

**Laser Fun
& Fun New Wave
RIGGING MANUAL**

LASER FUN RIGGING MANUAL

The Laser Fun Rigging Instructions are a comprehensive guide to rigging your Laser Fun. 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 Fun can be purchased from your Laser Centre. Laser Centre 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 0295 268191.

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 by contacting:

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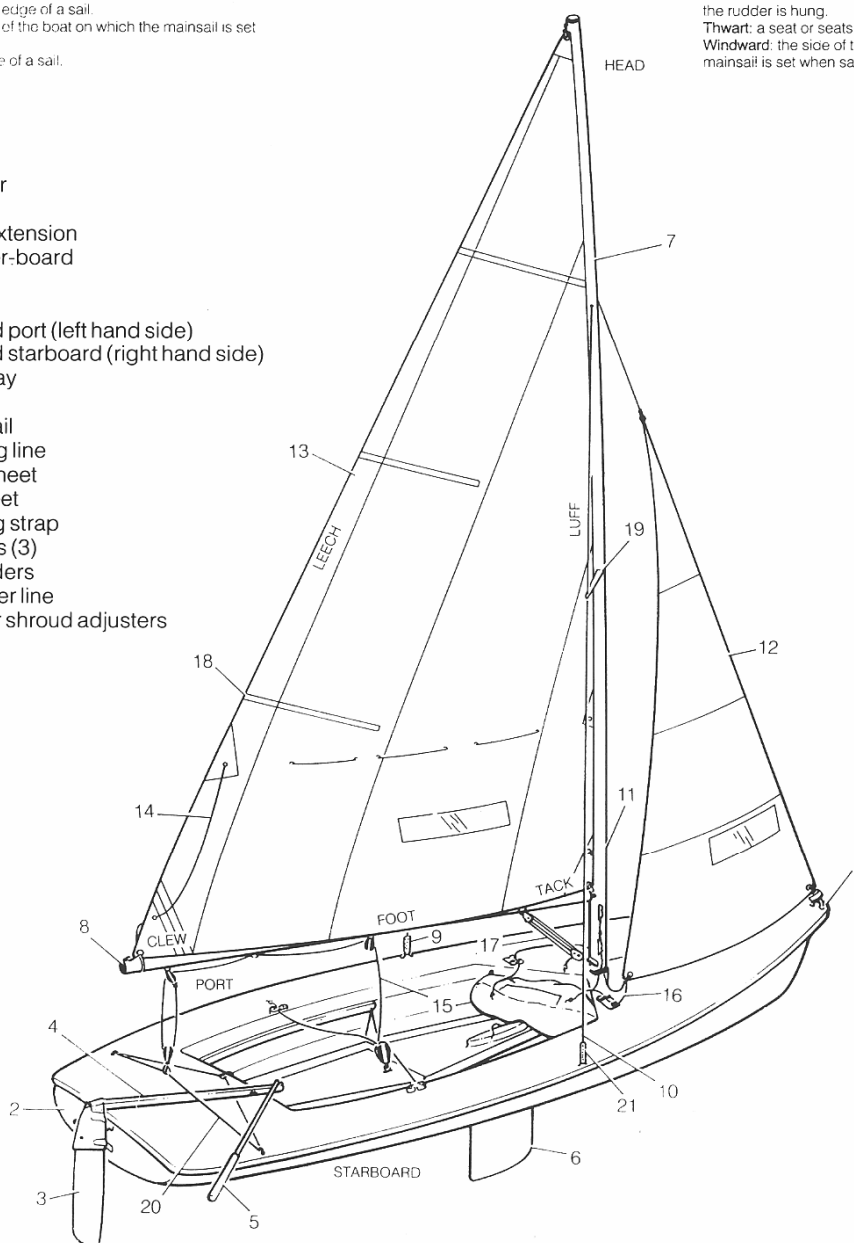
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GLOSSARY

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.
Centre board: a pivoting plate that reduces sideways drift.
Cleat: a fitting to which ropes can be attached and made fast.
Clew: the lower after-most corner of a sail.
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.
Forestay: the wire supporting the mast in a fore and aft direction.
Goose neck: a hinge fitting connecting the boom to the mast.
Gunwhale: the outer-most edge of the craft.
Head: the top corner of a sail.
Hounds: the connecting point on the mast for rigging that gives it support.
Halyard: a rope or wire used to hoist or lower sails.
Halyard rack: a toothed rack over which a halyard can be tensioned to control tension at the sail luff.
Jib sheet: the rope used to control the position of the jib when under 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.

Main sheet: the rope controlling the position of a main sail.
Mast heel: the casting at the base of the mast.
Mast step: the position on the hull or deck in which the mast heel 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.
Shroud: a wire securing the mast in position and preventing it from falling sideways.
Shackle: a 'U' shaped piece of metal secured with a pin, used for securing halyards to sails etc.
Spreaders: metal struts placed in pairs approximately half way up the mast and connected to the shroud - offering further mast support.
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 steering.
Tiller extension: a length of aluminium connected to the tiller by a universal joint which allows steering whilst leaning out.
Topping lift: a rope from the top of the mast to the end of the boom to take the weight of the boom when the main sail is not hoisted.
Trapeze wire: a wire used to extend the body beyond the gunwhale of the boat.
Transom: the flat area across the back of the boat to which the rudder is hung.
Thwart: a seat or seats set across the boat at 90 degrees.
Windward: the side of the boat opposite to which the mainsail is set when sailing.

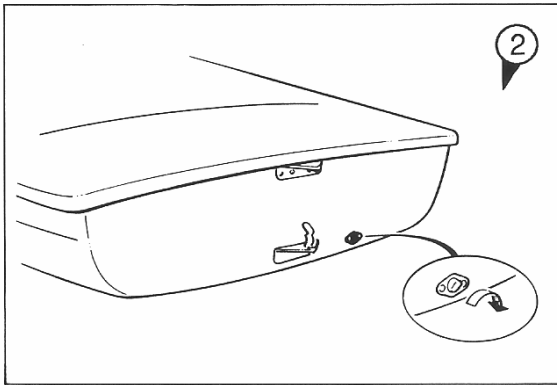
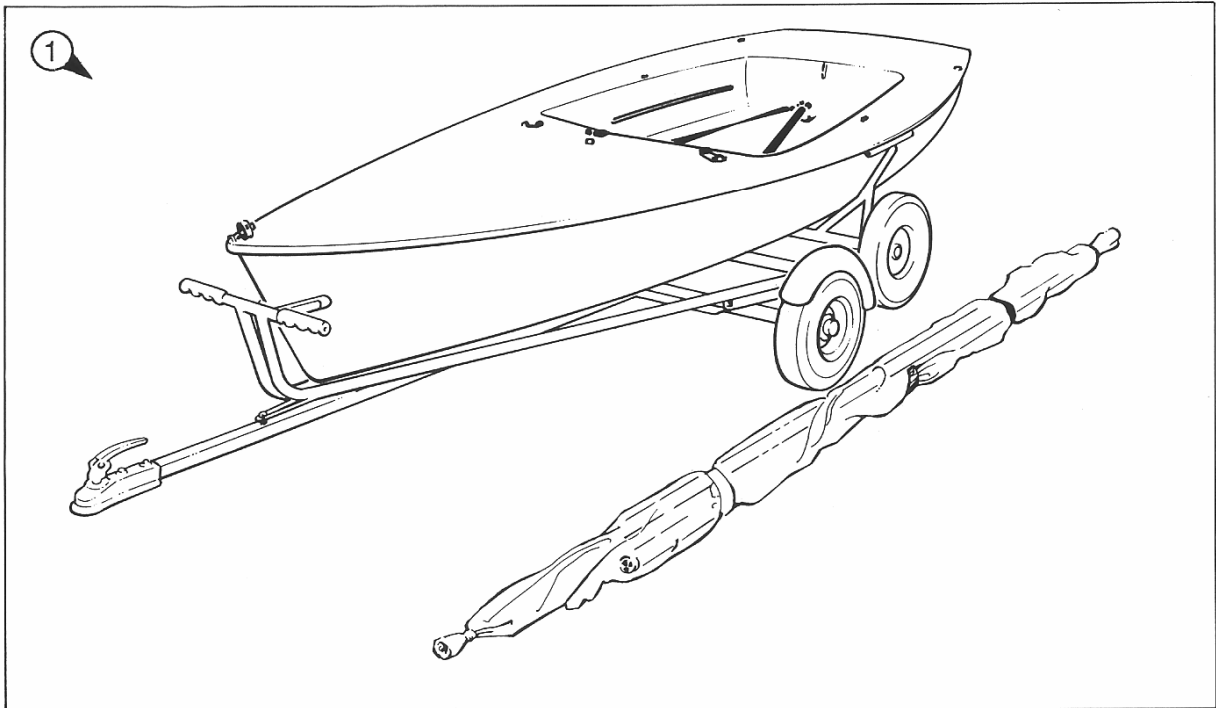
1. Bow
2. Stern
3. Rudder
4. Tiller
5. Tiller extension
6. Dagger-board
7. Mast
8. Boom
9. Shroud port (left hand side)
10. Shroud starboard (right hand side)
11. Forestay
12. Jib
13. Mainsail
14. Reefing line
15. Main sheet
16. Jib sheet
17. Kicking strap
18. Battens (3)
19. Spreaders
20. Traveller line
21. Vernier shroud adjusters



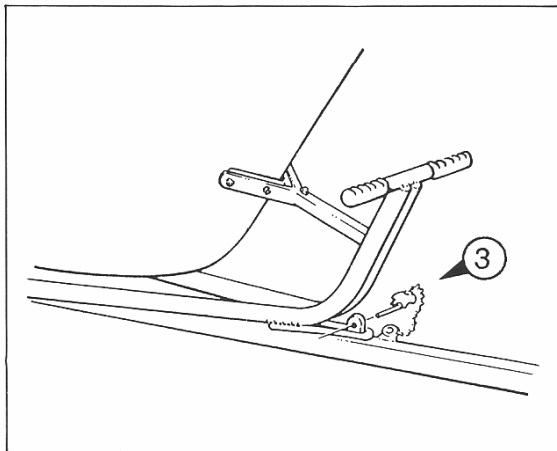
RIGGING INSTRUCTIONS: LASER FUN

REMOVING BOAT FROM TRAILER

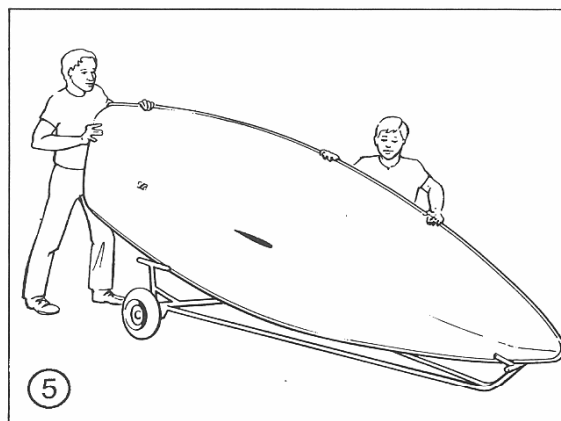
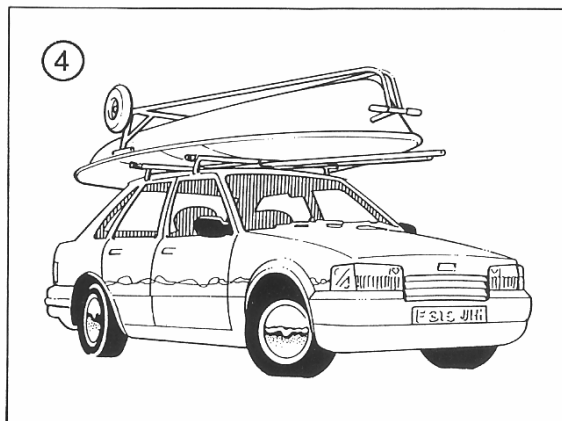
- * Remove all securing straps.
- * Remove the spars (Fig 1) ▼.



- * Secure bung in transom drain hole as shown (Fig 2) ▼.

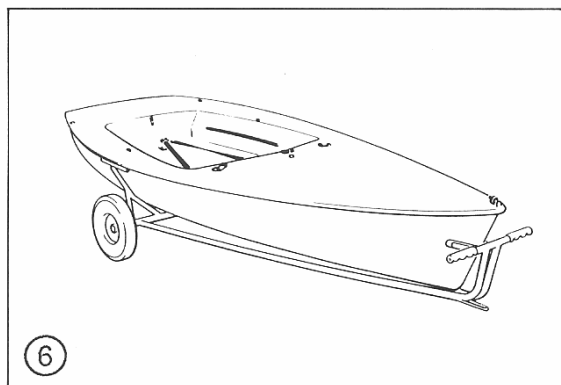


- * Release trolley from road trailer base by releasing pin (Fig 3) ▼.
- * Slide launching trolley carefully off road trailer base.



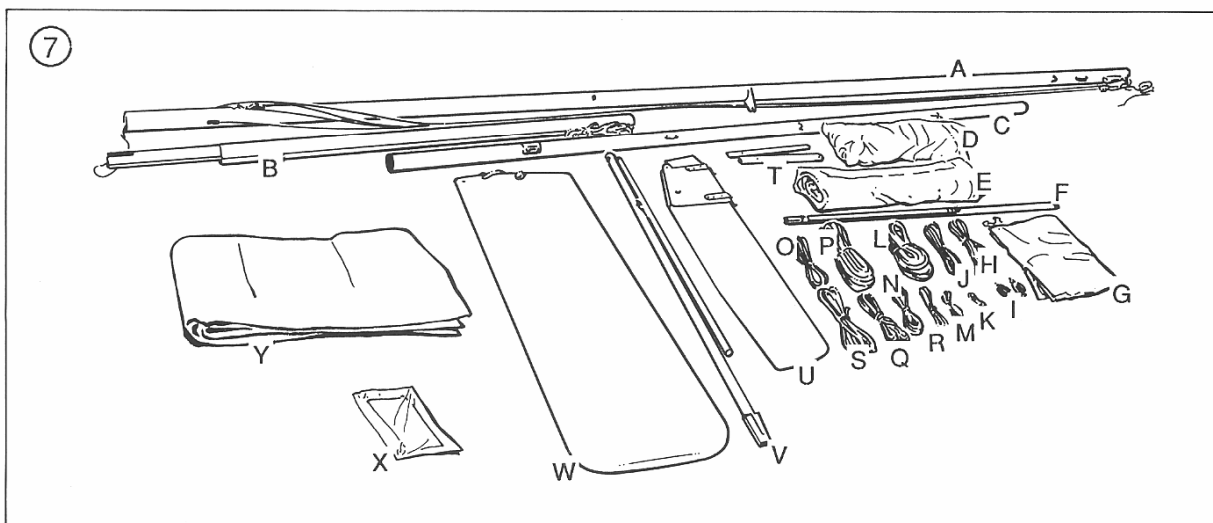
REMOVING FROM CAR ROOF

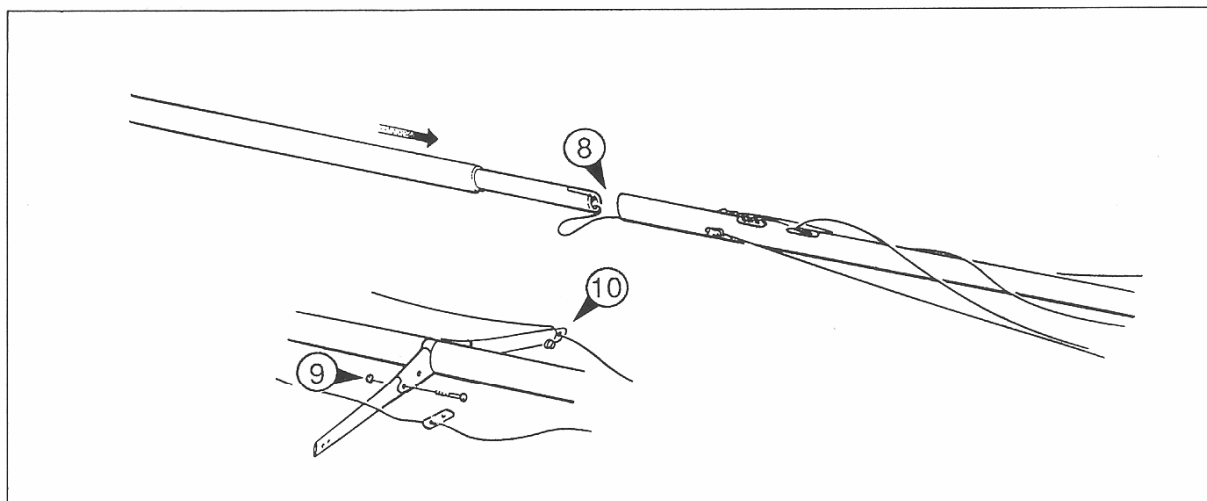
- * Remove all securing straps (Fig 4) ▲.
- * Remove the spars
- * Remove trolley from roof and place beside vehicle.
- * Carefully slide Laser Fun hull off the car roof, turn through 90° and rest the gunwale on trolley (Fig 5) ▼.
- * Re-position hands, turn hull through a further 90° and rest on trolley supports, as show (Fig 6) ►.



- * Layout all parts of the boat and identify with contents list (Fig 7) ▼.

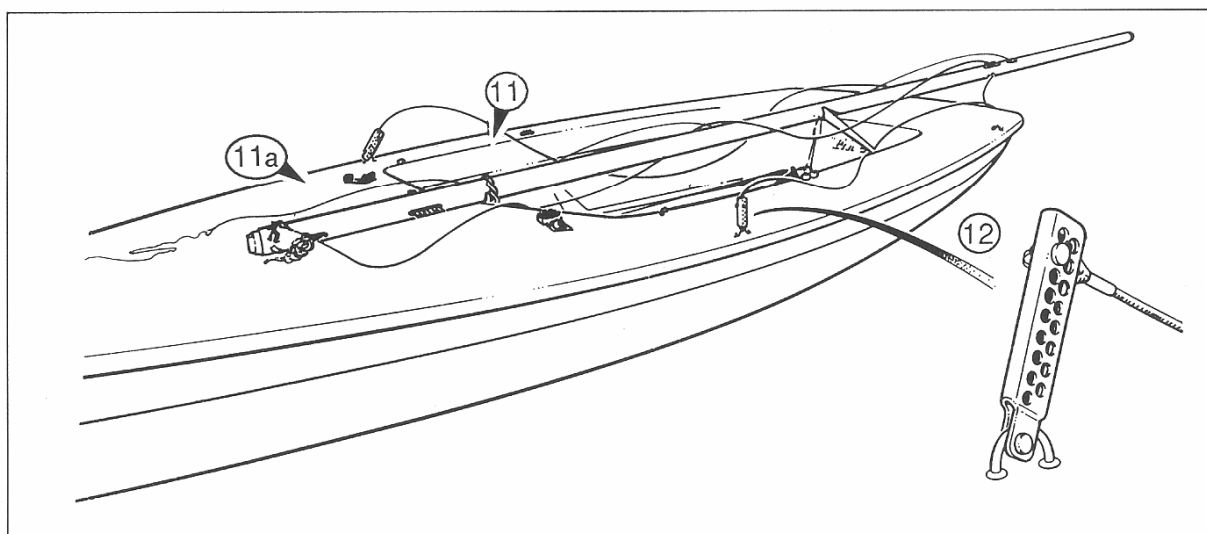
- | | |
|------------------------------|---------------------------------|
| A Mast | N Cunningham line |
| B Top Mast | O Traveller |
| C Boom | P Jib sheets |
| D Jib | Q Centre board restraining cord |
| E Mainsail | R Clew tie down |
| F Battens x3 | S Clew outhaul |
| G Storage bag | T Spreaders |
| H Kicking strap rope | U Rudder |
| I Kicking strap blocks x2 | V Tiller/tiller extension |
| J Reefing line | W Dagger-board |
| K Cunningham line hook | X Rigging instruction |
| L Main sheet | Y Boat cover (accessory) |
| M Main sheet traveller block | |



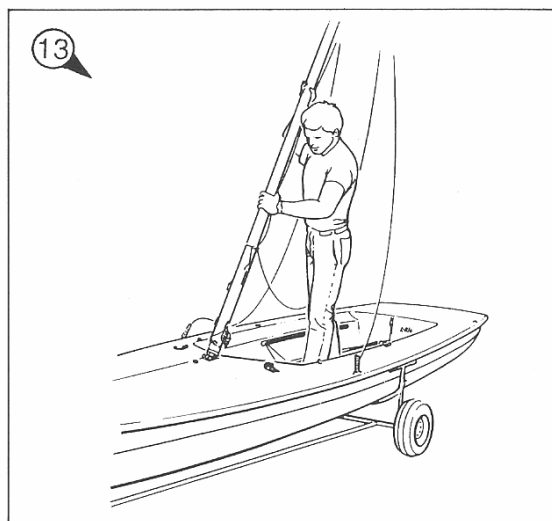


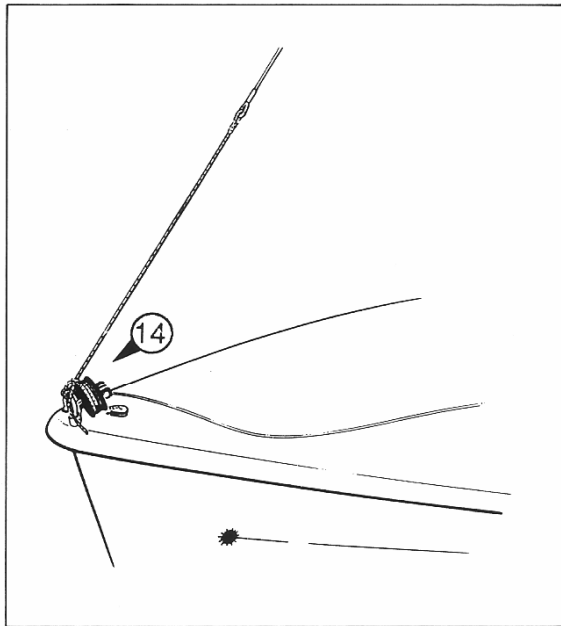
- * Take the top mast section (Part B) and slide into the bottom mast (Part A) making sure the luff groove is in line and the sleeve is fully pushed home (Fig 8) ▲. It is a good idea to put some lubricant, silicon spray or similar, on the mating surfaces before assembly.
- * Connect spreader arms (Part T) to the spreader fixings on the mast with the supplied bolts as shown (Fig 9) ▲
NB. Only one hole position is available.

Identify the spreader ends on the port and starboard shroud and slide them into the end of the spreader arms, securing with a clevis pin, as shown (Fig 10) ▼. NB. Only one hole position is available.



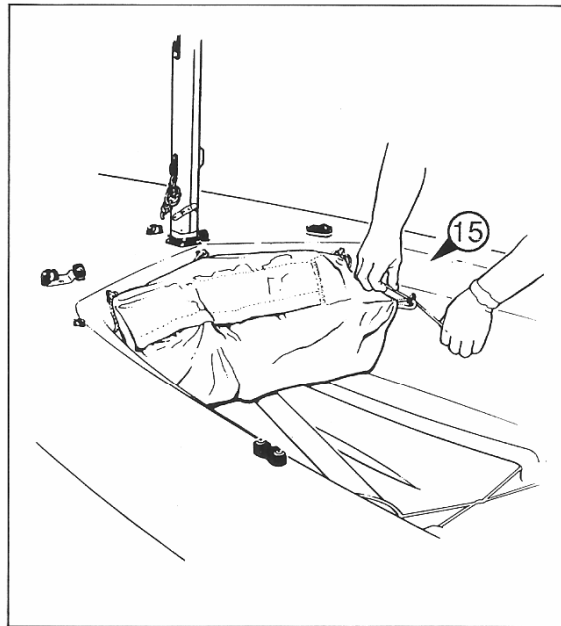
- * Retrieve the main halyard from the top of the mast and secure temporarily at the gooseneck fitting (Fig 11) ▲.
- * Retrieve the jib halyard from its position two thirds up the mast and secure at the gooseneck fitting (Fig 11) ▲.
- * Place the mast on the boat with the mast heel alongside the mast step fitting (Fig 11a) ▲
- * Connect the vernier shroud adjusters to the shroud plates, as shown (Fig 12) ▼. NB. The vernier adjustment for the shrouds should be set initially on hole 3 from the top, as shown, further tuning adjustments can be made at a later date.
- * Identify the forestay and lay it out carefully towards the bow of the boat, checking it is clear of any other rigging, and that it is not twisted or kinked.
- * Carefully position yourself in the cockpit of the craft, lift the mast and position the mast heel in the mast step slot, as shown (Fig 13) ▼.
- * Rotate the mast forward until the shrouds restrict its forward movement.





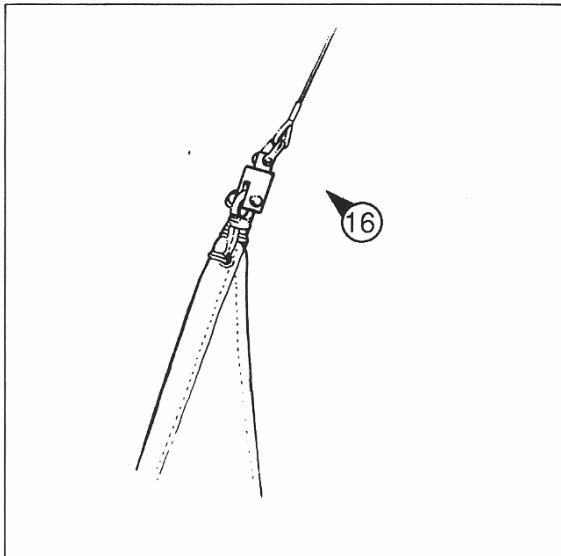
* Secure the mast in the upright position by attaching the forestay to the bow plate, as shown (Fig 14) ▶.

NB. This can be done simply single handed, however if two people are available further security is offered by the second person guiding the mast heel into the mast step slot.



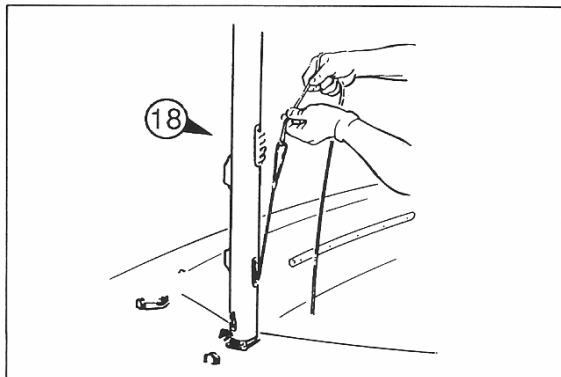
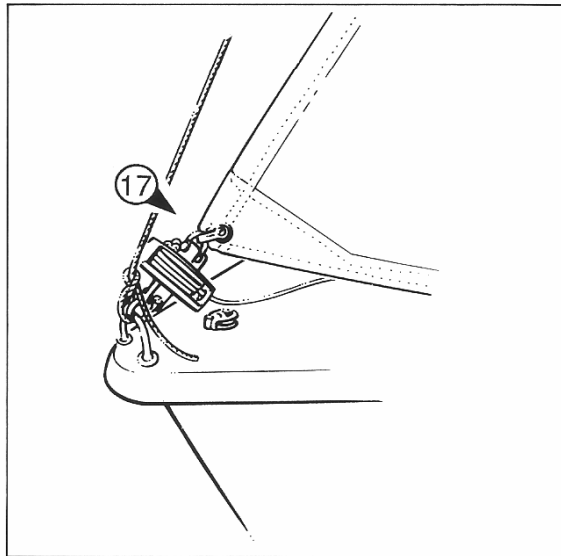
SECURING THE ROPE BAG

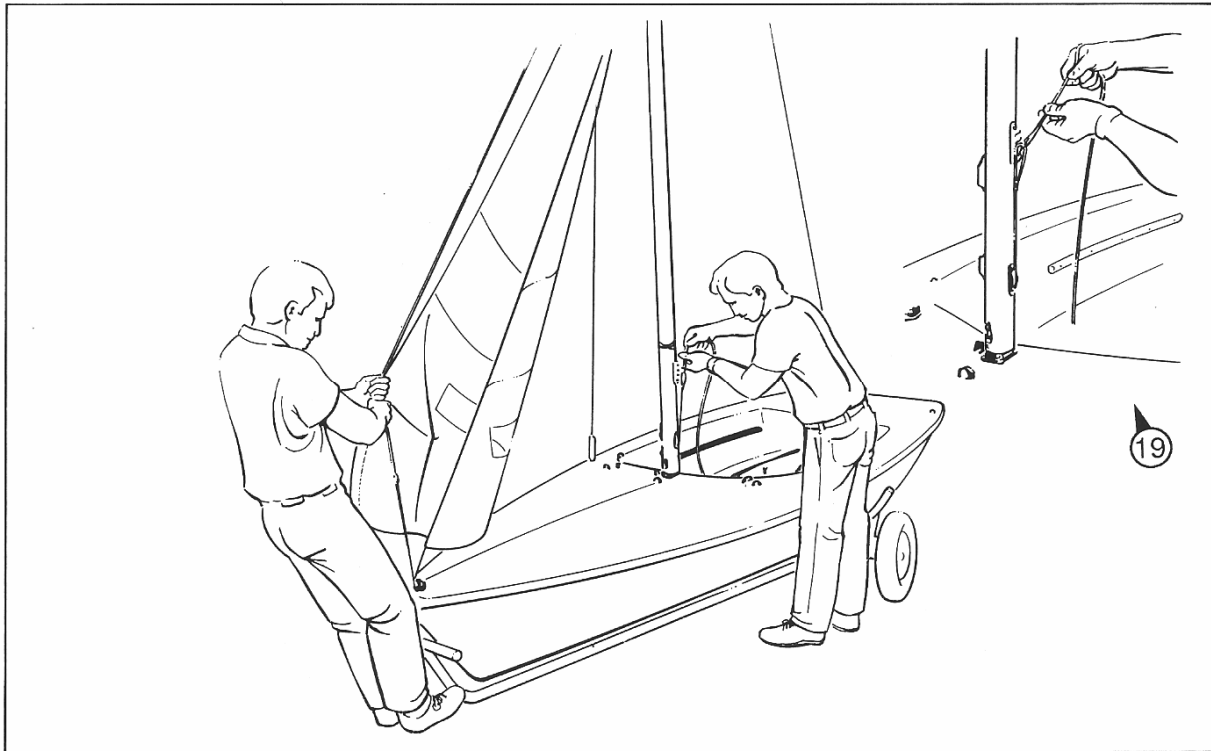
* Attach the halyard/stowage bag (Part G) to the front of the cockpit, as shown (Fig 15) ▲.



ATTACHING THE SAILS

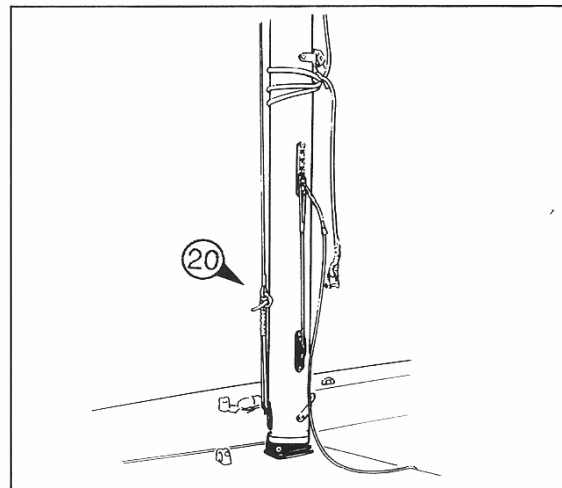
- * Turn the boat so that the bow is pointing into the wind.
- * Connect the head of the jib (Part D) to the jib halyard (Fig 16) ▲.
- * Connect the tack of the jib to the roller reefing drum (Fig 17) ▼.
- * Raise the jib via the rope halyard where it exits from the port hand side of the mast, until the wire loop is showing (Fig 18) ▶.





* Tension the luff of the jib by one person tensioning the forestay, as shown, while the second person places the wire loop over a convenient hook on the halyard rack, sliding the rope halyard carefully to one side, as shown (Fig 19) ▼ .
NB. The tension required for the jib luff is dependant on weather conditions, a rough guide is the stronger the wind, the more tension required

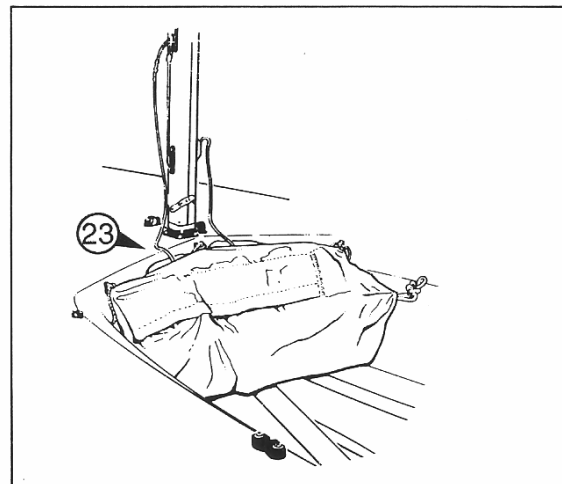
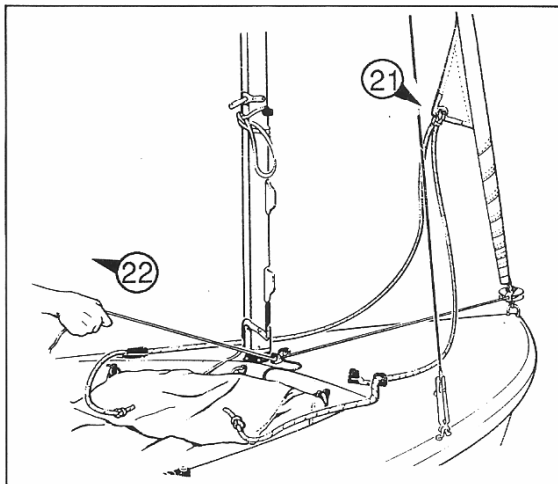
* Detach the forestay from the bow plate and secure at the base of the mast, as shown (Fig 20) ► .
NB. The forestay will need to be refastened to the bowplate each time the jib is lowered.



* Connect the jib sheets (Part P) to the jib clew and feed through the jib fairleads as shown, finishing with a stopper knot (Fig 21) ◀ .

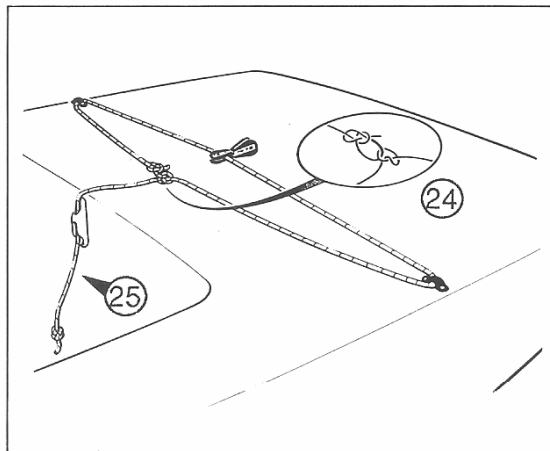
* The jib can now be furled by tensioning the furling line, as shown (Fig 22) ▼ . Care should be taken to produce a neat tight roll by applying a little tension to the jib sheets.
NB. The jib furling drum should already be full of line , if this is not the case the jib may need to be rolled around the luff wire before the jib sheets are fed through the jib fairleads.

* Coil the rope tail of the jib halyard and place in the halyard stowage pocket, as shown (Fig 23) ▲ .



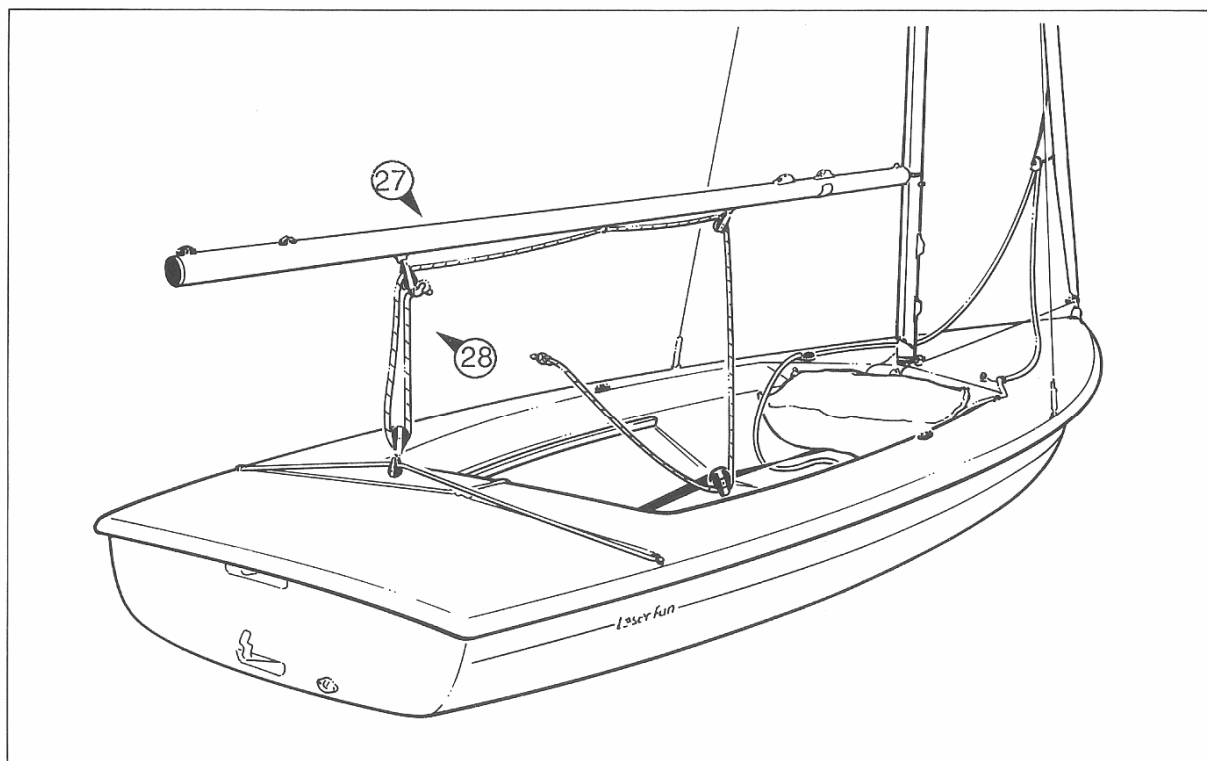
CONNECTING THE TRAVELLER AND TRAVELLER LINES

- * Tie a bowline, or similar knot, in one end of the traveller line, (Part O). Place the bowline in the centre line of the boat and feed the loose end through the traveller bullseyes and traveller block, as shown (Fig 24) ➤.
- * Tie a non-slip knot around the loop and feed the tail end through the traveller cleat, as shown, finishing with a stopper knot (Fig 25) ➤.

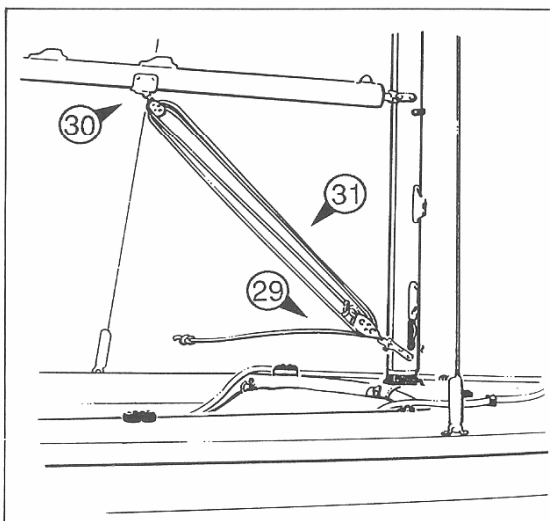


CONNECTING THE BOOM

- * Temporarily place the boom (Part C) on the gooseneck fitting with the mainsheet blocks facing downwards, as shown (Fig 27) ▲.



- * Feed the main sheet (Part L) through the main sheet system taking care to pass it correctly through the mainsheet ratchet block, as shown (Fig 28) ▲. NB. The main sheet ratchet block is positioned in the cockpit well and is fitted with an on/off ratchet switch. When the switch is ON, friction is only activated when the main sheet is released, this is for use in strong winds.

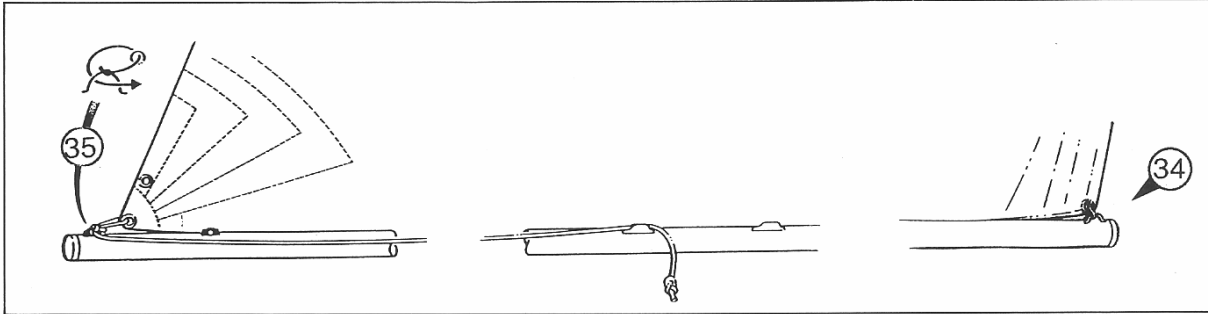
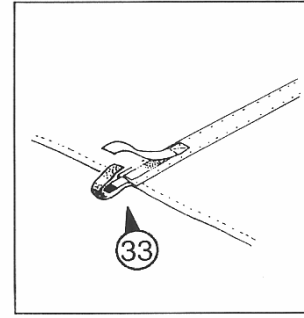
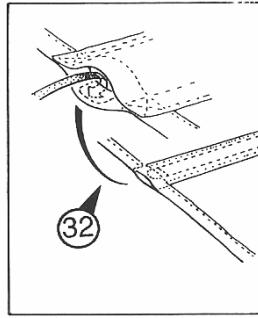


ATTACHING THE KICKING STRAP

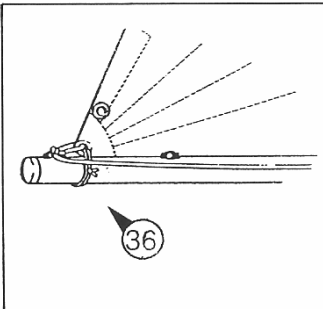
- * Connect the lower block (Part I) to the base of the mast (Fig 29) ➤.
- * Temporarily position the upper block (Part I) in the underside of the boom (Fig 30) ➤.
- * Attach the kicking strap rope (Part H) to the lower block and feed through the system, as shown, finishing with a stopper knot (Fig 31) ➤.

ATTACHING THE MAINSAIL

- * Check the bow of the boat is still facing into the wind.
- * Lay out the mainsail (Part E) on a clear piece of ground and insert the battens (Parts F). Battens 1 and 2 are inserted into the sail and retained by a pillowcase closing arrangement (Fig 32) ►. Batten 3 (longest batten will need securing with velcro (Fig 33) ►.

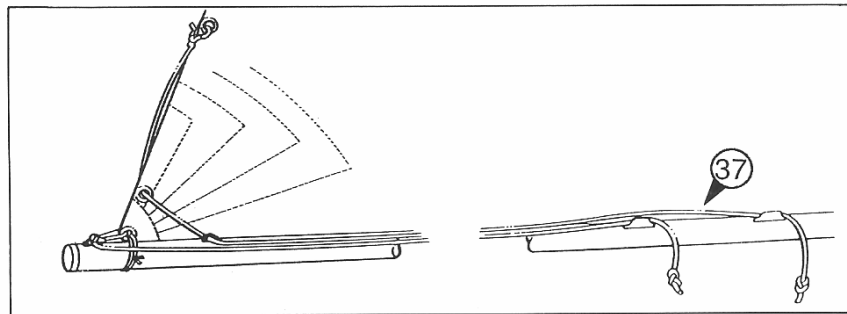


- * Secure the tack of the sail to the front of the boom (Fig 34) ►.
- * Tie the clew outhaul line, (Part S) to the eye at the end of the boom and feed through the sail clew and up to the cleat, as shown (Fig 35) ▲, finishing with a stopper knot.
- * Take the clew tie down (Part R), pass it through the clew eye, around the boom twice, as shown (Fig 36) ► finishing with a reef knot or similar.



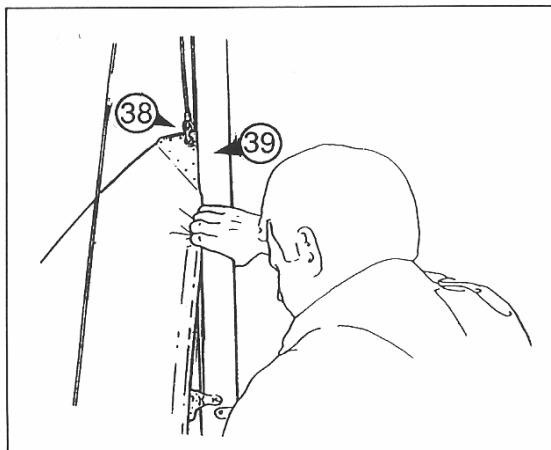
ATTACHING THE REEFING LINE

- * Secure the reefing line (Part J) to the sail with a bowline or similar.
- * Feed the reefing line as shown finishing with a stopper knot after the cleat (Fig 37) ▲.



RAISING THE MAINSAIL

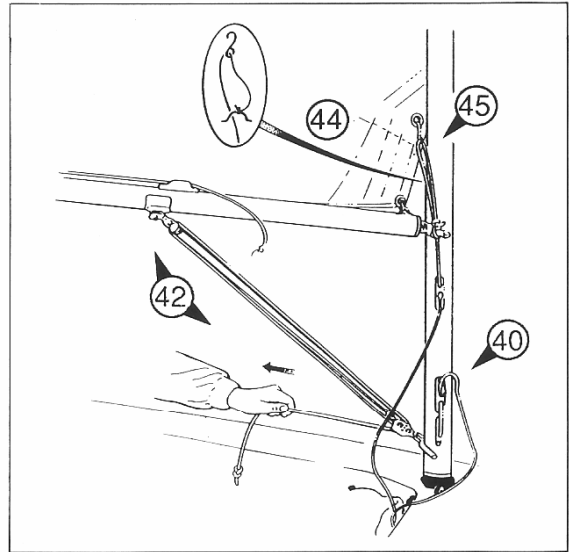
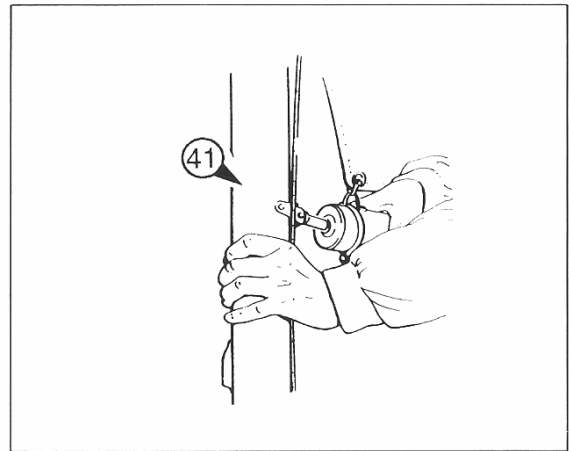
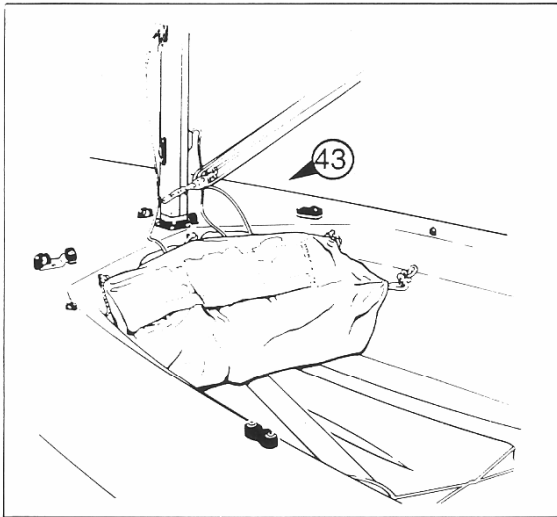
- * Connect the main halyard to the head of the sail, as shown (Fig 38) ►.
- * Raise the sail via the halyard, where it exits at the right hand side of the mast, feeding the luff of the sail into the mast track (Fig 39) ►. NB. Care should be taken when feeding the sail into the luff groove to make sure the sail does not pinch in the opening of the luff slot.



- * Raise the sail to the top of the mast and secure the halyard in the cleat, as shown (Fig 40). ◀
- * Pull the front of the boom down and slide it onto the goose neck fitting, as shown (Fig 41) ▶.
- * Reconnect the kicking strap fitting to the underside of the boom and tension, as shown (Fig 42) ◀.
- * Check the mainsail is free to swing from side to side and that there is no tension on the main sheet.
- * Place all excess halyard line in the halyard pocket, as shown (Fig 43) ▼.

CUNNINGHAM LINE

- * Attach the Cunningham line (Part N) to the bullseye on the mast using a bowline or similar knot.
- * Feed the line through the Cunningham hook (Part K) and down through the mast cleat, finishing with a stopper knot, (Fig 44) ▶.
- * The hook can then be attached to the Cunningham eye on the sail, as shown (Fig 45) ▶.

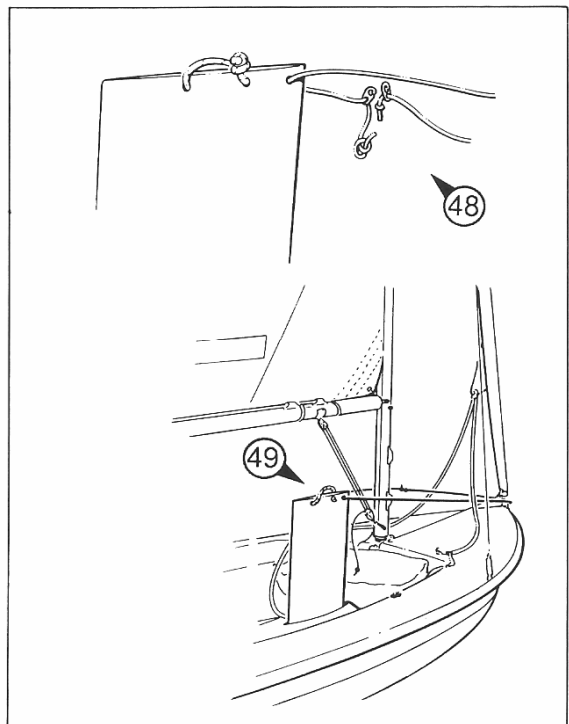
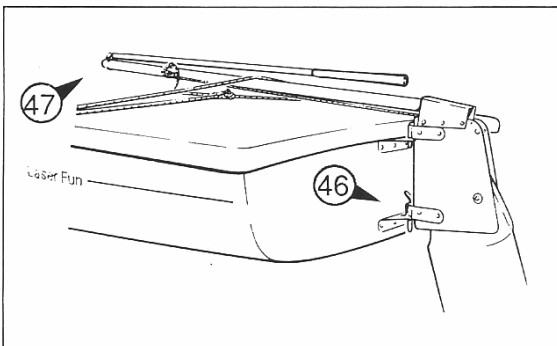


CONNECTING THE RUDDER AND TILLER

- * Clip the rudder (Part U) to the rudder fitting on the stern of the boat making sure the retaining clip is fully home, as shown (Fig 46) ▼.
- * Slide the tiller (Part V) under the traveller line and into the rudder stock making sure that the down haul line for the rudder blade is free (Fig 47) ▶.

CONNECTING THE DAGGER-BOARD

- * Feed the dagger-board restraining shockcord (Part O) through the eye on the front of the dagger-board (Part V) and replace the clip, as shown (Fig 48) ▶.
- * The shockcord is fed through the bow eye and then clipped together, as shown (Fig 49) ▶ when you are ready to start sailing.



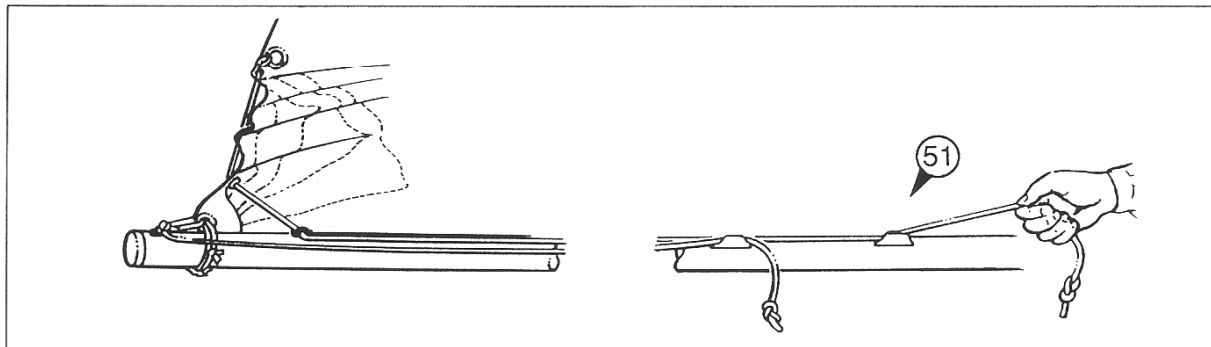
YOUR FIRST SAIL

Your boat is now ready to sail but before you launch, it is best to familiarise yourself with the boat's equipment, reefing system and any other accessories. It is also important that you consider all safety aspects of dinghy sailing.

REEFING

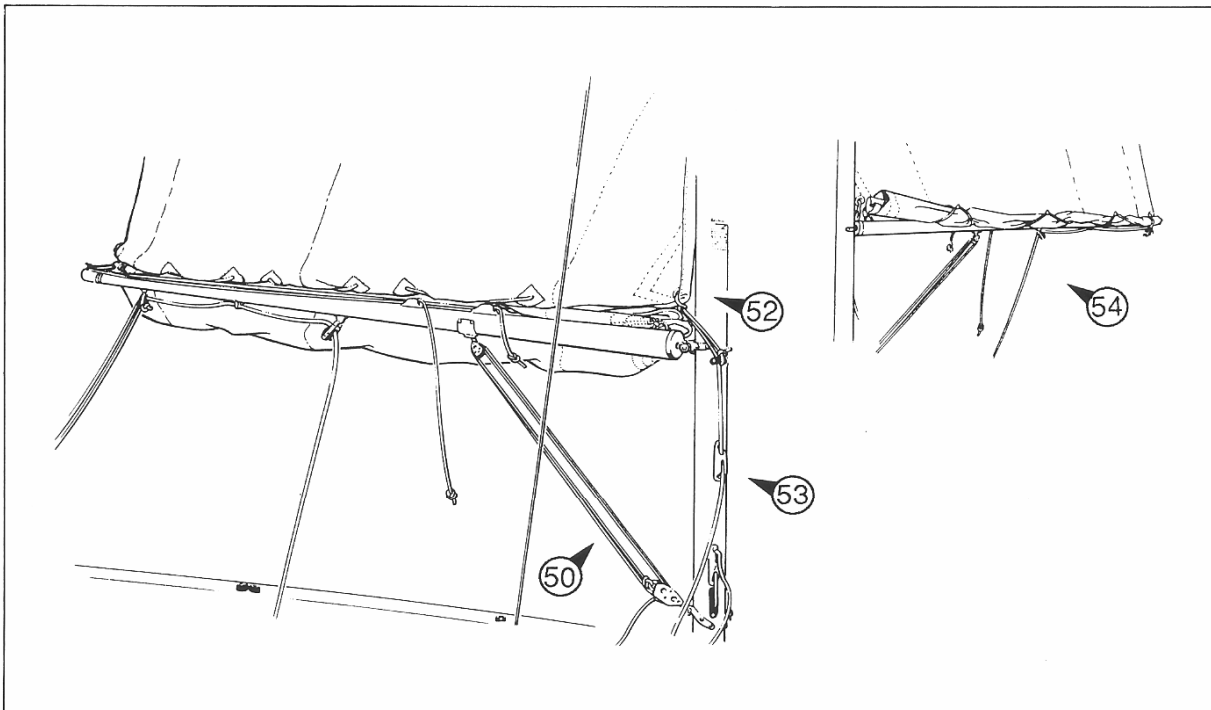
In the event of too much wind, the sail area can be reduced by

- 1 roller reefing the job
- 2 reefing the main sail to a smaller size.



REEFING THE MAINSAIL

- * Loosen the kicking strap (Fig 50) ▼.
- * Pull the clew reefing line until the reefing point is down to the boom, then cleat the line. (Fig 51) ▼.
- * Release main halyard and lower main sail luff until the reefing tack eye is just above the boom (Fig 52) ▼.
- * Connect the Cunningham downhaul hook to the reefing eye and tension, as shown (Fig 53) ▼.
- * Tightly roll the excess sail-cloth and pull the reefing shock cords around the sail and secure to the sail hooks, as shown (Fig 54) ▼. NB. Reefing is always best carried out ashore but if a situation arises and you have to reef afloat, port tack is favourable as it leaves easy access to the sail hooks.
- * The reverse procedure is followed when shaking out a reef.



LIFTING AND LOWERING THE RUDDER

- * The rudder is easily lowered by tensioning the down haul line and securing on the cleat.
- * When returning to shore, make sure the line is released to avoid damage to the blade.

THE SELF-BAILER

- * The self-bailer is fitted at the back of the cockpit.
- * To lower the bailer simply raise the catch and press firmly down, as shown (Fig 55) ►.
- * To raise the bailer rotate the catch forward into the normal position (Fig 56) ►. NB. The bailer will only work when the boat has reasonable forward motion. It should not be left down when beaching as damage could easily result.

MAINSHEET RATCHET BLOCK

The mainsheet ratchet block is fitted with an on/off switch. The ratchet friction device is normally used in strong winds. This can be switched off for light wind sailing.

LASER FUN ACCESSORIES

- 1) Laser Fun Hull Cover
- 2) Laser Fun Top Cover
- 3) Laser Fun Trapeze Kit

All LASER FUN accessories are available from your nearest Laser dealer.

TRAPEZE KIT OPTION

- * Identify all parts
Trapeze wires x 2
Trapeze wire adjusters and rings x 2
Trapeze shockcord
- Tools required:
None
- Fixing instructions:
- * Secure trapeze wire attachment points to the mast hound fitting as shown. (Fig 57)
- * Feed the restraining shockcord through the foredeck fittings and secure at the trapeze rings, as shown. (Fig 58) ►.
NB. Make sure that the trapeze wires are clear of all other rigging.

GENERAL MAINTENANCE AND SERVICE

WEEKLY:

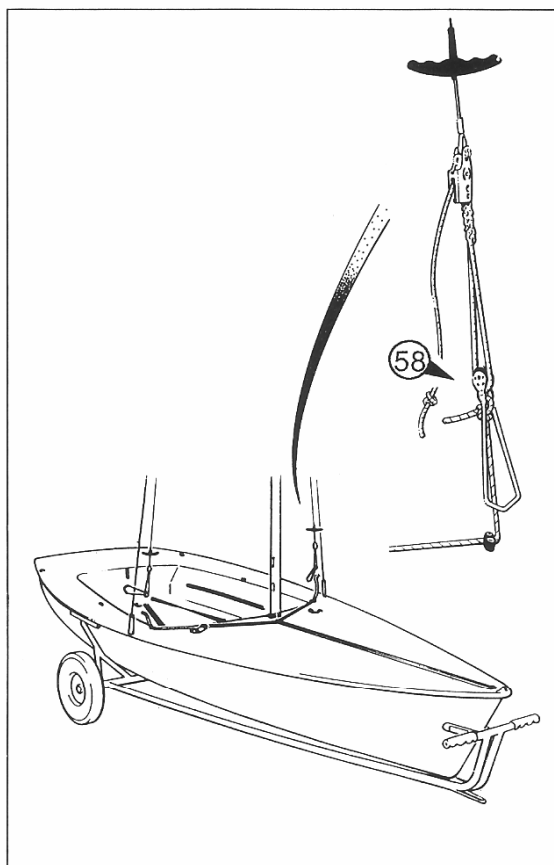
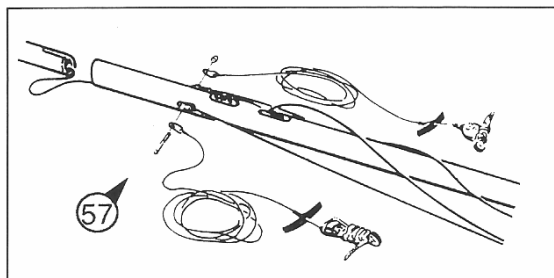
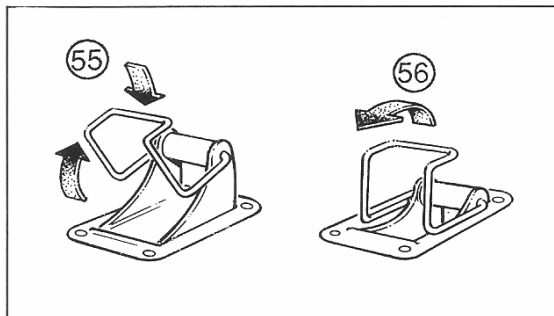
- 1 Your boat should always be tied down securely to ground fixings when not in use. Sails should be stored dry when possible.
- 2 Any excess water in the hull should be drained via the transom hang.
- 3 The keel line should be tilted towards the stern to allow drainage of any water that may find its way into the cockpit.

MONTHLY:

- 1 Ropes and rigging should be checked periodically for wear or damage.
- 2 All moving parts such as jamming cleats and blocks should be lubricated lightly with WD40 or similar.

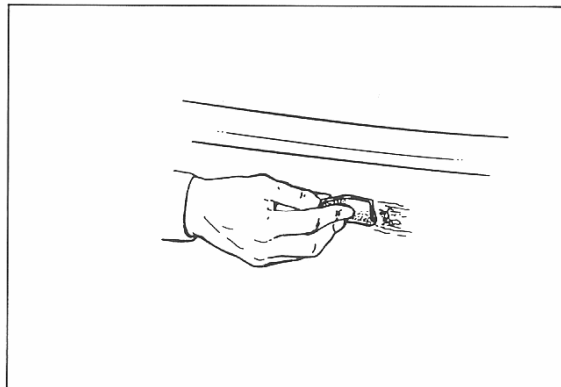
END OF SEASON:

- 1 At the end of each season it is a good idea to check your boat thoroughly for signs of damage or wear.
- 2 Damage or worn parts should be replaced using the Laser Parts identification system.
- 3 The hull should be washed down with fresh water and a protective cover placed over it.
- 4 Spars and rigging should be washed thoroughly, dried and placed in a protective area.
- 5 Sails should be thoroughly washed, dried, checked and stored in a dry place.
- 6 Road trailer and launching trailer should be washed, checked and greased where necessary.

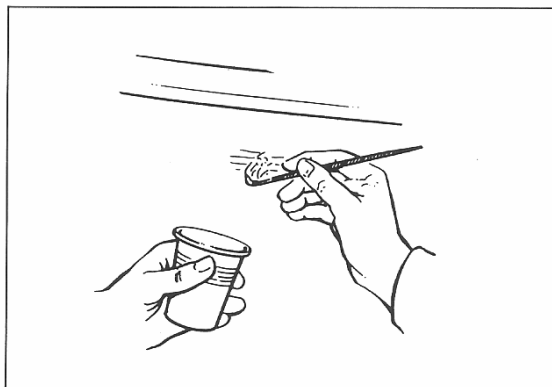
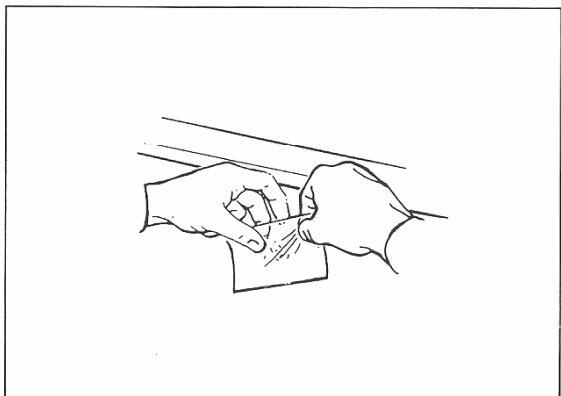


GELCOAT REPAIRS

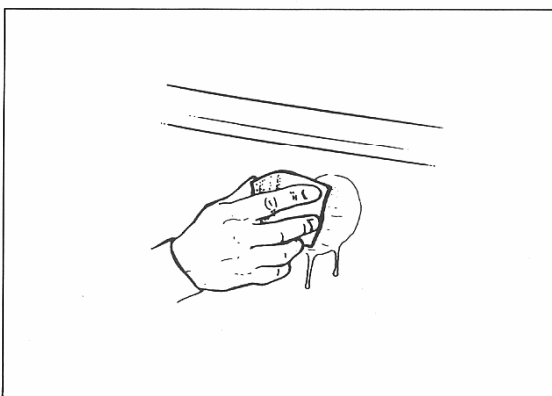
Should you damage the Gelcoat surface of your boat you should repair it as soon as possible. The correct Gelcoat colour can be ordered through your Laser dealer.



- 1 Sand back the damaged or flaking Gelcoat until a solid area is produced. Make sure the area is clean and there are no sharp edges.
- 2 Mix the Gelcoat with approximately 2% of hardener and apply using a fine artist brush or similar. Cover the area with cellophane and allow to dry.

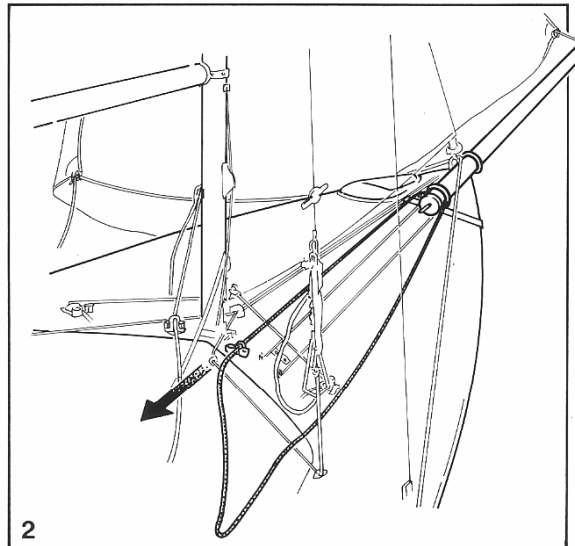
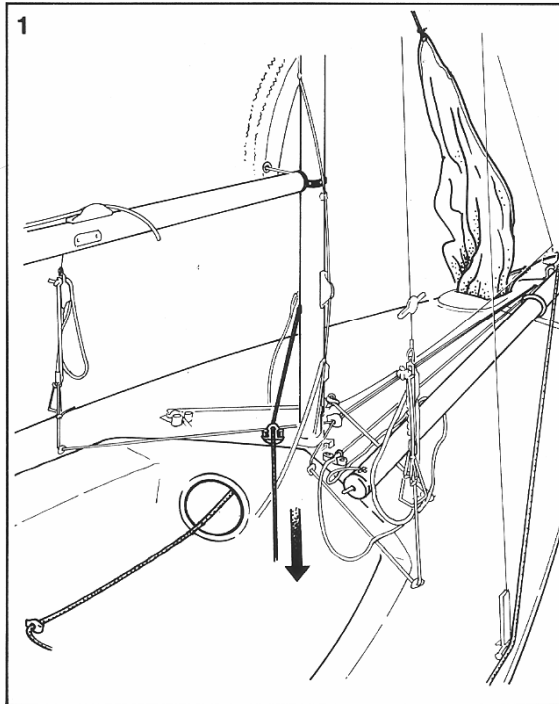


- 3 Brushes and equipment should be washed out in Acetone if required.
- 4 When dry, carefully remove cellophane and sand the surface with wet and dry sand paper until it blends in with the original area.
- 5 Finally polish the area using a fibre glass rubbing compound or similar.

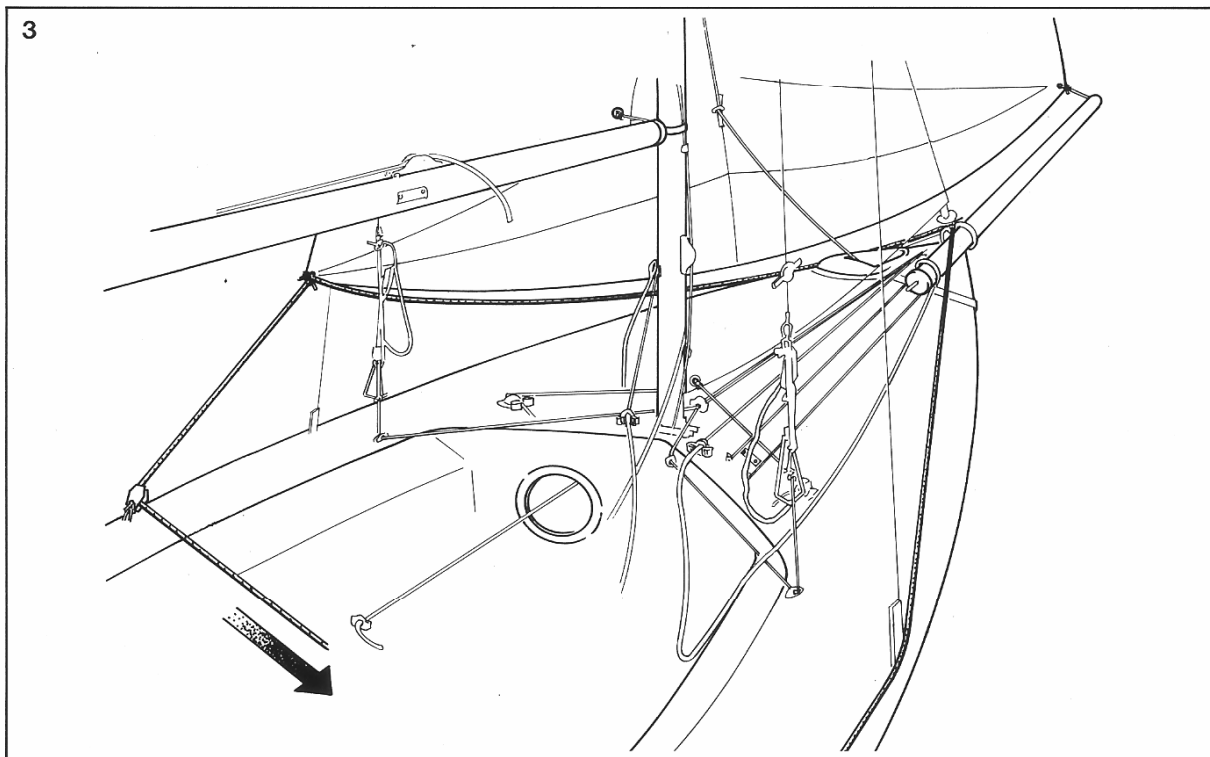


NB. If substantial damage is sustained to your craft, you should take it to your nearest authorised Laser Repair Centre or contact the Laser Centre at Banbury, Telephone: 0295 358191.

TO HOIST THE GENNICKER



1. Hoist the gennicker by pulling on the gennicker halyard through the swivel cleat on the port side of the mast.
2. Pull the outhaul through the cleat on the starboard side of the mast, so that the pole is launched out fully in front of the boat.
3. Set the gennicker with the gennicker sheet through the ratchet block.

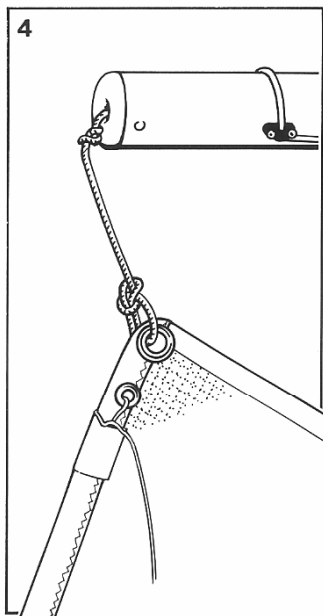


TO LOWER THE GENNICKER

1. Let go of the gennicker sheet.
2. Uncleat the outhaul on the starboard side of the mast and the pole will retract automatically (WARNING: make sure the pole retrieval shockcord is not too tight,

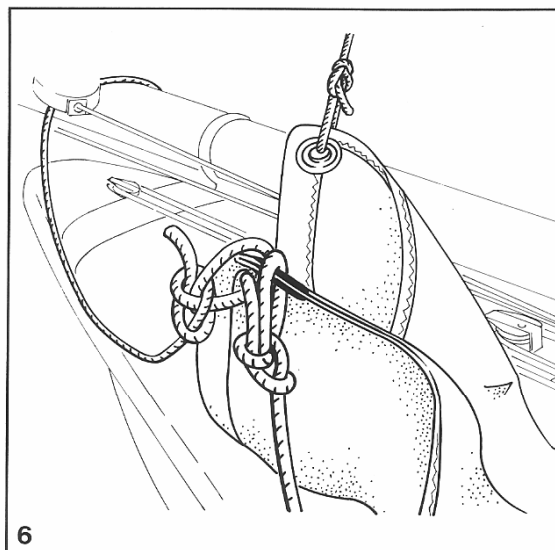
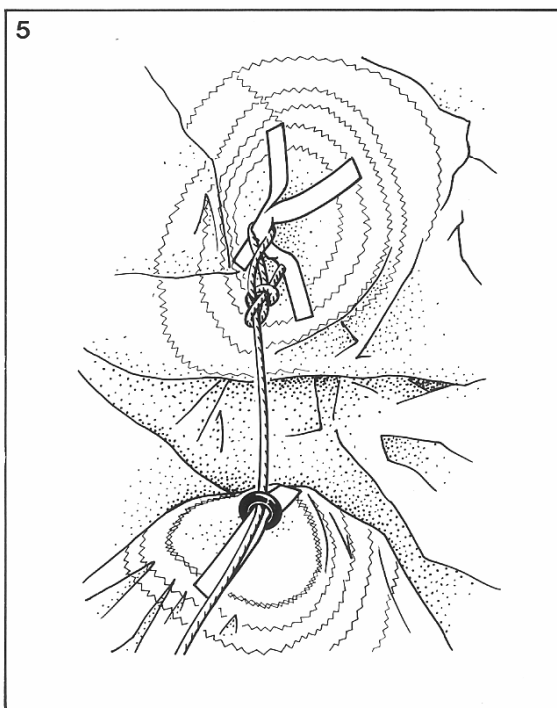
otherwise the pole will shoot aft with some force and could injure the crew).

3. Uncleat the halyard from the swivel cleat on the port side of the mast and pull the gennicker into the gennicker chute by pulling the downhaul from the fairlead on the cockpit floor.



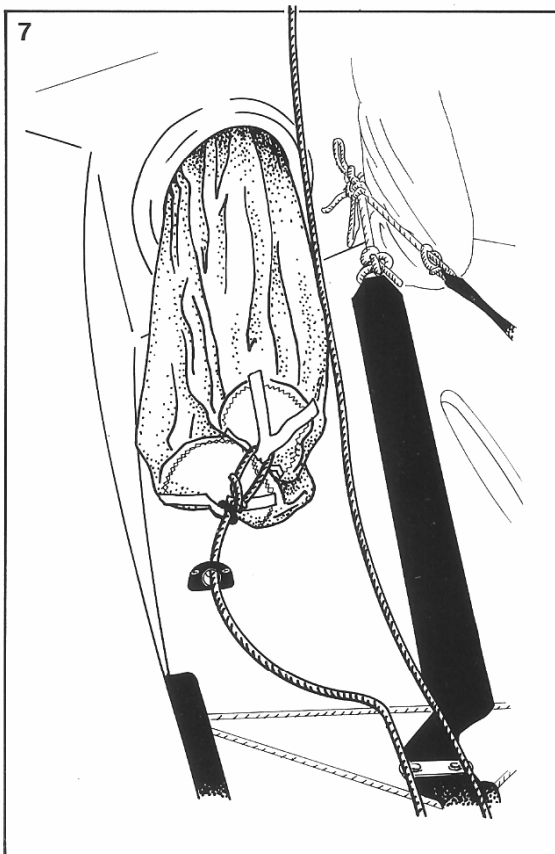
4. Tie the tack of the gennicker to the gennicker pole outhaul, which is identified by the white foot tape and red luff tape.

5. Thread the gennicker down haul up through the down haul gringle and then tie it to the gennicker downhaul patch.



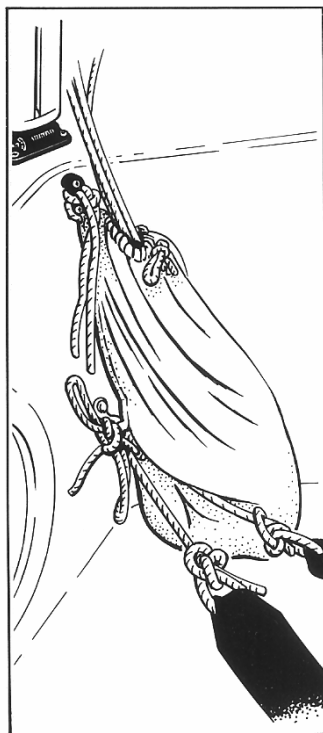
6. Tie both ends of the sheet to the gennicker clew, which is identified by the green leech tape and white foot tape.

7. Hoist the gennicker, then pull it into the gennicker chute ensuring that it does not snag on anything.



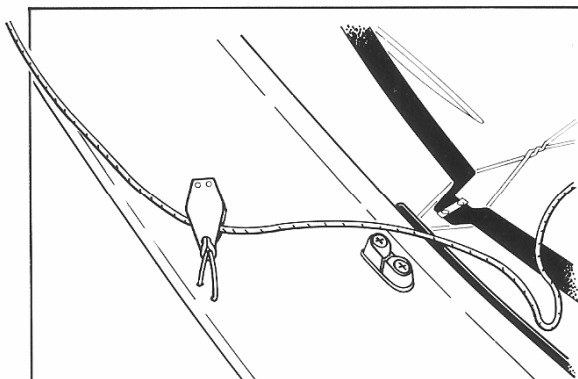
LASER FUN 'NEW WAVE' - SUPPLEMENT TO FUN RIGGING INSTRUCTION

FITTING THE HALYARD BAG



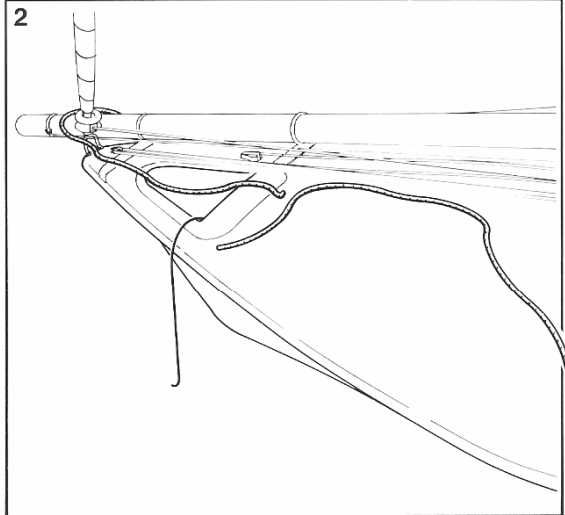
If you have purchased a Fun 'New Wave' you will have been supplied with a halyard bag and not a full cockpit bag as illustrated in the fun rigging instructions. The halyard bag is tied to the fairlead at the front of the cockpit and to the toe strap rope.

2. Feed the gennicker sheets through the gennicker blocks, ensuring that the ratchet operates correctly when sheeting in. Pass the sheets outside of the shrouds and jib luff/forestay to the spinnaker chute.

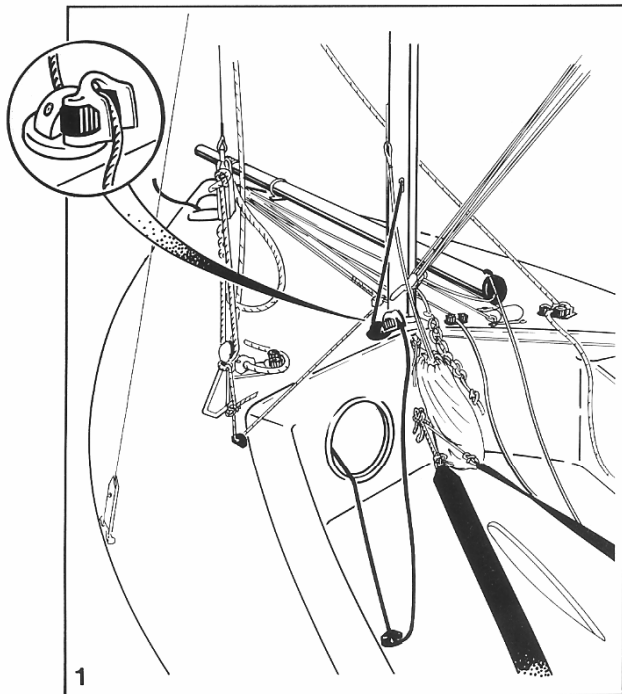


2

2



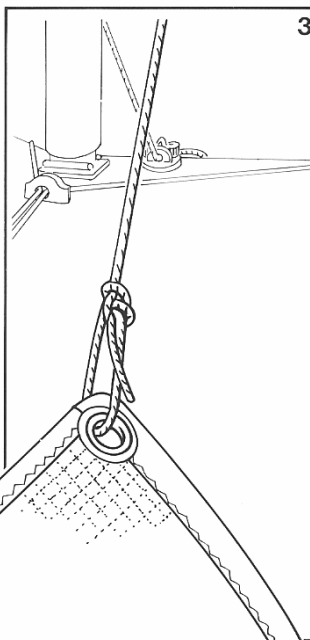
ATTACHING THE GENNICKER



1

1. Feed the gennicker halyard from where it exits the base of the mast, through the swivel cleat on the port side of the mast step. Then through the downhaul fairlead on the cockpit floor and up through the gennicker chute.

3. Tie the gennicker halyard to the head to the gennicker, which is identified by the red luff tape and green leech tape. (N.B. It is recommended that all corners are tied using a bow line).



3