



RIGGING MANUAL

Pico Rigging Instructions

The Pico rigging instructions are a guide to rigging your boat. Due to production supplies certain parts may be slightly modified from those shown. 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.

Laser Centre

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

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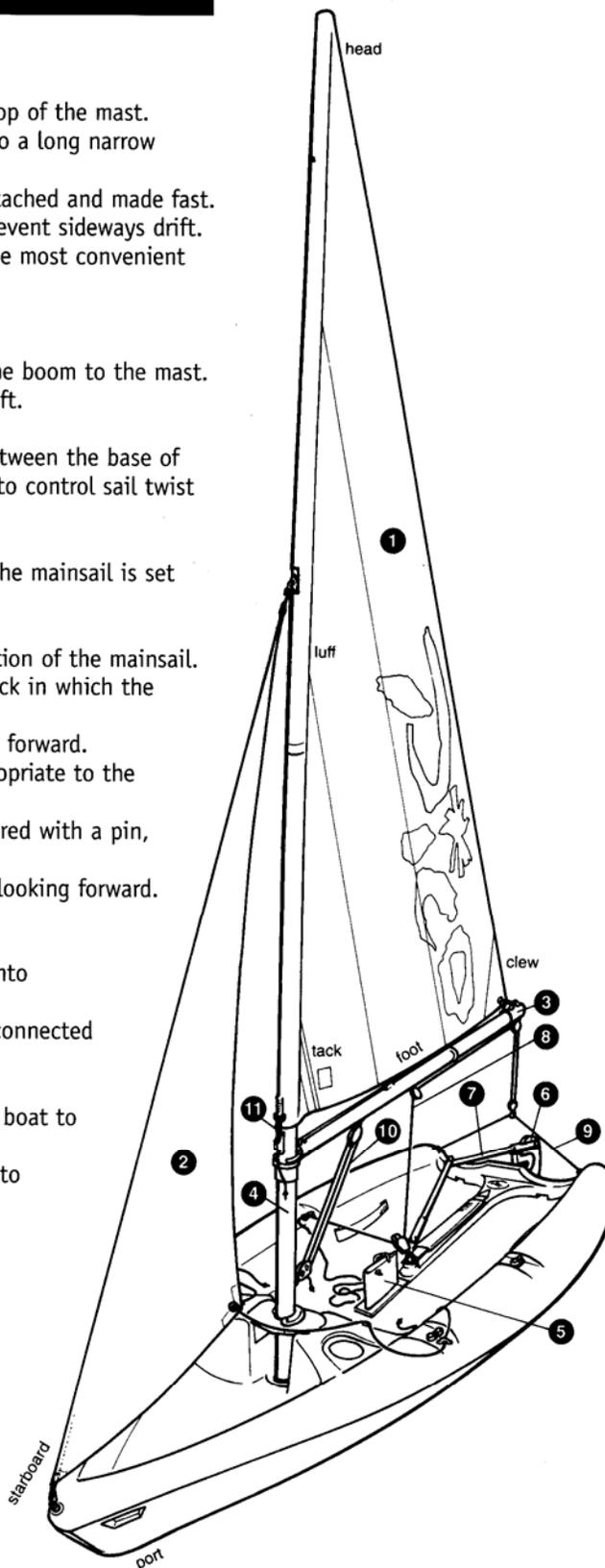
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GLOSSARY

Aft: towards the back of the boat.
Bow: the front end of the boat.
Burgee: a flag normally flown from the top of the mast.
Batten: a thin plastic strip which fits into a long narrow pocket in the leech of the sail.
Cleat: a fitting to which ropes can be attached and made fast.
Centreboard: a vertical sliding keel to prevent sideways drift.
Fairlead: a fitting that leads a rope in the most convenient direction for working.
Foot: the bottom edge of the sail.
Forward: towards the bows of a boat.
Gooseneck: a hinge fitting connecting the boom to the mast.
Gunwhale: the outermost edge of the craft.
Head: the top corner of a 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 position.
Leech: the trailing edge of a sail.
Leeward: the side of the boat on which the mainsail is set when sailing.
Luff: the front edge of a sail.
Mainsheet: the rope controlling the position of the mainsail.
Mast step: the position on the hull or deck in which the mast is located.
Port: the left hand side of a craft looking forward.
Reefing: the ability to shorten sails appropriate to the degree of wind strength.
Shackle: a 'U'-shaped piece of metal secured with a pin, used for securing halyard to sails, etc.
Starboard: the right hand side of a craft looking forward.
Stern: the aft-most area of a boat.
Tack: the lower forward corner of a sail.
Tiller: a length of aluminium which fits into the rudder head to allow steerage.
Tiller extension: a length of aluminium connected to the tiller by a universal joint which allows steerage whilst leaning out.
Transom: flat area across the back of the boat to which the rudder is hung.
Windward: the side of the boat opposite to which the mainsail is set when sailing.

- 1 Mainsail
- 2 Jib
- 3 Boom
- 4 Mast
- 5 Centreboard
- 6 Rudder
- 7 Tiller
- 8 Mainsheet
- 9 Traveller
- 10 Kicking strap
- 11 Cunningham



BASIC SAFETY AFLOAT

Before you go sailing:

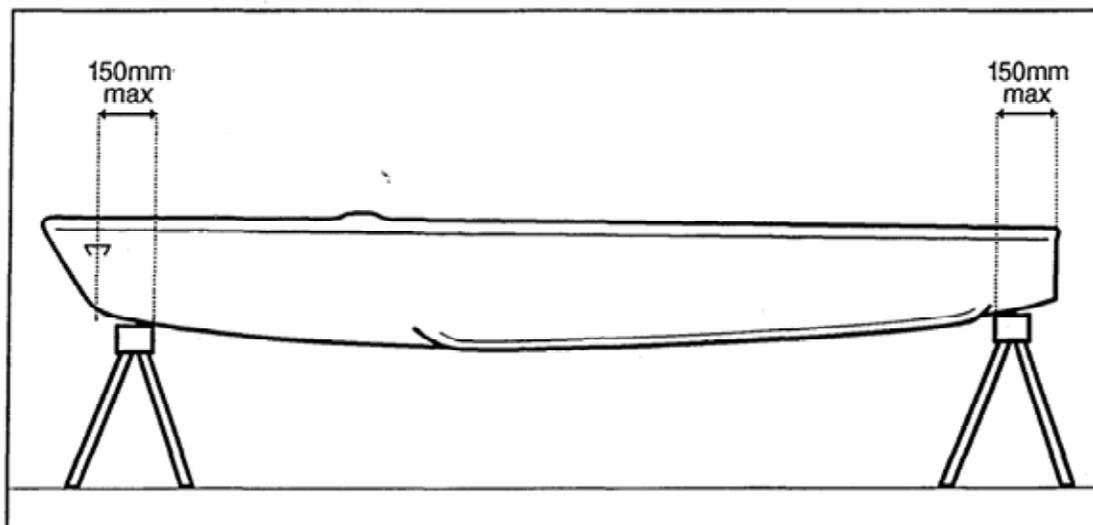
- Check you are wearing suitable clothing and safety equipment for the conditions and time of year. Always wear a buoyancy aid or life jacket.
- Make sure a third party knows where you are sailing and how many there are of you in your group.
- Check the weather forecast: radio, television or coastguards.
- Check the time of high and low tides, if applicable.
- Seek advice on local conditions if sailing in a new area.
- Check the condition of your craft.
- Check for overhead power cables when launching.

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 of your craft.

WARNING

It is best to store your Pico using a gunwhale hung trolley. If storing the hull on racks, it is best to turn the hull 'deck down'. If deck up, the hull should be supported as per the drawing below.



GENERAL MAINTENANCE AND SERVICE

- 1 Your boat should always be tied down securely to the ground fixing when not in use. Sails should be stored dry when possible.
- 2 Any excess water in the hull should be drained by the transom bung.
- 3 The keel line should be tilted towards the stern to allow the drainage of any water that may find its way into the cockpit.
- 4 Boats and rigging should be checked periodically for wear or damage.
- 5 Damaged or worn parts should be replaced using the LaserDirect part identification system.
- 6 The hull should be washed down with fresh water after sailing on the sea.
- 7 Spars and rigging should be washed thoroughly.
- 8 Sails should be thoroughly washed, dried checked and stored in a dry place.
- 9 Road trailer and launching trolley should be washed, checked and greased where necessary.

4. **Rigging your Pico**

Your Pico comes in the following main component parts:-

40001 Pico Standard Vela Grey 07 or 40003 Pico Standard Yellow 07

40010 Pico fitted hull vela grey or 40011 Pico hull fitted Yellow

40030 Pico sail kit standard Blue/White – Blue white Dacron mainsail and Jib

40060 Pico mast assembly 2007 – Upper and lower mast and boom

40100 Pico rudder and centreboard kit – Rudder assembly, tiller extension and rope pack with blocks.

40200 Pico Documentation pack – Owners manual , sail numbers, Rigging manual, CE certificate.

40002 Pico Sport Vela Grey 07 or 40004 Pico Sport Yellow 07

40010 Pico fitted hull vela grey or 40011 Pico hull fitted Yellow

40040 Pico Sport sail kit 2007 – Mylar mainsail c/w battens and black/white jib.

40060 Pico mast assembly 2007 - Upper and lower mast and boom

40101 Pico Sport rudder and centreboard kit - Rudder assembly, carbon tiller extension, padded toe straps and rope pack with blocks.

40120 Pico Sport XD pack – Harken Vang assembly, mainsheet block and “stand-up” boot.

40200 Pico Documentation pack – Owners manual , sail numbers, Rigging manual, CE certificate.

4.1 Unpack your Pico

Unpack Pico and check that you have all the components.

40010/40011 Pico hull

1301 Pico upper mast

1831 Pico Lower mast

1836 Pico Boom

1821 Pico Rudder assembly

1840RB Pico mainsail Blue/White.

1845 Pico mainsail Black Mylar

1820 Pico Centreboard

1841RB Pico jib Blue.

1841BW Pico jib black/white

1851 Pico rope pack- Standard
1851 Pico Sport rope pack

Pico blocks and fittings



Pico Rope Pack.

1. Centre board and clew outhaul shockcord.
2. Vang/kicking strap rope
3. Clew tie down
4. Traveller
5. Jib Halyard
6. Clew outhaul
7. Cunningham
8. Jib sheet
9. Mainsheet.

Pico Blocks and fittings

1. 1938 Kicking strap lower block inc. hook. X1
2. 1364 Upper kicking strap block. X1
3. 3501P Single mainsheet block inc. clip X1
4. 3502P Traveller block inc. clip
5. D92058 Twisted hook for clew outhaul. X1
6. D40028 Engle field clips X4.
7. 2136 Rigging link X1
8. 1823 Hook Pico for jib tack X1

4.2 Pico Sport Pack

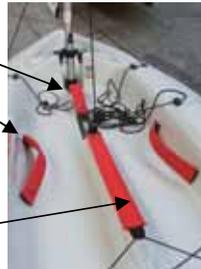
40120 Pico Sport XD pack- Replaces Standard kicking strap and mainsheet block.



Pico Sport padded toestraps

1871 Padded side toe strap x3

1872 Padded centre toe strap



40040 Pico Sport sail kit with Mylar mainsail and Black & white Jib replaces standard blue sails

40101 Pico Sport rudder assembly has a carbon tiller extension that replaces the aluminium extension on the standard boat.

1851S Pico rope pack Sport with black/red lines replaces the standard rope pack.

4.3 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 non-staining lubricant to the threads on a regular basis.



4.4 Rigging the Mast and sail

1) Insert the upper mast into the lower mast, making sure that the red arrows align.



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.



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 centre and bottom of the mast.

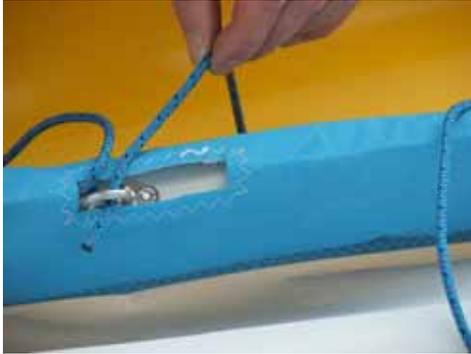


Sport Mainsail

With the Sport mainsail insert the 3 battens into the batten pockets and ensure that the end of the batten engages into the fold in the outer end of the pocket.



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



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.



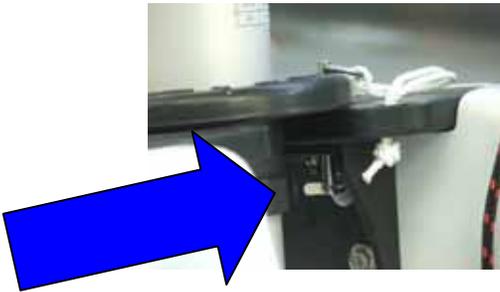
4.5 Raising the Mast

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.

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

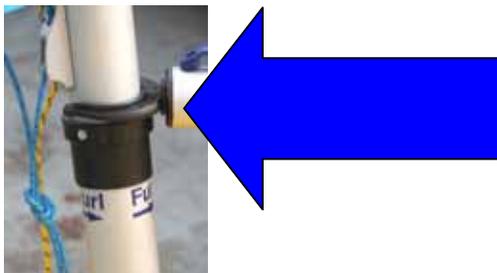


2) Insert the mast gate pin into the mast gate claw. Remember to move the sliding tang to 90 degrees to lock the pin in position.



4.6 Rigging the boom

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



Note:- 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.



3) Tie the clew outhaul line to the small fairlead on the outboard end of the boom. With a bowline loop, then run through the eye of the clew hook, back round the fairlead and up to the cleat on the boom.



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 of eight knot.



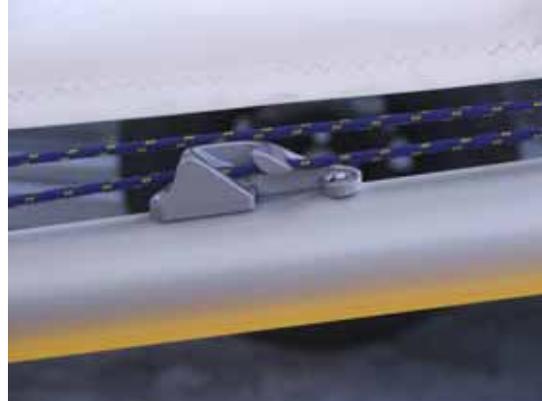
5) At the outer end take the long piece of shockcord, pass it through the eye of the hook and tie a large knot or bowline.



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



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.



4.7 Rigging the Kicker

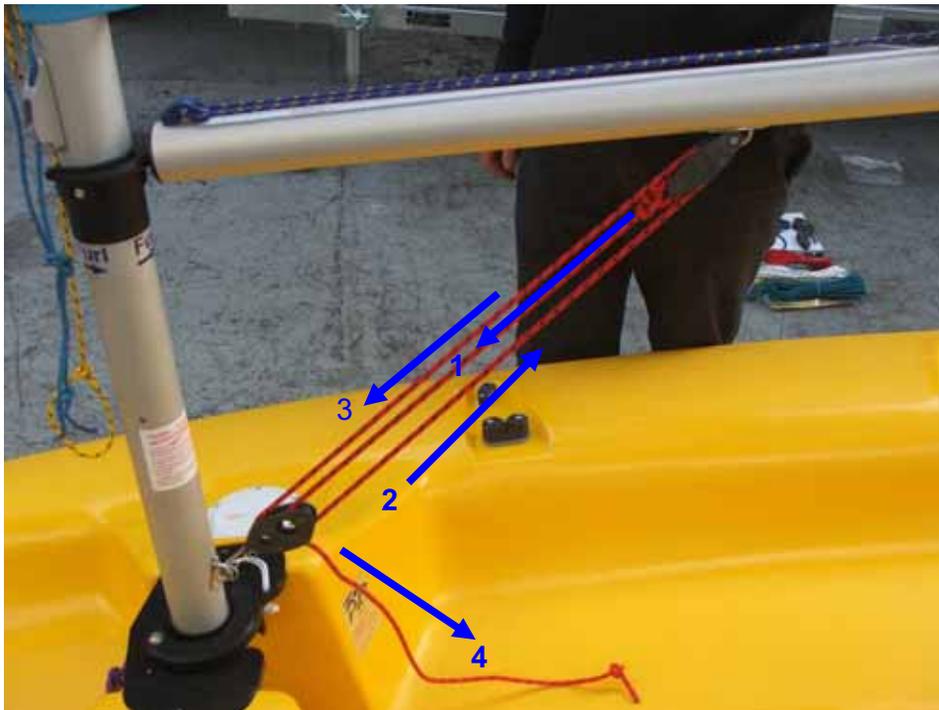
1) Take the large kicker block with the snap hook and clip it to the plate on the mast, just above the mast gate.



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.



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.



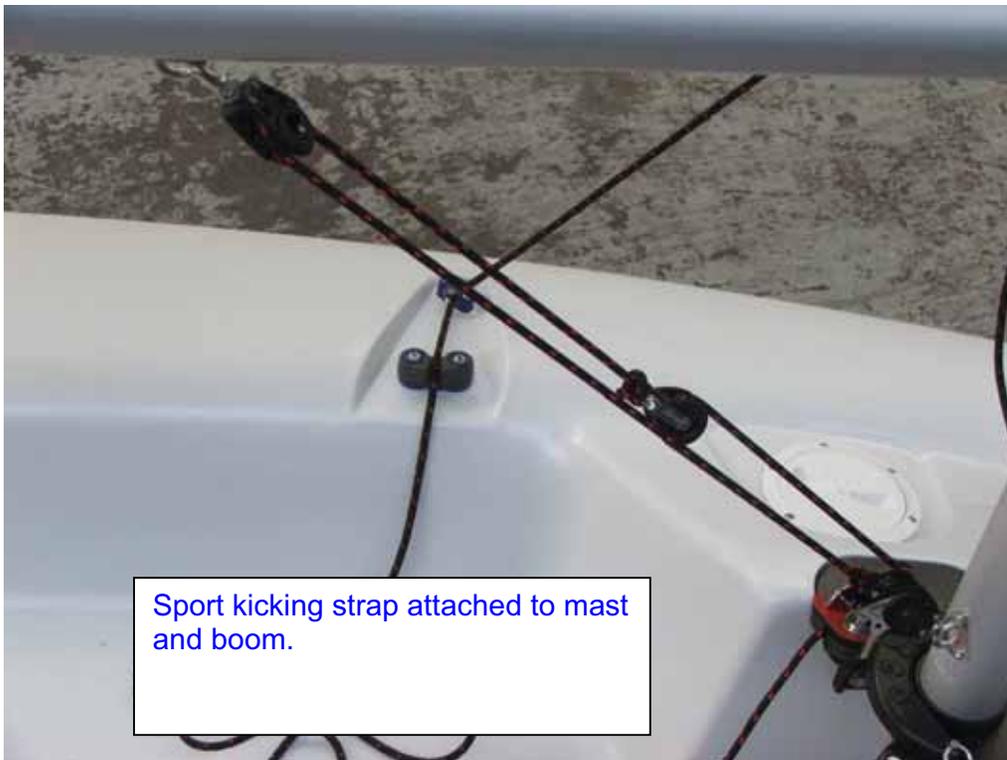
Sport Kicking strap/Vang

If you have purchased the Pico Sport then attach the complete assembly to the plate with the shackle on the block that has the cleat and the other end to the plate on the boom .

Sport kicker block with cleat attached to lower mast



Sport kicker block attached to boom



The angle of the cleat should be adjusted to a “fully up” position. This can be changed by unscrewing the centre screw and re-assembling to the preferred angle.

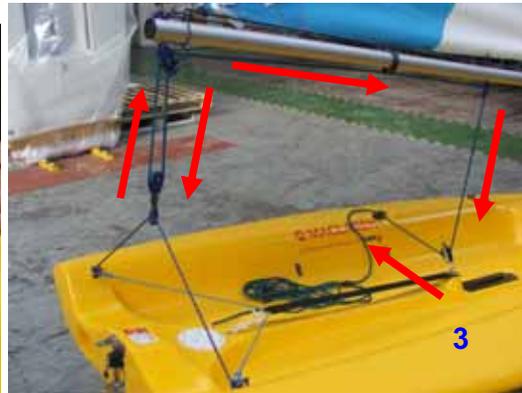
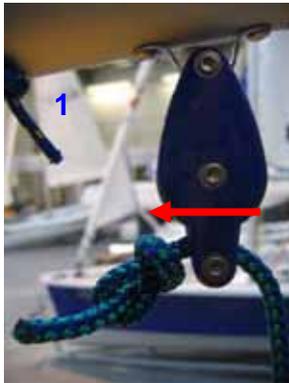


4.8 Rigging the mainsheet and traveller

1) Attach the traveller system. Take the traveller line, tie a knot in one end, pass it through the small traveller block and the fairlead on the opposite side. Tie a knot in the end of the rope.



2) Join the large traveller block to the small block on the traveller with the englefield 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 of eight knot (Photo 1). Then thread the mainsheet down to the large traveller block and thread bow to stern (Photo 2). 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 (Photo 3) Ensure that the rope goes through the block in the same direction as indicated by the arrow on the side of the block (Photo 4). Tie a figure of eight knot in the end of the mainsheet (Photo 5).



4.9 Fitting Sport Toe straps and mainsheet block and “Stand up” Boot

Centre Toe strap

Remove standard ratchet block and unscrew the mainsheet block attachment plate. Remove the standard toe strap and replace with the padded Sport strap. Before re-screwing the mainsheet plate and toe strap apply silicone sealant to the screw holes. This is 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.



Sport “stand-up” mainsheet Block boot

- 1) Place the mainsheet block stand up boot over the mainsheet block attachment point.
- 2) Remove the shackle from the base of the sport mainsheet block and shackle to the mainsheet attachment point. To get access to the attachment point you will have to compress the mainsheet boot.



- 3) Thread the mainsheet through the ratchet block and tie a figure of eight 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.

Sport Padded side and front Toe straps.

1) Unscrew plastic toe strap plates on the insides and in front of the centreboard case.

2) Secure toe straps. Before re-screwing the toe straps apply silicone sealant to the screw holes. This is to avoid potential leaking.

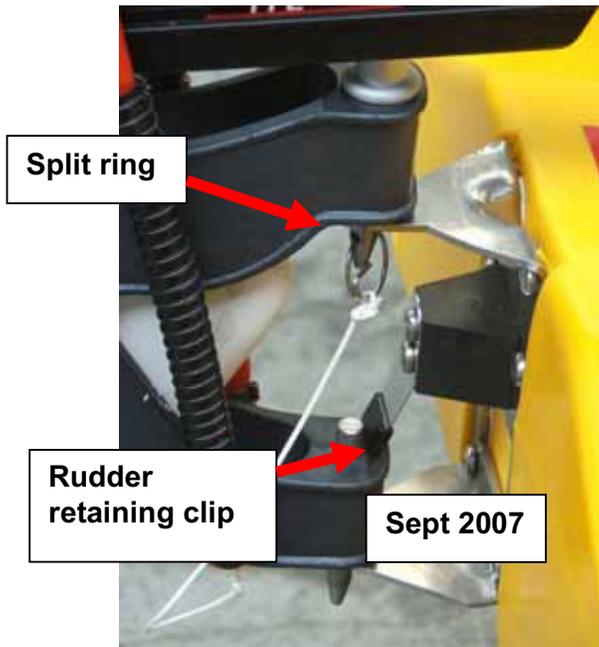
Warning: Please take care not to over-tighten the screws. Screws should be “Finger tight”. Over-tightening can strip the thread in the plastic.



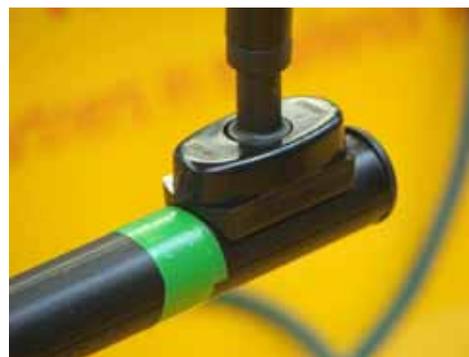
4.10 Fitting the rudder Assembly

Fit the ruder assembly on the transom rudder fitting.

Warning: The split ring must be used 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.



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.



Operating instructions for Pico rudder assembly Sept 2007

The rudder assembly has a kick – up system so that if you run aground, the rudder will come up automatically. This can be adjusted by re-positioning the plastic buffer under the tiller. When the rudder blade is fully down the tiller should locate over the capstone on the stock. If the rudder blade can be moved backwards from the tip more than 3.0mm then the plastic buffer under the tiller should be moved forward to remove the slack. The buffer is adjusted by loosening the Allen screws with the Allen key provided, moving the buffer and re-tightening the screws.



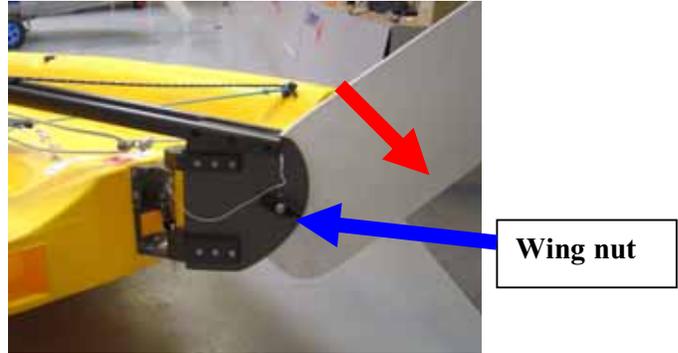
- To put the rudder down; lift the tiller 2cm and simultaneously push the tiller aft (Backwards) until the plastic buffer under the tiller engages over the capstone.
- To lift the rudder; Lift the tiller 2 cm to disengage it from the capstone and simultaneously pull the tiller forwards.



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.

Operating instructions for Pico rudder system Sept 2007

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.



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.

4.11 Fitting the Centreboard

Take the centreboard. Thread the centreboard shock cord through the small hole in the top front corner of the centreboard. 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.



4.12 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 (see section 4.13) and stow the jib Halyard rope tails in the pocket by the tack of the mainsail. Your Pico cannot be sailed reefed with the jib up.

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



3) Uncleat and slacken the clew outhaul line and ensure that the foot of the sail is loose.

4) 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.



5) Re-attach the kicking strap but leave it loose.

6) Re-attach the clew outhaul and pull it tight.

7) Re-tighten the kicking strap.

4.13 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.



2) Tie the jib halyard to the top of the jib with a bow line.

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.



4) Tie the jib sheet onto the jib clew by taking the jib sheet in the centre 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.



5) Thread the ends of the jib sheets through the fairleads and tie a figure of eight knot in each end.

4.14 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.

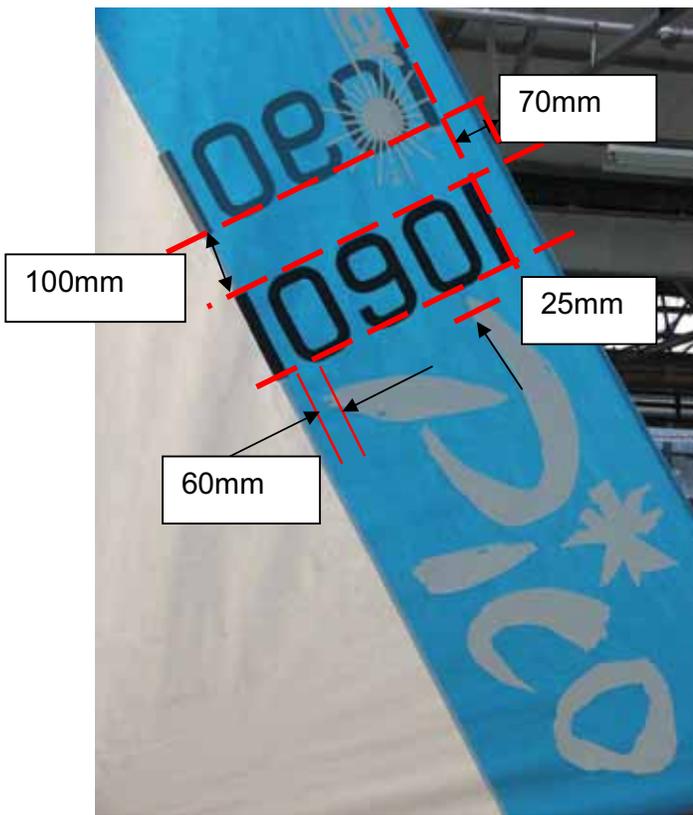


5. Sail Number positioning – Standard sails

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.

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 25mm above the “P” of the Pico screen print and draw the base line perpendicular to the leach and blue sail panel
4. Measure 70mm 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 60mm apart.

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



5. Sail Number positioning – Sport 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 60mm 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 60mm apart.

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

