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Mainsheet Systems- The secret weapon!

By: Spencer Wiberley

Just like it's important to outfit your sailor with the correct sail, rigging the appropriate mainsheet is a huge advantage. When it comes down to it, the mainsheet really is the only function control of the sail so why not "optimize" it? The larger sailors should have the system set up so they have maximum feel and the least amount of line to trim. The lighter sailors want enough purchase to be able to hold the line under load. In this article, I'll go through several options that I've seen on the circuit as well as a few general pointers to keep in mind.

The Rules

Before we start talking about the various systems, it's important to look at the rules. Class rule 3.5.5.1 states, "The mainsheet arrangement is optional except as controlled by CR 3.2.6.1 and CR3.5.3.8." Now, CR3.2.6.1 is the rule that covers fittings in the boat. It has several points to it, but as it pertains to the mainsheet, you can only have one ratchet block in the system and you can only mount two blocks to the bottom of the hull. CR3.5.3.8 discusses how the mainsheet system attaches to the boom and regulates the maximum span of the boom bridle. CR3.5.3.8 also states "the position of the blocks or the length of boom strops shall not be adjusted while racing." This is important to note as you could in theory create systems that would add or remove a block while racing.

Basic notes on mainsheets

Regardless of what purchase power you need, below are a few pointers that are always good to keep in mind.

1. Twist in the system. When a mainsheet system twists around itself, it creates a serious amount of friction. To avoid this, you want to make sure that all the blocks within the system that have a post are fixed (except for the ratchet block) and any shackles with a swivel attachment are locked. This way, the mainsheet has no way to twist while on the water. If you happen to be using a swivel shackle in your system, you can strike the swivel with a hammer or squeeze it in a vice to lock it.
2. Choice of line. This is probably the most personal and obvious upgrade to any system. Because the system is easily trimmed, you don't have to worry about the line being zero stretch. Having a little stretch in the system can actually be a good thing if your sailor is not trimming for every adjustment in the wind. The biggest thing I always tell people is to use a line that is big enough to comfortably hold under a load and still flows easily through the blocks. A line that kinks easily or knots is not a good choice.



A simple bench vise can be used to lock the swivel



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3. Block orientation- As with twist in the system, you want to make sure the block sheaves are oriented correctly. I often see people use a stopper knot to tie off the terminating end of the mainsheet at the boom block. This causes the block to cock on its side and thus adds friction to the system. A better way to terminate the line is to tie a bowline knot through the becket. This way when the block loads up it will stay correctly oriented.
4. Block choice- It's a little known fact, but the bigger the block the more holding power it will have on the mainsheet. Bigger blocks also yield more purchase power. For our boats, we use a 40mm block in the system and a 50mm block as the ratchet. We feel that this gives the system a good balance between size of sheave and added weight. Using a smaller block might be lighter, but it's less power. If your sailor is having a hard time holding the mainsheet under a load, you can also use a ratchet block with a more aggressive sheave. The Ronstan ratchet block has a sheave so aggressive that it can actually tear through mainsheets. It is an option if even going to a 4:1 is still tough to hold in big breeze.
5. Boom Block Strop- Regardless of the purchase, you want to take out unnecessary line the system. This really helps at a mark rounding when you have to pay out or trim in the entire line. Since you can't extend the bridle, adding a strop to the top block helps. You want the strop just long enough so the blocks almost touch upwind. Leave just a little room so you can over trim to set the vang in big breeze.



Examples of the wrong and right way to connect the mainsheet to the top block.



3 examples of boom blocks with strops: MCL01-2 daisy chain for a 4:1 system, MCL01 single block for 3:1 system, homemade version using an EX1372 shackle and EX1308 Harken 40C block.

3:1 Purchase Options

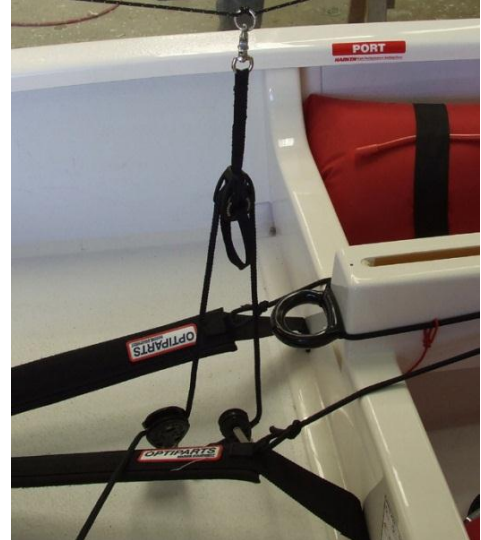
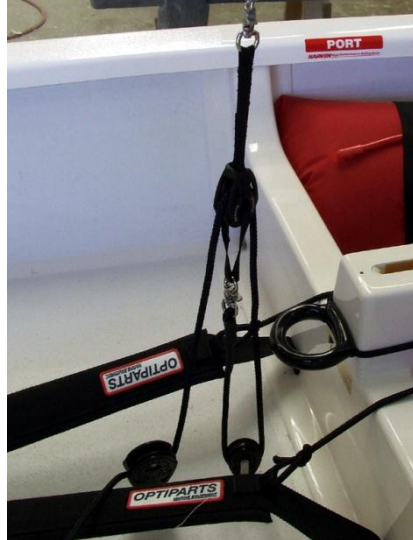
Everyone knows the 3:1 is the standard set-up for the Opti. It works great for heavy sailors in big breeze and medium sized sailors in most conditions. Below are two pictures of the system. One picture is how a club boat might be set up with a fixed terminal end. The second picture is with a quick release system. With a "quick release" system, the sailor can easily drop from a 3:1 to a 2:1 without having to tie or untie the line. It really comes in handy in a dying breeze. If you have the standard set-up, you can still drop from a 3:1 to a 2:1, but it requires untying the bowline knot, taking the line out of the block, and then tying a stopper knot so it terminates at the bottom block



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Left is the basic system, Middle is the 3:1 rigged with the “quick release” option, Right is how the system looks when it goes to 2:1.

4:1 Purchase Systems

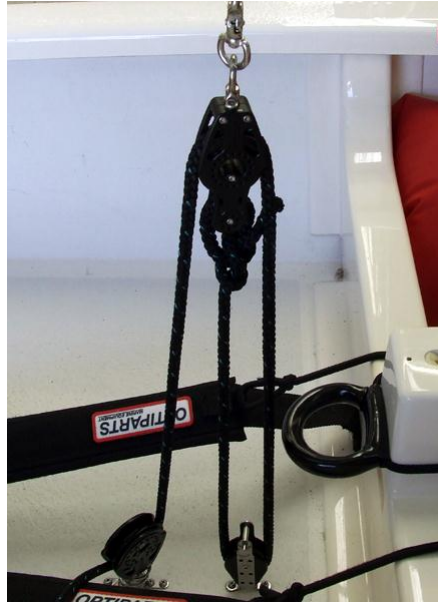
Going back to the rules, the class does not specify the number of blocks you can use. This allows you to add additional purchase power. The most common addition is to go up to a 4:1 system. In theory I guess you could go higher, but with proper training even very light sailors should be able to hold the mainsheet in with a 4:1 system. The biggest drawback to the 4:1 system is that it adds line to the system. This can slow down acceleration at mark roundings when the entire system has to be let out or trimmed in. With that being said, a “quick release” system is critical. When rigging a 4:1 system you can use a fiddle block at the top, but a daisy chain of blocks is better. You do not want to use a side by side double block as it will not orient itself correctly when loaded up and cause friction. Below are a couple pictures of systems we have seen. The quick release on this system is to go from the bottom block to the top block. Please note the use of the daisy chained blocks at the top vs. a fiddle block. If a fiddle was used, the top sheave would not spin freely. Also note the use of a block with a becket at the base of the boat. We prefer this block vs. a line because it eliminates the chance of the line getting pulled up into the sheave.



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The basic 4:1 system with a Harken 40c fiddle at the boom and a big bullet single with becket mounted on the deck.



The 4:1 system with a quick release option. MCL01-2 daisy chained 40c blocks at the boom and a big bullet single with becket mounted on the deck.