

Tuning the RS300

The following article may look long but believe me it is pared almost to a minimum to try and keep it short and readable.

There is so much physical and mental involvement in sailing the RS300 that it is almost impossible to write a description of what you may experience. The only way to achieve this is get out and sail your boat as much as possible.

Hopefully these guidelines will help you attain better speed and especially enjoyment because that is the reason we go sailing in the first place. But bear in mind that although these settings work for me, they are only a guide, so go out there and experiment with them to see what works for you. For reference, I am about 82 or 83Kg, which is just under 13 stone and 5'11".

Boat Preparation

There are a few things (in a rough order of importance) that you can do to the 300 to help you to sail quicker.

1. Try ditching the centre jammer and replace it with a ratchet block. This means you can adjust the sheet much quicker and you always have control of the sail. My mainsheet is seldom in the same position for more than a few seconds upwind, the boat is too tender to be able to cleat the main.
2. Set the kicker lines from the boom over the rollers to be short enough so that the blocks are at the back edge of the rollers when the kicker is fully off. (mast tip just starting to bend) This gives you the maximum amount of travel on your kicker.
3. Fit a continuous kicker control line. This is essential really, as you can quickly run out of adjustment on a small course and it means you can adjust it from much further back in the boat.

Sailing Basics

There are a few major factors involved in making the RS300 go fast.

1. Sail the boat flat and even with a bit of windward heel upwind as the water gets flatter. How do you tell when it is flat? I look at the puddle of water that collects in the rear cockpit area.
2. Don't have the sail overpowered upwind or on close reaches. Drag is the enemy going into the wind. Flatten the sail to give just enough power. This may well result in using a tighter outhaul and kicker than you are used to.
3. Sit far enough forward to keep the narrow stern from dragging. This can be done by deliberately sitting too far back, then moving forward to find the ideal position. The lighter the wind, the further forward you need to go until you are sitting beside the mast.
4. Try lifting the daggerboard up about 9 to 12 inches when you are sailing upwind in windy, overpowered conditions. The board is very big and you don't need it all when you start moving fast.

Upwind Rig Settings

Kicker

I have taken a note of my kicker settings by measuring the distance from the centre of the roller bolt to the centre of the Frankenstein (gooseneck) bolt.

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| 1. No kicker | 745mm |
| 2. Minimum Upwind | 670mm |
| 3. Medium Range | 670 – 510mm |
| 4. Windy Range | 510 – 450mm |

Basically when sailing upwind, the 300's kicker works in 2 stages where initially it supports the leach to keep the power on, where the top leach telltail is just beginning to stall, (Medium

Range). Then as it's pulled in more, (Windy Range) it starts to take the fullness out of the sail from the top down. As you continue to increase kicker tension, the centre of effort gets lower too which reduces the heeling. This will actually cause the top batten to look like it is inverting. The boat is designed to take this so don't be afraid to crank it on, it makes a big difference.

Outhaul

Generally start off with between 5" to 10" camber at the boom, 125 to 250mm of depth measured at the mainsheet hoops. This depends on many factors but usually the smoother the water the tighter the outhaul I use and inland I will nearly always be using less than 5". Where there are waves, you need power to punch through them so it needs to be looser.

Cunningham

On flat water the cunningham can be left off until you are approaching the heavy wind kicker settings. But in waves it needs to be pulled on earlier, the more difficult the chop, the sooner you will benefit from pulling on the cunningham. It mostly comes down to feeling when the boat is out of the groove or unbalanced by having too much weather helm.

Upwind Settings

Conditions	Kicker	Outhaul	Cunningham	Notes
0 – 5 knots	670mm	Less than 5"	None	No sheet tension. Don't try to point too high.
6 – 10 knots Flat water	670 – 590mm	5" or less	None	Keep the leach tensioned, mostly with the mainsheet to help pointing.
6 – 10 knots Waves	670 – 590mm	5 – 10" sometimes more	None	Power is needed to get through the waves. Keep the rig flexible so it can 'give' in the waves.
10 – 15 knots Flat water	590 – 530mm	5" or less	None to half on if required.	Preserve pointing by not over flattening with the kicker. May need to sheet off a bit.
10 – 15 knots Waves	590 – 510mm	5 - 10"	Half to full on as waves increase.	Pointing becomes less important. Boom on the quarter, keep it flat and power through the waves.

15 – 20 knots Flat water	530mm or less	5" or less	Half to full on as wind increases.	Pointing becoming less important but watch you don't completely flatten the sail and lose leach tension.
15 – 20 knots Waves	510mm or less	5" or less	Full on	Pointing much less important, go for speed. Try a looser outhaul as kicker and cunningham increase.
20 – 25 knots Flat Water + Waves	510mm or less	Less than 5"	Full on	Pointing much less important, go for speed.
25+ knots	Down to 450mm	Less than 5"	Full on	Keep the boat flat and moving fast.

The above table is not definitive and all the settings merge as the conditions change. Your weight will play a part in how you set the rig too. Big guys can hang onto the power longer whereas the smaller sailors will have to flatten the sail earlier.

The most important part though is to sail the boat completely upright, with some windward heel on flatter water. This balances the boat really well and I find I can hold the tiller so lightly that it will sometimes slip slightly in my fingers as I sail upwind. If I do not have to use the rudder then I am not causing any extra drag from it.

Downwind Rig Settings

Jim Saltonstall always used to say (and probably still does) that upwind speed is mostly sail tuning, but downwind it's nearly all technique. This is very true but you can help the "nearly" bit by having the sail set correctly.

Reaching

The rig tuning is much simpler as all you are trying to do is get the maximum power that you can handle. As upwind though, it is very important to keep the boat flat, although heeling is very useful to steer the boat because then you don't need to use your rudder.

There are two main aspects to reaches, overpowered and underpowered.

Underpowered is easier as then you set the rig for maximum power in all winds except for less than 6 knots, where the upwind setting is better due to the wind not having enough energy to be deflected by a full sail.

In all other conditions the kicker should be on just enough to have the top leach telltail stalling about a third of the time, generally 670mm to off, the outhaul should be let right off, which will give about 15" camber (375mm) and the cunningham is let right off.

When you start to get overpowered on a reach then it is very important to flatten the sail enough so it is not feathering. If it does then it creates an enormous amount of drag and makes you very slow.

On overpowered reaches I am almost on my upwind settings, the only thing I will ease is the kicker and that would only be 2 or 3 inches. This ensures a low drag shape and if I need more power I will ease the kicker a bit more, then the cunningham and finally the outhaul.

Running

It is becoming more accepted that dead running is not generally the fastest way to the bottom mark. Running by the lee or on a broad reach is quicker in most conditions and much quicker when waves are involved where a zig-zag course is sailed down the waves.

Steve Cockerill has an excellent article called "4th Dimension Sailing" on his website (roostersailing.com) on how to run by the lee. This will give you all the technical details on how to do it.

To run by the lee successfully the kicker has to be off or no more than the minimum upwind setting on windy days. This works because the flow is reversed so the leach becomes the mast and the mast the leach, as far as the wind is concerned.

The outhaul and cunningham are both off although as it gets windier the outhaul position is less important but the cunningham should always be released to let the flow move back towards the middle of the sail.

Running by the lee requires a bit of practice but is actually more stable once you get the hang of it. The difficult bits are the transitions when the flow reverses over the sail as the boat can give a big lurch but once you know it is going to happen you can be ready for it.

Once the techniques have been learnt, runs become so much more fun and you get there faster too.

Summary

Flat boat. Low drag sail shape. Get out and practice. Have fun.

Useful Reading

High Performance Sailing – Frank Bethwaite.

The Manual of Sail Trim – Stuart Walker.

The Complete Introduction to Laser Racing – Ben Tang. (Sorry, but it is very good)

Roostersailing.com. Lots of good stuff in the "Tips + Hints" section.

Ian Baillie.

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