

MANUAL
RAZOR HARNESS 2



RAZOR

SIDE MOUNT SYSTEM

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1 The Razor Harness 2

1.1 Package content



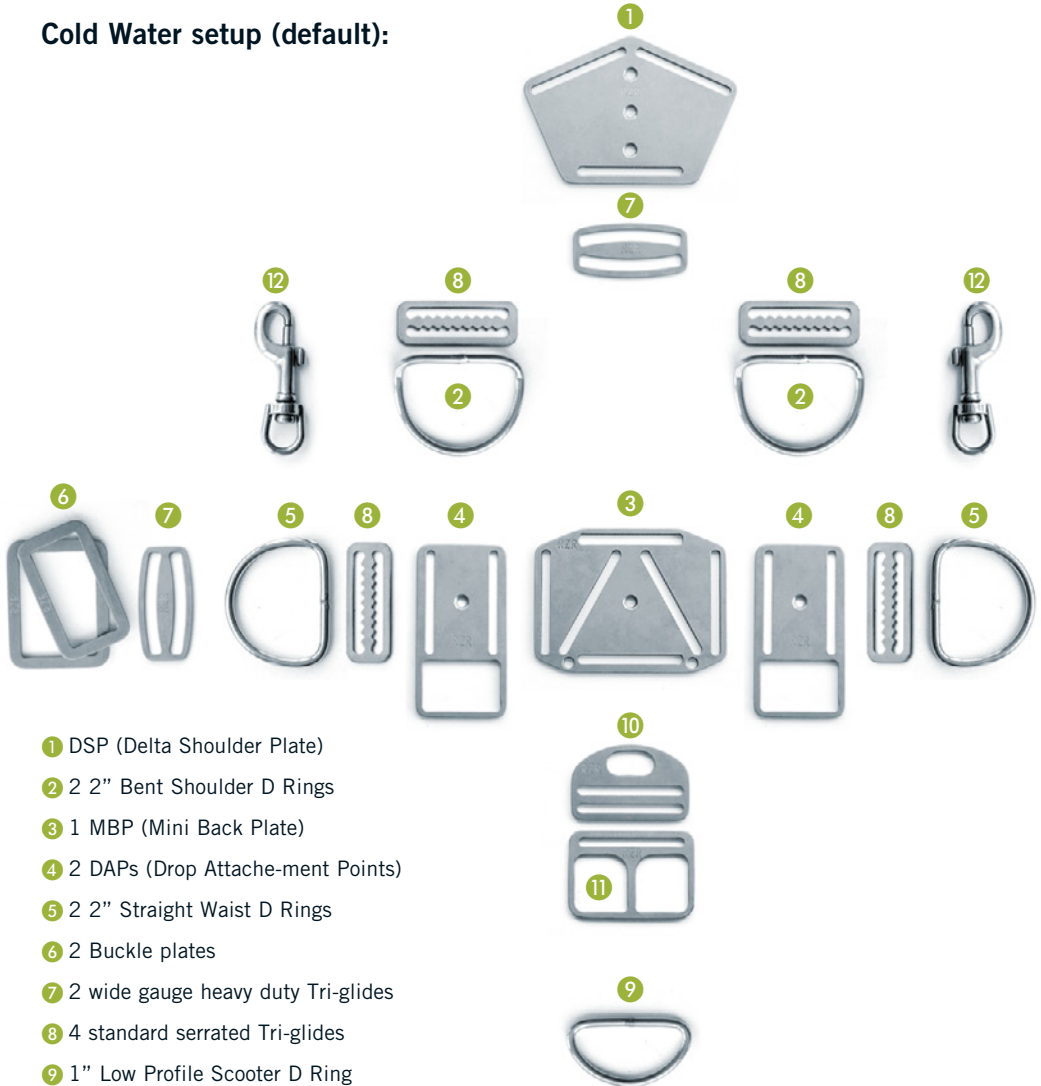
- 1 DSP (Delta Shoulder Plate)
- 1 12ft Shoulder / Waist Strap resin reinforced webbing with grommet, button head screw and washer
- 2 Neoprene Razor Logo Wraps for shoulder webbing
- 2 2" Bent Shoulder D Rings
- 1 MBP (Mini Back Plate)
- 2 DAPs (Drop Attachment Points)
- 2 2" Straight Waist D Rings
- 2 Buckle plates
- 2 wide gauge heavy duty Tri-glides
- 4 standard serrated Tri-glides
- 1 6ft Lumbar / Crotch Strap resin reinforced webbing with Sewn Loop and 1" Low Profile Scooter D Ring
- Slotted BAT Wing Tri-glide
- Butt B Ring
- 2 small swiveling snap bolts
6ft SM Bungee
- 4 Hog Rings
- 3 Pieces of bicycle tire inner tube

All hardware is heavy duty passivated stainless steel

1 The Razor Harness 2

1.2 Hardware Layout:

Cold Water setup (default):



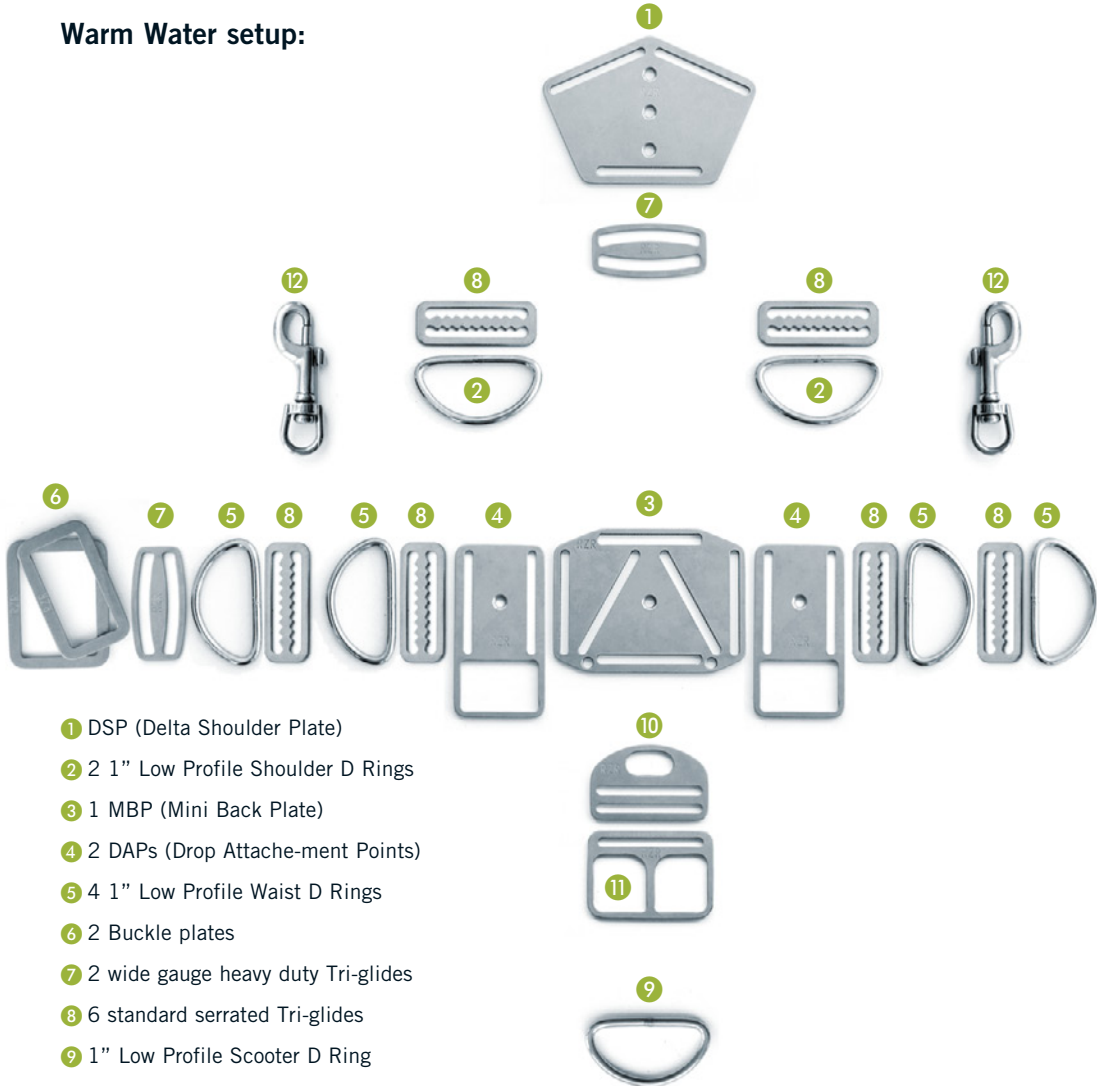
- 1 DSP (Delta Shoulder Plate)
- 2 2" Bent Shoulder D Rings
- 3 1 MBP (Mini Back Plate)
- 4 2 DAPs (Drop Attache-ment Points)
- 5 2 2" Straight Waist D Rings
- 6 2 Buckle plates
- 7 2 wide gauge heavy duty Tri-glides
- 8 4 standard serrated Tri-glides
- 9 1" Low Profile Scooter D Ring
- 10 Slotted BAT Wing Tri-glide
- 11 Butt B Ring
- 12 2 small swiveling snap bolts

All hardware is heavy duty passivated stainless steel

1 The Razor Harness 2

1.2 Hardware Layout:

Warm Water setup:



- 1 DSP (Delta Shoulder Plate)
- 2 2 1" Low Profile Shoulder D Rings
- 3 1 MBP (Mini Back Plate)
- 4 2 DAPs (Drop Attachment Points)
- 5 4 1" Low Profile Waist D Rings
- 6 2 Buckle plates
- 7 2 wide gauge heavy duty Tri-glides
- 8 6 standard serrated Tri-glides
- 9 1" Low Profile Scooter D Ring
- 10 Slotted BAT Wing Tri-glide
- 11 Butt B Ring
- 12 2 small swiveling snap bolts

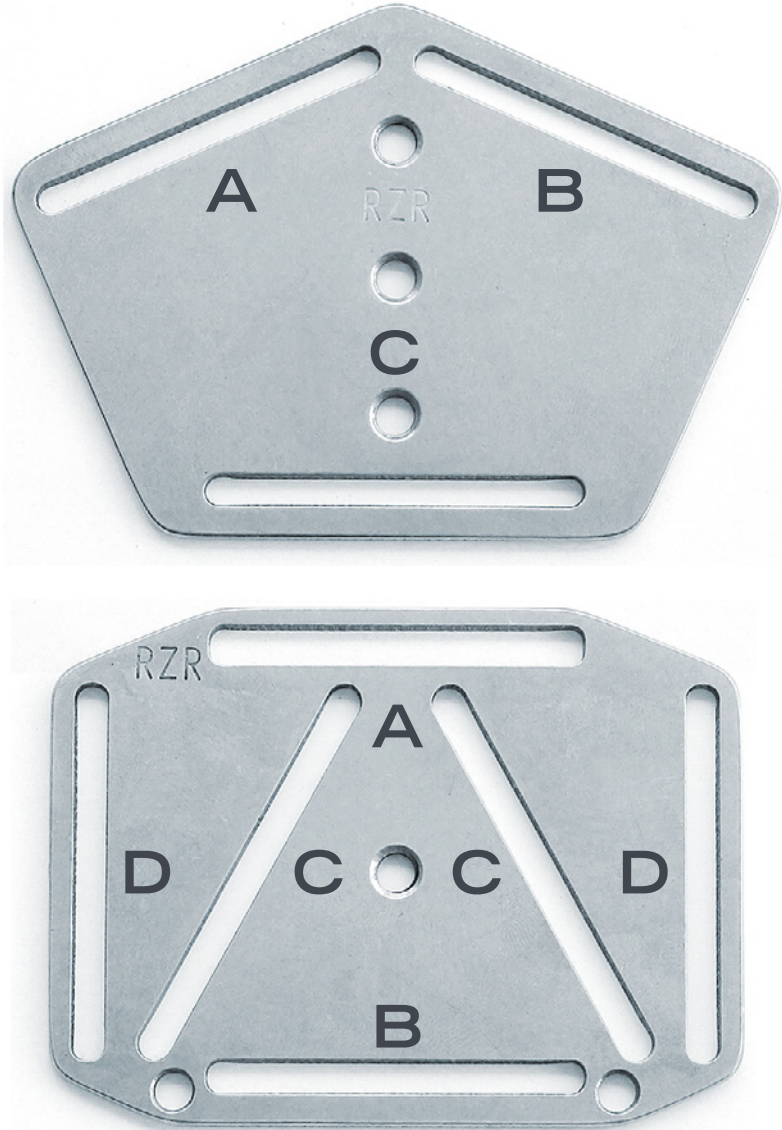
All hardware is heavy duty passivated stainless steel

1 The Razor Harness 2

1.2 Hardware Layout:

Figure 2:

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

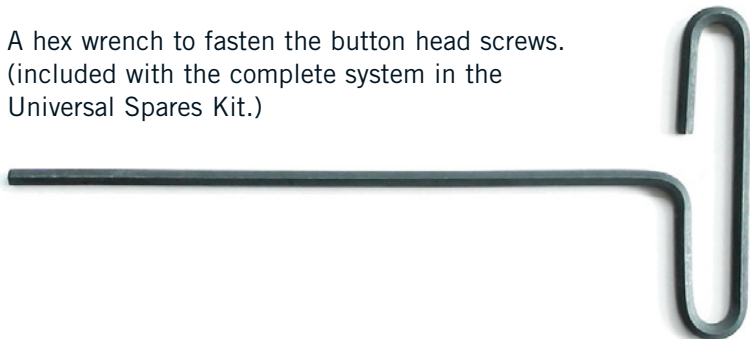


2 Rigging the Razor Harness 2

2.1 Tools

You will need the following tools to rig your Razor Harness:

- ▶ A hex wrench to fasten the button head screws. (included with the complete system in the Universal Spares Kit.)



- ▶ 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.





2 Rigging the Razor Harness 2

2.2 Overview


 Below is an easy to follow guide detailing the 10 steps to rigging and adjusting your Razor 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 Harness together.

 Ideally you should have your Side-Mount Instructor rig your Razor 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 T weight system with the Razor Harness however if you are going to put weight directly on the Razor 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).

2 Rigging the Razor Harness 2

2.2 Overview

Your Razor Harness comes already partially pre-assembled to give you an idea of how everything should fit together but you will need to make some adjustments to get the best fit possible.

You may need to disassemble it to replace the standard D rings with the low profile D rings or to add weight directly to the harness itself although it is recommended to use the T Weight System to add any weight you may need.

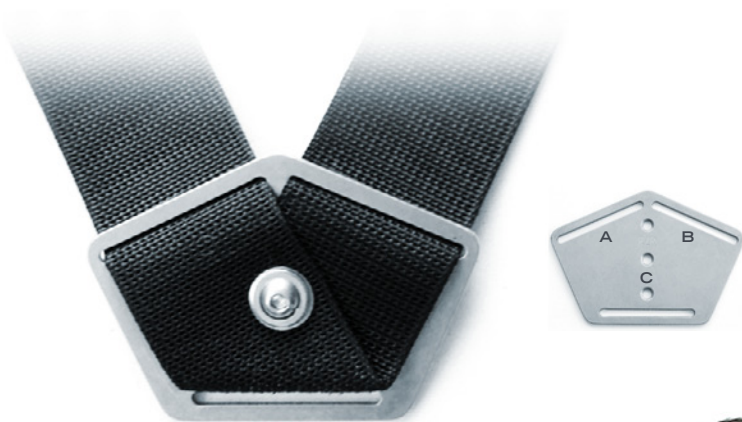
- 1 Low profile D ring (for warm water divers)
- 2 Standard 2" D ring (for cold water Divers)



2 Rigging the Razor Harness 2

Step 1: Positioning the Delta Shoulder Plate

- ▶ The DSP is placed with the button head screw on the inside against the divers back



- ▶ The DSP should be positioned between the shoulder blades below the nape of the neck.

- ▶ To get the right height place 1 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.



2 Rigging the Razor Harness 2

Step 2: 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 clavicle.
- ▶ To fine tune this position stand with both arms straight out from the shoulders palms facing down and thumbs extended then bend at 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.



2 Rigging the Razor Harness 2

Step 2: Fitting the Chest D Rings

- ▶ For divers using the warm water Low Profile D Ring Kit the standard 2" D Rings should be changed for the 1" version in the LPDR Kit

The webbing will have to be unlaced from the MBP in order to do this.



- ▶ Weights can be added to the Shoulder Straps where they exit the DSP and before the shoulder D rings if required (see Step 9: Weighting and Trim) but it is recommended to use the T Weight System rather than add weight directly to the Razor Harness itself.

The webbing will have to be unlaced from the MBP and the shoulder D rings removed in order to do this.



2 Rigging the Razor Harness 2

Step 3: Fitting the Lumbar / Crotch Strap

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 cannot be adjusted for length from this end and all the adjustment must take place at the DSP ③.



2 Rigging the Razor Harness 2

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 wide gauge Tri-glide should be large enough to comfortably pass the Side-Mount Bungee and clip through with the bottom of the loop 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 wide gauge Tri-glide on the Lumbar strap to lock it in place.



2 Rigging the Razor Harness 2

Step 3: Fitting the Lumbar / Crotch Strap

- ▶ 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 a loop of bicycle tire inner tube.
- ▶ Weights can be added to the Lumbar Strap below the wide gauge Tri-glide if required (see Step 9: Weighting and Trim) but it is recommended to use the T Weight System rather than add weight directly to the Razor Harness itself.



2 Rigging the Razor Harness 2

Step 4: 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.



2 Rigging the Razor Harness 2

Step 4: 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.



2 Rigging the Razor Harness 2

Step 5: Adjusting the length of the Shoulder Straps

- ▶ 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.

2 Rigging the Razor Harness 2

Step 5: Adjusting the length of the Shoulder Straps



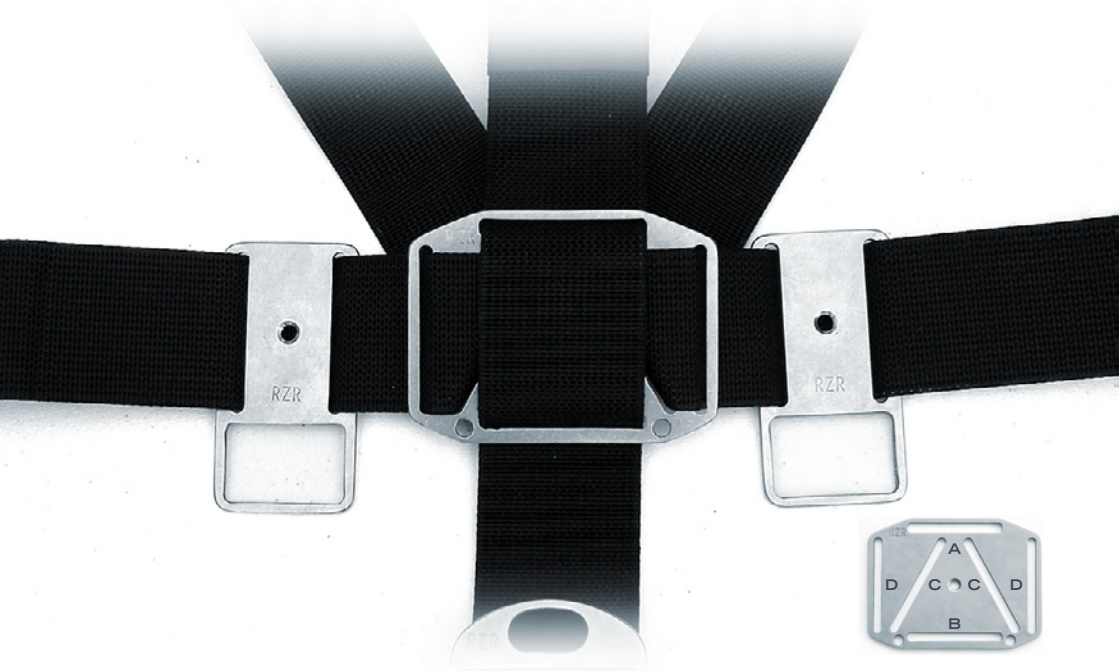
▶ Weights can be added to the Waist Straps where they exit the MBP if required but it is recommended to use the T Weight System rather than add weight directly to the Razor Harness itself (see Step 9: Weighting and Trim).

All the hardware on both sides of the waist straps will have to be removed in order to do this.

2 Rigging the Razor Harness 2

Step 6: Fixing Attachment Hardware on the Waist Straps

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

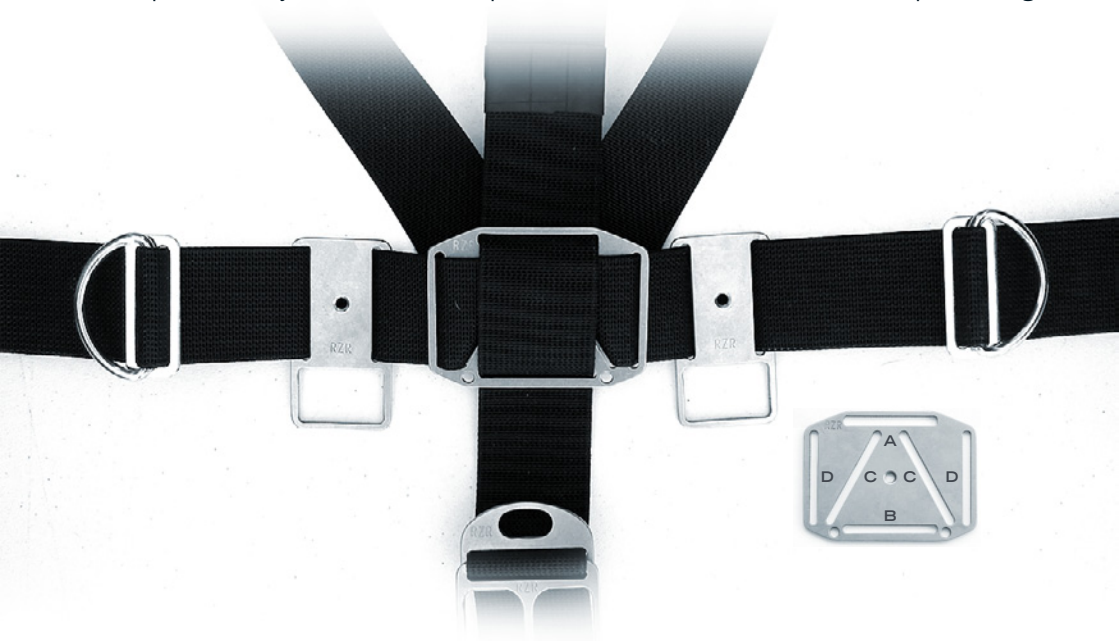


- ▶ The DAP's should be close to the MBP so that anything clipped to them will not hang too far to the sides and get between the body and the SM tanks.
- ▶ If required the loop of the DAP can be placed in a vice and bent gently to have them stand off slightly from the body to make clipping in easier.
- ▶ 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.

2 Rigging the Razor Harness 2

Step 6: Fixing Attachment Hardware on the Waist Straps

- ▶ Now move the serrated belt slides and 2" straight 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 T Weight System rather than add weight directly to the Razor Harness itself (see Step 9: Weighting and Trim).

Hardware on both sides of the waist straps will have to be removed in order to do this.

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

2 Rigging the Razor Harness 2

Step 6: Fixing Attachment Hardware on the Waist Straps

- ▶ 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 Ring Kit is ideal for use in warm water with Aluminium Side-Mount tanks.

2 Rigging the Razor Harness 2

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.



2 Rigging the Razor Harness 2

Step 7: Fitting the Low Profile Buckle

- ▶ The loop of webbing between the buckle and the wide gauge Tri-glide should be small enough so that neither of the buckle plates can rotate and are held in the correct orientation.



- ▶ 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 then 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 bicycle tire inner tube provided.



2 Rigging the Razor Harness 2

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.

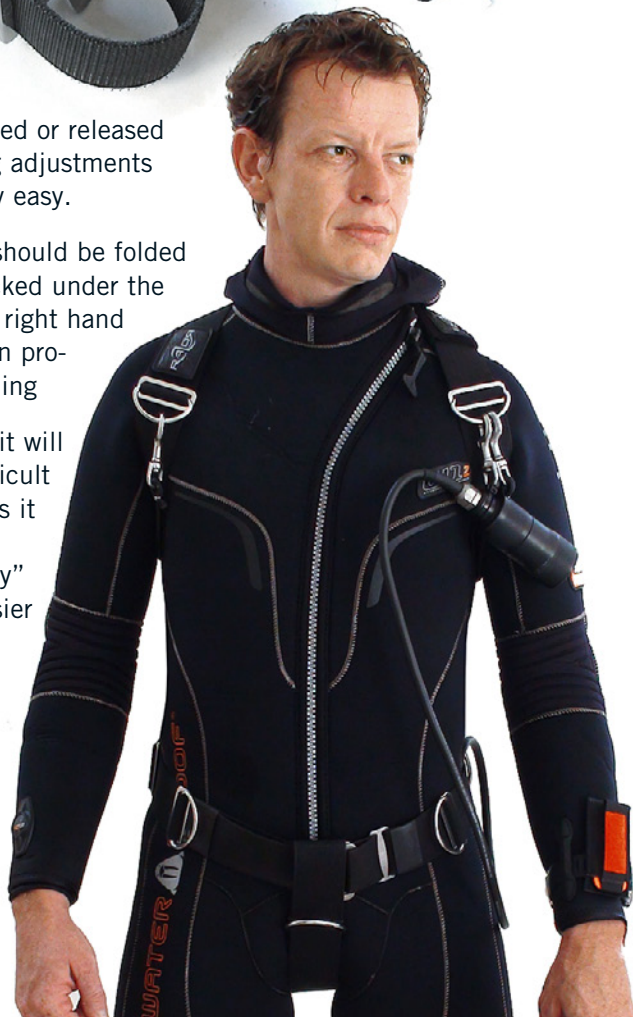


- ▶ The buckle can be tensioned or released with just one hand making adjustments on the fly while diving very easy.

- ▶ The free end of the strap should be folded back on itself and also tucked under the piece of inner tube on the right hand side webbing that has been provided to stop it from dangling

- ▶ 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.

- ▶ If you use soft webbing to begin with it will get too soft after a few uses and the harness will tend not retain its desired shape which will make donning and doffing it more difficult and it will wear much faster.



2 Rigging the Razor Harness 2

Step 8: Sizing and Fitting the Side-Mount Bungee

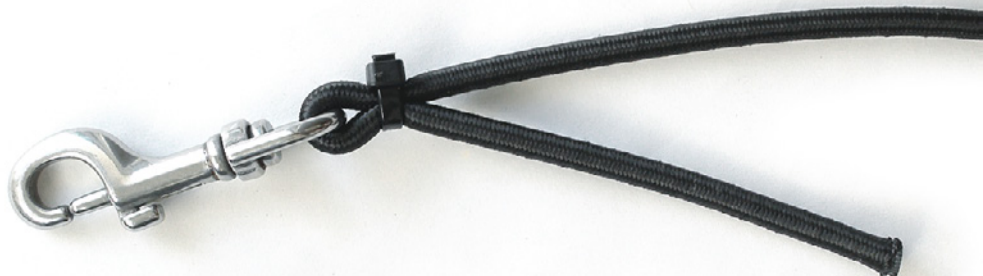
- ▶ Clip the swiveling snap bolt already attached to the SM Bungee ① to the right hand shoulder D ring ② and clip the free swiveling bolt snap ③ to the left shoulder D ring.
- ▶ Then run the free end of the SM Bungee across the chest ④ and under the left arm around the back ⑤, passing it through the loop in the webbing between the DSP and the wide slot Tri-glide ⑥, under the right arm ⑦ and back around the chest ⑧ to the left shoulder D Ring ⑨.
- ▶ Run the free end of the SM bungee through the loop of the bolt snap attached to the left shoulder D Ring and pull on it until the cord is reasonably snug ⑩.



2 Rigging the Razor Harness 2

Step 8: Sizing and Fitting the Side-Mount Bungee

▶ This should be approximately the right length for the SM 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 SM 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 Harness is worn.



2 Rigging the Razor Harness 2

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 so 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 snap bolt with one of the Hog rings provided as shown below.



- ▶ The SM Bungee will stretch over time and may need to be shortened periodically or replaced.
- ▶ It is recommended to replace the SM Bungee regularly or as soon as it shows any sign of wear and tear.
- ▶ It is strongly recommended to make up a second SM Bungee and carry it with you while diving in the Expandable Pouch as a backup.
- ▶ The complete Razor Side Mount System comes with a Spare Side Mount Bungee included in the package.
- ▶ A “Spare SM Bungee” is also available in the Go Side Mount Online Shop as a separate item if required.



2 Rigging the Razor Harness 2

Step 8: Sizing and Fitting the Side-Mount Bungee

- ▶ If using very heavy SM tanks then a thicker gauge bungee cord may be required. Thicker bungee cord will also need larger gauge Hog rings.
- ▶ The SM Bungee is not designed to support the SM tanks out of the water and will be damaged or broken if this is attempted.
- ▶ If a diver wishes to carry the tanks on the harness out of the water then a loop of heavy duty cord can be tied around the tank neck and a double ender used to clip this to the shoulder D rings.



2 Rigging the Razor Harness 2

Step 9: Weighting and Trim

Diving either under weighted or over weighted is inefficient and potentially dangerous. Correct weighting is critical to mastery of buoyancy control and trim allowing easier 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 Drysuit 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 T Weight System 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 the gas in your SM tanks at 500psi

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 both the center line of the body and the middle of the body will give greater stability and therefore greater control while diving in all orientations.

2 Rigging the Razor Harness 2

Step 9: Weighting and Trim

-  Weights can be added easily to either the Lumbar T Weight Belt or the Waist T Weight Belt or to both if required.
-  The optimal positioning for ballast weight assuming neutral trim is to either side of, or just above the MBP using both the Lumbar and Waist strap of the T Weight System.
-  When using the BAT Wing this 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 ballast weight can be positioned higher on the Lumbar Strap of the T Weight System to counteract this.
-  If more head up trim is required due then more of the ballast weight should be positioned lower at the Waist Strap of the T Weight System

2 Rigging the Razor Harness 2

Step 9: Weighting and Trim

Refer to the Razor T Weight System section of this manual for instructions on how to attach it correctly to the Razor Harness.

Although not recommended weight can also be added directly to the Razor 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

2 Rigging the Razor Harness 2

Step 9: Weighting and Trim

- ▶ Normal lead block diving weights can be added to the harness by feeding the webbing through them as you would with a standard weight belt (make sure you leave some extra webbing to do this when you adjust the Razor).
- ▶ The weight can be locked in position with a belt slide if required.
- ▶ Weight pouches that slide onto the harness webbing and allow you to remove or replace weights quickly and easily without having to disassemble the harness (for example when changing exposure protection or travelling) can also be used but are not ideal as they have the tendency to slide around or have the weight fall out.

2 Rigging the Razor Harness 2

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 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 of bicycle tire inner-tube provided.
- ▶ Many divers choose to get 2 Razor Harnesses, 1 for cold water diving in a Drysuit and 1 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.
- ▶ All the other component of the Razor System will work with either harness without any further changes needing to be made

2 Rigging the Razor Harness 2

Step 10: Final Adjustments



Last Step: 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 Harness.
- ▶ Please contact Go Side Mount directly if you have any questions or problems with your Razor Harness.

Best Wishes

A handwritten signature in blue ink, appearing to read 'SBG' or similar, with a stylized flourish.

Steve Bogaerts

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CAVE SOFTLY, DIVE SAFELY!



RATOR

SIDE MOUNT SYSTEM

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