

# **SAILING FASTER (FOR REASONABLY NEW SKIPPERS)**



By Stan Ogden, Bakersfield Model Yacht Club – May, 2007

Let me start out by saying, I'm not "the" expert in model yacht racing, but I have learned a great deal since I started R/C sailing four years ago. On-the-water skills have been learned with help from more experienced sailors, but mostly from trial and error with lots of practice on the water. Each year I continue to learn and improve my techniques. I see new skippers at about the same experience level I was four years ago. I hope this information will cut down some of the time for these new skippers to learn these basics and be more competitive sooner.

In spite of the fact I used to sail and race full sized Olympic Class Stars in my younger days, racing a model yacht is quite different. Although the same right-of-way rules, terminology and general sailing techniques are the same, the handling and racing of a model yacht is a whole new world. It requires practice, and more practice, to obtain any semblance of good performance. That is after you have built the model yacht and the boat and sails are tuned to near perfection. Construction and tuning of model yachts are covered in detail elsewhere. What follows are the basic sailing techniques on how to sail fast, as I see them. Ninety percent (90%) of winning a model sailboat race is experience, which is acquired from practice and actual racing. This has been proven over and over again, when well-tuned boats are exchanged between skippers of different skills and experience. The ones who usually win races will win with whatever boats they sail.

There are only two factors that control boat speed, assuming that the boat and sails are well built, balanced and tuned correctly. They are the use of the two levers on your radio transmitter that control the sails and the rudder. Everyone has them on their transmitters! But only experience will give you the skill to use them correctly to sail fast and hopefully, win some races. This document is to help explain how they are important and what you can do improve on the use of these two controls.

## **I. CONTROL OF YOUR SAILS AND RUDDER**

The commonly used lines by any yacht sailor to control the sails are called "sheets". On your R/C model yacht, the sheets are controlled by a sail servo. One of the two levers on your radio transmitter controls the sail servo. The sail control lever positions the sails while under sail. Usually the forward position of your lever lets the sails all of the way out, while the lever moved toward you, pulls the sails all of the way in. Your other transmitter lever controls the rudder servo and consequently the direction of the boat. Usually, the rudder lever pushed to the right turns the boat to starboard (right) and when pushed to the left turns the boat to port (left). Other lines, such as the main and jib halyards, outhauls, jib topping lifts, backstay and the main boom vang also adjust the sail's shape as the sails are eased out or trimmed toward midline. See any good tuning manual for correct positioning of these adjustments under a variety of wind conditions.

## **II. WIND**

The wind is what powers your sailboat. Your sails are your "engine". Both the direction and strength of the wind is important in setting the sails and maintaining control of the boat. In general, the closer you sail into the wind, the closer your sails are pulled in or trimmed to the midline of the boat. As you sail away from the wind, your sails are progressively let out. The position of your sails are based upon the direction of the boat and speed and direction of the wind. For the beginner sailor, it is easy to remember the four basic directions of sail (points-of-sail) each of which has its distinct characteristics of speed, heel and sail position.

### **III. POINTS OF SAIL**

- (1) “Close-Hauled” (Beating) - 30-40 Deg - Sails pulled in all of the way toward the center of boat.
- (2) “Reaching” (Close, Beam or Broad) - 50 Deg to 150 Deg - Sails out enough to keep the sails full.
- (3) “Running” - 180 Deg - Sails all of the way out at right angles to the boat.
- (4) “In Irons” - Into the Wind - 0 Deg - Sails flogging - No forward movement.

#### **(1) Sailing “Close-Hauled”**

A close-hauled position is the most important points of sail. Races are won or lost depending on how fast you can sail to windward close-hauled. A sailboat cannot sail directly into the wind. Most boats can only sail about 40 degrees into the wind.

In the close-hauled point of sail, your sailboat is trying to sail as close into the wind as possible. Your sails are pulled in all of the way to the closest setting, as determined by your tuning requirements. It is a contest between the boat and the wind as the boat tries to beat into the wind. This point of sail is also called beating. If your sailboat heels too much from a strong gust of wind, your boat can “round up” or head more directly into the wind. As the wind dies your boat bears away (turns away from the wind) and resumes sailing in a close-hauled point of sail. Sailing efficiently close-hauled is also called sailing in the “groove”.

#### **(2) Sailing on a “Reach”**

A reach refers to sailing at an angle with the wind. In this point of sail, both your jib and mainsail are on the same side of the boat and are filled with wind. Your sails should be let out as far as they can go without luffing, thus providing maximum power and speed to the boat.

#### **(3) Sailing on a “Run”**

A run refers to sailing with the wind directly behind your boat and your sails are let out almost 90 degrees. In a run, the wind should be perpendicular to your sail. It is advantageous that the main and the jib are on opposite sides to increase the sail area and the wind power to the boat.

#### **(4) Sailing (?) “In Irons”**

This point-of-sail is where your boat is turned directly into the wind. Since a sailboat cannot sail directly into the wind, this is usually done to stop the boat, but most of the time it happens inadvertently! In this frustrating position the wind cannot power the sails and you can lose many boats lengths over your competitors during a race. This is the only point-of-sail where your boat can literally move backwards. The way to stay out of “irons” is to keep your boat moving forward close-hauled and never let your boat come up into the wind, unless tacking.

### **IV. STEERING YOUR BOAT**

Steering your sailboat away from the wind is to fall off or bear away. Turning into the wind is to head up, point higher or harden up. As your sailboat falls off away from the wind direction, your sails should be eased or let out. As your sailboat heads up, your sails need to be trimmed or moved toward midline. When you change the point-of-sail it is advantageous to change the position of your sails before or during the maneuver, not after. In some cases, with sufficient wind, you cannot turn your boat away from the wind direction because your sails are pulling too hard against the direction you want to go...so you must let out your sails to make the turn, and perhaps to avoid a collision.

There are two basic maneuvers to change directions through the wind - Tacking (Coming About) and Jibing. Tacking does so by taking your bow through the wind while close-hauled. Jibing does so by taking your stern through the wind while running down wind.

### **A. Tacking (Coming About)**

In this maneuver, the bow of your boat goes through the wind as it changes from a close-hauled point-of-sail on one tack (direction) to a close hauled point-of-sail on the other tack direction. Coming about, or tacking, will change your boat's tack (direction) by between 80 degrees to 90 degrees. Make sure you complete the tack and get the wind on the other side of your boat, or you could go into "irons" and your boat will come to standstill with sails flogging. It is sometimes advantageous after a tack to drop off a little and let your sails out slightly to gain acceleration before coming back up to a close-hauled position on the new tack.

Don't get confused about the term "tack". It can refer to three things: (1) The front lower corner of the sail. (2) A direction of sail - i.e. a starboard tack. (3) Coming About.

### **B. Jibing**

In this maneuver, the stern of your boat goes through the wind as you change from a run on one tack (direction) to a run in the other tack (direction). Your sails need to be pulled in while jibing and then let out again on the other side of your boat after the jibe. This requires practice to make a smooth jibe without an undue change of course and loss of speed.

## **V. USING YOUR RUDDER EFFICIENTLY**

The control applied to your rudder through your radio transmitter is most important in making your model yacht go fast. The rudder does only two things, it steers your boat, and it slows you down.

### **A. Sailing to Windward – Finding the “Groove”**

If your boat is tuned properly and reasonably “balanced”, it will “almost” sail itself closed-hauled to windward, with your sails pulled in all of the way, without any touch to the “helm” or rudder control. This is called the “Groove”. Ideally, your boat should have a very slight “weather helm” while close-hauled. If this is the case, only a very slight and occasional touch to your rudder control will correct your boat’s direction away from the wind direction and keep it in the “groove” and moving at maximum speed, as well as “pointing” as high as possible into the wind. Keep a close eye on the “heel” of your boat. When the heel changes quickly, it means a wind change, either in direction or pressure. Occasionally in a good wind with a “puff”, your boat will heel over more and tend to “round up” into the wind and will require more rudder correction. It is sometimes necessary to ease off on your sails (Sail Servo control) while using your rudder to help prevent your boat from “rounding up” into the wind. This keeps your boat on “it’s feet” without heeling over so far that it stops, or coming up into the wind and stops. Either way, it’s not good in a race. The main thing is to keep your boat moving, no matter what, and keep your thumb off of the rudder control unless absolutely necessary to maintain the “groove” or tack.

### **B. Sailing Downwind – Keeping the Winged Jib “Full”**

Downwind sailing is totally different than sailing to windward, but no less important. Ideally you want the jib to be winged out on the opposite side of the mainsail to present the maximum possible sail area to the wind and consequently maximum speed. Sometimes it’s just not possible, due to lack of wind pressure. Whenever possible however, the most important thing is to keep your winged jib full and drawing. This can be done by steering your boat so that the wind comes from the rear windward side of the boat (opposite from the position of the mainsail), and that your mainsail does not block the wind from filling your jib. When the direction of the wind is such that this cannot be done, it is time for you to jibe to the other tack. Keep an eye out for other boats and see what wind directions they are experiencing.

## **VI. PUTTING IT ALL TOGETHER – WHAT TO DO!**

A model yacht race is usually won or lost at the start and during the first leg to windward. If you notice that's when the fleet usually gets separated with the leaders rounding the first windward mark way ahead of everyone else and then it's almost impossible to catch up. This is where racing can be discouraging, unless you know why you are where you are in the race.

### **A. Practice Starting**

Get an AMYA starting tape or stopwatch and practice starting. Have a good look at the starting line and figure which end of the line is favored. Ask your self, "Which end of the line can I start close-hauled pointing closest to the windward mark?" If you decide on a port tack start, be sure you can pass in front of all the starboard tack boats without fouling out. Remember, "Starboard Tack" rules! If you decide on the "safer" starboard tack, then make sure you find a place where you have free air and a clear lane in front. When in doubt, follow the tactics of a more experienced skipper.

Have a PLAN! Assuming you will have a conventional upwind start, find a spot on the water downwind from the starting line that is a measured time (say 20 seconds) away from the starting line when your boat is under closed-hauled full speed. Go to that same spot on the water 20 seconds before the start and go for it! It's always best to cross the starting line while close-hauled and under full speed. Those that come up to the starting line and luff their sails, slows them down and gives them a much slower start. I must admit that I have done this when I think I am too close to the line before the start. It takes practice to hit the starting line on time while under full speed. There are many other ways for getting good starts, so try some of them.

### **B. Practice Sailing the First Leg**

Sail carefully and sail smart. Use all of your learned skills to keep your boat moving to windward. I will say that again, "Keep your boat moving". Wind shifts are not obvious unless you have had some experience sailing, but could help you win or lose your first windward leg. At times you are sailing to windward and suddenly the wind shifts and you find your sails luffing and the heel of the boat moves more vertical without changing the boat's direction. This is a clue that there is a wind shift. You may want to tack immediately, but tack only when you have forward momentum, or you will end up "In Stays". Watch what the more experienced skippers are doing. It may not be right, but it's a clue! Always keep your eyes on your boat, especially on your sails and the heel of the boat! I can't stress that enough...always keep your eyes on your sails, on the water ahead and on your competitors. Keep your sails full and keep your boat moving! Pay full attention! If you do well on the first leg, then the other windward legs will take care of themselves.

## **VII. FINAL COMMENTS**

All of the above methods to sail faster require practice to master. It requires time on the water. Instead of just sailing by yourself (which can be lots of fun), it is always better to sail with someone else. Sail side-by-side with another sailboat to see how your boat speeds compare. If your speeds are about the same, then trade transmitters and try again and see if there is a difference. Then practice sailing to windward. The "KEY" to winning sailboat races, or at least keeping up with the more experienced skippers, is sailing fast to windward and getting a good start.

**Don't Give Up, Ask For Help, Practice and Sail Faster!**