

A Basic Guide To Setting Up Your Solo
P.Kimmens – May 07

Introduction

So you are the proud owner of a shiny new Solo (or perhaps a slightly older Solo in need of some TLC!) and you want to get the best out of it. But where do you start?

This guide is a basic introduction into how to set up and sail your Solo. It is a starting point from which you can make tweaks and adjustments as you get more experienced with your boat. There are no exact measurements or settings that will magically make your boat go faster. Each boat (and helm) will be slightly different and will require variations in settings based on experience. However the information contained in this document a good point to start from if you don't have any experience with a Solo.

None of the information in this document is new, it has been accumulated from documents that are already available via the Solo website/association, suppliers of Solo equipment and discussions that I have had with various Solo helms over a period of time.

The aim was to produce an easy to understand step-by-step document for someone new to the Solo.

Full measurement details and rules are available from the National Solo Association. I strongly recommend that you join the association and visit the website (<http://www.solosailing.org.uk>)

Fair sailing

Paul Kimmens
Solo 2 – Inertia

Section 1 - Assessing The Boat

You are probably 'champing at the bit' to go sailing in your new boat but a bit of time assessing the condition now could save a lot of time and expense later. I suggest you undertake the assessment in the following order and if possible ask a fellow Solo helm to give you a hand and the benefit of their experience:-

The Mast /Boom

Before you put the mast into the boat give it a good 'once over' to check for any damage or wear. Once you have put it in the boat you will rarely get a close up view of the top section of the mast so do it now.

Look for any obvious signs of damage such as bends, stress marks, corrosion, missing rivets, screws, etc. Pay particular attention to the forestay and shroud tangs (if fitted). These are stainless steel plates riveted to the mast to which the forestay and shrouds are attached. They take a lot of stress and if they break you are likely to end up with a

bent mast. (Note: some masts have T slot fittings instead of tangs). Also check that the track for the sail is clean and smooth.

Small bends in a mast can be corrected by bending the mast back into shape across a couple of benches or tables. Do check for signs of stress though as the mast will be weakened by repetitive bending and straightening.

Check the gooseneck fitting for wear and also check pulleys, sheaves and cleats for smooth operation and secure fitting.

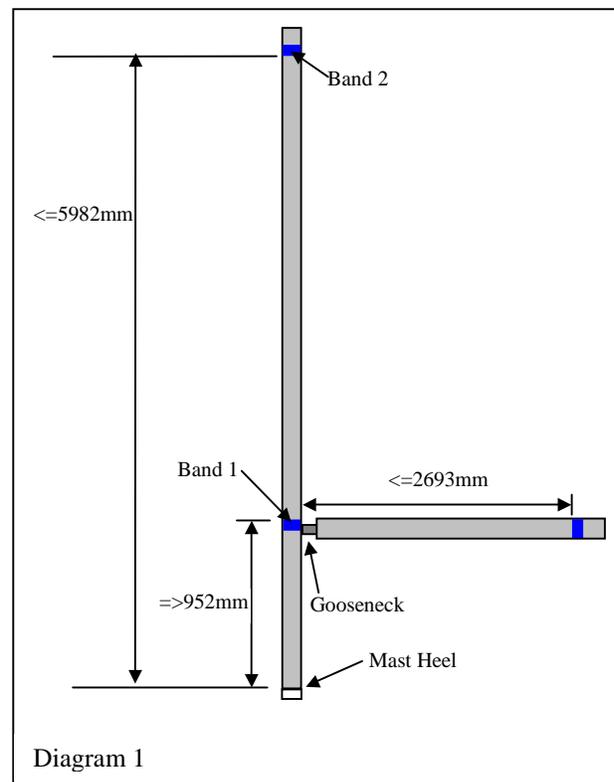
It is also worth checking the main sail halyard for wear especially the part of the halyard that runs over the pulley at the top of the mast when the sail is fully hoisted. This section of the halyard takes a lot of strain and is the area most likely to break. If you have a rope halyard and it looks worn in this area a simple solution is to chop off approx 12" thus removing the worn section (assuming that the halyard is still long enough!) or you can 'top and tail' the halyard by removing it and feeding it back in the other way around.

While the mast is on the ground check the measurements of the 'coloured' bands (note these are commonly called the black bands but can be any colour). There should be two bands on the mast. The upper edge of band No1 shall not be less than 952mm from the heel. The lower edge of band No2 shall not be more than 5982mm above the heel. There is no minimum or maximum dimension for the width of the coloured bands. See diagram 1.

Finally try and identify the type of mast. It is important to match the mast and sail to your body weight to get the best out of your boat. Appendix A lists various types of common Solo masts and how to identify them.

Having checked the mast do a similar check of the boom. (Note: unlike the mast the type of boom makes little difference). A coloured band shall be painted on the boom such that when the boom is fitted on the gooseneck at 90 degrees to the mast the inner edge of the band shall be not more than 2693mm from the aft edge of the sail track/mast.

The top edge of the boom needs to be in line or above the top edge of band 1. Older masts may have an adjustable gooseneck. Newer masts tend to have a fixed position gooseneck.



The Hull

While the boat is still on its trolley check the inside of the hull, side tank and decks for any obvious damage. Open the hatch covers and have a good smell. If the tanks smell damp and musty there may be a problem with water getting into them.

Check all of the fittings to ensure that they are securely fitted and operate smoothly. A quick spray of WD40 will help make pulley block and cleats operate smoothly

Check all sheets and ropes for wear.

It is worth noting that you don't necessarily need the latest lightweight fittings but you do need fittings that work properly.

Fit the mast and shrouds, lift the boat onto the ground and then using the shrouds pull it over onto one of the gunwales. Makes sure that you are on soft ground or alternatively use a boat cover or sail bag under the boat to prevent damage to the gunwale and chines as you roll the boat over.

With the boat on its side you can have a good look at the underside of the hull. Ideally you want a clean, smooth, hull. If there are any big scratches fill them with marine or gel coat filler (car filler absorbs water!) and rub them down. A smooth clean hull is obviously better than a dirty scratched and damaged hull.

Next check the slot gasket. It should just overlap and form a good seal all the way along the centreboard case opening. A missing or damaged slot gasket will really slow the boat down and should be replaced.

The Foils

With the boat still on its side lower the centreboard and check it for obvious sides of wear and damage. The leading edge should be smooth and round and the trailing edge should have sharp edges. Any small nicks and scratches should be filled with epoxy resin or similar material and rubbed down to a smooth finish. It is amazing how much turbulence and drag a small nick on the leading or trailing edge can create.

With the centreboard fully down try and wiggle the board from side to side. The board should be a snug fit in the centreboard case with no sideways movement. The more it wiggles the less effective it will be. If there is sideways movement remove the centreboard and stick packing pieces on either side to reduce the wiggling. CD's and overhead projector acetates make ideal packing materials. See the handy hints section on how to remove the centreboard.

Now check the rudder stock and tiller for obvious signs of wear and damage. The leading edge should be smooth and round and the trailing edge should have sharp edges. The rudder should be a snug fit in the stock with no sideways movement. If it is loose in the stock try tightening the pivot bolt a little or add packing pieces to the rudder.

Fit the stock/rudder to the boat and check that the rudder/stock moves freely on the pintles but there is no sideways movement.

With the rudder fitted and the centreboard fully down go to the front of the boat and look down the hull towards the back of the boat and check that the rudder and centreboard are in line.

Note: Whilst the boat is on its side it is a good opportunity to make some marks on the centre board handle to indicate the position of the board when it is down. Pull the centreboard down until the leading edge is perpendicular to the underside of the hull. With a permanent marker pen (or something similar) mark the handle of the centreboard and the top of the centreboard case so that you can accurately position the centreboard. Now move the centreboard aft until the trailing edge is perpendicular to the hull and make another mark on the centreboard handle/case.

Finally move the centreboard aft until the leading edge is approximately 45 degrees to the hull (half up, or half down depending on your outlook on life!) and mark the handle and case again.

When sailing you now have three reference points for setting the position of the centreboard.

The Sail

Put the boat back on the trolley and hoist the sail. As you hoist the sail check for any obvious signs of wear and tear especially at the joins, ends of batten pockets and around the bolt rope. Any minor damage can be repaired with self-adhesive sail tape.

The sail is the engine of a boat and as a sail gets older it loses its shape and performance drops off. If your sail is in bad shape you should aim to replace it. A good second hand sail will be perfectly adequate for club sailing, there is no need to purchase a brand new sail.

The Trolley

Why check the trolley? It won't make your boat go faster! Of course your trolley will not make your boat go faster but your boat will probably spend more time on its trolley than on the water so you should check that it supports and cushions the boat without damaging it.

Additionally check that the wheels/tyres are in good order and the boat balances nicely on the trolley. It is significantly more tiring pulling a boat that is out of balance and/or has flat trolley wheels or wheels that don't rotate easily. The boat might be in good shape but by the time you reach the water you may not be!

Buoyancy Test

It is always a good idea to do a buoyancy test before you take the boat out sailing for the first time. It is a bit late to discover a buoyancy problem when you are a long way from the shore!

To do buoyancy test get a friend to help. Make sure all the bungs and hatch covers are fitted and then capsize the boat near the shore or near a jetty and get your friend to hang onto the end of the mast to stop you drifting.

Climb up onto the gunwale and sit on the side of the boat for ten minutes. Capsize the boat onto the other side and do the same again.

Bring the boat ashore and check that the buoyancy tanks are dry. There may be some water in the tanks but significant amounts of water indicate a leak which should be rectified.

Section 2 – Basic Set-up On Shore

Please remember that the settings suggested in this section are a guide and over a period of time you will undoubtedly find that you will need to tweak them to suit your boat.

Mast Position

Step the mast in the boat but do not connect the forestay or shrouds and do not hoist the sail. Measure the distance from the front face of the mast to the outside face of the transom keeping the tape measure in contact with the floor of the boat. This measurement should be approx 3055mm. Adjust the mast foot position accordingly.

Check that the mast is a snug fit in the mast gate and that there is no sideways movement. If there is movement add some packing pieces to the mast or mast slot (This could be as simple as putting some insulation tape around the mast). Also check that with the mast at one end of the slot the gap at the other end is no more than 26mm.

Using the main halyard check that the mast is vertical as follows:- pull the halyard tight to a point on the port side of the boat. Note the position of the halyard. Now do the same on the starboard side of the boat. If the mast is vertical the halyard should touch the same point on each side of the boat. If there is a difference the mast may be bent or the mast foot may need moving to one side slightly.

Forestay

Without the sail hoisted gently push the mast towards the back of the boat until the mast touches the rear of the mast slot in the foredeck. The forestay should just be tight. Adjust the forestay accordingly. Once you have the correct adjustment mark the forestay adjuster with a permanent marker as a reference point.

Shrouds

Push the mast gently forwards and the shrouds should become tight when the mast is approx 5mm from the front of the mast slot. Once you have the correct adjustment mark the shroud adjusters with a permanent marker as a reference point.

Boom

Put the boom onto the gooseneck and check that the top edge of the boom is in line or above the top edge of band No 1 on the mast (see diagram 1)

Sail

Hoist the sail and check that the top of the sail is in line or below the lower edge of band No2 on the mast. (see diagram 1). If you have a rope halyard you may initially need to hoist the sail above band No2 as the halyard will stretch a little under the

weight of the sail and mainsheet tension.

Centre Board

Roll the boat onto its gunwale and pull the centre down until the leading edge is perpendicular to the underside of the hull. With a permanent marker pen (or something similar) mark the handle of the centreboard and the top of the centreboard case so that you can accurately position the centre board. Now move the centreboard aft until the trailing edge is perpendicular to the hull and make another mark on the centreboard handle/case.

Finally move the centre board aft until the leading edge is approximately 45 degrees to the hull (half up, or half down depending on your outlook on life!) and mark the handle and case again.

When sailing you now have three reference points for setting the position of the centreboard.

Control Lines

Control lines do just what they say, they provide control. Therefore it is important that all of the control lines and associated fittings work reliably and smoothly.

Old ropes and fittings are perfectly acceptable if they are good condition and are fully serviceable. A worn rope or unreliable fitting will slow you down because you will spend time with your head in the boat trying to sort it out rather than concentrating on boat speed/direction.

The control lines should ideally be a good quality non-stretch rope (e.g. something with a 'Dyneema' core) such that you can make accurate adjustments. Ropes that stretch will mean that your adjustments will not be as accurate.

For Kicker, Cunningham and Outhaul the control lines are typically between 3mm and 5mm in diameter depending on your preference (the thinner the rope the more it cuts into your hand!). It is also a good idea to have different colours for each control so that they are easy to identify.

The mainsheet will typically be between 6mm and 10mm and ideally you want a mainsheet that provides good grip, runs through the blocks easily and resists kinks and twists (e.g. Rooster Mainsheet)

For all control lines make sure that any fittings such as blocks, pulleys and cleats are the correct size for the size of rope. It's no good buying a nice new main sheet if it chafes on the side of a pulley block.

Also make sure that all of the control lines are long enough such that there is still some spare control line for you to grab when let fully out. It is a good idea to put a stopper knot on the end of the control line about 6" from the end so that even if the stopper knot is jammed hard up against a cleat you still have some control to pull on.

Your local chandler will be able to provide help and advice on selecting the correct type of rope and fittings for the job.

It is a good idea to mark the control lines (kicker, cunningham and outhaul) to indicate full on, full off and midpoint. Depending on your control line configuration and type you can use whipping line, tape, or a permanent marker or Tipex on wire strops to mark the control lines.

A key point here is to ensure that you put the marks so that they are easily visible whilst sailing and that they provide a repeatable reference point. (e.g. if you have dual controls there is no point putting marks on the dual control lines as they will not provide a reference point. The reference marks need to go onto the control lines where there is a single point of movement)

Try and align the marks with an easy reference point on the boat (i.e. deck line at the back of the mast). Place marks when the control is full on, full off and mid point.

Over a period of time you will identify the best settings for your controls for various points of sailing/conditions and can repeatedly make these adjustments using the reference points.

3. Basic Settings For Various Conditions

The following table provides a starting point for various adjustments for various conditions and points of sailing. These are a 'starter for 10' and need to be tweaked based on your weight, your condition, mast/sail combination and hull.

The general rule of thumb is that as the wind strength increases the sail controls are tightened (with the exception of light air when the outhaul is tight).

Control	Light airs (up to just sitting on side deck)	Medium airs (up to fully hiked starting to de- power)	Heavy airs (over powered)
Forestay	Release 2 full holes from mark in very light airs or 1 hole once on side deck.	Set on mark.	Release 1 hole from mark if just overpowered or 2 holes when fully overpowered.
Shrouds	Set on mark.	Set on mark	Set on mark if just overpowered. Release a hole if fully overpowered
Centreboard	Fully down.	Fully down until hiking then raise to leading edge vertical when fully hiked	Raise to trailing edge vertical then progressively raise to depower
Chock (if applicable)	Chock in front.	Chock in front	Remove chock if you cannot get to slacken the Forestay.
Kicker	Just slack.	Slack.	Tension to increase mast bend and flatten the sail when fully overpowered.
Outhaul	50mm depth in foot.	100mm depth in foot.	100mm depth until fully overpowered then tension progressively.
Traveller	Lock off on centreline. Once on side deck ease 50mm.	50 to 100mm from centreline.	100 to 380mm from centreline
Cunningham	Slack	Slack until fully hiked then tension to remove wrinkles.	Tension progressively to de-power.
Boom Position	End above inside edge of tank.	End above inside edge of tank to halfway between tank sides.	End above outside edge of tank to 200mm outside.

4. Applying Controls To De-Power

So you have all these controls and adjustments that you can make whilst sailing to reduce power and stay upright. But in what order do you use them?

Well, the basic order for using the controls to de-power is as follows:-

- 1st – Cunningham
- 2nd – Kicker
- 3rd – Outhaul
- 4th – Centreboard

The trick though is not to pull the Cunningham hard on and then start to tension the kicker and then start to use the outhaul, etc, etc. Use a bit of Cunningham, then a bit of Kicker, outhaul and centreboard and progressively increase each of them a little in order to de-power.

5. What Do The Controls Do?

Kicker – Bends the mast and takes the fullness out of the luff of the sail and tightens the leech. (note:- if the leech is too tight the top of the sail can ‘hook’ the wind flowing over the sail which causes drag. The top tell tale on the leech will flow around the back of the sail if the leech is too tight)

Cunningham - Bends the mast and progressively flattens the top section of the sail. and opens the leech.

Outhaul – Flattens the bottom section of the sail. This has less effect than the kicker or Cunningham.

Traveller – Allows boom to be pulled down whilst letting sail out further

6. What Do The ‘Tell Tails’ Indicate

Leech Tell Tales

When sailing upwind the top tell tale indicates leech tension. The leech tension should be set so that the tell tale is just starting to ‘hook’ (tell tale flies around leeward side of sail towards mast). The middle and bottom tell tales can be ignored.

When sailing off wind the tell tails do the same as upwind. The leech tension should be adjusted using the kicker.

Luff Tell Tales

When sailing upwind the tell tails should be flying horizontally along the sail. If the windward tell tail drops then you are pointing too high and you should bear away (turn away from the wind). If the leeward tell tail drops then you are pointing too low and should point up (turn towards the wind)

When sailing offwind if the windward tell tail drops then sheet in, if the leeward tell tail drops then sheet out.

Appendix A – Masts

The following table lists the common masts used in Solos.

Mast section	Weight range	
	Metric	Imperial
Proctor (Seldon) Cumulus (side tapered)	80 - 95 kg	12.5 - 15 stone
Proctor (Seldon) C	< 70 kg	< 11 stone
Proctor (Seldon) C sleeved	73 - 80 kg	11.5 - 12.5 stone
Superspar M1	< 70 kg	< 11 stone
Superspar M1 sleeved	73 - 80 kg	11.5 - 12.5 stone
Superspar M3 (no longer manufactured)	> 95 kg	> 15 stone
Superspar M7	80 - 95 kg	12.5 - 15 stone
Wavelength	< 92 kg	< 14.5 stone
Needlespar	< 80 kg	< 12.5 stone

The following tables provides information on how to identify your mast section

Mast Section	How to identify
Proctor (Seldon) Cumulus (side tapered)	Two main varieties of Proctor masts have been supplied for Solos, the C and the Cumulus. The unique feature of the Cumulus section is that there are weld seams on both sides of the mast at the top. Cumulus masts have been supplied for around 5 or 6 years. If it isn't a Cumulus, and it's made by Proctor, chances are it will be a C.
Proctor (Seldon) C	In the 1970's these were gold in colour with sliding gooseneck fittings, more recent version are standard grey. The Proctor C has a single welded seam at the front of the mast for the length of the taper.
Proctor (Seldon) C sleeved	(see also Proctor C above) If the mast has a sleeve in it there will be rivets through the sidewall of the mast below the gooseneck and up to 750mm above. Some C sections have longer sleeves, these will have rivets going further up the mast
Superspar M1	Three different Superspar sections have been supplied for Solos. The different sections all look very similar but they have different dimensions. M1 = 55 x 68mm

	<p>The M1 is the softest section of the Superspar masts and may have a sleeve fitted (see Superspar M1 Sleeved below)</p> <p>However, you would probably need a set of calipers to measure accurately enough to distinguish between the M1 and M7. An alternative method is (with the mast in the boat) to grab hold of it at around gooseneck level and shake it hard. If it moves it's an M1, if it stays pretty solid it's an M7. Not hugely scientific but it works!</p> <p>Another way to identify you Superspar is to look at the heel plug. On the M7 and M3 it will fit flush with the sidewall but on the M1 it protrudes quite significantly</p>
Superspar M1 sleeved	<p>The sleeve on the inside of the mast goes from the bottom up to the hounds (where the shrouds are attached) on the mast so there should be some pop rivets all the way up to the hounds holding the sleeve in place. (Also see Superspar M1 above)</p>
Superspar M3 (no longer manufactured)	<p>Three different Superspar sections have been supplied for Solos, although very few M3 versions are in circulation. The different sections all look very similar but they have different dimensions. M3 = 57 x 72mm</p> <p>Superspars ceased production of the M3 around about 1993 and switched to the M7 which they claimed at the time would have the same bend characteristics. The M7 turned out to be a much softer mast than the M3.</p> <p>Another way to identify you Superspar is to look at the heel plug. On the M7 and M3 it will fit flush with the sidewall but on the M1 it protrudes quite significantly</p>
Superspar M7	<p>Three different Superspar sections have been supplied for Solos. The different sections all look very similar but they have different dimensions. M7 = 57 x 69mm</p> <p>However, you would probably need a set of calipers to measure accurately enough to distinguish between the M1 and M7. An alternative method is (with the mast in the boat) to grab hold of it at around gooseneck</p>

	<p>level and shake it hard. If it moves it's an M1, if it stays pretty solid it's an M7. Not hugely scientific but it works!</p> <p>Another way to identify you Superspar is to look at the heel plug. On the M7 and M3 it will fit flush with the sidewall but on the M1 it protrudes quite significantly</p>
Needlespar	<p>These masts are formed by a circular extrusion with the sail track riveted to the rear. The top is normally black, although many will have faded with time. These were very, very common in the 1970s and 1980s and many original masts are still in use today.</p> <p>Needlespar masts are likely to be older and will have the Olympic logo on them.</p>
Wavelength	<p>Similar in appearance to the Needlespar, these have been supplied for the last ten years or so. The tube above the hounds has had the wall thickness reduced progressively by a lathe cutter. The outside will appear to have lots of very fine grooves on it. The bend characteristics are a little stiffer in the mid section and more considerably more flexible in the upper section than a standard Needlespar.</p>
Other	<p>Older masts may not have a tapered top to them and you may also find other makes of mast – like Holt and Holmspar, for instance.</p>

Appendix B – Handy Hints

Novices and Beginners

Don't worry about all the various settings when you 1st go sailing. Set all the control lines roughly in the middle and get on the water and enjoy the sailing. Once you've got the general feel of the boat then you can spend some time concentrating on improving performance.

Practice, Practice, Practice

If you want to improve, go faster, and finish higher up the fleet the key to success is practice, practice and more practice with appropriate skills and fitness training. There is no substitute for time spent on the water in your boat. Take the opportunity to attend the free training courses provided by the association and take some time to practice and hone your skills. Racing will help do this but you should aim to practice as well without the pressure of racing. When trying new things do them one at a time so that you can measure the effect.

Deck Protection

To protect the deck from unwanted scratches stick a piece of foam rubber onto the underside of the boom at the clew end. If the boom hits/slides across the deck whilst hoisting or lowering the sail the rubber will stop the aluminium boom from scratching the deck. The rubber can be easily fixed to the end of the boom with some electrical insulation tape

Removing / refitting centre board

Taking a centreboard out is easy, but getting it back in can be a time consuming job trying to align the pivot hole with the holes in the centreboard case. To make life much easier follow these simple steps.

1. With the centreboard fitted roll the boat over onto to its gunwale.
2. Lower the centreboard until it is approx fully down
3. Take a marker pen and mark a line on the centreboard running along the join between the centreboard and the slot gasket.
4. Now draw a short line perpendicular to the hull on the slot gasket onto approximately the middle of the centre board and do the same at the front and rear of the centreboard
5. Now take the pivot bolt out and remove the centreboard.

When you replace the centreboard there is no more messing around trying to align the holes, all you need to do is align the marks on the centreboard with the marks on the slot gasket and hey presto the holes for the pivot bolt will be aligned and the bolt should drop in nicely.

Temporary Repairs for scratches / small areas of damage

If you spot any scratches in the paint work or varnish and don't have time to repair them at that time then just stick a bit of electrical insulation tape over them until a repair can be effected. It will stop the ingress of water and prevent further damage and peels off easily when you are ready to do a permanent repair. Don't use masking tape or carpet tape as these do not peel off easily if left on for a period of time.

Finding Leaks In Buoyancy Tanks

First look for obvious things like holes, cracks and missing sealing rings on inspection covers and bungs. It sounds obvious but you'd be surprised!

If there is nothing obvious get a foot pump for an air bend or similar (needs to pump a lot of air at low pressure, I don't suggest using a car tyre inflator). Remove a bung and insert the pipe from the pump into the bung hole and temporarily seal with tape or cloth, it is low pressure so it doesn't have to be a fantastic seal.

Gently pressurise the buoyancy tank and then wipe or spray a weak solution of washing up liquid (or shampoo) over the joins, edges and fittings around the buoyancy tank. If there is a leak bubbles will form in the liquid. Once you have found the leaks you can repair them and do another test.

WARNING – you only need slight pressure. If you put too much pressure onto the tanks you could do more damage!!! You have been warned.

Leaks Around The Centreboard Case.

You will often see repairs around the centreboard case to stop leaks and most of these repairs have been on the inside of the boat using a fillet of resin/filler. This may temporarily stop the leak but will cause longer term damage because the water will still creep in from outside and will soak along the hog and centreboard case eventually requiring a much larger and more expensive (potentially terminal) repair

The water is coming in from the outside (unless of course you've left the boat uncovered for ages!) so you need to stop the ingress of water from where it is coming in. This means rolling the boat over onto its gunwale, removing the centreboard and slot gasket and having a good poke around to find the cause of the problem.

Modern resins, glues and varnishes are excellent quality, easy to use and if the boat is prepared properly the repair will last for many years without requiring further attention.

It may take a bit longer to do the repair but it will last a lot longer and prevent further damage.

Stiff Ropes

Over a period of time ropes can become stiff due to contamination in the water such as mud, etc, etc. An easy way to rectify this is to put the control lines in a washing machine on a low temperature, short wash cycle, with just a little bit of washing powder. To help prevent tangles put the rope in a pillow case or something similar (don't tell the other half!). Let the ropes dry naturally (don't use a tumble drier) and your old ropes should come up sparkling clean and more flexible. Before you put them back onto the boat do check for signs of wear.

Appendix C - Spending Money

You want to improve and you have some spare cash to spend. In what order is the money best spent?

This is a difficult question to answer. If your boat is in good condition and you have the correct mast/sail combination for your weight then the best return on investment will be skills and fitness training for you. The Class Association provide free training courses but if you are prepared to pay for training there are a number of RYA coaches that will provide one to one specific training. Contact the Class Association /RYA for further details.

If your boat is in poor shape then the following list is a guide to the order in which to spend your money. As always this is only a guide and assumes that you have made the best of the other areas of the boat. You will need to assess each area of your boat to determine which one to tackle first. For example there is little point in replacing a sail if you have the wrong mast for your weight.

Priority	What To Change	Why
1	Mast	The stiffness of the mast makes a big difference to controlling the sail shape and therefore controlling the power. Lighter helms will typically require a more flexible mast and heavier helms can use a stiffer mast.

		(See appendix on mast types for further info)
2	Sail	<p>The Sail is the engine of the boat and a sail that has lost its shape or is damaged will not be as efficient or as powerful as a new sail.</p> <p>The mast and sail ideally need to be matched to get the best performance out of them.</p>
3	Foils	<p>The centreboard and rudder provide lift and directional control. Foils that have a good aerodynamic shape and are in good condition will slide through the water more easily and provide more lift than damaged or poorly shaped foils.</p> <p>Inspect your foils regularly and repair any damage to leading and trailing edges. A small nick on the leading or trailing edges can create a significant amount of turbulence which slows the boat down</p>
4	Control Lines / Fittings	Control lines and fittings which do not work freely and easily will make it difficult to make the appropriate adjustments when sailing and in the worse case will break, possibly causing other damage to your boat.
5	Hull	A stiff hull with a smooth finish will cut through the water with less drag than a hull that is flexing and has a poor finish. It all gets a bit technical and we could start talking about 'laminar flow' and all sorts of other technical things but basically stiff and smooth equals faster.

Finally don't be tempted to think that by spending a small fortune on your boat is a requirement to go faster and improve your results. Obviously new sails, masts or perhaps a new boat will make some improvements but the most significant improvements will be those that are made to the 'nut on the end of the tiller' (i.e. the helm). There are many older boats in the fleet that achieve great results against much more expensive and newer boats.