



FM Quattro Double-Six Binding Instructions

Revision Date Summer 2011

Welcome to a new era in water-skiing comfort and performance. Fluid Motion's QUATTRO Double Six binding is custom produced independent double boot system with a heat-moldable fit. The QUATTRO Double Six's unique interlocking system allows both boots to come free of the ski when one boot initiates a release. The Double boot may also be specified on a single releasable plate, which keeps both boots connected to one another at all times.

In either format the Quattro Double Six system delivers a performance, support, comfort and ease of use in a lightweight package. Using the QUATTRO Double Six Jon Travers recently equalled the Boys III World Slalom Record (1.5 @43) off and is named alongside Chris Parrish. Nick Adams also skis the QUATTRO System as Australia's National Open Men's Slalom Champion.



Please familiarize yourself with the warnings & liability disclaimers, technical instruction and warranty information contained in this manual.

Qualified personnel should install the bindings or persons who are familiar with water ski construction, marine hardware, water-ski binding systems, ski inserts use of adhesives, shop tools and supplies.

▲ Please review all warnings and disclaimers contained at the end of this document.

Parts Included in the QUATTRO DOUBLE SIX binding kit:

Power Toe Block & plate assembly, heel plate & release pin/barrel assembly, boot sole plate(s) with boots, heat moldable boot liners, Velcro Loop (VHB)/Velcro Hook (HTH) fastener Velcro fastener with VHB adhesive backing. Velcro Adhesive strips. Assorted fasteners and optional parts ordered with system.

▲ SYSTEM LUBRICATION: For proper operation and adjustment of the release unit, the release pin must be lubricated. Every 4-6 weeks of use the release should be disassembled by undoing the locknut and adjusting screw. Points of lubrication are the thin o-ring at the front of the release unit, the pin in the area where it meets the O-ring, and the threads of the adjustment screw and lock-nut. Petroleum jelly (e.g Vaseline) or a silicone grease is best for this application.



Installation HO, D3, O'Brien, Radar or Connelly Skis with Inserts

For skis without inserts, the 3MX or FM8 plate is available as an option for screw-less mounting. See that product literature for more information.

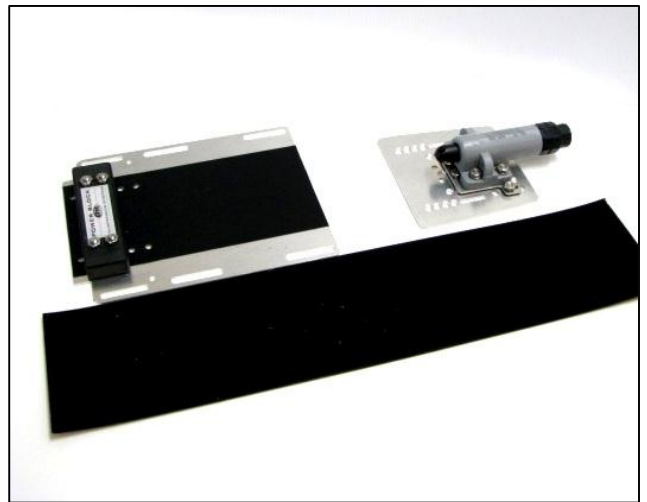
The QUATTRO DOUBLE SIX system may be mounted to various skis using the factory inserts with a HO pattern front plate and two styles of plate for the rear release unit.

Overview

The front plate is positioned on the ski to set the front boot position and then the rear plate is positioned to determine the best hole combinations. Once the rear plate is mounted up the front plate is slide-adjusted to get the rear pin gap to specification above.

Because the release unit barrel has elongated holes, there is some adjustment available at the 4 bolts holding the release barrel assembly to the plate.

We have made the Double Six as cross compatible to different skis as possible. However, we cannot guarantee the Double Six binding system will mount to every ski ever made!



D3/Connelly Rear Plate Installation

1. A small compact plate is all that is required for D3 and Connelly hole patterns. This plate may also be used for Goode skis or when using screw installation. Use the 3M adhesive supplied to augment the two ski inserts. A total of 4 $\frac{3}{4} \times \frac{3}{4}$ pieces are added to the underside of the plate. Clean the ski and the plate with alcohol first. Use a heat gun or hair dryer (1000W) to activate the adhesive bond.
2. Velcro loop may be added under the rear boot heel area for enhanced stability under pro-competition and extreme short-line conditions



HO Style Adapter Plate Installation (Used for HO, some O'Brien & Radar patterns)

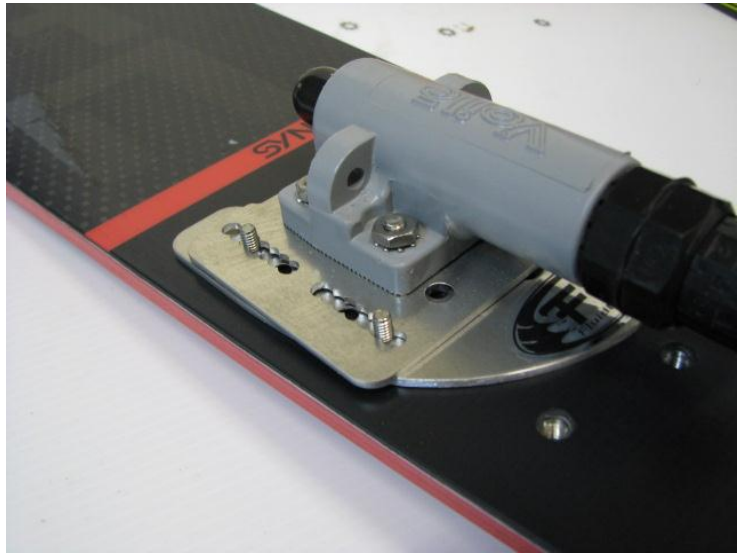
Starting in 2011 we now supply an optional HO to D3 adapter plate. The adapter plate is installed allowing our standard D3/Connelly mounting plate to be used. HO insert installations can differ between the different makes and models skis, even from one manufacturer such as HO. If the HO pattern is not to standard specification some modification to the adapter plate may be necessary. Radar skis have a smaller hole spacing therefore we have holes in the adapter plates specifically made for Radar skis.

1. Place the front plate on the ski so that the front boot is in the desired location measured at the heel from tail - for example ± 9.75 from tail. Mark the location of the front plate or use a strip of masking tape to show plate position.
2. Now place the rear boot and rear release plate on the ski using the gap tool to initially rough-in the pin gap as shown on subsequent photos. Use a strip of masking tape to mark the rear plate position as shown.
3. Dismantle the rear plate & adapter plate and choose the holes that mount the plate to the ski. The rear mounting plate is installed in a 2 step process. **The adapter base plate goes down first using at minimum two of the ski's inserts augmented with four $\frac{1}{2}$ " squares of 3M (red backed) adhesive placed on the corners of the plate as illustrated.** . Clean the ski top with alcohol, use a heat gun set on LOW for ~ 30 seconds to activate the adhesive for maximum tack strength (150 Deg F) . The two #8-32 screws (up front) and two #8-32 screws (rear outside) for the D3 plate are installed in place pointing up like studs as shown



4. Next the standard FM D3/Connelly plate goes on top of the adapter plate with lock washers and #8-32 nuts.
5. Install the boots and check the gap. **TIP:** We set the gap on the tight during installation to allow for when the spring loads up and the clearances are taken up at the front block and between the plates.

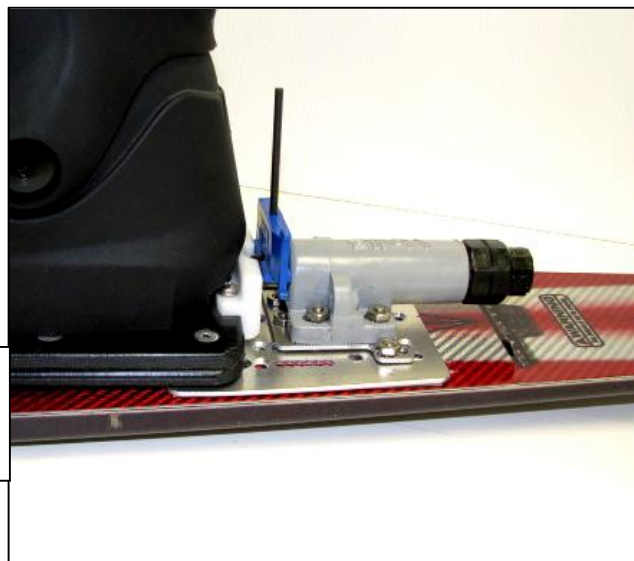
6. **WHEN INSTALLATION IS COMPLETE MEASURE THE GAP WITH THE RELEASE AT TENSION** (e.g. a setting of 3.0-4.0). measuring from the side the GAP is set at **0.44" +/-0.02**. The calliper should be level or in-line with the centre line of the release pin.



Also use the special tool provided to check your gap measurement. The tool should fit snugly into place as shown without the need for excessive force. If you can turn the ski over the tool stays in place, then the gap is correctly set.

If the gap is too tight the actual release tension is a bit higher than indicated and the step in feature may not be possible if the gap is really tight. If the gap is too loose the release settings are actually lower to what is on the barrel screw markings.

▲ It is important that the gap between the release barrel assembly and the sole plate fitting be correct to ensure the release settings are accurate. Always wet the release pin before step-in.



With the release ~~BARREL~~ setting at 3 or 4, the tool should be snug enough to stay in place if the ski is turned over.

Front Plate Installation

The front plate uses slider holes so the pin gap at the rear can be conveniently set. To prevent the front plate from shifting forward during skiing you **must use the Stainless Collared washer system** provided by FM Sports under the screws to grip the plate. The washers will bite into the plate and provide ample resistance to shifting under load.

We also **REQUIRE** that once the plate location has been determined and the release gap set, you **MUST** use adhesive or screws+inserts in the slot holes provided at the front of the plate (as shown right). We can provide optional SS inserts for a factory look installation.

Two-sided adhesive is provided in the kit. Use the **3M foam tape** (grey with red backing) or if the plates are dead flat on the ski you may use the thin clear S301 two sided tape. The tape is used under the plate at the front to prevent the front block and plate from lifting or bending



▲ **NOTE** Some skis such as the HO Monza and System 8 have closed end threaded inserts. Using screws that are too long will bottom out on the insert and not the plate, therefore not gripping the plates properly. If you have a ski with these inserts, make sure you are using shorter screws. We normally supply short screws for the HO Monza/S8 installations. If you need shorter screws contact us.

▲ Check your release gap before and after skiing, and check the mounting screws periodically for tightness.

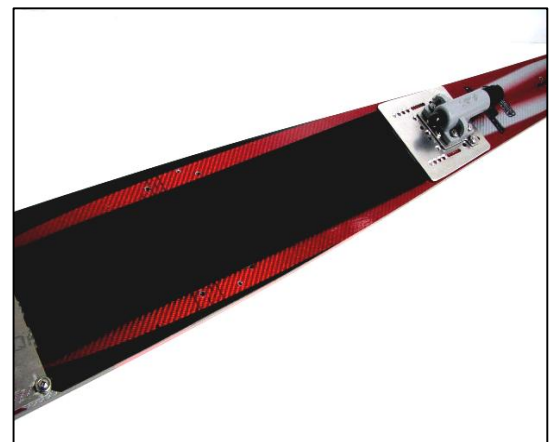
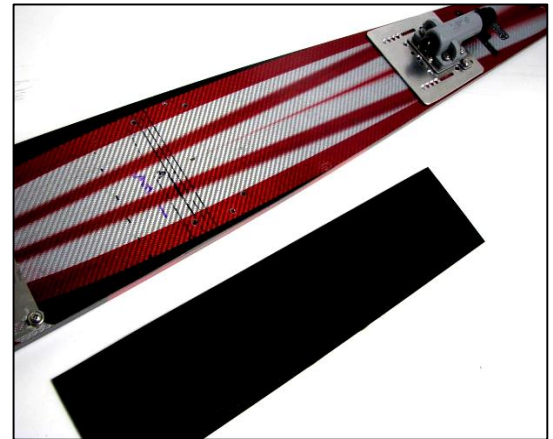
Center Hook Attachment Pad

In addition to front and rear plates your system is supplied with a **Velcro Center Hook Pad**. The hook pad is mounted down the center of ski top in the area between the front and rear plates.

This center pad firmly hooks into the Velcro loop installed on the boot soles to deliver a *connected feel* on the ski. The system also provides for proper roll and edge response, and aids in shock absorption and stability. The strength of the Velcro system is high so there only needs to be enough Velcro attachment to suitably hold the boots to the ski while not actually skiing i.e. handling, jumping into the water from the grid or dock, or moving around/starting up in the water. Use the minimum amount of loop suggested from the guide table #1 below to keep the ski suitably connected to the boot plates during normal activities. Warmer climates will require slightly more Velcro, colder conditions can use less.

▲ Be sure to take a minute to twist and work the boots into the hook pad when first placing the boots on the ski. After that, the act of skiing and the water pressure will keep the ski and boots firmly connected.

After cleaning the ski top with alcohol or Methyl Hydrate, apply the Center Hook Pad to the ski. Trim the pad if necessary with scissors. Make sure that the strip is placed along the center-line of the ski. The strip acts as a guide for placement of the Front boot when stepping into the ski. **If using a heat gun/hair dryer to activate the 3M adhesive before installation, you can ski in a few hours of install. Otherwise, allow at least 8 hours and if possible 24 hours for the adhesive to fully set before use.**



Installation or Replacement of Velcro Loop on Boots

Your system is shipped with Velcro Loop pre-installed. If after testing your installation the release feels good, then there is no need to change the amount. The Velcro system is very durable, but when the loop becomes worn it may be necessary to replace. Follow the guidelines below for this procedure.

TABLE 1 – SOLE PLATE Velcro Installation Guide

Skier Type	System Size	Total Velcro Loop Mounted to boots with 4" Wide Strip	For Single Plate System
Heavy/Large Boots	Large-XL boots	3.5 +under Front boot, 6+Rear	6 to 8+
	Medium boots	3 to 3.5+Front boot, 5.5+ Rear,	6 to 7+
Lighter/ Small Boots	Med-Small boots	2 to 2.5+Front boot, 4.5+Rear,	4 to 6+

▲ If you need to add more hook and loop, add the surface area under the **REAR** boot first. Lightweight, smaller or novice skiers should use less loop on the boots. A **special mounting plate gasket or the FMX option** is required for ribbed or sculpted top skis, as shown on the right.

These are some tips for replacement or installation of the Velcro loop.

Removal

Gently heat the Velcro to soften the adhesive. Lift one corner, then using needle nose pliers, roll the strip from the surface, similar to opening a can. Tack-up any leftover adhesive using a small new piece in a dabbing action to lift any that has remained on the surface.

Installation

1. Clean the surface with alcohol, then dry. Peel the backing from the Velcro product and use a heat gun on low setting to soften the consistency of the adhesive (120-150 Deg F). The adhesive will become extremely tacky & aggressive, so be careful when placing the strip. you have just once chance at it.



Press the strip into place, then roll the Velcro using a ½" dowel to make sure full contact is made. Allow a few hours to the adhesive to set.

2. To prevent the Velcro loop from being too forceful in contact nap or disorient the loops by taking the boot and twisting or twirling it around 180 degrees on the hook pad (located on the ski) for a minute or two.

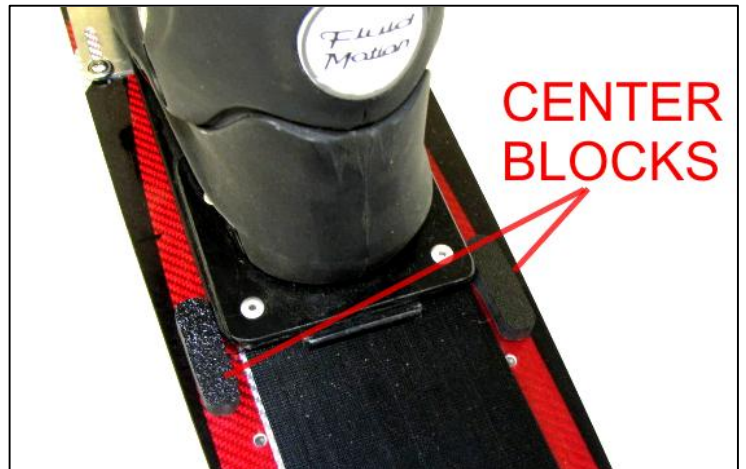
3. If your Velcro has not had time to nap, or disorient and with a less than perfect attachment, the loop may peel from the boot during a release or quick pull. If this is a persistent problem **seal** the edges before use. Using a heat gun on high setting, a small line of loop (i.e. ¼") around the edges of the Velcro area can be fused closed or shutoff. Sealing helps to prevent inadvertent peel back. Contact your dealer for more information.

▲ Contact FM for supply of the 3M VHB backed HTH Hook for the ski.

Center Guide Blocks

The last step in the installation is to mount the centre guide blocks as shown. These guides keep the Double Six boot plates centered on the ski when stepping- in after a release, or before skiing. Allow for a small bit of clearance each side of the plate. Make sure the blocks are installed so that the front boot heel center-line lands on the ski center.

The center blocks are optional for the single plate design and are factory mounted to the FMX plate option.



Optional Z-Clip Centering Hardware

FM Z-Clip Option

Z-Clip plates are available as an optional enhancement to the double plate system and provide the locating function of the centering blocks shown above. The Z-Clips and plates mount to standard rear boot ski inserts for convenience. The HTH Velcro pad can be trimmed slightly as shown in the photo for installation.

The Z clips are mounted at the **very front of the rear boot sole plate only**, so as to become a mini toe piece for the rear boot. The Clip is designed to overlap the sole plate but there should be some clearance to allow for easy step-in & release.

▲ DO NOT MOUNT Z-CLIPS SO THEY CONTACT OR HOLD THE FRONT PLATE.



Additional Photos:



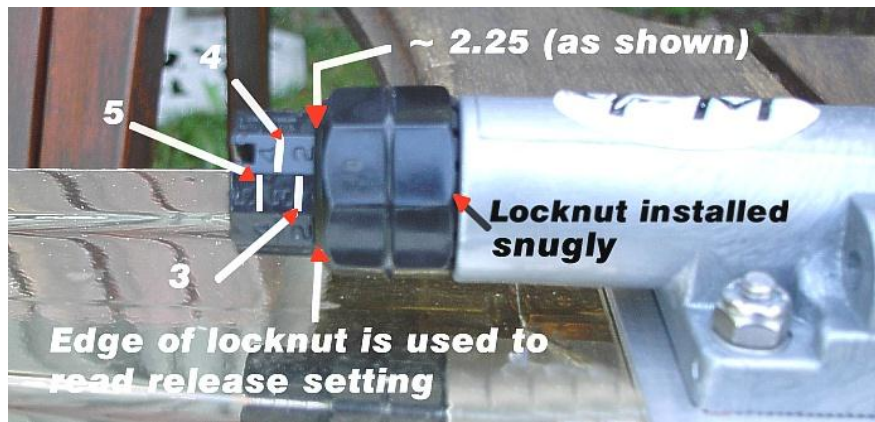
Completed installation on HO A1.

Dry- Land Self Testing & Release Settings

We suggest you test for release settings suitable for 1. The LEVEL of experience you have as a skier, 2. THE FIT you receive from your boots and 3. THE WEIGHT of your body.

▲ A setting of 1.5 to 3.5 will be normal for most skiers. A setting of 4.5 to 5 could overload the capacity of the boots and plate. NOTE THE DISTANCE OF THE GAP, measured with a calliper affects release tension. Also skiing in higher ambient temperatures may require slightly higher release settings.

As a general guide for 100-130 lbs use a setting of 1.5-2.0, for 130-200 lbs 2 . 3.5 and above 200, up to 4. For Professional Athletes, there is an option of a high rate Pro Competition Spring.



▲ CAUTION : For proper operation and adjustment of the release unit, the release pin must be lubricated. Every 4-6 weeks of use the release should be disassembled by undoing the locknut and adjusting screw.

Points of lubrication are the thin o-ring at the front of the release unit, the pin in the area where it meets the O-ring, and the threads of the adjustment screw and lock-nut. Petroleum jelly like Vaseline or a silicone grease is best for this application.

Self-Testing the Release Settings

To test the release settings remove the fin from the ski or support the rear of the ski with a block.

1) One Boot In – Velcro Center Attachment Testing

Buckle yourself into the boot. Insert the front boot ONLY into the Power Toe block and firmly seat the boot heel into the Velcro fastener, by wiggling and twisting the boot while standing on the ski to engage the tiny hooks into the HTH Loop pad. Block the tip and tail of the ski - I use a large sofa to hold the ski down or have friend stand on the ski's tail. Now walk forward out of the ski in a quick and authoritative pulling action with the heel.

▲ If you experienced discomfort, pain or could not pull the boot from the ski without excessive force, then reduce the amount of Velcro used on the sole plate under the front boot. The contact of the Velcro improves quite a bit due to skiing, as the hooks will find more loops, so test after skiing as well.

If you decide to reduce the amount of Velcro installed on the sole plate, simply use a sharp hobby knife to cut a strip off. If the release force is deemed reasonable for your size & strength then move on to the double boot-in testing.

2) Two Boots in – Rear Pin Setting Test

Buckle yourself into the ski/boots. Block the tip and tail as described in 1) above. Using a chair or large sofa pillows to cushion the impact, you should be able to release in a simulated %out-the front fall+by falling over the front of the ski. The rear pin adjustment is critical for binding release force in a common out the front slalom fall.

The amount of heel retention (rear pin) force is up to the user. The force to %step-in+is about equal to the release force.

▲ If you can't step into the bindings with your body weight and a slight downward push, your release setting is most likely too high, or the gap "b" too tight. If you are unable to step-in and the gap setting is correct, check the release unit pin movement. If the pin cannot move freely check the rubber ring and use so silicone grease on the pin at the o-ring.

Using the Double Six System

▲ Be sure to take a minute to twist and work the boots into the hook pad when first placing the boots on the ski. After that, the act of skiing and the water pressure will keep the ski and boots firmly connected.

Break In & Boot Durability/Maintenance

The QUATTRO Double Six boots require a breaking-in period, much like skates do. Therefore the boots will feel stiff at first. The liners and shells break-in and form very closely to your feet subsequent to heat molding. The shells take on almost a rubber-like property as they break-in over a period of about 4-8 weeks of regular skiing.

You can use the liners for years after the break in period, and they seem to get better with time. The boots are very durable as well. Examine your fasteners for tightness, paying attention to the heel areas, cuff bolts and plate mounting screws. Keep the system out of the sun to limit UV damage. In the hot sun the boot shells will get softer.

▲ CAUTION : For proper operation and adjustment of the release unit, the release pin must be lubricated. Every few months the release should be disassembled by undoing the locknut and adjusting screw. Points of lubrication are the thin o-ring at the front of the release unit, the pin in the area where it meets the O-ring, and the threads of the adjustment screw and lock-nut. You may also use Vaseline or a silicone-based grease.

Boot Cuff and Buckles

Refer to the information regarding heat molding. More advanced skiers (35 off and beyond) will want lower boot cuffs. The shell cuffs may be trimmed, and the liners trimmed to suit preference. The tightness of the buckles is up to the user. In a scale of 1 (loose) to 5 (very tight& cramps) you may want to try the following: **Front** Toe 2, Mid 4, top 2 or 3; **Rear** Mid 4, Top 2. On most sets we start with the buckles on a lower setting then ramp up to the %+just before the last two passes. If surface conditions are not so good, try using more cuff pressure.

Boot Rotational Adjustments

The QUATTRO DOUBLE SIX boots rotation and spacing are set during installation. To change the rotation the boots are removed from the plate and repositioned using the holes available. If making a drastic change new holes can be made in the boots or in the sole plate. For minor adjustments the existing holes in the boots can be enlarged to allow for some side-side movement. Re-install with washers. Do not over-tighten and strip the fasteners.

System Usage and Skiing

▲ Be sure to take a minute to twist and work the boots into the hook pad when first placing the boots on the ski. After that, the act of skiing and the water pressure will keep the ski and boots firmly connected.

The Velcro center attachment requires that the boots be seated with pressure and some slight but authoritative twisting movement to attach the miniature hooks on the ski to the loops on the boot.

The Velcro adhesives and the adhesives used on the boot liners are water resistant; therefore allow your ski and boots to dry after the day's use. Avoid storage of the equipment wet. The Velcro hook and loop should typically be replaced every one or two seasons or if the attachment is noticeably weakening.

To Step Into Ski with Double Boots

Wet the release pin and coupler. With the boots on or off, firmly insert the front boot into the front toe slot. Insert the rear boot plate toe into the front plate's heel connection or interleaved joint. Snug both plates together and position the rear heel over the release pin and snap into place with a hard and quick downward force.

Without the boots on, you may also use the drawbridge method. To do this insert the front boot at the toe slot, and rear boot on the rear pin/coupler. Then make the joint at the center and press down at the center to attach to the Velcro strips.

Warranty

The QUATTRO DOUBLE SIX is a new binding system designed for top slalom performance and custom built to your specifications. The following items are warranted for 90 days: Rear release unit & plate, valet, sole plate, delaminating, aluminium toe clamp and toe piece, Velcro, Boot Liners, boot shells, cuffs and hardware.

See our website for returns or warranty information.

The QUATTRO DOUBLE SIX system is designed to be fault tolerant, but there is no substitute for safe skiing. Shutdown your run if you are late, narrow or encounter excessive slack line. Do not impact fixed objects such as turn balls, or gate balls. Consult a professional regarding ski tuning. A properly tuned ski is also a safe ski, and crashes are very infrequent.

In no event shall Fluid Motion Sports/Jagersport.com be liable for incidental or consequential damages, shipping or remounting costs. Shipment charges are the responsibility of the customer.



by www.JagerSport.com



Revision Date July 2004

RELEASE OF LIABILITY, WAIVER OF CLAIMS, AND INDEMNITY AGREEMENT

READ CAREFULLY:

BY SIGNING THIS AGREEMENT, YOU WILL WAIVE CERTAIN LEGAL RIGHTS, INCLUDING THE RIGHT TO SUE

To: Fluid Motions Sports and Jager Engineering Inc.

In consideration of the use of the System, I hereby agree as follows:

To waive any and all claims that I have or may in the future against FluidMotion Sports and Jager Engineering Inc. and all representatives, employees, directors or agents thereof (collectively the "*Releasees*") and to release the Releasees from any liability or loss, damages, injuries or expenses that I may suffer or that my next of kin may suffer as a result of or arising out of any aspect of my use of the System DUE TO ANY CAUSE WHATSOEVER INCLUDING NEGLIGENCE, BREACH OF CONTRACT OR WARRANTY ON THE PART OF THE RELEASEES with respect to the design, manufacture, selection, installation, maintenance or adjustment of the System or with respect to the provision of or the failure to provide any warnings, directions, instructions, or guidance as to use of the System.

TO HOLD HARMLESS AND INDEMNIFY THE RELEASEES from any loss, damage, injury or expense to any third party resulting from the use of the System.

This Agreement shall be binding upon my heirs, next of kin, executors, administrators, assigns and representatives, in the event of my death or incapacity.

This Agreement shall be governed by and interpreted in accordance with the laws of the Province of British Columbia, Canada. All proceedings involving parts to this Agreement shall be brought within the Province of British Columbia, Canada.

I HAVE READ AND UNDERSTAND THIS AGREEMENT AND AGREE THAT BY SIGNING THIS AGREEMENT I AM WAIVING CERTAIN LEGAL RIGHTS WHICH I OR MY HEIRS, NEXT OF KIN, EXECUTORS, ADMINISTRATORS, ASSIGNS AND REPRESENTATIVES MAY HAVE AGAINST THE RELEASEES.

Signed this _____ day of _____, 2____.

Name (Print) _____

Signature _____

Witness Name _____

Please FAX a signed copy of this release to (250) 724-1407