Top Tips from Emmett Lazich - Coach to the Olympians

Below is the reply from top Australian coach and member of the Bethwaite Design 49er Sailing Team, Emmett Lazich, to a question about rig settings, on the 49er chat page.

Oliver, Please find some positive feedback here for you and other new 49er enthusiasts.

Generally you cannot compare wire pin postion numbers from one boat to another. The hull geometry, mast fitting bearing points and particularly the wire lengths can all vary a little making that hopeless unless maybe your wires, mast and hull are from the same factory and with same build time as another.

Some people talk about the three rear shrouds and quote those tension numbers. But you can have wide variations in lower and upper bend with the exact same three rear shroud numbers. Also slight variations in rake and spreaders can misguide you. This is my advice:

Measure the f/stay tension. This is fundamentally important. Aim for 28 in light and 31+ in fresh. Using Loos PT-1 guage.

Next measure the alloy lower mast bend using the usual jib halyard over the lower spreader method. This should be 10mm in light to about 50mm in fresh. Slight variations also according to crew weight, sea state and slight mainsail shape error. This bend effects power via both forward and sidebending.

Best forget about primary and lower shroud tensions. You will just confuse yourself and your friends and me. The f/stay tells you the over all pre-bend. Lower mm bend and caps tension gives a good simple description.

Okay now for the capstays. This control effects side bend. Think about this carefully. It only effects aft bend if the wind is very light, or you pull them on much too hard. Too be simple, always think of your capstay position relative to the primary shroud position. I like to be in the range of 16 in the light to 13 in the fresh stuff. Slight variations too according to mast bend behaviour. Keep the shroud to caps pin mm difference constant as you adjust for the wind range and you will find the caps tension changes as required. Your goal is maximum power - but from a mainsail setup flat as possible for the conditions. Note the Pride/Macca mainsails are flatter than the Norths and thus more sensitive to correct caps position.

Summary: Check f/s tension. lower bend mm, caps tension.

Spend some time finding the right settings. As your skills improve, 4mm change on any pair of wires will make a big speed difference. Note old soft hulls or masts can be less sensitive. To find a range of settings for wind and waves, there is no simple methodical process that I know of. Without such a magic process you must try somethings then re-iterate. You begin with basic guidelines such as f/stay tension and lower mm bend. You need a good rig tension (ask M Hestbeak). The finer tuning becomes harder due to various wind and waves conditions and other variables of the 49er (lucky we only have so few!) When you get it right the boat will literally jump up a gear or two and you will smile a lot! Never forget the basics of adjusting the vang, cunno, jib (traveler/clew/luff), c'board and outhaul. The number of rig settings you have will vary. It is common to have two common settings: light/med + med/fresh. Maybe also complimented with a very light + very heavy setting.

Imagine the 49er has 6 gears upwind. Like a car but much harder to find! Off the start line you shift up the gears. Any rookie can find 4th gear easy enough. The majority of sailors then find 5th gear most of the time and hit 6th gear every now and then. The "gold fleet" teams regularly find 6th gear upwind in all all weather conditions. The best of the "goldies" are in 6th gear 98% of the time and 0.5% they spend in tacks. It's really hard to "stay in sixth" for 98% of the time up a beat and also go the right way. And even harder to hit it earlier than 8 seconds after the gun. But they do it. Remember that 6th gear is impossible to find if your rig settings

are not correct for the conditions. But it is so much fun it is worth the effort. To put this in perspective: In say 15kts true wind in flat water, 4th gear is about 8.5kts hull speed. 5th gear is about 9.5kts. 6th gear is 11.0kts and tacking through 90 degrees. The difference anyone can see and feel. Unreal.

Some golden rules:
1) If you have too much power then get rid of it (thanks M Fletcher. 1985).
2) Go flat, at flat as possible, but no flatter. (thanks A Einstien. ~1950).
3) Flat requires strict sidebend control (thanks C Nicholson. 1999).