

Sail and Rig Tuning

Introduction

It is important, but not necessary, to have a correctly Tuned Rig.

Boats which have badly tuned rigs are Slower, Point Lower, Heel more, make more Leeway and may be harder to Steer.

Rig Types

The Bermudan Style Rig can be divided into two main groups:-

Masthead Rig

Where the Backstay and Forestay are attached at the Masthead

Fractional Rig (Swift 18)

Backstay is attached at the Masthead

Forestay is attached some distance below the Masthead

More "tuneable" than Masthead rig

Large mainsail and smaller/fewer Headsails

More demanding to tune and to keep in tune

Rig Tuning

Three aspects of Rig Tuning are:

Trimming the Rig Sideways

Trimming the Rig Fore and Aft

Final tuning Under Sail

Trimming the Rig Sideways

Lightly tension the Cap Shrouds, Backstay and Forestay until mast is standing fairly upright

Remove the boom and loosen Lower Shrouds

Use main halyard to measure from one side of the boat to the other to set the mast upright.

Lightly adjust the Cap Shroud rigging screws to hold the mast upright

Trimming the Rig Fore and Aft

Adjusting the Mast Rake

Usually set with a slight aft tilt, but nil is OK

Improves the boats upwind performance

Usually between 2 – 3 degrees

3.5 to 5.25 cm/m of Mast length

Swift 18 about 0 - 20 cm works OK, but instead of altering your rigging, or getting new rigging, the original setting of 0 degrees is OK, but never Mast Rake forward.

Adjust the Forestay length to set the Mast rake

Lightly tension Cap Shrouds again

Backstay Tension

Done after setting Mast rake

Set to Maximum of 20-30% of Backstay breaking load

Breaking load of 10% is a stretch in the stay of 2mm in each 2000mm of stay length

So 20% tension is 4mm per 2000mm of backstay length

I set mine at 20% Maximum and put coloured threads markers on the Backstay adjuster so I know when I'm at 10%, 15% and Maximum 20%.

Remember this is the Maximum, don't over do it....and release Backstay tension after mooring.

Cap Shroud tension

Done after Straightening the Mast sideways and setting the Mast Rake

Lower Shrouds and Backstay must be loosened

Tighten Cap Shrouds to a Maximum of 20% of breaking Load

4mm elongation over each 2000mm of Cap Shroud length

Again, check Mast is upright

“Slack rigging” can produce shock loads that can cause rig failure

Final tuning Under Sail

Cap Shrouds

Lower Shrouds to be only loose/handtight

Tighten Backstay to 2/3 of maximum tension

Take the boat out in winds that will heel to about 20 to 25 degrees

Check Leeward Cap Shroud, it should be handtight, not sloppy

If sloppy...

*Tighten rigging screw 1 or 2 turns, then Tack and adjust the “now”
Leeward cap Shroud the same amount*

Leeward cap Shrouds should be tightened until it no longer curves to Leeward.

When happy, Pin and Tape the Cap Shrouds

Lower Shrouds

Adjust the Lower Shrouds so that the Mast is straight when the boat is heeling 20-25 degrees

Example

If the Windward Lower Shroud is too loose, the midsection of the Mast will fall off to Leeward, tighten the Windward lower Shroud to straighten the mast.

Rigging Summary

Handtighten Cap Shrouds until mast is vertical

Adjust Mast Rake with Forestay and Backstay

Tension Cap Shrouds to 20% of Breaking Load

4mm elongation over each 2000mm of Cap Shroud length

Set Mast pre-bend

Check rig under sail