

LASER

Rigging Guide

1. Unpacking and Preparation: Laser, Radial & Laser 4.7
2. Parts of the Laser
3. Hardware Location
4. Hardware Installation
5. Rigging the Traveler
6. Rigging the Mast
7. Stepping the Mast
8. Rigging the Outhaul
9. Rigging the Clew Tie-down
10. Rigging the Vang
11. Rigging the Cunningham
12. Daggerboard Retainer
13. Mast Retainer Line
14. Rigging the Rudder
15. Mainsheet
16. Sail Number Application
17. Installation of Optional Mainsheet Side Cleats

Congratulations on the purchase of your new Laser!

The Laser is a very unique boat that can accommodate many different sized sailors and abilities, due to its three interchangeable rigs. The Laser, the Radial and the 4.7 all use the same hull and equipment with the exception of the lower mast and sail.

We suggest that you read through this guide to better familiarize yourself with the parts and rigging of your new boat. If you have any questions please contact your dealer or call LaserPerformance Customer Service.

This is a comprehensive rigging guide for the Standard and Race configured Laser. If you have a Laser XD, please refer to the included XD instructions in your XD kit for instructions on XD specific components and rigging. Please note that in our effort for continuous improvement the exact color and spec of Laser parts may vary from those in the below images.

Depending on which Laser you have selected (Laser, Radial or Laser 4.7) you will have one of the following sails and corresponding lower masts located in your delivery kit.



Above from left to right: Laser lower mast, Radial lower mast, and Laser 4.7 lower mast.



Your boat rigged will resemble one of the lasers shown above. From left to right: Laser, Radial, and Laser 4.7.

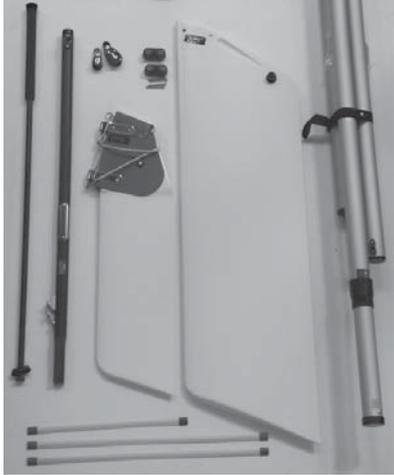


From left to right: Laser sail, Radial sail, Laser 4.7 Sail. New Race and XD models come with a rolled sail

Locate your delivery kit. Depending on which model you have purchased (Standard, Race or XD) there will be a few differences in some of the hardware. The differences between the three models are the cunningham, outhaul, vang and tiller extension. Using images 1 or 2 on the following pages, identify the contents of your kit. To avoid damaging the contents, be sure not to cut into the packaging inside the box.

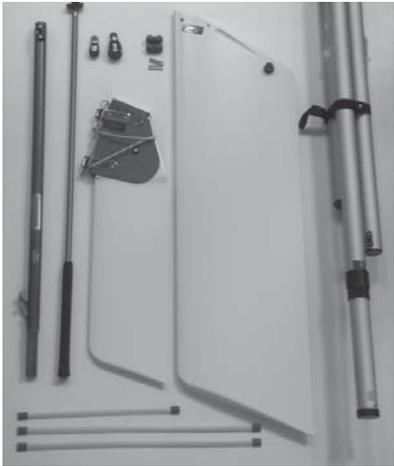
1. Unpacking and Preparation:

Standard Delivery Kit



- | | |
|------------------------------|----------------------------|
| 1 Sail numbers | 10 Large traveler block |
| 2 Line bag | 11 Small traveler block |
| 3 Gorilla tiller & extension | 12 Large vang block |
| 4 Rudder | 13 Small vang block |
| 5 Daggerboard | 14 Vang key |
| 6 Battens (3) | 15 Mainsheet ratchet block |
| 7 Boom | 16 Spring |
| 8 Upper mast | 17 Bullseye fairlead |
| 9 Lower mast | 18 Clam cleat |

Race Delivery Kit



- | | |
|------------------------------------|---------------------------------------|
| 1 Sail numbers | 13 Spring |
| 2 Line bag | 14 Forkhead block base |
| 3 Gorilla tiller & extension | 15 16 mm forkhead blocks (2) |
| 4 Rudder | 16 Large traveler block |
| 5 Daggerboard | 17 Small traveler block |
| 6 Battens (3) | 18 Vang key |
| 7 Boom | 19 Pin and ring |
| 8 Upper mast | 20 Double micro block with becket (2) |
| 9 Lower mast | 21 Small double block with becket |
| 10 Cleat base with cleats | 22 Micro block with becket (2) |
| 11 Lower vang block/cleat assembly | 23 Micro single block (2) |
| 12 Mainsheet ratchet block | |

2. Parts of the Laser

Nautical Terminology

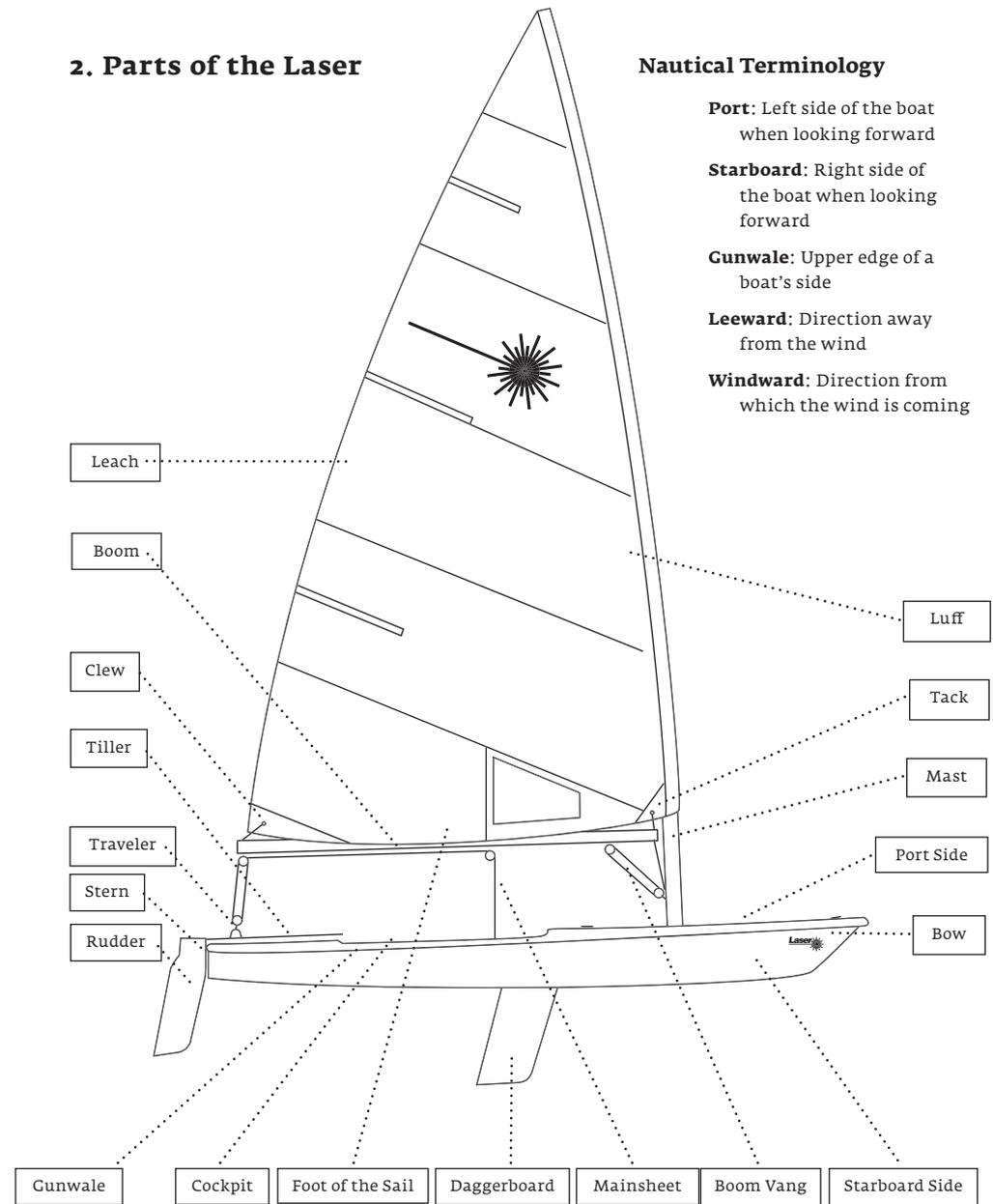
Port: Left side of the boat when looking forward

Starboard: Right side of the boat when looking forward

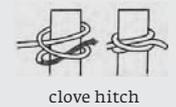
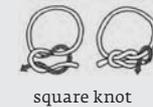
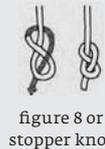
Gunwale: Upper edge of a boat's side

Leeward: Direction away from the wind

Windward: Direction from which the wind is coming



Useful knots to know



3. Hardware Location

There are a few pieces of hardware that you will need to install on your new hull before continuing to rig your Laser. Locate the two sets of screws that are positioned on the deck of the boat (figure a, far right image). One set of screws will be forward of the daggerboard well (figure 1) while the other set will be aft of the mast step (figure 2).

Tip: Before replacing the screws be sure to dip them into a silicon based sealant to allow for a water-tight and secure fit.

4. Hardware Installation Laser Standard Models

1. In the delivery kit locate the bullseye fairlead and the clam cleat. Unscrew the two screws located by the mast step (figure 3). Align the bullseye fairlead over the two holes and screw into place (figure 4).

Reminder: Before replacing the screws be sure to dip them into a silicon based sealant to allow for a water tight and secure fit.

2. Unscrew the set of screws located in front of the daggerboard well. Align the holes of the clam cleat and screw into place (figure 5). Be sure that the open end of the cleat is facing towards the cockpit (figure 6).

Reminder: Before replacing the screws be sure to dip them into a silicon based sealant to allow for a water-tight and secure fit.

3. Locate the ratchet block and spring from the delivery kit. In the cockpit, at the forward end of the hiking strap, locate the eyestrapp (figure 7).

4. Remove the shackle from the bottom of the ratchet block and place it around the eyestrapp (figure 7).

5. Place the spring over the eyestrapp, and compress. While the spring is compressed, attach the block to the shackle with the pin and ring (figure 8).

Tip: To assist in keeping the spring compressed while attaching the block to the shackle, try compressing the spring and tie with string or zip-tie. Place the tied spring over the eyestrapp and attach the block. Then untie the string/cut zip-tie to release the spring.

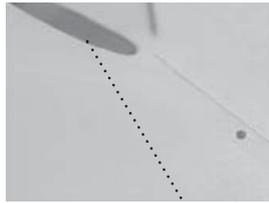


figure 1 | daggerboard well

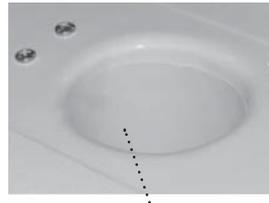


figure 2 | mast step



figure 3



figure 4



figure 5

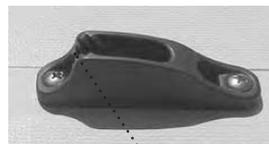


figure 6 | open end



figure 7



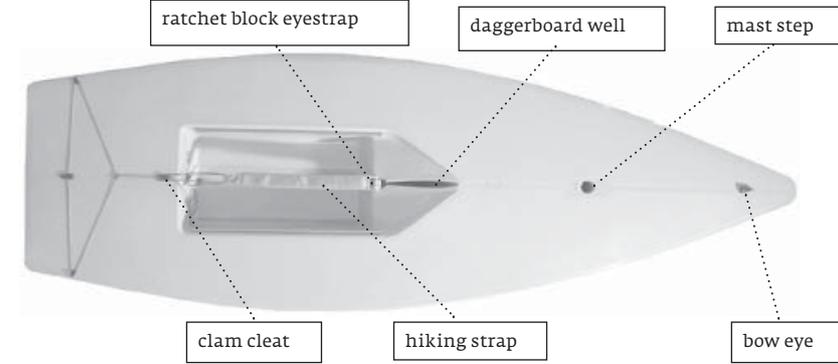
figure 8

Here is a list of tools that we recommend you have in order to assemble your new Laser...

- phillips head screwdriver
- silicone sealant
- white electrical tape
- utility knife



Figure A



Hardware Installation Laser Race Models

1. The new deck fittings can be retro-fitted on all boats without any structural changes. (figure 9). First take out the screws on the cunningham cleat and the downhaul eye. (figure 10, 11 & 12).

Reminder: Before replacing the screws be sure to dip them into a silicon based sealant to allow for a water-tight and secure fit.

2. Place the fittings over the existing screw holes and screw tight. (Figure 13 & 14).

3. Locate the ratchet block and spring from the delivery kit. In the cockpit, at the forward end of the hiking strap, locate the eyestrapp.

4. Remove the shackle from the bottom of the ratchet block and place it around the eyestrapp (figure 15).

5. Place the spring over the eyestrapp and compress. While the spring is compressed, attach the block to the shackle with the pin and ring (figure 16).

Tip: To assist in keeping the spring compressed while attaching the block to the shackle, try compressing the spring and tie with string or zip-tie. Place the tied spring over the eyestrapp and attach the block. Then untie the string/cut zip-tie to release the spring.



figure 9



figure 10

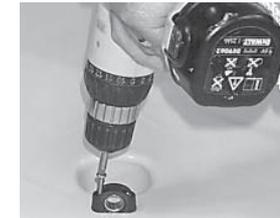


figure 11



figure 12

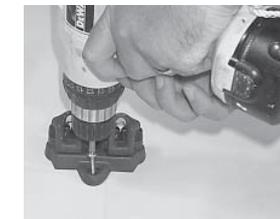


figure 13



figure 14



figure 15



figure 16

5. Rigging the Traveler: Alternative 1

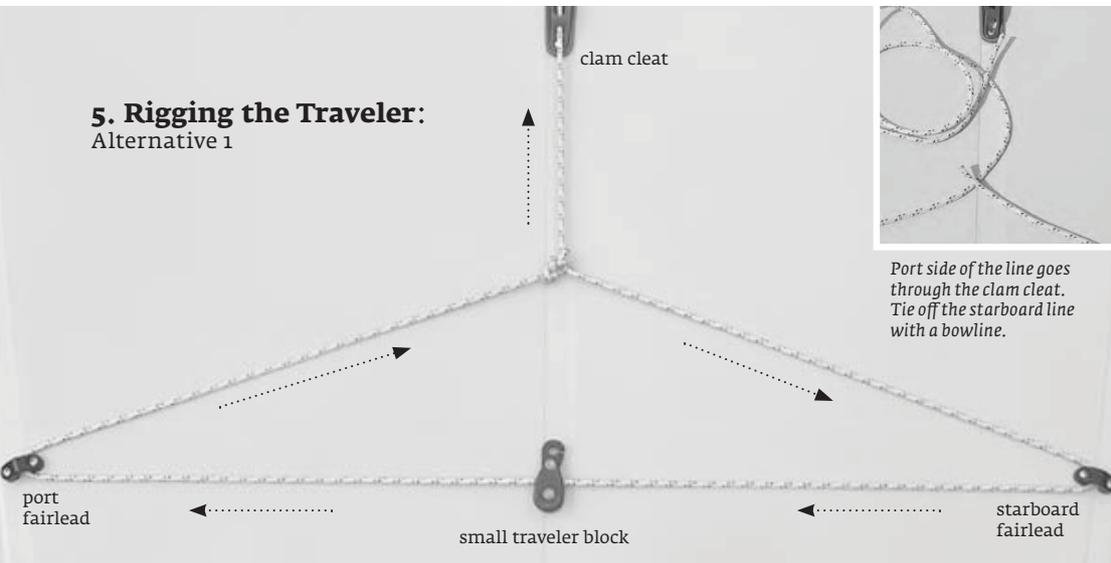


Figure B

1. Locate the traveler line and small traveler block from the delivery kit. On the stern of the boat locate the two fairleads (figure b).
2. Run one end of traveler line through the starboard fairlead (from bow to stern, figure 17), then through the small traveler block (figure 18) and continue through the port side fairlead (from stern to bow, figure 18).
3. Make a loop in the port side of the line as if you were going to tie a bowline (figure 19). Keeping in mind that the free end of the port side line will be cleated off. Take the starboard end of the line and complete the bowline by going through the port loop (figure 20).
4. Continue the tail end of the port side line through the cleat and tie off with a bowline handle (figure 21).

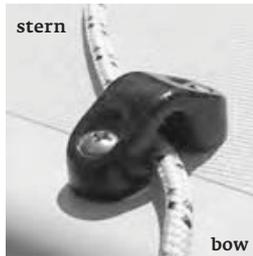


figure 17



figure 18

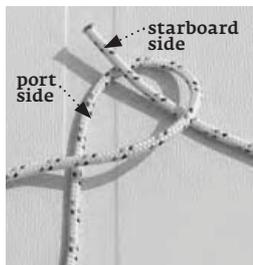


figure 19



figure 20



figure 21

Rigging the Traveler: Alternative 2

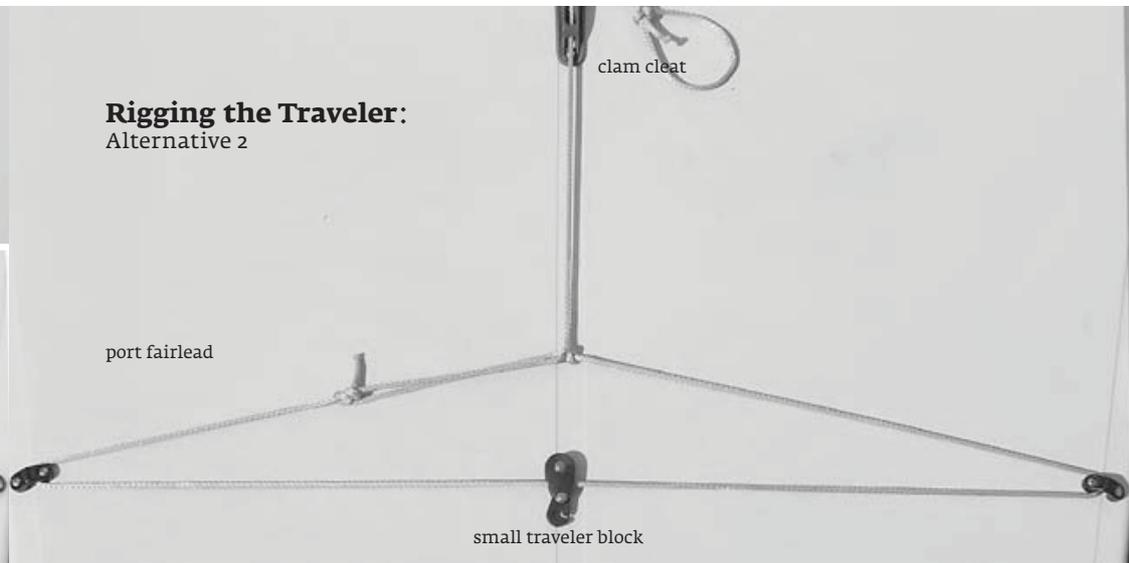


Figure C

1. Locate the traveler line and small traveler block from the delivery kit. On the stern of the boat locate the two fairleads (figure c).
2. Run one end of traveler line through the starboard fairlead (from bow to stern), then through the small traveler block and continue through the port side fairlead (from stern to bow).
3. Tie a bowline in the port side of the traveler line (figure 22). Lead the starboard end of the line through the bowline and pull until snug (figure 23).
4. With the starboard end of the line tie an overhand knot to secure the line (figure 24).
5. With the tail end of the line, lead it through the cleat and tie off with a bowline handle (figure 25).

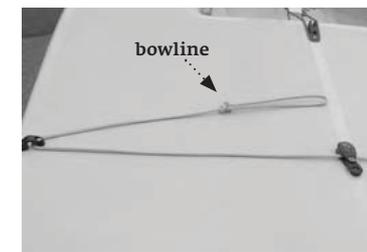


figure 22



figure 23



figure 24

.....
Note: These are the two manufacturer-suggested methods for rigging your traveler. Many other methods exist. Ask around, experiment and find the method you enjoy most!
.....

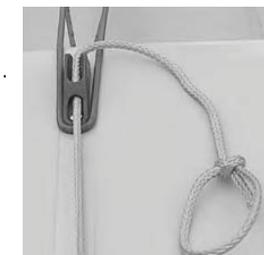


figure 25

6. Rigging the Mast

Standard and Race Models

1. Locate the sail, battens, boom, upper and lower mast from your delivery kit. Remove your sail from the sail bag and have the three battens handy. Your battens should comprise of: Two long and one short (figure 26).



figure 26

Tip: When unfolding sail, make sure that the area is free of sharp objects that could damage the sail! To ensure the batten tips do not fall off inside the pocket when the battens are removed, it is suggested that you tape the batten tips.

2. Unfold the sail. Starting from the head of the sail locate the top batten pocket. Insert the smallest of the three battens into the top batten pocket (figure 27).



figure 27 | pocket opening

3. Insert the battens so that the curved end is inserted first. When inserting the batten into the pocket, you will be applying pressure against elastic located in the end of the pocket. As you press against the elastic, slide the batten in and down so that the tip rests in the closed end of the pocket (figure 28). To remove: press the end into the elastic, and slide the tip to the open end of the pocket.



figure 28 | closed end

4. Continue down the sail, inserting the two remaining battens.

Note: Before folding the sail make sure to remove the battens.

5. Slide the top section of the mast into the lower section until the top section's plastic collar is snug against the aluminum of the lower section. Make sure arrows line up.

6. Find the opening in the sail sleeve located at the foot of the sail (figure 29). Slide the sleeve of the sail over the mast, aligning the cunningham grommet with the gooseneck and removing any twists in the sleeve (figure 30a).

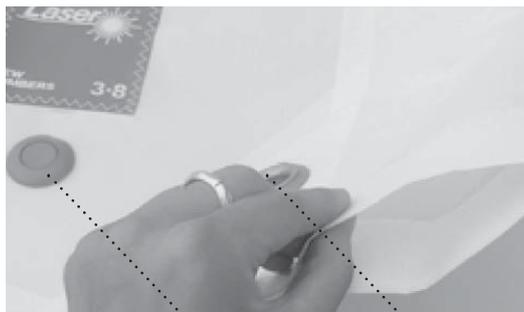


figure 29 | class sail button, cunningham grommet

Tip: The head of the sail does not rotate easily on the masthead, so it is suggested to align the head of the sail with the gooseneck before stepping the mast (figure 30a).



figure 30a: Stepping the Mast

7. Stepping the Mast

Standard and Race Models

1. Make sure the bow of the boat is pointing into the wind and that there are *No Overhead Electrical Wires in the Area!* Also make sure that the mast step hole and mast butt are perfectly clean; any sand or dirt in the mast step will grind into the gelcoat and can damage the mast step.

2. Place the mast butt against a flat solid object. By placing a towel or piece of cardboard on the ground it will help prolong the life of the plastic mast butt.

3. Lift the mast from the head of the sail and walk toward the mast butt, raising the mast hand over hand until vertical.

4. Make sure that the gooseneck is facing the stern of the boat before lifting.

5. Keeping your hands a good distance apart, lift the mast over the mast step hole (figure 30a).

6. Allow the mast to carefully slide down into the step. Do not drop the mast into the step for it will cause damage!

7. Remove any wraps in the sail sleeve.

Attaching the Boom

1. Before attaching the boom locate the outhaul line from the delivery kit line bag. Insert the gooseneck pin into the forward end of the boom and walk aft, exerting pressure towards the mast, to keep it in place (figure 30b).

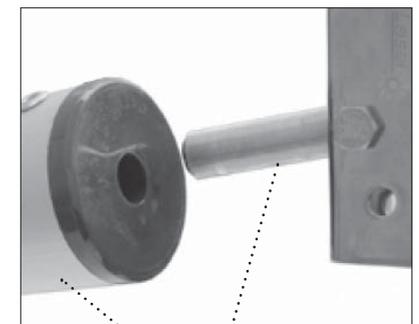


figure 30b | boom, gooseneck pin

8. Rigging the Outhaul: Laser Standard Models

1. Locate the outhaul line from the delivery kit line bag. Tie a bowline with the outhaul line to the fairlead located at the end of the boom (figure 31).
2. Lead the line through the grommet in the clew of the sail and then back through the fairlead (figure 32).
3. Lead the line forward along the boom and cleat off at the clam cleat on the top of the boom (figure 33). Tie a bowline in the free end of the line (figure 34).



figure 31

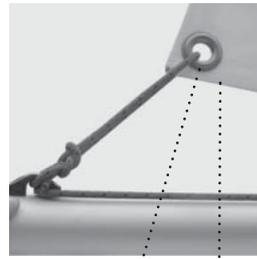


figure 32 | grommet, clew



figure 33



figure 34

9. Rigging the Clew Tie Down: Laser Standard Models

1. Locate the clew tie down line from the delivery kit line bag.
2. Wrap the clew tie down line through the clew grommet and around the boom two times (figure 35) and secure it with a square knot (figure 36). Be sure that the line runs on the inside of the outhaul.

Tip: The clew tie down should hold the clew of the sail close to the boom yet it should still be able to slide forward and aft when adjusting the outhaul.



figure 35 | outhaul

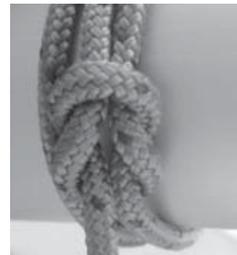


figure 36

Rigging the Outhaul: Laser Race Models

1. Check the items in the pack and lay them on the deck (figure 37).
2. Dead end a pulley block to the longer grey line (Spec 12) (figure 38).
3. Measure 9 inches/23 cm from the end of the pulley block and tie a bowline loop, with the grey line, around the boom. Make sure you can get two fingers between the boom and the loop (figure 39).
4. Take the non-pulley end of the grey line and thread it through the outhaul end fitting on the boom (figure 40).
5. Pass the same end through the pulley hook block (figure 41).
6. Take it back to the outhaul boom end fitting and dead end it to this (figure 42 & 43).
7. Now dead end the pink line to the outhaul cleat (figure 44).
8. Take the other end of the pink line and thread it through the pulley which is attached to the grey line (figure 45).
9. This is how it should look. Once you have done this you will not have to do it again as it is left on the boom permanently (figure 46).
10. Now attach a pulley to the bottom section. Put the mast with the sail into the mast hole, take the short pink line and thread one end through the small hole in the gooseneck (figure 47). Take both ends of the pink line and thread them through the top of a pulley block (figure 48). Now separate both ends and take them around the back of the mast and tie them together with a reef knot (figure 49).



figure 37



figure 38



figure 39



figure 40



figure 41



figure 42



figure 43

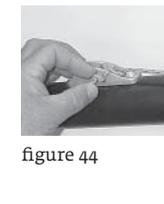


figure 44



figure 45



figure 46

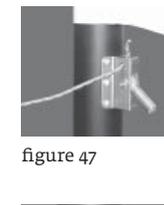


figure 47

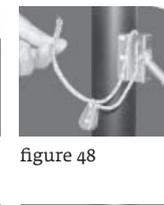


figure 48

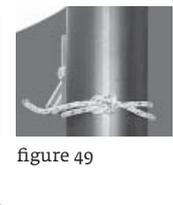


figure 49

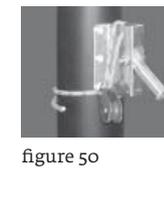


figure 50

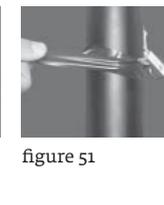


figure 51

Rigging the Outhaul: Laser Race Models

1. Now we can attach the sail to the boom with the hook as shown (figure 52).

2. Put the boom on the gooseneck and pull the pink line so that the pulley is pulled close to the outhaul cleat (figure 53).

3. With the pink line, tie a bowline loop 4 inches back from the kicker boom fitting, around the boom. Make sure you can get two fingers between the boom and the loop (figure 54).

4. Take the end of the pink line and pass it over the top of the cunningham line and thread it through the pulley on the mast down towards the deck (figure 55).

5. Thread the pink line from front to back through the deck pulley (figure 56). Pass it through the deck cleat, making a rope handle at the end (figure 57, see previous instructions).

6. Finally tie the clew of the sail down with the short grey line in the usual way. Remember to tie it very tight so that the bottom of the sail is as close as possible to the boom (figure 58).

7. To allow the outhaul to be let out with ease, a piece of shock cord can be attached to the clew tie down (figure 59). This is optional. Dead eye the shock cord to the clew tie down. Dead eye the other end of the shock cord to the outhaul boom cleat (figure 60).

Note: Laser 4.7 sailors will need to make the following amendments to the rigging of the outhaul: Attach the inboard end of the return elastic to the forward boom block eye. Remove the loop around the boom from the Spec 12 (outboard) rope. The loop is not required for the 4.7. Adjust the loop around the boom in the pink Spectra rope so that it rests at the kicker key when at MAX outhaul on.

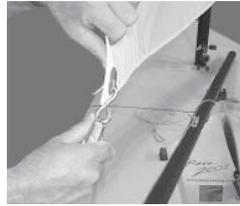


figure 52



figure 53

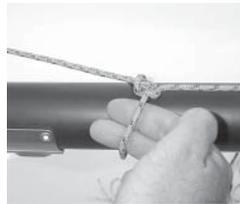


figure 54



figure 55



figure 56



figure 57



figure 58



figure 59



figure 60

9. Rigging the Clew Tie Down: Laser Race Models

1. Locate the clew tie down line from the delivery kit line bag.

2. Wrap the clew tie down line through the clew grommet and around the boom two times and secure it with a square knot (figure 61). Be sure that the line runs on the inside out the outhaul.

Option: You can purchase (through your local dealer) a clew tie down strap (figure 62). Release the Velcro so that the strap is straight. Wrap the longer end of the strap (the length without the Laser logo) around the boom and through the d-ring. Continue the strap around the boom and secure the Velcro. Thread the Velcro strap with the Laser logo through the clew grommet and secure.



figure 61



figure 62

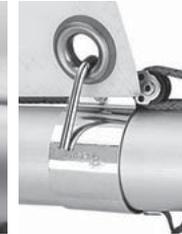


figure 63

10. Rigging the Vang: Laser Standard Models

1. Locate the vang line from the delivery kit line bag. Retrieve the two vang blocks and vang key from the delivery kit.

2. Take the smaller of the two vang blocks and remove the pin and ring. Insert the vang key and secure with the pin and ring (figure 64). Hook the key into the vang slot on the underside of the boom (figure 65).

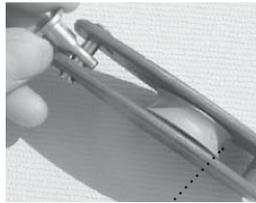
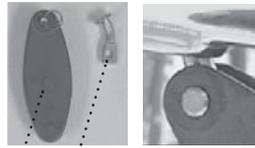


figure 64 | becket



vang key
sm vang block figure 65

3. Use the provided pin and ring to attach the larger of the two vang blocks to the vang tang, located below the gooseneck on the mast (figure 66). Make sure that the cleat is on the bottom side of the block.



figure 67



figure 66 | cleat, vang tang

4. Take one end of the vang line and tie a bowline to the becket on the small vang block on the boom (figure 67).

5. Lead the line to the forward vang block and through the upper sheave of the large vang block on the mast (figure 68).



figure 67

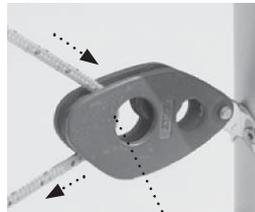


figure 68 | upper sheave

6. Lead the line back up and around the small vang block on the boom and back down to the large mast vang block (figure 69).

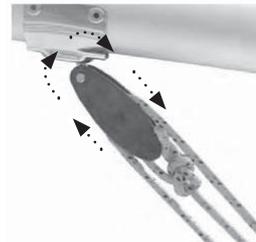


figure 69



figure 70

7. Lead the line around the inner block and down through the teeth of the cleat located on the underside of the block (figure 70). Tie off the free end of the line with a bowline (figure 71).



figure 71



complete vang

Rigging the Vang: Laser Race Models

1. Check the items in the pack and lay them on the deck (figure 72).

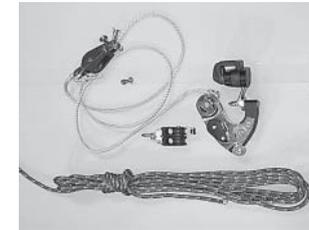


figure 72



figure 73

2. Fit the bottom vang fitting onto the lower mast vang plate. You will need to use a screwdriver and pliers (figure 73).

3. Take the grey rope (Spec 12) and dead end one end to the top single pulley block (figure 74). Put block into boom vang fitting (figure 75).



figure 74



figure 75



figure 76

4. Take the other end of the grey line and thread it through the middle pulley of the bottom vang, from top to bottom (figure 76).

5. Then take it through the top block, from bottom to top (figure 77). Attach the end of the grey line to the shackle of the double pulley block using the dead end method (figure 78).



figure 77



figure 78

6. Take the blue line (5 mm Excel Racing) and dead end one end to the bottom of the double block (figure 79). With the other end, thread it through the starboard side pulley block on the bottom vang fitting from top to bottom (figure 80). Then thread it through the double pulley block on the starboard side, from bottom to top (figure 81).

Note: Starboard side is the righthand side of the boat when facing towards the bow, i.e. front of the boat.



figure 79

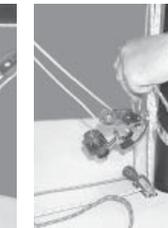


figure 80



figure 81

7. Take the rope to the bottom vang fitting and thread it through the port side pulley block from top to bottom (figure 82). Take it back up to the double pulley block and thread it through the port side pulley, from bottom to top (figure 83).



figure 82

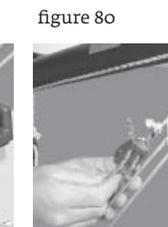


figure 83

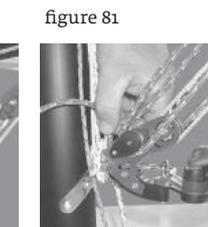


figure 84

8. Now take the rope down to the bottom vang fitting, thread it through the last central pulley, remove from top to bottom and pass it through the metal eye (figure 84).

9. Lastly pass the rope through the vang cleat and make a rope handle near the cleat. Leave a long tail on the rope (figure 85).



figure 85



figure 86

10. Dead end the end of the rope on the centerboard as shown. This will allow you to easily grab hold of the vang rope while sailing (figure 86).

11. Rigging the Cunningham: Laser Standard Models

1. Locate the cunningham line from the delivery kit.
2. Tie a bowline around the vang tang (figure 87).
3. Lead the line up through the cunningham grommet in the sail (figure 88) and back down to the bullseye fairlead on the deck (figure 89).
4. Lead the line through the clam cleat and tie a bowline in the tail (figure 90).



figure 87 | vang tang



figure 88 | grommet

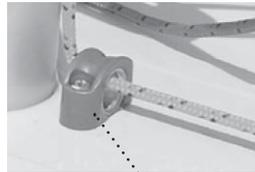


figure 89 | bullseye fairlead



figure 90



complete cunningham

Rigging the Cunningham: Laser Race Models

1. Check the items in the pack and lay them on the deck (figure 91).
2. Dead eye the grey line (Spec 12) onto a pulley block (figure 92).
3. Dead end the yellow line onto the other pulley block (figure 93).
4. Take the grey line through the cunningham cringle eye on the sail and take the rope down to the kicker mast fitting and tie a knot around it. Adjust the line so that the pulley block is as close to the cunningham eye as possible (figure 94).
5. Take the end of the yellow line through the pulley block which is attached to the grey line, as shown and pull it through until both blocks sit next to each other (figure 95 & 96).
6. Take the yellow line down to the kicker mast fitting and tie a knot around it. Make sure that the two blocks are still sitting next to each other (figure 98).
7. Pass the end of the yellow line through the remaining pulley block by the cunningham eye on the sail (figure 98 & 99).
8. Now take it down to the deck fitting and pass it through the deck pulley from front to back (figure 100).
9. Finally, take the end of the yellow line through the deck cleat and make a line handle (figure 101).



figure 91



figure 92



figure 93



figure 94



figure 95



figure 96



figure 97



figure 98



figure 99



figure 100



figure 101

12. Mast Retaining Line Standard and Race Models

1. Tie the two white bobbles to the red 4 mm line, one to each end (thread the bobble on and tie an overhand knot to secure it). Make a bight (loop) in the rope with the large bobble on the short side (figure 102).



figure 102

2. Pass the bight of rope around the mast clockwise, standing on the port side of the boat. Pass both the long (small bobble) and short (large bobble) through the eye of the bight (figure 103)... and pull tight so the bight of rope pulls tight on the large bobble (figure 104).

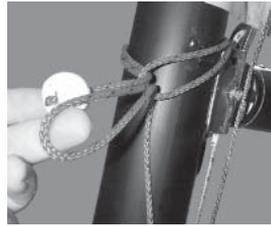


figure 103

3. Now taking the long end of the rope (with the small bobble), pass a loop of rope through the port eye of the block plate. Pass the small bobble through this loop and pull tight (figure 105 & 106).

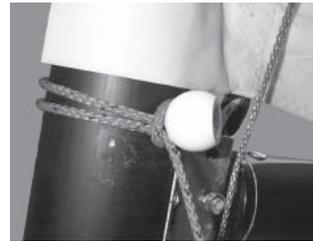


figure 104

4. When rigged, the retaining line will look like this, the mid-point of the line will sit approximately 17 cm from the lower mast (figure 107).



figure 105



figure 106



figure 107

13. Daggerboard Retainer Standard Model

1. Retrieve the daggerboard retainer shock cord from the delivery kit line bag. On the ends of the shock cord there will be two brummel hooks (figure 71).



figure 71



figure 72

2. Take one end of the daggerboard retainer and fold it a third of the way down the total length of the line (figure 72).



figure 73



figure 74

3. At the fold in the line, insert the two pieces of shock cord through the hole in the top of the daggerboard (figure 73).

4. Take the free ends of the shock cord and put them through the shock cord loop. Pull until tight around the edge of the board (figure 74).

5. When you are ready to launch, place the daggerboard in the trunk with the shock cord facing towards the bow. Take one end of the daggerboard retaining line around the starboard side of the mast and through the bow handle. Take the other end of the line around the port side and connect the two brummel hooks.

14. Rigging the Rudder Standard and Race Models

1. Locate the tiller with extension and rudder from the delivery kit.



figure 76 | rudder downhaul line

2. Take the tiller with extension and slide the tiller into the head of the rudder. Make sure that the rudder downhaul line is threaded up through the pintles (figure 76).

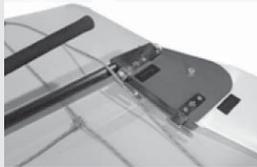


figure 77

3. Align the hole in the top of the tiller with that in the rudder head and insert the rudder retaining pin (figure 77). It is suggested to tape over the retaining pin to prevent the mainsheet from catching on it.

Attaching the Rudder

When rigging the rudder it is important to place the tiller and extension underneath the traveler line.



Allow plenty of slack in the traveler line before sliding the entire tiller and extension under only the traveler line that is connected between the two fairleads. Slide the rudder head back and insert the pintles of the rudderhead into place. Insert the safety ring into the bottom of the pintle. Tighten the traveler line so that it is taught but still allows the traveler block to move freely across the traveler, clearing the tiller.



Taping the Traveler Blocks

It is recommended that you tape the traveler block brummels so that they do not become twisted or disconnected.



4. Slide the tiller with extension under the traveler line. Align the pintles over the gudgeons and press down to secure (Figure 78). Adjust the spring clip once the rudder is on to secure in place with the safety clip and ring. To release press on the rudder lift stop and lift the rudder head straight up.



figure 78

5. The rudder downhaul line locks the rudder in the down position. Before launching be sure that the line is loose so that the rudder can remain in the upright position. When you are ready to sail, pull on the rudder downhaul and the rudder blade will lower into the water. Tie off the line to the cleat on the tiller while sailing (figure 79).



figure 79

15. Mainsheet Standard and Race Models

1. Locate the mainsheet and large traveler block from the delivery kit. At the stern of the boat attach the large traveler block to the small traveler block by joining the hooks (figure 80).



figure 80



figure 81

2. Take the mainsheet through the becket of the boom end block and tie a stopper knot (figure 81). Lead the line down through the large traveler block and back through the boom end block (figure 82).



figure 82

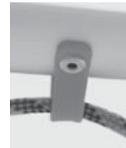


figure 83

Note: The use of a stopper knot here is so that maximum mainsheet tension may be achieved.

3. Continue the line forward through the boom bail (Figure 83), through the forward boom block (Figure 84) and down to the ratchet block. Lead the line through the ratchet block making sure you hear a ratcheting noise when trimming in the sail. Tie a stopper knot in the tail end of the line.



figure 84

Note: Mainsheet block will differ in appearance depending on whether you have a Laser Standard Model or Laser Race Model.



laser standard block

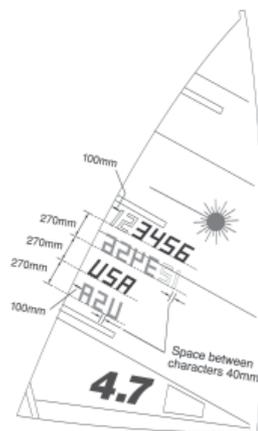
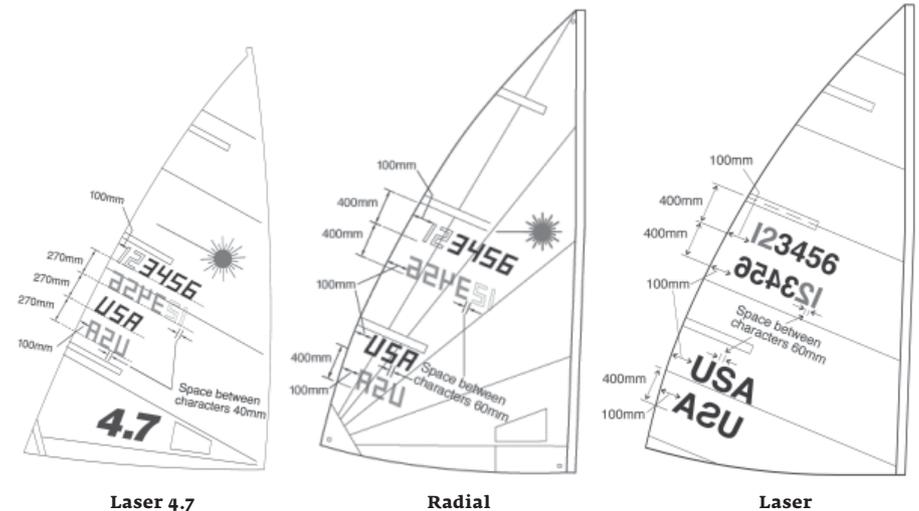


laser race block

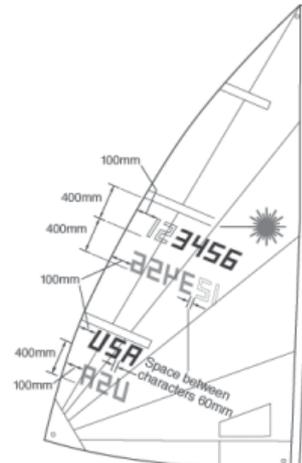
Option: LaserPerformance has teamed up with top parts suppliers to offer the following new and exciting aftermarket items for your Laser, Laser Radial or Laser 4.7: FRP blades, Laser Blocks and Friction Pad. You can get these items from LaserPerformance or your local dealer.

16. Sail Number Application

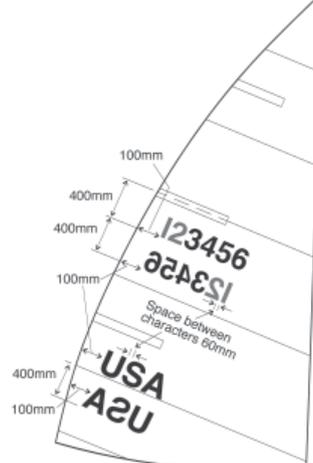
Provided in the delivery kit are 4 red and 8 blue or black sail numbers. In order to participate in Laser regattas you will need to apply the numbers to your sail for easy identification. The sail plaque affixed to the cockpit of your boat indicates your sail number.



Laser 4.7



Radial



Laser

Sail Care

Flaking or rolling your sail is highly recommended. Crumpling a sail will crack the finish of the material which quickly reduces the life of the sail (Figure 85).

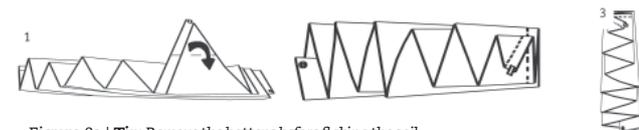


Figure 85 | **Tip:** Remove the battens before flaking the sail.

17. Installation of Optional Mainsheet Side Cleats

These cleats come with your boat as part of your parts bag. We don't install them at the factory because not everyone likes to sail with them.

1. Position the side cleat so that the center of the jaws are in line with the end of the grabrail and the screw holes are on the edge of the non-skid deck. (figure 84).
2. Spot mark the holes with a 2.5mm drill using the cleat as a guide. Remove cleat (figure 85).
3. Drill screw holes with a 2.5mm drill (figure 86).
4. Apply silicone sealant or sikka flex to the holes to avoid leaking (figure 87).
5. Screw the cleat to the deck so that the jaws open outboard. Screws = 4.2mm dia. x 38mm (figure 88).
6. Check that the jaws open and close easily. Over tightening can cause the cleat jaws to jam.



figure 84



figure 85



figure 86



figure 87



figure 88



SEITECH dollies are the easy-to-use, lightweight, small boat transportation solution. The Laser dolly has been designed specifically to fit and support the shape of the hull. Special features of the Laser dolly include a rounded bow support for secure transportation and gunwale supports for proper storage.

SEITECH dollies allow you to spend less time getting your boat to and from the water and more time on the water.

shop.laserperformance.com

Care, Maintenance and Service of your LaserPerformance Product

Before rigging read and familiarize yourself with the rigging manual. Failure to adhere to these guidelines could invalidate your warranty.

Maintenance

- 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, including winch gear.
- 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 clevis rings and tape up to stop snagging sails, ropes and clothing and to prevent them from coming undone.
- When refastening screws do not over tighten as this may strip the thread and do not reuse Nyloc nuts more than three times.
- Damaged or worn parts should be replaced.
- Sails should be thoroughly washed down with fresh water, dried and stored in a dry place.

Trailers and Trolleys/Dollies

- It is highly recommended that a trolley/dolly is used to launch and recover your boat. Dragging your hull up onto a beach or slip way will wear away the gel coat or polyethylene and damage the boat. Also, the hull should not be left on a pebble beach as the hull skin could be dented.
- Trailers should be rinsed with fresh water and checked at regular intervals. It is recommended that trailers be serviced annually. The trailer and road base should never be immersed in water.
- Trailers and trolleys supplied by LaserPerformance are designed to transport the hull in the best possible manner to avoid damaging the hull. For instance LaserPerformance does not recommend support hulls on rollers except on the keel line and only where there is a reinforced keelson. We also recommend gunwale hung trolleys for our smaller products. Hulls supported by a trolley bunk or wide strap must have the ability to drain water away from the hull. Trolley bunks padded with carpet or foam can cause blistering in the gelcoat and changes to the hull color. Please do not transport your LaserPerformance product on a trailer or trolley that has not been specifically designed for the product. Hulls damaged through using an incorrectly designed or wrongly set up trailer or trolley are not covered under warranty.
- When securing your boat to a trailer for transport be very careful that ratchet straps and ropes are not over tightened and that there is sufficient padding under the strap or rope to prevent the hull/deck from being damaged through abrasion or pressure.
- Top covers must not be allowed to "flap" when driving at speed. This can abrade the surface of the hull and damage it. It is recommended if you are towing and plan to use your top cover that an under cover is fitted first to prevent cover flap damage to the top sides of the hull.
- Repairs to the polyethylene or GRP hulls should be undertaken by persons with the relevant equipment and skills. Contact LaserPerformance for advice.

Storage

- Your boat should always be tied down securely to the ground when not in use.
- UV light will cause fading to some components and fittings. A cover is recommended to reduce the UV degradation.
- Do not leave the rig under tension when not sailing or during storage.
- Care must be taken to support the hull adequately if storing on racking or similar. Any sustained point loading could permanently dent or distort the hull.
- Under covers for LaserPerformance products should be produced from a breathable or semi breathable fabric to allow moisture to evaporate away from the hull. This is essential to prevent damage to the hull skin. Also, the hull should never be left in the under cover wet or damp. A combination of moisture and heat over an extended period can also damage the hull. The under cover is designed to protect the hull when being transported and should be removed when the hull is being stored. Typical damage includes small bubbles or blisters, excessive print through of glass reinforcement, foam or wood and color change.
- Rudders and centerboards must never be stored wet in carry/combo bags. This can cause blistering, print through and warpage.
- All our GRP products are designed to be dry sailed. In other words stored on dry land. If you intend to leave your boat on a mooring for any length of time it is essential that you apply an osmosis barrier coat. LaserPerformance can recommend a suitable product.

On Water Towing

- Towing your LaserPerformance product at high speed (10 - 20 knots) behind a rib or power boat can seriously damage the hull. Boats damaged in this manner are not covered by the warranty. LaserPerformance recommends a maximum towing speed of 6 knots.



LaserPerformance NORTH AMERICA

300 Highpoint Avenue
Portsmouth, Rhode Island 02871
t +1 800 966 SAIL
f +1 401 683 0990

LaserPerformance EUROPE

Station Works, Long Buckby
Northamptonshire NN6 7PF
United Kingdom
t +44 (0) 1327 841600
f +44 (0) 1327 841601

LaserPerformance ASIA

Room 3415
China Merchants Tower
Shun Tak Centre
No. 168-200 Connaught Road Central
Hong Kong
t +852 2902 2818
f +852 2587 7868

LaserPerformance AUSTRALIA

t +61 (0) 3 9016 4151

LaserPerformance MIDDLE EAST

T5 Middle East LLC
Dubai Investment Park
PO Box 38442
Dubai, UAE
t +971 (4) 885 7601

LASERPERFORMANCE.COM

All rights reserved. ©2010 LaserPerformance.
LaserPerformance and associated logos are
trademarks. Laser, SB3, Sunfish, and Dart
are trademarks used under license.
LaserPerformance reserves the right to make
design and/or specification changes to any
of their products as part of their continuous
development program.