriately before diving. If in doubt, ask your official Razor Instructor for help or contact us at **info@gosidemount.com.**

1.2 CE-CERTIFICATE

The products described in the following instruction have been a subject of certification in a recognized unit and meet the requirements of **Regulation 2016/425** and of the **norm PN-EN 1809+A1:2016-06**, synchronized with this directive, in its full extent; and of **PN-EN 250:2014-08** covering scuba harness.

The compliance assessment of the Razor 4 BAT Wing and the Razor 4 Side Mount Harness were performed by:

Polski Rejestr Statków S.A.,
Jednostka notyfikowana nr 1463
Al.Gen.Józefa Hallera 126
80-416 Gdańsk Polska

The Declaration of Conformity is available on the Razor Go Side Mount Europe website at:
https://razorgosidemount.eu

WARNING
The Razor 4 Side Mount System described in this user manual is considered personal protective equipment against the risk of drowning until it is correctly used under the conditions specified in this manual and when all instructions and requirements in the operating instructions are followed, but it's not a lifejacket and does not keep the user afloat in a position which permits breathing while awaiting help.

INFO
The Razor 4 Side Mount System described in this user manual has been certified as compatible with Regulation (EU) 2016/425 of the European Parliament and of the Council of 9 March 2016 on personal protective equipment and repealing Council Directive 89/686/EEC., as far as it contains air compatible with EN 12021 norm. Regarding the lack of EN norms for safety requirements, while the use of it takes place with mixtures of higher oxygen content, the above-mentioned buoyancy compensator cannot be regarded as one which has been a subject of CE certification with gas mixtures with oxygen levels higher than 21% (+/- 2%) as stated in Regulation (EU) 2016/425.

INFO
The Razor 4 Side Mount System described in this user manual is labeled according to standard PN-EN 1809+A1:2016-06. The label containing all information required by the above-mentioned standard, including CE marking, the product name, serial number, and the required warnings, has been placed on the weight layer on the inside of the wing.

1.3 IMPORTANT CAUTIONS

For your protection while using the Razor 4 Side Mount System, we call your attention to the following:

1. Use the equipment according to the instructions contained in this manual and only after having completely read and understood all instructions and warnings.
2. Use of the equipment is limited to the uses described in this manual or for applications approved in writing by Go Side Mount.
3. Cylinders must only be filled with atmospheric compressed air, according to the EN 12021 norm. Should moisture be present in the cylinder, beside causing corrosion of the cylinder, it may cause freezing and subsequent malfunction of the regulator during dives carried out in low temperature conditions (lower than 10°C (50°F)). Cylinders must be transported according to local rules provided for the transport of dangerous goods. Cylinder use is subjected to the laws regulating the use of gases and compressed air.
4. Equipment must be serviced by qualified personnel at the prescribed intervals. Repairs and maintenance must be carried out by an authorized RAZOR Dealer service facility and with the exclusive use of original RAZOR spare parts.
5. Should the equipment be serviced or repaired without complying with procedures approved by Go Side Mount or by untrained personnel or not certified by Go Side Mount, or should it be used in ways and for purposes other than specifically designated, liability for the correct and safe function of the equipment transfers to the owner/user.
6. The content of this manual is based upon the latest information available at the time of going to print. Go Side Mount reserves the right to make changes at any time.
7. All dives must be planned and carried out so that at the end of the dive the diver will still have a reasonable reserve of air for emergency use. The suggested amount is usually 50 bars (725 psi).

Go Side Mount refuses all responsibility for damages caused by non-compliance with the instructions contained in this manual. These instructions do not extend the warranty or the responsibilities stated by Go Side Mount terms of sales and delivery.

WARNING
Always perform a pre-dive and post-dive inspection of the Razor Side Mount System.

WARNING
Do not use your Razor 4 Side Mount System as an assist or “lift bag” for bringing objects to the surface. These objects may be lost during the ascent, creating a sudden increase in buoyancy and loss of buoyancy control.

WARNING
Do not attach a LPI hose to a scuba regulator high pressure (HP) port or to an air supply with pressure in excess of 200 psi (13.8 bar). This may result in damage or explosive failure of the inflation valve or low pressure hose, which could result in injury or death.

1.4 INSPECTION AND HANDLING OF THE BAT WING

Pre-dive, dive and post-dive Razor 4 BAT Wing examination helps to identify equipment problems before unsafe conditions exist, preventing diving accidents. All equipment must be regularly inspected by an authorized SCUBA equipment repair facility.

WARNING
DO NOT DIVE with a Razor 4 BAT Wing that does not pass any of the Pre-Dive, Dive or Post-Dive inspection points and tests. Loss of buoyancy control or air holding integrity could occur, resulting in serious injury or death.

PRE-DIVE VISUAL INSPECTION AND VALVE TEST:

1. Examine the entire Razor 4 Side Mount System for cuts, punctures, frayed seams, excessive abrasion, loose / missing hardware and other damage of any kind.
2. Inspect the Oral Valve, Power Inflation Valve, Manual Dump Valve and Over Pressure Valve(s) for cracks, damage or contamination.
3. Operate the Power Inflation Valve (with the LP hose attached and charged with air pressure), Oral Valve, manual Dump Valve and Over Pressure Valve, checking for proper operation and resealing. If the OP Valve has a Pull Dump, test it by pulling on the cord.
4. Inflate the Razor 4 BAT Wing through the Oral Valve until it is firm. Listen and check for leaks. Let the BAT Wing stand inflated for 30 minutes or more, then check the BAT Wing for loss of air.
5. Cross check all valves' operation and visually inspect your Razor 4 Side Mount System with your dive partner before each dive, prior to entering the water.

WARNING
DO NOT DIVE with a Razor 4 BAT Wing that is damaged, leaks air, or does not function properly. Terminate any dive as safely and quickly as possible if the Razor 4 BAT Wing becomes damaged, leaks air, or does not function properly.

WARNING
The Razor 4 BAT Wing is not a breathing device. Never breathe from the Razor 4 BAT Wing. Your Razor 4 BAT Wing may contain gas residue, liquid, or contamination that may result in injury or death if inhaled.

WARNING
Keep water out of the inflatable aircell of the BC. Repeated use of the oral valve or the Overpressure Valve may allow water inside the Razor 4 BAT Wing, reducing the amount of buoyancy provided by the Razor 4 BAT Wing. This could result in injury or death. Drain all water out of the Razor 4 BAT Wing prior to every use.

1.5 INSPECTION AND HANDLING OF THE RAZOR 4 SIDE MOUNT SYSTEM

POST-DIVE : RAZOR 4 SIDE MOUNT SYSTEM CLEANING AND EXAMINATION AND STORAGE

With proper care and service, your Razor 4 Side Mount System should provide years of enjoyment. Maintenance and care procedures must be observed and are as follows:

1. Rinse the Razor 4 Side Mount System thoroughly inside and outside with fresh water after every use (do not use any aggressive solvent and/or cleaning liquid).

- Fill the Razor 4 BAT Wing inner bladders, approximately 1/4 full with clean fresh water through the Oral valve.
- Orally inflate the Razor 4 BAT Wing and shake to distribute water inside of the Razor 4 BAT Wing.
- Hold the Razor 4 BAT Wing upside down, depress the Oral Valve Button, and allow all water and air to drain from the Oral Valve mouthpiece.
- Repeat one or two more times.
- Rinse the entire Razor 4 BAT Wing with fresh water by dipping in a tub or spraying with a hose.
- Rinse all valves to make sure all sand and other debris is removed.

2. Dry the Razor 4 Side Mount System: if hanging, make sure it is not in direct sunlight. Dry completely if storing, slightly inflated.

WARNING

Avoid prolonged or repeated exposure to chlorinated water, such as in swimming pools. Wash your Razor 4 Side Mount System immediately after any use in chlorinated water. Chlorinated water can oxidize fabrics and materials on your BC, thereby shortening their life, and cause colors (especially neon) to fade. Damage and fading from prolonged exposure to chlorinated water is specifically not covered under warranty.

1.6 STORAGE

POST-DIVE : RAZOR 4 SIDE MOUNT SYSTEM CLEANING AND EXAMINATION AND STORAGE

Store your Razor 4 Side Mount System, after it has fully dried, by partially inflating and then placing it in a cool, dark and dry location: ultraviolet rays will shorten the life of the fabric and cause colors to fade.

INSPECTION AND SERVICE INTERVAL

Your Razor 4 Side Mount System should be inspected and maintained at an Authorized Service Center at least once a year, more often if you dive frequently. Any damage caused due to failure to properly maintain the Razor 4 Side Mount System is not covered by the warranty.

SHELF LIFE

Shelf life is seven years for a new, unused Razor 4 Side Mount System when deflated and stored in a sealed container or bag at typical room temperature, with no exposure to UV.

OPERATING TEMPERATURE RANGE

Air	-20°C	to	+50°C	-4°F	to	122°F
Water	-2°C	to	+40°C	28°F	to	104°F

INFLATOR

Type: K-Type Inflator

Supply Pressure: minimum: 8 bar - maximum: 10,5 bar

DEFLATION DEVICE

Type: O.p.v. P03 Sharp

Outflow of gas: maximum: 10,5 bar

WARNING

Special instructions in cold water diving methods and the specific use of this product in cold water is required prior to cold water diving (temperatures below 10°C/50° F). This instruction is beyond the scope of this manual.

1.7 CHOICE OF CYLINDERS

Go Side Mount recommends, depending on the region and type of diving, cylinders following variants for diving with the Razor 4 Side Mount System:

STEEL CYLINDERS:

7 Liter / 8 Liter / 10 Liter / 12 Liter 240 bar (85 cuft / 108 cuft LP Steel)

ALUMINIUM CYLINDERS:

6 Liter / 11 Liter 200 bar (40 cuft / 80 cuft 3000 psi Aluminium)

WARNING

Diving with more than 2 cylinders requires special training to ensure the safety of the diver. These instructions are not included in this manual. Inquire with your official Razor Instructor or from your dealer for the appropriate courses.

2 THE RAZOR 4 SIDE MOUNT SYSTEM

2.1 OVERVIEW

«Necessity is the mother of invention»

Steve Bogaerts originally designed the Razor 1 Harness for use on side mount / no mount exploration dives in very restricted cave where every piece of extra equipment can become a hindrance or hazard.

The system evolved over time as the exploration dives became more challenging and demanded more from both diver and equipment. The current system is the distillation of years of trial and error. That experience refined and streamlined equipment, skill sets and procedures.

Each of the components in the system is designed to fit together seamlessly and work as part of an integrated whole. The Razor 4 Harness is at the heart of this system and is the foundation of all the Go Side Mount procedures and skills.

To get the full benefit from your Razor 4 Harness you need to understand and implement the entire Go Side Mount Philosophy. This philosophy is holistic in approach and is designed from the inside out so that as additional layers of equipment are added there is no change in the core equipment, equipment placement, procedures or skill sets.

Get properly trained for Side Mount diving. Training will distill into a few days' years of experience and advance your Side Mount diving accordingly.

2 THE RAZOR 4 SIDE MOUNT SYSTEM

2.1 OVERVIEW

«Less is More»

The Razor 4 Harness is simplicity and elegance personified with only 2 continuous pieces of webbing and 1 closure point. It is simple, strong, rugged, reliable, low profile and extremely minimalist in design. It fits like a glove and is very comfortable to wear.

The Razor 4 Harness will fit anyone no matter what their physical size or shape and is quick and easy to set up and adjust so that each individual diver gets a custom fit using standardized hardware.

The Razor 4 Harness can be adjusted at several points to ensure the optimal fit for each individual.

Each of the Shoulder Straps / Waist Straps can be adjusted at the Mini Back Plate. The length of the Lumbar / Crotch Strap can be adjusted at the Delta Shoulder Plate. The height of the Waist / Hip strap can be adjusted at the Mini Back Plate.

All the attachment points such as D Rings on the Razor 4 Harness can be adjusted quickly and easily to allow personalized positioning of equipment placement.

Extra attachment points can be added easily if required.

Weight can be added to exactly where you need it on the Razor 4 Harness to optimize trim.

2.2 THE BASIC RAZOR 4 SIDE MOUNT SYSTEM

PACKAGE CONTENT

1. Razor 4 Harness
2. Redundant Razor 4 BAT Wing
3. Pocket Weight System
4. Universal Spares Kit + Razor 4 Multitool
5. Side Mount Bungee

All hardware is heavy duty passivated stainless steel

2.3 THE COMPLETE RAZOR 4 SIDE MOUNT SYSTEM

PACKAGE CONTENT

1. Razor 4 Harness
2. Redundant Razor 4 BAT Wing
3. Razor 4 Pocket Weight System
4. Universal Spares Kit + Razor 4 Multitool
5. Side Mount Bungee
6. Spare Side Mount Bungee
7. Razor 4 Expandable Pouch
8. 2 x Double Ender
9. 6" LPI Hose

All hardware is heavy duty passivated stainless steel

3.1 PACKAGE CONTENT

WEBBING AND HARDWARE BAGS

1. Razor Neoprene Patches
2. Lumbar/Crotch Strap
3. Shoulder and Waist Strap
4. Bag with Hardware, Screws and Washers, Inner tubes and Side Mount Bungee
5. Bag with Metal Parts and Razor 4 Multitool

3.1 PACKAGE CONTENT

THE 2 BAGS:

1. 1,5" logo patch small wrap
2. 1,5" logo patch big wrap

3 PAPER BAG 1 WITH ...

4. Plastic bag with screws, washers and 2" inner tubes
5. Plastic bag with Side Mount Bungee and 3 additional C Clips
6. 6 x Tri Glide 2"
   4 x 2" D Ring
   2 x 2" Bent D Ring

7 PAPER BAG 2 WITH ...

8. Metal Parts wrapped in Black Paper
9. Razor 4 Multitool wrapped in Black Paper

3.1 PACKAGE CONTENT

HARDWARE PLATES:

1. DSP (Delta Shoulder Plate)
2. 1 x Bungee Tri-glide
3. MBP (Mini Back Plate)
4. 2 x DAPs (Drop Attachement Points)
5. Wing Tab
6. Slotted BAT Wing Tri-glide
7. Butt B Ring
8. Bottom Buckle Plate
9. Top Buckle Plate

All hardware is heavy duty passivated stainless steel

3.1 PACKAGE CONTENT

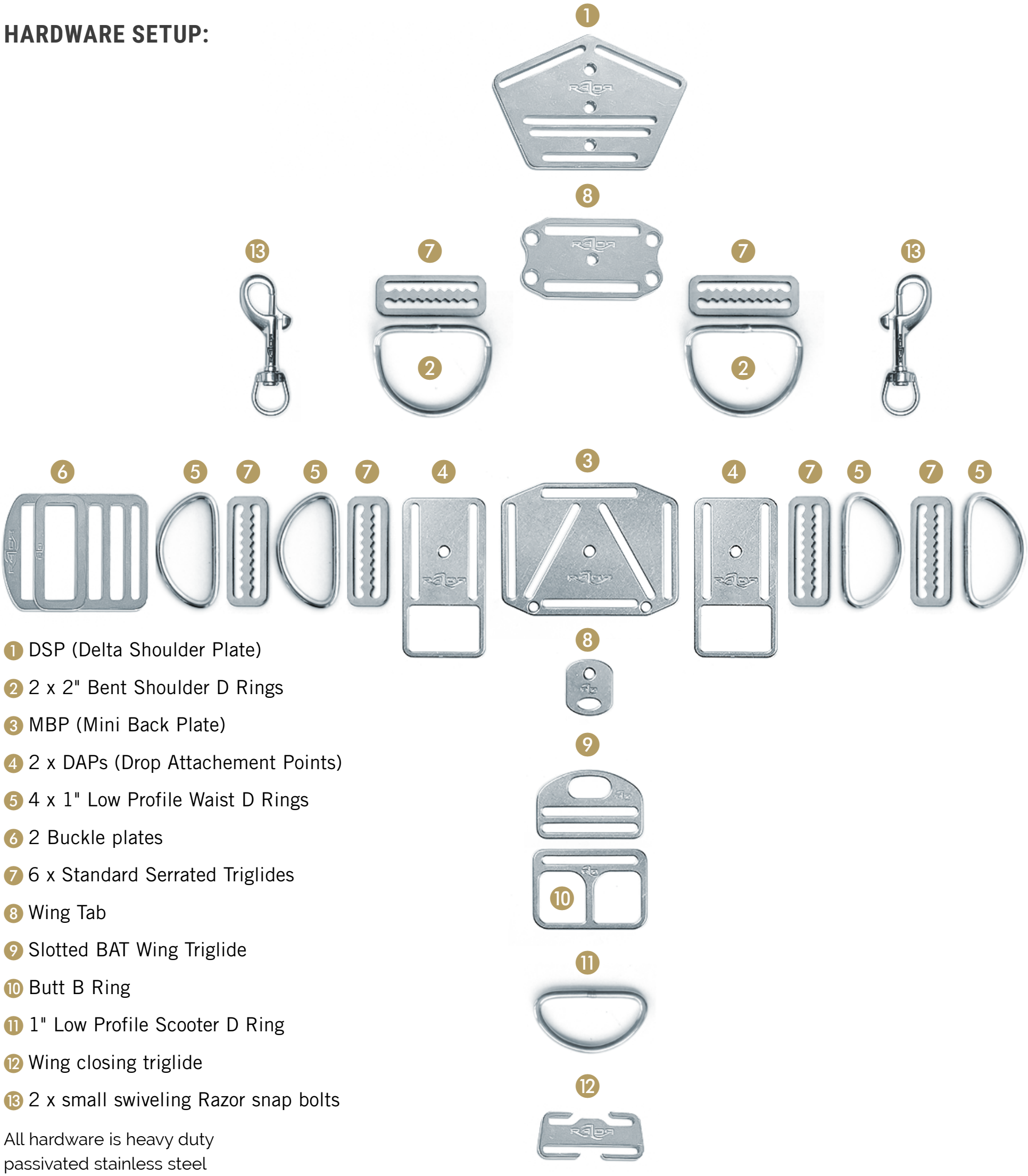
1. 1 DSP (Delta Shoulder Plate)
2. 1 12ft Shoulder / Waist Strap resin reinforced webbing
3. 2 Neoprene Razor Logo Wraps for shoulder webbing

4. 2 2” Bent Shoulder D Rings
5. 1 MBP (Mini Back Plate)
6. 2 DAPs (Drop Attachement Points)
7. 4 1” Straight Waist D Rings
8. 2 Buckle plates
9. 1 Bungee Tri-glide with 4 attachment holes.
10. 6 standard serrated Tri-glides
11. 1 6ft Lumbar / Crotch Strap resin reinforced webbing with Sewn Loop and 1” Low Profile Scooter D Ring
12. Slotted BAT Wing Tri-glide
13. Butt B Ring
14. 2 small swiveling Razor snap bolts
    6ft SM Bungee
15. 4 Hog Rings
16. 5 Pieces of Razor Inner Tube
17. 1 Wing Closing Triglide

All hardware is heavy duty passivated stainless steel

3.2 HARDWARE LAYOUT

HARDWARE SETUP:



1. DSP (Delta Shoulder Plate)
2. 2 x 2" Bent Shoulder D Rings
3. MBP (Mini Back Plate)
4. 2 x DAPs (Drop Attachement Points)
5. 4 x 1" Low Profile Waist D Rings
6. 2 Buckle plates
7. 6 x Standard Serrated Triglides
8. Wing Tab
9. Slotted BAT Wing Triglide
10. Butt B Ring
11. 1" Low Profile Scooter D Ring
12. Wing closing triglide
13. 2 x small swiveling Razor snap bolts

All hardware is heavy duty passivated stainless steel

3.2 HARDWARE LAYOUT

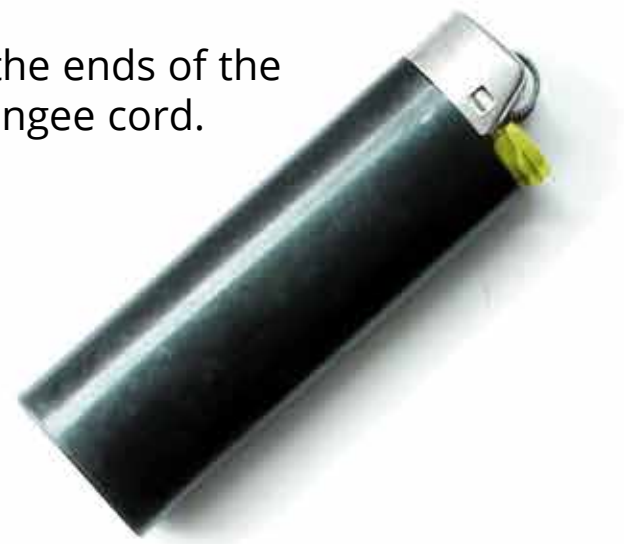
FIGURE 2:
Delta Shoulder Plate (DSP) & Mini Backplate (MBP):

4.1 TOOLS

YOU WILL NEED THE FOLLOWING TOOLS TO RIG YOUR RAZOR BAT WING:

- The Razor 4 Multitool to fasten the button head screws.
(included with the basic and the complete system)
In addition you will need the tool to switch the power inflator and the dump valve if needed.

- A lighter to burn and seal the ends of the cut webbing and elastic bungee cord.



- A knife or scissors to cut the harness webbing and the elastic bungee cord.

4.2 OVERVIEW

Below is an easy to follow guide detailing the 10 steps to rigg and adjust your Razor 4 Harness.

Each step has supporting pictures.

It is highly recommended that you read through the guide and look at the accompanying pictures to thoroughly familiarize yourself with the various parts and assembly procedures before you start to put your Razor 4 Harness together.

Ideally you should have your Side Mount Instructor rigg your Razor 4 Harness with you.

Rigging the harness is much easier with 2 people.

No one is perfectly bilaterally symmetrical and a properly fitted harness will not be either.

The person having the harness fitted should wear it while their partner makes adjustments in situ to get the perfect fit.

If rigging the harness by yourself a full length mirror will help you to position everything correctly.

Ideally when you rig the harness you should do so while wearing your normal exposure protection so that it fits snugly. If that is not practicable then wear clothing of a similar thickness to your normal exposure protection and make sure you leave some extra webbing for later adjustments should they be required.

It is highly recommended that you use the Razor 4 Pocket Weight System with the Razor 4 Harness and additional Wing Weight Pockets if needed. However, if you are going to put weight directly on the Razor 4 Harness, then it is advisable to work out how much weight you will need and where you want to place it on your harness before assembling it (see Step 9: Weighting and Trim).

STEP 1: RIGGING THE RAZOR 4 HARNESS

SLOTTED BAT WING TRI-GLIDE AND BUTT B RING

1. Place the Slotted BAT Wing Tri-glide and the Butt B Ring as shown next to the lumbar/crotch strap.

2. Run the webbing through the lower slot and run the metal parts in position before running the webbing through the second slot of the BAT Wing Tri-glide.

3. Make sure the But B Ring is on the side of the Scooter D Ring.

STEP 1: RIGGING THE RAZOR 4 HARNESS

MINI BACK PLATE AND RAZOR INNER TUBE

1. Now slide the Mini Back Plate on the webbing by pointing the Razor logo of the plate to the inside and the 2 holes facing the Butt B Ring.

2. Move the Mini Back Plate so that it is positioned along with the scooter loop on the height where you would wear a belt.

3. Don't forget to place a Razor inner tube right above the Mini Back Plate. It will be used to store the extra webbing of the lumbar strap.

STEP 1: RIGGING THE RAZOR 4 HARNESS

BUNGEE TRI-GLIDE WITH LOOP BUNGEE HOLES

1. Now put on the Bungee Tri-glide to the webbing. As well place the Delta Shoulder Plate on the Lumbar Strap.

2. You can run the webbing double through the wide slots of the Bungee Tri-glide.

3. Once placed you should see the engraved Razor logos on the outside of the harness on the same side as the the Scooter D Ring is.

STEP 1: RIGGING THE RAZOR 4 HARNESS

- Make sure to leave plenty of extra webbing for any adjustments that may be required later then cut off any excess and burn the end to seal it.

- The free end of the webbing should be on the underside of the Lumbar Strap towards the diver and can be held neatly in place with the Razor inner tube.

- Weights can be added to the Lumbar Strap below the Bungee Tri-glide if required (see Step 9: Weighting and Trim) but it is recommended to use the Razor 4 Pocket Weight System rather than add weight directly to the Razor 4 Harness itself.

STEP 1: RIGGING THE RAZOR 4 HARNESS

SHOULDER WEBBING AND TUBES

1. Run half of the shoulder strap webbing from the left side through the Delta Shoulder Plate as seen on the picture.

2. Now run the webbing through the bottom slot and then out on the right side of the Delta Shoulder plate.

STEP 1: RIGGING THE RAZOR 4 HARNESS

SHOULDER PART WITH D RINGS, INNER TUBE AND WRAPS

1. Now place a Razor inner tube on both sides of the webbing.

2. Then place the 2" Bent Shoulder D Rings on both sides. Check that the D Rings are pointing out from the webbing.

STEP 1: RIGGING THE RAZOR 4 HARNESS

SHOULDER PART WITH D RINGS, INNER TUBE AND WRAPS

1

Attach the Neopren Razor Logo Wraps around the webbing. Make sure that the long version is on the right side in preparation for the oral inflator tube (to store the hose of the oral inflator hose later on).

STEP 1: RIGGING THE RAZOR 4 HARNESS

- Pass each shoulder strap through the inside of slot C on the MBP then back out through slot D.

- The Harness should assume a “Heart Shape” at this point with the shoulder straps entering on the inside of the MBP and the Waist Straps exiting on the outside.

- Tighten the shoulder straps until you have a snug fit which is even on both sides with the DSP and MBP centered along the midline of your back and the MBP at the desired height.

STEP 2: ADJUSTING THE HEIGHT OF THE MBP

The Lumbar/Crotch Strap is a continuous piece of webbing that begins at the DSP.

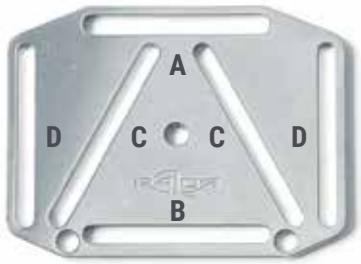
Position the top of the Crotch strap loop at the correct height just below the belly button and then pull the free end of the webbing through slot C of the DSP until the correct overall length is achieved making sure the correct position of the DSP is maintained.

ADJUSTMENT

As the Crotch Strap end has a sewn loop 1 with a 1”low profile Scooter D Ring 2. It can not be adjusted for length from this end and all the adjustment must take place at the DSP 3.

STEP 2: ADJUSTING THE HEIGHT OF THE MBP

The MBP can be moved either up or down the lumbar/crotch strap webbing until it is positioned in the ideal location based on individual diver preference.



STEP 2: ADJUSTING THE HEIGHT OF THE MBP

- The position of the MBP will determine the position of the lower attachment points for the bottom of the Side Mount Tanks.

- Most divers will position the MBP at waist height but shorter divers may wish to move the MBP lower to mid hip height to be able to position the Side Mount Tanks lower on the body for greater comfort.

STEP 3: FITTING THE LUMBAR / CROTCH STRAP

- If using a butt mounted primary light canister remember to leave the crotch strap a little loose so that it can pass over the light canister to hold it in place while diving or even better size the crotch strap with light canister in place.

- The loop of webbing created between the DSP and the Bungee Tri-glide should be large enough to comfortably pass the Side Mount Bungee and clip through. The bottom of the loop should be in line with the armpits (see Step 8: Sizing and Fitting the Side Mount Bungee).

ADJUSTMENT

The free end of the webbing should be doubled back through the Bungee Tri-glide on the Lumbar strap to lock it in place.

STEP 3: FITTING THE LUMBAR / CROTCH STRAP

- The DSP should be positioned between the shoulder blades below the nape of the neck.
- To get the right height place one arm behind your head and the tips of your fingers should just touch the top of the DSP.
- Make sure that the top of the DSP is clear of your Drysuit neck seal or zipper.
- It should also be positioned below the closed zip position of a wetsuit.

STEP 4: ADJUSTING THE LENGTH OF THE SHOULDER STRAPS

Adjust the length of the shoulder straps as seen in the picture below. You can tighten or loose the webbing on the C slots to achieve the right length. Once you found the right length, fix the webbing down through the D slots of the Mini Back Plate.

STEP 4: ADJUSTING THE LENGTH OF THE SHOULDER STRAPS

To figure out the equal length of the shoulder straps put your thumbs under the webbing and pull slightly on it to feel the length. At the same time the Mini Back Plate has to stay in place. If you are alone, then you need to hold on to the Mini Back Plate with one hand while checking the fit of one shoulder strap.

STEP 5: FITTING THE CHEST D RINGS

- Making sure the DSP remains in the correct position the shoulder D Rings should be positioned at the same approximate height as the ends of the collarbones.

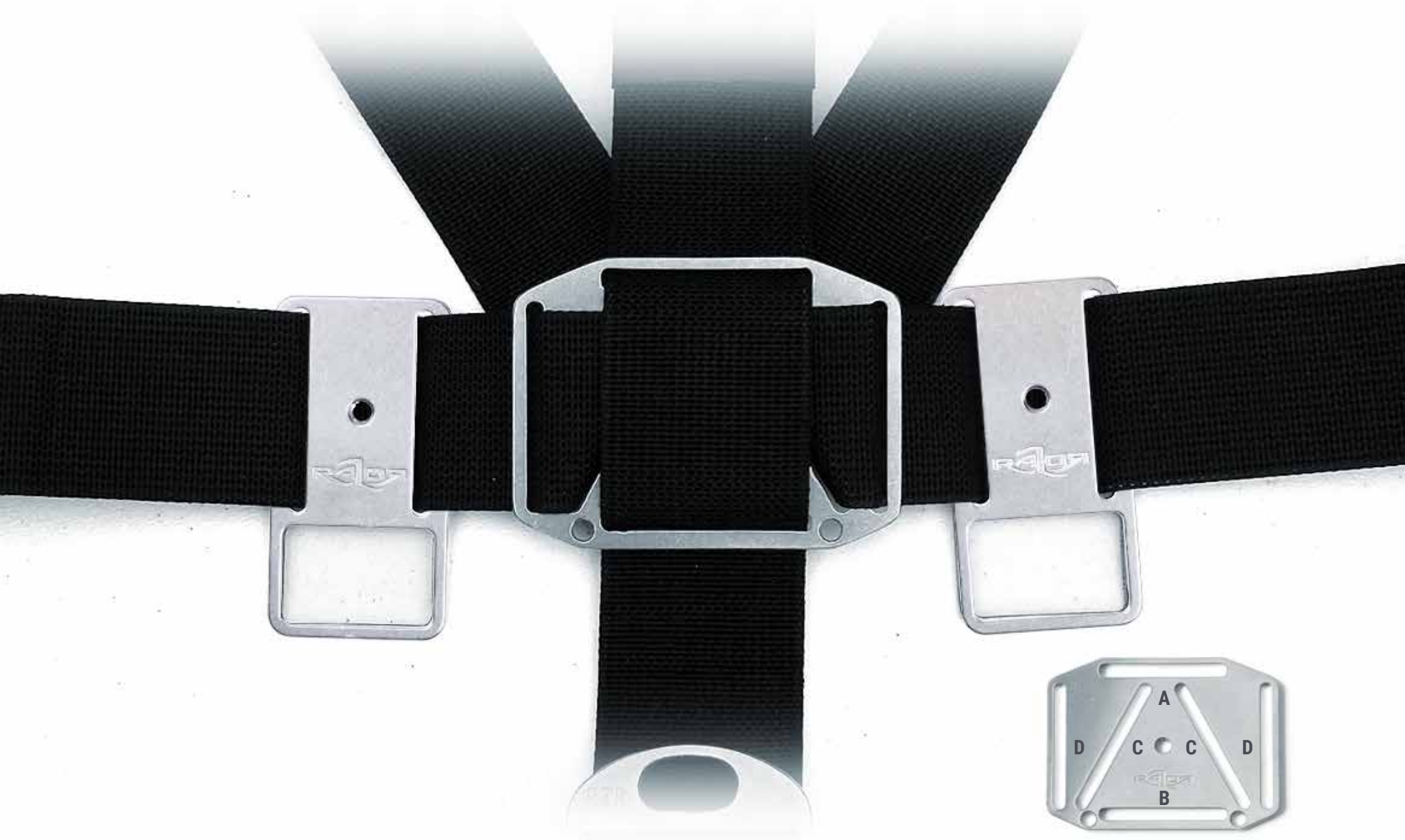
- To fine tune this position stand with both arms straight out from the shoulders, palms facing down and thumbs extended. Bend the elbows until the thumbs hit the shoulders without lowering the arms.

- The D Rings should be placed at this height and can be moved to the ideal location easily by sliding the serrated Tri-glides either up or down the webbing ensuring each side is even in height.

IMPORTANT
Before moving to step 6 it´s now the time to decide if you want to add the Razor 4 Pocket weight system straight to the harness webbing or if you add the waist hardware (see page 63).

STEP 6: FIXING ATTACHMENT HARDWARE ON THE WAIST STRAP

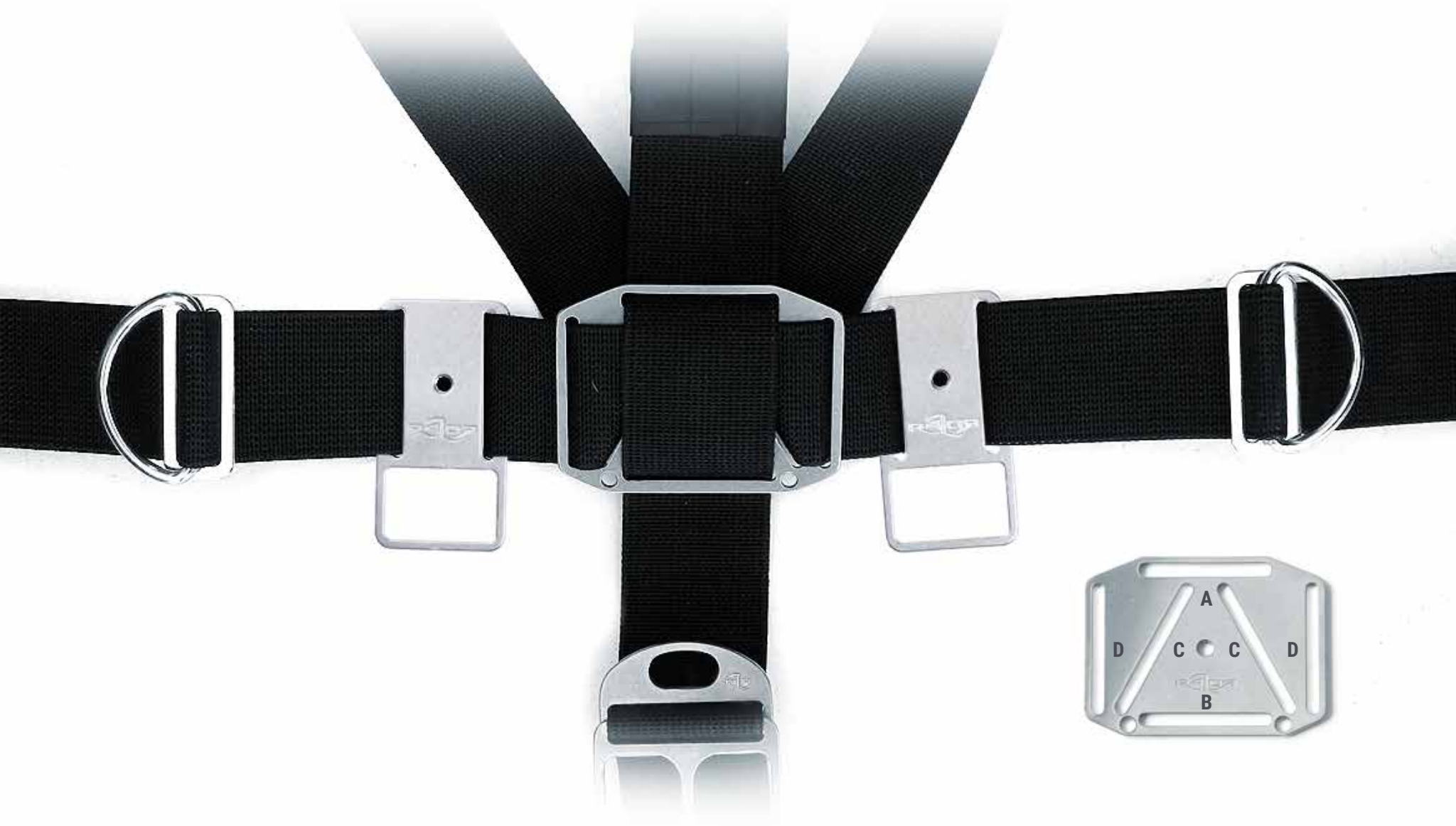
- The two Drop Attachment Points (DAPs) should be positioned on the waist webbing either side of the MBP.



- The DAP's should be close to the MBP so that anything clipped to them will not hang too far to the sides and get between the body and the SM tanks.
- If required the loop of the DAP can be placed in a vice and bent gently to have them stand off slightly from the body to make clipping in easier.
- The DAPs are an ideal location to clip off the Razor Expandable Pouch as well as other items such as reels or lift bags for example.
- The DAPs can also be used to clip off a heavy butt mounted primary light canister to give it more support if required.

STEP 6: FIXING ATTACHMENT HARDWARE ON THE WAIST STRAP

- Now move the tri glides and 2” low profile D Rings, until they are positioned just behind the hipbone on each side of the waist strap webbing.



- Make sure that both D Rings are positioned evenly and far enough back that the bottom of the Side Mount Tanks will not hang down below the body when trimmed out in a horizontal position.

- Weights can be added to the Waist Strap between the DAPs and the Hip D ring if required but it is recommended to use the Razor 4 Pocket Weight System rather than add weight directly to the Razor 4 Harness itself (see Step 9: Weighting and Trim).

- Extra attachment hardware such as a second D ring on each side can be added at this point if required.

STEP 6: FIXING ATTACHMENT HARDWARE ON THE WAIST STRAP

- Steel tanks will tend to remain negative throughout the dive even as gas is used from them. However, if using Aluminium 80cuft Side Mount Tanks, a second attachment point further forward is necessary to adjust tank trim as gas is breathed from the tanks and they get lighter and become more buoyant.

- When the bottom of the tanks start to float up, clipping them forward keeps them horizontal along the sides of the divers body thus reducing profile and drag.

- The first D ring should be positioned behind the hip with the second d ring positioned half way between this and the center line of the body.

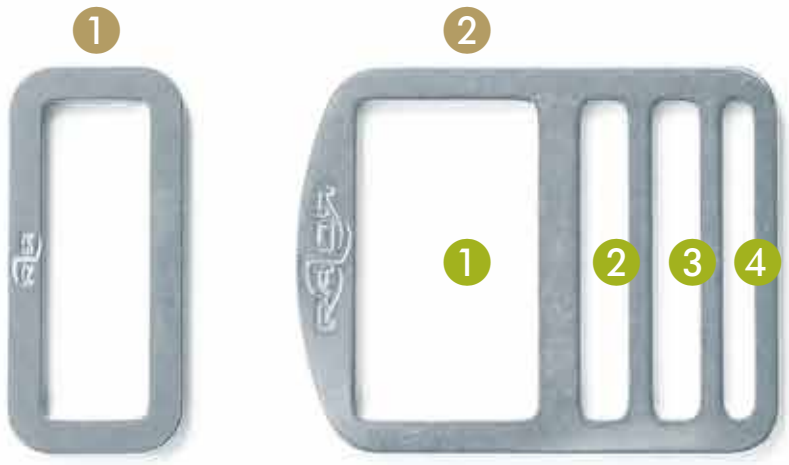
- The Low Profile D Rings are ideal for use in warm and cold water using either Aluminium or Steel Side Mount Tanks.

STEP 7: FITTING THE LOW PROFILE BUCKLE

Attach the Low Profile Buckle to the left hand side of the webbing leaving plenty of extra webbing for adjustments of the harness. You have 2 possibilities: version 1 or 2

1

Version 1 is the easy and quick fix one. Run the webbing according to the numbers shown on the plates through the closing system plate 2 while adding the smaller closing system plate 1 to it.



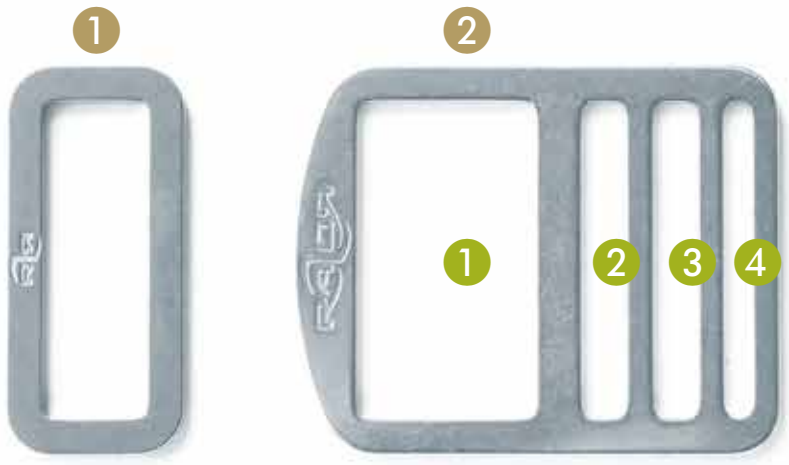
Start going down through slot 3 coming up slot 2, then add the smaller closing system plate 1.
Then close the webbing loop by coming up slot 3 from the inside.

Outside view:

Inside view:

STEP 7: FITTING THE LOW PROFILE BUCKLE

Once you have attached the buckle like this, make sure the buckle is at the right place. Once you are sure that you want to have it placed like this, you can additionally secure the buckle by running the webbing to it´s final position.



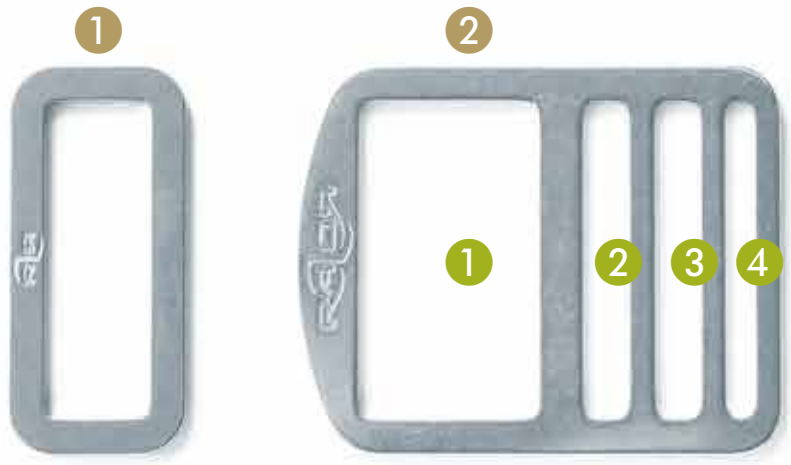
Once you are sure that the buckle is at the right spot, then run the webbing up slot 4.

Inside view:

STEP 7: FITTING THE LOW PROFILE BUCKLE

Optional you can use version 2 to run the webbing through the closing buckle. It comes down to your personal preference, what you like more. Version 2 is a bit harder to adjust but slightly more streamlined.

2 Run the webbing according to the numbers shown on the plates through the closing system plate 2 while adding the smaller closing system plate 1 to it.



Start going coming up through slot 4, then add the smaller closing system plate 1. Now you have to run the webbing on the inside first through slot 2 and then through slot 3.

Outside view:

Inside view:

STEP 7: FITTING THE LOW PROFILE BUCKLE

- The loop for the smaller closing system plate should be big enough, so that the plate can still slide sideways. Else the closing may not work properly.

- The buckle should be positioned to fasten in the middle of the waist and be covered by the crotch strap loop to streamline the configuration.

- Make sure to leave plenty of extra webbing for any adjustments that may be required later. Cut off any excess and burn the end to seal it.

- The free end of the webbing should be on the inside of the left Waist Strap and can be held neatly in place with the loop of Razor inner tube provided.

STEP 7: FITTING THE LOW PROFILE BUCKLE

- The buckle is tightened by passing the right hand waist strap through both of the buckle plates and then back under the large plate.

- The buckle can be tensioned or released with just one hand making adjustments on the fly while diving easily.

- The free end of the strap should be tucked under the piece of Razor inner tube on the right hand side webbing to keep it in place.

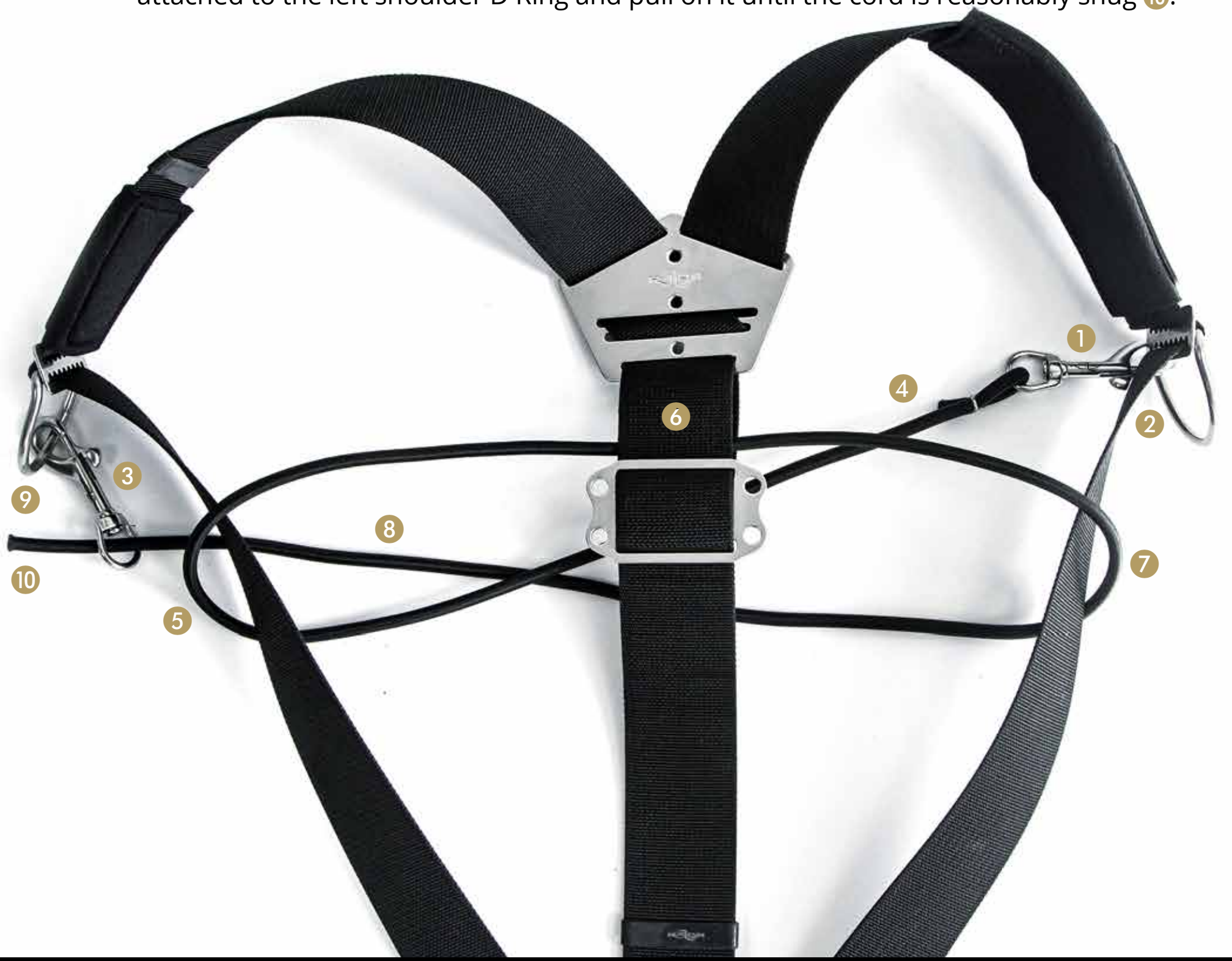
- When the webbing is new it will be stiff and somewhat difficult to use, but after a few dives it will soften and develop a certain amount of “memory” that will make it much easier to work with.

STEP 8: SIZING AND FITTING THE SIDE MOUNT BUNGEE

- Clip the swiveling Razor bolt snap already attached to the SM Bungee (1) to the right hand shoulder D ring (2) and clip the free swiveling Razor bolt snap (3) to the left shoulder D ring.

- Then run the free end of the Side Mount Bungee across the chest (4) and under the left arm around the back (5), passing it through the loop in the webbing between the DSP and the Bungee Tri-glide (6), under the right arm (7) and back accross the chest (8) to the left shoulder D Ring (9).

- Run the free end of the Side Mount bungee through the eye of the Razor bolt snap attached to the left shoulder D Ring and pull on it until the cord is reasonably snug (10).



STEP 8: SIZING AND FITTING THE SIDE MOUNT BUNGEE

- This should be approximately the right length for the Side Mount Bungee and it can be temporarily attached to the snap bolt using a cable tie as shown below.

- Now move the clips to the opposite D Rings so that the Side Mount Bungee is no longer crossing the chest.

- The elastic bungee cord runs across the back, under the arms and attaches to the outside of the shoulder D rings when the Razor 4 Harness is worn.

STEP 8: SIZING AND FITTING THE SIDE MOUNT BUNGEE

- It will require some experimentation with your Side Mount tanks in the water to get the exact length of the cord right. Leave it long to begin with and shorten it progressively as required.

- Once you have got the ideal tension, cut the cord to the appropriate length, burn the end to seal it and fix it permanently to the swiveling Razor bolt snap with one of the Hog rings provided as shown below.

- The Side Mount Bungee will stretch over time and may need to be shortened periodically or replaced.

- It is recommended to replace the Side Mount Bungee regularly or as soon as it shows any sign of wear and tear.

- It is strongly recommended to make up a second Side Mount Bungee and carry it with you while diving in the Expandable Pouch as a backup.

- The Complete Razor 4 Side Mount System comes with a Spare Side Mount Bungee included in the package.

- A “Spare Side Mount Bungee” is also available in the Go Side Mount Online Shop as a separate item if required.

STEP 9: WEIGHTING AND TRIM

Diving either under weighted or over weighted is inefficient and potentially dangerous. Correct weighting is critical to mastery buoyancy control and trim, allowing easier and more comfortable diving.

Both, the correct amount of ballast weight required and its ideal position on the diver need to be established.

Enter the water wearing all of your equipment including your normal exposure protection and full tanks.

Dump all of the air from both, the Primary and Backup BAT Wing and your dry suit, if you are using one.

Add any weight required until you are neutrally buoyant while holding a normal breath just below the surface.

This is the amount of weight you will need to add to the Razor 4 Pocket Weight System and/or to the Wing Weight Pouches plus a small amount extra to compensate for the weight of the gas in the tanks.

It is recommended to redo the weighting check at the end of the dive with 750psi / 50 bar in each of your Side Mount tanks.

Now you will need to establish the correct positioning of the weight to improve trim, swimming efficiency and your stability in the water.

Trim has 2 components horizontal (head to toe) and lateral (side to side).

Horizontal trim can be optimized by moving the weight higher or lower as required.

Lateral trim can be optimized by positioning weights as close to the center line of the body as possible to minimize turning moments.

Having weights positioned as close as possible to the center of the body will give greater stability and therefore greater control while diving in all orientations.

STEP 9: WEIGHTING AND TRIM

- Weights can be added easily to either the Razor 4 Pocket Weight, the Waist Strap or to both, if more than 13lbs / 6 kg are required.

- The optimal positioning for ballast weight achieving neutral trim is to either side of the Razor 4 Pocket Weight System or the Waist Strap. The by far easiest way is to use the Razor Wing Weight Pockets for trim weights to balance either lateral or horizontal trim.

- Using the BAT Wing ensures that the center of gravity is also the center of buoyancy thereby increasing stability and control.

- If more head down trim is required, which is often the case when side-mounting due to the tanks being lower on the diver and dropping the center of gravity towards the feet, then more of the trim weight can be positioned higher on the BAT Wing using one Wing Weight Pocket to counteract this.

- If more head up trim is required, then one trim weight should be positioned low on the BAT Wing using one Wing Weight Pocket.

STEP 9: WEIGHTING AND TRIM

Refer to the "Razor 4 Pocket Weight System" manual for instructions on how to attach weights correctly to the Razor 4 Side Mount System.

Although not recommended weight can also be added directly to the Razor 4 Harness in the following locations:

POSITIONING WEIGHTS

1. To each of the Shoulder Straps where they exit the DSP
2. On the Lumbar Strap below the DSP
3. On the Lumbar Strap above the MBP
4. To each of the Waist Straps either side of the MBP
5. To each of the Waist Straps between the DAP's and the Hip D rings

STEP 10: FINAL ADJUSTMENTS

- Remember everything changes when you get wet!
- Find some shallow open water or a swimming pool and try out the harness.
- The Razor 4 Harness should have a tight fit to increase control of buoyancy, trim and equipment load.
- A sloppy harness equates to a sloppy diver!
- Swimming efficiency and gas consumption will improve when the diver and equipment load are all one unit and move together.
- Once you have made the final adjustments to your harness you can cut off any extra webbing and burn the ends to seal them.
- Remember to leave enough adjustment in the harness for changes in thickness of exposure protection or any gain in weight.
- All loose ends of webbing remaining can be held in place with the short sections with Razor inner tubes provided.
- Many divers choose to get two Razor 4 Harnesses, one for cold water diving in a dry suit and one for warm water diving in a wetsuit so that they do not have to worry about adjusting the harness or changing D rings etc. when they change environments. Now with the Razor 4 Travel Harness you have the chance as well to get a light weight harness as a backup.
- All the other components of the Razor 4 System will work with either harness without any further changes needing to be made.

STEP 10: FINAL ADJUSTMENTS

RAZOR 4

WEIGHT SYSTEM

MANUAL

EDITION 1.2 / 22.06.2022

TABLE OF CONTENTS

1 THE RAZOR 4 WEIGHT SYSTEM

1.1 COMPONENTS RAZOR 4 WEIGHT SYSTEM

Parts:

1. **Pocket Weight System**
2. **Waist Strap**
3. **Wing Weight Pockets***

* The Razor 4 Wing Weight Pockets are NOT part of the Razor 4 Basic or Complete System, but can be bought in addition to the system.

1.2 OVERVIEW

- The Razor 4 Pocket Weight System is the most flexible weighting system on the market, designed to make adding or removing weights from the Razor 4 System quick and easy.
- In addition you are capable to place weights at any point on the system, which allows you to add weights in an asymmetrical way. This is extremly helpful for Single Tank Side Mount Diving, Technical Diving or CCR Diving.
- With the Razor 4 Pocket Weight System you can easily use up to 31 pounds / 14 kilo on the system. If you need more than this amount, then we suggest to get some Razor Wing Weight Pockets to add additional weights to the system.
- On the following pages we will show you, how you can add weights easily to the system with the different options.

1.3 EQUIPMENT CONSIDERATIONS

- It is very important to dive properly weighted and trimmed out in a well balanced equipment configuration. This will make your diving both safer and easier.
- Tank selection is important in helping to achieve correct weighting.
- Diving in cold water with a dry suit and thick undergarment it is recommended, to use low pressure Steel tanks as primary Side Mount tanks, which will help to offset the extra positive buoyancy of the exposure protection. In addition we suggest to use 3 Wing Weight Pockets to distribute the weights the perfect way.
- High pressure Steel tanks are not recommended as they tend to be too negatively buoyant and make handling Side Mount tanks underwater very difficult.
- Diving in warm water in a wetsuit it is recommended to use Aluminium primary Side Mount Tanks so as not to be excessively over weighted.
- Aluminium tanks should always be used for stages and deco tanks. While adding extra tanks to your configuration, you shouldn´t become excessively over weighted.

1.4 BASIC WEIGHT CHECK

- **To determine your correct amount of ballast weight, the following weighting check should be carried out:**

  1. Enter the water wearing all of your equipment including the primary Side Mount tanks
  2. Completely deflate your BAT Wing and your dry suit if you are using one.
  3. While holding a normal breath stop kicking and add enough weight until you sink to eye level. When you exhale you should submerge completely.
  4. If you are using full tanks you will need to add a little more weight to compensate for the weight of the gas in the tanks that will be used during a dive.
  5. Now that the correct amount of weight has been established submerge and attempt to hover in a horizontal position while moving the weight up or down the torso until the ideal position is achieved to maintain comfortable trim.

- After a few dives, as you become more relaxed and comfortable diving with your Razor 4 Side Mount System, you may be able to reduce your ballast weight slightly.
- When you are correctly weighted you will need very little gas in your BAT Wing.
- If you are diving in a dry suit all your buoyancy can be controlled with the dry suit for the most part. In this configuration you may just use the Razor 4 BAT Wing for surface buoyancy and extra lift, when carrying heavier equipment loads.

2.1 PACKAGE CONTENT

Parts:

1. **Pocket Weight System**
2. **Waist Strap**

2.2 OVERVIEW

- The Razor 4 Pocket Weight System is part of the Basic Razor 4 System or the Complete Razor 4 System.
- So in total as much as 14kgs / 31lbs can be added to the Razor 4 Pocket Weight System. Although with a properly weighted equipment configuration this amount should never actually be required with a few exceptions in Cold Water Diving.
- The Razor 4 Pocket Weight System ensures weights are placed close to both the center line and the midline of the body helping to maintain stability and reduce turning moments thus giving the diver greater control while diving.
- When the Razor 4 Pocket Weight System is used in conjunction with the Razor 4 BAT Wing then both the center of ballast and center of buoyancy are very close to one another which also helps to maintain stability and control while diving.
- In an emergency divers have the option of ditching some weight from the Pocket Weight System at the surface during open water dives. Ditching weight underwater is not recommended as it may result in an uncontrolled buoyant ascent.
- In an emergency if extra buoyancy is required at the surface while using SM configuration negatively buoyant Steel tanks can be removed or Aluminium tanks can be drained to 140bar/2000psi or below at which point they will start to become positively buoyant.
- For specific applications in diving you can additionally use the Razor 4 Wing Weight Pockets along with the Pocket Weight System to achieve the perfect Weighting and Trim.

2.3 FLEXIBILITY OF THE THE POCKET WEIGHT SYSTEM

You can use the Razor 4 pocket weight system in 3 different ways.

1. Pocket Weight System directly on the harness webbing:

THE POCKET WEIGHT SYSTEM CAN BE PLACED DIRECTLY ON THE HARNESS.

THIS IS VERY USEFULL IF YOU WANT TO USE THE POCKET WEIGHT SYSTEM CONSTANTLY.

THE ADVANTAGE IS THAT YOU CAN PLACE THE DROP ATTACHMENT POINTS WHERE YOU LIKE THEM, AND THEY ARE FREE ANYTIME.

2.3 FLEXIBILITY OF THE THE POCKET WEIGHT SYSTEM

2. Pocket Weight System attached with the waist strap:

THE POCKET WEIGHT SYSTEM CAN BE PLACED ALONG WITH THE WAIST STRAP ON THE HARNESS.

THIS ALLOWS YOU TO EASILY ADD OR REPLACE THE POCKET SYSTEM IF NEEDED.

2.3 FLEXIBILITY OF THE THE POCKET WEIGHT SYSTEM

3. Pocket Weight System attached to the lumbar strap:

THE POCKET WEIGHT SYSTEM CAN BE PLACED ON THE LUMBAR STRAP.

THIS IS USEFULL IF YOU NEED A LOT OF BALAST WEIGHT ESPECIALLY WHEN DIVING WITH A DRY SUIT.

2.4 WEIGHT PLACEMENT INSIDE THE POCKET SYSTEM

Basic design of the Pocket Weight System

1 **Webbing slots for either the waist or the lumbar strap**

2 **Velcro to open and close the pocket**

2.4 WEIGHT PLACEMENT INSIDE THE POCKET SYSTEM

You can use all kind of weights available at dive shops or on the market

2.4 WEIGHT PLACEMENT INSIDE THE POCKET SYSTEM

3 x 2 compartments for adding weights

1 **Inner compartments**
Use these 2 compartments if you want to add smaller weights and you only need 2 of them to have them close to your body.

2 **Center compartments**
Use these 2 compartments if you want to use heavy big weight blocks.

3 **Outer compartments**
Use these 2 compartments in combination with the 2 inner compartments if you want to add more than 2 small weights.

2.4 WEIGHT PLACEMENT INSIDE THE POCKET SYSTEM

Symetrical use of the Pocket Weight System

- In most cases you will use the Pocket Weight System on your waist.
- In that case place all the main weights except the trim weight needed symetrical into the different compartments.

2.4 WEIGHT PLACEMENT INSIDE THE POCKET SYSTEM

Asymetrical use of the Pocket Weight System

- In some cases you may want to use the Pocket Weight System asymetrically loaded with weights.
- On the waist strap you may want to compensate lateral trim in case you are diving with stages, a Side Mount rebreather or to compensate for another piece of dive equipment you are carring with you.
- On the lumbar strap you may want to fine-tune your horizontal trim by adding different amounts of weights to the height on the spine.

2.5 WAIST STRAP ON THE RAZOR HARNESS

In case you use version 2 or 3 to place weights

① Unscrew the BAT Wing from the Razor Harness to have easier access if needed.

② Slide the Waist Strap of the Razor 4 Pocket Weight System under the webbing of the Razor 4 Harness that passes through slots A and B of the Mini Back Plate and bolt it into the hole in the middle of the MBP using one of the supplied button head screws and a washer.

2.5 WAIST STRAP ON THE RAZOR HARNESS

In case you use version 2 or 3 to place weights

③ Slide one block weight onto either side of the Waist Strap webbing. Up to a maximum of 3 kg (6 pounds) can be used on either side. The amount of weight used should in most cases be equal either side.

④ Bolt the outside grommets into the DAPs on either side using 2 of the button head screws and washers supplied. With small weight blocks use the two inside grommets and with large block weights use the 2 outside grommets.

⑤ The Drop Attachment Points can be moved on the Razor 4 Harness either closer to or further away from the Mini Back Plate as required to get a good fit with the Waist Strap of the Razor 4 Pocket Weight System.

⑥ Double check all fittings on the waist strap are secure and refit the BAT Wing.

3.1 PACKAGE CONTENT

Parts:

1. **Set of 3 x Wing Weight Pockets***

* Please note that the Razor 4 Wing Weight Pockets are NOT part of the Razor 4 Basic or Complete System.

You can buy them separately in either a set of 3 or as individual product in our online shops or with the Razor Dealer of your choice.

3.2 OVERVIEW

- The Razor 4 Wing Weight Pockets are great in so many ways and they can be used extremly flexible for different dive scenarios.
- For most divers the main purpose of the Wing Weight Pockets is the horizontal trim to add a trim weight to the top of the BAT Wing.
- General weight distribution not only on the harness but as well at any place on the BAT Wing. This allows as well corrections in lateral trim especially if you are heavier either on your left or right side for example, since you may use a Side Mount rebreather or a stage tank.
- Taking away weights from your spine - a lot of divers switch to Side Mount because they have back problems. The last thing you want to do in that case is to place weights on the lumbar strap of your harness. In that case you can place the weights left and right of your spine to avoid back pain especially after longer dives. This method works especially great in cold water conditions.

3.3 WEIGHT DISTRIBUTION IN THE WING POCKETS

You can use all kind of weights available at dive shops or on the market

3.3 WEIGHT DISTRIBUTION IN THE WING POCKETS

2 x compartments for adding weights

1 **Inner compartment**
Use this one if you want to add soft weight, smaller weight blocks or 2 small weight block together.

2 **Outer compartment**
Use this one for big weight blocks (up to 2 kilos).

BAT WING

MANUAL

EDITION 1.2 / 22.06.2022

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1.1 Package Content

Heavy duty 3 layer Double Redundant Wing with 35lbs / 20kgs lift in both - Primary and Backup Wing plus POCKET WEIGHT BASE LAYER.

1 PRIMARY WING:

2 19” large diameter inflation hose with fixed low profile elbow and power inflator. The Elbow of the power inflator has new a dump function as well.

3 Large Razor 4 Logo Wrap for large diameter inflation hose

4 6” LPI Hose*

5 Heavy Duty Low Profile Pull Dump Valve

6 BACKUP WING:

7 Oral Inflation Hose with Bite-On Mouthpiece

8 Pocket Weight Base Layer

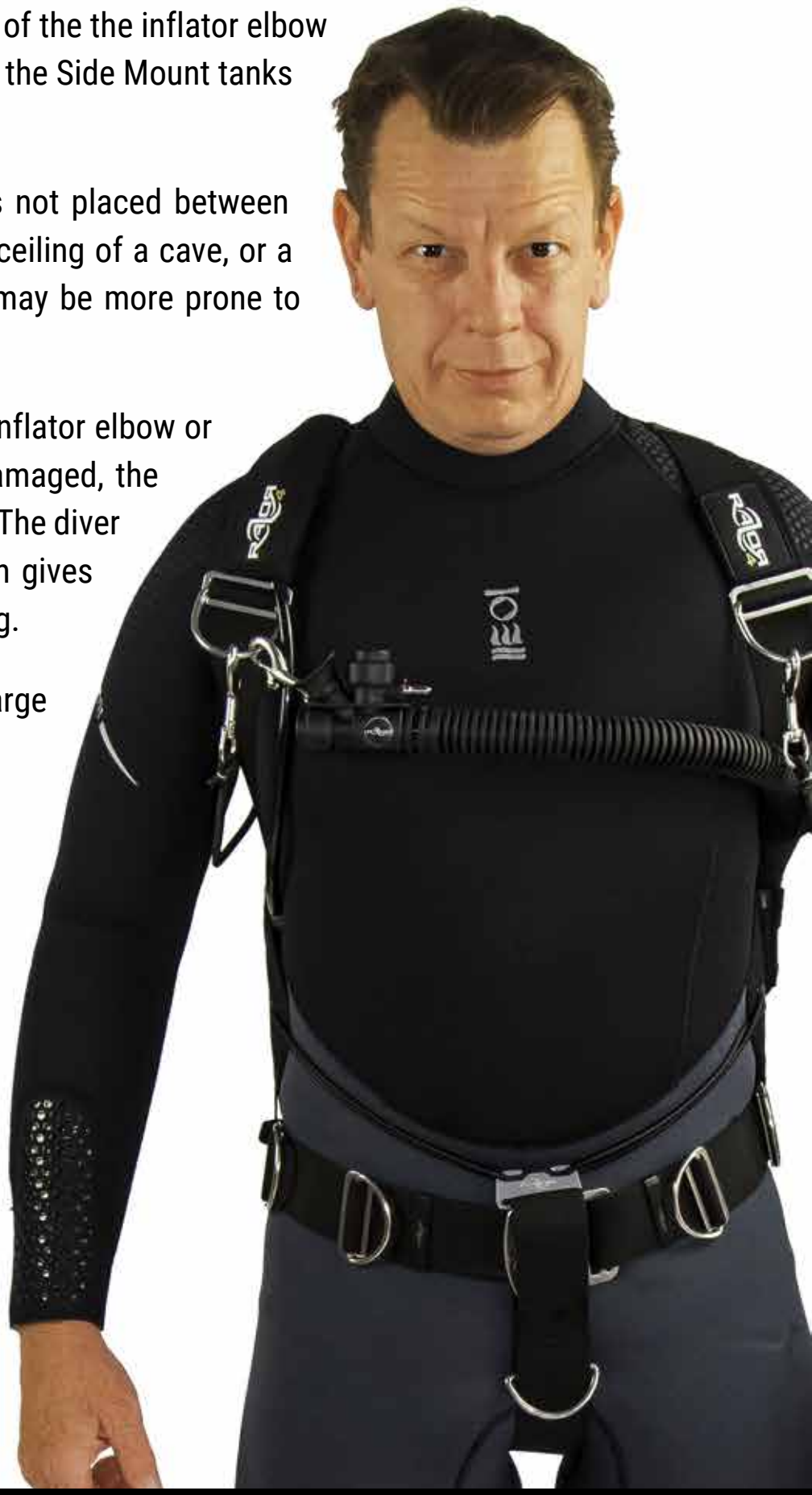
9 Openings to place the Razor Wing Weight Pockets between the wing and the layer

10 2 x looped Waist Bungee

* the 6" LPI hose will only be delivered with the Complete Razor 4 System

1.2 Overview

- Once your Razor 4 Harness and the Pocket Weight System have been set up, then you can attach the BAT Wing to the Harness.
- The BAT Wing must be worn with the Primary Wing on the outside and the Backup Wing on the inside. This makes venting the Primary wing easy on either side and keeps the Backup wing very well protected.
- The design of the BAT Wing places the position of the the inflator elbow in a well protected low profile position between the Side Mount tanks and the diver's body.
- In addition the outside material of the wing is not placed between a hard object such as the dump valve and the ceiling of a cave, or a sharp object in a wreck for example where it may be more prone to damage.
- In the very unlikely event that the dump valve, inflator elbow or the large diameter inflation hose should be damaged, the primary wing still can hold the air that is inside. The diver would just loose a small amount of gas, which gives him plenty of time to switch to the Backup Wing.
- The BAT Wing is supplied with a 19" long large diameter inflation hose.



1.2 Overview

The dump valve and the large diameter inflator hose elbow have compatible fittings and can be positioned on either the left or right hand side of the BAT wing according to diver preference.

1.2 Overview

Normally when using a dry suit the dump valve will be positioned on the left hand side of the wing with the large diameter Inflator hose on the right hand side of the wing. The large diameter inflation hose will run in front of the diver across the chest from the right hand side with the LPI hose delivering from the first stage on the right Side Mount tank.

1.2 Overview

When using a wetsuit normally the fittings should be switched so that the large diameter inflator hose is on the left hand side and the LPI hose can deliver from the fist stage on the left hand Side Mount tank.

The BAT Wing is supplied
already set up in this configuration.

1.2 Overview

When changing the fittings make sure that they are not cross threaded when screwing them in. The best way to do this is to turn counter clockwise until the threads drop into position and then tighten gently. No force should be used to get the threads started.

When the Inflator hose is unscrewed remember to also take out the sealing O ring and replace it in the other fitting so that the flat side of the inflator elbow will seal against the flat side of the O ring.

The inflator elbow is keyed and it is important that it drops into position so that it will seal on the O ring when the fitting is screwed back into place.

1.2 Overview

To open or tighten either the power inflator or the dump valve you can use the Razor 4 Multitool. Please notice the deepenings on the power inflator ring and on top of the dump valve which fit the inner circle of the Razor 4 Multitool.

Press the Razor 4 Multitool down on the deepenings and then slowly turn the tool in the direction you want to. Clockwise is closing and counter clockwise is opening.

1.2 Overview

The orientation of the elbow can be adjusted so that the large diameter inflation hose routes comfortably under the arm and across the chest.

To do this start the threads a couple of turns but do not tighten them until the correct orientation of the elbow is achieved. Make sure the keyed flange drops into place to ensure a seal. Then tighten fully with the Razor 4 Multitool.

Once fitted, pressure test the seal by inflating the wing and making sure it is airtight.

1.2 Overview

When replacing the dump valve it is important that the spring is located in the right position in the center and can move freely, so that the valve does not stick in the closed position.

Hold the dump cord and spring under a little tension as you screw the fitting back into place.

After tightening the dump valve fully check to make sure that it operates correctly and that the spring moves freely when the cord is pulled.

Check correct operation of the wing by inflating and deflating it and making sure there are no leaks from either of these fittings before going diving.

2.1 Tools

You will need the following tools to rig your Razor BAT Wing:

- The Razor 4 Multitool to fasten the button head screws (included with the basic and the complete system). In addition you will need the tool to switch the power inflator and the dump valve of the wing if needed.

- A lighter to burn and seal the ends of the cut webbing and elastic bungee cord.

- A knife or scissors to cut the harness webbing and the elastic bungee cord.

Step 1: Adjusting and Attaching the top of the BAT Wing to the DSP of the Razor 4 Harness

- The top of the BAT Wing bolts into the Delta Shoulder plate of the Razor Harness and should be positioned so that the waist bungee cord and dump valve / inflator elbow are at the height of your belly button just above the waist strap of the Razor Harness.
- Depending on the individual setup the top of the wing can be bolted directly into the DSP or into the Bungee Triglide if required to get a perfect fit.
- You can use either of the 3 holes on the Delta Shoulder plate to screw the wing down at the top.

Step 2: Attaching and Adjusting the BAT Wing Waist Bungee

Version 1: Attaching the BAT Wing with 2 Bungee loops

The BAT Wing Waist Bungee is designed to secure the sides of the BAT Wing in a low profile streamlined position, even when the wing is inflated, and still give easy unrestricted access to all of the Razor Harness attachment points.

You can just attach the 2 bungee loops on both sides of the wing to the Wing Bungee Plate on the loop of the crotch strap. Make sure to get a tight fit so that the wing stays close to your body while diving.

Step 2: Attaching and Adjusting the BAT Wing Waist Bungee

Version 2: Attaching the wing with a bolt snap

If you still prefer the way the wing was attached on Razor 2.5, you still can do this of course by using a bolt snap on one side of the wing.

The waist bungee on the right hand side of the BAT Wing should have a long loop with a small snap bolt attached to it. This will run across the waist and through the loop of the crotch strap of the Razor Harness and clip into the short bungee loop attached to the left hand side of the BAT Wing.

BUNGEES

1. A simple overhand knot tied into the end of the bungee cord will hold the right hand side bungee in place. This knot should be on the inside of the wing.

2. On the left hand side of the wing a short waist bungee cord is held in place with 2 overhand knots tied either side or the wing grommet to secure it.

Step 2: Attaching and Adjusting the BAT Wing Waist Bungee

- The waist bungee should be fairly snug with the wing completely deflated and both bungee cords will need to be adjusted to achieve the correct length and tension to keep the BAT wing in a nice low profile position when it is inflated and to prevent it from floating away from the divers body.
- It will take a little bit of trial and error to get the length/tension correct so leave the bungee cords long to begin with and do not tie the knots too tight so that they can be released and moved easily if necessary.
- Once the correct length is achieved then any excess bungee can be cut off, and the ends of the cords burnt to seal them and the knots snugged tight.

Step 3: Attaching and Adjusting the BAT Wing Rear Bungee to the Razor Harness

- The BAT Wing Rear Bungee is designed to secure the bottom of the BAT Wing in a low profile streamlined position even when the wing is inflated and still give easy unrestricted access to all of the Razor Harness attachment points.
- The Rear Bungee is secured to the BAT Wing with the Wing Tab and the BAT Wing can be quickly and easily removed from the Razor Harness by undoing the button head screw leaving just the Wing Tab and bungee cord still attached to the MBP.
- The bungee cord is attached to the Wing Tab with a Lark's Head Hitch (aka Lanyard Hitch). The bight of the Larks Head should be on the outside of the wing tab.

Step 3: Attaching and Adjusting the BAT Wing Rear Bungee

The Wing Tab can also be removed from the bungee cord if required by passing the hitch of the Lark's Head Hitch back over the body of the Wing Tab which will just leave the bungee cord attached to the MBP.

The bottom of the BAT Wing with the Wing Tab attached should line up with the slot of the Wing Tri-glide of the Razor Harness that holds the Butt B ring in position. The Wing Tri-glide can be moved up or down the crotch strap webbing of the Razor Harness to achieve the desired location.

This ensures that the Butt B ring will not be covered by the BAT Wing and will remain accessible at all times even with the wing fully inflated.

Step 3: Attaching and Adjusting the BAT Wing Rear Bungee

- The free ends of the bungee cord coming from Lark's Head Hitch on the Wing Tab should be passed through the slot of the Wing Tri-glide attached to the Razor Harness and then run up to the MBP and passed through the two holes either side of slot B.

- The bungee cord can be locked in place with a simple over-hand knot tied on the inside of the MBP.

The bungee cord should have some tension on it with the BAT Wing completely deflated so that it will be held in a stream-lined low profile position when inflated and will pull tight when deflated.

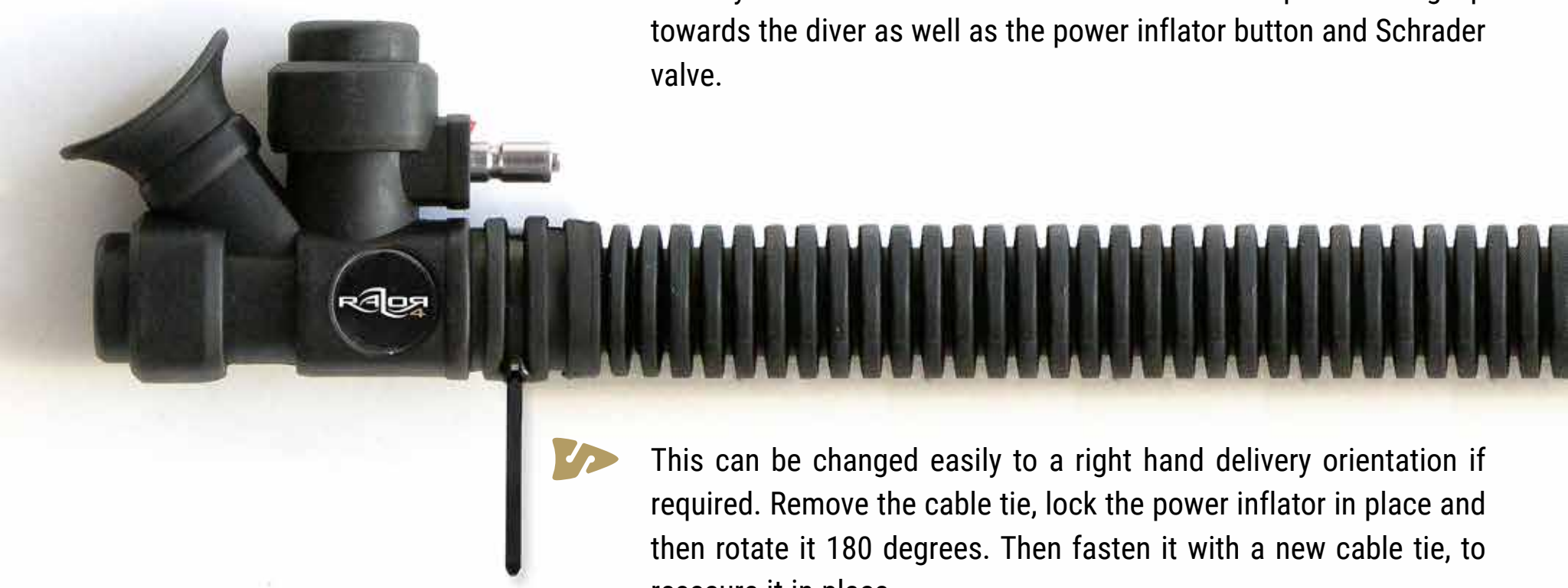
- It will take a little bit of trial and error to get the length/tension correct so leave the bungee cords long to begin with and do not tie the knots too tight so that they can be released and moved easily if necessary. Once the correct length is achieved then any excess bungee can be cut off and the ends of the cords burnt to seal them and the knots snugged tight.

Step 4: Adjusting and Attaching the Inflation Hose

With the BAT Wing now attached to the Razor Harness the system should be put on so that the large diameter inflation hose and the power inflator can be correctly positioned. The large diameter inflation hose with the power inflator can be configured to use from either the right or the left hand side.

The BAT Wing is supplied with the large diameter inflation hose and power inflator delivering from the left hand side but it can be easily changed to deliver from the right hand side if required as previously noted.

The “clocking” of the power inflator is also supplied with a left hand delivery orientation with the oral inflation mouthpiece facing up towards the diver as well as the power inflator button and Schrader valve.



This can be changed easily to a right hand delivery orientation if required. Remove the cable tie, lock the power inflator in place and then rotate it 180 degrees. Then fasten it with a new cable tie, to resecure it in place.

Step 4: Adjusting and Attaching the Inflation Hose

- The oral inflator mouthpiece should now face up towards the diver along with the power inflator button and Schrader valve.
- The large diameter inflation hose will run over the kidney area under the arm and across the lower chest. The end of the Power inflator will be attached to the D ring on the opposite shoulder with a loop of bungee cord tied with a Fisherman's knot through the eye of the swiveling Razor bolt snap.

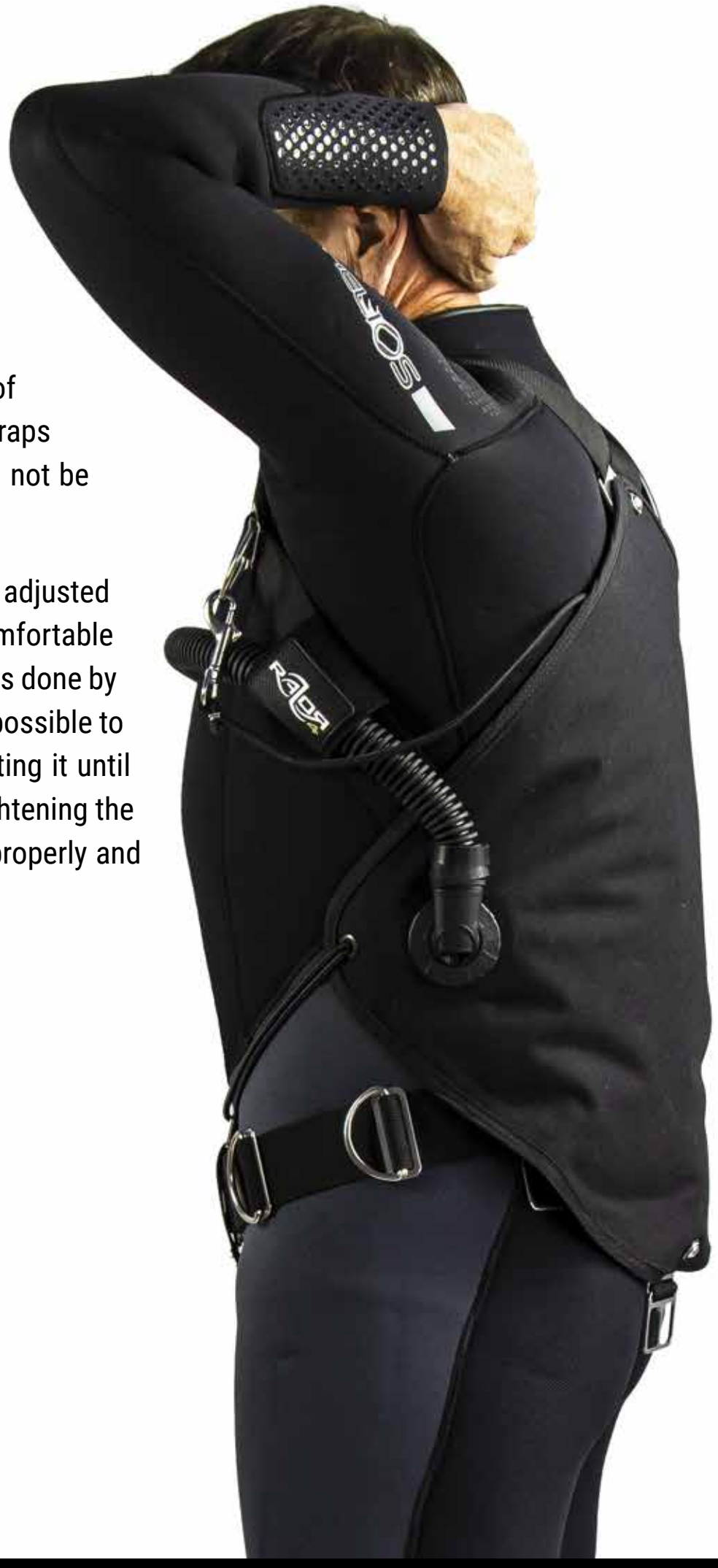
- The bungee loop can be positioned between the large diameter inflation hose and LPI hose while diving so that it is securely retained.
- The LPI hose should route directly across the chest from the 5th port in the end of the swiveling turret of the regulator first stage to the power inflator.
- It will run on top of the large diameter inflation hose.

Step 4: Adjusting and Attaching the Large Diameter Inflation Hose of the Primary wing to the Razor Harness

- The large diameter inflation hose can be secured to the lower shoulder strap of the Razor Harness below the shoulder D ring using the wide Neopren Logo Wrap provided with the BAT Wing.

- Please note that the BAT Wing Logo Wrap which has to go around the large diameter inflator hose as well as the webbing of the Razor Harness is larger than the 2 Logo Wraps that come with the Razor Harness. They should not be confused as they are not interchangeable.

- The orientation of the keyed hose elbow can be adjusted as noted earlier to ensure a streamlined comfortable routing of the large diameter inflator hose. This is done by loosening the locking ring a few turns until it is possible to lift out the locking plate of the elbow then rotating it until it locks back into the desired orientation and tightening the locking ring ensuring that it has bottomed out properly and is forming a good seal.



Step 5: Positioning the Oral Inflator Hose of the Backup Wing

- The oral inflator of the Backup wing should be routed over the right shoulder and can be held securely in place by passing it under the long neoprene logo wrap and the Razor inner tube on the right hand shoulder of the Razor Harness webbing.
- The hose should bend towards the center of the chest just above the right shoulder D ring and should be long enough to reach the mouth comfortably.
- It can be held in place in a clean streamlined fashion by passing it through a couple of Razor inner tubes placed around the large diameter inflation hose spaced a few inches apart.
- Any excess hose can be cut off to customize the length. Remove the bite on mouthpiece, cut the hose to the desired length and then replace the mouthpiece.

Step 5: Positioning the Oral Inflator Hose of the Backup Wing

- The mouthpiece can be glued in position when you are happy that you have the correct length. Spare mouthpieces are available and it is recommended to carry one in your Razor 4 Expandable Pouch in case you should lose it while diving.
- In the event of loosing it while diving and you have no replacement, it will have no effect at all, unless you are actually using the Backup wing.
- The only problem then will be that the hose will tend to vent gas when you are in a head up position such as when ascending. This can be prevented by placing your finger over the end of the hose and releasing it when you wish to vent gas to adjust buoyancy or slow an ascent.

Step 6: Adding weights to the Pocket Weight Layer

- Additional to the weights on the Pocket Weight System you can add weights easily to the system by adding Wing Weight Pockets to the pocket weight layer on the BAT Wing.
- The ing Weight Pockets can be bought separately at our online shops or along with our Razor Dealers.
- You can find detailed information on how to juggle with weights in the "Razor 4 Weight System" manual.

Step 6: Adding weights to the Weight Layer

Place the pockets against your back if you want:

1. to easy adjust the weights of your students even in the water by adding some more weights left and right top find out the right amount to use

2. to find out the right amount of weight to use for yourself an easy and quick way.

Step 6: Adding weights to the Pocket Weight Layer

- After you know the exact amount of weight needed, place the pockets between the weight layer and the wing itself.
- You can distribute the weight pockets depending on your needs of lateral or horizontal trim and comfort.

Step 6: Adding weights to the Pocket Weight Layer

In case you have to remove weights after a day of diving on a boat, open the pockets, remove the weights and just refill them on the next day again.

Step 7: Correct Use of the BAT Wing

- Only use one wing at a time either the Primary or the Backup.
- Make sure the wing you are not using is completely empty while diving so that you only have 1 air space to control.
- The Primary wing can be inflated in the following ways:
  - By using the power inflator connected to a tank with an LPI hose.
  - By oral inflation by holding down the dump button of the power inflator and blowing into the mouth-piece.
- The Primary wing can be vented in the following ways:
  - By pulling on the power inflator hose with either hand.
  - By using the pull dump while rolling the body to the opposite side when in a horizontal position to get the dump valve to the highest position of the wing.
  - By using the dump valve on the power inflator when in a head up position.
- The Backup wing can only be inflated orally using the bite on mouthpiece.

  The advantage of not having a power inflator connected to the Backup wing is to avoid any problems associated with a mechanical failure or accidental inflation of the wing resulting in a potential buoyant ascent.

  For how to use and place the oral inflation hose check the next page.
- The Backup wing can be deflated in the following way:
  - By holding the oral inflation hose at the highest point and pinching gently on the bite valve between thumb and forefinger to open it.
- If you are having trouble venting air from the oral inflation tube, check that this dump valve is at the high-est position of the wing, that you are pinching it in the correct orientation across the horizontal axis and that you are pinching at the very end.

Step 7: Correct Use of the BAT Wing

- To use the oral inflation hose place the very end of the bite on mouthpiece between your teeth horizontally and make a seal around it with your lips.
- Now bite down gently to open it and blow into the hose. No force should be required.
- If you are having difficulty inflating the wing check the orientation of the bite on mouthpiece as it will only open when you bite on it in the horizontal axis.
- Also make sure that you are biting at the very end of the mouthpiece as it will not open if you are biting further up.
- You should practice doing this before you go diving until you become familiar and comfortable with the technique.

Step 7: Correct Use of the BAT Wing

- After diving both the Primary and Backup wings should be drained of any water that is inside and partially inflated to dry.
- Both Primary and Backup wings can be drained of water in exactly the same way air is vented from them although it is easier if you orally inflate them a little first so that you can force any water out under pressure.
- Both Primary and Backup wings can be drained of water in exactly the same way air is vented from them although it is easier if you orally inflate them a little first so that you can force any water out under pressure.

RAID 4

EXPANDABLE POUCH

MANUAL

Edition 1.2 / 22.06.2022

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1 THE RAZOR 4 EXPANDABLE POUCH

1.2 OVERVIEW

- The completely new Razor 4 Expandable Pouch has been specifically designed to be butt mounted which is the most streamlined and easiest to access location in Side Mount configuration.
- Pockets on the waist are difficult to access due to the placement of the Side Mount tanks and become an entanglement hazard in low areas.
- Thigh pockets are also difficult to access due to the placement of the Side Mount tanks and will also have the tendency to push the bottom of the tanks away from the divers body resulting in “A Framing” and a greater risk of the tanks getting ratcheted in small areas.
- The Razor 4 Expandable Pouch should be clipped off to both of the Drop Attachment Points with the 2 double enders provided and will hang just below the BAT Wing with the Butt B Ring positioned between the bottom of the wing and the top of the pouch allowing easy unobstructed access to the B Ring as well.
- The pouch will rest on top of a butt mounted primary light if one is being used and anything clipped off to the Butt B Ring will be laying on top of it.
- The way that the Razor 4 Expandable Pouch is attached with a double ender clipped off to each of the small stainless steel D Rings sewn into the Razor 4 Expandable Pouch and then each double ender clipped to the Drop Attachment Points on the Razor Harness provides a very solid secure attachment which will prevent accidental loss of the pouch.
- Although this is a metal to metal connection each double ender can easily be removed at either the Drop Attachment Point or the Pouch D Rings in the very unlikely event that one side of either double ender should jam closed.
  In addition the D Ring can be cut free if required as a last resort.

1.2 OVERVIEW

- This position also prevents the Razor 4 Expandable Pouch from swinging from side to side while swimming or getting caught between the diver's body and the Side Mount tanks.
- The Razor 4 Expandable Pouch can be either used in situ or unclipped and brought to the front so that the diver can see exactly what they are removing or replacing from the pouch which is not possible with thigh or waist mounted pockets.
- The Razor 4 Expandable Pouch can also be clipped off temporarily to both the Shoulder D Rings while working with the contents if required which allows the diver to keep both hands free and allows easy access to and good visibility of the contents.
- The Razor 4 Expandable Pouch can be clipped off temporarily using just 1 double ender to the Butt B Ring or either of the DAPs if required but will tend to swing in this position while swimming.
- The Razor 4 Expandable Pouch can be kept as flat and streamlined as possible or expanded considerably by unzipping the zipper around the pouch.
- Even squashed flat the pouch has quite a large volume and will hold a considerable amount of gear.
- The back of the Razor 4 Expandable Pouch has a large mesh pocket with Velcro closure and a center tab to make opening it easier when wearing thick gloves. This was specifically designed to carry slates/wet notes and dive tables/laminated deco plans.
- The top zip of the Razor 4 Expandable Pouch is very robust and has a large tab to make operation with gloves easier and it opens across the full length to the pouch giving easy access to the contents.

1.2 OVERVIEW

- The Razor 4 Expandable Pouch has 2 internal Velcro closure pockets on the inside of the front panel which were designed to carry small items such as a backup cutting tool like the EEZYCUT or your Spare Side Mount Bungee.

- In addition there are internal fixing points on both sides of the Razor 4 Expandable Pouch and a length of bungee cord for a lanyard which can be set up in any of the following ways depending on diver preference:

    1. one loop tied between both attachment points
    2. two small loops tied either side of the pouch
    3. one large loop tied just to an attachment point on one side of the pouch

- The bungee lanyard can be secured to the attachment point by passing one end of the bungee cord through the webbing loop and then tying both ends together with a Fisherman's Knot.

- The Spare Side Mount Bungee can also be clipped off to one of these internal attachment points if desired.

GO DIVING!

- There is no substitute for time spent in the water.
- Take it easy to begin with while you get used to your new Razor 4 Side Mount System.
- Please contact Go Side Mount directly if you have any questions or problems with your Razor 4 Side Mount System.

Best Wishes

HP Hartmann

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RAZOR 4

EXPLORATION

OPEN WATER

CAVE

TEC

CCR

YOU