

PICO

Rigging Manual

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1. Glossary

Aft: Rearward

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

Boom: Spar at the bottom of the mainsail

Bow: Front of the boat

Burgee: Wind direction indicator (usually a small flag)

Daggerboard: A vertical sliding board to prevent sideways drift

Cleat: A fitting used for holding /securing ropes

Fairlead: A fitting that leads line in the most efficient direction for operation

Foot: Bottom edge of the sail

Forward: Towards the bow of a boat

Gooseneck: A hinge fitting connecting the boom to the mast.

Gunwhale: The outermost edge of the craft

Head: Top corner of sail

Kicking Strap: A line or series of lines between the base of the mast and the underside of the boom to control sail twist and boom positioning.

Jib: Front sail

Leech: Rear edge of the sail

Leeward: The side of the boat on which the main sail is set when sailing

Luff: Forward edge of the sail

Mast: Main vertical spar supporting the rig/sails

Mainsheet: The rope controlling the position of the mainsail

Mast Step: Integral tube where the mast heel/foot of the mast is located

Port: The left hand side of the craft looking forward

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

Reefing: The ability to shorten sail appropriate to the degree of wind strength

Shackle: A 'U'-shaped piece of metal secured with a pin, used for securing halyard to sails

Starboard: The right side of a craft looking forward

Stern: Back of the boat

Tack: Forward lower corner of sail

Tiller: A length of tube, usually wood, aluminum or carbon fiber, which fits into the rudder head to allow steering

Tiller Extension: A length of tube, usually wood, aluminum or carbon fiber, connected to the tiller by a universal joint that allows steering while leaning out

Transom: Flat area across the back of the boat to which the rudder is hung

Vang: Purchase system for tightening the rear edge/leach of the sail

Windward: the side of the boat opposite to which the mainsail is set when sailing

Pico Rigging Instructions

Your Pico comes in the following main component parts:

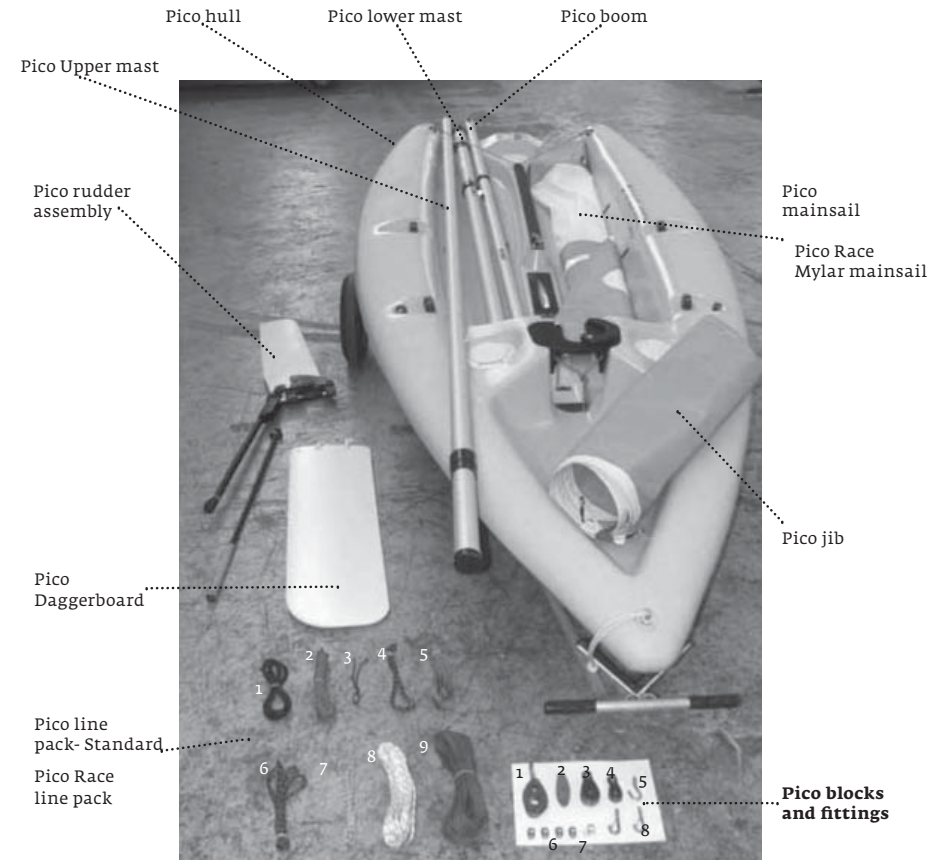
- Standard fitted hull
- Standard sail kit
- Mast assembly - upper and lower mast and boom
- Rudder and daggerboard kit - Rudder assembly, tiller extension and line pack with blocks.
- Documentation pack - owners manual, sail numbers, rigging manual, CE certificate.

Race version includes:

- Race fitted hull
- Race sail kit - Mylar mainsail comes with battens and jib
- Race pack - Harken vang assembly, mainsheet block and "stand-up" boot
- Mast assembly - upper and lower mast and boom
- Rudder and daggerboard kit - rudder assembly, tiller extension and line pack with blocks.
- Documentation pack - owners manual, sail numbers, rigging manual, CE certificate.

2.Unpack your Pico

Unpack Pico and check that you have all the components.



Pico Rope Pack

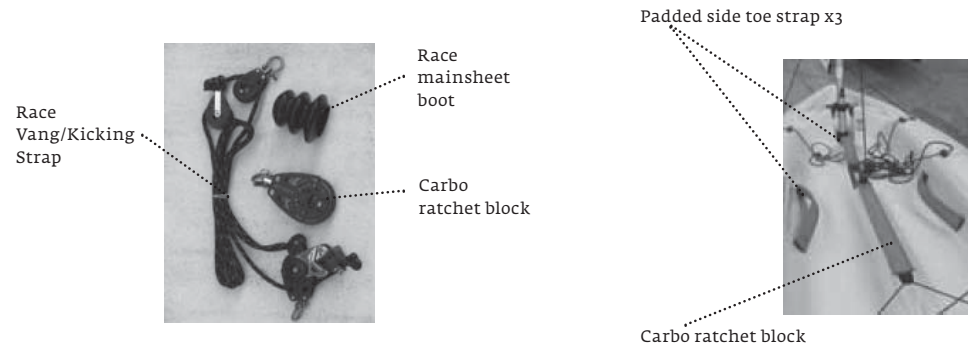
1. Centerboard and clew outhaul shockcord
2. Vang/kicking strap rope
3. Clew tie down
4. Traveler
5. Jib halyard
6. Clew outhaul
7. Cunningham
8. Jib sheet
9. Mainsheet

Pico Blocks and Fittings

1. Kicking strap lower block inc. hook x1
2. Upper kicking strap block x1
3. Single mainsheet block inc. clip x1
4. Traveler block inc. clip
5. Twisted hook for clew outhaul. x1
6. Sister clips x4
7. Rigging link x1
8. Hook Pico for jib tack x1

3. Pico Race Pack

Pico Race pack - replaces Standard kicking strap and mainsheet block



- Pico Race sail kit with Mylar mainsail and Jib replaces standard sails
- Pico Race rudder assembly has a carbon tiller extension that replaces the aluminium extension on the standard boat.
- Pico Race rope pack replaces the standard rope pack.

4. Checking the hull

Check that the 3 hatches and transom drain bung are fully screwed into the hull. It is advisable to apply a small amount of Vaseline or other nonstaining lubricant to the threads on a regular basis. (figure 1a) (figure 1b)



figure 1a



figure 1b

5. Rigging the Mast and sail

1. Insert the upper mast into the lower mast, making sure that the red arrows align. (figure 2a) (figure 2b)

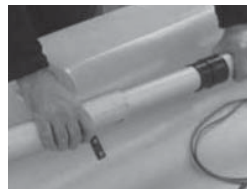


figure 2a

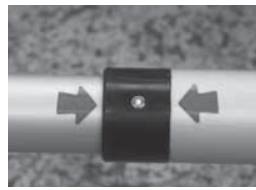


figure 2b

2. Thread the jib halyard through the halyard plate eye on the upper mast. Take one end of the halyard and pass it through the halyard cleat on the port side of the lower mast and tie the 2 free ends together. (figure 3a) (figure 3b)



figure 3a



figure 3b

3. Unfold the mainsail (try to keep it clean and dry) and sleeve it over the top of the mast and jib halyard, making sure that the mast stays together. Slide the sail down over the mast, with the cunningham D-ring on the sail facing forward in line with the cleat at the center and bottom of the mast. (figure 4)



figure 4

Race Mainsail

Insert the 3 battens into the batten pockets on the mainsail and ensure that the end of the batten engages into the fold in the outer end of the pocket. (figure 5a) (figure 5b)



figure 5a



figure 5b

4. Untie the ends of the jib halyard and tie a figure 8 knot in the part that goes through the cleat. Pull the noncleated rope end out from under the sail at the halyard exit point in the sail. Rethread the jib halyard, throw the eye and back down outside the sail. Tie the free end of the halyard to the end that has passed through the cleat. (figure 6)



figure 6

5. From your rope kit, find the rope marked cunningham. Tie a bowline loop onto the sail D-ring, thread around the cleat bridge, back up to the D-ring and down to the cleat. Tie a bowline loop in the end of the rope and add a small amount of tension. (figure 7)



figure 7

6. Raising the Mast

1. With the boat turned into the wind, remove the mast gate pin and open the mast gate. Lift mast into the boat, dropping the bottom of the mast into the mast step. Raise the mast into an upright position and the mast gate will close. (figure 8)

Warning: Do not let go of the mast at this stage or it may fall backwards.

2. Insert the mast gate pin into the mast gate claw. Remember to move the sliding tang to 90 degrees to lock the pin in position. (figure 9)

7. Rigging the boom

1. Clip the boom onto the mast above the black collar. This will require a firm push. (figure 10)

Warning: In windy or bad weather the boom can be rigged before raising the mast and without clipping it onto the mast.

2. At the back of the boom, use a small reef knot to tie on the clew hook with the clew tie down rope. (figure 11)

3. Tie the clew outhaul line to the small fairlead on the outboard end of the boom with a bowline loop. Run through the eye of the clew hook, back round the fairlead and up the cleat on the boom. (figure 12a) (figure 12b)

4. Take the tail end of the clew outhaul line and pass it through the front fairlead mounted on the boom. Thread through the small englefield clip and tie off with a figure 8 knot. (figure 13)

5. At the outer end take the long piece of shockcord, pass it through the eye of the hook and tie a large knot or bowline. (figure 14)

6. At the other end, pass through another small englefield clip and tie a figure of 8 knot in the end. Now clip the two clips together. This is the tidy up line for your clew outhaul. (figure 15)

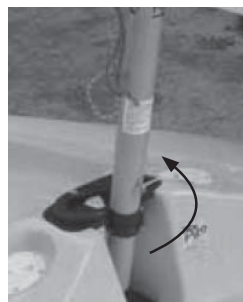


figure 8



figure 9



figure 10



figure 11



figure 12a



figure 12b



figure 13



figure 14



figure 15

7. Now take the sail and with the boat pointing into the wind, locate the clew hook into the eyelet on the corner of the sail. Tension the clew out haul and secure in the cleat on the boom. (figure 16a) (figure 16b)

8. Rigging the Vang

1. Take the large kicker block with the snap hook and clip it to the plate on the mast, just above the mast gate. (figure 17)

2. Take the small kicker block and fit it to the plate on the boom (near the front end), using the small pin and ring. (figure 18)

3. Tie one end of the kicking strap line to the becket on the small block and thread the line as shown in the photograph. (figure 19)

Note: Depending on the model you have purchased, your mast may have only one cleat.



figure 16a

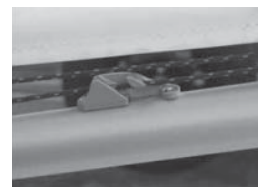


figure 16b



figure 17



figure 18



figure 19

Race Kicking Vang

If you have purchased the Pico Race, the vang/kicking strap should be assembled as follows:

1. Take the large double vang/kicker block with cleat and using the integral snap hook, clip it to the plate positioned on the aft face of the mast, just above the mast gate.

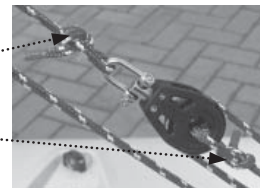
2. Take the short (primary) vang/kicker control line and attach one end to the becket/fiddle on the large double vang/kicker block with cleat using a bowline.

3. Take one of the smaller single vang/kicker blocks and using the shackle provided attach it to the plate positioned on the lower surface of the boom. (Near the front end).

4. Pass the loose end of the short (primary) vang/kicker control line and pass it around the aforementioned, small single vang/kicker block attached to the lower surface of the boom before attaching it to the shackle on the second (remaining) small single vang/kicker block using a bowline.

5. Take the longer (secondary) vang/kicker control line and attach one end directly through the center of the second smaller single vang/kicker block using a bowline.

6. Pass the remaining loose end around the remaining purchase system cascade blocks as shown before passing it through the cam cleat on the large double vang/kicker block assembly and tying a 30 cm diameter loop in its end.



The angle of the cleat should be adjusted to a “fully up” position. This can be changed by unscrewing the center screw and reassembling to the preferred angle. (figure 20)

9. Sails

1. Attach the traveler system. Take the traveler line, tie a knot in one end, pass it through the small traveler block and the fairlead on the opposite side. Tie a knot in the end of the rope. (figure 21)
2. Join the large traveler block to the small block on the traveler with the sister clips. Take the mainsheet, starting at the back of the boom, you will find a block with a becket at the bottom. Pass the end of the mainsheet through the back end of the block and tie a figure 8 knot (figure 22). Then thread the mainsheet down to the large traveler block and thread bow to stern (figure 23), back up to the boom end block and along to the webbing loop. Pass the mainsheet through the loop, along to the middle block and down to the ratchet block in the middle of the boat (figure 24) Ensure that the rope goes through the block in the same direction as indicated by the arrow on the side of the block (figure 25). Tie a figure 8 knot in the end of the mainsheet (figure 26) on the beam port/left hand side.



figure 20



figure 21

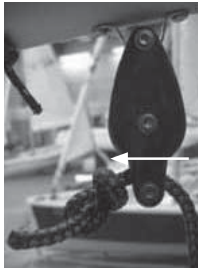


figure 22



figure 23

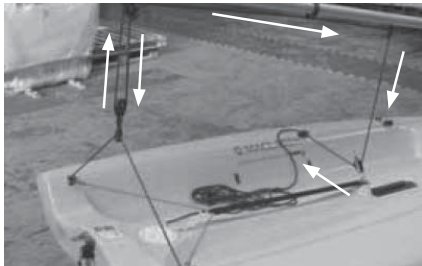


figure 24



figure 25



figure 26

10. Fitting Race hiking straps and mainsheet block and “stand up” boot

Center toe strap

Remove standard ratchet block and unscrew the mainsheet block attachment plate. Remove the standard toe strap and replace with the padded race strap. Before rescrewing the mainsheet plate and toe strap, apply silicone sealant to the screw holes to prevent potential leaking.

Warning: Please take care not to over-tighten the screws. Screws should be “Finger tight”. Over-tightening can strip the thread in the plastic. (figure 27)



figure 27

Race “stand-up” mainsheet block boot

1. Place the stand up over the stand up attachment point.
2. Remove the shackle from the base of the race mainsheet block and shackle to the mainsheet attachment point. To get access to the attachment point you will have to compress the mainsheet boot. (figure 28)
3. Thread the mainsheet through the ratchet block and tie a figure 8 knot. You will find a small black slide on the side of the ratchet block. This turns the ratchet on and off. Ensure that the ratchet “click-clicks” when the mainsheet is pulled out to the cleats.



figure 28



figure 29



figure 30

Race Padded side and front Hiking Straps.

1. Unscrew plastic toe strap plates on the insides and in front of the daggerboard case. (figure 29)

2. Secure hiking straps. Before rescrewing the hiking straps apply silicone sealant to the screw holes to avoid potential leaking.

Warning: Please take care not to over-tighten the screws. Screws should be “finger tight.” Over-tightening can strip the thread in the plastic.

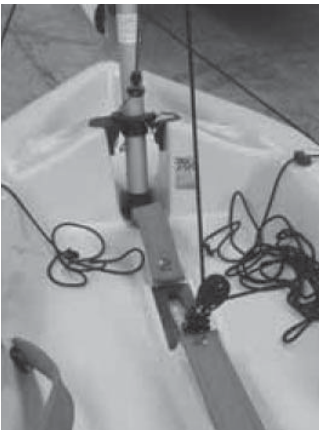


figure 31

11. Fitting the rudder Assembly

Fit the rudder assembly on the transom rudder fitting.

Warning: The split ring must be used to secure the rudder assembly to prevent it from falling off during a capsize. Also, the rudder retaining clip should be adjusted so that the stock cannot be removed without depressing the clip by hand. (figure 32a)

Slide the tiller extension universal joint into the housing on the end of the tiller. Secure the captive over plate on top to the universal joint housing. (figure 33a) (figure 33b)

Split ring

Rudder retaining clip

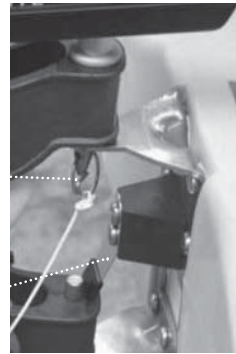


figure 32a



figure 33a



figure 33b

Operating instructions for Pico rudder assembly

The Pico rudder assembly has a simple downhaul system with a quick release cleat that will release if you run aground. To lower the rudder, slacken the wing nut, pull the down haul line until the rudder blade is fully down, position the down haul line in the cleat and finally retighten the wing nut. (figure 34)

When launching and recovering, the rudder blade can be lifted above the transom line and secured in position by lifting the blade by hand and tightening the wing nut. (figure 35)

When adjusting the kick-up cleat mechanism on your Pico rudder, we strongly recommend that you set the cam at the minimum setting and progressively increase it to suit your experience and style of sailing. If racing and sailing in strong winds you will want to set the kick-up load higher. If recreational sailing off the beach you will want to set the kick-up much lower.

Warning: Running aground with the kick-up set incorrectly could damage your rudder and the hull.

The auto-release cleat provides the neatest and best solution to the problem of how to lock-down a rudder blade yet allow it to flip-up if it hits the bottom or a solid obstacle in the water. The cleat holds ropes securely, yet will release them immediately when the cleat is overloaded. Once tripped, it can be easily reset in seconds by just pushing the cleat back down into its base. (figure 36)

Warning: The kick up system is a safety feature in case you run aground accidentally. Under normal circumstances the rudder should be lifted before approaching the beach or slipway.

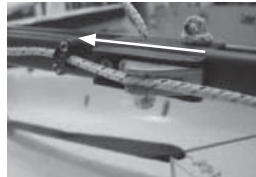


figure 34

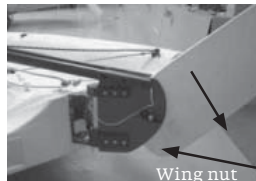


figure 35



figure 36

The cleat is also fitted with an adjustable cam so that the release tension can be set to suit the boat and local conditions. The cam is adjusted until the rudder blade is held down reliably under maximum sailing conditions. The cleat will then be set so that the least strain is put on the rudder if it hits an obstacle.

Setting the release load

1. Test release load with "cam" at minimum setting.
2. To increase load use a screwdriver to rotate "cam" towards maximum. (figure 37)

Warning: To avoid damaging equipment, make small adjustments and test each increase. Tests show that release loads of 240 kg (530 lbs) are possible with the cam at "maximum" setting. Smaller or worn ropes release at higher loads than larger new ropes.

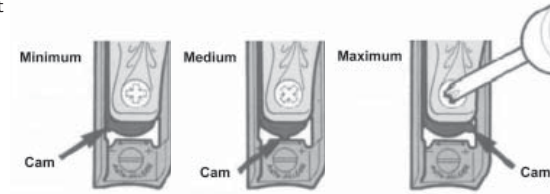


figure 37

12. Fitting the Daggerboard

Thread the daggerboard shockcord through the small hole in the top front corner of the daggerboard. Put the 2 remaining small englefield clips on either end of the shockcord and secure each end with a knot. When you put the board into its slot, you can then loop the shockcord retaining line round the base of the mast and clip it together. (figure 38)

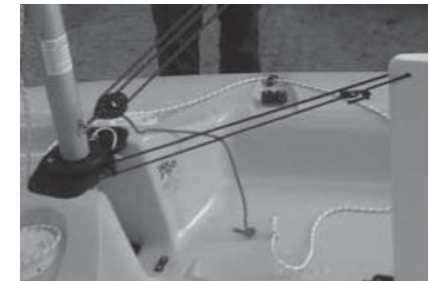


figure 38

13. Reefing your Pico

In strong winds, or if you are unsure whether you can cope with the conditions, it is always best to reef the sail down to reduce its area.

1. Drop the jib if fitted and stow the jib halyard rope tails in the pocket by the tack of the mainsail. Your Pico cannot be sailed if it is reefed with the jib up. (figure 39)



figure 39

2. Slacken the kicking strap and unclip the large kicker block from the lower mast. (figure 40)



figure 40

3. Rotate the mast in either direction by turning the mast below the gooseneck. This will roll the sail around the mast, thus reducing the sail area. This is reefing. (figure 41)



figure 41

4. Reattach the kicking strap, but leave it loose.

5. Reattach the clew outhaul and pull it tight. (figure 42)

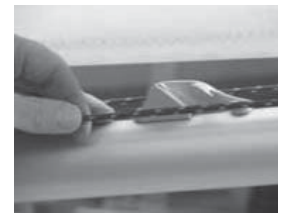


figure 42

6. Retighten the kicking strap.

14. Attaching the jib

1. Attach the hook for the jib to the tack of the jib with the rigging link and clip onto the eye bolt on the bow. (figure 43)
2. Tie the jib halyard to the top of the jib with a bow line. (figure 44)
3. Hoist the jib and cleat the halyard securely in the cleat. Then stow the free end of the halyard in the pocket on the tack of the mainsail. (figure 45a) (figure 45b)
4. Tie the jib sheet onto the jib clew by taking the jib sheet in the center and passing the loop through the clew cringle. Pass the two free ends through the loop and pull tight. Ensure that the two rope ends are the same length. (figure 46)
5. Thread the ends of the jib sheets through the fairleads and tie a figure 8 knot in each end. (figure 47)



figure 43



figure 44



figure 45a



figure 45b



figure 46



figure 47

15. Stowing your mainsail

After sailing, the mainsail can be temporarily stowed by wrapping the sail around the mast. If your Pico is not being used the sail should be stowed dry and clean in its sail bag. (figure 48)



figure 48

16. Sail Number positioning – Standard sails

If you intend to race your Pico you will have to attach your sail numbers. It is advised to apply the sail numbers in a dry, clean and wind free environment. (figure 49)

1. Lay the sail on a flat surface port side up.
2. The numbers on the starboard side are always higher than the port side.
3. Measure 25 mm above the “P” of the Pico screen print and draw the base line perpendicular to the leach and blue sail panel.
4. Measure 70 mm from the leach and draw a line parallel to the leach and perpendicular to the base line previously drawn.
5. Position the port sail numbers starting with the last digit squared to the base and leach lines.
6. The remaining numbers should be square to the previous number and 60 mm apart.

Turn the sail over and mark a line on the starboard side of the sail 100 mm above the port numbers. Starting with the first digit work from the leach line position the sail numbers 60 mm apart as above.

17. Sail Number positioning – Race Sails

If you intend to race your Pico you will have to attach your sail numbers. It is advised to apply the sail numbers in a dry, clean and wind free environment.

7. Lay the sail on a flat surface starboard side up.
8. The numbers on the starboard side are always higher than the port side.
9. Measure 60 mm below the middle batten and draw a line parallel to the batten pocket. This marks the top line for the starboard sail numbers.
10. Measure 70mm from the leach and draw a line parallel to the leach and perpendicular to the line previously drawn.
11. Position the starboard sail numbers starting with the first digit squared to the top and leach lines.
12. The remaining numbers should be square to the previous number and 60 mm apart. (figure 50)

Turn the sail over and mark a line on the port side of the sail 60 mm below the starboard numbers. Starting with the last digit work from the leach line position the sail numbers 60 mm apart as above.

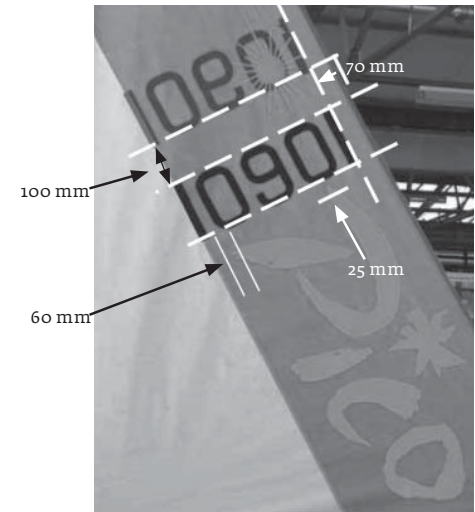


figure 49

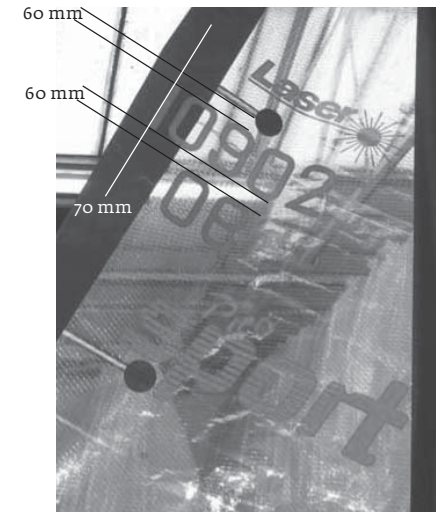


figure 50

18. Launching and Basic Safety on the Water

Before You Go Sailing:

1. Check you are wearing suitable clothing and safety equipment for the conditions and time of year.
2. Always wear a buoyancy aid or life jacket
3. Make sure a third party knows where you are sailing and how many of you are sailing.
4. Check the weather forecast
5. Check the time of high and low tides if applicable.
6. Seek advice on local conditions if sailing in a new area.
7. Always check the condition of your craft before setting off.
8. **Check for overhead cables when rigging, launching and recovering.**
9. The use of a LaserPerformance supplied Pico mast head float is highly advisable.
(This device will assist in the prevention of complete inversion in the event of capsize)

Launching

1. Raise the rig with the boat facing into the wind.
2. Launch the boat using the appropriate launching trolley/dolly.
3. Take the boat into the water with the bow facing into the wind.
4. Ensure that there is enough water to float the boat off the trolley/dolly.
5. When there is enough water below you, lower the daggerboard and rudder fully.
6. Cleat the rudder downhaul in the cleat on the tiller.
7. The rudder and the daggerboard should be raised before coming ashore.

On The Water

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

Care, Maintenance and Service of your LaserPerformance Product

Before rigging your boat 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/dollies 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 gel coat 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

- When wearing a trapeze harness, take particular care when climbing on to the centerboard and back into the boat after a capsize. The trapeze harness hook could easily damage the hull or deck.

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.

Notes

Notes



SAILMARKET, S.L.
NARCIS MONTURIOL 27
08339 VILASSAR DE DALT
BARCELONA - SPAIN

TEL 00 34 93 753 36 02
FAX 00 34 93 753 37 00

www.sailmarket.es
sailmarket@sailmarket.es

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