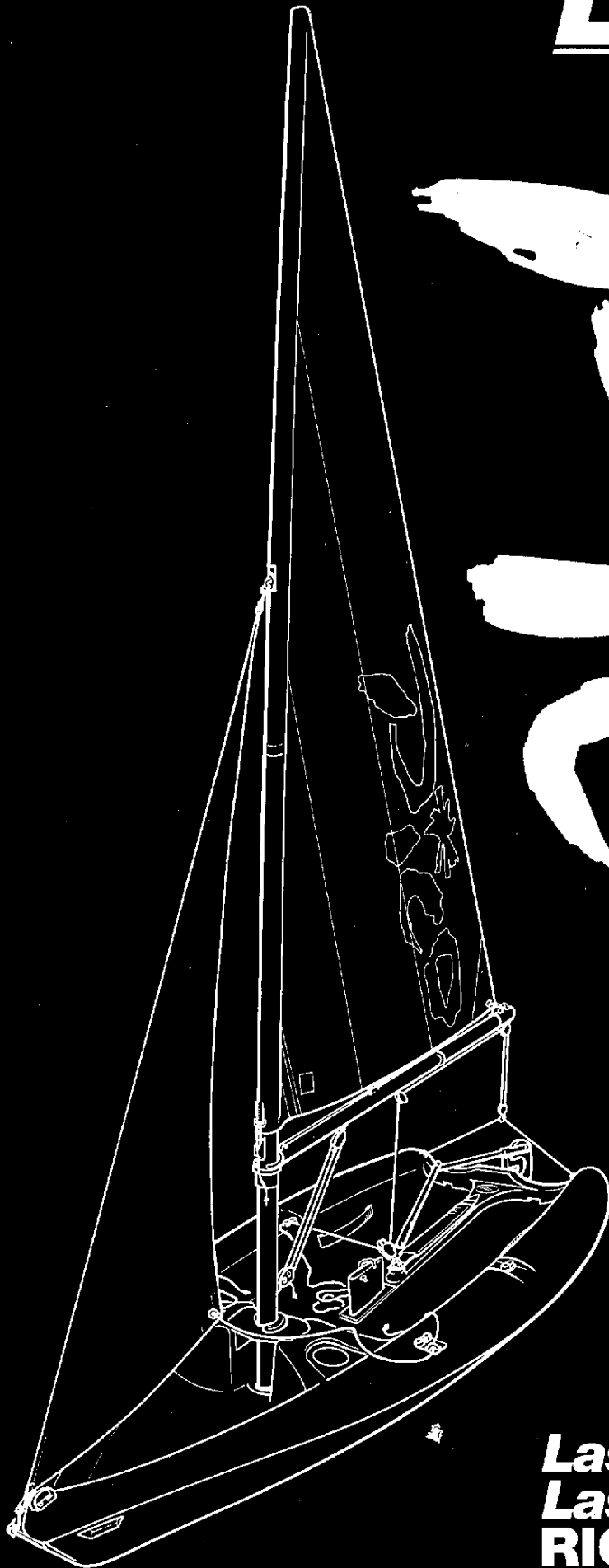


**Laser**  <sup>TM</sup>



**Laser Pico  
Laser Pico Plus  
RIGGING MANUAL**

## **PICO RIGGING MANUAL**

These rigging instructions are a comprehensive guide to rigging your Laser Pico. Due to production supplies certain parts may be slightly modified to those shown. This instruction manual is not a guide to sailing your craft and it should not be considered suitable for the purpose of learning to sail a dinghy.

## **LASER CENTRE**

Options, accessories and spare parts for your Laser Pico can be purchased from your Laser Centre. Laser staff will be able to offer knowledgeable advice on all aspects of rigging and maintaining your new boat.

For details of your nearest Laser Centre please contact:  
The Laser Centre,  
6 Riverside, Banbury, Oxon OX16 8TL  
Telephone 01295 268191 Fax 01295 273682

## **LASER SCHOOL**

Laser School is the only specialist sailing centre recommended by Laser. Here you will find the extensive range of products ready for your use. Laser School teaching techniques have been refined and developed to the highest possible standards. Sailors of all abilities visit the Centre to improve their skills. Laser School is a Centre of Excellence and further details of its various locations and training programmes are available from:

Laser School, Mylor Yacht Harbour  
Falmouth, Cornwall TR11 5UF  
Telephone 01326 376191 Fax 01326 376192

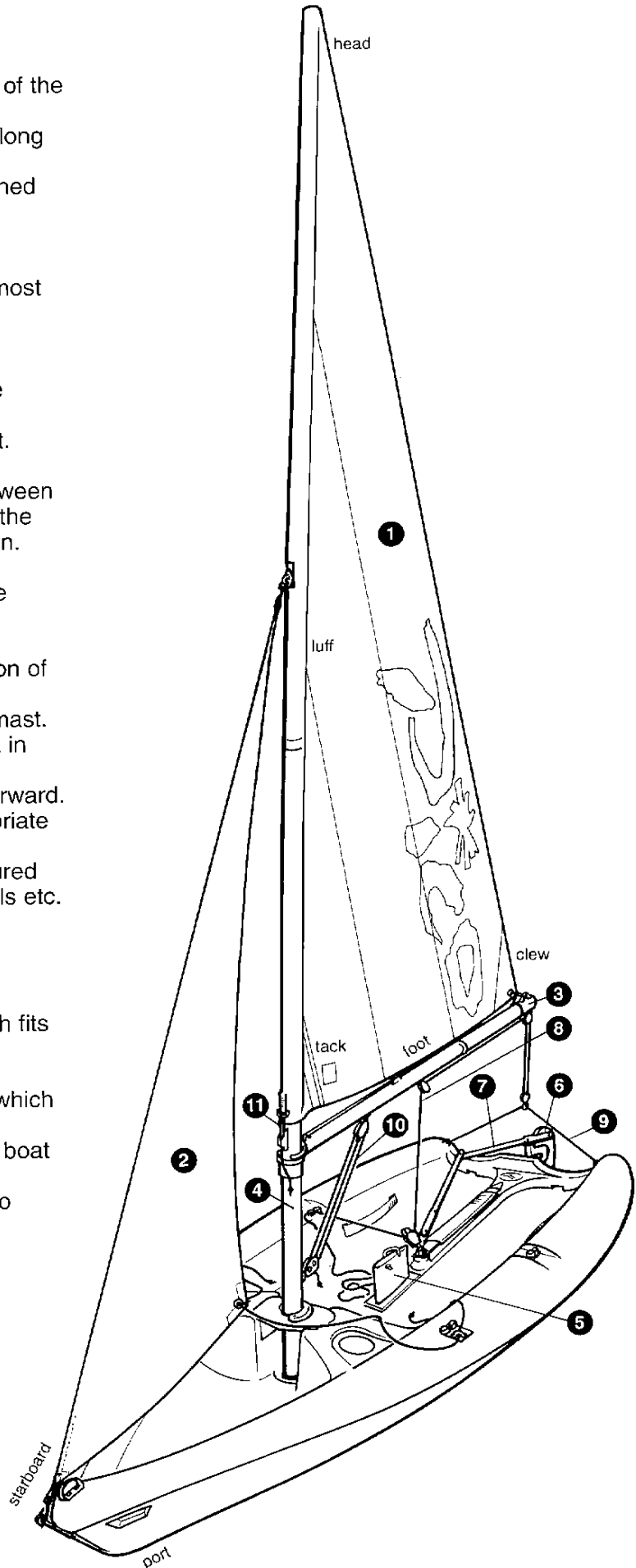
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## GLOSSARY

- Aft:** towards the back of the boat.  
**Bow:** the foremost 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 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.  
**Goose neck:** 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 the sail.  
**Main sheet:** the rope controlling the position of the mainsail.  
**Mast heel:** the casting at the base of the mast.  
**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 or wood 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.

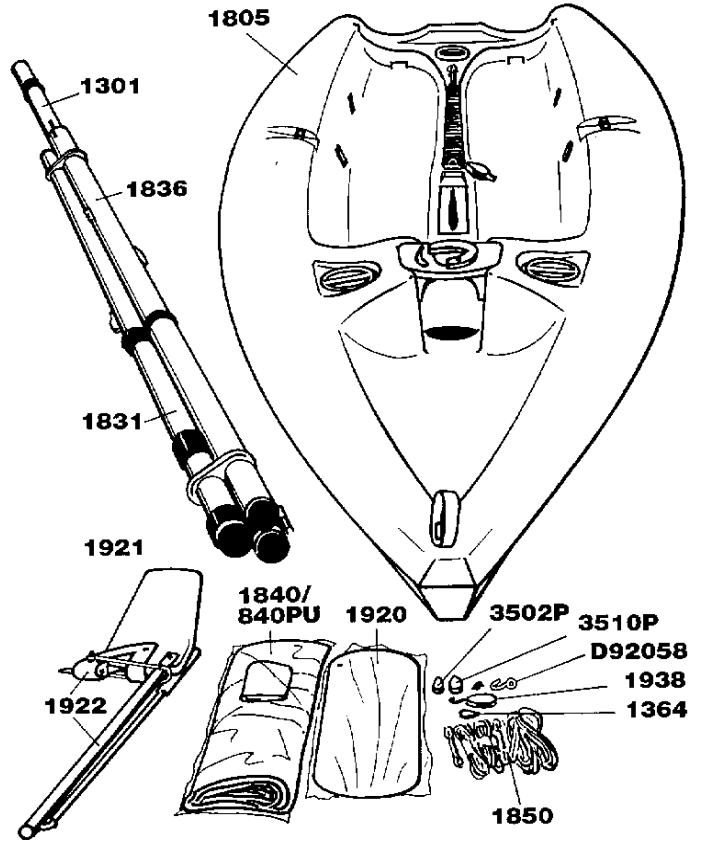
1. Mainsail
2. Jib
3. Boom
4. Mast
5. Centreboard
6. Rudder
7. Tiller
8. Mainsheet
9. Traveller
10. Kicking strap
11. Cunningham line



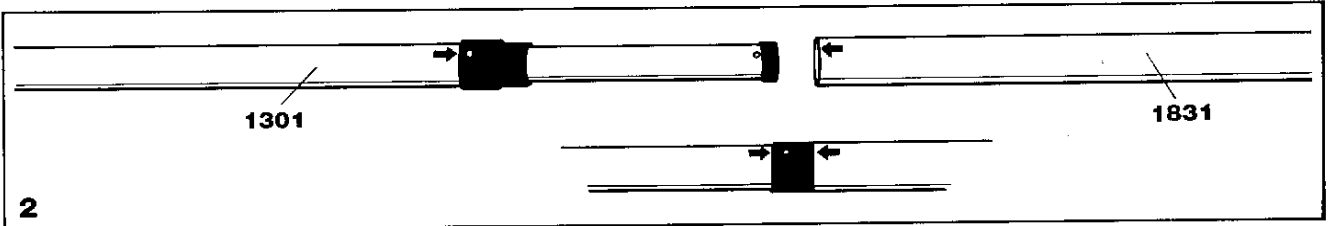
# RIGGING INSTRUCTIONS

1. Unpack your Pico and check that you have all the components:

	Part Number
Pico hull	1805
Rudder assembly comprising:	
Rudder blade	1921
Rudder stock, tiller and extension	1922
Mainsail and sail bag	pink 1840 purple 1840PU
Centreboard	1920
Boom	1836
Upper mast	1301
Lower mast	1831
Rope pack	1850
Small kicker block	1364
Large kicker block	1938
Small traveller block	3502P
Large traveller block	3510P
Metal twisted hook	D92058
4 x englefield clips	D40028

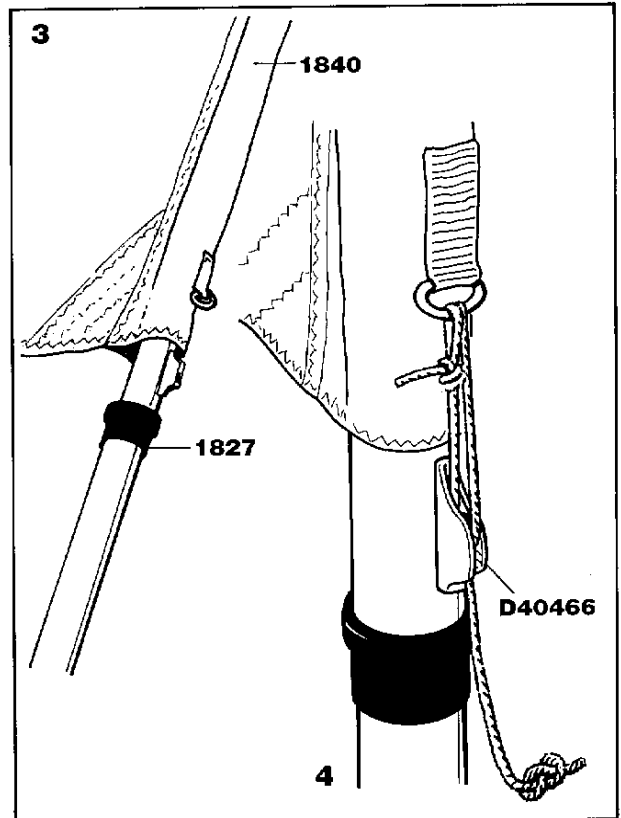


2. Assemble **upper** [1301] and **lower mast** [1831] sections, making sure that the red arrows align.



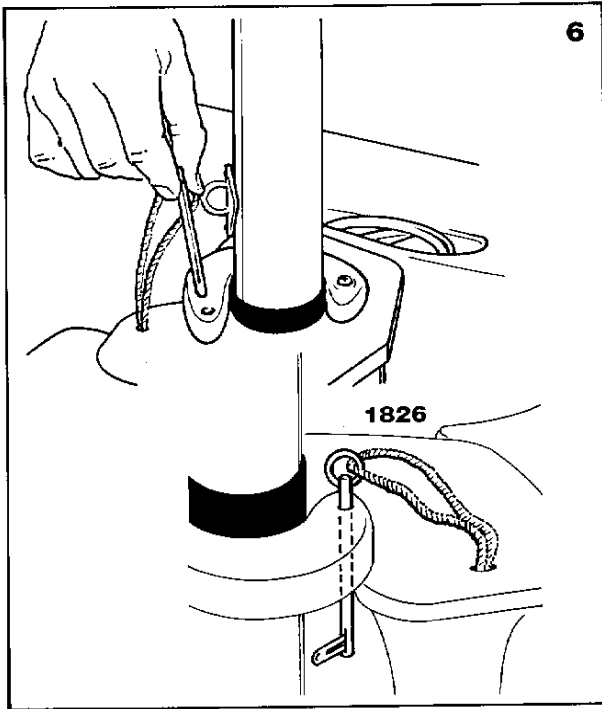
3. Unfold the **mainsail** [1840/1840PU] (try to keep it clean and dry) and sleeve it over the top of the mast, making sure that the mast stays together. Slide the sail down over the mast, with the cunningham D-ring facing forward in line with the cleat at the bottom of the mast.

4. From your **rope kit** [1850], find the rope marked **cunningham**. Tie a bowline loop onto the sail ring, thread round small black pulley on the **cleat** [D40466], back up to the D-ring and down to the cleat to jam off. Add a small amount of tension and tie a figure of eight knot in the end of the rope.

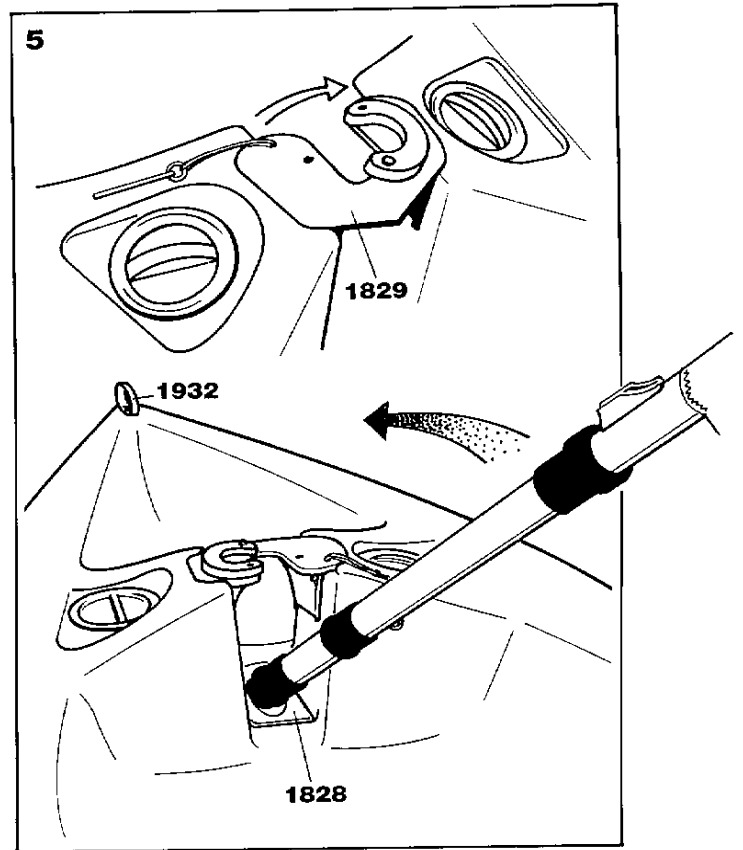
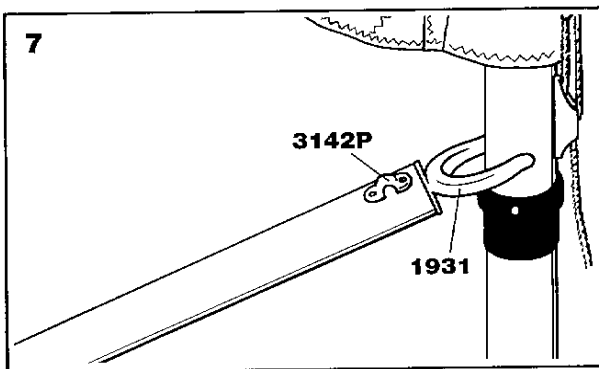


5. With the boat turned into the wind, remove the **mast gate pin** [1826] and open the **mast gate** [1829]. Lift mast into the boat, dropping the bottom of the mast into the **mast well** [1828]. Raise the mast into an upright position and mast gate will close. **WARNING:** do not let go of the mast at this stage or it may fall backwards.

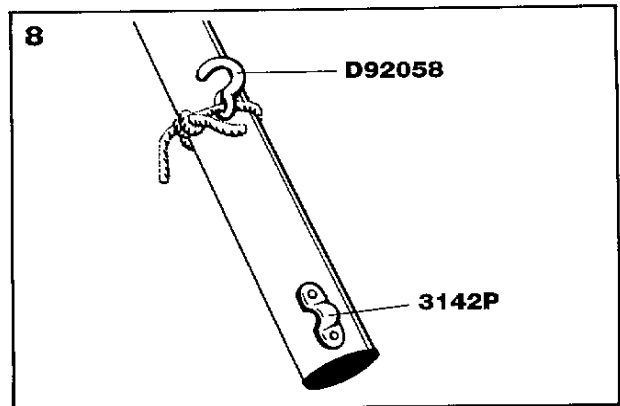
6. Insert the mast gate pin into the mast gate claw. Remember to move the tang to lock the pin in position. Your mast should now be secure.



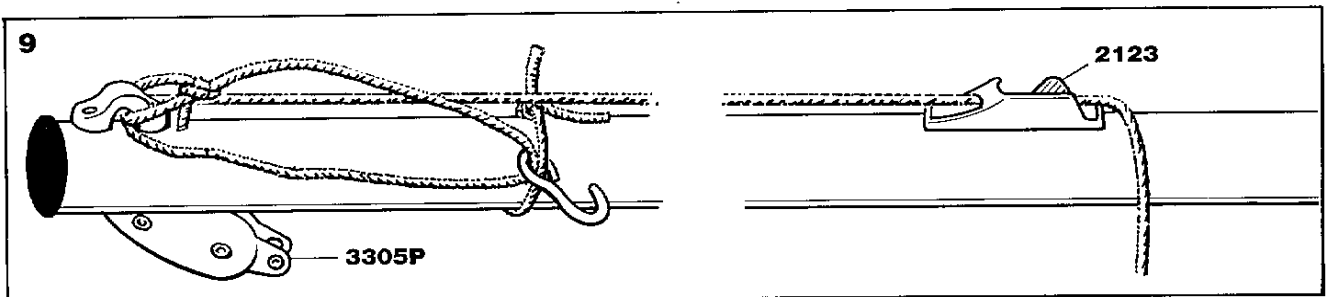
7. Clip **boom** [1836] onto mast above black collar. This will require a firm push!



8. At the back of the boom, use a reef knot to tie on the **clew hook** [D29058] with the **clew tie down**.

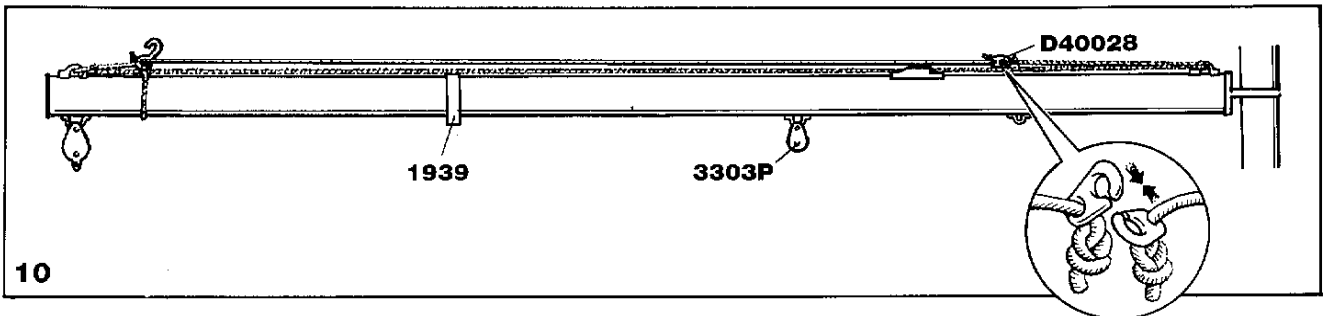


9. Tie the **clew outhaul line** to the small **fairlead** [3142P] fitting on the end of the boom with a bowline loop, then run through the eye of the clew hook, back round the fairlead and up to the **cleat** [2123] on the boom.

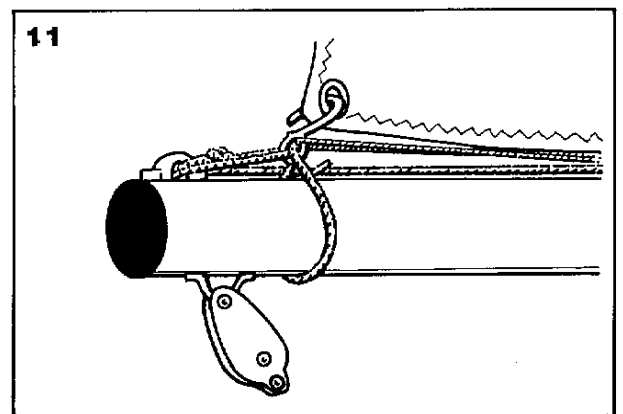


**10.** Take the tail end of the clew outhaul line and pass it through the front fairlead mounted on the boom. Thread through the very small grey **englefield clip** [D40028] and tie off with a figure of eight knot. At the outer end take the long piece of **shockcord (1)**, pass it through

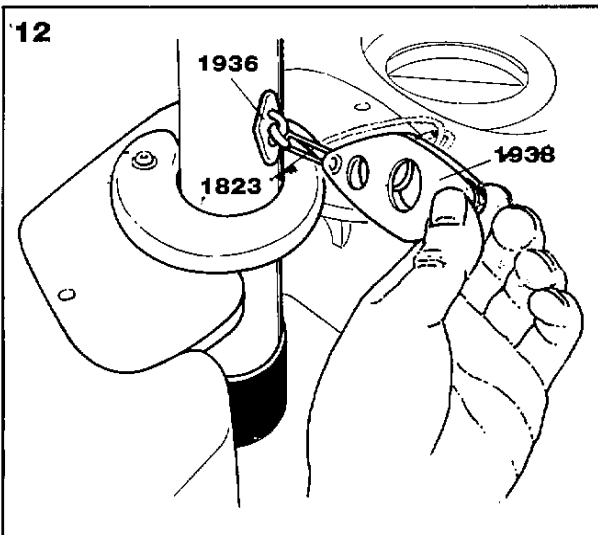
the eye of the hook and tie a large knot. At the other end pass through another small grey englefield clip and tie a figure of eight knot in the end. Now clip the two clips together. This is the tidy up line for your clew outhaul.



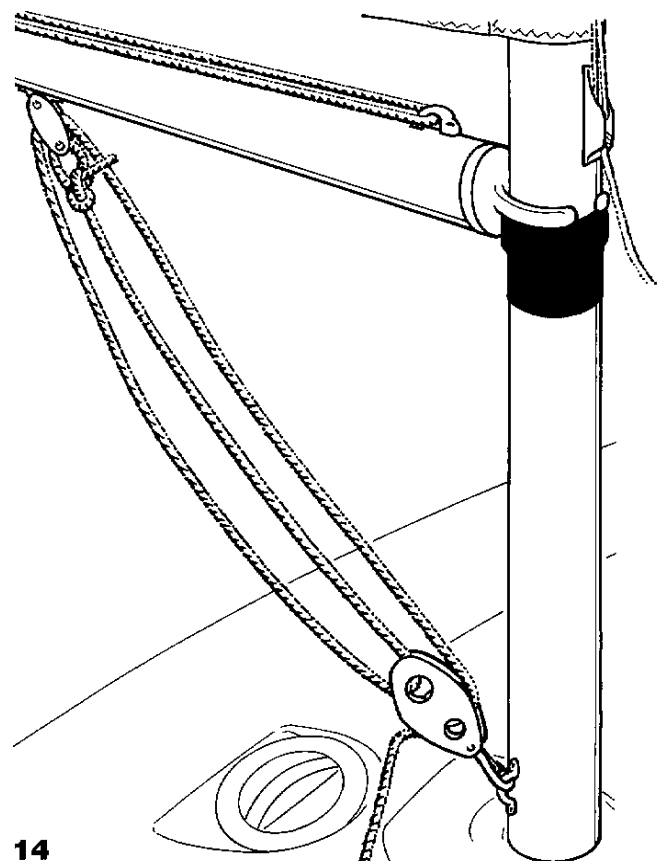
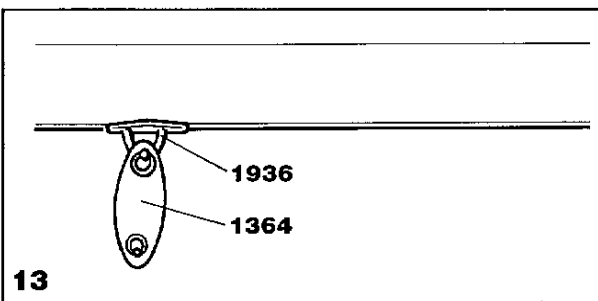
**11.** Now take the sail and, with the boat pointing into the wind, locate the clew hook into the eyelet on the corner of the sail.



**12.** Take the **large kicker block** [1938] with snap hook, and clip it to the **plate** [1936] on the mast, just above the mastgate.



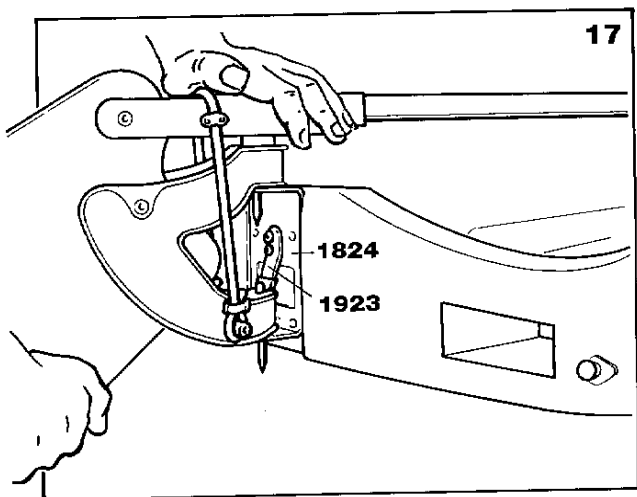
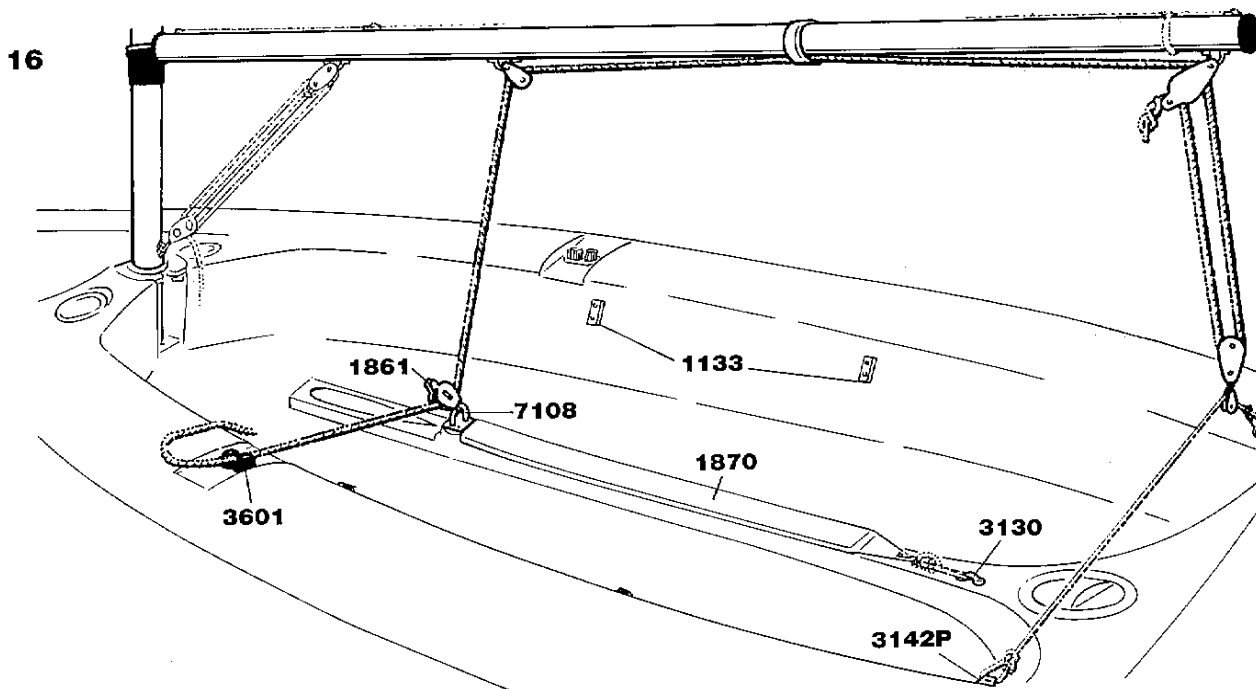
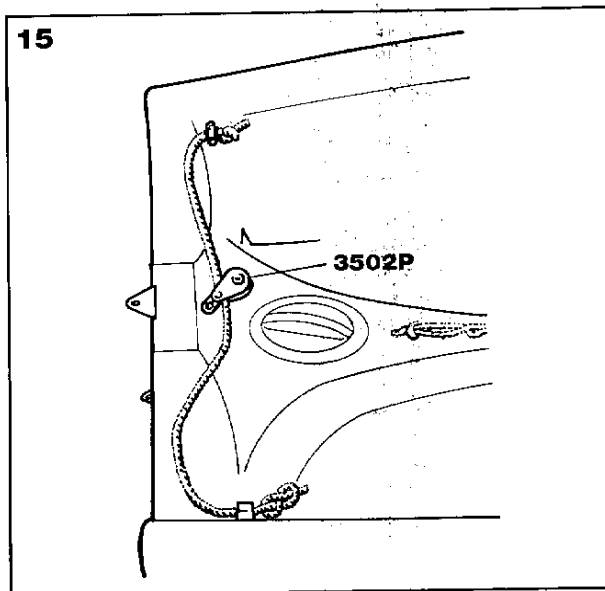
**13.** Take the **small kicker block** [1364] and fit it to the eyelet on the boom (near the front end), using the small pin and ring.



**14.** Now thread the **kicking strap line** as per the drawing, starting with a bowline on the upper block.

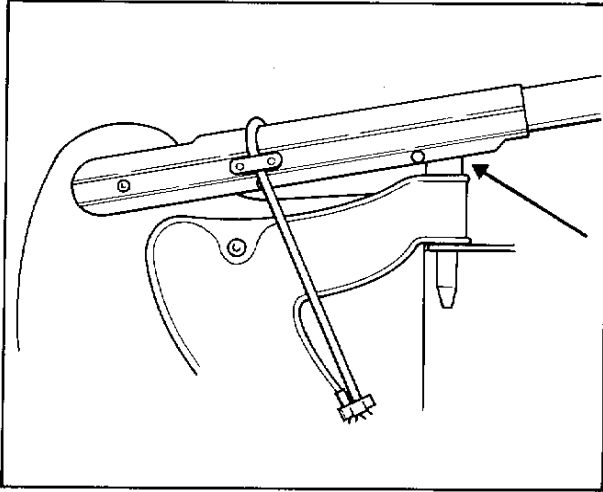
**15.** Attach the **traveller system**. Take the **traveller line**, tie a knot in one end, pass it through one fairlead at the stern of the boat, through the **small traveller block** [3502P] and the fairlead on the opposite side. Tie a knot in the end of the rope.

**16.** 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. Then thread the mainsheet down to the large traveller block, back up to the boom end block and along to the **webbing loop** [1939]. Pass the sheet through the loop, along to the middle block and down to the **ratchet block** [1861] in the middle of the boat. 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.

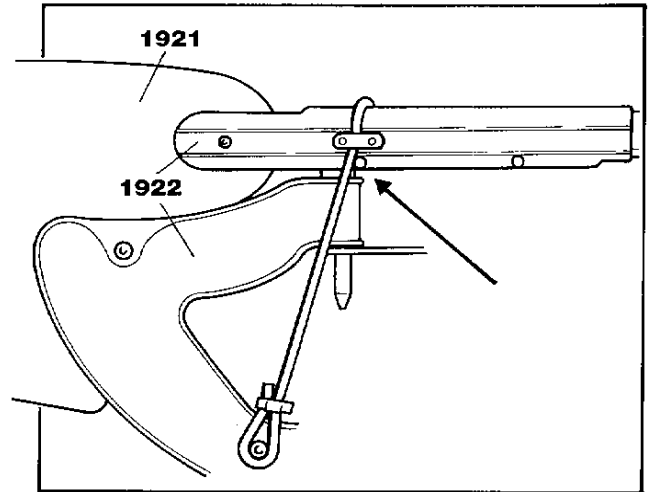


**17.** Take the **rudder** [1921/1922] and put the tiller and extension under the traveller line. Locate the rudder assembly on the **transom rudder fitting** [1824]. You will find a **spring clip** [1923]. Make sure you hear this clip on and check it stops the rudder coming off. If the clip is not bent out far enough it can be bent out by hand. This should be checked every time you go sailing.

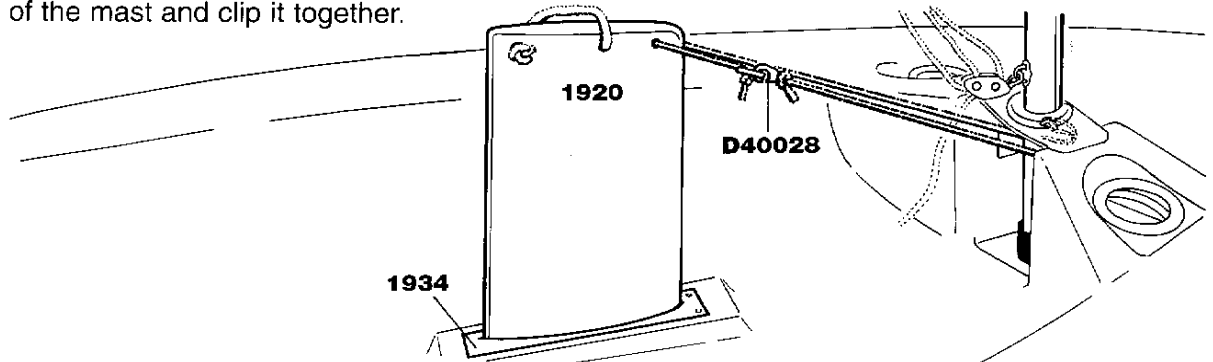
When sailing, the rudder blade is pushed down by lifting the tiller and pushing backwards until the rudder blade is fully down. The white stop on the rudder head should locate *in front* of the *forward* stainless steel bar under the tiller.



To raise the rudder blade, lift the tiller and pull. The rudder blade can be locked in a fully-up position by locating the *aft* stainless steel bar in the tiller *behind* the white stop on top of the rudder stock.

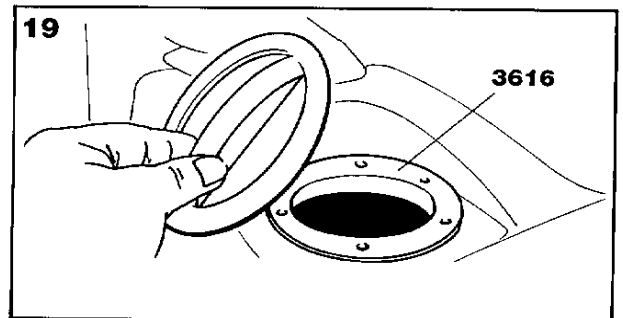


**18.** Take the **centreboard** [1920]. Thread the **centreboard shockcord (2)** through the small hole, put the small englefield clips on either end and secure each end with a knot. When you put the board into its slot, you can then loop the shockcord retaining line round the base of the mast and clip it together.

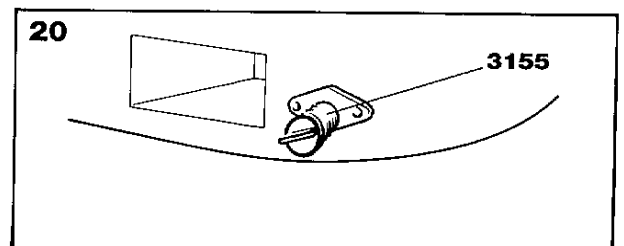


**18**

**19.** Ensure that the **hatches** [3616] are fitted correctly. It is advisable to apply a small amount of vaseline or other non-staining lubricant to the threads on a regular basis.



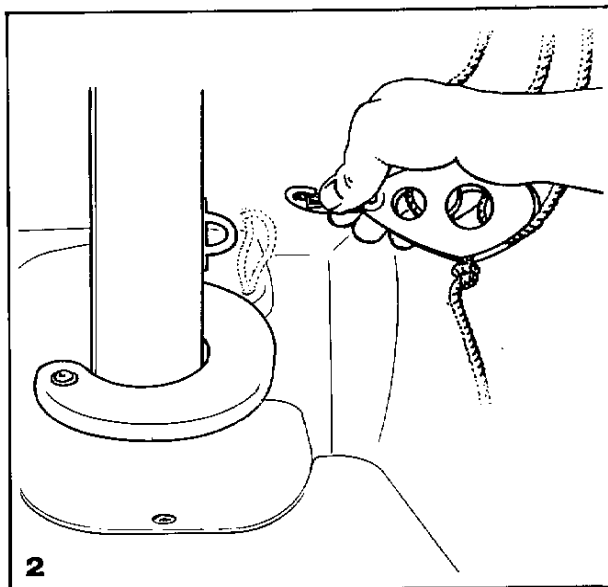
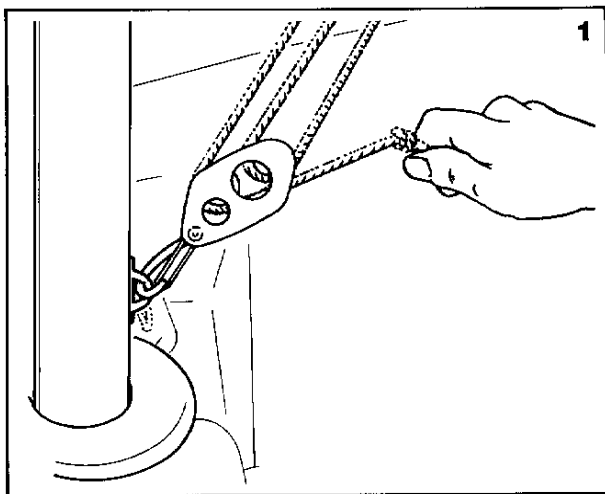
**20.** Ensure that the **transom bung** [3135] is fully screwed in.



## REEFING YOUR PICO

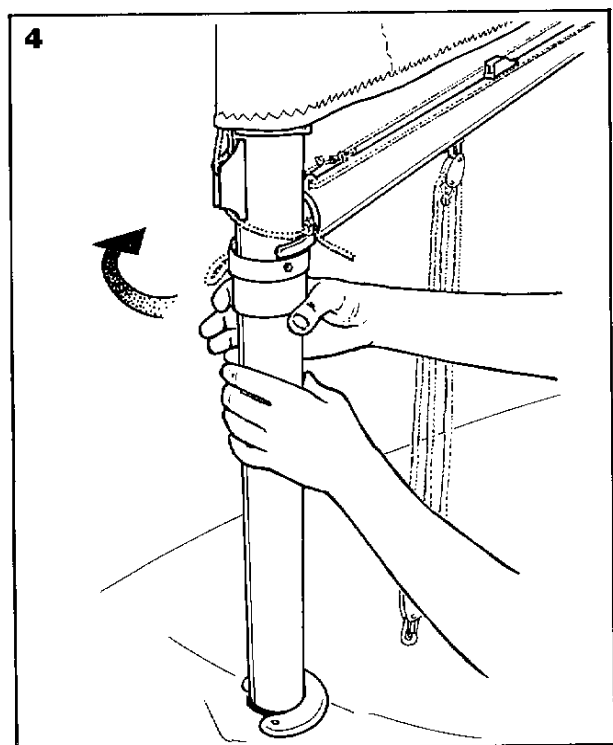
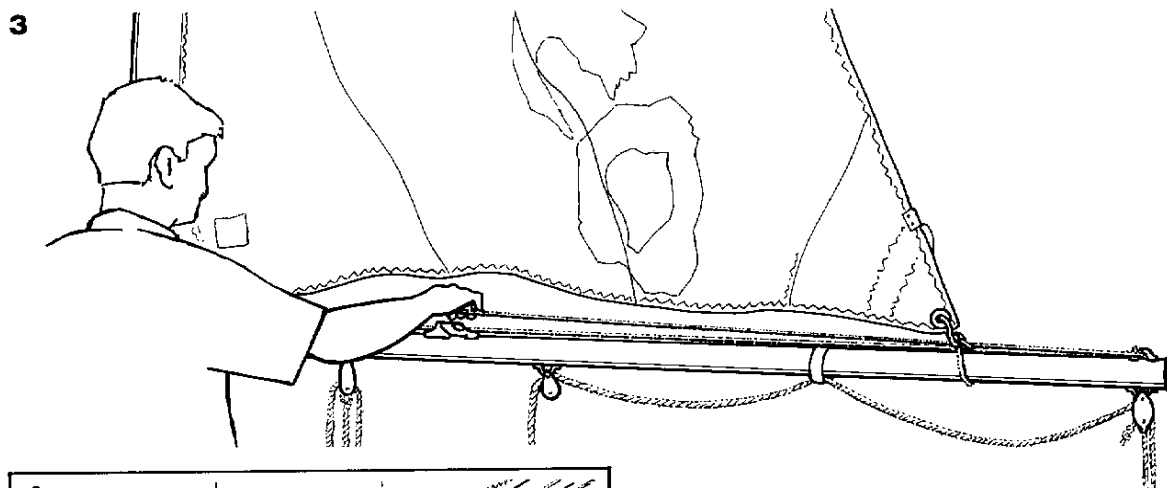
In strong winds, or if you are unsure whether you can cope with the conditions, it is always best to reef the sail down to reduce its area.

1. First slacken the kicking strap rope off.



2. Unclip the large kicker block from the 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.

## PICO JIB KIT

If you have purchased a Pico Plus, your jib kit is already fitted and you can pass over the jib kit fitting instructions to the jib rigging instructions.

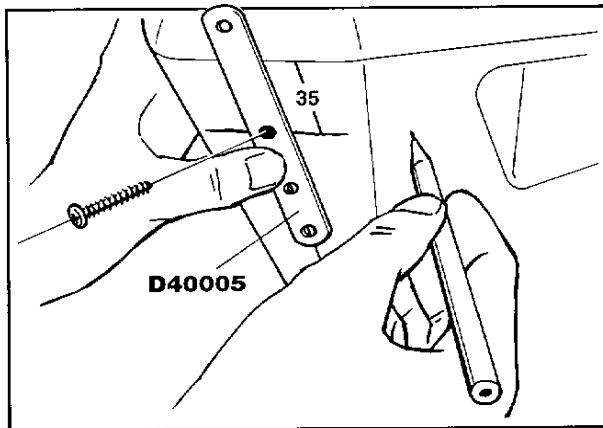
## JIB KIT FITTING INSTRUCTIONS

Unpack your jib kit and check that you have all the components:

	Part Number
1 x Chain plate	D40005
1 x Fluted rigging link	3135
1 x Jib cleat pack (port and starboard)	2120
2 x Jib sheet fairleads	2128P
2 x Pico hooks HA4968K	1823
2 x Rigging links	2136
6m x 8mm Jib sheet rope	0524
1 x Jib (pink)	1841
or Jib (purple)	1842
1 x Kicking strap plate	1936
2 x Rivets TLPD650	0351
2 x Rivet plugs	0350
9 x K50 40mm screws	0315

### A. Jib tack chain plate [D40005]

1. Draw a pencil line down the centre of the flat portion of the bow.



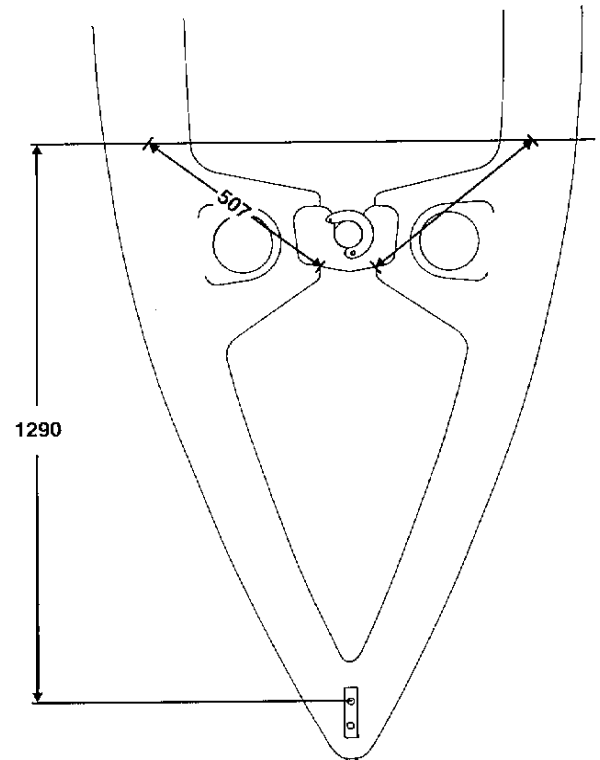
2. Measure down 35mm from the hull/deck join line and drill a 3/32" or 2.5mm hole.

3. Screw the plate through the top fixing hole with one of the screws provided. These screws are specifically designed for use in plastic. However, they do have flat ends which make them difficult to start. You can get the screws to bite more easily if you lightly countersink the hole. **WARNING: Please take great care not to over-tighten the screws. Screws should be 'finger tight'. Over-tightening can strip the thread in the plastic.**

4. Align the remaining two fixing holes with the centre line. Drill as above and secure the plate with two further screws.

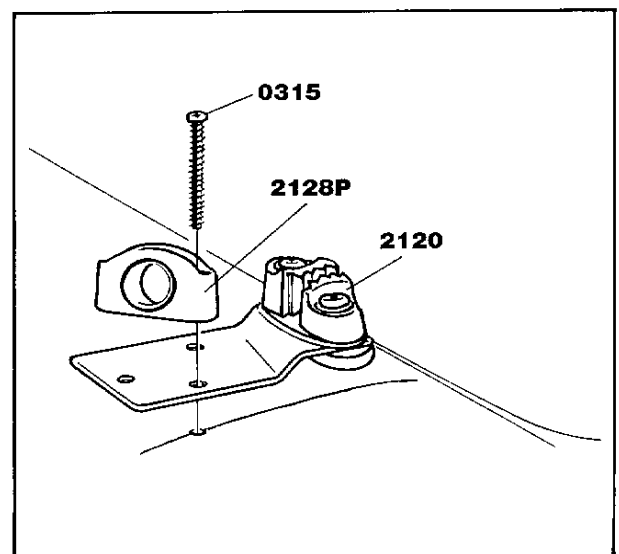
### B. Jib sheet fairleads [2128P] and cleats [2120]

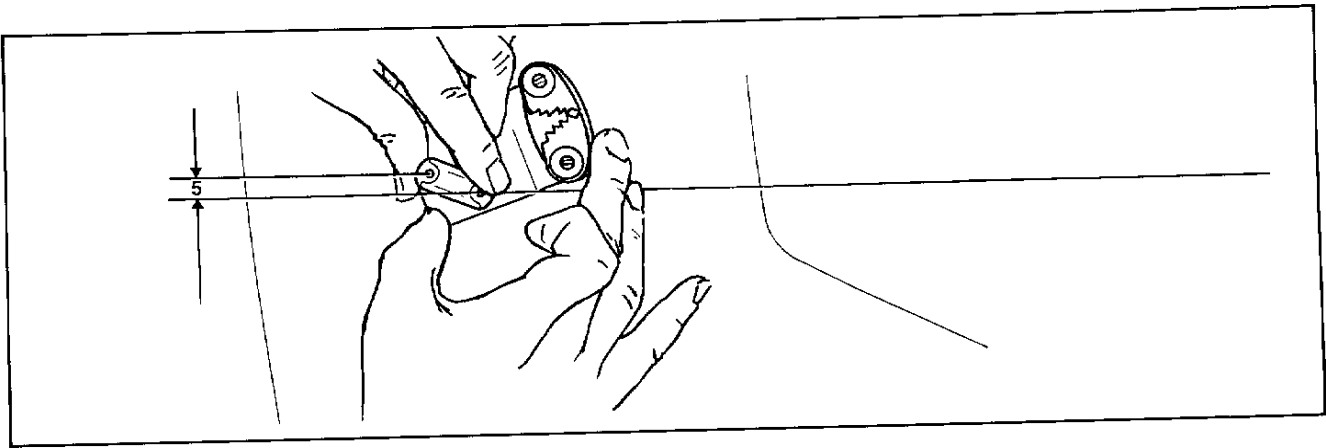
1. Measure the jib sheet fairlead position as illustrated in the diagram. This marks the forward inner hole on the cleat plate. Draw a line across the side decks between these two points.



2. Drill these two points with a 3/32" or 2.5mm drill.

3. Attach the port and starboard jib cleats and fairleads through the in-board fairlead hole and tighten the screw finger tight.





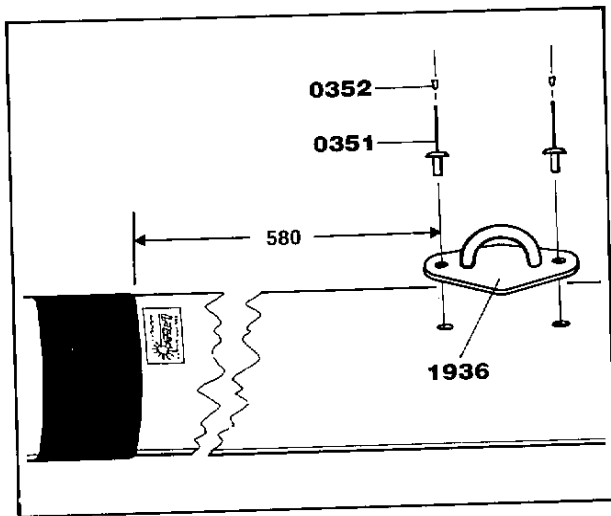
4. Align the outer fairlead hole with the outer hole on the plate. Swivel both of these to sit 5mm aft of the line.

5. Drill the two remaining holes with a 3/32" or 2.5mm drill, ensuring that the plate and fairlead are held in position.

6. Secure the plate and fairlead with two screws port and starboard.

### C. Jib upper mast plate fixing

1. Measure 580mm above the mast collar on the front of the mast, i.e. the opposite side to the arrow and directly above the Laser label.



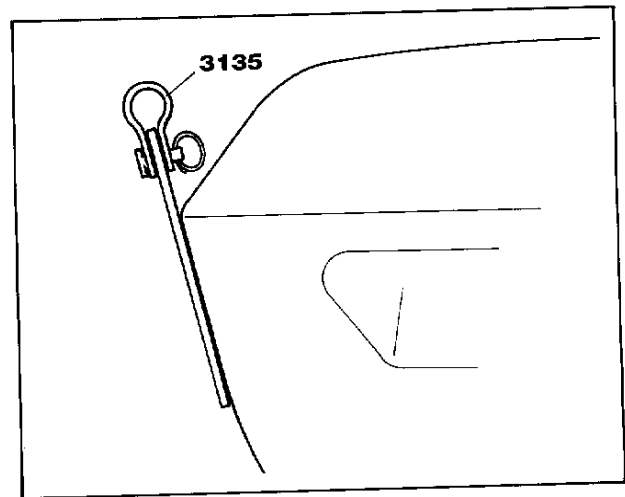
2. Drill a 4.9/5mm hole on the centre line and rivet [0351] through the lower fixing hole.

3. Ensuring that the fitting is on the centre line, drill the top hole through the fitting and rivet in place.

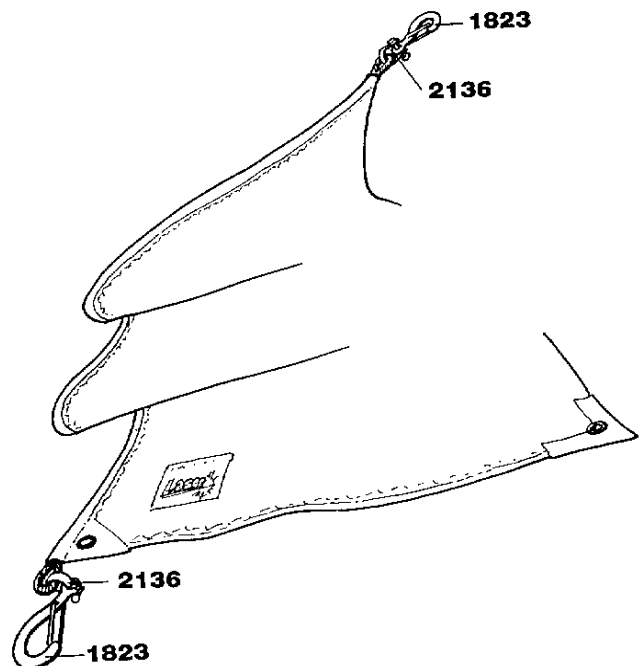
4. Plug the rivet holes with the rivet plugs [0350] provided.

## JIB KIT RIGGING INSTRUCTIONS

1. Attach the fluted rigging link [3135] to the chain plate on the bow.



2. Attach a Pico hook [1823] to the top and bottom of the jib luff with the rigging links [2136] provided.



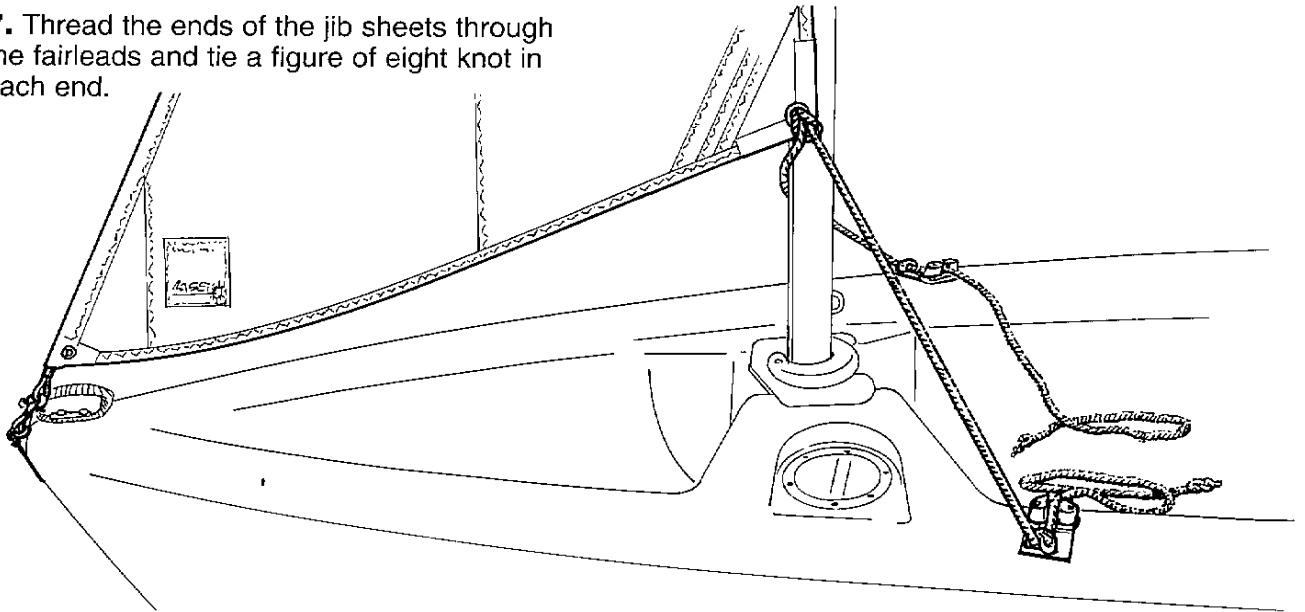
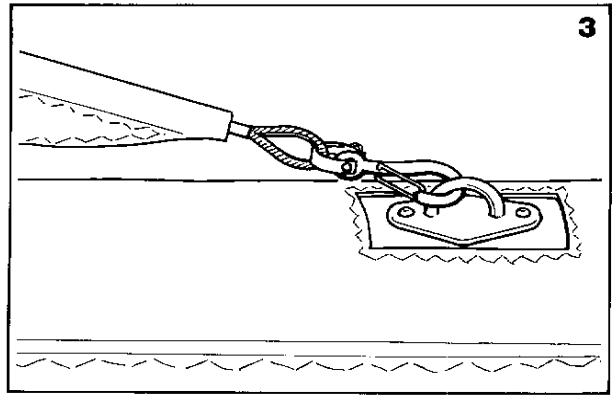
**3.** Ensure that the slot for the jib on the luff of the mainsail is over the eye for the jib and hook the head of the jib onto the upper mast.

**4.** Step the mast as described in **item 5** of the main rigging instructions.

**5.** Clip the bottom of the jib onto the rigging link on the jib bow chain plate.

**6.** Tie the jib sheet onto the jib clew with two half hitches, ensuring that there is an equal rope tail for each side of the boat.

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



## PICO SPORT PACK

**1.** Unpack your Sport pack and check you have all the components:

	Part Number
1 x Rope pack Laser Pico Plus	1851
2 x Side padded toe straps	1871
1 x Centre padded toe strap	1872
2 x Inspection hatch bags	3617
1 x Pico Sport decal	0202

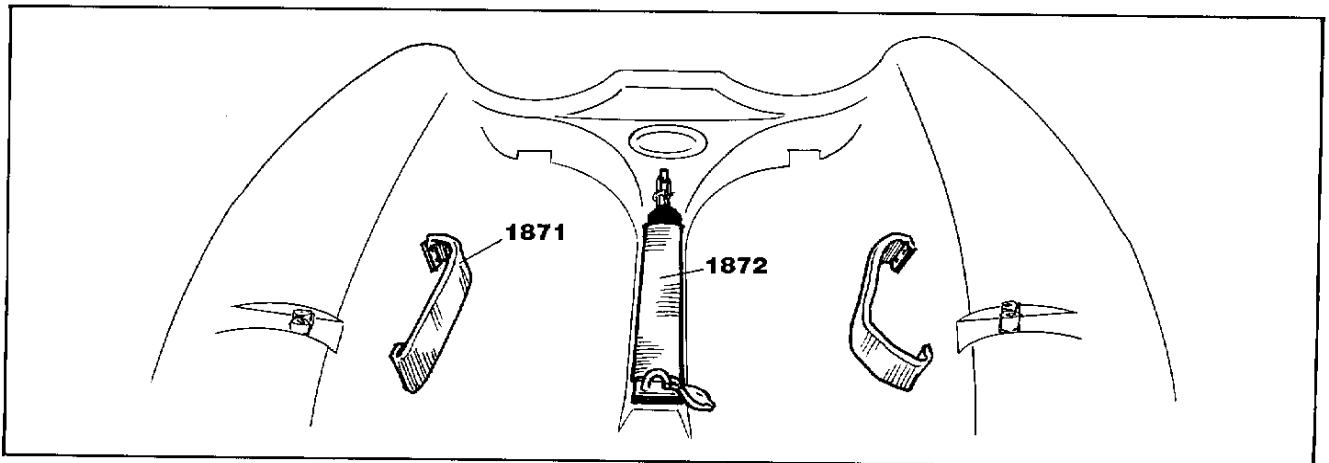
**WARNING:** Please take care not to

over-tighten the screws. Screws should be 'finger tight'. Over-tightening can strip the thread in the plastic.

**2.** Unscrew the **plastic side plates** [1861] and the **centre toe strap** [1870].

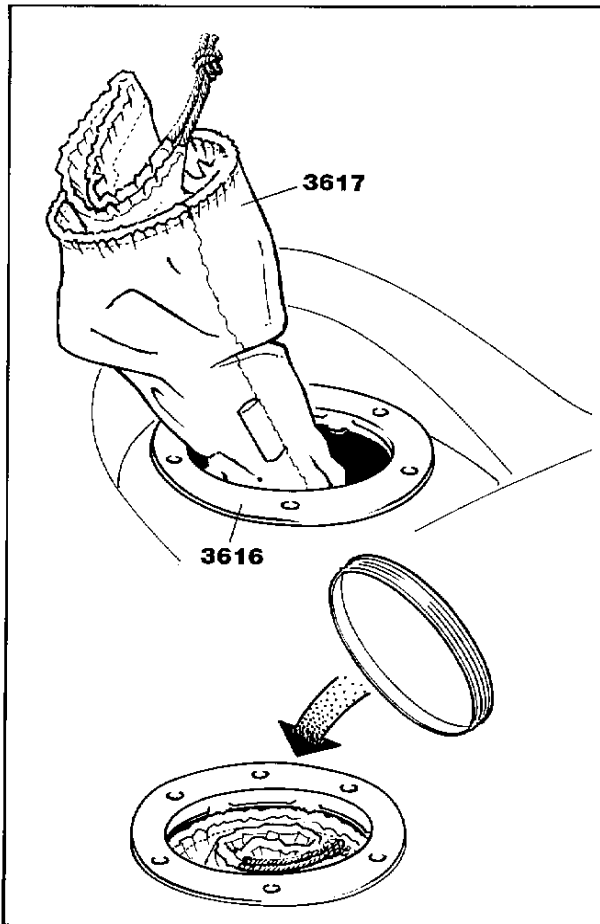
**3.** Attach the **side padded toe straps** [1871] as per the illustration.

**4.** Attach the **centre padded toe strap** [1872].



5. Replace your standard ropes with your **Sport ropes** [1851].

6. Insert the **hatch bags** [3617] inside the hatches adjacent to the mast.



7. Remove the backing paper from the **decal** [0202] and position either on the hull or on a smooth portion of the cockpit. The choice is yours.

## PICO ACCESSORIES

	Part Number
1. Top cover	1860
2. All over cover	1862
3. Combo bag	1863
4. Jib kit	pink 1845 purple 1846
5. Sport kit	1897

## LASER MAIL ORDER

To order your Pico parts and accessories, phone **Laserline 01295 268191** and quote your Visa or Access number.

## 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.

## 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 cockpit 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 Laser 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.

**WARNING:** If substantial damage is sustained to your Laser Pico, you should take it to the Laser Repair Centre. Phone 01295 268191.

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