

Mirror sails are designed to be set and work with the mast and boom held in position. Get these fundamentals right and your Mirror will be easier to sail, more responsive and faster – and a pleasure to sail.

First take measurements before changing anything, write them down and take photos, so you can always go back to the original settings.

- **Rig tension**

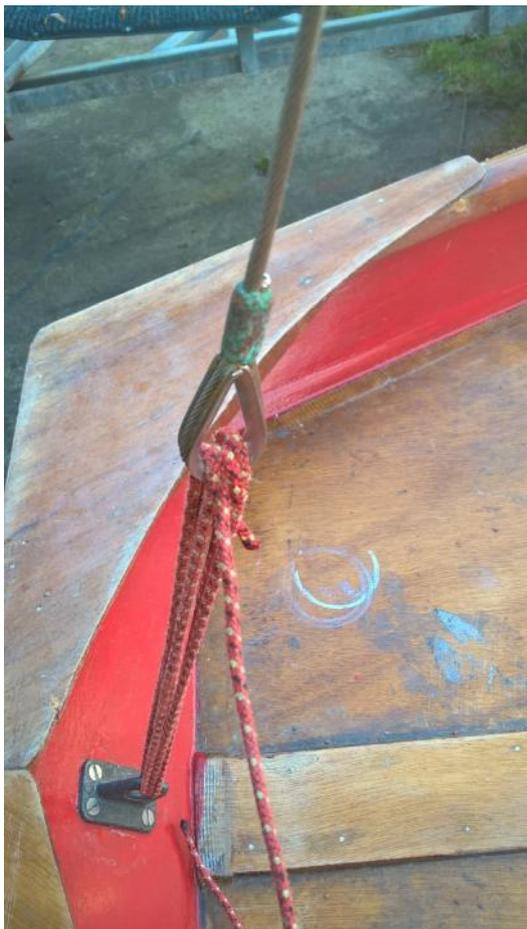
The mast is held in place by the shrouds and forestay and tension in the rig is applied by the forestay.

Use a 3mm rope of good quality to apply and hold tension. There needs to be enough to go round the deck anchor plate and forestay 3 or 4 times.

Tie a bowline onto the anchor plate fitting and loop repeatedly through the forestay thimble and back through the forestay fitting or anchor plate. The more turns the more purchase and the easier to apply tension.

Lock the tension by pulling the line until it is gripped by the turns on each side – kind of self-cleating. Good tension is a healthy “thrum” when you pluck a shroud.

In the photo the free end is locked between neighbouring turns. Finish by lashing the loose end tightly around the parts to keep it from being caught and tension lost – because the mast could fall down!



- **Mast rake**

Now the rig is tensioned, mast rake can be measured. Rake is the fore/aft angle of the mast. The correct rake is needed to set the sails correctly.

Rake affects the balance of the boat, how close to the wind your Mirror will sail and get good speed.

Gaff rig mast rake

Tip the boat on its side, on grass or a tyre will protect the hull.

Hold one end of the tape so it starts at the pin (or axle) of the main halliard turning block (or sheave).



Extend the tape to the transom, pull tight and measure to the horizontal/aft face of the transom. A minimum distance is 355cm (3,550mm). 1 or 2cm more is fine, when you sail you can feel the boat balance and work from that. Don't get hung-up on the numbers, sailing the boat will tell you about your setting;



When sailing close to the wind (beating) and the boat is level, steer with a very light grip so the boat is nearly sailing itself;

If the boat very slowly turns closer into the wind, you have the correct rake.

If the boat turns quickly into wind, you have too much rake, it is leaning too far back.

If it steers away from the wind, too little rake, it is too upright.

On older wood boats, it is likely the shrouds and shroud anchor plate will give an upright rake.

Changing the anchor plate fitting can allow the mast rake to be set correctly using the original shrouds. Multi-hole shroud plates allow rake adjustment;



Fitting the mainsail needs care on these points;

Slide the top of the sail (head) up to the bottom of the black band on the gaff – or so it's tight, the top of the sail should be 76mm from the end of the gaff.



And get the gaff snug and tight up to the mast pulley. The sail is made to give the right shape with a straight mast/gaff. Below the gaff/halliard is too loose (and the boom will be low)



Make sure the knot is small that it pulls into the halliard sheave (block or pulley) but big enough not to be pulled from the band when under load. Don't use a shackle and "sweat" the halliard to get it tight. In the next photo the knot is on the underside of the gaff band allowing the knot to pull into the space. Try various ways to find the closest fit.



Below the gaff is pulled hard to the mast and gaff band goes into the pulley or sheave;



- **Setting the rake of a Bermuda (one-piece) mast**

Gaff rigs are as fast as a Bermudan rig, but more complex to rig and to get a good set to the sail. Bermudan masts are popular as they are very easy to rig and handle, especially for smaller and new sailors.

With rig tension set – the same as the method described for the gaff rig - attach the tape measure to the main halliard.

Pull the halliard up the mast, get the tape tight and when the measure is at 4,220mm to the top of the black band at the gooseneck, cleat the halliard.



Extend the tape to the transom centre and now measure the length to the rear edge of the transom. For boats with a level transom (wooden and plastic boats like Trident-made) about 5,010mm or 5,020mm will be good. The photo below shows there is more rake – it's a lower number;



For a curved transom (a Winder made hull) the maximum rake would be 4,990mm. 5,020mm and 5,010mm are good and depends on the adjustability of the shroud plates and shroud lengths.

Get a feel of the helm with the same check; when sailing close to the wind (beating in medium/light wind) and the boat is level, steer with a very light grip so the boat is nearly sailing itself;

If the boat very slowly turns closer into the wind, you have the correct rake.

If the boat turns quickly into wind, you have too much rake, it is leaning too far back.

If it steers away from the wind, too little rake, the mast is too upright and must be raked back.

- **Jib halliard tension**

This is important for the correct curve and airflow across the sail. This is best fine-tuned on the water when you are close hauled/beating. There are two signs to get the right tension;

If the halliard is not tight enough the sail will sag between the hanks (clips) on the luff/forestay

Too tight and there will be a bulge in the sail shape running parallel to the forestay

Pull the jib luff on shore to get a feel of the jib halliard tension, then, when beating, look at the shape between the hanks (clips).

Just ask if you have questions and please give feedback on this guide to;

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Thanks and happy Mirror sailing