How to get the BEST FUN from your Firebug

By Ray O'Brien (that's him above building his Bug on TV!)

The following paragraphs are not meant to be a beginners guide to sailing, but a"What to do, when and why" explanation on sailing your Firebug. I would suggest that you read right through to the end then come back and read each section two or three times. In doing this my explanations will become clearer. It will also help you to memorize much of what has been written. Please feel free to contact me with any queries that you might have – rayobrien@clear.net.nz

The Firebug Philosophy:

The late John Spencer designed the Firebug as a FUN BOAT. Many say that John Spencer was one of the best yacht designer's New Zealand has produced. In my opinion the little Firebug proves this. John Spencer along with his friend Peter Tait joined forces on the Firebug project and produced this great little ship, which is ideal for the first time builder who would also like to try his hand at sailing. The Firebug is simple to rig and fun to sail. It has none of the go fast lines and gadgets of the more technical yachts. This means that the ship can be rigged in minutes. This rig also allows the beginner to concentrate on helming the yacht. I would like to point out that this in no-way makes the yacht non-competitive, far from it. It has no trouble in leaving yachts of a similar size in its wake. Anyway, if all boats are rigged the same then the competitiveness comes from the ability of the skipper. This will stand him in good stead when moving to a more technical senior class.

In my early sailing days (1940s), a senior member would come along and suggest that you do this or that because of the prevailing conditions at the time. They would then explain the expected results from these actions.

Endeavoring to get the best performance from your ship can be as technical as you want to make it, (with the rig allowed by the class rules,) but don't make it too technical as you will end up weighing your-self

down with all the advanced knowledge being offered, it can become an obsession that will spoil your fun. There is much more to the sport of sailing than the Land Lumber thinks, so will leave that to the many technical books written by more knowledgeable racing skippers than yours truly.

The Basics

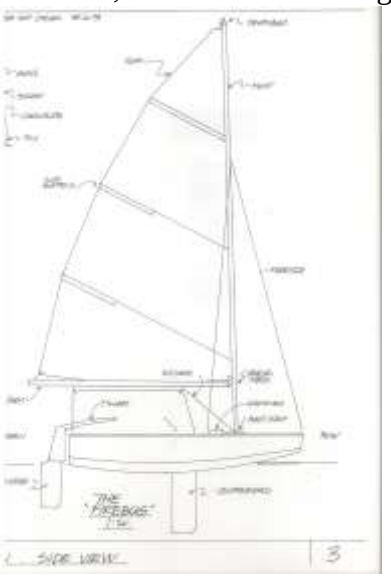
Perhaps if we understand the basic principles of boat design and the sail power that drives it through the water, things might fall into place and give more credence to those questions and answers.

Note the bow waterline

Lets look at Boat design first. As you probably have now realized from the Americas Cup this is a very complex task, but if we keep to the Firebug some light may show at the end of the tunnel, as the saying goes. The first line a Designer puts on the paper is the waterline, and from here he will draw a profile of what is required by the builder such as the topside shape and the underwater shape. He then draws the water line beam shape and the deck beam. Next, he needs to find the **Centre of Buoyancy**, as this is where he will place the Centreboard or keel. The actual centre of the keel or centreboard is referred to as the **Centre of Lateral Resistance, or C of LR;** we will refer to this later.

There was a time when a 4-metre boat would go faster than a 3-metre boat, as water line length governed the speed, but with the planing hulls of yachts today there is much more to take into account, such as sail power and skill.

In the case of the Firebug, if you look at the plans and also the boat sitting in the water, you will see that some 200 mm is sitting out of the water, so instead of having a 2.4m boat you really only have about 2.2m of the boat sitting in the water. We will come back to this later. The design has a rather large rocker (curve) in the keel. This makes the boat very quick in tacking and gives a good loading capacity. The boat also has a wide beam with both the water line beam and deck line



Note the bow waterline

Again the photo shows how the bow is clearing the water when sitting amid

beam being very symmetrical in shape. This is proven by the fact that the front bulkhead and aft bulkhead are the same shape. Now to get the full water line length you need to allow the boat to heel slightly, this not only gives us the full 2.4m length, but we also retain the keel shape through the extra curve shape in the chine. When sailing the boat upright you have a very large area of flat bottom surface, which creates a lot of drag, so by giving the ship a slight heel we reduce the drag. This is one of the bugbears of yachting. An added advantage in heeling the boat is the fact that you remove much of the blunt bow from the face of the waves. This can have a stopping effect as you punch into those seas'. It also reduces much of the water entering the cockpit, which as we all know, or will soon find out, can make things difficult at times when racing, even with those splashboards fitted waves will still cross the foredeck and into the cockpit.

This boat will have a Full water line length with sail falling to the shape of the wind, which is very light

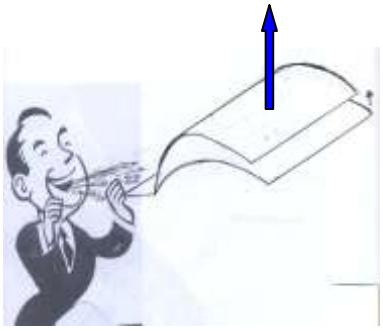
We have spoken about **C of LR**: and will bring up the **Centre of Effort (C of E) i**n the next paragraph. It is important to understand these, as they will crop up throughout these writings, and in fact your whole sailing career.

The Sail:

Sails are not just pieces of cloth joined together and cut into a triangle? "Not likely". Each panel of the Firebug sail is cut with shape in it so that we have a driving force when working in the wind. If we spread our sail out flat on the ground it wont lay flat, but will have a lot of fullness in the middle. Also if we take a straight line from the peak (top) to each bottom corner and from each corner along the foot (bottom) we will find that there will be cloth out-side of these straight lines. These curved pieces of cloth are called the Roach. They not only increase the sail area, but also help build in that shape we spoke of earlier.

There are batten pockets up the Leech edge to hold out the curve of the sail (Roach) and at the very top is a full length batten that can be used to shape the sail for different wind conditions by applying, or decreasing pressure to it. We also need to know where the **Centre of Effort** sits in the sail. We find this by drawing imaginary lines from the Peak down to the middle of the Foot and from the center of the Leech (back edge) across to the Tack (where Mast and Boom

meet) you can also take one from half the mast length out to the Clew.
Where these lines intersect we find the **Centre of Effort (C of E)** this is where the driving force of the wind has the greatest effect. This point is also important to the balancing of the ship, as we will see later.



I digress for a minute: How does a sail work? If we take a piece of A4 paper cut it into four pieces. Take one piece and make a 10mm crease along the narrow edge and then roll the paper up starting at the back edge, then flatten it out so it is shaped like a wing. We then hold the two corners of the flat edge between thumb and finger and hold it horizontal in front of the mouth and blow. If you have the right shape the back edge of the paper will lift up. This happens because the air going over the top of the curve has to go faster, thus becoming thinner, with pressure underneath staying the same. This creates a vacuum above the sail, which sucks the sail into. Now if we turn it on its side as a sail and put down our centreboard to stop the boat from slipping sideways, the ship will sail forwards. It was put to me once, does the boat get sucked along, or does the wind push it along.

A tip:

Saving wear and tear: Have a can of Silicon Spray handy and spray up the mast track and along the Luff rope edge. This will make the sail slide more freely and also save wear and tear on the tabling covering the Luff rope.
Throughout the writing I will give further tips that will help keep your ship shipshape**.**

Sail adjustments to suit the various conditions when Beating to weather:

In very light weather we require a very flat sail so that the wind can exhaust away and not get trapped in the belly of the sail, It is the new wind coming into the sail that moves us through the water.

Finn class yachts with de-powered sails for tough conditions

While I say a flat sail, don't make it too flat, as you will stall your ship. The sail must have some shape in it. To achieve this flat sail, take some pressure off the top batten, making sure it won't slip out of the plastic pocket, then either haul down hard on the Halyard or the

Downhaul that fastens the tack of the sail to the Boom. (Mast end). The next thing to do is to apply tension to the Clew of the sail (outer Boom end) **BUT** don't tension it so much that you throw a crease line along the foot of the sail. To see the result of this, take a look at some of the older sails that have been tensioned (strained) for several seasons and you will see a permanent crease along the foot, with the foot Roach flapping away. The Roach has been made redundant. Applying too much tension at the clew end of the sail created this ruined Roach. This part of the sail

is on the Bias of the cloth so some thought is required when applying tension. An example. Stretch a Hanky at opposite corners and you will see what I mean. To apply the right tension on the out-haul line apply tension until a crease appears, then slacken off just enough to remove it. When flattening the sail you are de-powering it. Remember, the sail is one of the more costly things on a boat, so look after it.

,

The same above also applies for Heavy weather sailing

There is however another action you can take in setting your sail for heavy weather, and that is to take in a reef. If you do decided on this action make sure the reef points, if you have them are not fastened to the boom, as the sail has to be loose footed. Then again, it may be wise to consider your sailing ability under such conditions and stay on the beach.

.

This Firebug sail is reefed to suit the conditions and the ability of the skipper. It will loose little performance under such conditions, and may in fact perform better than a full rigged boat over-powered and struggling under heavy conditions

Medium weather sailing: That wind range between 8-15 knots. Power up your sail by easing up on the downhaul, and or slacken up on the Halyard. Also ease up on the clew end. Before you hoist the sail put more tension on the top batten to power up

this part of the sail. In doing this don't make the batten too tight, as the batten may not click through when you change tacks. The photo bottom left on the previous page shows a powered up sail, the foot of the sail being curved, (Not tight) with the skipper in a good hiking position.

Two things to remember: When bending the sail on to the Boom, make sure that sail is set on the boom with an even depth each end and also lash the sail to the mast at the tack and at the clue end of the boom, as this will save a lot of wear and tear on the bottom end of the Luff rope where it comes out from the mast track, and at the clue end where it will take much pressure off the clue eyelet.

For down wind sailing:

You have to make the alterations to the sail while sailing down wind; this can be difficult, especially for a new chum. There are three things that will help your speed in down windsailing. By easing up on the downhaul, this will increase the fullness of the sail, by easing up on the outhaul; this will give the foot of the sail more fullness. These actions will give the sail more drive.

We also need to apply more tension to the Boom Vang, (Kicker) but will talk more about the Boom Vang in the next paragraph.

The next thing to note are the boats in these two photos, see how they are heeling to windward**.**

In the top photo the boat with the white sail panel at the top is last, maybe he should be watching how the front guys are sailing. **There will be more about about this subject later.**

A Tip

To get a consistent sail setting for the various wind conditions glue a length of measuring tape to the clue end of the boom, say about 10cm should give you a good range to work from. This measuring strip can also be purchased from ships chandler. Some skippers also glue a strip to the mast by the boom.

Boom Vang: (Kicker)

An example of a boom vang applied too tight. It is defeating the object of flattening the sail as the boom is bending allowing the foot of the sail to belly out. The sail Leech looks over tensioned by the Boom Vang and is creating a tight (Hooked) Leach.

The Boom Vang plays a large part in controlling your ship. There was a time when Boom Vangs weren't in existence and down wind sailing could be a real problem. The Boom would lift and allow the top half of sail to twist forward of the mast, this created a rolling motion (Death Roll) which would often end in a capsize, but by applying the Boom Vang you will prevent the sail twisting forward, thus reducing the risk of a capsize, but not completely I should add. It can also be used for bending the mast, but has very little effect on the Firebug sail as it is loose footed. (See picture left) Going up wind it pays to have some tension on the Vang, but this depends on the wind strength. The stronger the wind the less Kicker tension is needed. The reason for this action is to allow the leach of the sail to open more, creating a valley up the sail so that the wind can clear away, thus de-powering the sail. It will also shift the C of E slightly forward, which will help reduce weather helm. There are times when the Vang can get you into trouble, that is when the centreboard is lifted too high and the boom comes across jamming it self

If you look at boat 2 from the right, notice how this sail shows in front of the mast from about 1/3rd up. This would be good Boom Vang tension for strong winds when beating to weather. It allows the wind to funnel up through the valley of the sail reducing the heeling momentum however, for down wind sailing more tension would be needed.

This Firebug could have a bit more tension applied to the Boom Vang. It would present more of the top half of the sail to the wind while on this reach.

against the Centreboard. This occurs mainly when setting off, coming ashore, or when Gybing. If the wind is strong enough the centrecase could be strained. The other time this could occur is when turning away from the wind (Sailing down wind) Before you make your turn, make sure the centreboard is well up, (but clearing the Boom Vang,) this will prevent your boat from **tripping over a full depth board and causing the boat to nose dive as you make your turn**.

Remember, A good time to tension the Boom Vang is when heading up to the top mark on the last beat, as having tension on the Main Sheet will give some slack in the Vang and make it easy to tension up.
Don't forget, when reaching the bottom Gybing mark make sure you take the pressure off the Boom Vang it will make it easier to carry out the Gybe as previously stated.

.

Having worked out the all adjustments it's time to go sailing

If the wind is light you can probably launch the ship with the sail up. But there will be times when it pays to pull the sail up after launching if the wind is strong. The same applies when coming ashore. Starting out we make sure the Centreboard is in place and that the rudder

is tensioned down. Then check the following**, which** way the wind is blowing, **are** there any other boats in the vicinity. **All clear**, then off we go. If in a new boat, haul the sail in slowly to make sure all things are working as they are meant too.

A tip

When leaving or coming ashore make sure there is enough room at the ramp. This is a good place to put a hole in your boat if the ramp is crowded. Some skippers don't hold the ship at the bow so consequently they loose control of their ship.

That first beat

Getting aboard: Give some thought to the side you are going to get into your ship. Some beginners don't consider which way the wind is blowing and try and get in on the leeward side, the result being that they capsize before they even get started.
Once aboard you may have to pull your sail in to get the wind in it depending on the direction you are sailing. Once moving pick a spot up ahead and try and sail for it. You will probably have to alter course slightly to keep the sail full and the boat moving. This is because the wind never blows in a straight line, but swings to the left and the right by as much as ten degrees. Once you get the hang of it, you will be able to take advantage of these shifts to get to the point you are heading for much quicker. **Remember** to make sure your rudder blade is down and your centreboard is sitting in the case. One other thing to remember, if you are a learner never let go of the tiller or mainsheet, unless you're tacking. To do this would be like letting go of a car's steering wheel.

Right of way when beating to windward:

Like the rules of the road there are rules to follow when in a boat, in this case a yacht. It doesn't matter how big the other yacht is the same rules apply. A starboard tack boat has right of way over a port tack boat. You are on starboard tack when the wind is coming over the right hand side of your ship. If you meet a boat that is on port tack he has to give way to you, by either tacking onto starboard or sailing behind you. It is your duty to make contact by calling out "starboard tack". He is then made aware of your position. This is a basic rule. When racing, all the rules become a bit more complicated, but when explained are easy to follow. It always pays when tacking onto port tack that you have a quick look and make sure there are **NO** starboard tack boats in close vicinity, as you might have to tack again to clear them. Every time you tack you loose about one and half boat lengths. So keep your tacking to a minimum. One other thing to remember is**, even though you have right of way you must take action to prevent a collision**.

When to tack: It is here you need to know about wind shifts. You are sailing along on a good breeze on a designated course when suddenly your sail starts to flap, you can do two things, (1) pull your tiller towards you and lay off until the sail fills or (2) you can change tacks. If you are heading for an up wind mark it might be in your interest to tack, in doing this you could gain a lot of extra ground.

The Following three photos are how you shouldn't sail up wind.

Both boats are staggering up wind. They will be carrying a lot of helm which will be slowing them down, the angled rudder blade will be acting as a break, and because of the angle of heel, the bows forward section will also be acting as a rudder aggravating the situation. Allowing the boat to

Not good, get the boat back on its feet. The above skipper would also reap the benefit of the wind gust by easing his main and driving forward with it.

Sail looks too full for the conditions and the skipper is fighting to keep the boat on course. Again ease the main and go with the gust

heel on the wind is one of the major reasons boats become heavy on the helm when sailing up wind. So often the skipper blames the mast position. Study these two pictures plus the three below. Now choose the two sailing correctly.

This is a good example of very light weather sailing. He is getting waterline length, and sail shape, but he should be sitting further forward to raise the stern so as to reduce the drag coming off the stern

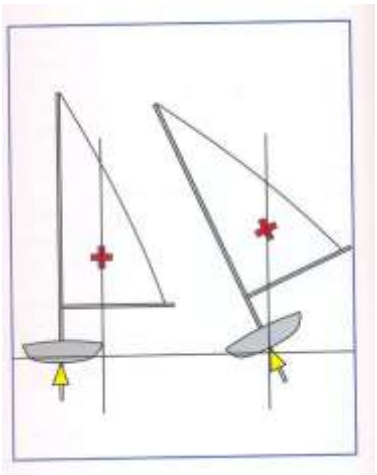
This Firebug is making the same mistake. In heeling, you can see how the bow curve will want to turn the bow into the wind

This Firebug is beating up the causeway into a good breeze. Hiking position is good and sail is beautifully set for the condition. It has an open Leech, which tells me that the Boom Vang tension is about right. Also, by his angle of sailing it would seem he has got onto a wind shift. Now if the wind should shift back he would be heading more for the bottom of the picture.

Two fine examples of skippers heeling their boats to weather down wind

Running down wind (When the wind comes from behind)

Sailing with the wind behind you is easy, **WRONG.** Yes you can just sit there and steer the boat, **WRONG.** If the wind is right behind, you will need to watch for those wind shifts. A wind shift to leeward of you could cause you to Gybe and finish with you in the tide (A capsize). Gybing is when the wind blows the sail across to the other side, intentionally or unintentionally, often with a crash, you will have to duck your head quickly to prevent suffering an injury. If it is blowing hard, downwind sailing can be exciting to say the least. You can make your boat sail faster if you do the following, make sure your centreboard is about 2/3rds up in the centrecase, this will help control the ship. Also make sure you are sitting well to the stern to keep the bow up. Make sure you have the Boom Vang on tight enough so the boom won't lift. The next thing to do, and this can be really exciting, is to lean your boat over towards the wind. We spoke earlier about the Centre of Effort (In the sail) and the Centre of Lateral Resistance in the hull. In heeling the boat over you are bringing them into line with each other. When the mast is straight up and down the C of E is out to the side. This pressure wants to pivot the boat on the centreboard, so to counteract this you have to apply pressure to the helm. This action is going to act as a break as you endeavor to keep your ship on course. In heeling the boat you will take the pressure off the rudder, it should feel neutral if you have got the heel right. As you gain more experience and get used to the feel of the boat; you can try it in a fresher breeze. Again, this is where the wind shifts can upset your plans, as I'm sure you will find out. So always be alert to wind shifts. There is a lot of **making sure's** in this paragraph, but they are important.



Those death rolls: We spoke of these earlier. To correct this problem it will help if you (1) pull your sail in a bit, or (2) to push your helm down slightly and bring your ship onto more of a reach. This action will bring the wind more abeam. (Side on) This will/should correct the problem. Once things have settled down you can then try and get back on course.

This is a fine example of an R class going through the Death rolls on Lyttelton Harbour. They survived these death rolls. However, through the conditions prevailing they had unintentionally Gybed the Mainsail from port to starboard this further complicated the situation

What ever you do don't try and correct the problem by shifting your weight from side to side as it will aggravate the problem. It doesn't only occur in cat-rigged boats such as our Firebug, but sloop-rigged boats even when they have their spinnaker set. While sailing down wind we need to keep our wits about us.

Making that necessary Gybe:

This is probably the most testing manoeuvre to carry out in sailing. The experts will tell you to carry out your Gybe when the ship is going at it's fastest. True, but as you are not an expert yet, I reckon you will probably pray for the breeze to drop when you carry out this manoeuvre. There are certain things that will help you in this task, (1) make sure your centreboard is at least half up so you don't trip over it. Always make sure the top of the centreboard will clear the BoomVang. (2) Ease up on the Boom Vang, it will take the pressure off the Leech (Back edge of the sail) and make it easier to grab a hand full of mainsheet near the boom and pull it across, rather than sailing through the Gybe. Whichever manoeuvre you carryout, remember to duck your head. (3) Again, as your ship goes through the Gybe bring your tiller back to check the ships swing other wise it will continue to swing around in a circle heeling right over and ending in a capsize. This situation is called Broaching. As you complete the Gybe try and keep the ship flat. Releasing the pressure on the Boom Vang will also help if your ship heels too much, the Boom will be able to

lift and not drag in the water. A dragging Boom could put you in the tide. In carrying out the Gybe, don't hesitate make it a positive move.

Reaching:

NO, It's not the situation that arises when you get seasick. It is an angle of sailing across the wind. It could be a Broad Reach, a Beam Reach or a Tight Reach. It is probably the fastest point of sailing. To get onto a Reach you will need to turn your bow so that it is sailing across the wind in other words the wind is coming more from the side of the boat. The secret is to free your sail until it starts to flap a bit and then pull it in until it stops flapping. If the Breeze is fresh, you will feel the boat won't to get up and go. If she feels a bit sluggish, it will probably be because you haven't lifted your centrebord up by about half. You will **feel** how much board you need to have down. There will be times when the wind gusts strengthen and you start to heel more than you want. That's fine, quickly let the sail out until the boat is on a more even keel and pull your tiller towards you slightly **and go with the gust**. Man that's the fastest point of sailing. As the wind eases and swings back, or drops off push your helm slightly away from you to get back on course, at the same time bringing in the slack on your mainsheet. I repeat, as you can see these situations are mainly caused by those wind shifts. There is a saying from way back "let your sail out and go with the breeze, don't fight it"

The yachts in these three photos have really got onto a gust, especially the top one. Yachting at its best. Note the position of the centerboard.

.

Wave Riding

To carry out the following you need to be on a beam or Broad Reach. Having got the hang of the above we can now look at doing a bit of wave riding. This will really give you more speed if a bit of a sea is running, the bigger the better. It is possible to increase your

speed by pulling your tiller towards you just as the wave lifts your stern, at the same time giving more tension on the Mainsheet in the form of a quick tug, this extra tension will help get you on to the face of the wave, at this point you are probably going faster than the speed of the wind and your sail could backwind. (Go slack) As you slip off the back of the wave bring your boat back onto the Reach and wait for the next wave. It really gives you a thrill sailing on this course. If you get good at it there will be times when you sail over the wave in front and down the next one.

A tip

Looking for extra speed? Then try using car polish on the bottom of your ship. It just might make the difference. There was a time in the early R class days when skippers polished their boats with graphite. Soon after Graphite Paint was produced. The paint didn't last, probably because the only colour was a dark gray. Regarding the graphite polish, some of the boys reckoned the powder had probably washed off by the time the first mark was reached.

Beating to windward:

The skipper who can keep his/her boat at optimum speed, take advantage of the wind shifts, keep clear air and be in a good tactical position to round the mark is going to be up with the Leaders, especially when rounding the top mark. To do this, **DON"T** pinch your ship by sailing too close to the wind. When the Luff of your sail starts to flutter (That section by the mast) pull your tiller slightly towards you and get that sail full of wind again. Don't sit behind another boat, as he/she will give you a lot of disturbed air. Always aim to keep clear wind ahead of you. Try not to get

A good start. Notice how one boat has gone onto a flyer to get fresh breeze and not stayed with the fleet. This move can pay off, but unless he gets the favorable wind shifts he might be further back in the fleet than he would like.

caught on Port tack as you come up to the weather mark. Always try and approach it on Starboard tack, you can get into all sorts of problems here that will cost you heaps of time by approaching it on port. There is one other problem some skippers have, and that is to haul their mainsail in so tight they actually stall their ship. Give it a bit of freedom and allow it to do the job. It doesn't take a lot to get the boat driving foreword again. But not with a stalled sail.

Running done wind: (Additions**)**

I have done this to try and make the various Sections easer to understand

Again in light weather sit forward so as not to drag water, (it is better to push it than drag it.) Also try and heel your boat over to windward so that you line up the Centre of Effort in the sail and the Centre of Lateral Resistance in the hull as previously mentioned. You should also have your centreboard two thirds up to reduce drag and prevent tripping. As the wind freshens you will again need to move further aft to keep the bow up.

These Finn skippers have got the right idea

Look for those waves and try and surf down them. Again, you will need to have some of your Board up. This guy is tramping

This guy is just coming off a wave, while the one on the right is about to scream down the face of a wave. (If he survives the leap that is)

Getting a good start when racing is important

This paragraph is mostly used for local club racing

When you get around to racing you will need to know how to get the best start. Firstly you will receive a ten-minute gun that prepares you for the start. You should be on the water at this gun. Five minutes later the preparatory gun is fired and five flags, lights or discs will come to into view. They drop individually one every minute. When the last disc, flag or light drops you should be in top gear as you cross the start line.

It is at the five-minute gun you start working for your starting position. Do you have a watch to tick off the five minutes? If not, try counting off a minute buy sailing back from the line for 50 seconds, turning and sailing back to the line. The 10 seconds allows for the turn. If you have got it right repeat three more times, this should bring you up to about the last minute where you can start to maneuver for your starting position. Try and choose a place where you will have clear air and try and hit the line at top speed. So often you see boats stalled in a good position on the line waiting for the gun. Forget them and try and sail at speed across the line. This is the best way to start racing. All the top skippers aim for this start. Their tactical position will also be spot on.

Much can be gained by watching the tactics of seasoned skippers, so be alert and learn from them. **Study the three pictures** on this page and decide which boat you would wish to be in.

A Tip

If you find you are slipping around on the deck or have trouble keeping your feet on the cockpit floor, try some non-slip strips that can be purchased from a Ships Chandlers, they are aprox 5cm wide. Place 4 on each side of the deck at an angle and 2 strips each side on the cockpit floor

"Things you need to know"

Apparent wind: One thing that needs to be brought to your attention is the title Apparent Wind. This is the angle the wind direction takes as your boat goes faster through the water. As speed of the boat picks up, the wind drives forwards to the bow, so you need to be ready to pull in your main sail quickly to keep the sail full of wind, thus taking advantage of the wind's apparent change of angle. It only happens on Beats and Reaches as going down wind, once you have caught up with the wind there will be times when you will have to wait for the wind to catch up with you.
Surf Board Sailors and Land Yachts are fine examples of the wind moving ahead. They always have their sails pulled in tight during most points of sailing.

Caught in Irons:
This is when your ship, as you tack, comes head to wind and you find you have stopped. If this happens you will probably go astern. (Making a stern board) To correct this problem push your helm away from you and as the ship goes backwards the angle of the rudder will steer your ship onto the new course. But watch out, because as you go backwards and start to turn, the wind pressure will increase as it fills the sail. This pressure could put you in the tide. So be awake to it. In rough conditions try and tack in a smoother bit of water and always tack as you rise on a swell.

Heavy on the Helm:
The first thing you hear the so-called experts say is "you need to shift your mast forward". Yes that could be the case, but the designer, especially of the caliber of John Spencer; this will not be the problem. Here again the C of E and the C of LR comes into play. He, the designer has to decide how far the C of E is behind the C of LR. His experience will tell him where the best **average** position for the mast will be, taking into account the various wind strengths. **(1)** What will give you a heavy helm is allowing your boat to heel excessively. When you do this the forward shape of the hull will act as a rudder and steer you further up into the wind. So keep your boat **fairly flat**, but not completely flat**. (2)** Another action that will give a heavy helm is to have your sail pulled in too tight and / or having too much Boom Vang tension on giving you a hooked Leech. This will have the back edge (Leech) of the sail acting as a rudder. Ease your Boom Vang and let your sail out and go with the wind. This will create a valley up the sail shifting your C of E further forward, this acting as if you have moved

your mast forward**. (3)** Also, consider mast rake, too much will shift the C of E further back creating more weather helm. **(4)** If the conditions are that tough and you are really struggling to keep your ship moving and she is determined to go head to wind, try lifting your centerboard,

About a ¼ or more if needed, as the full centreboard being down will act as a pivoting point, or as I was told (an axle) you would need to experiment on how much board to lift. The argument will be, in taking this action you will move slightly sideways losing weather ground, but you will still be driving forwards while the other skipper staggers up-wind.

My advise to you is ignore the experts and trust the designer. Also don't shift your mast until you have learnt all the basics of sailing and are comfortable while sailing your ship. This advice also applies to the mast rake. If you listen to the experts you may well finish up chasing your tail.

Remember to heel the boat slightly in light weather so as to get the full water-line length, plus helping the sail to create its shape. Remember to sit well forward to get your stern out of the water. It's better to push water than to drag it. As the wind freshens you will need to move aft. This is a problem with all Cat Rigged short boats they tend to put their nose down as the wind freshens.

When putting your boat in the water, make sure there is room at the Ramp. It's best to wait until there is good room to safely sail away. Always hold your boat by the bow or forestay. In doing this you will keep control of your ship if the wind is a bit fresh. The same a applies when you are coming ashore.

A Tip

If racing, always look to see how the other skipper is going. If he is going faster than you, or performing better, have a look to see where and how his mainsail is set, where he is sitting, how much centerboard he has down, how much angle of heel he has and how much Boom Vang tension he has on.. Also look to see if he is sailing in more breeze than you. You can tell this by the darker colour of the water he is in and also the wavelets. Those wind patches and holes make all the difference to your performance, so keep away from those smooth shiney patches.

Sailing Rules:

Learn the basic sailing rules. These rules apply to all vessels at sea.

Keep a good look out for other craft. This is really important.

If you capsize and have trouble getting the boat up right, stay with the vessel as you have a better chance of being seen and picked up.

Make sure you are capable of handling the conditions when you decide to go sailing.

The most important thing is never to go out unless you are **WEARING YOUR LIFE JACKET** and make sure you tell some one where you are going, what time you will be back and make sure you see and tell them

when you are back. **THIS IS ALSO IMPORTANT,** especially when sailing from a club**.**

A Tip

Having rigged your ship, walk around her and check your gear. Also take the mainsheet, stand at the stern and pull it in tight, at he same time looking up the Leach edge of the sail. Doing this will tell you if you have a hooked Leach. It is hooked if it crosses over an imaginary line running from the top of the mast to the boom end, so ease it off. Check the Boom Vang tension also, as it will do the same thing. This hooked leech will give you weather helm. The Leach needs to be open. In other words on the other side of that imaginary line

Lee Bowing the Current. This will definitely give you more speed, and help greatly when going to weather, it is called lee bowing the current and or waves.

To do this you need to get the waves or current hitting the lee side of you ships bow and or lee side of your centreboard. Imagine holding an orange pip between your thumb and finger and squeezing the pip, naturally it will shoot out? You get the same effect when the current or waves hit the lee side of your ship and against the pressure of wind on the sail. A good time to try this is when starting at PPYC in an Easterly, club end of the line. Allow the ship to heel, have some centreboard up to miss the shallow water and work those wind shifts. Doing it right can bring you up to weather and in front of the fleet, who most likely will be blanketing each other at the other end of the line. Good Luck with this manoeuvre.

Safety in Heavy Weather: We have all been taught not to leave the ship in the advent of a capsizing; if you stay with the ship, you will be easier seen when rescue craft arrive. The risk of capsizing your ship, especially when racing is always present, and while some attention is given to this subject in all sailing manuals, there are several actions that seem to have slipped off the pages. One action I have found left off is, that if you right your ship with the mast lying on the weather side, she will most likely come up-right and then flip over the other way so that the mast is to the lee of the hull. There are always exceptions to the rules, as they say, but if this happens, don't panic as you are now in a more positive situation to right your ship, with her staying up-right this time, get back on board and carry on racing.

There is a situation that will arise as you climb back aboard, your weight and leg drag will start to turn the ship onto the other tack, putting you over again. I have seen this happen so often, and always ask my-self the same question, why aren't these points raised in these manuals? To prevent this happening **you must grab your tiller as soon as you can reach it;** pull it towards you so that you keep her on the same heading or tack. As she takes off you will find that the water pressure against your legs will assist you in getting aboard**. Remember, that tiller grab is important**. One or two other things you may consider doing when conditions look rough is

(1) Run a continuous slack rope through forestay fitting, (Handle) at the bow, and fastening the ends to the stern deck saddles each side. This will help with the problem of grabbing hold of the centerboard to start the righting motion. The centreboard rides high out of the water when the ship is on its side and some may have difficulty in reaching it, so in the event of a capsize, this rope can be used as a lever to bring the hull over enough to take hold of the centerboard and finish the righting of your ship. I have been told that the best place to start this manoeuver is work from the bow where the rope is well within reach. Working along the side using the rope as a lever until you are in a mid ship position to start applying pressure. At this point you may be able to reach the centreboard and apply leverage to it. Once the boat is righted you can slip your knee on to it and use this rope as a step up.

Using The Wind: You will, at some time in your sailing career, have to really battle the elements to get your ship sailing again, after all, as sailors we need to be able to take care of our selves in most cases. In the case of the Firebug if her mast is pointing into the wind, it is possible, if you are strong enough to lift the under side stay enough to get the mast clear of the water, and from this position get wind under the sail. It doesn't take much of a lift, but with clear space being created between the wave actions, and the mast, this lift can get enough wind under the sail to help flip your ship up the right way. It's hard work, but it works, and it is another means of self-preservation. **BUT** make sure you have hold of the bowline, while doing this manoeuvre, as once up she might sail off leaving you in the water. The bowline will help bring her head to wind; preventing her from flipping over again. **This is a contradictory statement to righting your ship on a previous page.** The difference is, in the previous case is you can't get to the bow quicker enough to bring your ship head to wind. In the mast lift system you have hold of the bowline, or better still have it attached to your waist, she will immediately swing head to wind once up right. It requires some strength, but if a 70-year-old guy can do it, I'm sure a 14-year old youngster can do it. It may take a big heave and a few moments to get enough leverage, and you will have to contend with some water pressure on the submerged sail, but once started it is surprising how quickly the wind comes to your aid.

Look after your ship:

Wash the hull down after use and dry off with a rag; it will help to preserve the paintwork. If there has been a lot of salt water wetting your sail, it will pay to hose it down and leave it flat on the ground to dry. Always make sure the sail is dry before folding it up. Remember it is the most costly part of you sport. My method of storing my sail was to roll it around a length of plastic down pipe, always making sure that the batten and seams lay parallel with the pipe. By drilling a hole in one end of the

pipe and tying the clue to it the sail would roll up and fit snuggly into a sail bag.

If you are storing your ship at a club or home, always undo the porthole covers, this will allow the air to circulate throughout the whole ship and prevent dry rot. Take the port covers, sail, wind vane, rudder, centreboard and all ropes home with you for safe keeping. It pays to give those ropes a dunk in a bucket of fresh water to wash the salt out of them. They will last longer and be nicer to handle.

A Tip

Try marking your centreboard: Marking your centreboard will give you a good idea how far it is protruding from the bottom of your ship while sailing. Place the centreboard in the centrecase while on the hard and divide the top section above the centrecase yoke into quarters. A dab of coloured paint, or something that will stay on your board when wet is needed. You will find these marks invaluable when trying to judge the amount of board you have down.

What I have written here was being taught back in 1949, but probably goes back to the 1800s.

Finally, get out in your ship and have heaps of fun. That is what sailing is all about and it's the best way to gain sailing knowledge. I can well remember Peter Mander, who along with Jack Cropp won New Zealand's first Gold Medal at the Olympics in Melbourne telling us that a boats performance was 90% above the water and not under it.

South Island Firebug Championship sailed from the Otago Yacht Club1999