

Main Sheet Systems for Catamarans

By Jeff Schionning

Curved Track. 4:1 main sheet, 4:1 traveller

This is our preferred control system with the track bolted to the seat back, and using a double-ended Main Sheet running through clutches to a winch situated at each end. One end can be fixed allowing control from one end only, this is used to position control close to the helm position. It is easier for single handing, and this option works well with less performance type designs, but in high performance catamarans the double-ended control allows dumping the main from either end. Dumping the Main Sheet is the last resort as initial dumping should be the traveller and in real life you may not have the time to dump both.

Dumping the main in the event of a squall or "bullet" catching you off-guard is done with the traveller, quickly and easily open the clutch, the main remains perfectly set and you simply open the angle keeping good control and keeping the drive and centre of effort lower in the sail. If you have buried the bows and gone from 20 knots to 0 knots, the wind has very likely swung back to true wind rather than the apparent angles you were sailing at. Dumping in this case is a bit random as you may just drop the main back into the max drive angle, where simply keeping it as is; it's drag not drive.

The traveller lines exit each end of the track like the Main Sheet and run through clutches to the same winches.

The curved track keeps the Main Sheet constantly & perfectly set but has the negative of the lines dragging across the seat when at the far end of the track, this is mostly when sailing and no one is using the seat but is easily fixed by simply adding line controllers, simple Stainless Steel rod set into the seat back raised above line level. They are simply Stainless Steel rods, bent like a flat-topped 'A' and curved back slightly. The ropes lay neatly behind these as the car runs past and being curved they do not catch and jam.

Straight Track: 4:1 main sheet, 4:1 traveller

This is very similar in every way to the curved track but has the negative of not keeping constant tension of the Main Sheet because the boom runs in a radius not following the track. This means the sheet tension will go from tight on Centre Line to loose when half way out, pulling back tight at the end if the boom block is set aft of the track on Centre Line. The only way to offset this problem is to add a short track under the aft end of the boom, with a car moving to keep directly over the track. The car and track need to be the same as the bottom car, and won't be cheap.

Double-Ended Dead Eye System used on some French designs:

This system is becoming very popular but I feel for all the wrong reasons. Firstly it is easy and cheap avoiding the track and reinforcement, a bit like Sail Drives that are pushed by boat builders because they are cheaper and easier to fit, meaning more profit.

Unfortunately many new catamaran buyers are inexperienced with catamaran design and, quite fairly, look firstly at the French designs. They feel it must be a good idea as it looks simpler to use and this is true. One can also argue that the negative dangers are not such a worry on slower and heavier boats.

To me this is unacceptable on any design, however on more performance oriented catamarans this system is simply dangerous and while none of us want to get into rough conditions, if you're hit by that bullet, and it will happen, you want to have the best, most efficient and safest control of the big powerful sails.

This system does require you to winch in each end to pull the boom down and set the main properly on whichever point of sail you are on. Changing direction requires fiddling with both winches to set the sail up again instead of simply adjusting the traveller.

Dumping the main requires getting the sheet off the winch, slipping it on the drum to release (slow) or just letting it go. This is not ideal and getting it out of your hands without getting burned is not so easy. Next thing the boom goes skyward allowing the drive and CE to go up, as well as uncontrolled twist, the drive can now be up high in the sail increasing the rotation loads and this is exactly what you don't want.

A dangerous scenario to be exposed to and at the worst possible time.

General Thoughts

- The new **Constrictor** clutches from Ronstan are a clever design, giving very soft holding power for high loads. They are a bit longer but if you can fit them they are a good option.
- We use **4:1 reduction gearing** as a general preference, this makes control easy when using more moderate sized winches and often allows the traveller to be controlled simply by hand when in lighter conditions and reduces the clutch loads.
- Higher performance cats might use a 2:1 Main Sheet, these are faster to recover or release but require more power and bigger blocks and hardware.
- The bigger cats are mostly using electric winches and the Hutton electric clutch is a very nice option for remote use.