

Tuning Tips

3/11/17

1. Check rudder alignment to keel
 2. Check mast alignment with keel
 - a. Place boat on large flat surface, measure from surface to tip of mast, place boat on opposite side and repeat
 - b. Measure from bottom of keel to tip of mast on both sides
 3. Boat balance on water – should be neutral or slightly stern-heavy for heavier air (to prevent submarining)
 4. Mast position
 - a. If excess lee helm, move mast back
 - b. My ODOM mast is 19" from bow
 - c. Mast is raked back slightly to improve pointing ability
 - d. Rake mast forward to reduce weather helm in heavy air (Corrected from original document)
 - e. Note: After informative discussions with Greg Norris, I learned that tightening the backstay also does help in heavy air, but that is not equivalent to raking the mast back, which would increase weather helm. Tightening the backstay helps to bend the mast, taking camber out of the main which will decrease its drive and thus weather helm in heavy air. Thank you Greg!
 - f. In addition, Greg asked for the measurements of the complete fore-triangle on my ODOM for reference:
 - i. Bow to center of mast: 19"
 - ii. Height of mast: 56 1/2"
 - iii. Top of mast to bow: 61 3/8"
- (over)

5. Sail Tuning

Sail Tuning			
Topic	Conditions	Main	Jib
Boom Angle	Light Air	Almost center of boat, about 5° angle	Further out to keep slot open
	Heavy Air	Increase angle to depower main, heeling and weather helm	Closer in, smaller slot
	Typical Position	Aimed toward transom corner	Halfway between shroud and mast
Shape (bag)		Bag is set primarily by outhaul	
	How to Measure	Close-hauled, measure from boom to sail at deepest point	
	Light Air	Slightly more than 1 finger, ~1"	2 fingers (~1-1/2")
	Moderate Air	One finger or less	One finger
	Heavy Air	Very flat to depower sail	
	Note	Generally, slightly less bag than jib	
Twist	How to change	Boom vang	Topping lift
	Light Air	Very little twist, keeps main powered up; leech should not curl past centerline	Lengthen to have little twist
	Heavy Air	More twist to reduce heeling and weather helm	Shorten to put more twist in jib
	Note	Keep curve of leech between main and jib closely matched	
Telltails	Why?	Informs you if sails are driving at maximum power	
	Maximum Power	Telltale streaming straight back	Leeward telltale should stream straight back along sail surface
	Stalled	Telltale is falling away from sail	Leeward telltale is fluttering up and/or away from sail
	Placement	One on leech, halfway up sail	Two or three ~1-1/2" from luff
	Note	Telltails work best for close-hauled, not at all on a run	

6. Sail on a beat. Properly tuned boat will require only a small correction on the rudder over 5-6 boat lengths. Any more correction means too much weather helm and too much applying the brake.
7. Adjustments on model yachts need to be done in very small increments. 1/16" or 1/8" can make a big difference in performance. With any adjustment, check other critical areas as they typically interact.

References:

Illustrated Sail & Rig Tuning – Ivar Dedekam – www.wileynautical.com

Ray Seta – Victoria Tuning, Model Yachting, Winter 2011, Issue 166