

Laser 

Stratos

Laser 

Stratos KEEL 



RIGGING MANUAL

Safety Afloat

This instruction manual is not a guide to sailing your craft and it should not be considered suitable for the task of learning to sail a boat. Please read the manual before rigging and sailing your Laser Stratos.

Before you go sailing:

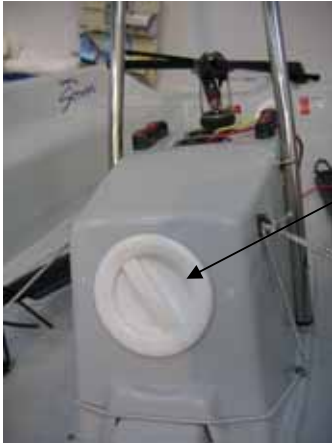
- Check you are wearing suitable clothing and safety equipment for the conditions and time of year.
- Always wear a buoyancy aid or life jacket
- Make sure a third party knows where you are sailing and how many there are of you.
- Check the weather forecast
- Check the time of high and low tides if applicable.
- Seek advise of local conditions if sailing in a new area.
- Always check the condition of your craft before setting off.
- A sailor's safety knife should be carried on board.
- **Check for overhead cables when rigging, launching and recovering.**

On the water:

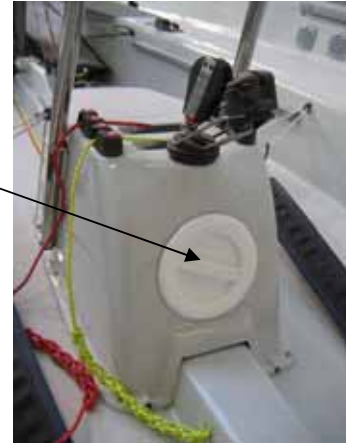
- Conform to the sailing rules of the road.
- Look out for changing weather conditions.
- Never sail beyond your ability or that of your crew. Ensure that you and your crew can cope with any changes in the wind conditions
- Understand and be competent in the sailing skills and righting techniques.

Important information

There are five hatches and one transom drain bung on the Laser Stratos, these must all be checked to ensure tightness and correct fitment prior to every time you sail:



Hatches 1 & 2 are found on the fore & aft sides of the cockpit centre console. (Fitted to facilitate additional on the water storage only)



Hatches 3, 4 & 5 are all found on the aft/stern deck.

The transom drain bung can be found below the bottom rudder gudgeon.



Example of INCORRECT hatch fitment:

NB: Correct fitment of the transom drain bung and hatches 3, 4, 5 is fundamental to on the water safety and performance of the Laser Stratos.

Laser Stratos Rigging Instructions

The Laser Stratos rigging instructions are a guide to rigging your boat. Due to production supplies certain parts may be different from those shown in description, colour, and specification. Performance Sailcraft Europe reserves the right to change specifications without prior notification.

LASER CENTRE

Options, accessories and spares are available from Laser Direct +44 (0) 1327 841610

www.lasersailing.com

The Laser Centre
Station Works
Long Buckby
Northampton
NN6 7PF
UK



Contents

	<u>Page</u>
1. Glossary	5
2. Useful boat terminology	6
3. Maintenance and service	7
4. Sail number positioning	8
5. Rigging and raising the mast	9-12
6. Boom & Vang	12-13
7. Sails:	13-21
a. Jib	13-15
b. Gennaker	16-18
c. Mainsail	18-19
d. Outhaul	19-20
e. Cunningham	20
f. Single line reefing	20-21
8. Rudder	22
9. Launching & basic safety on the water	22-24
10. Laser Stratos Capsize Technique	25
11. Using your Stratos "Keel"	26-28
12. Fitting The Stratos Engine Bracket	29

Customer Help Line: Please contact Customer Services on Tel: 00 44 (0) 1327 841608.

Glossary

Bow: Front of the boat

Stern: Back of the boat

Fore: Forward

Aft: Rearward

Clew: Back lower corner of a sail

Tack: Forward lower corner of sail

Head: Top corner of sail

Luff: Forward edge of the sail

Foot: Bottom edge of the sail

Leech: Rear edge of the sail

Burgee: Wind direction indicator (usually a small flag)

Batten: A thin stiffening strip in the sail to support the leech

Mast: Main vertical spar supporting the rig/sails

Boom: Spar at the Bottom of the mainsail

Gennaker pole: the Pole, which extends to fly the gennaker tack from.

Cleat: A fitting used for holding /securing ropes

Forestay: The wire supporting the mast at the bow of the boat

Shrouds: Wires that hold mast in boat and supporting the mast from $\frac{3}{4}$ up and out to hull side. Attached with shroud adjuster to shroud anchor point

Lower shrouds: Wires that tie off $\frac{1}{4}$ up mast and shackle to shroud anchor points

Jib: Front sail

Sheet: Rope for controlling the inward/outward position of the sail

Gennaker: Isometric sail hoisted when sailing downwind

Gunwale: The outermost edge of the boat

Gudgeon: Fitting on the transom and rudder used to hang rudder

Cunningham: Purchase system for tightening the forward edge/luff of the sail

Gnav: Purchase system for tightening the rear edge/leech of the sail

Vang: Otherwise known as the Kicking strap or Gnav

Outhaul: Purchase system for tightening the bottom edge/foot of the sail

Halyard: A rope or wire used to lower or hoist sails

Mast Heel: Fitting on the bottom edge/foot of the mast

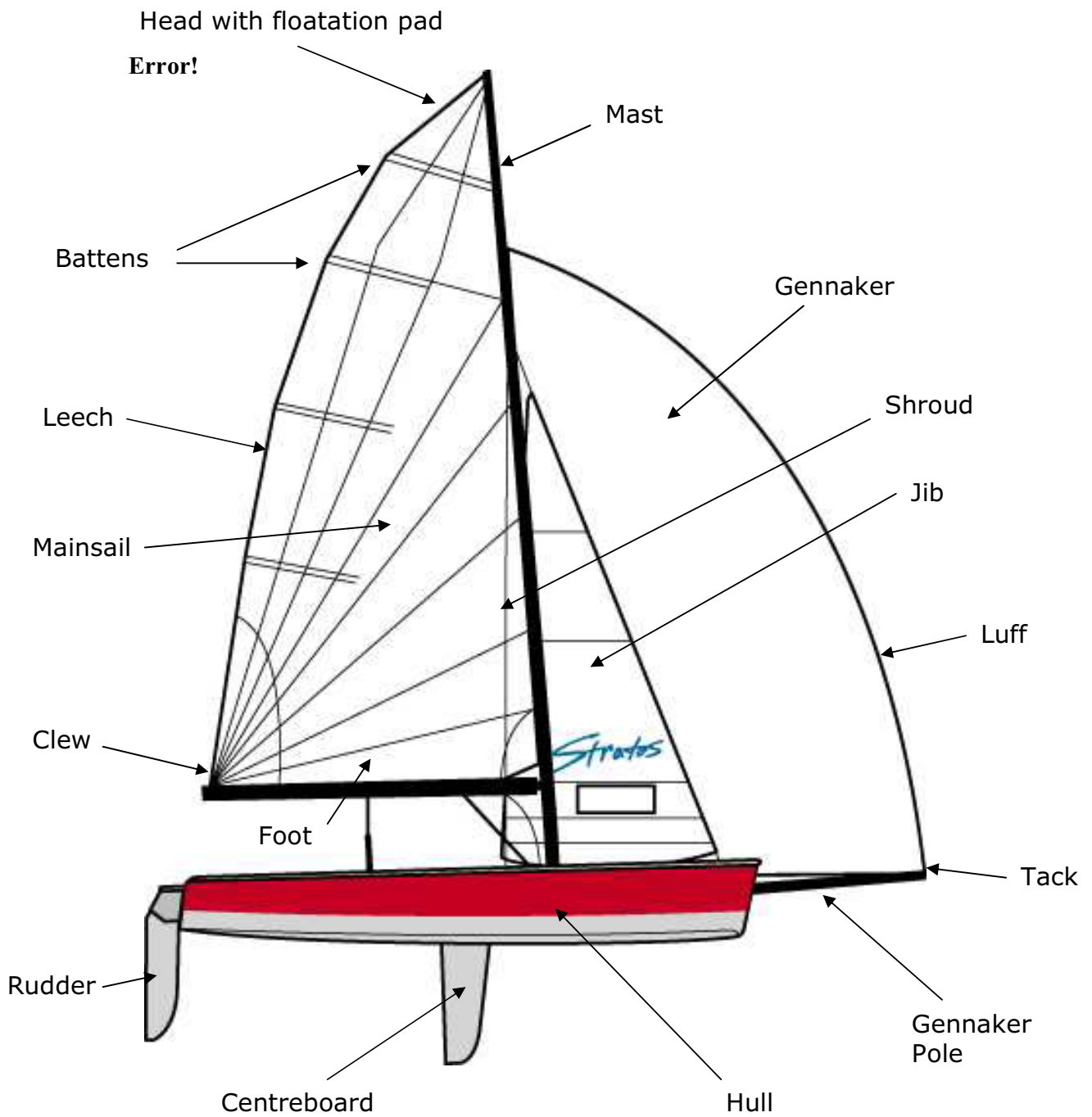
Mast step: Fitting on the boat where the mast heel/foot of the mast is located

Spreaders: Metal struts placed in pairs to support the mast side ways and control the bend in the mast

Stem fitting: Stainless fitting at the bow which the forestay attaches

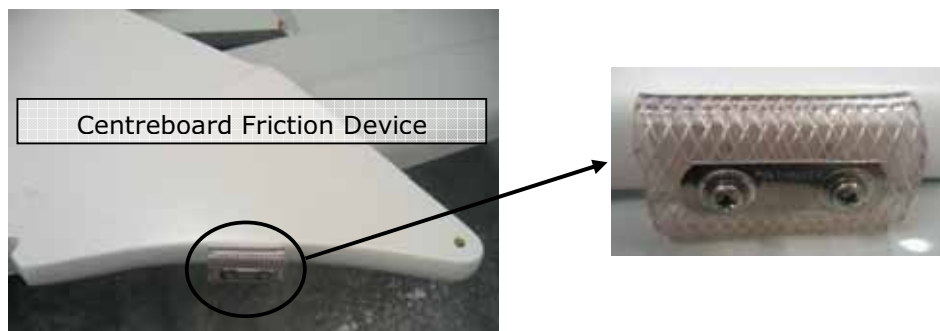
Rudder: Blade and attachments used for steering the boat

Useful Boat Terminology



Maintenance and Service

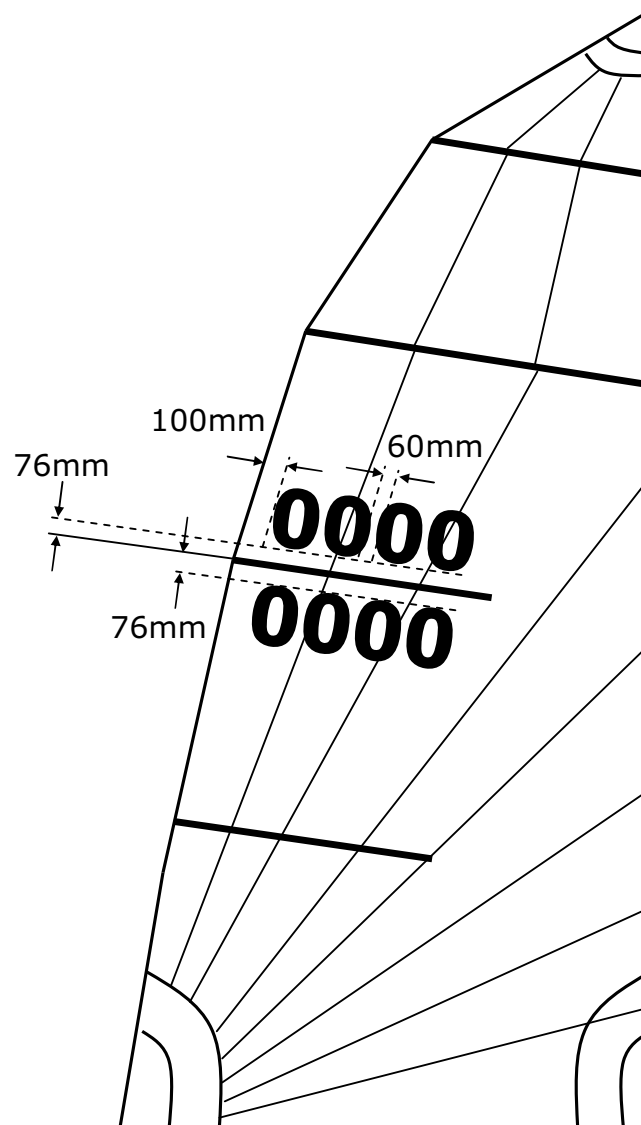
- Keep the equipment clean by frequently flushing with fresh water. In corrosive atmospheres stainless parts may show discoloration/brown staining around screw holes and rivets, this is not serious and can be removed with a fine abrasive.
- Excess water should be removed from the hull.
- Ropes, rigging and fittings should be checked at regular intervals for wear and tear.
- All moving parts should be lightly lubricated to avoid jamming, i.e., McLube, Dry Teflon or a dry silicone based spray. Do not use Oil.
- Inspect shackles, pins and fittings – tape up to stop snagging and coming undone.
- When refastening screws do not re – use Nylock nuts more than three times and be careful not to over-tighten, as there is a risk of stripping the thread.
- Damaged or worn parts should be replaced.
- Sails should be thoroughly washed down with fresh water, dried and stored in a dry place.
- Trailers should be rinsed with fresh water and checked at regular intervals. It is recommended that the trailer be serviced annually.
- Only people with relevant equipment and skills should undertake repairs to the glass fibre hull. Contact Laser Centre for advice.
- UV light will cause fading to some components and fittings, a cover is recommended to reduce the UV degradation.
- **WARNING:** When wearing a trapeze harness, take particular care when climbing on to the centreboard and back in to the boat after capsize. (As the trapeze harness hook could easily damage the various surfaces)
- If your centreboard will not stay down during sailing, tighten the screws on the plastic friction device on the leading edge of the centreboard within the centreboard case. (As the presence of water changes the coefficient of friction within the case, this device is best “tuned” using a long shaft posi-drive screwdriver whilst on the water on a relatively calm day)



Sail Number Positioning

It is advised to apply the sail numbers in a dry, clean and wind free environment.

1. Lay the sail on a flat surface starboard side up.
2. Numbers on the starboard side of a sail are always higher than those on the port.
3. Mark a parallel line 76mm above the third batten down from the head of the sail.
4. Mark a point on the line 100mm in from the leech.
5. The first number in the sequence should be positioned on the parallel line you have drawn commencing 100mm in from the leech.
6. Subsequent numbers should be spaced 60mm apart.
7. Turn the sail over and position the port numbers 76mm below the third batten down from the head.
8. Work backwards, commencing 100mm in from the leech.



Starboard (Right Hand) side of Mainsail

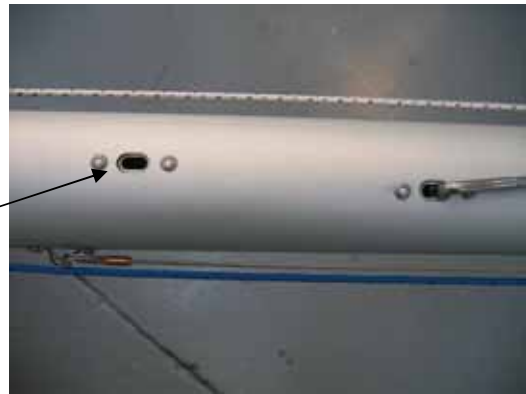
Rigging And Raising The Mast

1. Unwrap the mast.



2. Ensure the halyards, shrouds and lowers shrouds are led to the gooseneck/base of the mast and each halyard rope end has a knot tied in it.

3. If applicable, fit trapeze wires in the top "T" terminal positions on the mast. (Please note: The Laser Stratos Trapeze kit is optional not standard fit)

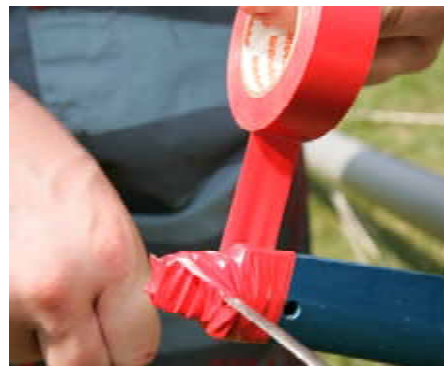


4. Fit the spreaders. (See page overleaf for fitment diagram.)



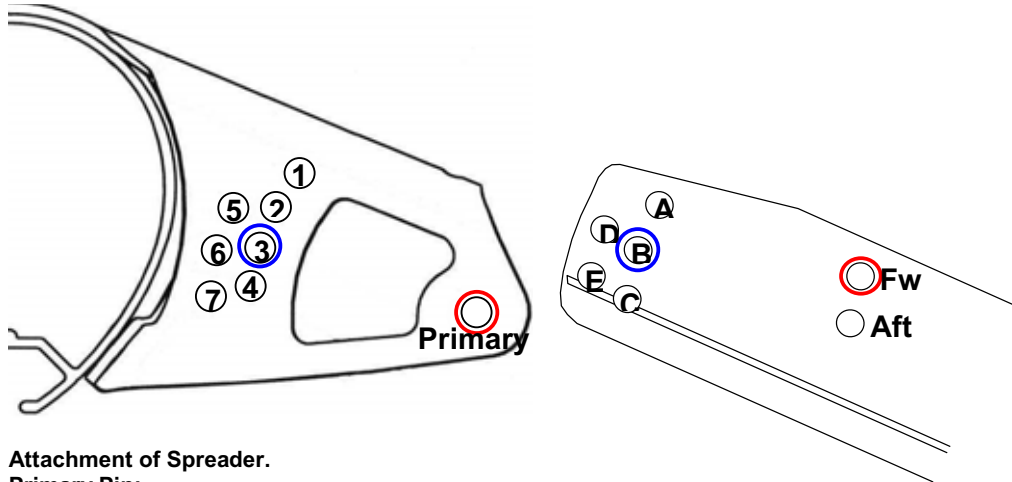
(Tip: Best practice is to fit the clevis pins from above to ensure all split rings are positioned on the underside of the spreader bracket/bars.)

5. Ensure that all the spreader pins and rings are taped up or serious damage could occur to the sails.






Laser Stratos Spreader Instructions



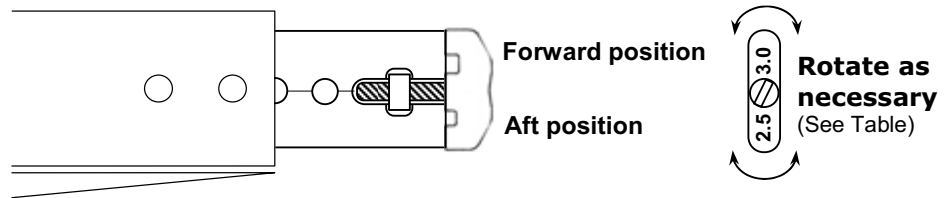
Attachment of Spreader.

Primary Pin:

Fit down through the bracket's primary hole and through the Fwd spreader hole. 

Adjuster Pin:

Fit down through hole 3 on the bracket and B on the spreader bar. 



Spreader Ends

Spreader End Cap:

The spreader end cap incorporates two shroud wire slots to give a tight grip on either 2.5 or 3mm wire. The sizes are identified on the front face of the end cap (See diagram above). To find which wire slot you require for your mast, please see the table below.

The end cap can also be rotated so that the shroud can be positioned at either the forward or aft position of the spreader end (see diagram above). To find out which position is required for your mast, please see the table below.

To attach the shroud, slacken the end screw, rotate the end clamp if necessary, then insert the shroud. Ensure that the shroud is tensioned between T-Terminal and spreader tip, and then tighten the screw firmly.

This method "locks in" the dihedral angle.

Length Adjustment:

Described by the number of adjustment holes visible, (e.g. In the diagram above there are 1 ½ holes visible). **Please see the table below for your class specific positions.**

Security

All clevis pins must be fitted with the flat head on top, and locked with a split ring. Tape all split rings, pins and the outboard end of the spreader extrusion. This will reduce chafe on the mainsail and prevent flailing sails/halyards becoming damaged.

Self-amalgamating tape is best, but PVC electrical tape is an adequate alternative.

Class	Bracket Connection Pin		Outer End		
	Primary	Adjuster	End cap pos'n	Wire Dia.	Visible Holes
Laser Stratos	Fwd	3B	Aft	3.0mm	0



6. Open the mast gate.

7. Raise the mast and position the mast heel in the centre of the mast step. The mast heel recess/slot should straddle the centre bolt of the mast step. (Note - This is a two person operation as someone will need to hold the mast upright while the shrouds and forestay are connected)



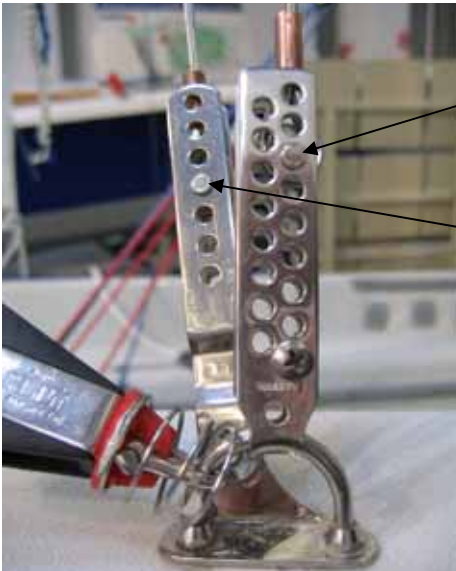
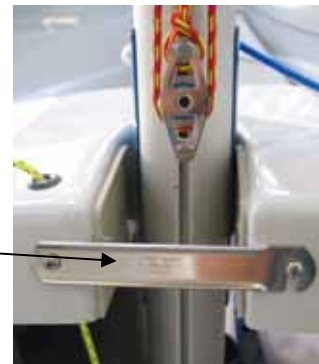
CAUTION

CONTACT WITH OVERHEAD ELECTRICAL WIRES COULD BE FATAL, EXERCISE EXTREME CAUTION WHEN RAISING THE MAST LAUNCHING & SAILING.



8. Ensure the mast heel is positioned and engaged correctly as shown.

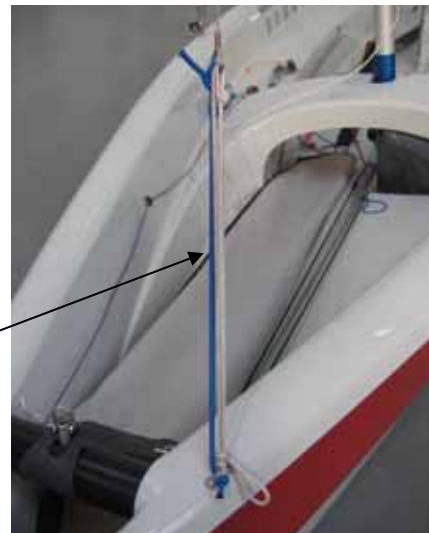
9. Close the mast gate.



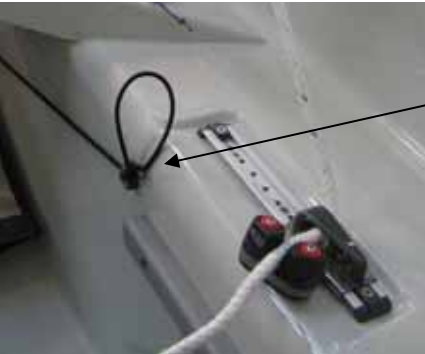
10. Attach the shrouds to the shroud anchor point with the adjuster pin position in the 3rd hole down on the back of the vernier adjuster.

11. Attach the lower shrouds to the lower shroud anchor point with the pin positioned in the 4th hole down on the vernier adjuster

12. Attach the forestay and elastic on to the deck fairlead on the port bow deck as shown.



13. Temporarily fasten the jib halyard to the forestay, genaker halyard to the jib tack bar and main halyard to the port shroud anchor point.
(This simply ensures these elements do not inpinge upon other activities and are in the best positions for ease of rigging.)



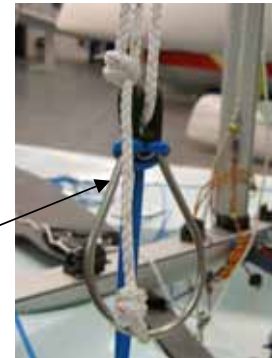
14. The hull mounted trapeze shock cords can be found on the sub deck inner gunwale just in front of the jib sheet track/cleat.

15. Attach the trapeze rings to hull mounted shock cords by feeding the elastic loop through the ring at the bottom of the pulley. (Please note: The Laser Stratos Trapeze kit is optional not standard fit)



16. Place the Loop of elastic shock cord over the metal trapeze ring and pull tight.

14. Tip - Best practise is to tie two double half hitch stopper knots a hand width apart in the adjuster line.



Boom and Vang

1. Unpack the boom and Gnav tackle.
2. Attach the boom to the mast using the gooseneck drop pin.





3. Shackle the lower vang purchase system assembly on the mast as shown.



4. Hook the vang upper purchase assembly on to the boom ensuring there are no twists or fouls in the system.



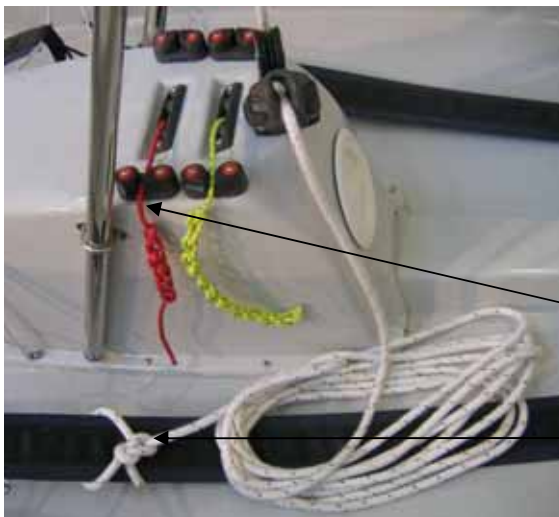
Aft Block

5. Tie the mainsheet to the becket of the block on top of the mainsheet hoop using a bowline.

6. Feed the mainsheet through the blocks and to the mainsheet swivel cleat as shown.



Tip - double check the mainsheet passes through the auto ratchet in the correct direction shown by the arrow embossed on the side of the auto ratchet block.



7. Vang tension is controlled using the forward rope and fairlead/cleats on top of the cockpit centre console.

Tip - Best practise is to tie the loose end of the mainsheet to one of the rear toe straps to prevent tangling and the sheet falling overboard.

Sails

Jib



1. Ensure furling drum line is completely wound onto furling drum before you attach the jib.

2. The furling line/cleat can be found on the starboard side of the foredeck

just in front of the jib sheet track/cleat)

3. Unroll the jib and attach the jib tack to the furling drum using the large shackle provided. (Tape up the shackle and pin to prevent snagging or damage to other sails and lines during sailing)



4. Clip the jib halyard swivel assembly on to the forestay and fasten the head of the jib to the swivel using the clevis pin and split ring. (Tape up the shackle, pins and split ring to prevent snagging or damage to other sails and lines during sailing)

5. Hoist jib by pulling the white halyard out of aft face of the mast then hook the jib halyard purchase system onto jib Halyard wire. (Ensure hook is facing aft to prevent engaging in mast track groove)



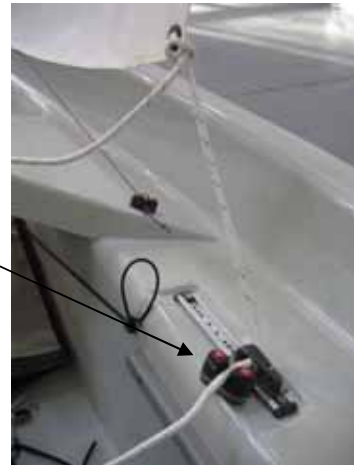
6. Tension the jib halyard purchase system until the jib luff wire is taught.
7. Cleat and tidy away both rope ends in the halyard pocket positioned on the aft face of the general storage bag. (Underside of mast buttress - port side.)

Note: If a loose gauge is used to measure the rig tension do NOT exceed 24 units or 150Kg - measured on the shroud 0.75 metres above the vernier adjuster.

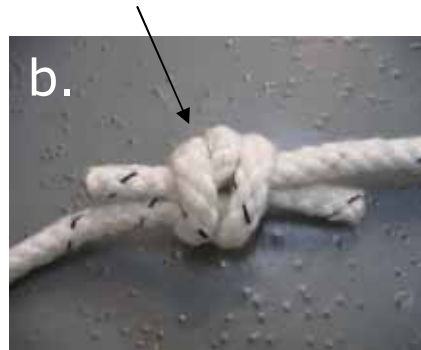
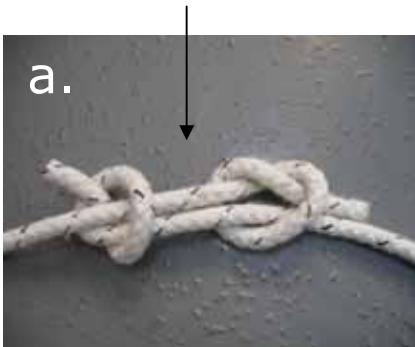
8. Find the centre of the jib sheet and pass it through the clew of the jib, then pull the two trailing ends of the sheet through the loop you have created to lock them in place as shown.



9. Pass one jib sheet either side of the mast before threading them through their respective port and starboard jib fairleads/cleats.



10. Tip – Best practise is to tie the sheet ends together in the middle of the boat to prevent tangling and inhibit sheets falling overboard.



11. Furl the jib by pulling the furling line. The furling line/cleat can be found on the starboard side of the foredeck just in front of the jib sheet track/cleat)

Gennaker

1. Clip the gennaker pole "flyaway" system on to the front of the mast as shown. (Over time the elastic may stretch and require tightening)
2. Ensure the end of the gennaker halyard taken from the base of the mast is free of knots and tangles.



3. Take the gennaker halyard from the base of the mast and pass forward, under the gennaker sock and round the gennaker pole outhaul block. (The gennaker pole outhaul block is attached to the rope led from the pole as shown in the picture)

4. Thread the halyard aft, under the mast buttress and through the gennaker halyard cleat at the front of the centreboard case on the starboard side.



5. Thread the halyard through both the block and the eyelet at the aft end of the gennaker sock.

6. Tie the end of the halyard to something such as a batten or tiller extension and carefully pass the end of the halyard up the sock until you can grasp it from the front end of the gennaker sock opening.



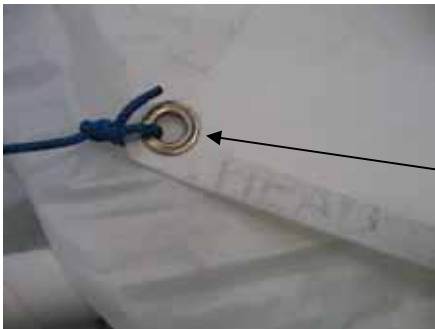
7. This is known as the downhaul end of the gennaker halyard and should be temporarily tied around the jib tack bar while the batten/extension is removed from the gennaker sock.

Note: The up-haul end of the gennaker halyard is already tied around the jib tack bar from a previous rigging exercise.



8. Unfold the gennaker:

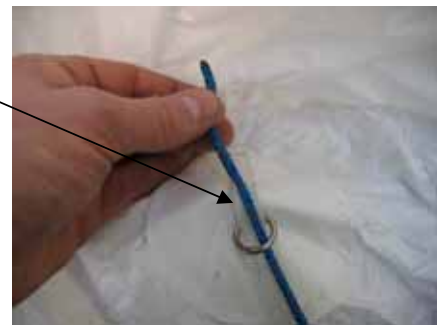
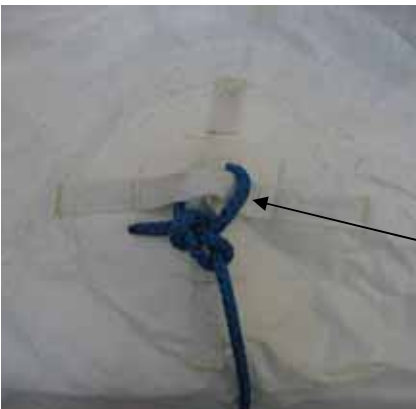
- a. Identify the Tack.
(Written on the sail)
- b. Secure to the gennaker tack line as shown.
(The tack line comes out of the front of the Gennaker pole.)



9. Untie the gennaker halyard (Up-haul) from the jib tack bar and tie it to the Head of the gennaker using a bowline.

10. Untie the gennaker halyard (Down-haul) from the jib tack bar:

- a. Pass through the lower downhaul patch ring on the port side of the sail.



- b. Secure to the upper downhaul patch using a bowline.

10. Attach the centre of the gennaker sheet to the clew of the gennaker.





11. Pass the free ends of the gennaker sheets aft (One sheet either side of the jib luff) and through the gennaker sheet ratchet blocks attached to the shroud anchor points. There are arrows on the ratchet block to indicate which way the rope should pass. When under load, the ratchet will engage.
 (Note – The sheets must pass forward of the shrouds at all times.

12. Tie the free ends of the gennaker sheet together.

13. Ensure the boat is pointing directly into the wind and hoist the gennaker. Take great care to ensure that the gennaker does not get snagged around the trolley; a second person should help with this to ensure it does not snag anywhere. Check the gennaker is not twisted and the Sheets are not tangled with the halyard.



ALWAYS TAKE GREAT CARE TO PULL UP THE GENNAKER SLOWLY AND DO NOT KEEP PULLING IF IT BECOMES TANGLED OR TIGHT.

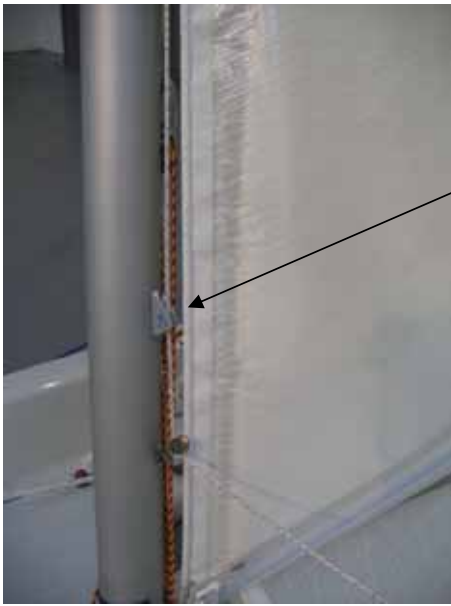
14. Un-cleat the halyard and gently pull the gennaker into the sock by pulling the halyard through the block at the aft end of the sock. A second person should help with this and be positioned at the front of the boat to ensure the gennaker does not get snagged anywhere.

Mainsail

1. Remove the mainsail from its the bag and unroll.
2. Ensure all battens are tight in their pockets and the Velcro locking mechanisms are positively engaged.



3. Position the boat so it is head to wind (bow facing directly in to the wind).
4. Place the mainsail in the cockpit of the hull with the luff closest the bow (front) and the leach closest the stern (back).
5. Take the main halyard:
 - a. Ensure there are no twists in the halyard and it is clear of the spreaders.
 - b. Tie the halyard to the head of the sail using a bowline.
 - c. Locate the head of the mainsail into the mast track.



6. Hoist the mainsail using the main halyard block/cleat assembly on the lower port side of the mast.

Note: Hoisting the mainsail is a two person operation as assistance will be required to feed the mainsail in to the mast track while the other hoists using the halyard (This will prevent the sail pulling out of the track and jamming which could cause luff rope damage.)

7. When the mainsail is fully hoisted, cleat and tidy away the halyard rope end in the halyard pocket positioned on the aft face of the general storage bag. (Underside of mast buttress - port side.)

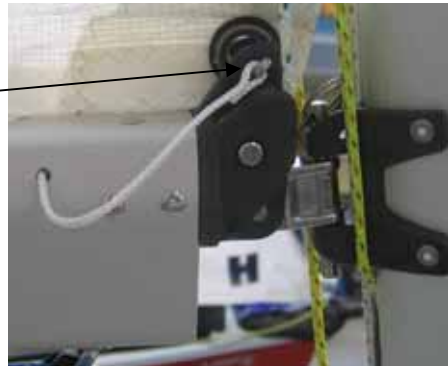


Outhaul

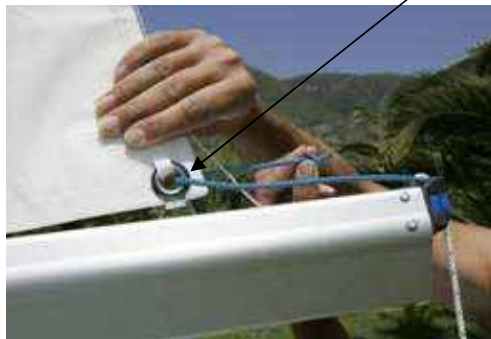
1. Secure the mainsail tack in place by pinning it between the two vertical lugs on the upper surface of the inboard boom end casting.



2. Feed the plastic slug slide on the clew outhaul into the cut out on the top of the boom.



3. The outhaul line is then passed through the eye in the sail (From port/left to starboard/right side) and anchored on the starboard/right side with a simple knot located in the slot formed in the boom end casting.



4. Outhaul tension is controlled using the forward rope, cleat and fairlead at the forward end of the boom.



Cunningham



1. Pass the rope at the end of the Cunningham purchase system through the eye at the bottom of the mainsail luff (from port/left hand to starboard/right hand side).

2. Anchor the end of the Cunningham purchase system by sliding a half hitch knot in to mast track just below the gooseneck.

3. Cunningham tension is controlled using the aft rope and fairlead/cleats on top of the cockpit centre console.



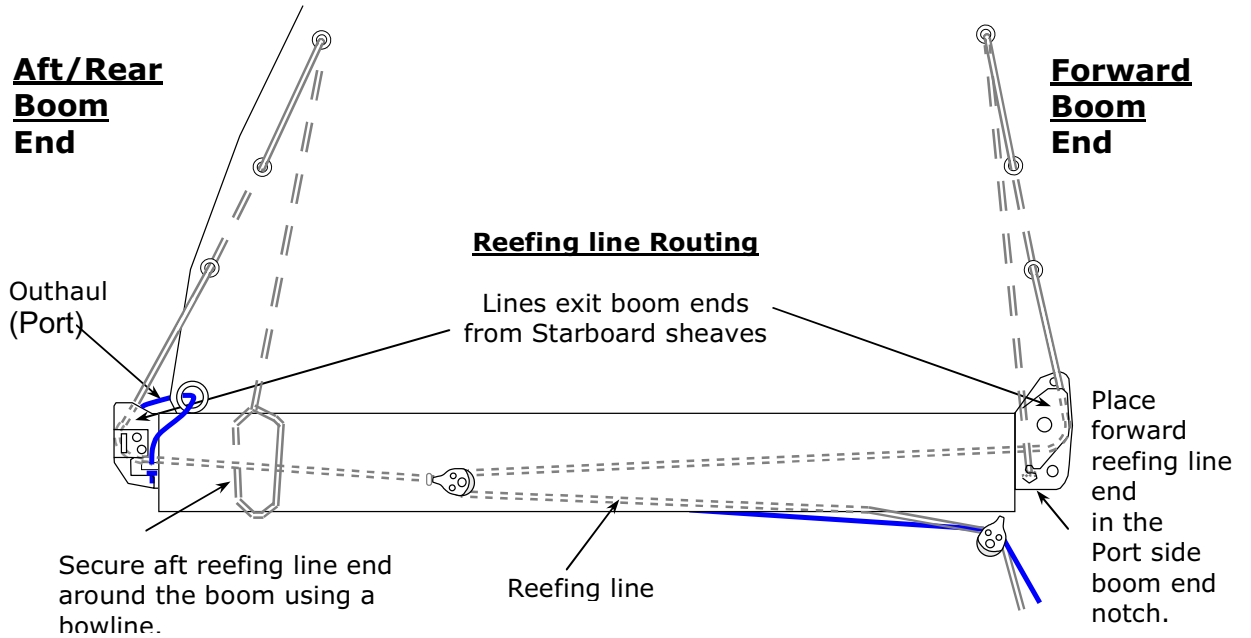
Single Line Reefing

1. Rig the single line reefing. (See next page for diagram)



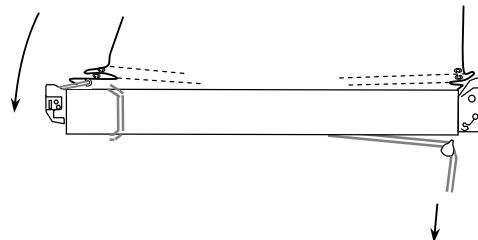
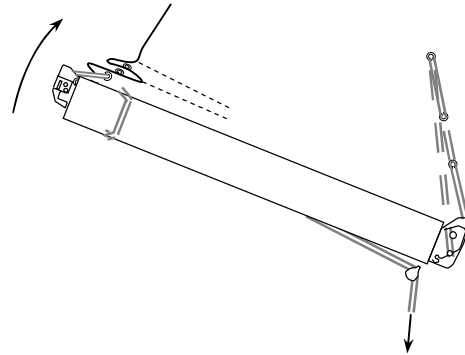
2. Single line reefing tension is controlled using the aft rope, cleat and fairlead at the forward end of the boom.

Single Line Reefing Instructions



Method

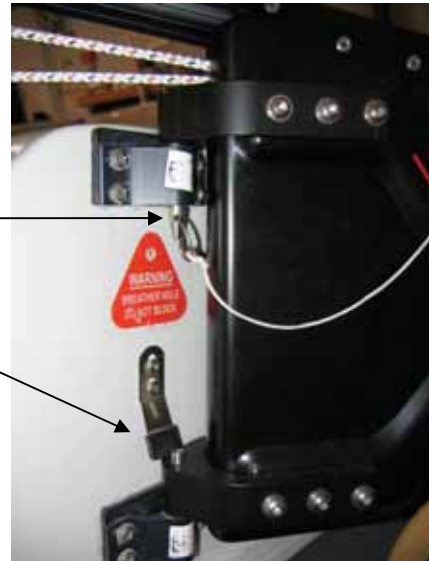
1. Ease mainsheet & vang.
2. Pull the reefline. The boom will angle up until all of the aft reefing line slack is taken in or vang travel limit is reached.
3. Ease the halyard, and continue pulling the reefline. The boom outer end will move down towards horizontal.
4. When the reefline has pulled the clew and tack down hard, jam it off.
5. Re-tension the halyard and adjust the vang & mainsheet.



Rudder

1. Attach the rudder assembly to the transom:

- Fit the secondary rudder retaining split ring to the top rudder pintle.
- Ensure the primary rudder-retaining clip is adjusted and has engaged correctly



Your Laser Stratos Is Now Ready For Launching.



Launching And Basic Safety On The Water

Before You Go Sailing:

- o Check you are wearing suitable clothing and safety equipment for the conditions and time of year.
- o Always wear a buoyancy aid or life jacket
- o Make sure a third party knows where you are sailing and how many there are of you.
- o Check the weather forecast
- o Check the time of high and low tides if applicable.
- o Seek advise of local conditions if sailing in anew area.
- o Always check the condition of your craft before setting off.



CONTACT WITH OVERHEAD ELECTRICAL WIRES COULD BE FATAL, EXERCISE EXTREME CAUTION WHEN RAISING THE MAST LAUNCHING & SAILING.

Launching

- Raise the mainsail with the boat facing into the wind.
- Launch the boat using the appropriate launching trolley.
- Take the boat into the water with the bow facing into the wind.



- Ensure that there is enough water to float the boat off the trolley.
- One person should hold the boat whilst the other gets in and prepares to set off.



- When there is enough water below you, lower the centreboard and rudder fully.
- Cleat the rudder downhaul in the cleat on the tiller and ensure that the wing nut on the side of the rudderstock is tight.

The Rudder And Centreboard Should Be In The Fully Down Position At All Times When Sailing And Isometric Boat Like The Laser Stratos.

On The Water

- Conform to the sailing rules of the road.
- Look out for changing weather conditions.
- Never sail beyond your ability or that of your crew.
- Understand and be competent in the sailing skills and righting techniques.



Enjoy Your Laser Stratos Sailing!



Laser Stratos Capsize Technique

The unique flooding side tank system used on the Laser Stratos ensures that in the event of a capsize; the boat can be righted quickly and with minimum effort. Immediately after a capsize the tank on the lower side of the boat floods which lowers the boat in the water making it more stable and reducing the height of the centerboard for crew access to right the boat. If the boat inverts, both tanks flood making the boat easier to bring on to its side to commence righting. The secondary effect of the flooding side tank is that immediately after righting, the ballast of the water stabilizes the boat and helps prevent a secondary capsize whilst the crew re-board the boat. The system is most advantageous when righting from a position where the mainsail is pointing in to the wind, but it also helps if the sail is pointing away from the wind. After righting, the tanks drain quickly allowing the boat to recover to full "dry" state.

Righting the Boat

1. Ensure all members of the crew are accounted for and safe.
2. If the gennaker is deployed, drop the sail back in to the sock.
3. Release the main/jib sheets and vang from respective cleats and ensure the sheets are fully extended to avoid the boat sailing immediately after righting.
4. If the boat inverts, first recover the boat on to its side.
5. In adverse conditions and with more than two crew it is recommended that the largest crew member swim to the bow and hold the bow during righting and until all other crew members have re-boarded after righting. (This ensures the boat swings in to the safe head in to wind position upon righting)
6. It is recommended to use the "scoop" recovery system for crewmembers not involved in the righting procedure. When the boat is on its side, the crew members to be scooped should move to the inner lower side of the boat as close to the center of the boat as possible. As the boat is righted, these crew members will be "scooped" onboard the boat ready to help other re-board. "Scooping" should only be attempted with practice and should only be commenced after the boat is stabilized on its side by a crewmember who is securely located on the centerboard and holding the capsize righting line under the gunwale. This is to prevent the boat from inverting and potentially trapping the crew.
7. Righting is effected by a crewmember standing on the centerboard moving out towards the end of the board whilst leaning out holding on to the righting line. The boat will recover to the upright position quickly. It should normally only require one average size person to effect righting on the centerboard.
8. Immediately after righting the tiller should be pushed fully towards the mainsail to stop the boat sailing until all crew have re-boarded.
9. Re-boarding can be undertaken over the windward side of the boat using the righting line as a step or over the transom. A grab rail is positioned on the inner face of the sub deck to assist with pulling yourself back in to the boat.
10. If the person in charge of the boat or the crew are inexperienced in capsizing and righting procedures it is advised to practice drills under skilled supervision and in any event, close to assistance prior to the drill being used in earnest.
11. All crewmembers should wear an approved buoyancy aid at all times whilst on the water.

Using your Stratos "Keel"

Note: The Stratos Keel is rigged in the same manner as the Stratos.

A) Removing your Stratos Keel hull and trolley from the road base.

- 1) **Warning:** When removing the Stratos "Keel" and launching trolley from the road base, it is highly recommended to leave the road base hitched to your vehicle or to chock the front of the road base wheels. This is to prevent the road base shooting forwards as the boat and trolley are pushed aft. Failure to do this could lead to injury or damage.
- 2) If a winch is fitted to your trailer base. Release the ratchet. One person can control the aft movement of the boat and trolley on the winch handle, while the others push and guide the boat and trolley off the road base.

Warning: - The Stratos "Keel" is a substantial product that requires care to avoid injury when manoeuvring on and off the water.

Do not run aground at speed and avoid hitting solid objects with the keel.

B) Launching your Stratos Keel.

Select a launching area where there is deep enough water to float the Stratos keel off the trolley. Care must be taken to ensure that the keel passes through the gap in the trolley bunk.

C) Lowering the Stratos Keel

Warning: -

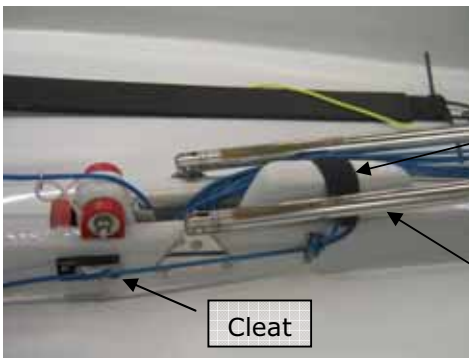
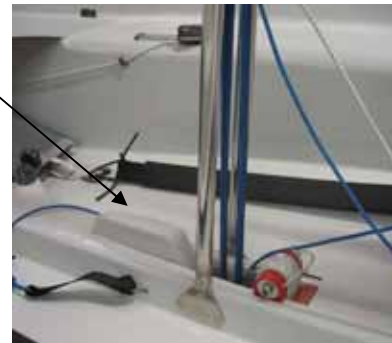
- The keel weighs approximately 120 kgs. and may damage the boat if dropped in an uncontrolled manner. Do not allow children or anyone of inadequate strength or experience to operate the keel mechanism without close supervision or assistance.
- Ensure that the operators and other crewmembers feet and fingers are well clear of the keel and operating mechanism when lowering and hoisting to avoid injury.
- Suitable sailing shoes should always be worn when sailing to avoid injury to your feet.
- Ensure that the hoist line is clear and free and that all other ropes are well clear of the hoisting mechanism. (A stray rope jammed in the keel box or hoist mechanism could be very difficult to remove).
- Ensure that the keel box and keel are free from sand, pebbles and other debris.

1) Attach the hoist retaining line hook to the hoist frame.

2) While holding the hoist rope securely pull the rope upwards and forward. This will uncleat the rope. Always maintain controlled tension on the rope whilst uncleated anticipating that the full weight of the keel will be controlled by the hoist rope. Never allow the keel to drop uncontrollably.



3) Gently lower the keel in accordance with the water depth.



4) When the keel is lowered. Secure the retaining rope/strap over the top of the keel and cleat in position. In the unlikely event of capsize, this will prevent the keel from falling back into the boat.

5) The hoisting frame can now be lowered forward onto the cockpit floor.

Note: The sails are rigged and hoisted as per the standard Stratos rigging instructions.

D) Hoisting the Stratos keel

- 1) Anticipate arriving in shallow water and always allow plenty of time to hoist the keel.
- 2) Release the keel-retaining strap/rope.
- 3) Raise the hoist frame above the keel and ensure that it is fully upright.
- 4) Attach the hoist retaining line hook to the hoist frame.
- 5) Ensure that the keel and hoist system is free from obstruction, stray ropes and debris. Also, ensure that the gennaker sheets are secured so as not to foul keel under water.

- 6) While holding the hoist line firmly, progressively hoist the keel fully up and secure the rope in the cleat. For added security the rope end can be tied off onto the hoist frame.

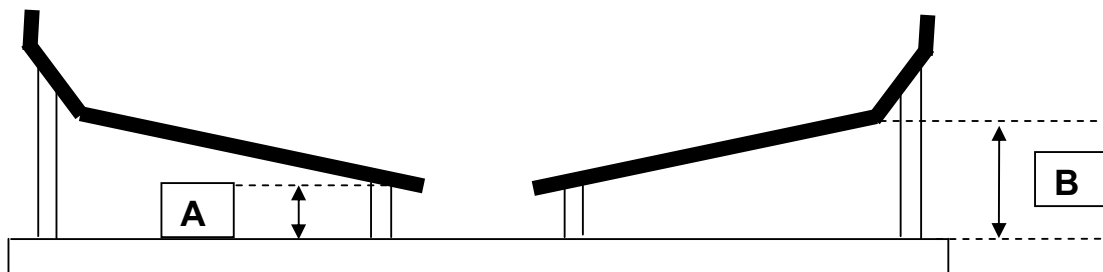
E) Recovering Your Stratos "Keel".

- 1) While one crewmember holds the bow of the boat, another can lower the sail and then get the launching trolley.
- 2) Position the trolley in deep enough water so that your Stratos Keel can be floated back onto the trolley.
- 3) Carefully guide the boat onto the trolley so that the keel passes cleanly through the gap in the trolley bunk.
- 4) Secure the bow to the trolley and pull the boat out of the water.
- 5) After de-rigging the boat, the boat and trolley can be pulled or winched onto the road base. It is essential the road base wheels are chocked aft or the road base must be hitched to your vehicle.
- 6) Before trailing, lower the keel so that the weight of the keel is supported by the keel platform on the trolley.

Warning: -

- We recommend that a trailer and road base supplied by Performance Sailcraft Europe is used, so that the keel and hull are correctly supported and to avoid damage.
- It is the owner's responsibility to maintain his trailer. The height of the trolley bunk should be adjusted and checked regularly to ensure that it is supporting the hull with the keel resting on the support platform. Also, the wheel bearings should be serviced regularly.

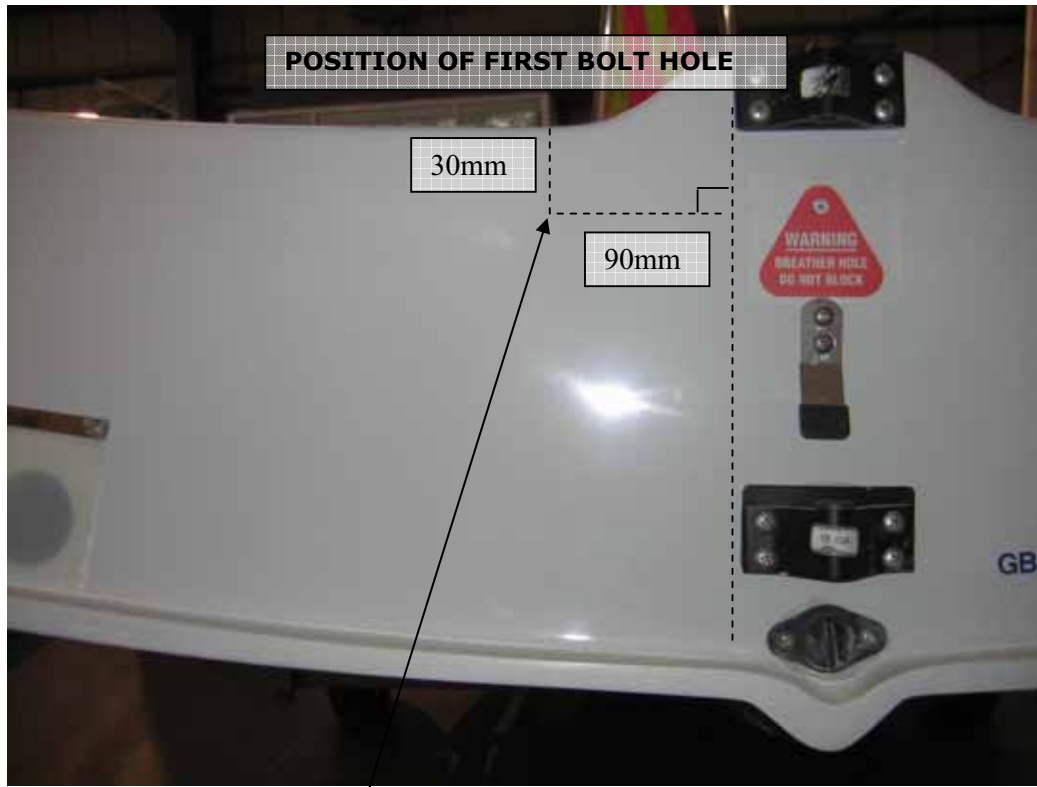
The following is a rough guide to the position of the trolley bunk.



Dimension A = 195mm from the top of the Launching trolley axle to the underside of the trolley bunk measured by the inner face of the inner leg.

Dimension B = 280mm from the top of the launching trolley axle to the turn of the chine measured from the underside of the trolley bunk.

FITTING THE STRATOS ENGINE BRACKET - PART CODE 77774



- Position the first bolthole as shown in the above diagram.
- Bolt bracket to transom using only the first single bolt hole. (Use a 6mm drill bit)
- **Align top of bracket horizontally to boat.**
- Drill through ply bracket to position the other 5 holes. (Use a 6mm drill bit)
- Ensure all boltholes are watertight by using silicone sealant during fitment.



Warning – Keeping your Laser product on a mooring

It is well publicised that Glass reinforced Plastic (GRP) boat hulls are susceptible to Osmosis and Wicking, if stored on a mooring for prolonged periods without a protective barrier in addition to the gel coat. Similar conditions can be created when a hull is placed in a transport cover when it is wet and the cover is not removed at the end of the journey. This is a particular risk in hot and humid conditions.

If you plan to moor your boat on a mooring for more than 2 weeks, we recommend an osmosis barrier coat.