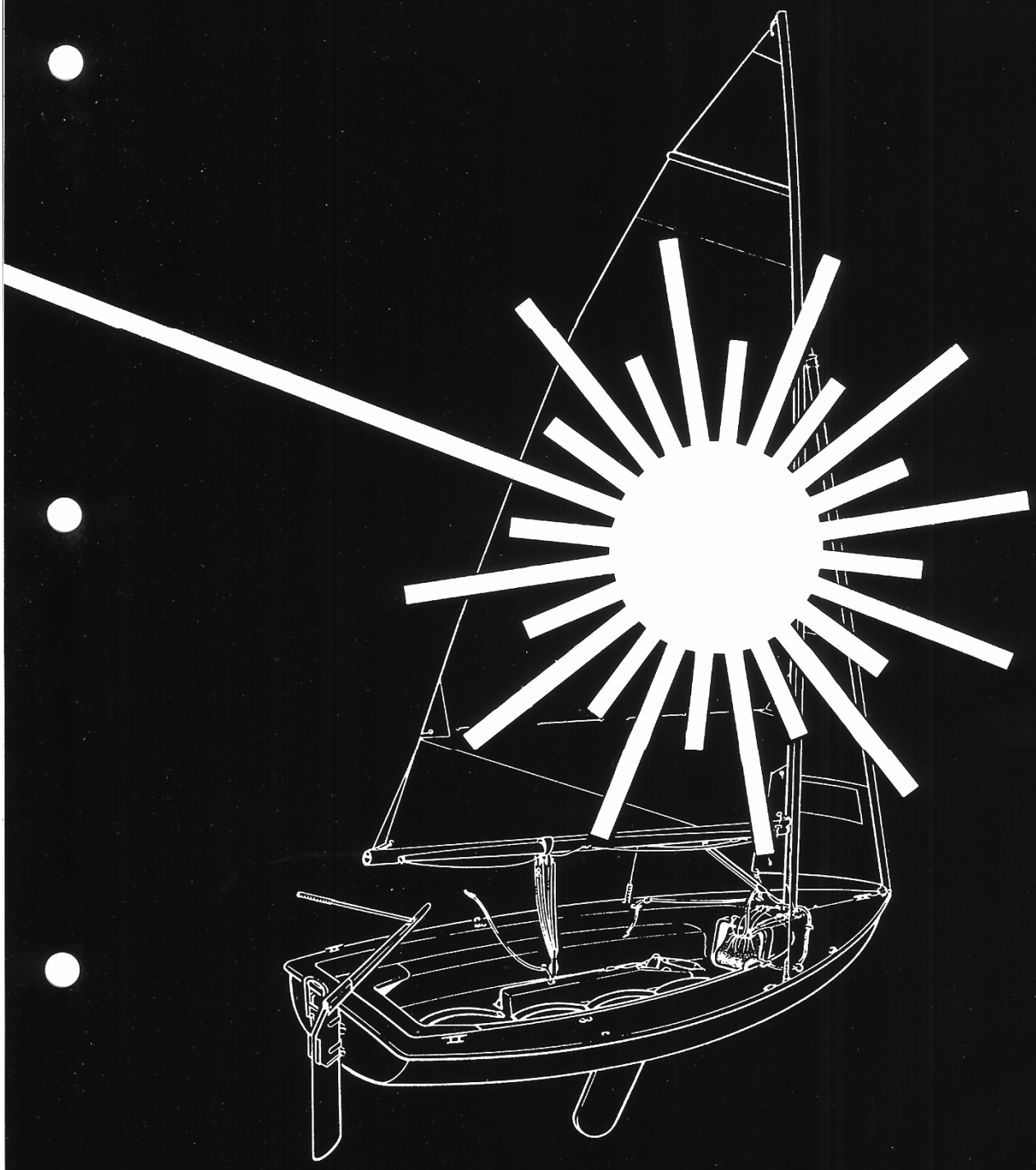


Laser 16

RIGGING MANUAL

LASER 16 RIGGING INSTRUCTIONS

The Laser 16 Rigging Instructions are a comprehensive guide to rigging your Laser 16. 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.

Options, accessories and spare parts for your Laser 16 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

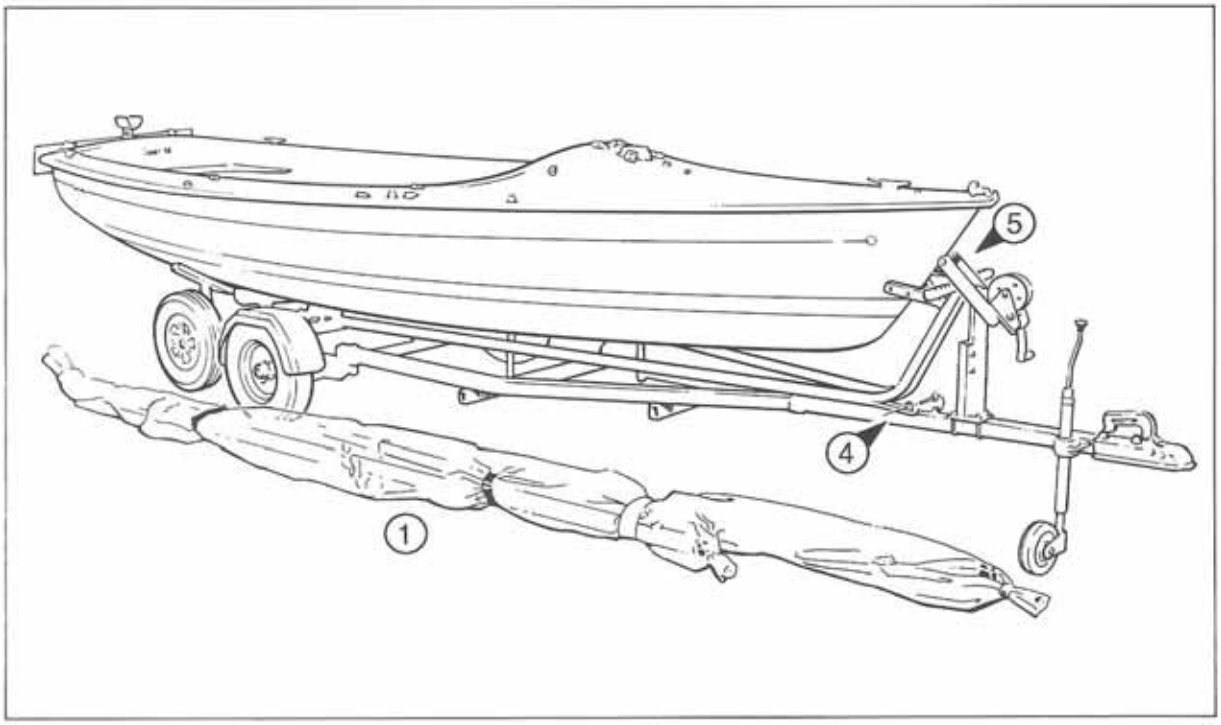
Laser School is the only specialist sailing centre recommended by Laser. Here you will find the extensive range of products ready for your use. Laser School teaching techniques have been refined and developed to the highest possible standards. Sailors of all abilities visit the Centre to to improve their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

Laser School
Mylor Yacht Harbour
Falmouth, Cornwall TR11 5UF.
Telephone 0326 376191 · Fax 0326 376192

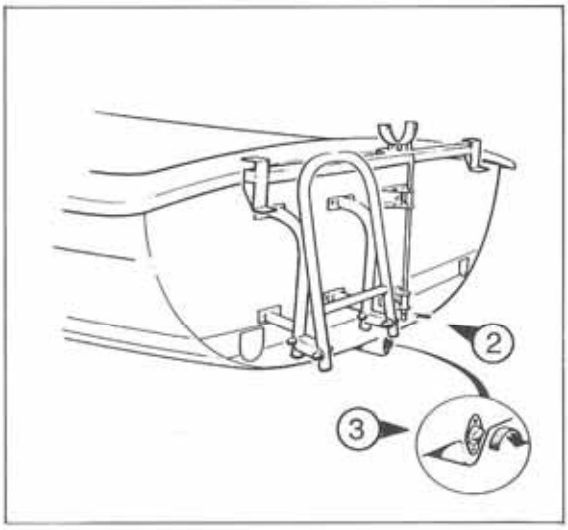
CONTENTS

RIGGING INSTRUCTIONS LASER 16

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

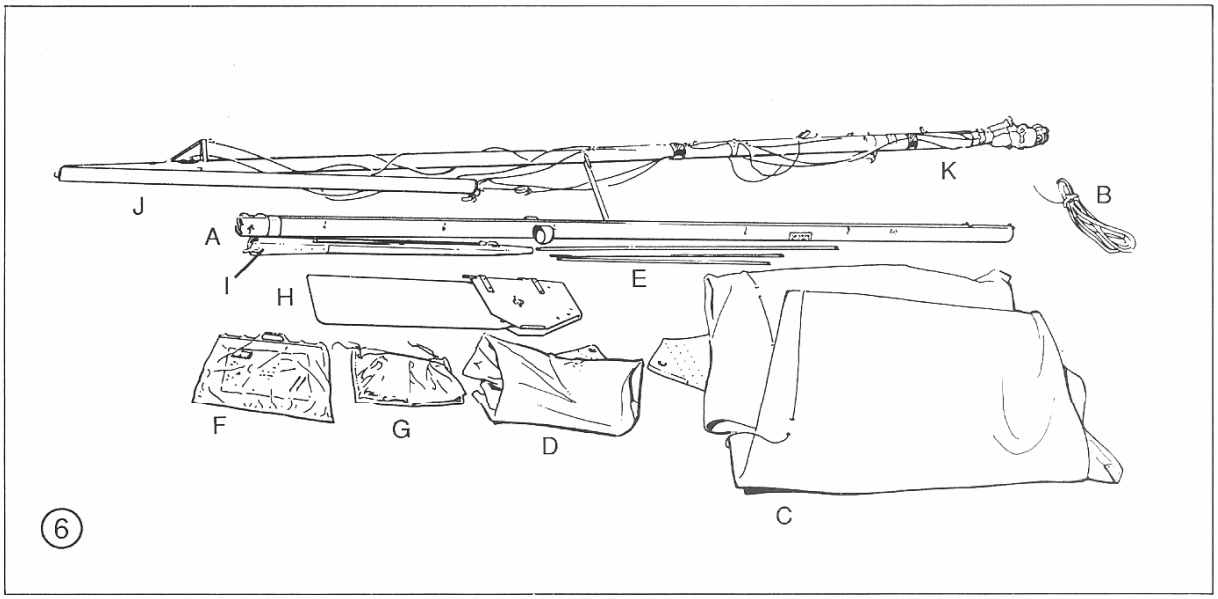


* Detach rear mast support by removing 'R clip' (Fig 2).
* Secure bung in transom drain hole as shown (Fig 3).
* Release trolley from road trailer base by releasing pin (Fig 4).
* Release winching hook from bow eye (Fig 5).
* Slide launching trolley carefully off road trailer base.



LASER 16 OPTIONS

A Spinnaker option
B Storage Box option
C Outboard engine (option)
(These accessories are dealt with separately)

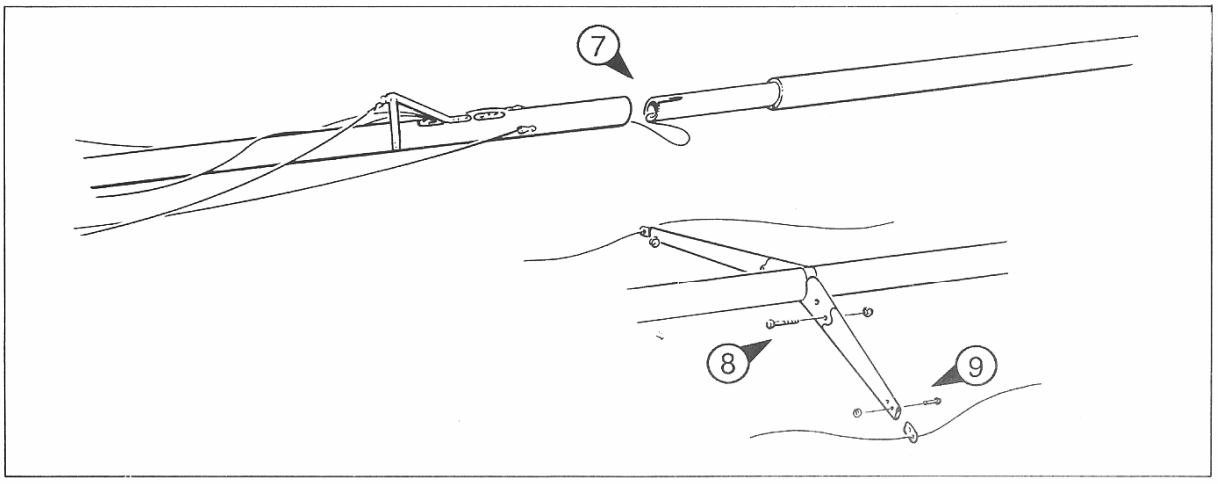


Lay out all parts of the boat and identify the contents list (Fig 6)◀.

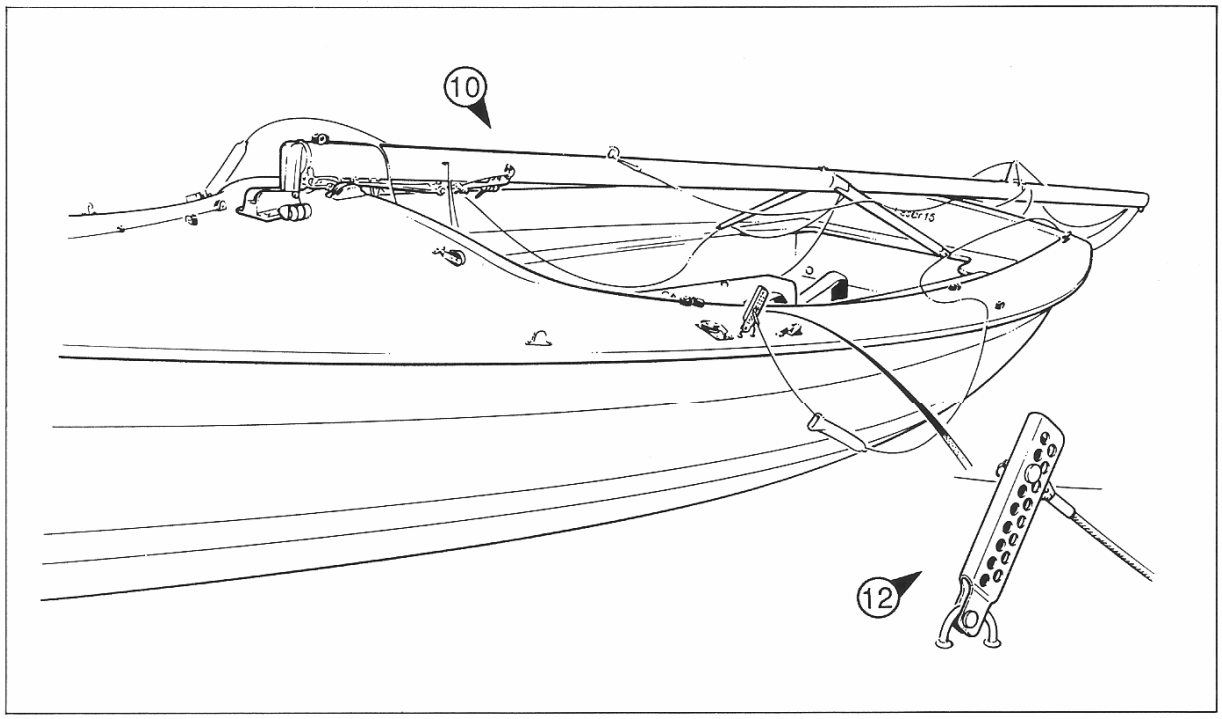
A Boom (including Main Sheet)
B Jib Sheets
C Mainsail
D Jib
E Battens x 3
F Boom Cover (accessory)
G Rope Bag
H Rudder
I Tiller
J Top Mast
K Bottom Mast

RIGGING YOUR LASER 16

* Take the top mast section (Part J) slide into the bottom mast (Part K) making sure the luff groove is in line and the sleeve is fully pushed home (Fig 7)◣. It is a good idea to put some lubricant on the mating surfaces before assembly, silicone spray or similar.

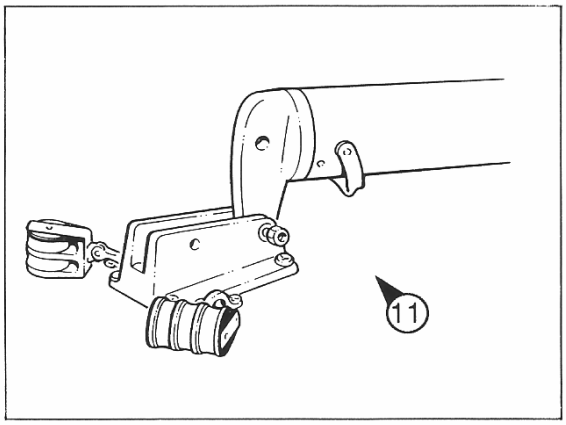


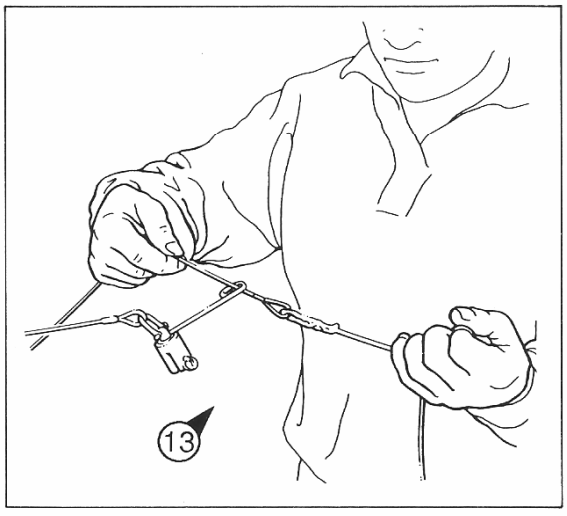
* Connect the spreader arms to the spreader fixings on the mast with supply bolts as shown (Fig 8)◤. NB. Only one hole position is available. Identify the spreader ends on the port and starboard shroud and slide them into the end of the spreader arms securing with the clevis pin as shown (Fig 9)◤. NB. Only one hole position is available.

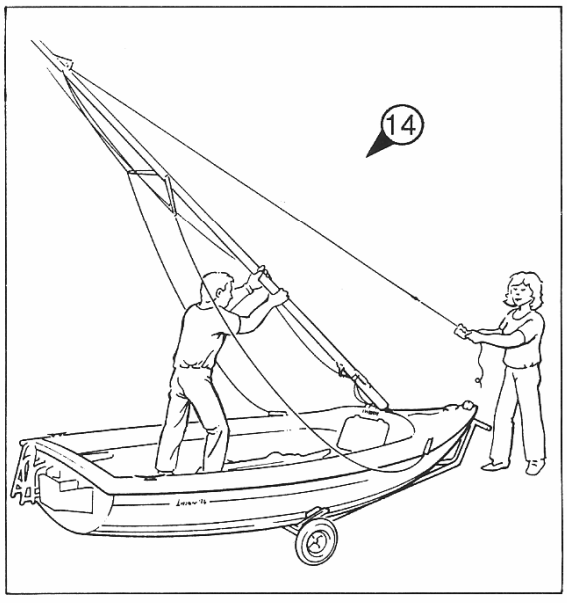


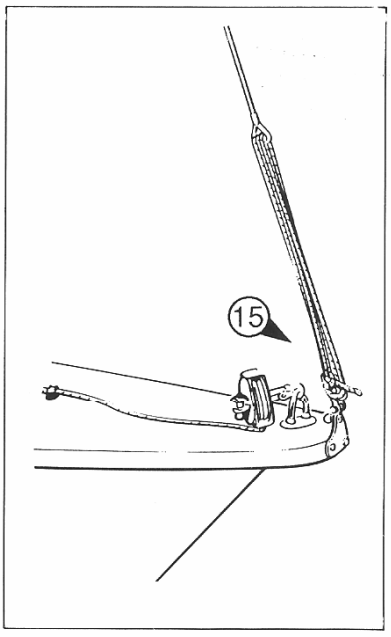
ATTACHING THE MAST

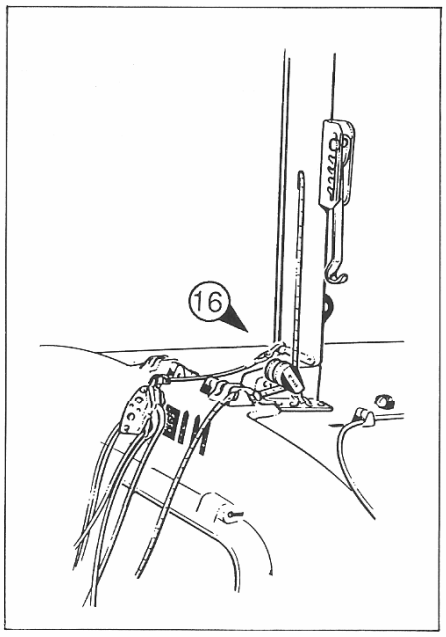
* Place the mast on the boat in the horizontal position with the luff grove facing downwards (Fig 10) ▲.
* Secure the mast heel to the mast step with the supplied nut and bolt as shown (Fig 11) ►. The mast can now be rested gently on the boat's transom.
* Connect the port and starboard shrouds to the shroud plates on the boat as shown, making sure there are no loops or kinks in the wire. The shroud adjuster plates are preset at the factory on the fifth hole down. (Fig 12) ◄.
* Feed the forestay wire through the jib halyard roller system as shown (Fig 13) ▼. Lay the forestay and jib halyard wires out towards the bow of the boat.
* Pull down the main halyard from the top of the mast and secure temporarily at the goose neck fitting. The mast is now ready to raise.
* With one person steadying the mast by holding the forestay wire, a second person can stand in the boat facing forward lifting the mast so that it tilts forward and is restrained by the shrouds (Fig 14) ◣. This can be done single handed if required.

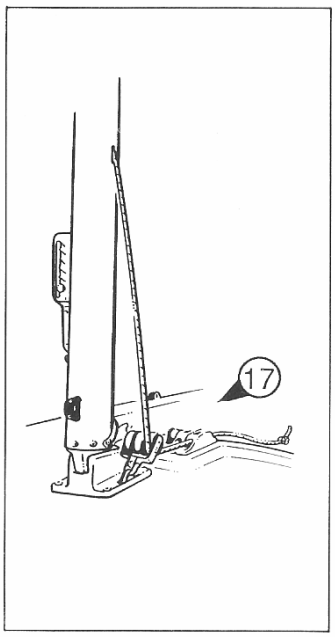








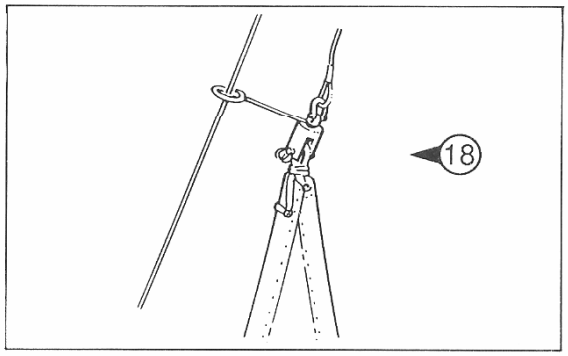


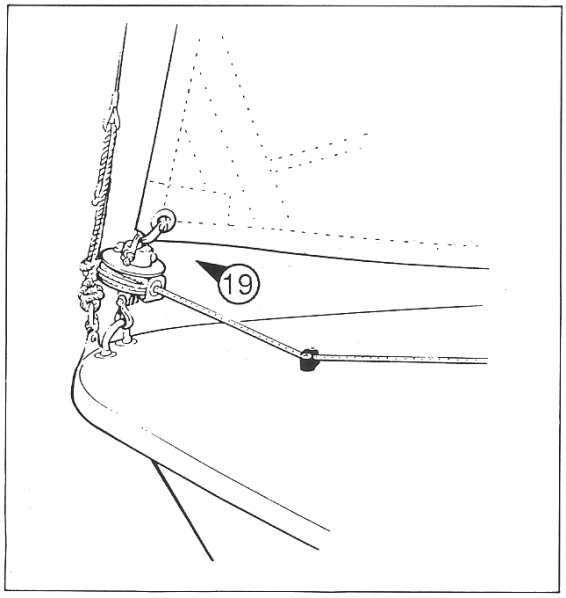


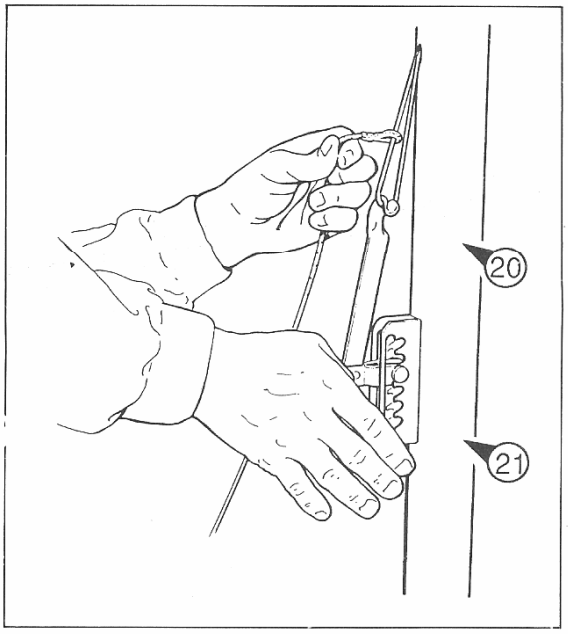
* Secure the forestay on the bow plate as shown (Fig 15).
* Take the spinnaker halyard where it exits from the right hand side of the mast and feed it through the outer sheave of the block and secure in the cleat as shown (Fig 16). All boats are fitted with the spinnaker halyard as standard.
* Connect the tail end of the main halyard where it exits from the left hand side of the mast through the block and cleat as shown (Fig 17).

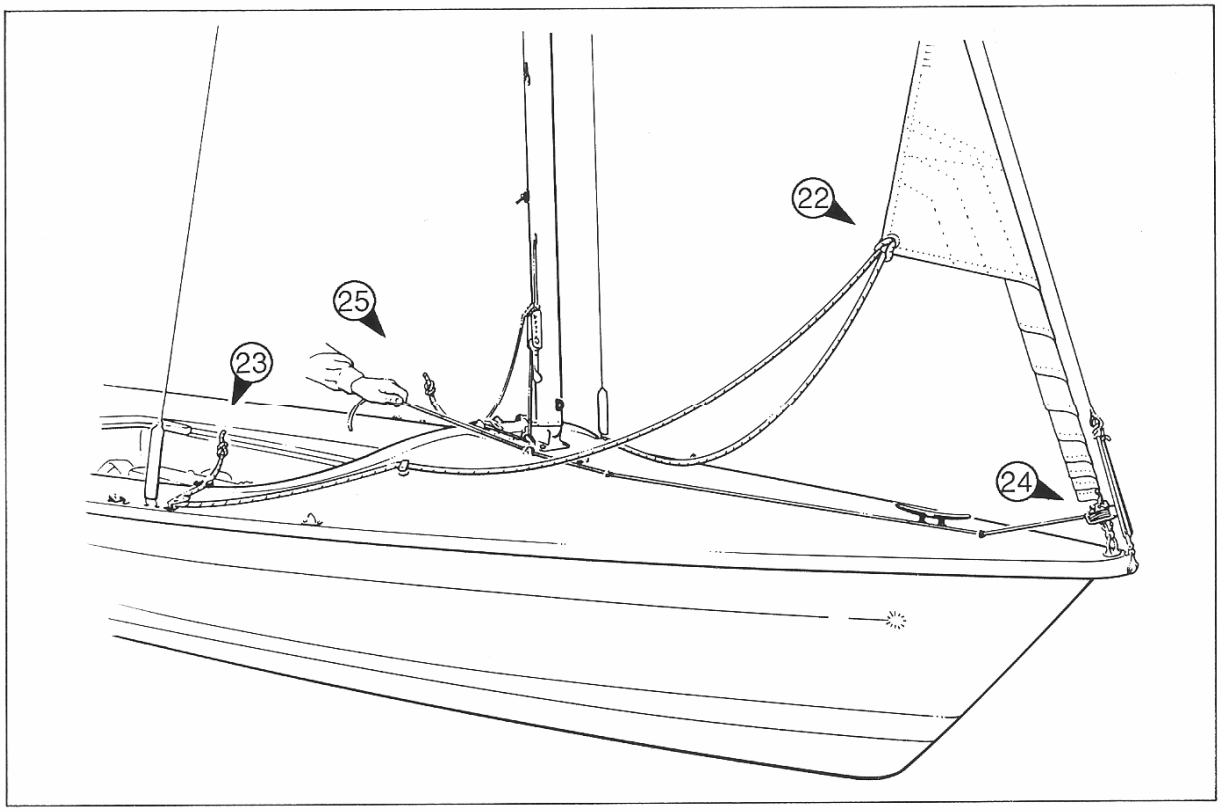
ADDING SAILS

* Turn the boat so that it is pointing into the wind in readiness for adding the jib.
* Unfold the jib (Part D) and identify the head.
* Secure the head of the jib to the jib halyard roller reefing system as shown (Fig 18).
* Secure the tack of the jib to the bottom of the roller reefing system as shown (Fig 19).
* Raise the jib by pulling the halyard line on the right hand side of the mast until the jib has been hoisted and the wire loop connected to the halyard line is showing (Fig 20).
* Connect the wire to the highfield lever making sure not to pinch the rope halyard line between the two surfaces. Set the lever so that the maximum amount of tension is achieved on the jib halyard and fold down lever as shown (Fig 21).

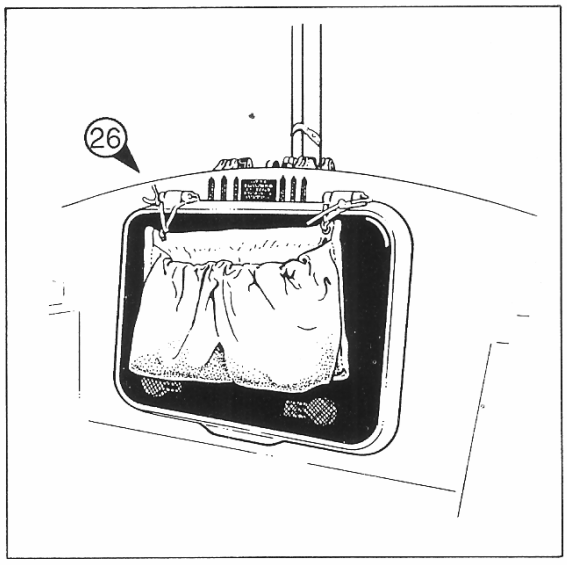








* Connect the jib sheets (Part B) to the jib clew as shown (Fig 22)➘.
* Feed the jib sheets through the jib fairlead system and finish with a stopper knot as shown. (Fig 23)◣.
* You may find that at this point the forestay is slack. Re-tension to allow simple furling of the jib.
* The jib furling drum should already be loaded with the reefing line as shown (Fig 24)➘. If for any reason the drum is fully discharged it can be reloaded by rolling the jib around itself fully then pulling the clew to unroll the jib and load the reefing drum with line. The jib can then be furled by using the jib furler line as shown (Fig 25)◣.

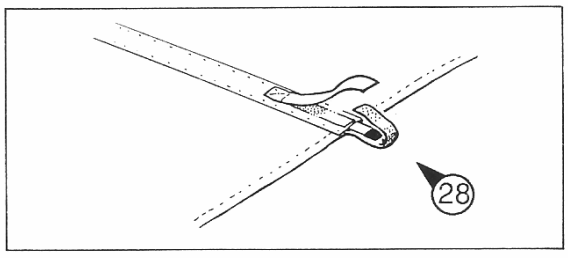


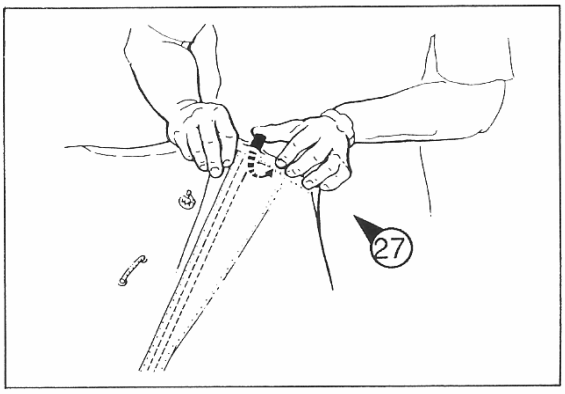
ROPE BAG

* Place the rope bag (Part G) on the hatch and secure with the line supplied as shown (Fig 26)►.
  All excess line/halyards can be put into the bag to keep the cockpit area clear.

ATTACHING MAIN SAIL

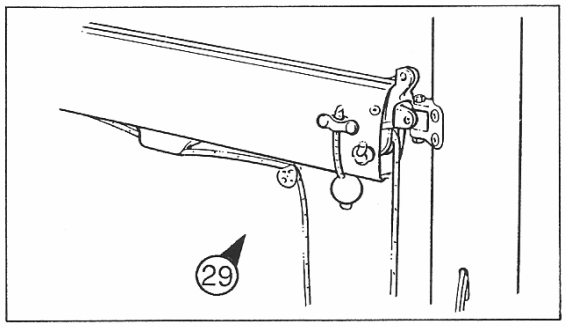
* Lay out the mainsail (Part C) on a clear piece of ground and insert the battens.
* Battens 1 and 2 are inserted in the sail with the curved end of the batten first. The outer end is then pushed sideways as shown (Fig 27)►.
* Batten 3 (the long batten) will need securing with velcro (Fig 28)◣.



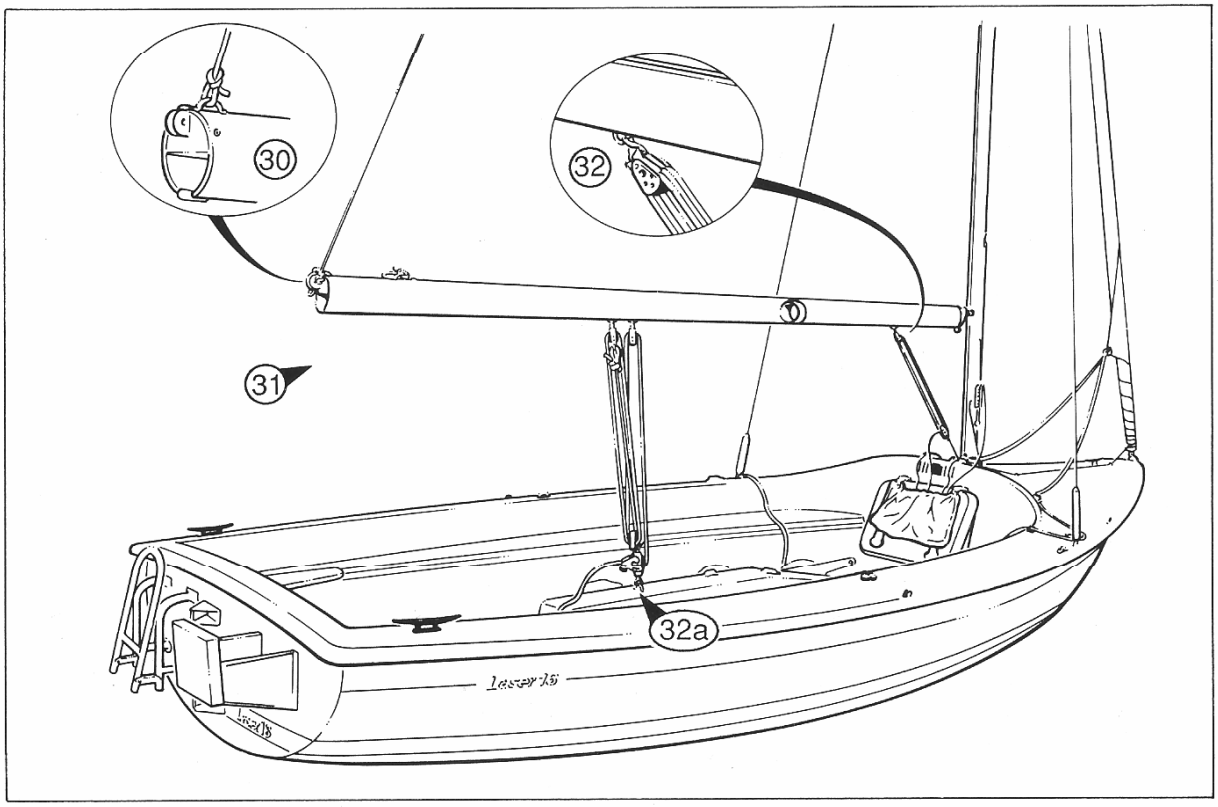


ATTACHING BOOM

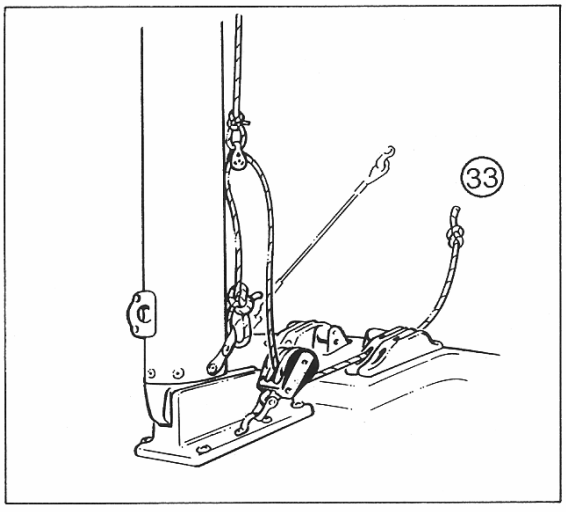
* Place the boom (Part A) on the boat and secure to the goose neck fitting as shown (Fig 29) ►. NB. Make sure the sail groove is facing uppermost.

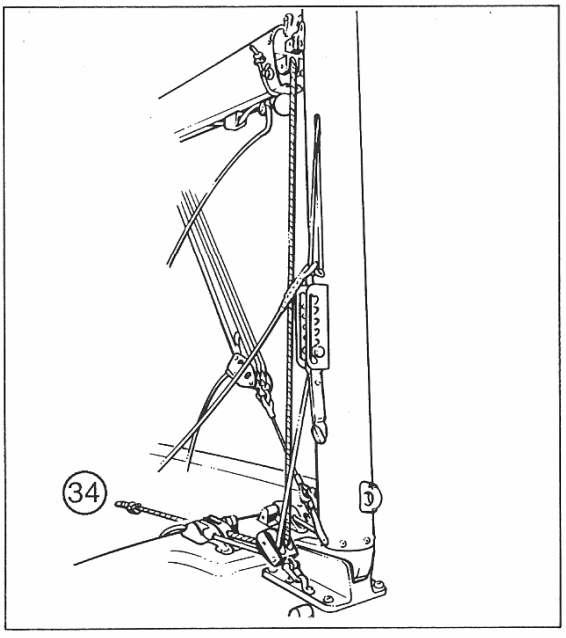


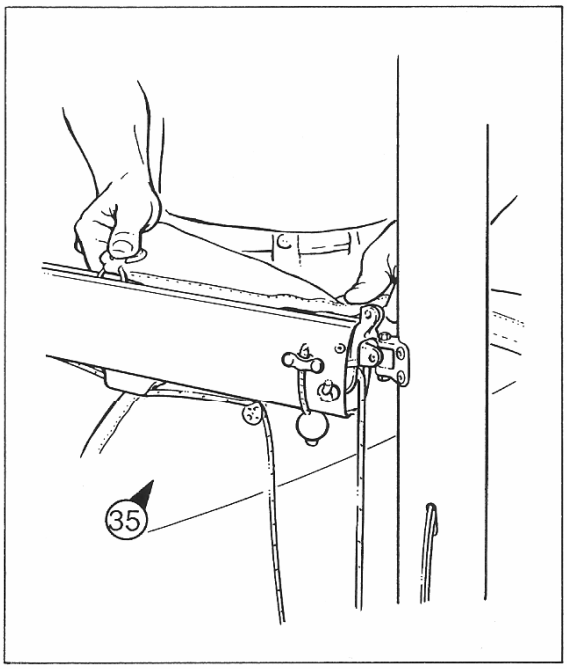
* Connect the rear of the boom to the topping lift line as shown (Fig 30) ◥ . NB. The boom should hand approximately parallel to the deck. (Fig 31) ▼ .
* Connect the kicking strap eye to the underside of the boom as shown (Fig 32) ▲ .
* Connect the mainsheet block to its securing plate as shown (Fig 32A) ◥ .

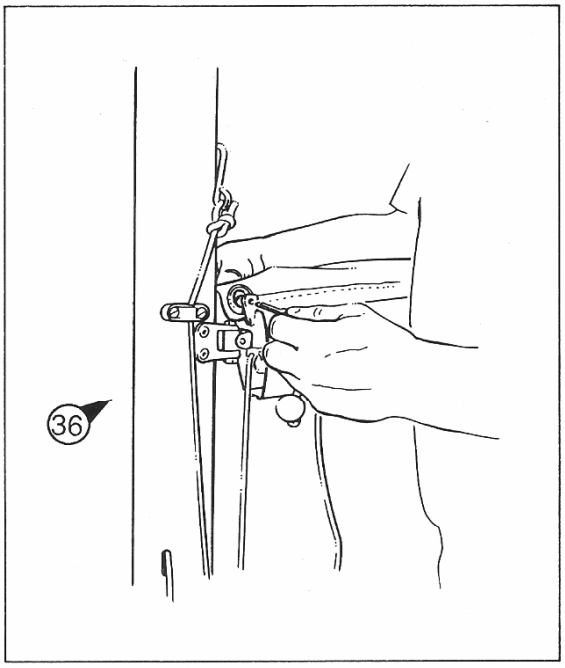


* Connect the down haul line through the single block and cleat as shown (Fig 33) ◥ finishing with a stopper knot.
* Connect the number 1 reefing line where it exits from the front end of the boom through the block and cleat as shown (Fig 34) ▲ .

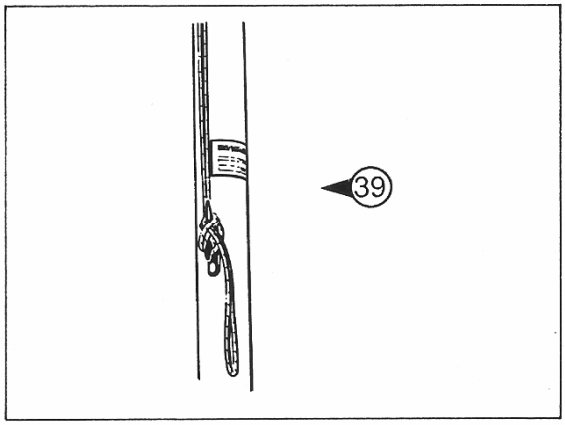




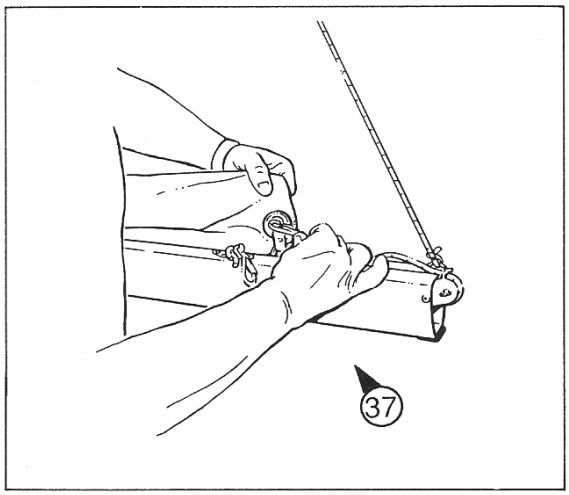


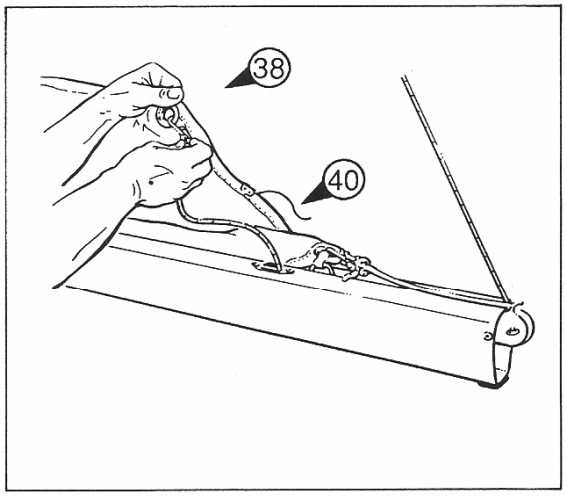


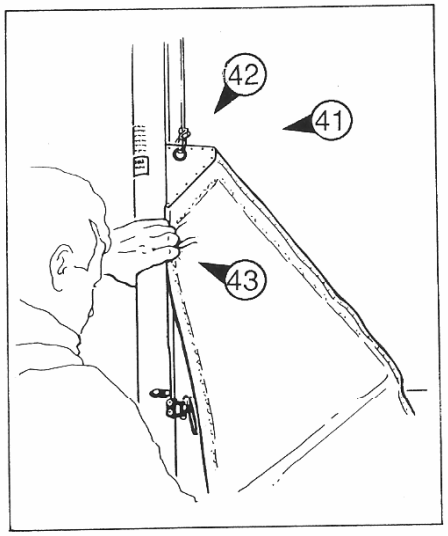
* Feed the foot of the mainsail - at the clew - into the slot at the top of the boom starting with the plastic slug as shown (Fig 35).
* Feed the foot of the sail along the boom slot until the tack of the sail can be connected to the boom via the split pin as shown (Fig 36).

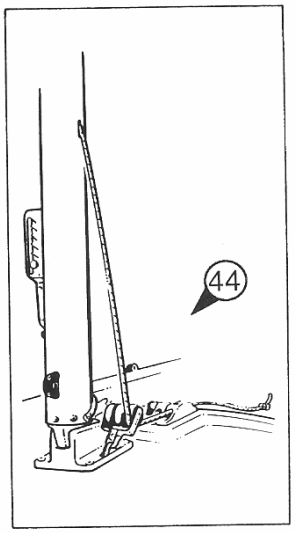


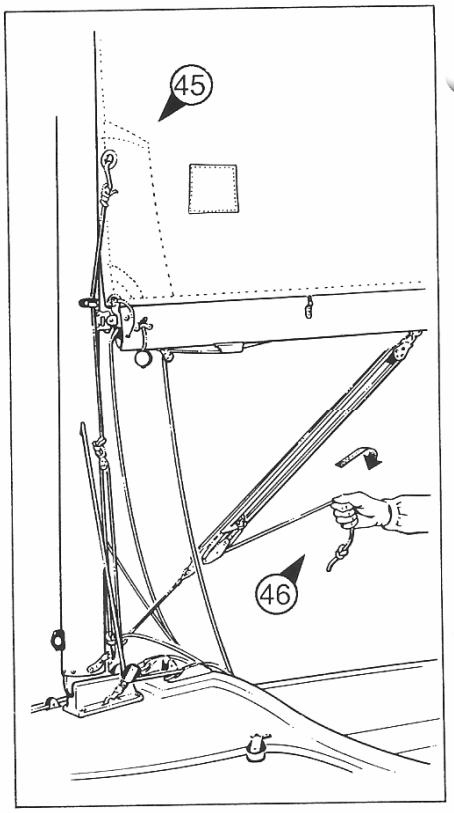
* Secure the clew of the mainsail to the out haul hook as shown (Fig 37).
* Secure the number 1 reefing line to the lower reefing point on the leach of the sail as shown (Fig 38).
* Identify the burgee halyard and secure to its cleat on the side of the mast as shown (Fig 39).
  NB. The leach line (Fig 40) is fitted to all Laser 16 mainsails for fine adjustment of the sail's trailing edge.





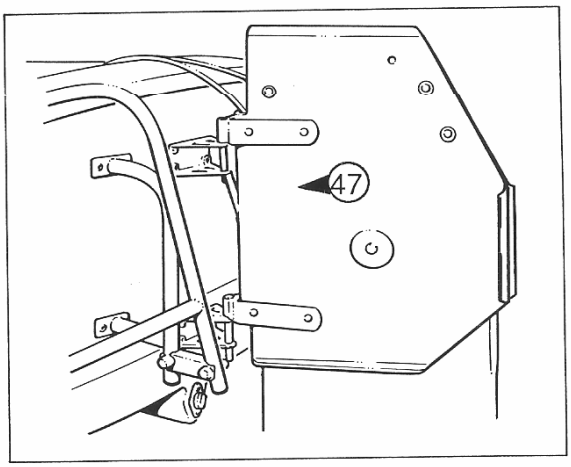






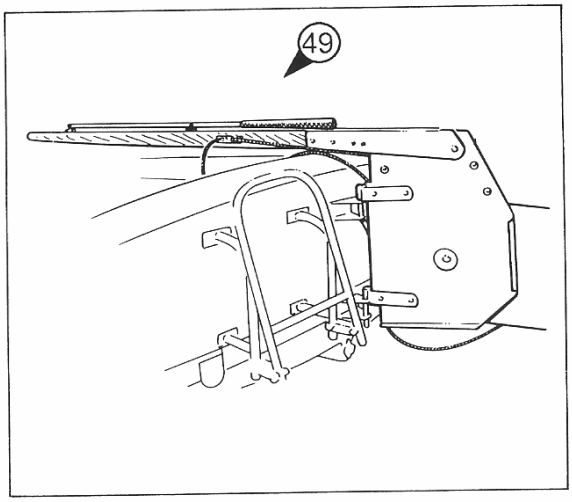
RAISING THE MAINSAIL

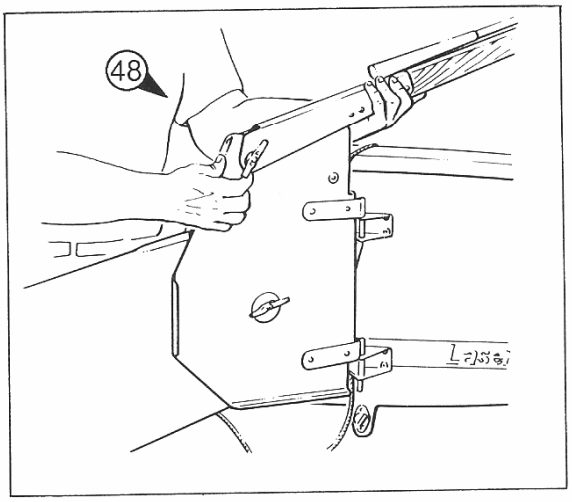
* Attach the head of the mainsail to the halyard with a suitable knot as shown (Fig 41).
* Check the boat is still head to wind and insert the head of the mainsail into the groove on the back of the mast as shown (Fig 42).
* Carefully raise the mainsail by the halyard at the base of the mast making sure that the bolt rope does not catch in the luff groove as shown (Fig 43).
* Raise the sail to the top of the mast and secure the halyard in the cleat as shown (Fig 44).
* Secure the Cunningham hook to the Cunningham hole as shown (Fig 45).
* Tension the kicking strap line as shown (Fig 46).
* Place all spare line in the rope bag. NB. Make sure that when the sail is fully hoisted, the mainsheet is not under tension and the boom is allowed to swing freely from side to side.



ATTACHING THE RUDDER AND TILLER

* Clip the rudder to the rudder fittings on the stern of the boat making sure that the retaining clip is fully home as shown (Fig 47).
* Connect the tiller assembly to the rudder head as shown (Fig 48). NB. Make sure all relevant washers and spacers are fitted correctly.
* Raise the rudder via the up haul line and secure in the cleat as shown (Fig 49).



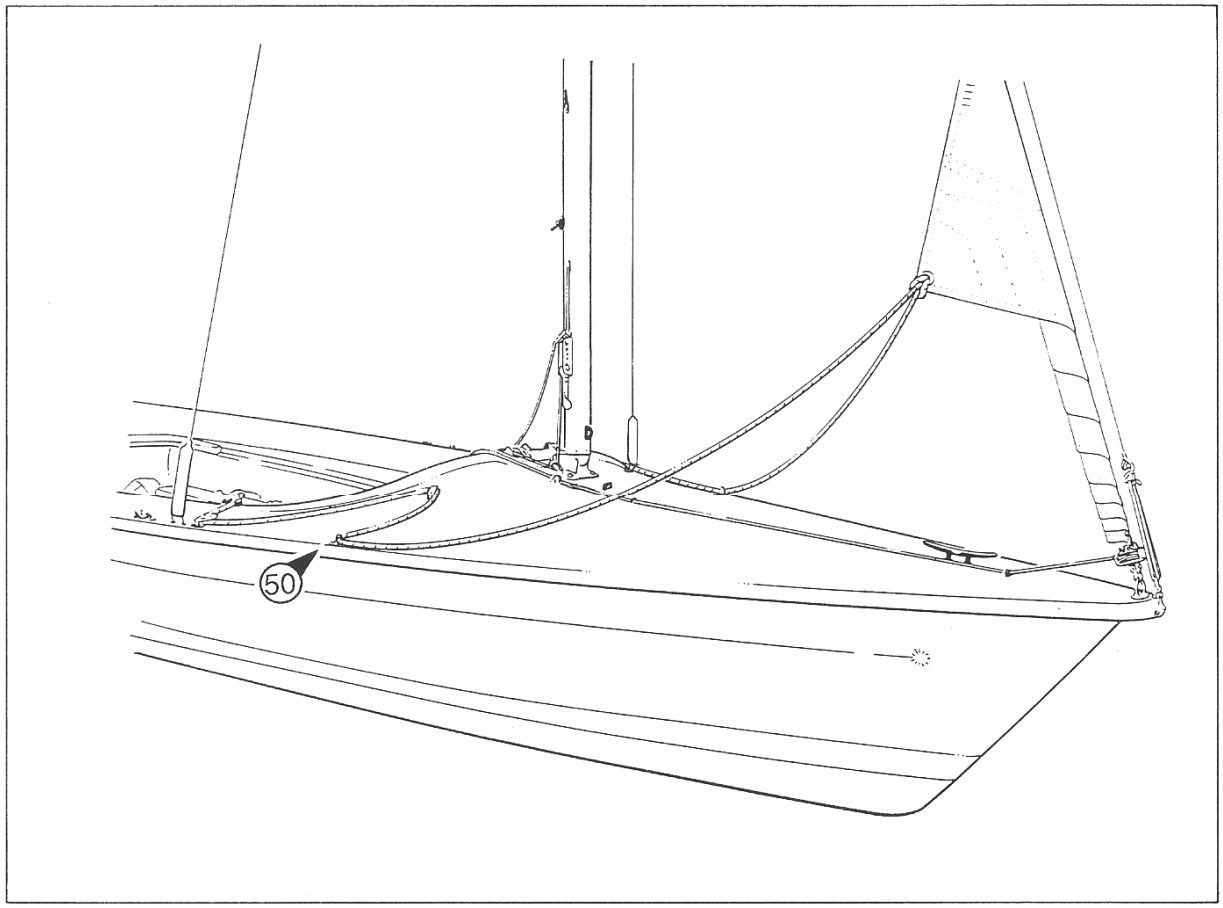


YOUR FIRST SAIL

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

PERSONAL SAFETY

* The Laser 16 is an excellent compromise between family fun and safety. We recommend you always wear suitable clothing and an adequate buoyancy aid/life jacket when venturing afloat.
* Familiarize yourself with the up haul and down haul system of the centreboard and rudder blade.
* Note the ratchet-switch on the mainsheet block which allows a degree of friction for use in strong wind sailing.
* Note the jib sheet reaching hooks on the forward gunwale as shown (Fig 50) ▶ . These are used when sailing down wind or broad reaching to allow the jib improved sail set. NB. The jib sheet should be released from this position on any other point of sailing.



REEFING

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

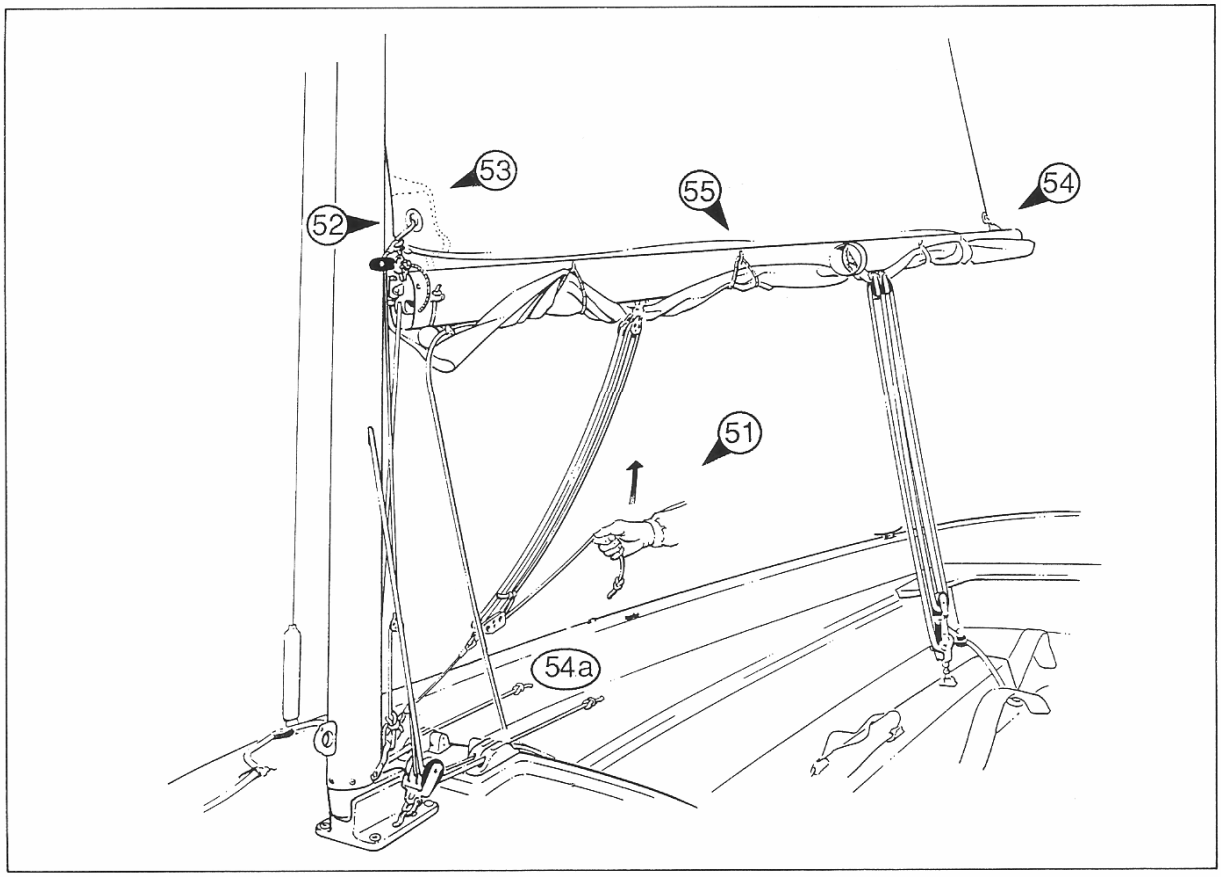
1. Roller reefing the jib.
2. Reducing the size of the main sail by reefing to number 1 or 2 reefing point.

Reefing can be carried out on the water although it is advisable in all cases to reef early.

REEFING THE MAIN SAIL

REEFING POINT NUMBER 1.

* Release the main sail allowing the sail to flap.
* Release kicking strap as shown (Fig 51)◄.
* Disconnect Cunningham hook.
* Lower the luff of the main sail by the halyard until the number 1 reefing eye is just above the boom as shown (Fig 52)►.
* Re-cleat the main halyard.
* Reconnect the Cunningham hook and tension as shown (Fig 53)◄.
* Tension number 1 reefing line at base of mast until the reefing hook is brought down to the boom as shown (Fig 54)◄. (Fig 54A).►
* Retension kicking strap and secure.
* Secure excess sail around boom by the reefing shock cord and boom clips (Fig 55)►.
* Your number 1 reef is now complete, the boat can be sailed with or without the use of the jib.

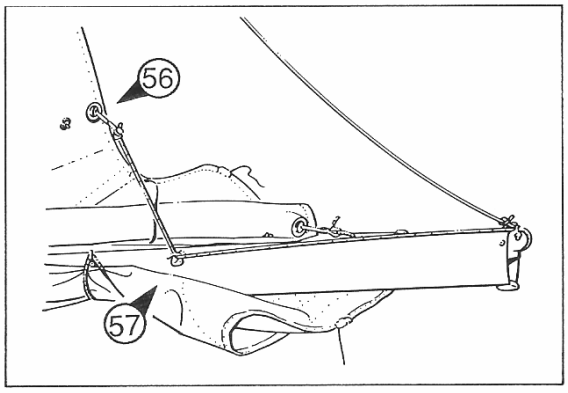


REEFING POINT NUMBER 2

* Slacken the main sheet and detention the kicking strap.
* Disconnect the Cunningham hook and lower the luff of the main sail to the 2nd reefing eye as before.
* Reconnect the Cunningham hook and tension as before.
* Disconnect the clew out haul hook from the sail and reconnect to the number 2 reefing hook clew as shown (Fig 56)►.

  NB. The line should now be passed through the boom reefing fair lead as shown (Fig 57)►.
* Retention the clew out haul line and kicking strap.
* Secure all excess sail as before and place all excess lines in the rope bag.

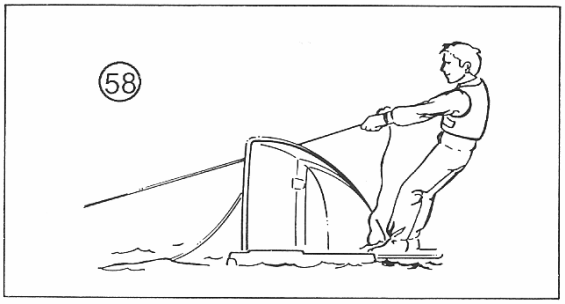
  NB. All reefing is best done on port tack to ease use of equipment, with the jib furled up.

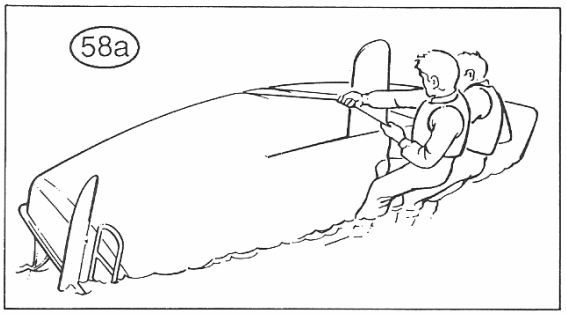


CAPSIZE AND RECOVERY

The Laser 16 is an enjoyable boat to sail for all the family. It is fitted with a large alloy centre board for greater stability and built-in buoyancy which makes it virtually unsinkable. The mast head float pack will help give the mast positive buoyancy and the boarding ladder easier access from the water. Should you capsize, release the jib and mainsheet, stand on the centreboard, pass the jibsheet around the back of the shroud and lean out. On righting your craft, position one person at the bow to hold the boat head to wind and recover other persons via the boarding ladder. (Fig 58) ►

In the unlikely event of a total inversion, crew weight should be positioned on the leeward side of the hull using the jibsheet for security (Fig 58a) ►. Standard righting procedure should be followed after the boat has been brought onto its side.





You will find your craft when righted has minimum water in the cockpit. Any surplus water will automatically drain from the stern drain holes.

CAUTION: The Laser 16 is a substantial craft and requires a minimum of 22 stone, total crew weight for most righting procedures.

SAFETY FEATURES

FORWARD HATCH

* It is advisable that the forward hatch is closed whenever the boat is in motion. This will afford you extra buoyancy in the event of a capsize.

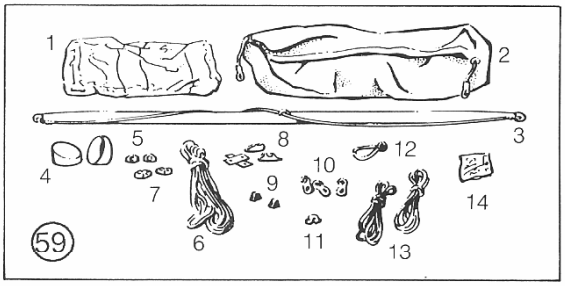
CENTREBOARD

* The centreboard is fitted with two way jamming cleats. This will prevent the centreboard from sliding back into the hull should you capsize.

SPINNAKER OPTION

* Identify all parts for the spinnaker option (Fig 59) ▲.

1 Spinnaker
2 Spinnaker bag
3 Spinnaker pole
4 Spinnaker boom holders x 2
5 Spinnaker fair leads x 2
6 Spinnaker sheet
7 Spinnaker jamming cleats x 2
8 Spinnaker reaching cleats plus plates x 2
9 Spinnaker up haul / down haul cleats x 2
10 Attachment clips x 3
11 Down haul fair lead
12 Spinnaker boom strap
13 Up haul line / down haul line
14 Various screw fittings



TOOLS REQUIRED FOR FITTING SPINNKER OPTION

Drill, drill bits, Philips screw driver, straight screw driver, spanner to fit 6mm nuts, extension rule, silicone sealant. NB. The halyard for the spinnaker is already attached to the mast during production.

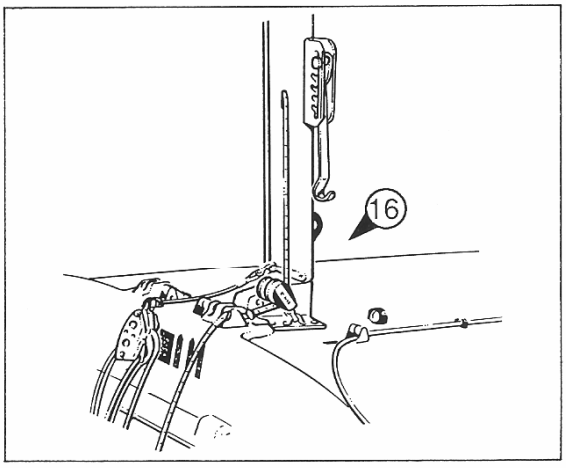
FITTING INSTRUCTIONS

Attach all accessory spinnaker fittings to hull and deck moulding in position shown on drawing. Page .
All screw holes should be sealed with sealant.

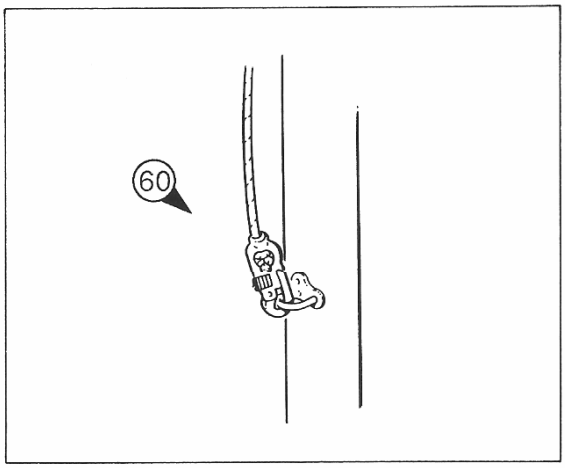
RIGGING INSTRUCTIONS

Spinnaker Halyard

* Feed the tail of the halyard where it exits from the right hand side of the mast through the block and into the side entry of the spinnaker cleat. (Fig 16) ◀ .



* Take the other end of the halyard and attach one of the plastic clips. Attach the clip to the spinnaker boom fitting for security. (Fig 60) ◀ .



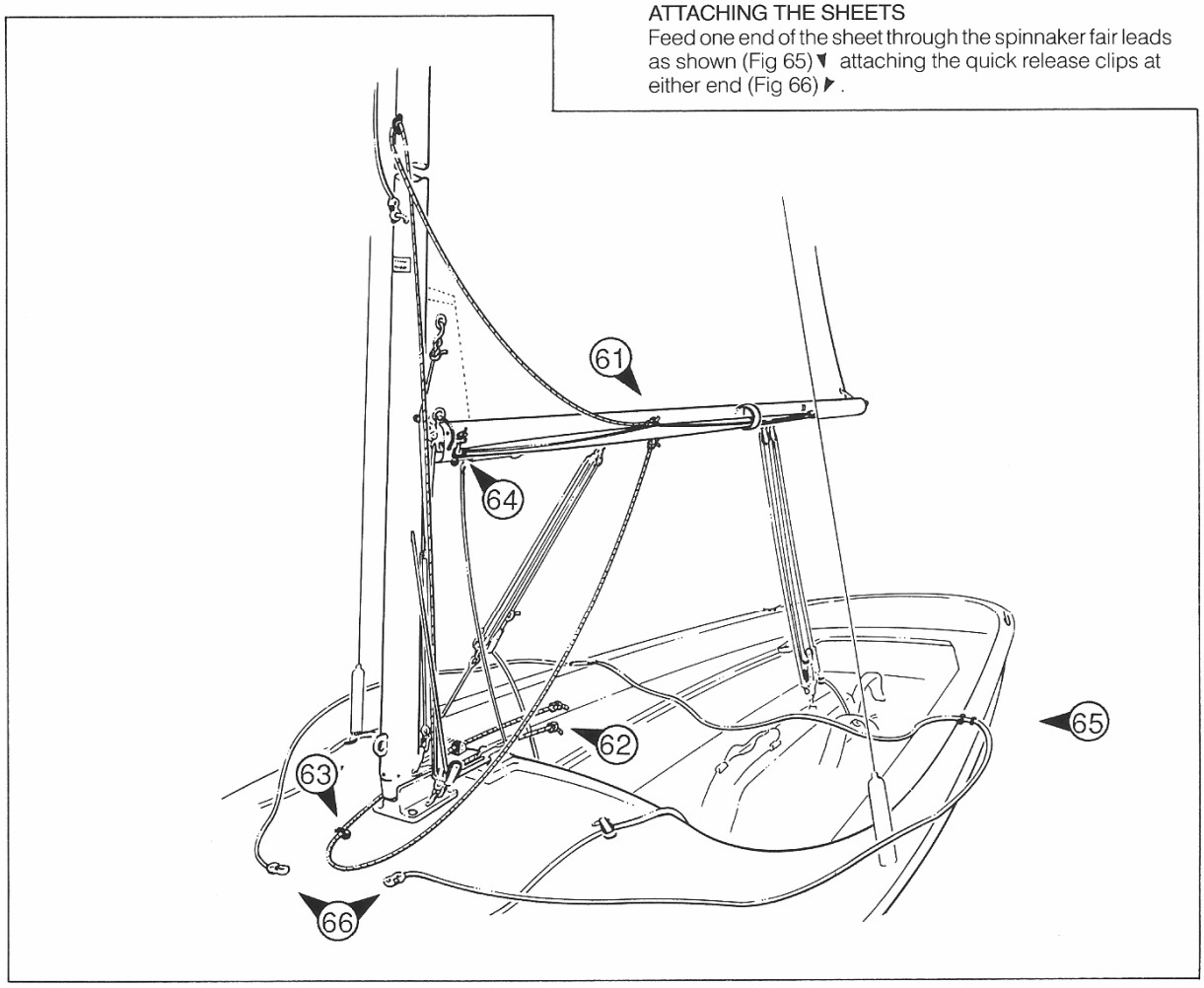
UP HAUL - DOWN HAUL

* Identify correct position for spinnaker pole, ie. release pins on spinnaker end should be facing up.
* Take the longer up haul line. Attach it to the upper 'U' clip on the spinnaker boom using a suitable knot (Fig 61) ◀ . Feed it through the mast fair lead and down to the cleat as shown (Fig 62).◀

* Take the down haul line. Attach it to the lower 'U' clip on the spinnaker pole with a suitable knot and feed through the fair lead to the cleat as shown (Fig 63). ▶ The spinnaker boom can now be placed in the boom holder alongside the boom and secured with the shock cord strap, as shown (Fig 64) ▶ .

ATTACHING THE SHEETS

Feed one end of the sheet through the spinnaker fair leads as shown (Fig 65) ◀ attaching the quick release clips at either end (Fig 66) ▶ .

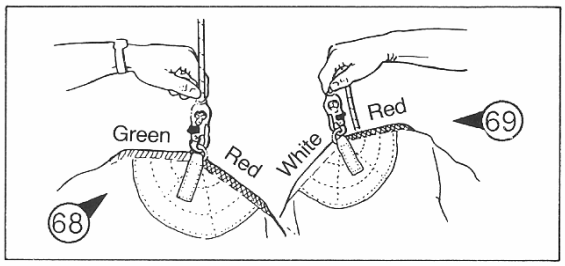


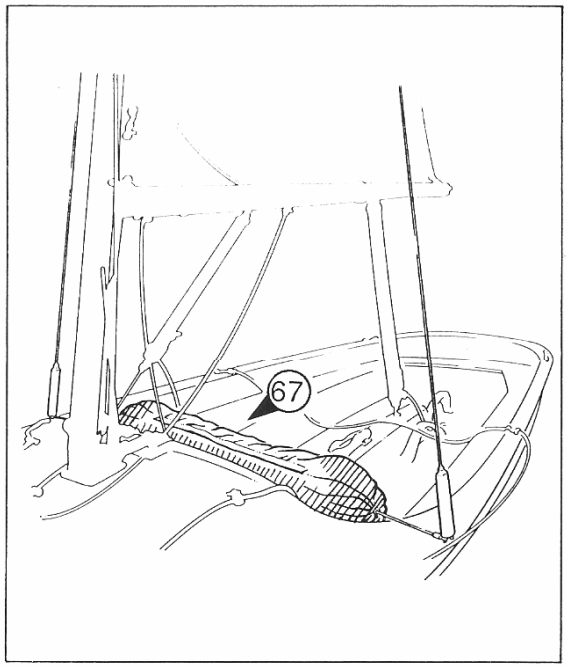
ATTACHING THE SPINNAKER

* Clip the spinnaker bag between two shrouds as shown (Fig 67)◀.
  Identify the head of the spinnaker as shown (Fig 68) ▶ and connect the spinnaker halyard clip. Make sure the halyard is clear and not twisted around any other rigging.
* Identify the port side of the spinnaker (red edging tape) and attach the port sheet as shown (Fig 69) ▼. Make sure the sheet and the sail are outside all standing rigging.
* Identify the starboard tack (green edging tape) and secure the starboard sheet as above.

STOWING SPINNAKER

Stow the spinnaker into its large storage bag by recovering it between the shroud and mast. When stowed, a velcro flap will prevent accidental deployment. Recover all slack spinnaker sheets and secure in rope pocket.





ENGINE MOUNTING OPTION

Identify all parts

1 Engine bracket
2 Screws x 6

TOOLS REQUIRED

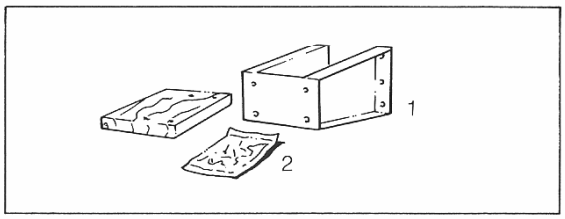
Drill, drill bits, extension rule, straight blade screwdriver, Philips-style screwdriver, silicone sealant.

FIXING INSTRUCTIONS

Secure engine bracket in position shown on drawings.

ATTACHMENT OF EQUIPMENT

The engine should be secured to the engine clamp via its clamping bolts. A security line should be attached from the engine to the craft to prevent accidental loss.



STORAGE BOX OPTION

Identify all parts

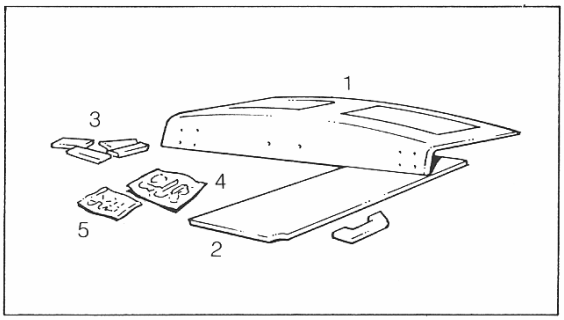
1 Fibre glass casing
2 Plywood base
3 Teak supports (4)
4 Securing catches x 2
5 Various fixing screws

TOOLS REQUIRED

Drill, drill bits, extension rule, straight blade screwdriver, Philips-style screwdriver, silicone sealant.

FIXING INSTRUCTIONS

* Secure all permanent fixing as shown in drawing Page
* Attach storage lid and secure with catches as shown.



NB It is a good idea to lock your storage box to prevent accidental deployment.

OTHER ACCESSORIES

1 Sail boom cover
2 Hull top cover
NB. A full list of Laser accessories and spare parts are available from your nearest Laser Centre.

MOORING YOUR LASER 16

When leaving your Laser 16 on a mooring:

* Check all equipment is safely stowed.
* Secure the centreboard in the raised position.
* Remove the rudder from the transom and secure inside the cockpit.
* Always moor your craft via the boweye U bolt. NB. Do not use the foredeck cleat for this purpose.

ANTI-FOULING

If your Laser 16 is to be kept on a permanent mooring or exposed to long periods of immersion in water, the craft should be anti-fouled using one of the proprietary brands.

TRAILING YOUR LASER 16

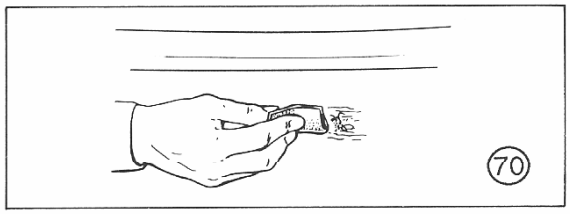
Your Laser 16 has been designed to be towed with the minimum of effort. Care should be taken to:

* Secure your craft and its equipment to the trailer.
* All trailer lights work efficiently.
* Suitable padding is used where necessary. NB. Special care should be taken to protect your engine and surrounding area.
* The road and trailing laws of the country in which you are travelling are adhered to.

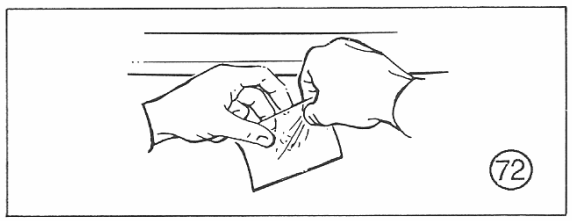
GENERAL MAINTENANCE AND SERVICE

GEL COAT REPAIRS

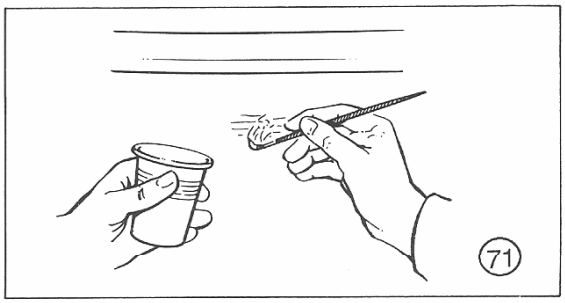
Should you damage the gel-coat surface of your boat, you should repair it as soon as possible. The correct gel-coat colour can be obtained through the Laser Centre.



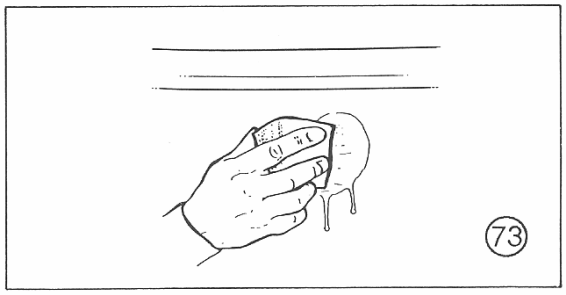
* Sand back the damaged or flaking gel-coat until a solid area is produced. Make sure the area is clean and that there are no sharp edges (Fig 70).
* Mix the gel-coat with approximately 2% of hardener and apply using a fine artist's brush or similar (Fig 71).
* Cover the area with cellophane and allow to dry (Fig 72).



NB. If substantial damage is sustained to your craft, you should take it to your nearest authorised Laser Repair Centre or contact your nearest Laser Agent.



* Brushes and equipment should be washed out in acetone if required.
* When dry, carefully remove cellophane and sand surface with wet and dry sand paper until it blends in with the original area (Fig 73).
* Finally, polish the area using a fibre glass rubbing compound or similar.



BASIC SAFETY AFLOAT

BEFORE YOU GO SAILING

Check you are wearing suitable clothing and safety equipment for the conditions and time of year.
NB. 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 over-head power cables.

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 area and righting techniques of your craft.

OPTION ATTACHMENT DIMENSIONS