KIT SETUP AND TUNING FUNDAMENTALS:

PART 4: HARNESSES AND HARNESS LINES

WORDS: SIMON WINKLEY
PHOTOS: ANDY STALLMAN – MAIN PIC, ALEX IRWIN (SPORTOGRAPHY.TV)

HERE WE GO WITH THE FINAL ARTICLE IN THIS SERIES WHICH IS ALL ABOUT HARNESSES AND HARNESS LINES. The three previous articles plus this one form a comprehensive yet accessible guide to the setting up and understanding of all parts of the board and rig.

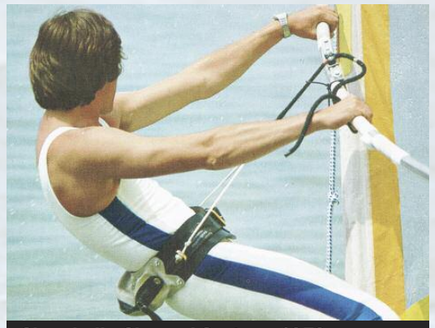
Horrible Histories

I am a massive fan of windsurfing history and (thanks to starting in 1996) have solid memories of the kit from back in the day as well as an almost gruesome fascination with what went before. My most favourite windsurfing book ever is called This is Surfboard Sailing by Reinhart Winkler from 1979. Within its 208 pages of retrospective comedy joy it gives the following advice: *"Many strong wind boardsailors still feel like the best system of all is to be physically fit and not to use a harness at all…"*

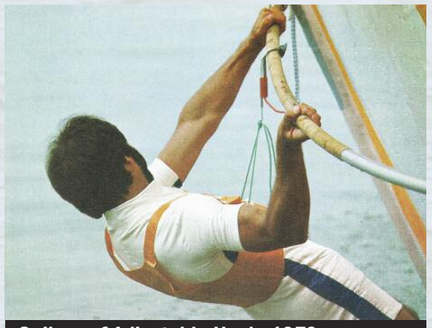
"A harness…for boardsailing on reservoirs and flooded quarries…is quite unnecessary…"

"A boardsailor can be carried miles offshore by the wind and current and is then faced with a seemingly endless sail back close hauled which calls for more strength than is possessed by even the toughest of sailors. A harness is then not just an aid to strong wind boardsailing but in some circumstances can well be a lifesaver."

Astronomer Carl Sagan once said, *"You have to know the past to understand the present."* So before we talk about harnessing today, let's have a little look at four very early solutions from 1979.



Charchulla Channel System, 1979



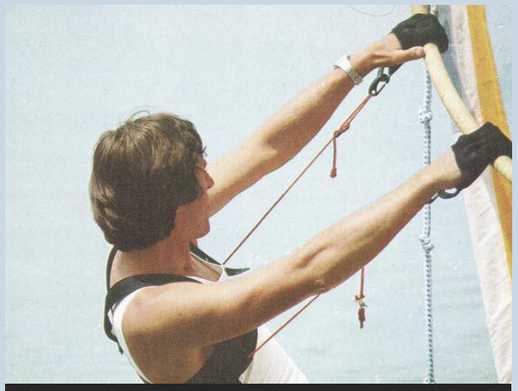
Sailorsurf Adjustable Hook, 1979

The Charchulla Channel System

Manfred and Jürgen Charchulla were the first to cross the English channel on sailboard and devised a system – to prevent arm fatigue – that used a broad leather strap bucked around the hips with a rope bridle and line. The line connected to a track screwed to the boom using a cam cleat (making use of dinghy technology, understandably). One hand had to let go of the boom to connect or disconnect. #triptothechandlery

Sailorsurf Adjustable Hook

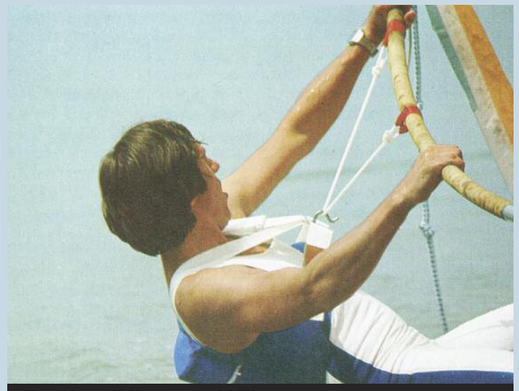
Conceived by Richard Stigchen, the chest harness was connected to a line with hinged device which simply hooked onto the boom. The back hand had to always hold onto a quick-release tripping line which would be pulled hard to release the sailor during a fall. Two hands were then needed to re-assemble the device in the water before starting again. #fiddlyandabitscary



Sailorsurf Moulded Rubber Glove/Hooks, 1979

Sailorsurf Moulded Rubber Glove/Hooks

I never tire of telling people about this extraordinary concept by Dorothee Bürger which used curved, hard-moulded rubber gloves into which the hands went. Plastic hooks connected the gloves to a line then to a shoulder belt. During a fall the sailor removed their hands from the boom, taking the gloves and line with them. I am assuming that you only needed one set which you had to take with you to the other side during a tack or gybe. #didevenonepersonbuythisproduct



The Hawaii Harness, 1979

The Hawaii Harness (and beyond)

This sensible option had shoulder straps and a hook similar to that of a dinghy harness. Then, in the 1980s, came an explosion of neon pink, yellow, orange and lime green seat harnesses for freeride and speed known as 'nappy harnesses' which were seen on the water alongside chest harnesses for the wave sailors. Both were mostly superseded by waist harnesses through the nineties yet windsurfers today still have a choice of either waist or seat. #ancestor

Harness function and technique

The use of a harness is essential as it is the body – not the arms – that pulls the sail in, back and down when planing. Hooking in and out of harness lines is done with a quick, short pull of the boom together with a slight raising then dropping of the hips whilst maintaining an outboard body position and looking forwards.

Windsurfers should start to look at basic harness technique as soon as they have completed their beginner course – yet they must be guided. The first time I hooked in I attempted to copy what someone else was doing, picked up speed, had no idea what to do next and ended up becoming a ball of spray with whiplash. Had I been told to hook out as soon as I had hooked in for the very first time I would have been able to feel relaxed and repeat the process confidently, trusting my weight into the line for slightly longer each time. Newcomers to harnessing might temporarily lower the boom and then put it back up again once basic skills are in place.

The waist harness gives a more hinged body position

The seat harness promotes a straighter body position

Which harness?

Most shops, centres and windsurfers generally favour the waist harness. They are good all round, are what most active windsurfers have learned on and are considered by some to be a bit cooler. The seat harness remains relevant for all the reasons below and is definitely worth a look at. I recently bought a seat harness (after a long stretch on a diet of pure waist harness) as I want some of my regular clients to give seat harnesses a go. Some were using seat harnesses on my last clinic and were enjoying that locked-down feeling. I expect to spend more time mixing my harnesses up to reflect the range of windsurfing I do from well-powered flat-water blasting to foiling to bump and jump sessions to a bit of time in the waves. But what are the real differences? Here is my guide to help you to decide if you should be in Team Waist or Team Seat.

A deeper, super-comfortable waist harness and…

…a smaller, ultra-light one for maximum manoeuvrability

A supportive, high-back, high-hook seat harness and…

…a lightweight, low-hook one for maximum leverage

Waist harnesses

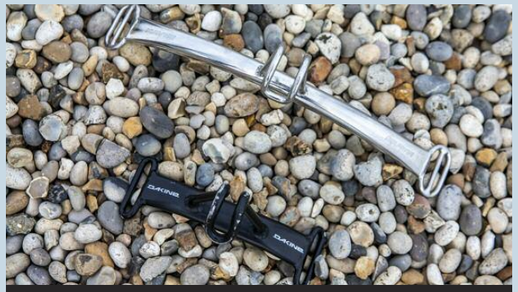
These are best suited to those who need to hook in and out easily, quickly and/or often such as improvers, manoeuvre-oriented riders such as wave sailors and freestylers as well as overpowered slalom sailors (who need the option of sheeting out to feather-off power from the higher hook position when things get silly and to be able to unhook on demand at the gybe mark). Most notably they provide maximum freedom of body movement. The power transfer is higher, however, making it harder to push through the mastfoot, requiring more physical effort to lock down the power from the sail. When overpowered the rider is more likely to be pulled upright. The high position makes it harder to sit down in the harness and may not allow full use of body weight. For those who may have experienced some back pain from a waist harness, remember that there are many different designs to try and some are more padded and supportive than others.

Seat harnesses

A great philosopher once said, *"Once you hook in you immediately notice the advantage of a seat harness. It's like sitting in an armchair rather than perching on a barstool."* Seat harnesses are more about speed, longer distance cruising and course racing when the need to hook in and out is less. Some (for example shorter or smaller-framed sailors) may find a seat harness to be anatomically better for them as they allow all of the body weight to sit in the harness line naturally rather than relying on physical effort to control power. This lower power transfer makes it easier to push into the mastfoot and lock down the forces from the sail. This might help smaller intermediates to up their sail size for earlier planing or higher speeds.

Whilst seat harnesses may feel more restrictive due to the crotch straps they stay securely located on the body and cannot ride up. This can make them more suitable to those with a fuller midriff as well as female sailors who may experience discomfort when a waist harness gets 'stranded' in the chest area. They make a huge difference to power control for longboard racing to windward when the feet need to be close together as the weight can be sunk right down to control the lift from the board. Some specialist seat harnesses are deeper and more supportive with a higher hook: effectively merging the benefits of seat and waist.

Traditional vs. new-school spreader bar



Spreader bar lengths can very greatly

Spreader bars

Both types of harness have a load-bearing horizontal spreader bar with a hook in the middle. The straps securing it should be pulled as tight as is comfortable to avoid the bar being pulled away from the body in use and under load. The length of the bar should sit just inside the width of the body. Too short and the load is not spread enough and your harness will squeeze you. Too long and it will scissor from side to side. The size of harness should determine the length of the spreader bar. Sometimes, however, the bar may have been switched in the shop or hire centre so beware! Modern harnesses have a comfortable non-slip pad engineered around the bar whereas older ones with no pad can twist or be pulled upwards. DaKine harnesses have the option of a side-to-side sliding spreader bar to help the rider to twist the hips and upper body forwards when fully powered or planing upwind and, like Marmite, this system can be loved and loathed in equal measure. DaKine also manufacture a bar with a roller instead of a hook to help with sail trim and to reduce wear on the lines. Generally avoid kite surfing spreader bars as the often-used 'hammerhead' hooks are too curved for windsurfing lines, making hooking in and out much harder.

Harness Lines

Modern harness lines utilize high-quality pre-stretched rope, high-density polyurethane tubing and strong nylon/Velcro fixings. They are designed to minimise swing and prevent the line from moving forwards or backwards on the boom. Regular fixings require the boom end to be taken off. Quick-fix lines can be fitted and removed with the boom assembled. In the past these were called traveller lines as they are ideal for taking on holiday if you prefer to use your own lines on rental kit.

Harness line positioning

All sails are different in terms of style, design and size and these factors will affect where the sail pulls from. The power will be felt from further back for larger sails and from further forward for smaller sails. Harness lines need to be set for every session yet, after a bit of practice, this should only take a few moments. There are several approaches to harness line positioning. Standing a rig up on a gusty beach to hook-in packs the mastfoot with sand and could become an epic fail if the rig powers up and takes you down. There are better ways.

Three types of fixing: (L-R) Fixed, traditional-quick-fix and new-style-quick-fix

Attaching a super-secure, new school quick-fix harness line is quick and easy yet must be done neatly to keep it tight to the boom

Easy, accurate line positioning by balancing the rig on one or two fingers

The hands method is used often. This involves gripping the same number of hand-widths as the sail size along the boom from the boom clamp and positioning the forward fixing at this point. Another method is to place your elbow inside the boom clamp and set the front fixing at the point where your straight forearm and fingers meet the boom. One problem with these methods, perhaps, is that the new-school C-shaped booms with a wider, ergonomic, more comfortable outline at the front will give slightly different results than booms with a narrower, more traditional profile on the front end. These two methods are only a rough guide anyway so are an ok place to start.

Positioning is best done by laying a tuned rig on the ground, standing next to the mast and using one or two fingers under the boom arm to lift it. If the back end of the boom remains on the ground then your fingers are too far forwards. If the front end of the boom remains on the ground then your fingers are too far back. When the whole of the boom lifts cleanly off the ground - like a balanced seesaw – the forward and rear harness line fixings can be set at an equal distance from your fingers.

How long should lines be?

Adjustable (or 'vario') lines are good for playing around with to find your preferred length (and for switching between regular windsurfing and foiling as foiling may require a shorter line to help to control ride height). As a suggested starting point, place your palm onto the boom and, keeping your forearm straight, set your harness line to your elbow. Experiment on the water, tuning longer or shorter until the length feels right. They need to be long enough for your arms to be straight when hooked into a correctly set boom (which will get the rig upright). Personal preference and style of windsurfing is also a factor. If you really know what you want then go for a fixed length line. I mostly use fixed 28" lines (or fixed 26" for light wind foiling) as I know these work for me, have minimal swing and no moving parts/straps/cleats etc. which might wear, move, seize or break. A lot of sailors tend to use longer lines than I do.

The placing of hands can be useful as a rough positioning guide

Elbow-to-palm for line length is a good start

Comparing fixed 26” and 32” lines

Differences in line lengths

Harness lines are typically measured in inches from the middle of the boom diameter, around the line and back to the same point on the boom. Beware though: 30” lines from one brand might actually be exactly the same length as 28” lines from another. Such are the differences in manufacture. Go to a windsurf shop and try different ones out on a test boom with your own harness on until you’re happy.

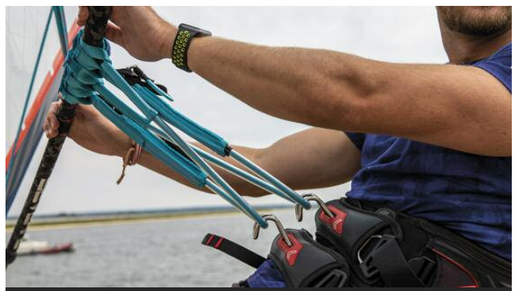
Shorter lines are ok for lighter wind and flatter water but, as conditions pick up, they can make the board feel skittish as the feet cannot push hard enough down to control the lift from the fin. Short lines can also de-power the sail as it gets pulled at too much of an angle into the wind and can also make us bend our arms.

Longer lines are better all round, including in strong winds and rougher water. They are easier to hook into and enable the rig to remain upright with straight arms and lowered hips for better power control. If you have good technique yet are prone to unhooking accidentally then your lines are probably too long.

Harness line length: waist vs seat harness

A waist harness has a higher hook which facilitates a vertical back with hips out. Shoulders are either level with hips or slightly further out. A seat harness has a lower hook which lets you adopt a more subtle yet effective seated position with hips closer to the rig which keeps the angled legs and back more in line with each other. Believe it or not (for planing) harness lines need to be shorter for a seat harness and longer for a waist harness! Have a look at the photo of Ben (below) to see this for yourself. In non-planing conditions, however, those using a seat harness will still need a longer line.

The longer and shorter lines used below



Seat harness = shorter line!

Harness line width

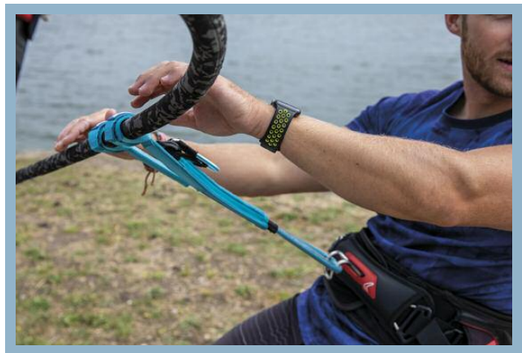
Setting the fixings a hand width apart is a good guide for freeride, improvers and as a general setting. More advanced riders may prefer the gap to be narrower or even have the fixings touching to deliver a more responsive feel from the rig. The hands should then be positioned as close as is comfortable to the fixings.

Avoid setting your harness lines far apart because this positions your hands far apart and promotes the dreaded ‘gorilla grip!’ Wide lines/hands mean less control as they can pull your body too close to the rig which can:

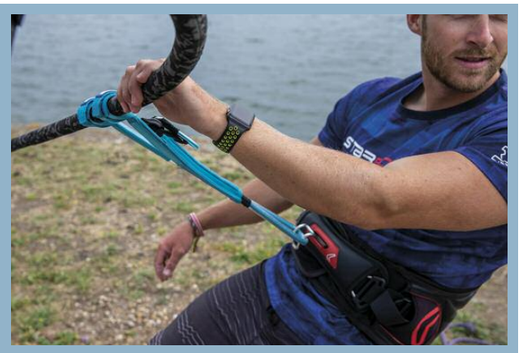
- make the rig less upright as you lean back
- pull your body too upright as the rig overpowers you
- sheet out too much if the hook/hips move/rotate forwards (spilling wind and losing mast foot pressure which can upset the board)
- over-sheet if the hook/hips move/rotate rearwards (stalling the sail)

Booms have markings (sometimes on the inside) which can help with placing lines in a known position for a certain sail size. Once one side is set then the position of the other harness line can be copied from it. Some brands use trim stickers on the sail itself in the same way.

Wide lines = gorilla grip = no!



‘Play the piano’ carefully to test the line



Remove the back hand first…

…then remove the front hand

Both hands off = perfect balance!

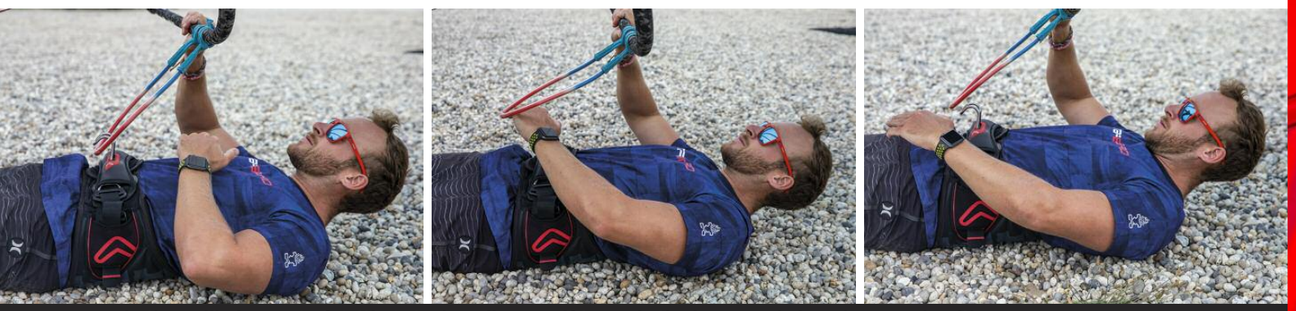
Fine tuning the harness lines

When hooked-in the weight and balance of the rig in the hands should be equal and balanced. If you are reaching back to sheet in properly then the back hand needs help – so move the harness lines back. If you are sliding your front hand forward to prevent the mast swinging downwind then the front hand needs help – so move the harness lines forwards. Hands should be gently connected to the boom (no tightly squeezed fists please!) and, as confidence grows, the hands can carefully try to ‘play the piano’ as you go along by tinkling your fingers on the top of the boom arm. Ultimately, with a balanced harness line, one hand or the other can be briefly lifted off the boom. Removing both hands from the boom gives a good show of skill yet could end in tears if you catapult no-handed…

Clear tubes allow the rope to be visually checked

Safety

Severne lines have clear tubes so you can keep an eye on the rope inside for wear. My early ones sometimes had slight lumps inside the dark plastic tubes where the rope was decaying. As I mentioned in the last article I worked in Antigua some years ago and enjoyed windsurfing long distances across the North Shore where I once snapped a fin. Randomly I also snapped a harness line on a different day in more or less the same location. To carry on I managed to separate my board and rig at sea, remove the uphaul and tie it using two clove hitches to the boom before re-connecting the kit. The odd-looking harness line functioned perfectly as a temporary measure even if, being elasticated, I did have to stretch it downwards with the back hand to be able to hook in. Whatever brand or type you have to be sure to check them regularly.



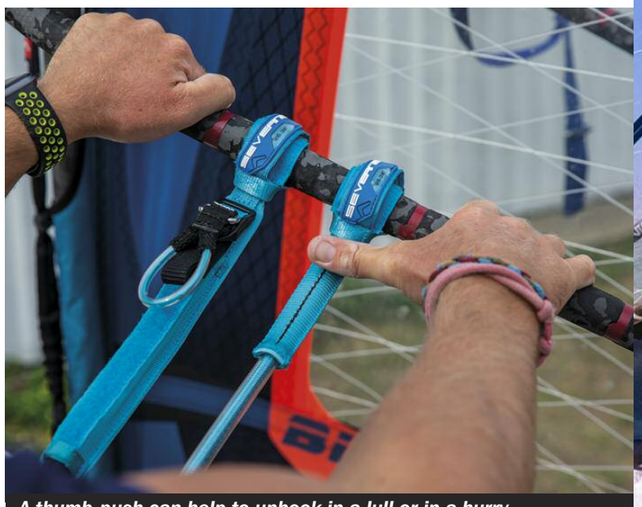
In the unlikely event of getting stuck, pull yourself towards the boom and chop downwards with an arm

Entrapment?

What about getting stuck? This seldom happens but it is good to know what to do just in case. One of the most suitable actions for getting out from under the sail is to pull yourself towards the boom and then chop down from about chest height with a forearm to knock the line out of the harness hook then pull yourself along the boom. If your spreader bar has a quick-release button learn how use it by feel. Flush it with freshwater after use and lightly oil occasionally to avoid seizure. New-tech QR Lines from Point 7 have yellow parts which can be pulled downwards to fully disconnect the line from the boom. Avoid old-school exposed rope lines as these can twist and be difficult to escape from after a hooked-in fall. Whilst the risk of entrapment can never be fully eliminated, modern (almost impossible-to-twist) tubes that contain the rope are much safer.

Top tip

A useful tip to prevent falling in to windward whilst hooked in is to keep the back hand quite close to the rear harness line fixing. This means you will be able to push the line out of the hook with your rear thumb when you quickly need to hook out in a big lull. This distances you from the sail and gets your weight over the board to stay dry! As a bonus, having your back hand close to the rear harness line fixing also helps to prevent over-sheeting.



A thumb-push can help to unhook in a lull or in a hurry

So that brings this four-part series on kit setup to a close. For more guidance head to:

- windsurfingukmag.co.uk to subscribe for future FUNDAMENTALS articles
- www.simonwinkley.com/windsurfing-uk to view previous articles

Many thanks to Sam Ross for a lovely chat about seat harnesses and to Ben Luckett for getting stylish on the simulator. History section from: *This is Surfboard Sailing by Reinhart Winkler (1979): Nautical Publishing Company Limited.*

Simon Winkley is a RYA Advanced Windsurfing Instructor and a RYA Windsurfing Trainer.

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