



2004 TRIM GUIDE

Windsurfing rigs have by nature an elastic, living character. The aerodynamic form your rig presents to the wind depends primarily on three elements:

- **the sail design** (the mast and seam curves cut into the sail),
- **the mast stiffness/flex** character and arguably most importantly...
- **the trim** you set into your rig (downhaul & outhaul tension as well mast-foot position and boom-height among other trim settings).

Trim sensitivity = performance & wind range expansion.

Loftsails have exceptional response to trim, providing both power in light wind *and* high wind handling ease.

Trim begins with noting the recommended mast and boom lengths and the recommended mast for your sail. Mast/boom length specs and mast recommendations are printed on your sail.

Rig trim is *critical* to rig performance.

The rig reacts directly to the two primary trim variables:
downhaul and **outhaul** tensions.

Downhaul

▲ High downhaul tension

All sails respond favorably to increased downhaul tension for high wind sailing. For strong winds it pays to be radical... **increased downhaul tension** will produce **easier handling and greater speed** in strong winds.

An 8:1 tack hook pulley system is recommended for easy application of the high downhaul tension needed for strong wind performance. When overpowered tension the downhaul! High downhaul tension will open the sail's leech (rear edge) releasing sail power. High downhaul tension will also flatten the sail body making the rig significantly easier to handle in strong wind and increase your speed and fun! Be aggressive with downhaul tension as the wind rises...

Loftsails are built to accept & respond to high downhaul tension. High downhaul tension will soften the leech from the head all the way down to the boom and this is correct trim if your sail is too powerful.

▼ Less downhaul tension

Should the wind drop or should your sail size is small for the wind strength **less downhaul** tension will firm up the leech and make the sail body fuller. Such reduced or "soft" trim generates **greater low-end power**. Note that when winds are sufficient for easy planning it is the right moment to experiment with increased downhaul tension. The feeling of free speed will set your windsurfing soul free! The adjustment range between ideal low wind trim and ideal high wind trim for a given sail size may be as much as 5cm.

Outhaul

The **outhaul** has direct impact on rig performance.

▼ Reduced outhaul

Reduced outhaul makes the sail deeper in profile generating **greater power** for light winds. Extreme low wind trim will increase light wind power and also make the rig feel stiff and more back hand oriented, especially if the wind rises.

▲ Greater outhaul

Greater outhaul tension flattens the sail profile making the sail much **easier to handle** and faster in medium and strong winds. Flatter outhaul trim allows the sail to pass more easily through the wind.

For a given sail size the range between ideal strong and light wind trim may be up to 6cm.

An easy outhaul trim reference is the forward end of the batten just above the boom. If this forward batten end passes the mast without touching the mast the outhaul is set well for medium-to-high winds. If this batten end makes mast contact during rotation the outhaul is set for light-to-medium winds.

Optimizing Rig Trim

Optimizing rig trim involves more than outhaul and downhaul sail adjustments. Boom height, the mastfoot position, the harness lines and mast type all impact performance.

► Boom height

Boom height has a direct performance impact. Low boom height will make initiation of planing difficult. An overly high boom promotes early tail walking and makes maneuvers difficult; a good position to begin is **chest / shoulder** level.

If there is too little wind for the sail size being used the boom is best raised to assist in the initiation of planing. A higher boom places more of the windsurfer's weight onto the rig and less on the board. Consequently the board has a greater capacity to lift and plane.

If the wind is strong for the sail size lowering the boom will give the windsurfer greater control. With a lower boom position the riders' weight becomes more board oriented increasing board control in challenging conditions.

► Harness lines position

Harness lines are your power transfer: their **position** and length will affect rig performance. The harness lines bear the diving power from the rig allowing the windsurfer to be free! Finding the right harness line position is a question of balance. Windsurfers who are starting with the harness usually like to place the lines too far forward reducing the likelihood of being catapulted. Lines too far

forward will limit speed as the windsurfer is kept forward, forcing more board into the water.

To place the lines correctly go with the flow... if harness lines are too far forward the back arm becomes fatigued. If the lines are too far back the forward arm becomes fatigued. Try sailing with no hands! When the lines are placed correctly you will be able to sail for long moments with no hands. If you reach for the boom first with your backhand the lines should be moved back. If you reach for the boom first with the front hand the lines should be moved forward.

Lines placed further apart may produce a feeling of greater stability. Wide lines (30cm+) will harness sail power comfortably and are generally better suited to beginning and intermediate windsurfers.

Narrow harness lines (14cm and less) transfer power to the sailor more directly, more critically. As the harness lines are placed closer together on the boom they make rig trim more critical relative to the power center. Racers tend to set narrow harness line placement, as little as 5cm between the lines.

► **Harness line length**

Harness line length also influences performance. For average size windsurfers 26cm to 28 cm from the line center to the boom is an average harness line length.

Short lines limit speed potential... bodyweight is the power generator.

Bodyweight too close to the rig and maximum power is unavailable.

Overly short lines (less than 25cm max from boom) limits the reaction time as the windsurfer encounters changing wind and sea conditions. Overly long lines (more than 32 cm) may cause arm fatigue and rather wet windsurfing as the sailor makes frequent contact with the water.

Correct harness line position is affected by downhaul and outhaul tension; strong wind trim will shift the harness line positions forward; light wind trim will bring the harness lines further back, the difference being in the range of 2-4 cm.

► **Harnesses**

A loose fitting **harness** affects negatively harness function; power transfer is less effective and is detrimental to your windsurfing performance. Keep your harness tight!

Waist-type harnesses are generally used for wave and freestyle windsurfing.

Waist-type harnesses place the hook higher on the body, which is suitable for freedom of maneuvers.

Racing harnesses are normally lower on the body, bringing the hook down and so loads more the leech & more easily closes the rig down onto the board, both of these elements tend to augment speed potential.

► **Batten tension**

Batten tension is simple! Tension the battens until the sail becomes visibly taught. Many windsurfers overlook batten tension.

Full batten tension **makes the rig more stable** as well as removing wrinkles.

Severe over tensioning battens may cause asymmetric profiles and affect batten rotation. Cammed battens may need special care as over tensioning cammed battens may result in hard rotation.

► Mast stiffness

Masts influence rig performance. It is best to use the recommended mast for your sail.

If a **softer** mast is used the rig becomes more flexible; rig handling will normally become easier in **high winds** and the rig will be easier to close down onto the board ("closing the gap"). Softer masts will normally make the rig faster downwind.

A **stiffer** mast will have the opposite effect; the rig will become more difficult to close down onto the board in the upper wind range. Stiff masts will go **upwind** more efficiently compared to soft masts.

Optimizing Board Trim

Boards have three trim variables:

- footstraps,
- fins
- mastfoot position.

► Footstrap position

Footstrap position determines the sailor's stance on the board and therefore the board's attitude in the water. Most boards have options regarding footstrap placement. Generally, a **wide** stance is **control and maneuver** oriented. For rough water/upper end footstraps placed forward and farther apart will result in more control over the board and the lift generated by the fin.

On flat water both footstraps may be best located further **back**. Rear footstrap positions and straps set closer together will allow the windsurfer to **fly more** on the fin with less board in the water for greater speed potential.

► Fins

Deeper / bigger fins are well suited for **light winds** as they generate greater lift at lower speeds. As the wind rises **shorter fins** will make the board **easier to handle**. The fins angle to the bottom of the board will also affect performance. Vertical fins will make the board fly; better for lighter winds and speed.

Sweptback fins will make the board easier to control in stronger winds and generally turn more easily but will detract from light and medium wind speed performance.

► Mastfoot

The Mastfoot is where the power and the ride meet so position is critical!. Generally, **forward** placement increases board control by taking the sailor's weight forward, more onto the board, controlling the fin. **Rear** mastfoot positions are more speed oriented as the fin is allowed greater ability to lift the board; with more of the board out of the water **speed** potential is increased. The mastfoot set 137-140cm from the tail is a good "all-round" position from which to begin.

▲ High wind trim package

If you feel overpowered set the mast and boom length to the recommended high-wind lengths and trim accordingly. Also try the boom lower by 2-4 cm and set the mastfoot further forward 1-3cm. Hi wind trim will require the harness lines to move forward by 2-4cm compared to low wind trim.

▼ Low wind trim package

To trim for power free the downhaul and the boom 2-4cm. Raise the boom a few centimeters and move the mastfoot back 2–3 cm. Low wind trim will require the harness lines to move back by 2-4cm compared to high wind trim.

Experience the new sensations resulting from trim alternatives, and you will **expand your windsurfing performance!**

Troubleshooting

Windsurfing is a wonderful feeling of balance. Should you feel unbalanced try one or more of the solutions listed. One of the solutions or a combination of them may bring balance for you!

☹️ **The rig feels stiff and heavy with too much backhand power >>**

😊 Try more downhaul, more outhaul, mastfoot back, boom up.

☹️ **The board has the tendency to turn into the wind >>**

😊 Try the mastfoot further forward, harness lines further back, footstraps further forward.

☹️ **The board has the tendency to turn downwind >>**

😊 Try the mastfoot farther back, higher boom, harness lines further forward, bigger fin, footstraps farther back.

☹️ **The windsurfer feels in constant danger of being catapulted >>**

😊 Try more downhaul, harness lines farther forward and farther apart, smaller sail, more outhaul, softer mast.

☹️ **Slow, stuck to the water feeling >>**

😊 Try the mastfoot farther back, boom higher, more downhaul, harness lines farther back and closer together, bigger fin, footstraps farther back, bigger sail.

☹️ **Difficulty to get planning >>**

😊 Try the boom higher, mastfoot farther back, bigger fin, bigger sail, harness lines back, less outhaul, footstraps farther back.

☹️ **The board stands on the tail in strong winds (tailwalking) >>**

😊 Try more downhaul, more outhaul, mastfoot farther forward, smaller fin, footstraps farther forward, softer mast.

☹️ **The board spins out easily >>**

😊 Try more downhaul, more outhaul; straps further forward, bigger fin, mastfoot further back, softer mast.

☹️ **Difficulty closing the sail down onto the board >>**

😊 Try more outhaul, more downhaul, mastfoot further forward, smaller fin, softer mast, footstraps farther back, harness lines farther back, lower harness hook, smaller sail.

☹️ **The board bounces in chop and when starting to gibe >>**

😊 Try the mastfoot farther forward; boom lower, more downhaul, more outhaul, smaller fin, footstraps farther forward, smaller sail.

Optimizing trim for **high performance windsurfing** is a process which has no limits! Improvements in one area will compliment trim improvements in other areas. Performance can always be expanded as new, more efficient trim configurations are experienced. Maximizing trim is the cutting edge of windsurfing. Windsurfing is the most efficient purest sailing form... a never-ending source of new sensations...

Experience it!

The Loft 2004 Specifications

Size	Mast	Boom	Rec. Mast	Mast Ext.	Vario Top	Battens*	Micro Battens	Cams
------	------	------	--------------	--------------	--------------	----------	------------------	------

Lip Wave Concept

5.7	441	183	430	11		5	3	
5.2	424	174	400	24		5	3	
4.7	404	164	400	4		5	3	
4.3	386	157	370	16		5	3	
3.9	366	150	370		4	5	3	
3.4	345	145	370		25	4	2	

Lip Freewave Concept

6.8	473	203	460	13		5	3	
6.2	458	191	430	28		5	3	

O2 Freeride Concept

7.4	485	217	460	25		6	4	
6.6	467	203	430	37		6	4	
5.9	443	189	430	13		6	4	

O2 Freerace Concept

10.8	560	265	550	10		7	5	
9.6	532	245	520	12		7	5	
8.4	513	229	490	23		7	5	

O2+ Formula Racing

11.8	575	290	550	25		8	6	4
10.2	544	274	520	24		8	6	4

*not including Sensitip batten

Kids

Size	Mast	Boom	Mast Rec.	Compatible masts
Spark 3.2	370	150	370rdm -20cm	350alu
Kiddo 2.5	370	150	370rdm -20cm	350alu

-All measurements in centimeters

-Mast & boom measurements are trim settings for high winds including trim hook (mast length only). Reduce for lighter winds.

The Loft January 2004

Specifications subject to change without notice

www.loftsails.com