Get the speed to compete

A short manual for winning online races in Sail Simulator 5
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It is a well known fact that experienced sailors have much faster boats than beginners. This difference in speed is not good for competition. We hope this document will help to get the speed into your Sail Simulator 5 boats to really compete the best virtual sailors online.

For getting your boat on speed you need knowledge and training. Most of the basic sailing knowledge you will find in the hints in this document and summarized below. Spend enough time on pure training in single player mode but also remember that Racing is Training.

Some points mentioned below are more valid for some boats than others. Crew weight for example will have more effect on a Laser than on a Bavaria 36.

Speed hints summarized

Choose the best crew weight depending wind conditions
Light weight helmsman and heavier crew
Position crew mid ships
Switch off automatic sheet handling
Find the best boom angle for maximum VMG
Sail a centerboard boat as flat as possible
Adjust the twist to effect the heeling for maximum speed
Flatten the sails at high wind speeds
Centerboard partly Up half/down wind. Down when beating.
Keep the boat on speed in maneuvers
Wait for the best wave crest to tack.
Surf the waves at maximum speed.
A lot of training and racing

Have look at this Laser beating in 17 knots wind (10m) and fully planing. Crew of only 75kg in mid ship position. Optimized twist and boom. Dagger board a bit up.

How to measure the boat speed ?

The speed and direction of the boat through the water with respect to the wind (over the water) is shown in the vector diagram below (Laser at 16kn wind on a beat course) .

The black arrow is the boat speed. Notice the small drift angle. The blue one is the thru or absolute wind and the red arrow the relative wind both corrected for current.

 The arrow buttons can be used to switch between VMG (Velocity Made Good) and STW (Speed through the Water). The VMG is the boat speed in the direction of the wind (over de water). On a up or downwind course you need maximum VMG. Use it for tacking up or downwind. On half wind or other sailable course you want to sail at maximum STW.
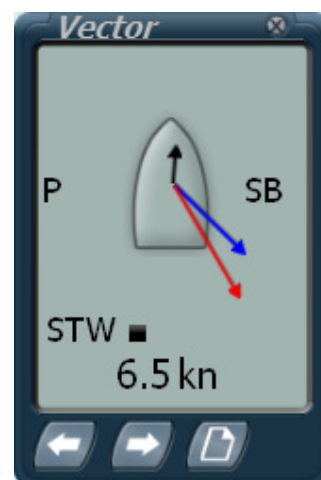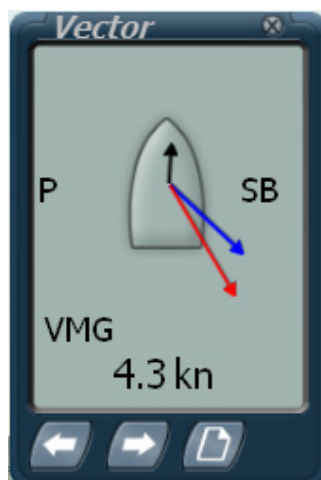
14 Hints to get your boat on speed.

1. **Choose the best crew weight** for the expected wind and wave conditions. For more wind you need more weight. Say 70kg in BFT4 and 90kg for BFT 5 for a Laser. At low wind speeds a light weight crew is better to minimize the shape resistance of the hull. The best crew weight also depends on your sheet handling, steering skills and even on the type of course and wave field. You need weight for tacking but not for running downwind. Extra weight is recommended for a beat course in waves.

2. For a 470 choose for a **light weight helmsman and a heavier crew** (say 70 and 90kg). This gives maximum moment of momentum and is faster in waves. Values depend on wind and boat speed.

3. Mostly it is favorable to position the **crew as much in front as possible**. Test it out during training, which position gives the most speed.

4. Automatic sheet handling is easy in maneuvers but mostly the sheets are to tighten. **Switch off automatic sheet handling** or overrule it by manual sheet control for maximum speed. This really can makes a difference of 10-20% in VMG.

5. Vary the mainsail sheet to **find the best boom angle for maximum VMG** on a beat course. Loosening the sheet (relative to auto mainsheet) will get the boat probably in plane' resulting in a higher VMG, especially in waves.

6. Use the crew position to **sail the boat as flat as possible** (Laser, 470). An almost flat sailing boat with crew outside guarantees maximum power at optimal sail settings. Therefore switch of manual crew position in waves for additional speed on half wind courses. Unless at high wind speeds when the crew is always 100% out. Flat means 0-10 degrees heeling angle depending on hull shape.

7. When the average heeling increases **at high wind speeds flatten the sails**, loosen the sheets a bit, open the top of the mainsail with a little twist and if this does not help enough reef the sails.

8. **Flattening the mainsail** can be done decrease the curvature **by tightening the outhaul and Cunningham and increase the mast bending**. The Cunningham hole has only a slight effect (top sail mostly). Some boats allow bending of the mast by positioning the traveler outside and tightening the mainsheet. Other like the VOR70 have additional backstays with can be tightened to bend the mast and flatten the mainsail.

9. The Twist can also be adjusted by the traveler in combination with tightening of the mainsheet. Additional twist can be needed when reaching and downwind tacking.

10. **Use the downhaul to tune the twist of the main sail**. You can see the effect on the heeling of the boat. In waves a little flapping on beat courses is OK.

11. **Hoist the center board partly for maximum speed at all courses except sharp beating**. This reduces the wet area. At higher wind speed also the available heeling moment of the crew can be used for more force, certainly if a little bit twist opens the top of the main sail.

12. Once you have learned to get the boat on speed, the next thing is to **keep the boat on speed in maneuvers**. This certainly takes a lot of training an racing to become better. Short slalom courses can be used to optimize up and downwind tacking.

13. **Waves can help to increase and decrease the boat speed**. Choose for speed by loosening the sheets a bit in waves instead of sailing a sharp course upwind with tightened sheets. Choose the best wave crest to tack to keep your boat on speed.

14. One of the nicest things is to increase your average speed by **surfing the waves** especially combined with downwind tacking under spinnaker. This is very difficult for low speed beginners but al lot easier for high speed cracks.

Your suggestions for more speed

Stentec appreciates any suggestions, comment or questions from the virtual racing practice of the Sail Simulator 5 community. This helps us to make a next version of this document for www.sailsimulator.com.

Mail to helpdesk@stentec.com.