

2002 Tuning in a Vanguard 15

If you are the kind of person that likes to roll up to the regatta an hour before the start, throw the mast up, select a catch-all shroud setting, and then just focus on getting good starts and nailing the shifts, this article may not be your thing. But if you are striving for milking top boat speed out of your V15, and moving toward a more methodical strategy for reproducing that pace, this info is for you!

I'm a boat speed freak, and I like to study cause and effect of trim and technique. After my experience at the Nationals in October, I decided that there is a better way to track tuning in these boats, and set out to establish a new personal system. I'm very appreciative of the tuning guide that is currently the class standard – it is simple and requires minimal fuss. But in reality, it misses two incredibly important factors. It does not measure comparative tension, which is about the most critical boat speed adjustment in the V15, and it does not state fast “sailing rakes”.

“Sailing rake” means that I'm running my tape measure to the transom when the jib is fully tensioned up for a given condition. Tension and rake go hand in hand, so when I come back from a day of racing or tuning, and want to compare settings with another boat, I want to know what we were set at on the water. And since we sail incredibly loose in light air, I also wanted to study the relationship of rake/tension as the wind builds. This approach in our fleet has really stepped up the learning curve for everyone, and has improved boat speed across the board.

Setting Standards and Baselines

Let's start off with the things that I try to never change. I set the mast step with 5 holes showing in front of the one that is actually pinned. This is about 1/2 way back. The existing tuning guide recommends much farther forward, but that was written before the spreaders were shortened. I'm also looking for better downwind performance, so my attitude is keep the step back until someone blows by me upwind in big breeze that has their step forward.

The next important thing to standardize is jib height off the deck. I set up my rig in it's most forward raked position (consult Spreadsheet) and tie the head of the jib so the foot is BARELY touching the deck. On my luff wire this is 2 3/4” from the bearing point of the thimble to the head of the jib. This measurement will vary slightly. Make sure you are pulled to racing tension when setting this.

Once I have the jib tied at that height, I never adjust the top again. All luff adjustments are done at the bottom of the sail. That way the lead position remains consistent, and I can focus on only rake and jib luff tension while watching the upper twist of the sail.

Don't underestimate the importance of adjusting the luff tension for every condition every day. It is critical. Use a small enough piece of line at the tack so the adjustment can be made on the water easily through the full range.

I set my mainsheet bridle so that the split is 42" from where they are tied to the eye straps.

The final setting I've used consistently is to pin the tack of the jib in the middle hole of the bow fitting. That seems to flatten the jib nicely for the light air and the big blow. I've wondered about optimizing by going to the other two holes in certain conditions, but really have been happy with the middle, and played the jib luff tension aggressively to change the shape for different conditions.

Sta-masters

Shroud settings in the V15 are critical – there are no two ways about it. It determines tension and rake. I recently sailed in a 15-22 knot big-wave training session, and was super-fast. When we came in and measured the three different boats that had sailed, I was raked 6" further back and had TONS more tension. The sad thing was that the owner of one boat had no idea where to put their shrouds for that condition. Part of that is due to the inconsistency of shroud cutting on a factory level. You cannot pin your shrouds at the same holes as someone else and be certain that you have the same setup.

The Sta-master system gives you two things – one it gives you a set of shrouds that is cut with more precision. You can compare your number 5 setting with my number 5 and feel pretty confident we are close. The second advantage is overwhelming – you can change your rig in less than 2 minutes, and it is totally safe. I can't tell you how many race days I've been able to make a quick change and had a serious boat speed advantage. It's simple, it's safe, it's calibrated, and the whole system only costs \$70.00.

The Spreadsheet

Once I had a rig that was setup right and the ability to change things quickly, I decided to start using a tension gauge to track settings. I'm using a Loos old style gauge – which is inexpensive and good enough for the purpose it serves. I made sure to have a good/permanent scale on the mast for the jib halyard, so that I could re-produce settings that were proven to be fast.

I did extensive testing in light air at the Midwinter's, and came up with a great setting. The tension was of course very light (18), and the jib luff tension was extremely loose (slight wrinkles). No one could out point us, and we were very fast.

From the proven Midwinter's setting, I just started experimenting with a lot of random tensions in different conditions and making notes. As things progressed, I discovered that I had about 6 or 7 settings around the upper shroud settings, but then QUICKLY started dropping (tightening) the shrouds as the wind came up.

Study the spreadsheet that I used to track different settings. I found it helpful to make notes when I learned specific things about a unique condition.

Tips by Condition

0-3 knots

Who likes sailing in this condition? Not me! So... no comments!

3-8 knots

This condition is one I really like. The water is super smooth, so once you get up to speed, you can sail super flat and point very high. Jib setup and trim is critical, and is my primary focus. At the Midwinter's, I used a middle telltale on the luff which was super sensitive, and gave me an "extra" read on pointing. When we had to hold a lane, I focused intently on this telltale and we motored by the fleet.

I generally don't move the mainsheet much at all in this condition. I just find the right trim, and once we are fully accelerated leave it there unless the velocity changes a lot. If your rig is set right, you should have a fair amount of headstay sag, so you have to be careful not to trim the main too tight, otherwise you are pulling sag out. I sometimes have to remind myself, "ease the main for more sag and power, flatten the boat, and point". It can feel really backwards, but once you find the right combo, you are untouchable.

I am surprised that the top mainsail batten telltale is stalled a fair amount of the time. I heard Mark Reynolds make a comment on this type of trim earlier this year. He likes to ignore telltales until he feels like his trim is perfect, and then puts them on and notes their behavior.

The two biggest mistakes I see people make in this condition are not getting the crew far enough forward, and sailing too heeled. I am constantly reminding the crew to move up to the shroud in this condition, whether they are in the cockpit or out in the straps. As the skipper, I'm not too concerned with moving forward too – I stay right about where the ratchet block is.

I sail extremely flat in this condition – sometimes even heeled to windward a slight bit. It is smoking fast and you can point very high when hooked up. You have to just accept the fact that there will be NO FEEL in this condition. The helm will feel dead, and even have leeward helm at times. Instead of focusing on the helm, focus on your speed through the water, the flatness of the boat, and the amount of pressure your butt/legs are applying to the rail/tank. If you do all these things and focus intently on steering perfectly, the performance is there – trust me.

8-12 knots

It's tough to beat racing a V15 in this condition. The boat has enough power to require hard hiking, it points great, a variety of VMGs work, and it is super tactical. This actually is the condition we had at the Nationals, and inspired me to learn more about tension. A variety of tensions and rakes work here, as you can see from the spreadsheet.

It's important to factor in the water conditions. If it's flat, sailing raked forward and vangging to depower can be quite good. But if it is wavy, sailing raked forward gives you sails that are too tight leeched and flat – those shapes are not forgiving enough for rough water.

You'll want a stable headstay in rough water, so you may find yourself sailing tighter in waves than in smooth water. In waves you want the sail plan to carry some depth, some twist, and a maintain a fairly locked in and stable trim. That way you can focus more on perfect hiking and steering through the difficult wave patterns.

But in flat water, don't be in a hurry to take all the headstay sag out. That extra power may be what you need to get off the line, live on someone's hip, or make it through that short chop. One thing about the 8-12 condition – EVERYONE is fast, so you need to really optimize - tune your tension perfectly!

If conditions are puffy, I play the vang a lot. I have the tail of the 8:1 vang extra long so that it can sit in the lap of my crew, always ready for adjustment. The crews I sail with all throw the vang across the boat before we tack so that they can pick it up on the new side. We also focus on getting the vang over the windward side when luffing right before the start so that it is ready to be adjusted.

I prefer (demand) to adjust the vang myself versus having the crew do it. The skipper feels the power in the rig, and knows exactly how much to ease or trim. It takes less time and effort to just do it instead of having the crew adjust it, and then ask “how’s that”, and then ask for a little more, etc.

Jib trim is once again of top importance, and I spend most of my time looking at the leech through the main window, and the foot distance to the rail. You should really spend a fair amount of time analyzing your trim through the main window – this is where I primarily base my decisions on jib sheet tension and rake. Don’t forget to fine tune the jib luff tension! Go for a few wrinkles if underpowered.

It’s important to realize that in 8-12 knots it is difficult to begin planing upwind. The mode is high, but with maximum hiking to keep the boat efficiently slicing through the water. Rapid 4-10” eases and trims of the main can be good for homing in on the magic balance point, and keep the helm perfectly neutral.

At 10 knots I start to have the crew move 10” aft of the shroud, depending on how “tight” the boat feels. If I need to foot, they come back to me, if pointing is the game, more forward. My crews usually politely remind me that where I want them to hike is a battle with the jib cleat digging into the back of their legs!

12-17 knots

This condition is awesome! Planing in the big puffs, displacement sailing off the line, and that gray area in between. I love that combination, and like switching modes quickly to respond to the tactical calls of each moment.

If you look at the spreadsheet, you’ll see a rapid drop in rake in this condition, and more consistent tensions around 35-38. 35 is about when the leeward shroud stops dangling, and beyond that we are looking to increase headstay tension for a flatter jib with more twist. These two things enable the jib to stay sheeted in at the deck, but still allow for bow down planing. The boat is nice and loose in the puffs, but points well when needed.

It's imperative to tighten the jib luff tension with your adjustment at the tack in this condition, removing all the wrinkles, and starting to "round-out" the front of the sail for great acceleration in the puffs. Don't be lazy! Belly up to the bow and make the adjustment.

We also start raising the centerboard in this condition, usually in two inch intervals. By 17 knots, we'll have it up about 6-8". I raise it if I feel the boat is sluggish to plane in the puffs. I'm not paranoid about pointing in this condition, for I can easily get height by just trimming the main hard, and steering in pinch mode.

The main cunningham is an often overlooked gear in this condition, and we pull it on aggressively. All wrinkles are gone.

I would characterize the vang tension as moderately tight, not wailed. The vang flattens the main nicely, but remember that planing boats in breeze must have sails that match. If the jib is twisty, so must be the main. Also remember that in the early stages of planing, you NEED power – too much vang will leave you just shy of the take off ramp.

The crew is now all the way back next to the skipper, and of course hiking hard, especially in smooth water and large puffs. As the skipper, I hike hard on my aft thigh when I want us to plane, and have my shoulders angled back from the ratchet.

Technique is a combination of the three modes mentioned above. You cannot just select one mode and blaze around the course. I'm impressed lately how much rapid but sensitive steering can work in this boat in planing conditions. Bear off with max hike, get planing, shoot up, repeat process. When you get the rhythm it glides together as a series of speed burns and pointing jabs.

It's a fun condition – don't forget to tack on the shifts!

17-25 knots

This is pure tuning heaven. If you have it, you are gone, if not, it's a lot of work with not much pay off. Two things are required – massive rake and tight tension. I've found a tension of 39 to be good, and rake of 21' or slightly less.

Wail the jib luff adjustment as far down as it will go. You want the jib to be super draft forward. Same with the main cunningham.

Vang tension should be moderately hard, but don't wail it on so much that

the boat is hard to handle or the main rags in the largest puffs. Use the vang to flatten the main, but leave some twist.

Centerboard can be as high as just under the jib sheet cleat. We want to still be able to play the jib upwind, but have the board as high as possible.

Skipper and crew position remains slightly aft, and hiking hard.

Steering technique is once again a balance of smoothness and rapid transition from planing to height/depower. If your rig is setup right, you should not have to ease the jib outside the rail. The boat should be planing at will if you are putting decent weight out, and the helm should be well balanced.

The hardest part of sailing in this condition is when the boat stops planing. It can be a bit of work to get it going again, so work extra hard out of tacks to immediately get planing. We really focus on tacking in smooth spots so that planing is easily achieved as soon as we fall onto the new tack. This is very important!

Conclusion

The standard tuning guide is a great starting point and compliment to what I've presented here. My spreadsheet is an ongoing work, but seems close for some good comparison numbers. Using a tension gauge and tape measure every day may seem overboard, but it undeniably answers at the end of the day why a certain boat was the fastest boat out there. In our fleet we come in and do a quick round of number checks before we ease our tensions off, and then have something to talk about at the bar!

See you on the race course,

Luther Carpenter #1046

(This tuning was done with a crew weight of 280-290 pounds)

Following is a link to Luther's tuning spreadsheet:

<http://cedarpointyc.org/uploads/LutherV15shrouddata2.xls>