McALLISTER MODELS & DESIGN

TUNING THE OPUS RIG

by Graham McAllister

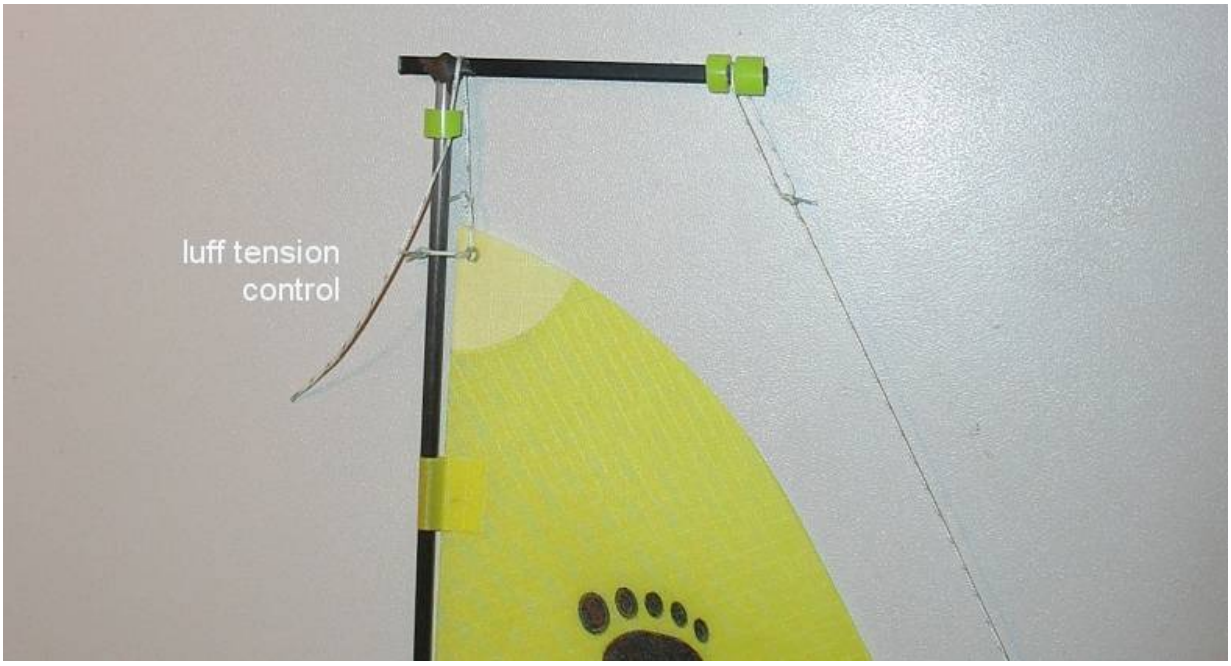
The OPUS rig gives you control of the sail shape in several ways:

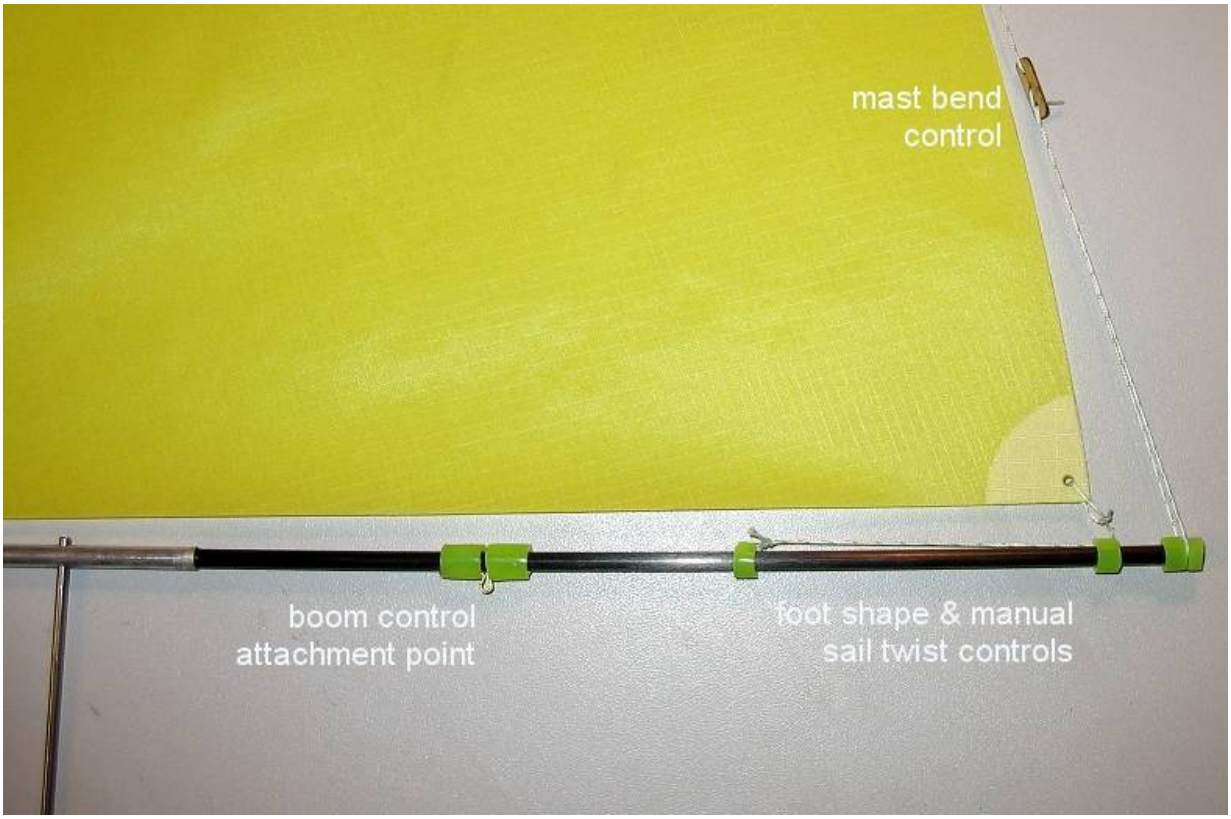
- **Mast bend.** This allows you to pre-set the mast shape to follow the curve of the sail.
- **Luff tension.** The front edge of the sail is tightened by the sliding thread at the top of the sail.
- **Foot shape.** This is controlled by the pair of sliding rings on the boom.
- **Manual sail twist.** This is set by adjusting the height of the rear of the sail.
- **Automatic sail twist.** The flexible mast will bend away and back when hit by a gust, inducing extra twist in the sail. This is the key action of the McAllister Models & Design OPUS rig.

SET UP AND UNDERSTANDING THE CONTROLS

THE CONTROLS

Notated in the two photos below are the sail controls.





MAST BEND

The mast bend is controlled with the bowsie on the backstay. The tension on the backstay should be such that the mast closely follows the luff (front edge) of the sail. When this is right the sail will lay flat on a table.

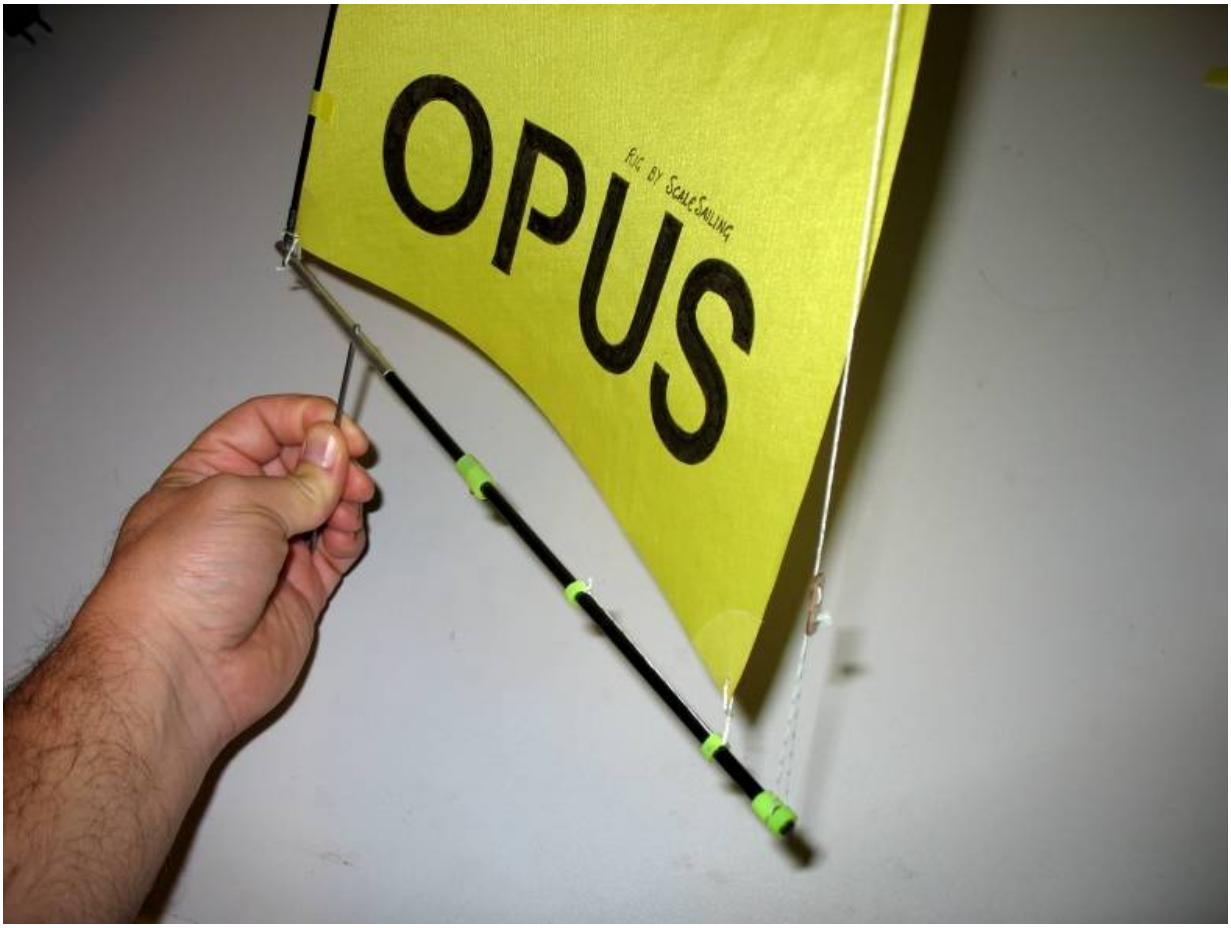
LUFF TENSION

Tighten or slacken the luff of the sail (front edge) by pulling the control line at the top through the silicone ring. The luff should be set tight enough to hold the front of the sail straight, without wrinkles, but no tighter. If the line slips through the ring pass it through the ring twice.

FOOT SHAPE

If the foot of the sail (the bottom edge) is flat and tight, the sail will produce little power. The foot of the sail must be allowed to form a curve like the top of an aeroplane wing to produce the drive to power your yacht.

Slide the two foot-shape control rings towards the front of the boom together to add curve to the foot of the sail.



Sail foot curve added. Set about 3/4” for medium winds and about 1-1/2” in light winds. This is measured from the boom to the deepest part of the curve in the foot of the sail.

SAIL TWIST


Slide the forward of the two sail-shape rings back towards the other ring and pull the thread through to let the rear corner of the sail rise to set sail twist manually.

Here the sail is set with no sail twist. The rear of the sail is quite flat. You should always have some sail twist for best performance even in light winds. In stronger winds you will add more sail twist to reduce the power of the top of the sail. This lets the yacht sail more upright in stronger winds and produce more drive.

By lifting the rear corner of the sail as described, more sail twist is introduced.

Close hauled in a light wind with just a little sail twist set in the sail.

Here the rig is set for a little more wind, so a little more manual twist.

When set properly the sail should be smooth with no wrinkles. Filled with air and working hard.

Running downwind the boom should swing out to be straight across the boat hull and even about 10 degree further so that the rear of the boom is ahead of the front of the boom. This will provide good drive downwind.

AUTOMATIC SAIL TWIST

Here the boat is hit with a stronger gust and the flexible mast is bending forward as evidenced by the obvious creases showing in the sail. This bending action gives a degree of automatic gust control not seen on a stiff masted rig.

Working across the wind. The boom is set at about 40 degrees to the hull to cross the wind with good power like this. When you see the backstay line curved you

know that the flexible mast is working by bending back to increase twist in the sail as it reacts to wind gusts. This automatic reaction eases the severity of luffing (turning further into the wind) in the gusts.

IN CONCLUSION

This will give you a starting point in using your OPUS rig. There is much to learn in tuning your sails for the best sailing speed in any given conditions. All tuning is a compromise, as the wind conditions can change so quickly. At best, you aim for a good set up to match the average conditions that you expect to see during a race or sailing session. Figuring it out is part of the fun when sailing a radio control model yacht!