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Rig Tune

# Nick Turney

- 2 Time World Champion
- Multi North American Champion
- Multi National Champion
- Professional Sailor
- Professional Coach



The image features a central white circle with a light green border. To the left, there are two white zigzag lines. Above the circle, there is a light orange ring. Below the circle, there is a small light orange circle. To the right, there are four white diagonal lines and a large light orange circle. The background is black.

Rig Tune- What is  
Involved?

# Basic Rig Tune- Shrouds



# Basic Rig Tune- Before Stepping the Mast

## 1. Maintenance-

- Check all shroud fittings
- Sheave boxes- clean and lubed
- Rigging- Standing and Running in good condition
- Tape all pins and rings
- Electronics and lights work

## 2. Mast Step- Mast Rake

- In correct position
- Bolts tight
- Base is clean

## 3. Mark Spreaders

- Tape marks on spreaders for trim reference

## 4. Spreader ends

- Spreader boots
- Teflon tape

# Maintenance



- Check all Turnbuckles
- Make sure all threads are cleaned and lubricated with a wet or silicone lubricant
- Types of good lubricants



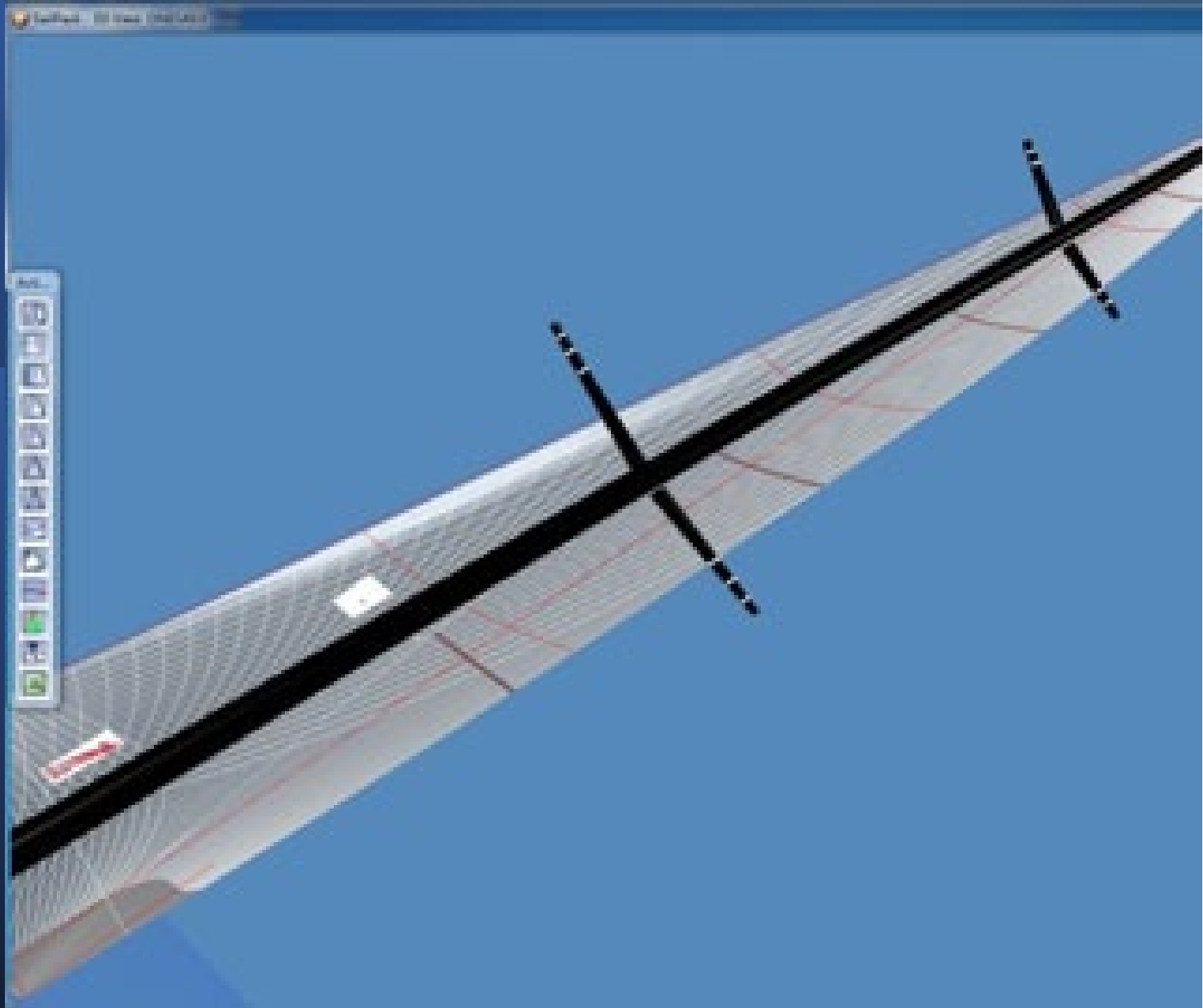
# Maintenance

- Upper (V1) Terminal Failed
- Brand new rig!



Mark Your  
Spreaders

Repeatable Trim  
Settings



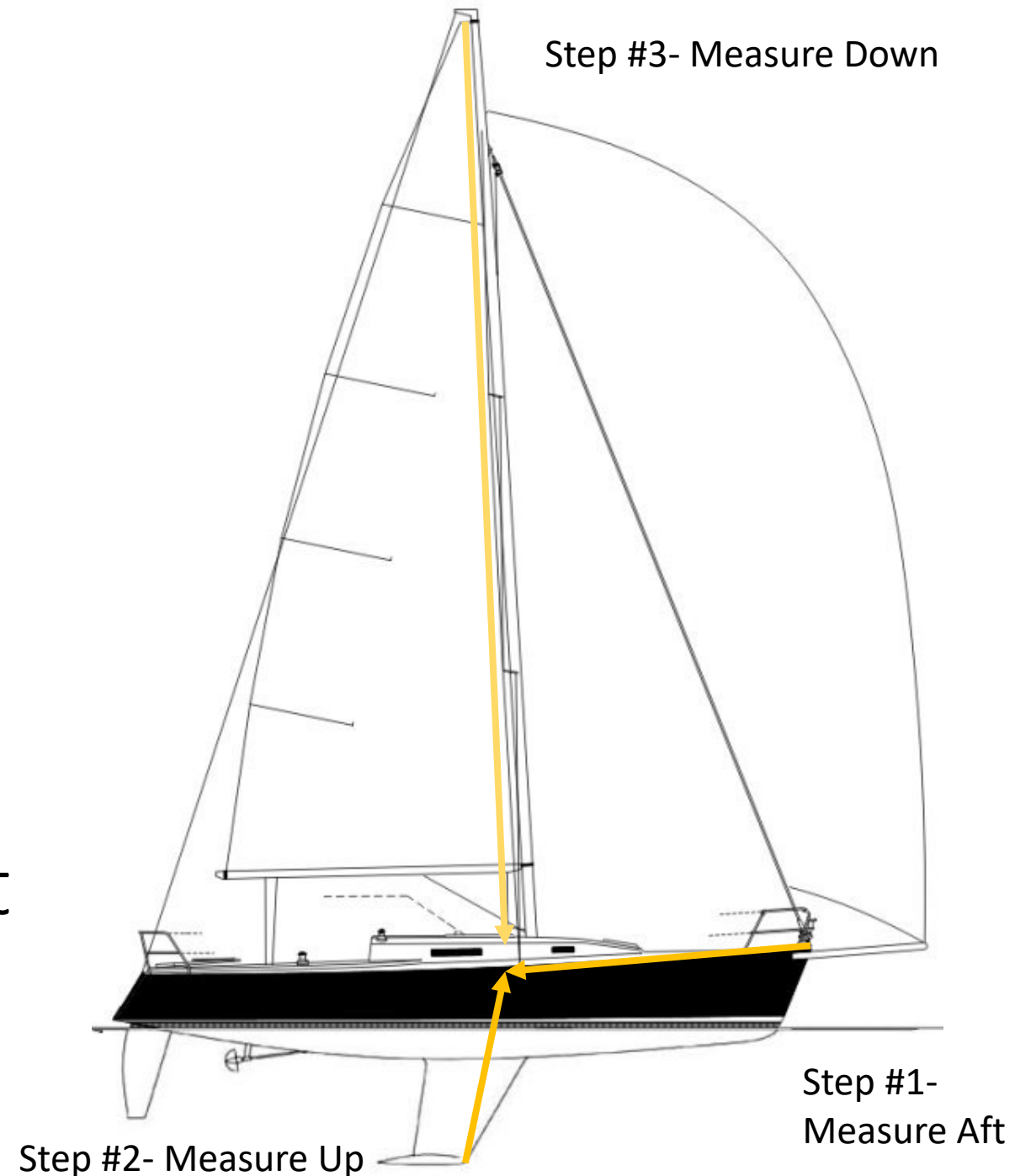


A photograph of a sailboat deck during sunset. The mast and rigging are prominent, with the sun low on the horizon, creating a warm, golden glow. The sea is visible in the background. A white rectangular box is overlaid on the center of the image, containing the text.

Mast is up- Now  
What?

# Align The Mast with Keel

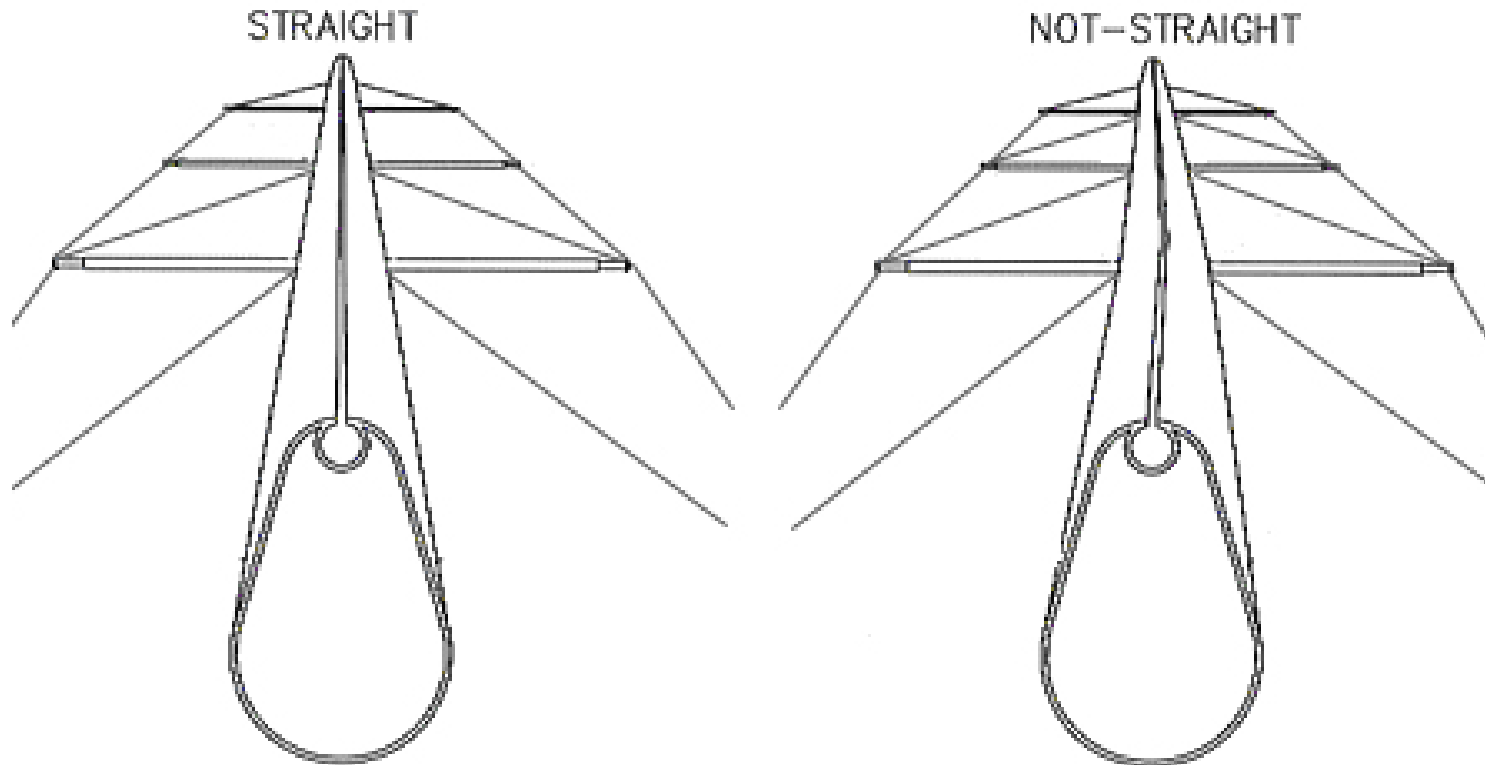
- Measure aft from headstay/deck intersection
- Measure up from keel
- Measure down from mast to your cross hare





Get your  
mast straight

# Basic Rig Tune- Get your mast straight



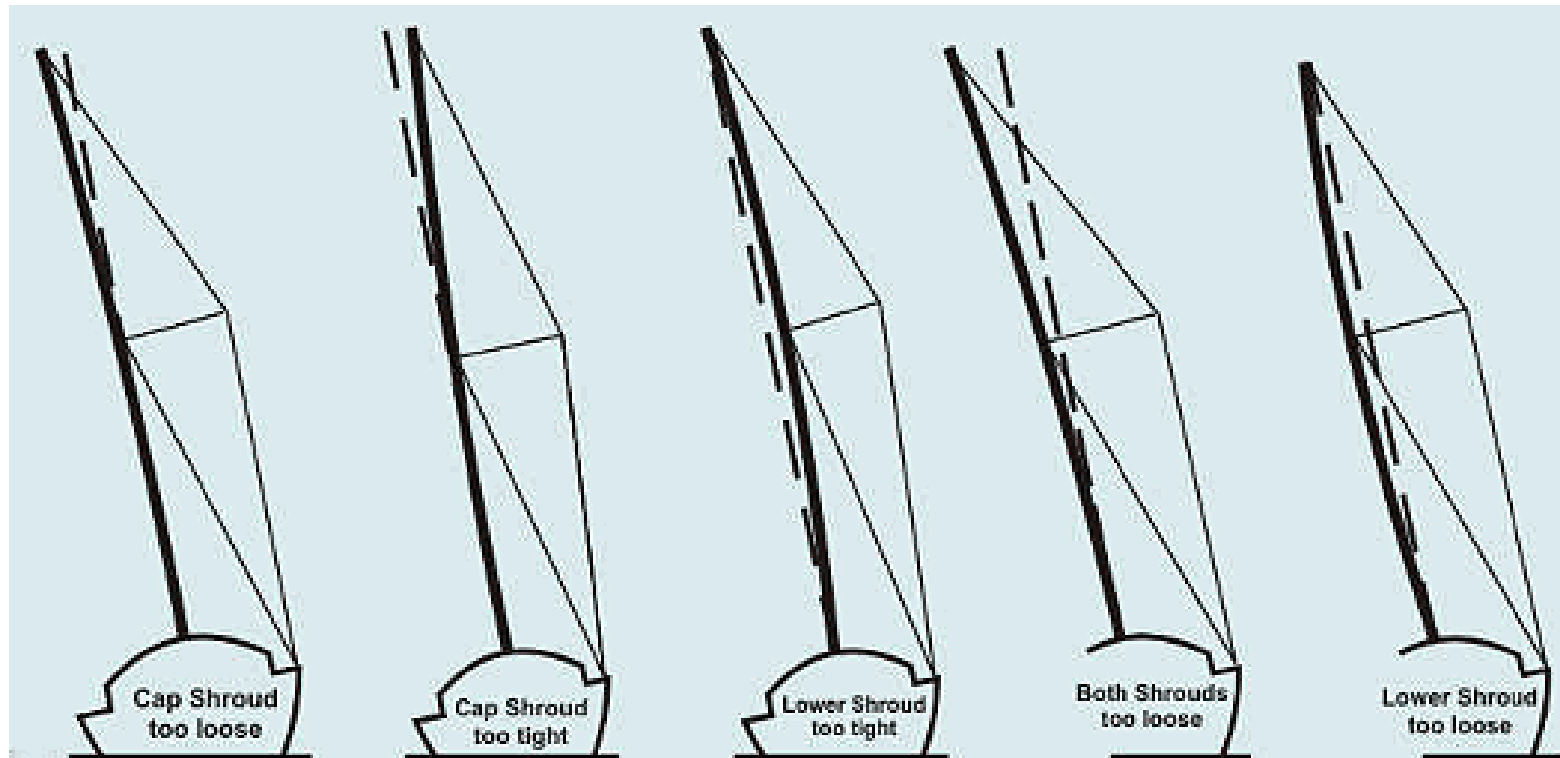
- Your Upper shrouds are now centered
- Use the Intermediates (D2) to get the upper middle part of the mast straight
- Use the Lowers (D1) to get the lower section of the mast straight

# Rig Tension



# Basic Rig Tune- Rig Tension

- Start with setting your shroud tension at 20% of the breaking strength for diameter of wire you have
- Go sailing in 8-12 knots- Make sure the mast is still straight and there is tension on the leeward shrouds



**No Helm- Balanced  
boat**



A fleet of racing yachts is shown on the ocean. The yachts are white with black sails. The text "Tuning For Performance" is overlaid in white. The background shows a coastline with hills under a clear sky. The yachts are moving from left to right, creating white spray. The text is centered horizontally and vertically.

# Tuning For Performance



# Tuning For Performance- What's Involved?

## Mast Rake

- Headstay Length
- Boat Balance- Helm

## Pre-bend

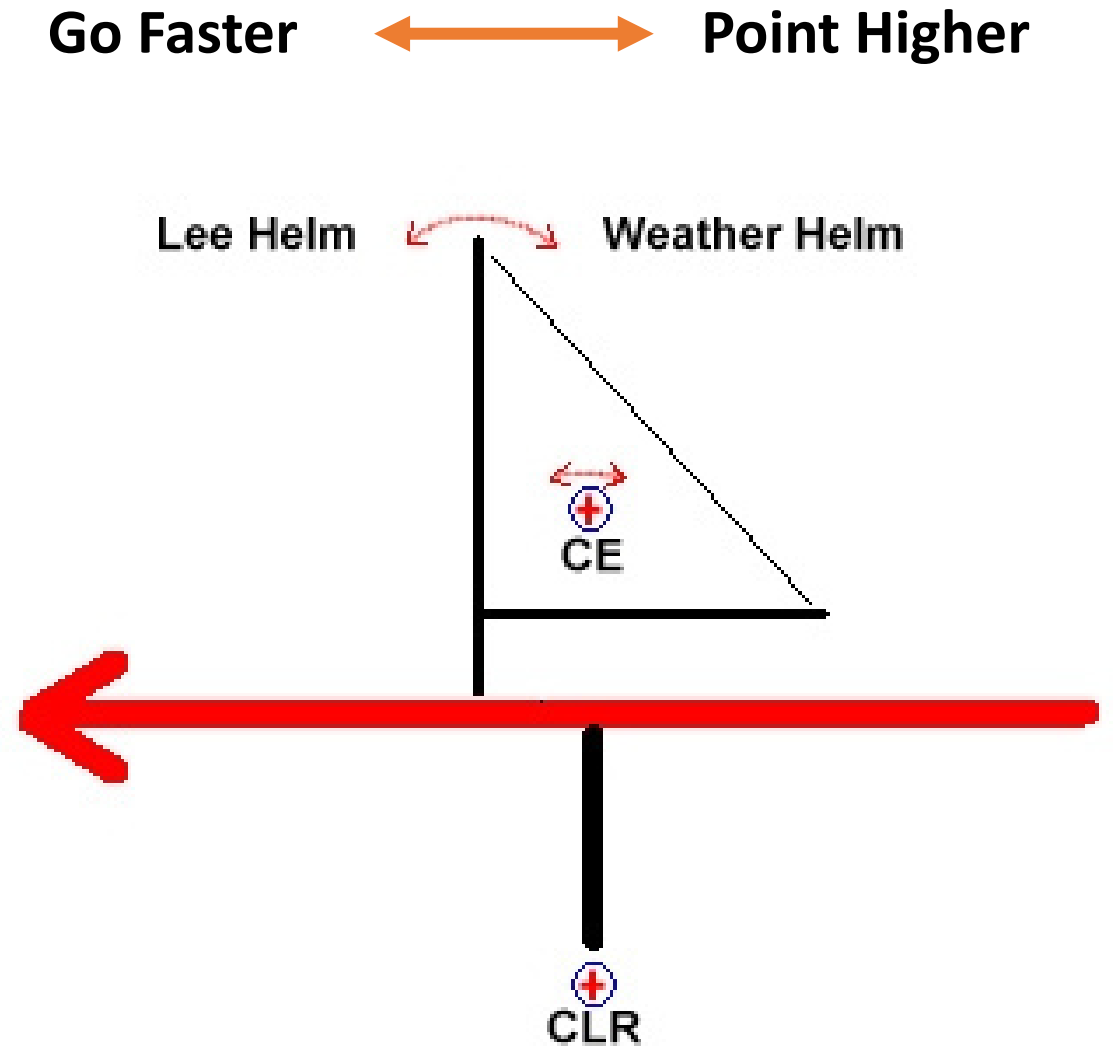
- How much do I want?

## Compare Tack to Tack set ups

- Equal performance tack to tack?

# Basic Rig Tune- What is Mast Rake

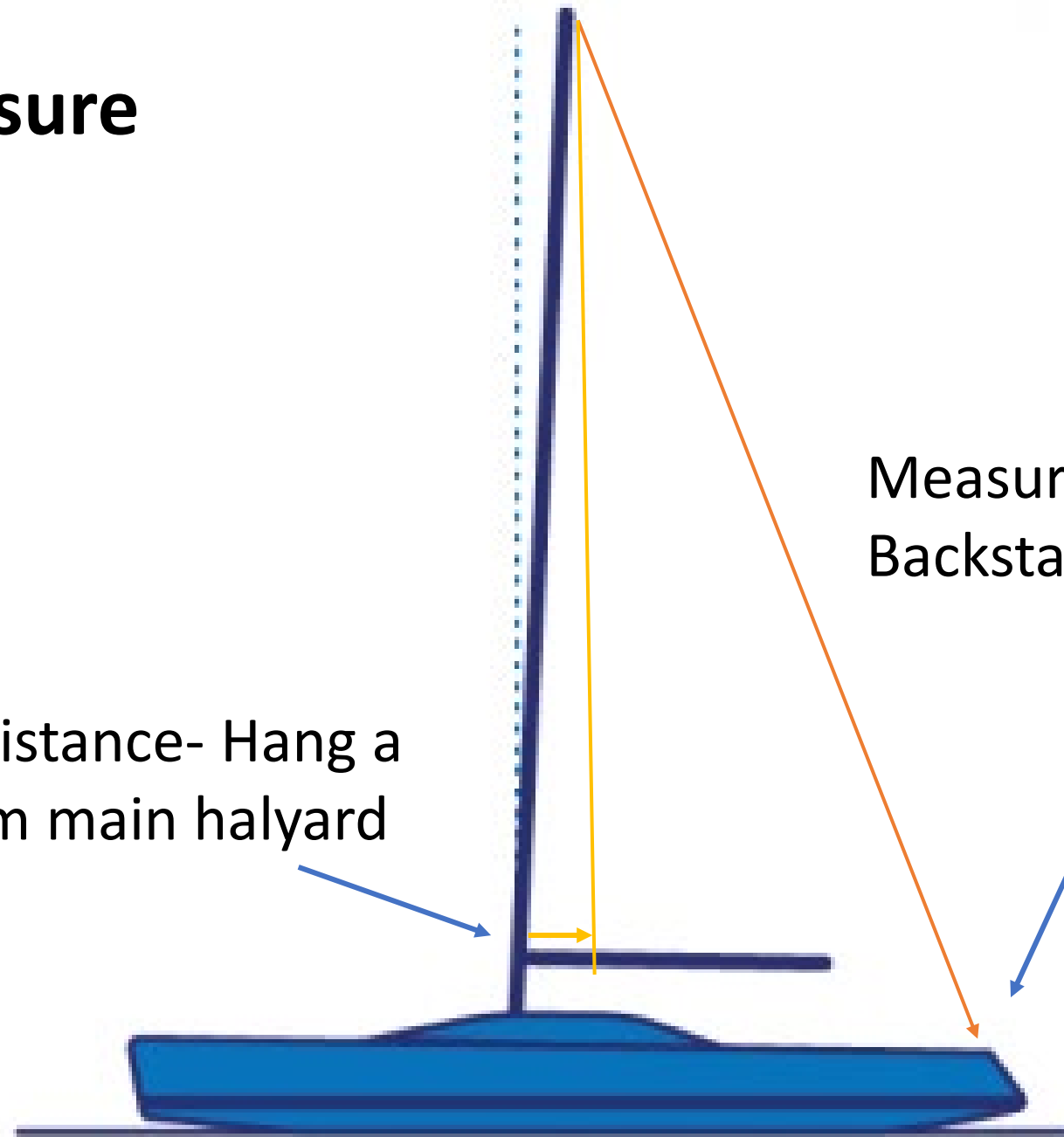
- Rake Mast Forward= Lee Helm
- Rake Mast Aft= Weather Helm



# Ways To Measure Rake

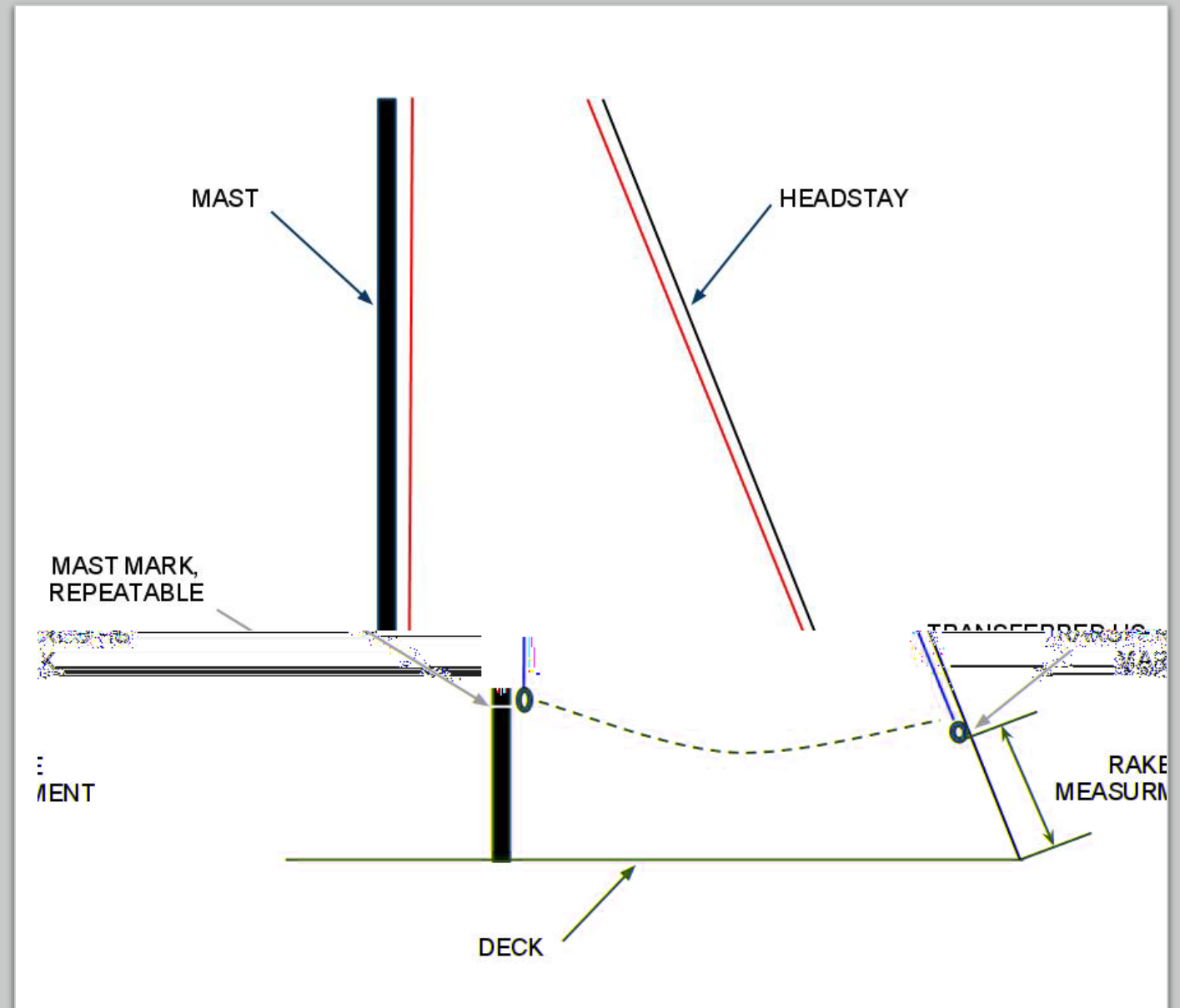
Measure Distance- Hang a bucket from main halyard

Measure to Transom-Backstay/Deck Intersection



# Basic Rig Tune- Mast Rake

- **Headstay Length**
- Measure your rake- ARC measurement



# Basic Rig Tune- Mast Rake to Balance Boat

Trim

With proper sail trim (Main and Genoa) the boat should track in a straight line

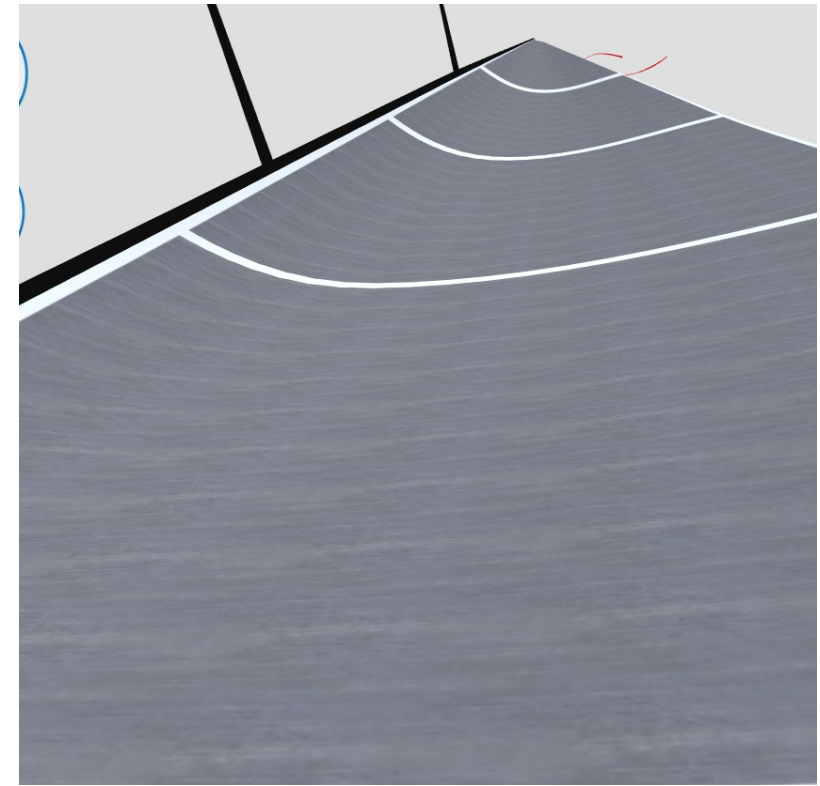
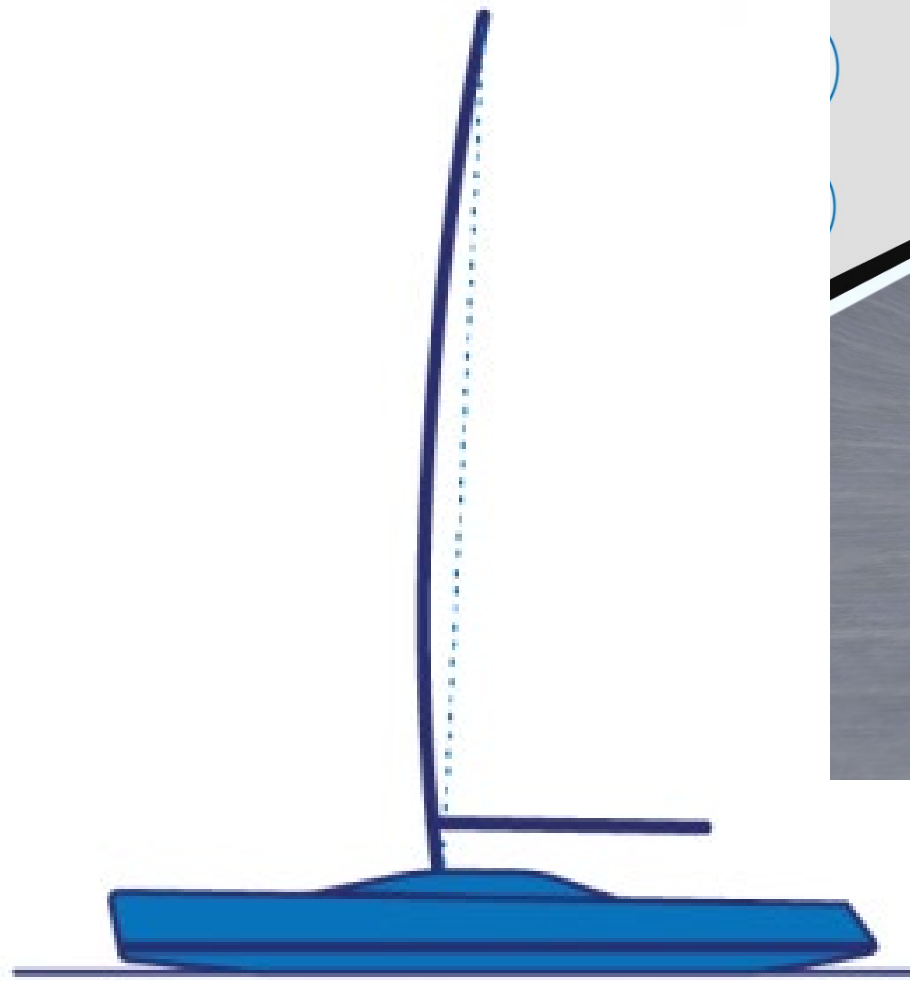
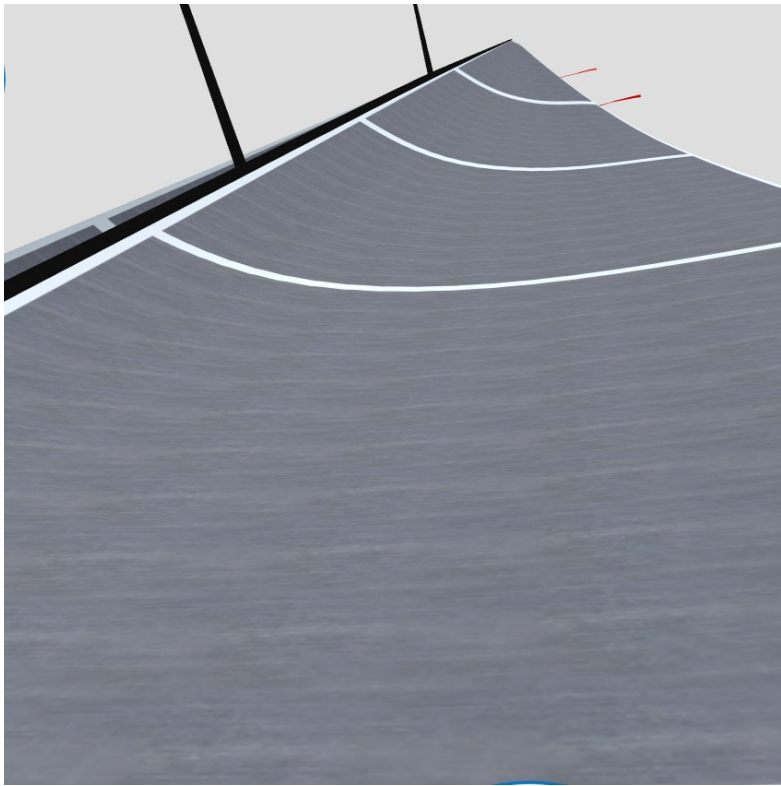
Do

Do this test in 8-12 knots

Adjust

Adjust your forestay length accordingly and re-tension your shrouds





Mast Pre-bend



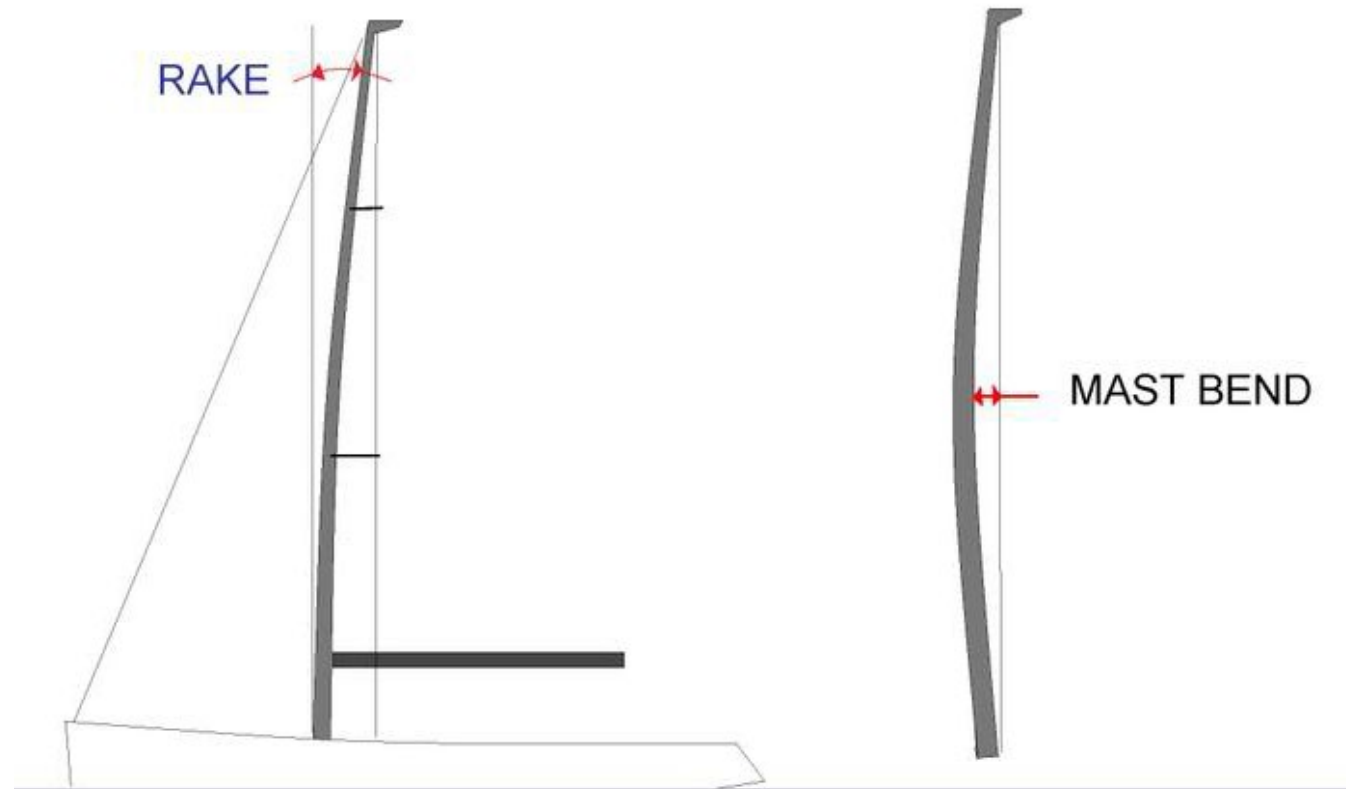
Less Pre-Bend



More Pre-Bend

Basic Rig Tune- Pre-bend/Mast Bend



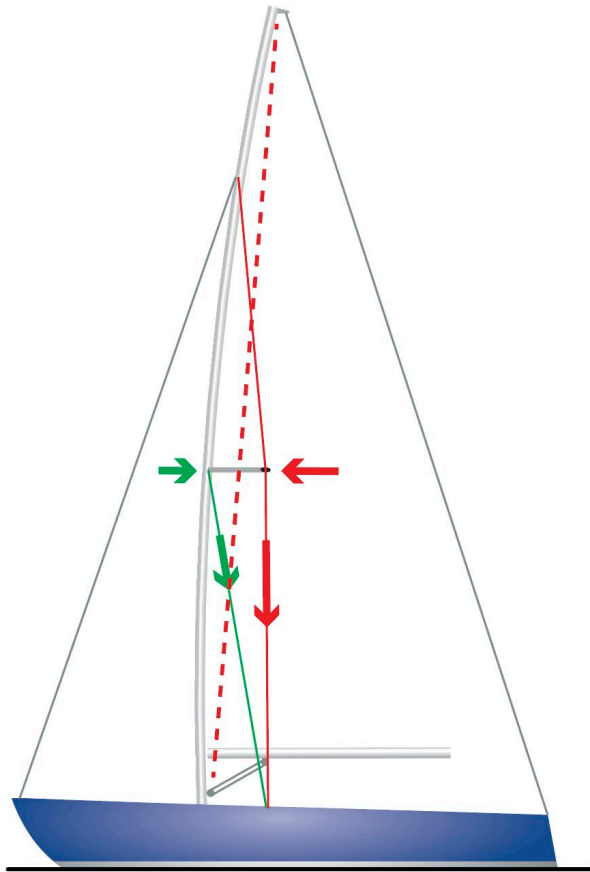


# Rig Tune- Mast Rake vs. Bend

Find The Balance Point

# Mast Pre-bend

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How do you know how much pre-bend?

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# Compare Set Up

vspars

AWA	TWS	Rake	Butt	D1	D2	D3	Run	V1	Tack	Time	Comments
0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	Stbd	2022-01-28_17-44-42	Bazinga starboard:

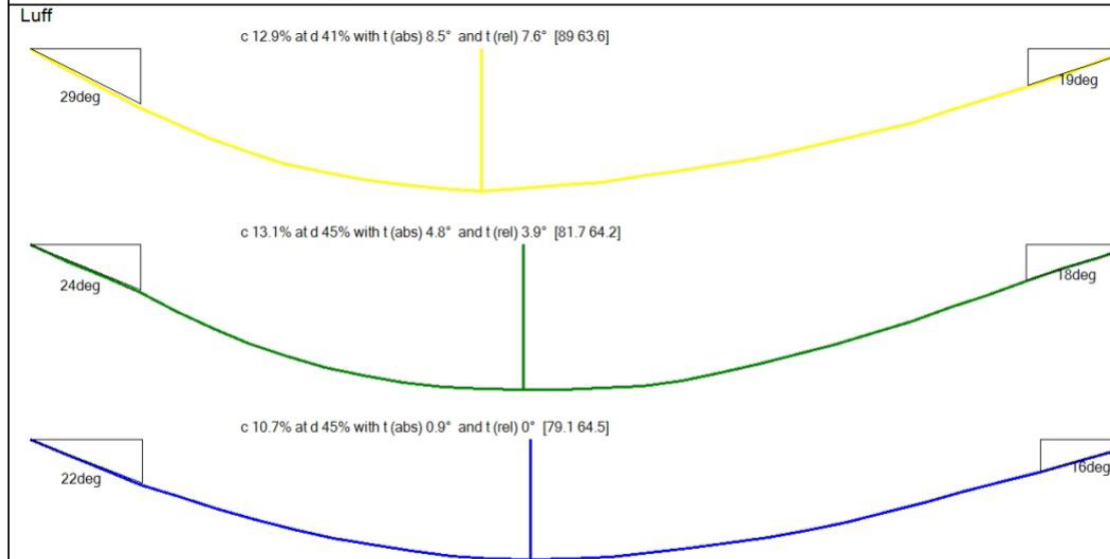


vspars

AWA	TWS	Rake	Butt	D1	D2	D3	Run	V1	Tack	Time	Comments
0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	Stbd	2022-01-28_17-44-42	Bazinga starboard:

Entry (°)	Exit (°)	Depth (%)	Draft (%)	Front (%)	Back (%)	Twist (°)	RelTwist (°)
29	19	12.9	40.7	89	63.6	8.5	7.6
24	18	13.1	44.5	81.7	64.2	4.8	3.9
0	22	16	10.7	44.6	79.1	64.5	0.9

## Stripes

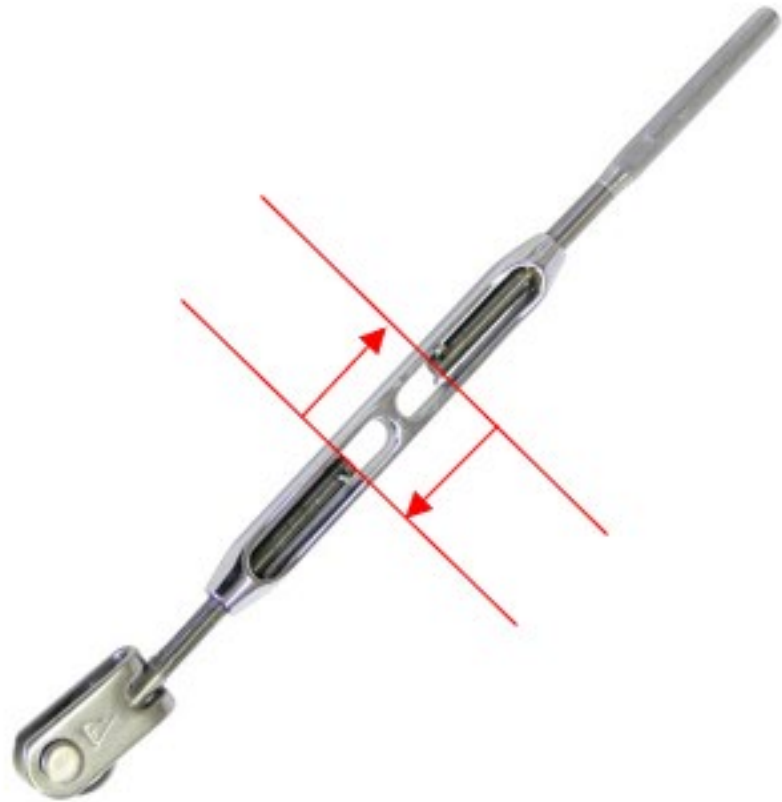


# Document Your Settings

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Good Idea?





Basic Rig Tune- Document Your  
Settings |



J/111

February 22'

Quick Tune

**Team Boomerang**

TWS	Uppers	Lowers	D2	Headstay	Jib Hal	Headsail	Inhaul	Jib Lead	Backstay
knots	# of turns	# of turns	# of turns	# of turns	number		number	back of car	number
0 to 10	-10	-6	-3	-5		J1			
10 to 15	67	30	27		9.25	J1.5 or J2			
15 to 20	2	2	0	5		J2 or J3.5			
20 +	3	3	0	5		J3.5			

**Base Settings**

Caliper #'s	Uppers	D2	Lowers
<i>Port</i>	54		38
<i>Starboard</i>	45		40
<i>Headstay</i>	52		

Mast Step= 419m

Headstay= 15.3 Pin to Pin 2.23 ARC 10-15 knots

**Rig Tensions**

TWS	Uppers	Lowers	D2
0 to 10			
10 to 15	67	30	27
15 to 20			
20 +			

Jib Car	From Tack	Inhaul	From center
J1	4950	Light	600mm
J2	5050	Med.	550-500mm
J3	4750	HVY	650-700mm

Target Crew Weight= 1433 lbs

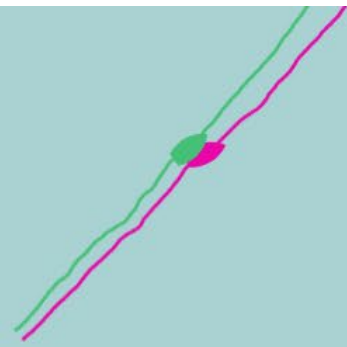
**Dark and Stormy**

	7.1 kts		349 deg
	2.5 kts		-69 deg

**Trio**

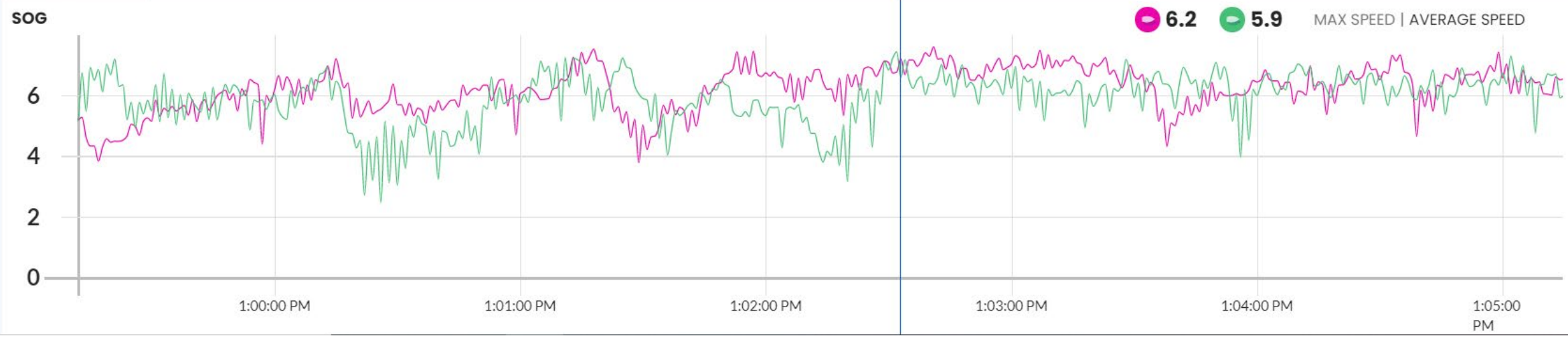
	6.9 kts		333 deg
	4.2 kts		-52 deg

**+ ADD BOAT**



MapTiler © OpenStreetMap contributors

**10x**







LET'S GO SAILING!!

Questions

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