

NOELEX 25 RIG TUNING

TUNING

Firstly we need to have some initial tension in the rig to straighten out and eliminate any slop from within the wire and the wire bundling. In addition, the thimbles, shackles and crimp connectors all need tension to get the slop out of these as well.

Over tensioning is bad. You can wear out your rig faster and build up large mast compression forces. You can even do damage to your deck even though on the Noelex there is good support inside the cabin for the deck-stepped mast.

Under tensioning is also bad, probably worse than over tensioning. If your rig is loose, the mast has a tendency to slop from side-to-side due to being knocked about by wave motion, gusts of wind and any pounding that may occur and so forth.

A loose rig is one in which the lee shroud becomes slack in moderate winds. This allows shock loads to build up and be applied to the rig due to the wave motion etc which could be in excess of the designed loads. This can cause the rig components to weaken and perhaps ultimately break.

A loose rig allows the mast to tip to leeward, and the forces generated cause the boat to heel. The weather helm increase and the boat will not point as well as it should.

The initial tension to take the slop out of the shrouds is about 80Kg, but there is more to tuning the rig than just doing this.

MAST POSITION

The mast must be set vertically for the lateral axis of the boat. Make sure the shrouds are equal in length. If not, adjust the rigging screws. You can also check this when the mast is erected by raising the end of a tape measure on a halyard. Measure to each chainplate to check for equal length. A further check can be applied by measuring from that point on the raised halyard to identical places on port and starboard on the transom.

It is necessary to set the mast rake aft. That is, the mast must tilt back a bit on the longitudinal axis. To do this with the boat on a trailer it is necessary to set the level of the boat. To a first approximation it is OK to set up the trailer so the waterlines are level. This assumes the boat sits on its lines when in the water. Use builders level or a plastic tube filled with water.

When happy that the lie of the boat on the trailer is the same as that in the water, run up a plumb bob on the main halyard. Measure the distance from the plumb bob to the lower sail band. This distance should be between 70 and 200mm. This gives an angle of between 0.5 and 1.5 degrees. Less rake will induce less weather helm however in heavy winds more rake is desirable.

The trim of the boat in the water is another factor to consider. If the boat is down by the bow the weather helm will be increased due to the Centre of Lateral Resistance moving forward, if it is down by the stern the CLR moves back and it will be reduced, eliminated or even have some lee helm. It is best to get the trim correct first and then experiment with the amount of rake for optimum performance.

MAST BEND

You need an amount of mast bend to suit the cut of your sail. When the mainsail is as flat as it can be, the curve of the luff of the sail must match the mast bend so the two fit snugly together. A mismatch will show up by heavy creasing running from the luff to the clew. Minor short creases along the luff are not so much of a worry; they can be eliminated by the use of the cunningham.

To induce mast bend increase the tension on the shrouds, do each side a bit at a time. Eye off the mast frequently to make sure that the bend is occurring smoothly and with no S bends etc. If the mast is not bending from the tabernacle you may need to shape the front of the mast base to allow for some tilt forward. You will also need to elongate the mast pivot pin holes to allow for the extra movement.

If the mast starts bending sideways you will need to remove material from one side of the mast base to correct it. You could also use some packing material on the other side to achieve the same effect.

It is probably best not to exceed 300Kg tension on the shrouds.

If your mast is straight laterally, if it has the correct mast bend, if the lee wires do not go floppy on a close reach in 15-20 knot winds, your rig is probably tuned acceptably unless it's over tensioned. To test for over tensioning, pluck on your shroud. You should hear a low note.

The tuning of your rig will have more impact on your speed and handling under sail than anything else except sail trim, yet excellent sail trim won't compensate for bad rig tune.