RC Laser **Academy - Hints and Tips**

IMPORTANT NOTE:

This is an abridged version of Hints and Tips - the full version is available only to fully paid up members of the UK RC Laser Association. To join the UKRCLA go to the Class Association page.

Paid up members should e-mail the Association, stating full name and boat number, to obtain the web address of the full version.

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Introduction

Newcomers to the world of RC Laser sailing may possibly find the Laser just a little bit different to what they have been used to up to now. In an effort to be of assistance we have gathered together a collection of useful hints and tips which we hope will ensure your Laser sailing experience will be fun and trouble free.

Firstly we would like to congratulate you on your choice of boat. The RC Laser is a great boat to own and sail whether racing or pottering. However whilst it is easy to sail it is not so easy to make it go fast. Expect a long apprenticeship to get to the front of the fleet.

Before sailing your Laser for the first time there are few measures that are really worthwhile taking in order to ensure your first and subsequent outings go smoothly.

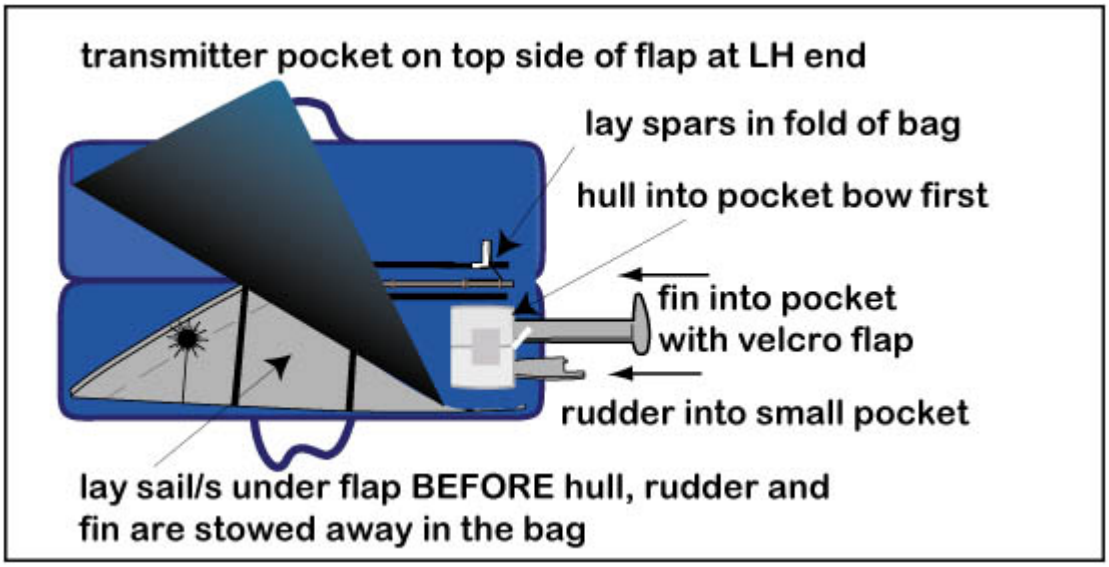
The following hints and tips have been based on questions asked of the association since its formation in January 2001. The entire document is available to registered members as a pdf file. To obtain a copy please e-mail *David* at the association's office quoting your registered sail number. **Return to Index**

How do I get everything in the bag?

Q: Which way round do things go in the bag?

A: Simple. See diagram below.

Notes:
The SS boat stand lays across the transmitter pocket - you'll find it fits over rather nicely if you have it the correct way round.
The 2003 style bags are fitted with a flap to protect the top of the A rig sail. You may or may not wish to dispense with the recommended sponge/foam tube protector recommended below.



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Big 'A' rig won't go in the bag!

Q: How do I get the 'top' A rig in the carry bag - it's too long?

Method

I Acquire a piece of foam pipe insulation about 2 inches in diameter and about 12 inches long.

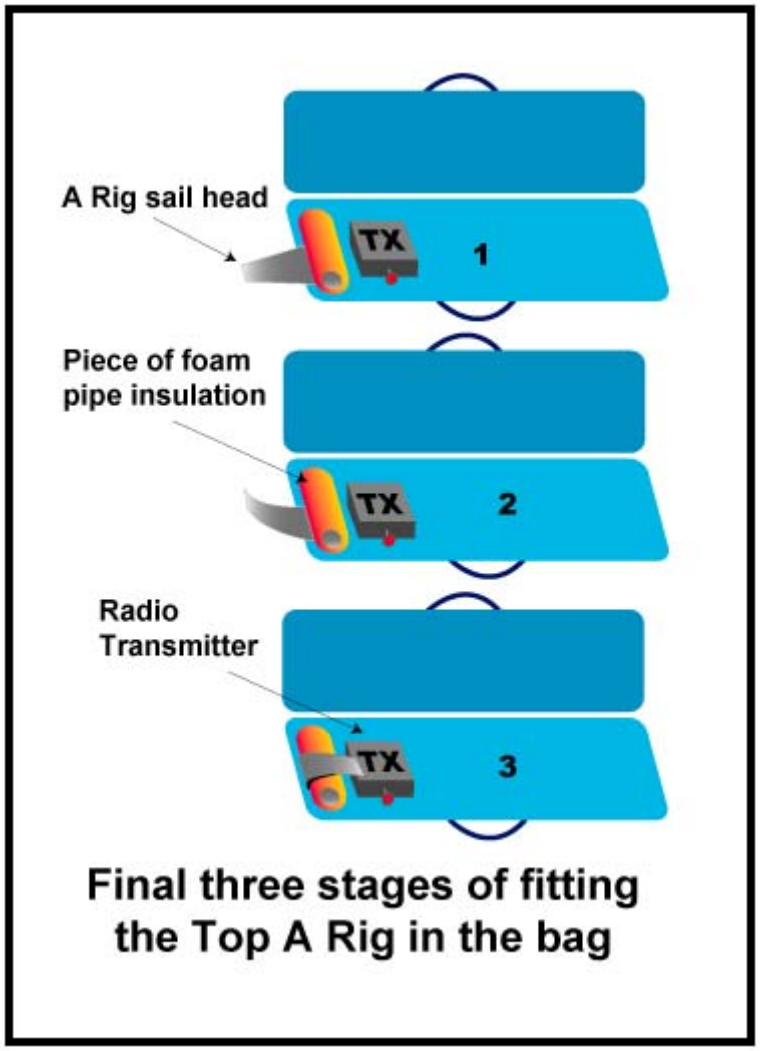
II Place the new A Rig in the case with the luff running parallel to the zip and with the sail head protruding at the same end as the radio transmitter.

III With the foam padding laid across the case as shown gently furl the sail over it and carefully close the case.

IV Zip up the case and - Voila! the sail is in the bag.

IMPORTANT NOTE:

Do not leave the sail folded over for storage as this will cause creases to form in the laminated areas of the sail. For long term storage leave the sail head flopped out of the case end - with the zip undone at the end of course.



Final three stages of fitting the Top A Rig in the bag

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Ensure you will get good radio control range

Q: I seem to lose radio contact with boat when it goes beyond a certain distance. How can I prevent this happening?

A: Pull out the aerial lead and run it along the deck so the end is close to the bow. Tape the aerial to the deck securely with insulating tape in two or three places. Now seal the hole in the deck where the aerial exits the radio compartment. Blue Tack is ideal, but plasticine will also probably do the job equally well. Return to Index

Antenna Modifications to Improve Range

Option # 1
Pull out about a 250mm length of the antenna wire and tape it to the deck in a straight line forward from the antenna tube. Take the end up close to the bow. Tape the aerial to the deck securely with insulating tape in two or three places. Finally, seal the hole in the deck where the aerial exits with some silicone or blue tack. This works really well

Option # 2
Another solution is to dispose of the tube altogether, seal up the antenna deck mount hole, and start over as follows (see photos below) : -

Step 1: Drill a 1/16" in the aft side of the "conning tower" (see photo #2)
Step 2: Feed wire out through hole (see photo #s 3 & 4).
Step 3: Wrap wire around the outside of the conning tower without crossing the wire over itself (see photo # 5).
Step 4: Either tape or silicon glue into place.
Step 5: Seal hole where wire comes out (see photo # 6).
Step 6: Make sure wire does not interfere with hatch installation.

Photo # 1: Remove antenna from original mount, pull antenna wire below, seal up old deck antenna mount hole.

Photo # 2: Drill a 1/16" in the aft side of the "conning tower" right at the bottom of the groove.

Photo #s 3 & 4: Feed all the wire out through the hole

Photo #5: Wrap wire around the outside of the conning tower without crossing the wire over itself. It should lie flat in bottom of groove. If you have a 75 mhz radio, it will go around just once. A 27 mhz wire will go around more than once. Either tape or silicon glue into place.

Photo # 6: Make sure wire does not interfere with hatch installation.

How long will the batteries last?

Q: What happens when the batteries run low and how often will I need to change them?

A: The transmitter batteries should last at least a day and probably a lot longer (say 8/16 hours sailing). Your transmitter has two 'battery state' led lights - one red one green. When the green light is lit it is safe to sail. When the red light starts flashing it is time to change the batteries. If you have a spare set close to hand it should be possible to do a 'quick change over' while the boat is still on the water but only if you feel it safe to do so (control will be lost during the changeover).
To make the changeover 'on the water' some skippers put the rudder hard over and then switch the transmitter off. This puts the boat into sailing tight circles so it does not sail away into the distance during the changeover.
The boat pack will have a shorter life, depending on the strength of the wind. In strong winds you will need to change the batteries more frequently. As a rough guide you can expect the boat pack to last just a morning (say 4 hours) in strong winds but longer on light winds. Even in light winds do not try to get more than one full day's sailing from them - it's not worth the risk (unless you have a rescue boat to hand). If at any time you sense the response of the winch is slowing down bring the boat ashore and change the batteries.
If you purchase your batteries in bulk from shops such as 'Toys R Us' or 'Richer Sounds' you will find it much less expensive.
If you want to switch to rechargeable batteries you must follow the recommendations elsewhere in this document (see Rechargeable Batteries). **Return to Index**

Bow Bumper

Q: I want to sail among other classes of boat. How do I prevent damaging them?

A: If it is your intention to race alongside other classes of model yacht like the One Metre you will need to fit a bow bumper of some sort in order to protect the other boats. It is difficult to visualise the Lasers themselves being damaged by collision with other boats as they are extremely robust in construction but we must protect the investments of our non-Laser colleagues. **Return to Index**

Sealing the Radio Gear Compartment for Heavy Weather Sailing

Q: I want to sail in heavy weather. Is the Laser completely watertight?

A: When it leaves the factory the boat is watertight. However, over time (even in storage) this quality may be lost. If you sail in heavy weather you may find water enters the radio compartment. The most likely points of entry are the holes where the servo and winch penetrate the hull. To improve the water tightness it will be necessary to repack, with lithium grease, the holes in the deck. Lithium grease may be purchased in most cycle shops in small tubes at little cost.
You may wish to provide an improved/ longer-lasting seal between the hull and the top surface of the servo and winch. We have used a variety of substances including Blue Tack to form a small thin rubber washer and silicone (bath sealant). You may discover something better. Only undertake this work if you feel competent. It is only necessary to remove the centre screws from the servo and winch to enable them to be removed. Do not remove the square radio

compartment cover or the metal bridge over the winch drum. Removing and replacing the servo and winch is a relatively simple task. **Return to Index**

Rechargeable Batteries

Q: I would like to use rechargeable batteries. Am I allowed to do this under the class rules?

A: Yes. Ordinary Alkaline batteries as purchased in any shop are adequate. Receiver batteries may last a morning only, depending on wind strengths, but transmitter batteries should last all day.
However you may, if you wish, convert to rechargeable batteries to save on running cost. Note that dry cell batteries deliver 1.5 volts, whereas rechargeable batteries only deliver 1.2 volts. For the transmitter this does not matter but you will require a 5-cell pack (6 volts) fitted with a Futaba plug for the boat. These are obtainable from most good model shops. 8 individual cells are required for the transmitter. We recommend Nickel Cadmium rechargeable batteries but you can use alternatives such as Nickel Metal Hydride. You will also need a purpose made 'slow' charger with an outlet to connect to the boat battery pack and an outlet to connect directly to the transmitter. Again, consult your local model shop.
Once you are set up with rechargeable batteries make sure you charge for the correct length of time. You can determine the total charge time required as follows:-

Time to charge = [Capacity of battery (mAh) x 1.5] divided by the charging rate (mA).

e.g. 1,000 mAh battery x 1.5 divided by a charge rate of 50 mAh gives a charge time of 30 hours.

It is always better to charge as close to the time of sailing as possible (e.g. the day before).

If you want a "no hassle" conversion to rechargeables then contact K Bits on 01323 725817 (e-mail: kenbinks@kbits.co.uk) or phone Apex Sails on 01278 785 938 for an "RC Laser Battery Conversion Kit". This will comprise one 5 cell boat pack, 8 individual cells for the transmitter and a charger. You may, if you wish, double-up on the batteries so you always have a back-up set with you when sailing. **Return to Index**

Sail Shape

Q: I have never sailed a model or full size boat before. Where do I set the sliding fittings on the boom?

A: Available to members only.
Are you up to the challenge?

Sail Shape Diagram only available to members

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Mast Bends Downwind

Q: When running downwind in a stiff breeze my mast bends forward. Should this happen?

A: We need to be able to control mast bend so that we can shape the sail for upwind sailing in different wind strengths. We do this by changing the tension in the sail leech (move the inner outhaul slider towards mast for more mast bend and vice versa). In a stayed rigged boat with backstay, mast bend is controlled by changing the tension in the backstay. This means that the fore and aft bend in the mast remains fore and aft whatever position the sail is in.
In the RC Laser we do not have a backstay to hold mast bend constantly in the fore and aft direction. Wind pressure on the sail is able therefore to bend the mast forward when running downwind. This is exactly the same on the full size Laser. Take a look at any photograph of a full size Laser on a broad reach, or a run, in heavy weather and you see the mast bending with the wind.

Now there is an upside for us compared to a rig with backstay. On the stayed boat mast bend is only correct for one position of the sail and this is usually for the close hauled leg. When the sail is, say, out at 60 degrees to the boat, i.e. a broad reach, the mast, as seen by the sail, is nearly straight - not what we had in mind when we set backstay tension. Whereas on our Laser the mast bend remains more or less as we want at most points of sailing because the mast bending force moves round with the sail. **Return to Index**

Leeward Mark Rounding

Q: When I round a leeward mark the Laser comes to a halt with sails flapping because the the sails do not haul in fast enough to drive on the new tack. How do I overcome this?

A: Available only to members. **Return to Index**

Beating and getting out of irons

Q: When sailing to windward in strong winds the boat changes course a lot. How do I control this?

A: Available only to members. **Return to Index**

Sail Numbering

Q: How do I get and where do I put my hull number on the sail and hull?

A: If you intend racing your Laser you will be required to place the last two digits of your boat number on your sails and your full boat number on the hull together with the National Identification letters GBR if you intend racing in International events. The size and placement of the sail and hull markings is controlled by the UKRCLA (See Sail Numbering Diagram). The UKRCLA can supply sets of numbers and International identification letters for the sails and hull together with a copy of the Sail Numbering Diagram when you register your boat with the association. **Return to Index**

Draining the Hull

Q: After sailing the other day I could hear water in the hull. What should I do?

A: If you have not discovered it already you will find a small breathing/drain hole in the transom of the Laser.
No plug is fitted or required. Very little water gets into the hull through this hole but it is worthwhile tilting the hull on its stern after each outing to drain away any water that may be present. Evacuation can be assisted by gently squeezing the hull with pumping-like action.
See the above topic on sealing the radio gear compartment if there is more than just a small quantity of water in the hull after sailing. **Return to Index**

Sheeting System Shock Elastic

Q: As my winch turns I hear a creaking noise. Should I be worried?

A: Available only to members

Shock Elastic Diagram - Available only to members
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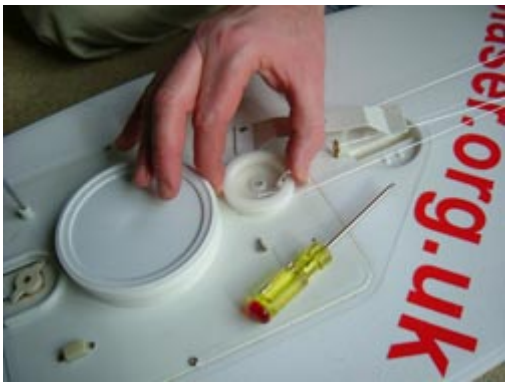
Reinstalling the Sheeting System after coming adrift

Q: Whilst sailing the other day my sheeting line became dislodged from the winch drum. How do I reinstall it?

A: It is quite likely that the cause of your problem was an inadvertent movement of the sheeting trim tab slider on the transmitter (the slider just to the left of the sheeting control stick - see photo). This will have caused the loop in the monofilament line along the deck to have jammed in the bow pulley when sheeting in, the winch continues trying to rotate and continue supplying line which then goes slack and slips off the drum.
What you need to do is to refit the monofilament line taking care to ensure that it cannot happen again.
We describe here a procedure which aims to achieve this objective. It is not a simple procedure but will be necessary in order to return your boat to sailing trim.
Before proceeding note that members of the Association may purchase a 'quick fit' conversion kit. This kit comes complete with instructions and is highly recommended, especially as the replacement operation using the kit is much simpler than the 'repair' described below.
The procedure you have to carry out may differ in practice from the instructions posted here which were written 'from memory'. To be safe we strongly recommend joining the Association and purchasing the kit.
Firstly, make sure your transmitter sheeting mode switch (the mode switch is in a different position on each model of transmitter but usually close to the appropriate channel) for channel No 2 is correctly set, i.e. NOT SET TO THE REVERSE POSITION.

Secondly, you need to switch on the transmitter and receiver. Now move the transmitter sheeting stick to the fully sheeted "in" position i.e. control stick towards you and the sheeting trim tab slider fully towards you (Note: This is not the normal

sailing position. The correct position is with the trim tab in the central position). The mainsheet attachment loop on the sheeting system should now be somewhere near the bow unless you have had a complete unwind of the sheeting system.
The photograph will assist you in understanding what has to be done next.
Start by "swinging" the winch drum bridge out of the way (see photo) but before doing this it is wise to switch off the supply to the onboard radio system.
Remove one screw from the winch drum bridge and swivel the bridge out of the way.
With the bridge out of the way rewind the monofilament line onto the drum as follows:-
Take the part of the line between the drum and the mainsheet connecting loop on the starboard side of the deck and wind it once (you may have to experiment here a bit) round the lower section of the drum anticlockwise leading it forwards up the starboard side of the deck towards the bow.
Now take the other, port, side of the sheeting and wind it clockwise round the upper section of the drum around approximately 6 times (you may have to experiment here a bit) taking it forward, up the port side of the deck. As you attempt to complete this operation you will find that there is not enough line to let you make the last turn on the drum. If it is way out you will need to see what you can do to release some line, possibly by removing part of a turn somewhere until the line looks like it will nearly pass over the drum. You now have two options. You can either force the line over the drum by stretching the line. This is tricky, hard on the fingers, and may even result in damage. It is carried out at your own risk of course.
Or preferably, you can remove the drum to complete the operation as follows.



Remove the drum fixing screw and, using you thumb and index finger gently remove the drum by lifting it away just enough to clear the splined shaft of the winch. Now complete a rewinding of the last turns onto the drum until the drum nearly fits over the shaft and refit the drum. Some tension will have to be applied to the sheeting line in order to complete the operation.
This your rough sheeting position before making final adjustments.

Final adjustments will involve removing the drum again and rotating it in whichever direction is required to position the mainsheet loop in the monofilament line to the required 1 or 2 cm from the bow pulley so do not replace the bridge just yet. When you are happy, replace the drum onto the splined shaft and replace the screw.
It is now time to check your work by resetting the sheeting trim tab slider to its centre position and then switching on the onboard radio receiver. Now slowly sheet in and out and watching for any tendency for the sheeting loop to get jammed in either the winch drum or bow pulley.
You now need to check what happens if the trim tab is moved to either of its extreme positions. If, during these checks the sheeting loop fowls either the bow pulley or winch drum further adjustments will have to be made by easing off the drum again and rotating it enough to ensure clearance between the bow pulley and winch drum is achieved.
When all checks have been made and you are happy with everything it is time to replace the drum fixing screw and the bridge and go sailing.
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Sail Repair

Q: I have accidentally torn my sail. What is the best way to repair it within the class rules?

You can purchase a tape, manufactured by Sellotape, that is ideal for Laser sail repairs. Ask for 'Diamond' tape at any branch of WH Smith. It is not expensive. It is a transparent acrylic tape and makes a strong, invisible repair. Magic tape or ordinary Sellotape is not recommended. It is worth keeping a roll in your Laser bag for emergencies. **Return to Index**

In Irons Again and Cannot Get Out? (i.e. boat head to wind with sail flapping)?

Q: How *do* I get out of irons?

A: Available only to members. Return to Index

Stop the Rot!

Q: After sailing my boat for nearly a year I have noticed blackish stains appearing inside the sail luff pocket. What are they and how do I stop them forming?

A: Available only to members

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I've lost my fin keel!

Q: My fin has cracked where the top 'D-Ring' meets the fin. What could have been the cause?

This is almost certainly due to launching the boat from above the surface of the water either by 'throwing' or 'dropping'. The resulting impact with the water causes the fin and lead bulb to continue on downwards, snapping/cracking the D-Ring/wing nut assembly away from the fin. If you launch from a jetty that prevents you being able to launch from the water level you should make a hooked ended launching pole. This 'launcher pole' will also enable you to lift the boat from the water (the Laser cannot be lifted by the mast because it is an unstayed rig). If you are in the habit of 'drop-launching' in the way described be warned - your fin may drop off in deep water and never be seen again. Return to Index

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And now a little something for the more advanced - maybe

Q: The una rigged Laser is so different to my One Metre yacht I would like to know what advice you give for running downwind?

A: Available only to members . Return to Index

Can I change the rudder servo for one of a different type?

Q: You may but you should not need to.

A: Available only to members. Return to Index

How far do I set the mainsail boom to haul in?

Q: When adjusting the mainsheet slider position I do not know how to set it.

A: Available only to members. **Return to Index**

Switch won't work?

Q: My deck mounted on-off switch has ceased to function.

If your on-off switch suddenly stops working and you have checked all other sources of lack of power to the boat's radio compartment, you should check the rubber switch cover for splits. If this reveals a failure you should replace it with a spare, at the same time replacing the switch. Once water gets inside the switch "black rot" will spoil the internal connections.
Failure of the rubber cover is not common but ultra violet light can cause, over a long period, a deterioration of the material to the point of failure.
It makes sense of course to inspect the rubber switch cover for splits on a regular basis rather than wait for the switch to fail during a race. **Return to Index**

Leech Telltales (the silver streamers along the sail edge) - What are they for?

Q: How do I use the leech telltales?

A: Available only to members. **Return to Index**

How far away can I sail?

Q: What is the maximum range of radio control?

This is a difficult one and a question we are going to have to dodge because so many factors are involved. It is your own responsibility not to sail out of range.
Firstly it is important to say that the the radio gear supplied with the RC Laser is not your common 'toy radio' - it is a real 'professional outfit' with changeable frequencies and a long, long range.
However what we can say is that there are a few guidelines we recommend following.
If you begin to lose control lift the aerial into the vertical position. This position gives you the longest range - pointing it towards the boat does limit the range.
It is unlikely you will want to sail 'out of range' of the transmitter as seeing where the boat is pointing is likely to become a problem before safe range is exceeded. Another rough guide is to sail no further away than your ability to read the sail numbers (size as supplied/approved by the Association).
If the red light on the transmitter is illuminated or flickering on and off bring the boat ashore as soon as possible and change the batteries in the transmitter .
See also the section above on how to achieve maximum radio communication range.
Another useful check, if you are having communicating problems, is to ensure the transmitter aerial has not started to unscrew. **Return to Index**

Why don't all the boats go at the same speed?

Q: We are told that all the boats are the same and yet they often seem to go at different speeds. Why is this?

A: Available only to members. **Return to Index**

Can we race three boats together without radio interference?

Q: Our family has just purchased three boats - can we sail all three at the same time?

A. In principal the answer is yes, but you may possibly have to change the crystals in one or more of the transmitters and receivers (a very simple task).
If you have yet to purchase your boats ask the supplier to check there is no 'frequency clash' when selecting the boats.
In the bottom right hand corner of the transmitter face you will see a small crystal holder. Give it a gentle tug and will come out of its pocket. Do the same with the receiver (you will see the crystal tag sticking out quite clearly). These two crystals are a matching pair marked TA and RA (TA= Transmitter, RA=Receiver).
Now do the same with the other boats.
Each pair of crystals should have a different frequency (or channel number) marking to each of the other pairs of crystals e.g. CH92 40.985TA indicates a Transmitter crystal on Channel 92 = a frequency of 40.985 Mz. The matching receiver crystal will be similarly marked but with RA not TA.
If one pair of crystals is the same as another pair you will need to purchase another pair of a different frequency (or channel).
These can be obtained from your original supplier or from your local model shop. Take all three sets with you to ensure you finish up with three different sets.
Also make sure you purchase crystals that will work in the Hitech radio gear.
It is also essential to ensure you purchase crystals for a 40 Mz AM radio set if that is what you have (if you have a 27 Mz radio see that your new crystals are for 27 Mz sets). Your transmitter will be marked with the radio frequency set you have.
Plug in the crystals - MAKING SURE YOU REPLACE THEM CORRECTLY i.e. THE TX CRYSTAL IN THE TRANSMITTER AND THE RX CRYSTAL IN THE RECEIVER - and you are all ready to go out for some serious racing.
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How do we decide when to change rigs?

Q: We have all three sail sizes but are unsure how we will decide to when to change rigs ?

A. Available only to members.

"The RC Laser is a doddle to sail but a challenge to race".

How to stop those boom slider ends hurting your fingers

Q: Those boom slider ends really do hurt my fingers - is there anything I can do about it?

A. Yes. Go to your nearest fishing tackle shop and purchase a bag of small beads (we do not know the fisherman's jargon for them I'm afraid). They are about 5 mm in diameter and have a

hole through the centre for threading on a line. These are a nice force-fit on the slider ends and do a great job in protecting your fingers - especialy in cold weather.

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THE RYGGED START

Now being used worldwide in both rc and full size racing

(RED, YELLOW, GREEN, GO)

Need to spice up your club racing?

Fall-out of Newcomers a problem?

Bored with the same members winning week after week?

Then you may find the answer in The Rygged Start - a personal handicapping system designed to encourage beginners and add excitement back into club racing

The Problem

Experienced 'model yachters' tend to forget that to newcomers, model yacht racing can appear a pretty daunting experience. This can be particularly true at the start, when anarchy and overcrowding readily overwhelms the beginner. As a result, the 'fall-out' rate of newcomers can be very high.

To overcome this problem the Lee Valley Model Yacht Club introduced, in 1991, a personal handicapping system (the Rygged Start) that was designed to:

1. Relieve the beginner of the pressures of crowded start lines, until such time as they are sufficiently experienced to cope.
2. Give encouragement, by enabling some early wins.
3. Eliminate the beginner's proneness to hanging around well behind the the start line in order to avoid close contact sailing.

The Solution- *The Rygged Start (Red/Yellow/Green/Go)*

Every member shall be given a personal handicap based on past performance. Newcomers will automatically be granted a 'full' handicap upon joining the club, unless they are of proven ability as a result of past membership of another club.

The handicap granted shall indicate the number of seconds advantage that a sailor shall have at the start and shall be according to the following table:

TABLE 1

Handicap Colour	Handicap Advantage
Red	30 seconds
Yellow	20 seconds
Green	10 seconds
No Colour	Scratch

Each sailor possessing a handicap shall carry a coloured TELL-TALE on the BACK STAY (or sail leech, near to the head, on the RC Laser) of their boat. Any boats not carrying a Tell-Tale will be expected to start at the proper time.

Boats with a Red handicap are allowed to cross the start line up to 30 seconds 'early' i.e. on the 30 seconds count on the start tape. The Race Officer will announce 'Reds Away'.

Boats with a Yellow handicap are allowed to cross the start line up to 20 seconds 'early' i.e. on the 20 second count on the start tape. The Race Officer will announce 'Yellows Away'.

Boats with a Green handicap are allowed to cross the start line up to 10 seconds 'early' i.e. on the 10 second count on the start tape. The Race Officer will announce 'Greens Away'.

When a sailor has won 'X' or more races (see table below) of a session (say one day's or half day's sailing, they will be moved down one colour. An outright session win will also result in a lowering of the handicap by one colour.

TABLE 2	
No of races in session	No of wins 'X' necessary to change down one colour
0 - 5	2
6 - 9	3
10 +	4

Once a sailor has moved down a colour they may not be moved back up at any time.

Optional Notes:

1. Tell-Tales can be made available from the Race Officer. Any 'promotions' from one colour to another can be announced by the Race Officer at the end of a session and can be accompanied by a rousing cheer from everyone present.

2. Introducing the system can be achieved in a number of ways. You can, for example, start by giving every member a Red handicap. This can lead to an interesting and exciting year's racing as members sort themselves out into their real ability levels.

3. Another benefit of the system is the way in which beginners are introduced to close quarter racing 'gradually'. This occurs as the faster sailors catch them up after the start and try to overhaul them.

4. The advantages gained by the system is fixed in terms of time but the relative benefit will depend on the length of the races i.e. a 20 second advantage is more beneficial on a race lasting 10 minutes than a race lasting 15 minutes. The times suggested have worked well over

a long trial period and should not be changed. The system has the benefit of naturally sorting itself out so long as a club aims for reasonably consistent race lengths throughout the season.

5. After 8 years the system is still in regular use at Lee Valley. We have a number of sailors who now race regularly at national level and who came to us with no previous knowledge of sailing or racing.

PLEASE FEEL FREE TO COPY AND USE THE RYGGED START SYSTEM AS YOU WISH.

We hope you have found these tips helpful. Please do not hesitate to contact the association with any queries you may have or to offer any tips you may have discovered that you feel may benefit other Laser owners.

Disclaimer: In preparing these hints and tips the Associations takes every care to ensure their integrity. However the Association cannot accept responsibility in tort or otherwise for the content of these pages.

We wish you many hours Happy Sailing!

class rules	events	newsletter	rc laser academy	links and rc laser clubs	boat registration & sail numbering	picture gallery	team GBR in the USA
results	specification & prices	quotable quotes	where to buy	all about rc racing	rc laser mart	the laser story	the class association