

Laser
Laser Radial
Laser 4.7
RIGGING MANUAL

LASER RIGGING MANUAL

These rigging instructions are a comprehensive guide to rigging your Laser. 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 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

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:

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

CONTENTS

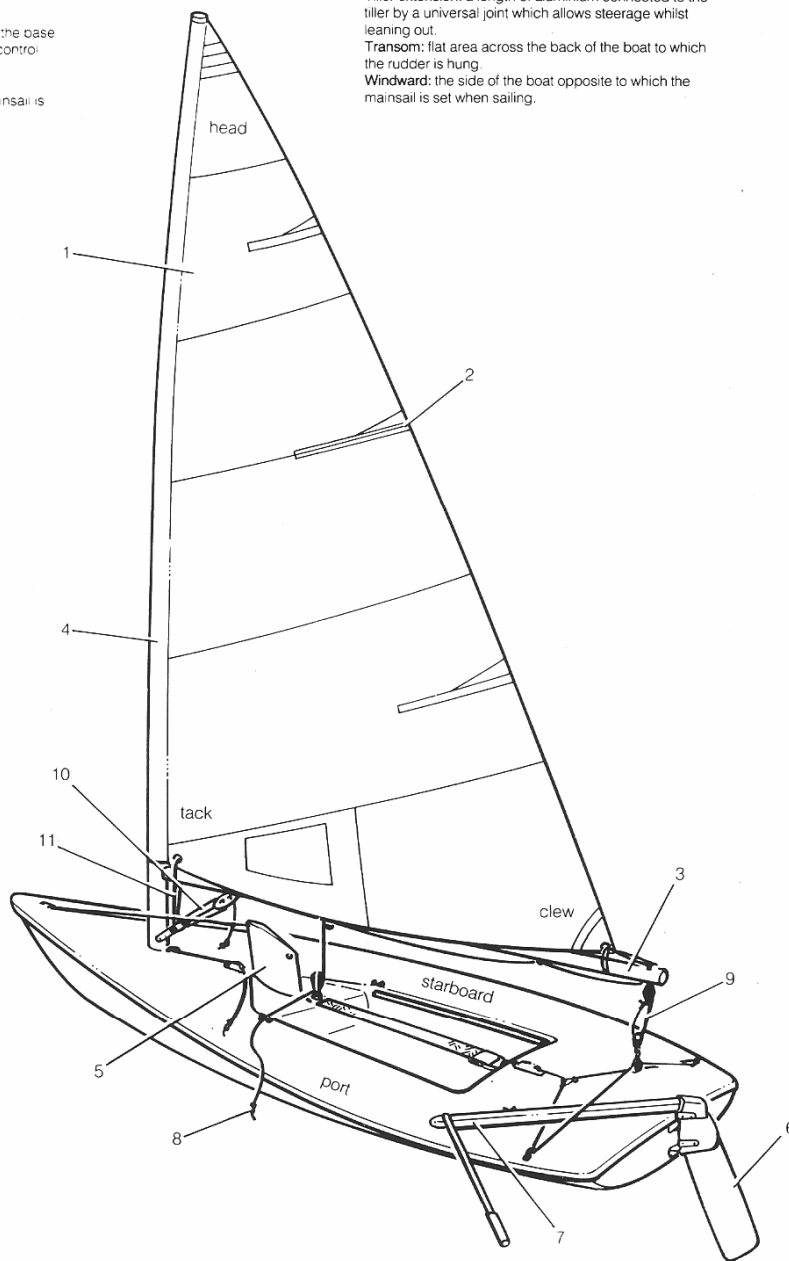
GLOSSARY	2
RIGGING INSTRUCTIONS: LASER	3
LASER ACCESSORIES	9
BASIC SAFETY AFLOAT	9
GENERAL MAINTENANCE AND SERVICE	10
GELCOAT REPAIRS	10

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.
Clew: the lower after-most corner of a sail.
Daggerboard: 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.
Gunwale: 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.
Stem: 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.

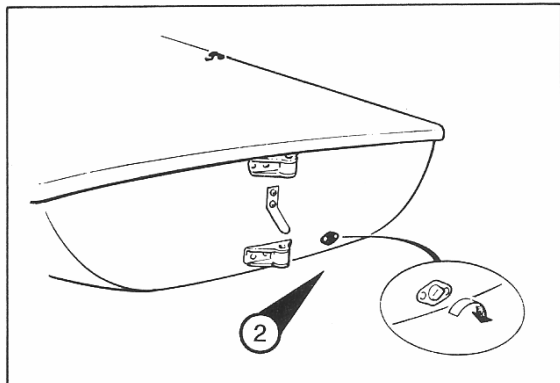
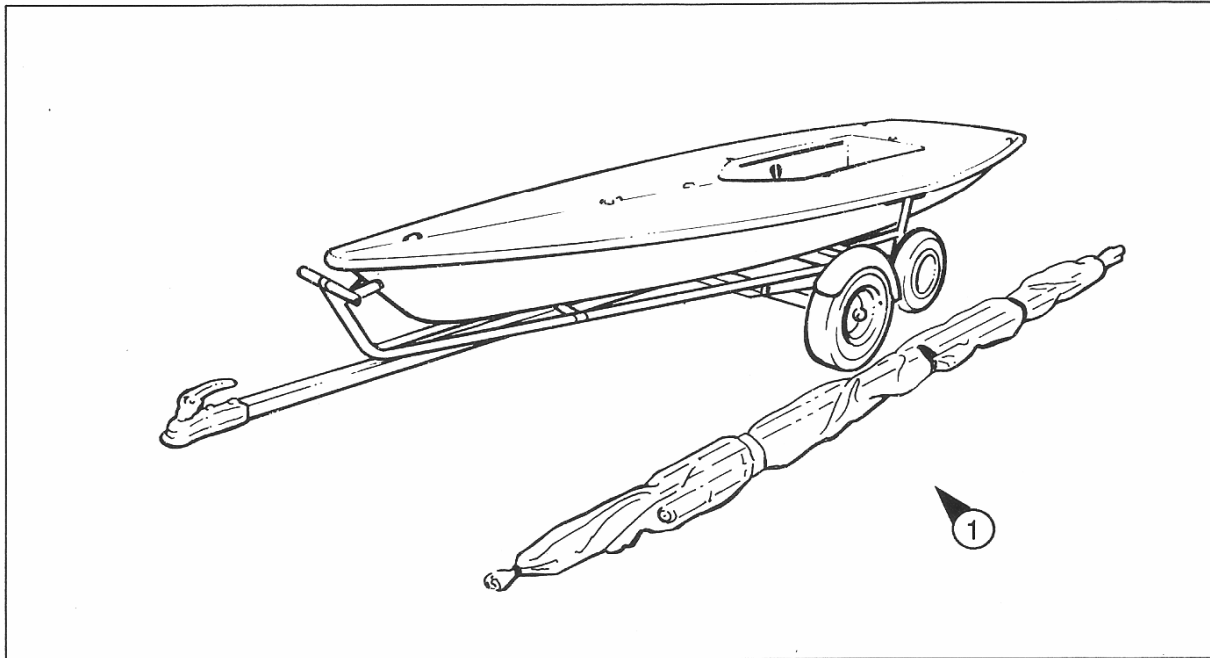
1. Mainsail
2. Battens (x3)
3. Boom
4. Mast
5. Daggerboard
6. Rudder
7. Tiller
8. Mainsheet
9. Traveller
10. Kicking strap
11. Cunningham line



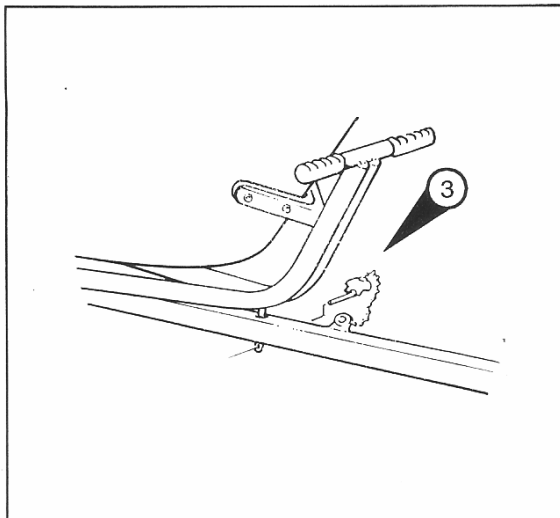
RIGGING INSTRUCTIONS: LASER

REMOVING BOAT FROM TRAILER

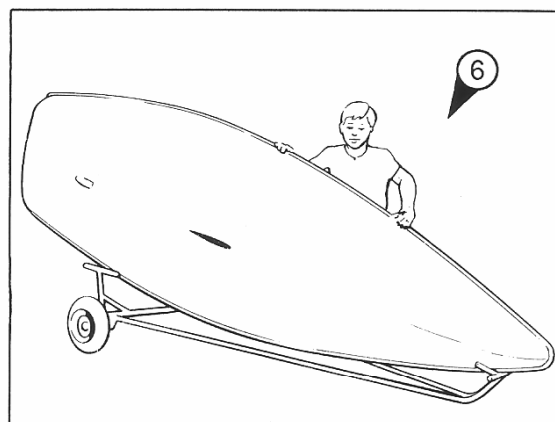
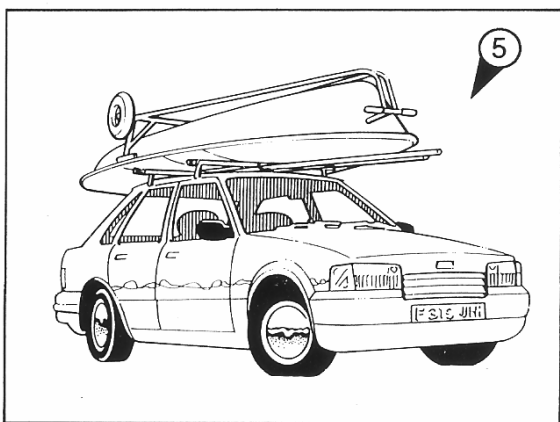
- * Remove all securing straps.
- * Remove the spars (Fig 1) ▲.



- * Secure bung in transom drain hole (Fig 2) ◀

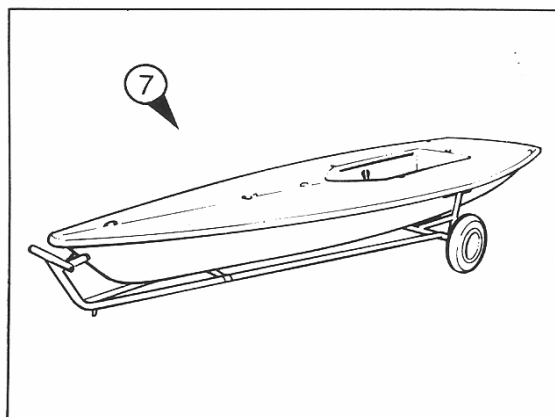


- * Detach trolley from road trailer base by releasing pin (Fig 3) ◀.
- * Slide launching trolley carefully off road trailer base.



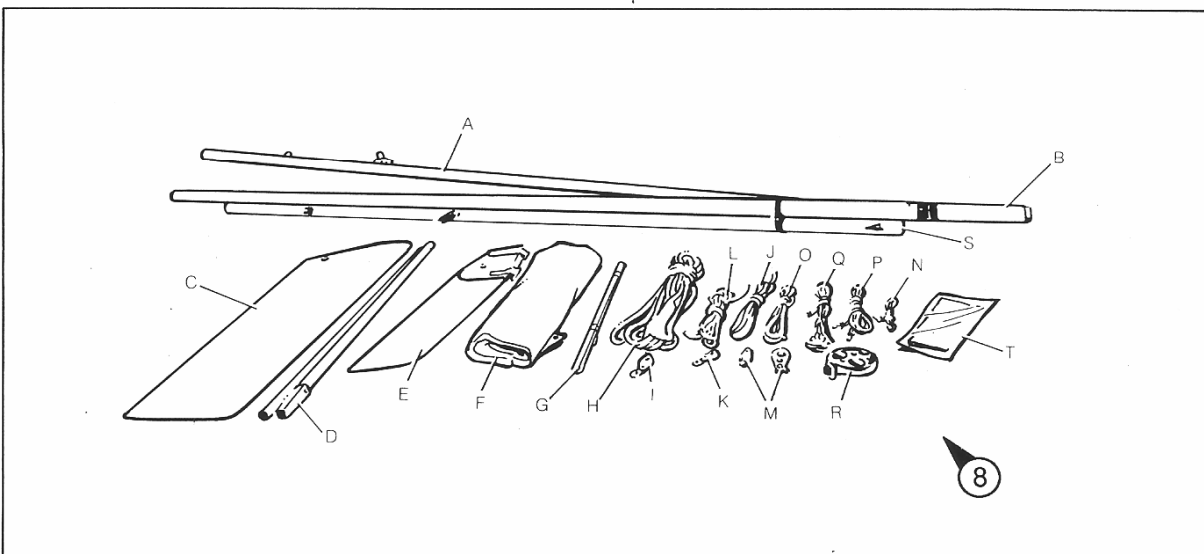
REMOVING FROM CAR ROOF

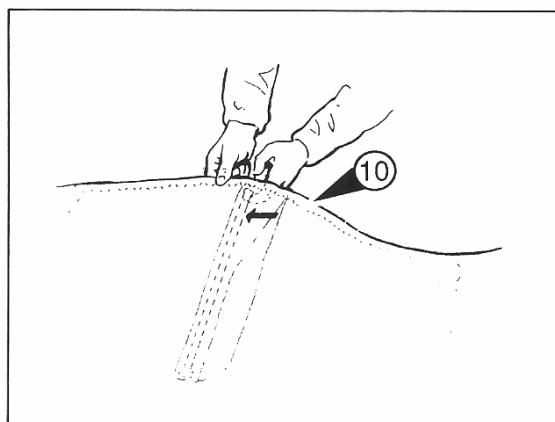
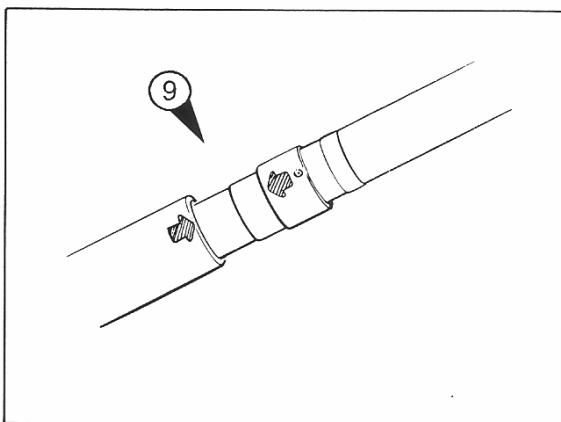
- * Remove all securing straps (Fig 5) ▲.
- * Remove the spars
- * Remove trolley from roof and place beside vehicle.
- * Carefully slide Laser hull off the car roof, turn through 90° and rest the gunwale of trolley (Fig 6) ▼.
- * Re-position hands, turn hull through a further 90° and rest on trolley supports, as shown (Fig 7) ▼.



- * Layout all parts of the boat and identify with contents list (Fig 8) ▲.

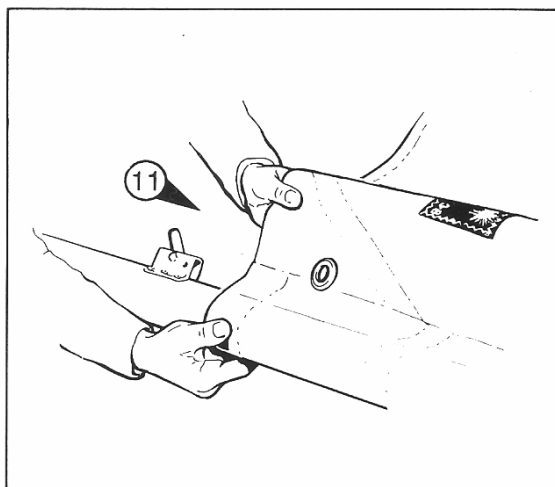
- | | |
|---------------------------|-------------------------------------|
| A Lower Mast | K Traveller blocks x 2 |
| B Top Mast | L Kicking strap line |
| C Daggerboard | M Kicking strap blocks x 2 |
| D Tiller/tiller extension | N Clew tie-down line |
| E Rudder | O Clew outhaul line |
| F Sail | P Daggerboard restraining shockcord |
| G Battens x 3 | Q Cunningham line |
| H Mainsheet | R Spar clips x 2 |
| I Mainsheet block | S Boom |
| J Traveller line | T Rigging Manual and sail numbers |



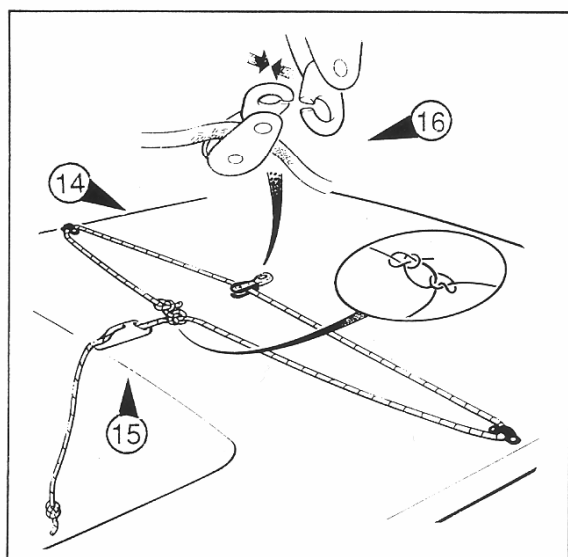
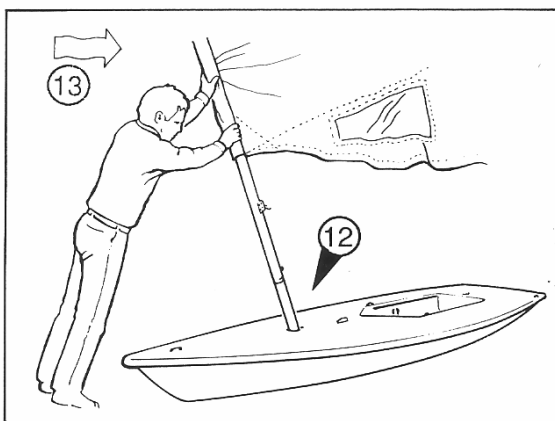


RIGGING YOUR LASER

- * Slide top mast section into bottom mast section, checking that the two red arrows line up, ie, the rivet on the collar is in line with the gooseneck fitting as shown (Fig 9) ▲
- * Carefully lay out the sail on a clean surface and insert the battens, with the smallest batten at the top. NB. The battens are held in position by pushing the batten sideways into the lower part of the pocket as shown, (Fig 10) ▲
- * Slide the luff sleeve of the sail down the mast until the sail head fits snugly onto the top mast plug. Check that the sail tack finishes in line with the gooseneck fitting as shown (Fig 11) ➤, and that there is no twist in the sail sleeve.
- * Before locating the mast heel, check that there is no sand or grit in the mast hole or on the mast heel.

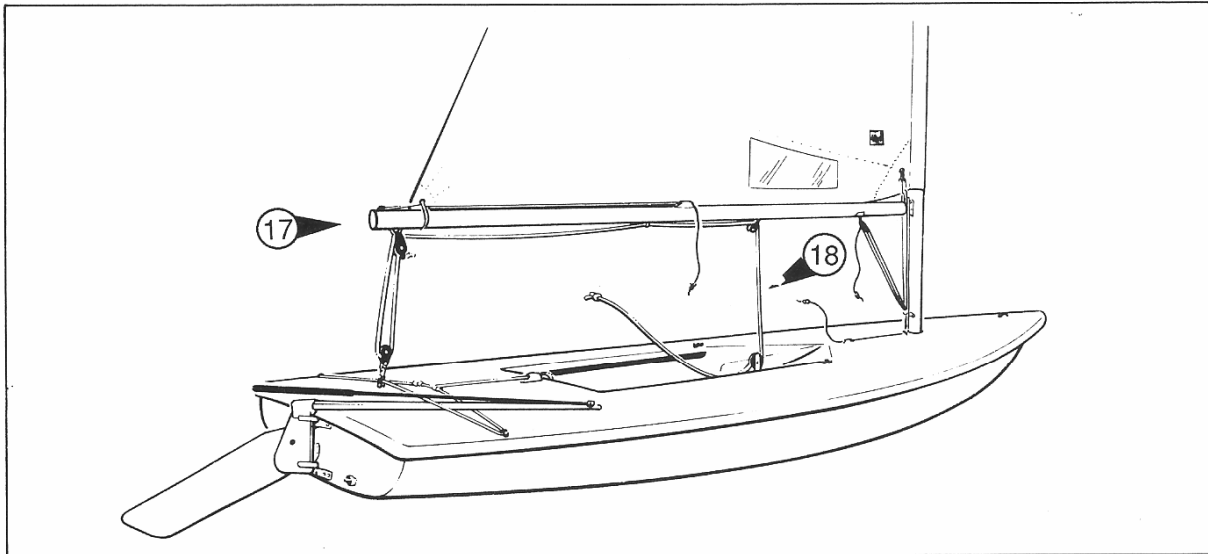


- * Place the mast heel into the mast step hole and carefully raise the mast into the vertical position as shown, (Fig 12) ▲. Allow the mast to slide down the mast step hole until it is firmly located in the base. NB: If windy, it is suggested that the mast is raised in the direction of the wind as shown, (Fig 13) ➤.



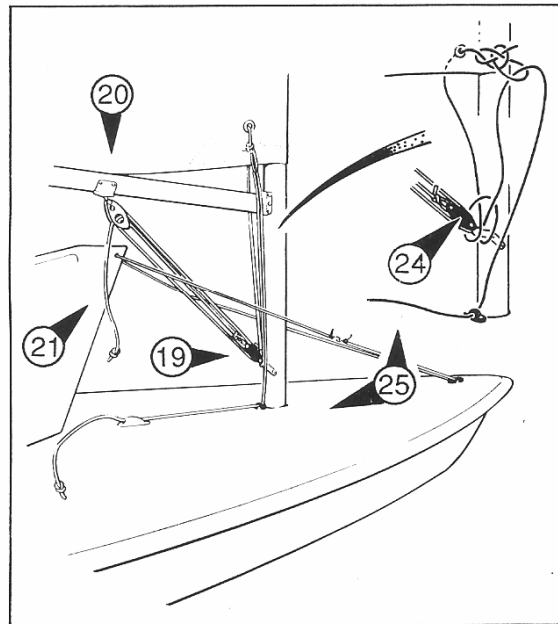
CONNECTING THE TRAVELLER LINE

- * Tie a bowline or similar knot in one end of the traveller line. Place the bowline in the centreline of the boat and feed the loose end through the traveller fairleads, traveller block as shown (Fig 14) ▲. Tie a non slip knot around the loop and feed the tail end through the traveller cleat as shown (Fig 15) ▲, finishing with a stopper knot. Connect the lower mainsheet block as shown (Fig 16) ▲.



CONNECTING THE BOOM

- * Temporarily place the boom on the goose neck with the main sheet blocks facing downwards as shown (Fig 17) ▲ .
- * Feed the main sheet through the main sheet system as shown (Fig 18) ▲ , taking care to pass it correctly through the main sheet ratchet block. NB The main sheet ratchet block is positioned just behind the dagger board casing and is fitted with an of/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.
- * Connect the lower block to the base of the mast (Fig 19) ➤ . Temporarily position the upper block in the underside of the boom (Fig 20) ▲ .
- * Attach the kicking strap line to the lower block and feed through the system as shown (Fig 21) ➤ , finishing with a stopper knot.

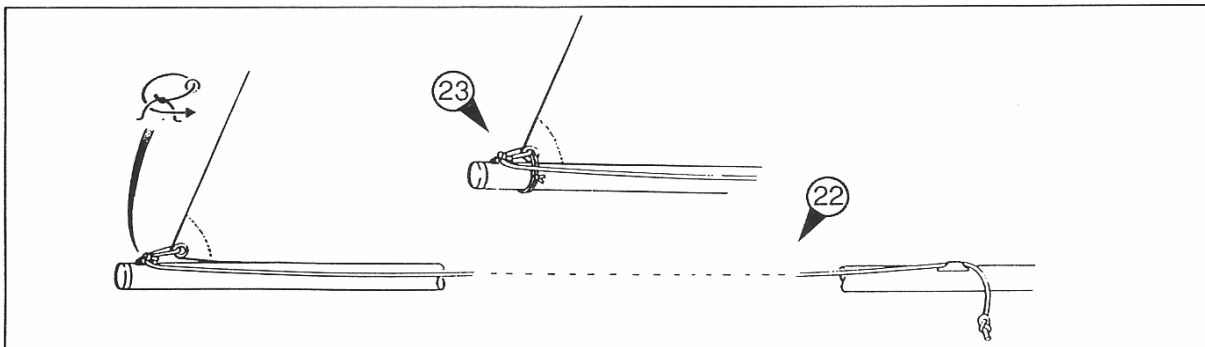


SECURING THE SAIL

- * Check the bow of the boat is pointing into the wind. Tie the clew outhaul line to the fairlead at the end of the boom. Feed it through the sail clew and up to the cleat as shown (Fig 22) ➤ , finishing with a stopper knot.
- * Take the clew tie down, pass it through the clew eye and around the boom twice as shown (Fig 23) ▼ , finishing with a reef knot or similar.

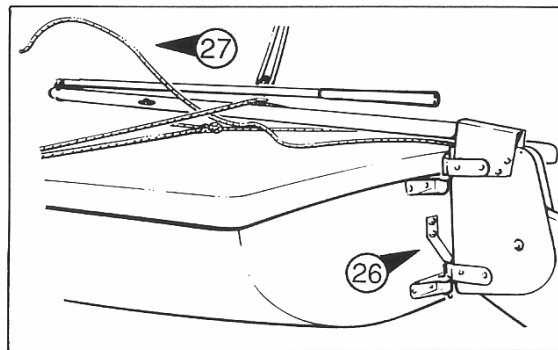
CUNNINGHAM LINE

- * Tie bowline or similar knot in the end of the cunningham line and secure at the mast tang as shown (Fig 24) ▲ .
- * Feed the tall end through the bowline, deck fairlead and cleat finishing with a stopper knot as shown (Fig 25) ▲ .



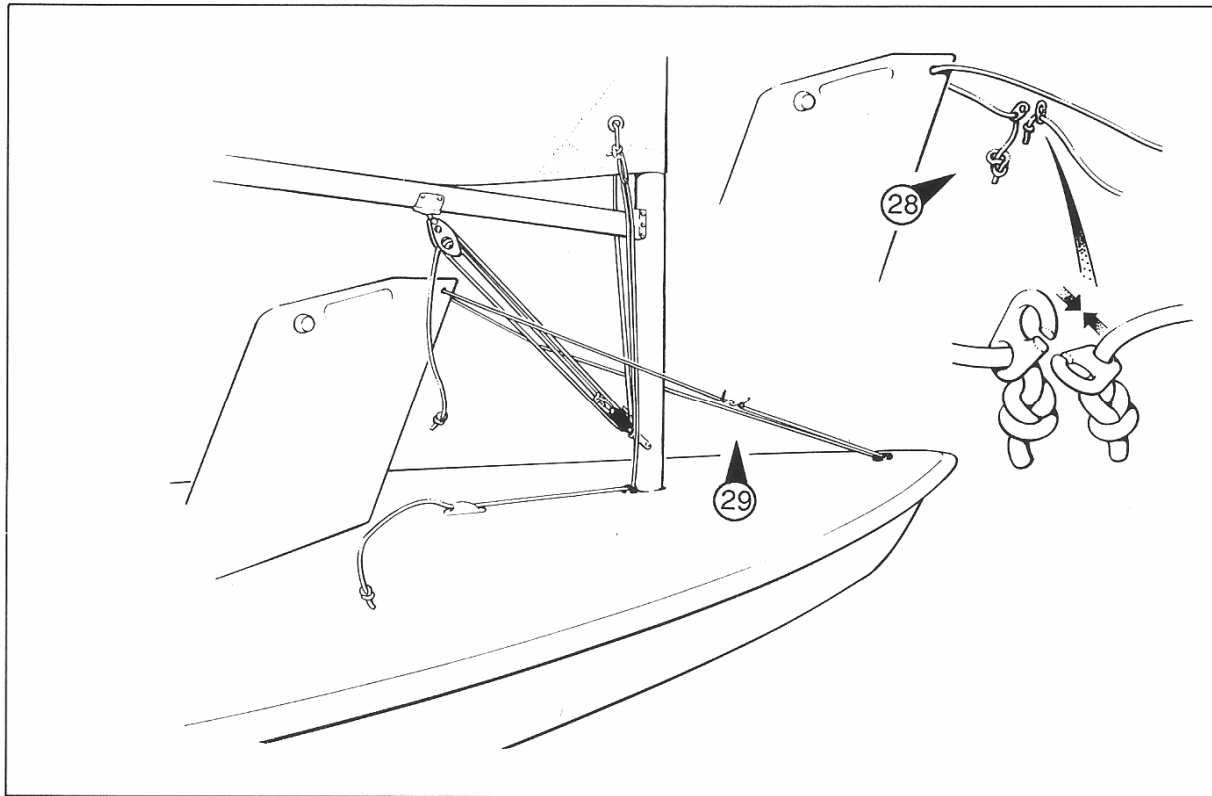
CONNECTING THE RUDDER AND TILLER

- * Locate the rudder to the rudder fitting on the transom of the boat, making sure that retaining clip is fully located as shown (Fig 26) ➤ .
- * Slide the tiller under the traveller line and into the rudder stock making sure that the downhaul line of the rudder blade is free (Fig 27) ➤ .



LOCATING THE DAGGERBOARD

- * Feed the daggerboard restraining shockcord through the eye on the front of the daggerboard and replace the clip as shown (Fig 28) ➤ .
- * The Restraining shockcord is fed through the bow eye and clipped together as shown, (Fig 29) ➤ , when you are ready to start sailing.



YOUR FIRST SAIL

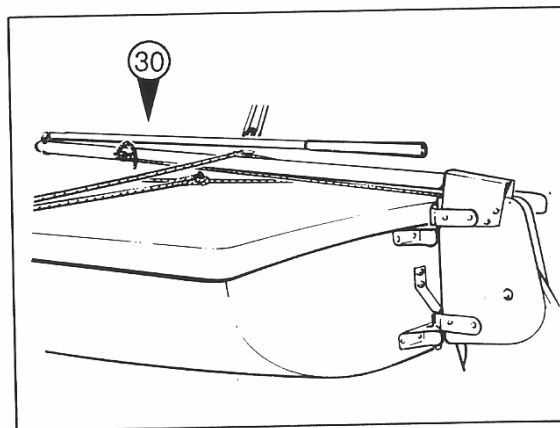
Your boat is now ready to sail but before you launch, it is best to familiarise yourself with the boat's equipment and any other accessories you may have purchased. It is also important that you consider all safety aspects of dinghy sailing.

PERSONAL SAFETY

The Laser is an excellent compromise between fun and safety, and we recommend you always to wear suitable clothing and adequate buoyancy aid/life jacket when venturing afloat.

LIFTING AND LOWERING RUDDER

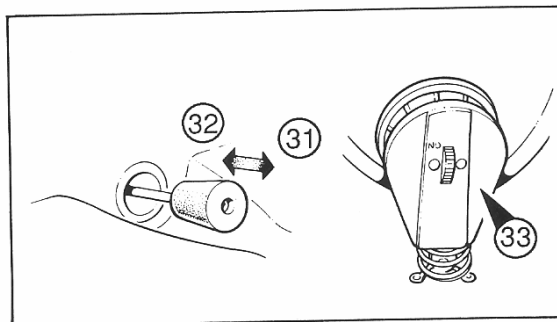
- * The rudder is easily lowered by tensioning the down haul line and securing on the cleat. (Fig 30) ▶
- * When returning to shore make sure that the line is released to avoid damage to the blade.



SELF BAILER

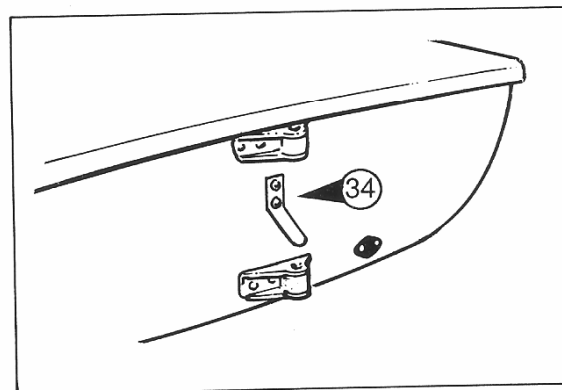
The self bailer is an accessory fitting and an alternative to the cockpit bung.

- * To lower the bailer simply pull the rubber bung forward into the locked position (Fig 31) ▶
 - * To raise the bailer press the bung backwards into its normal position (Fig 32) ▶
- NB The bailer will only work when the boat has reasonable forward motion. It should not be left down when beaching as damage could 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 (Fig 33) ▶



RUDDER RETAINING CLIP

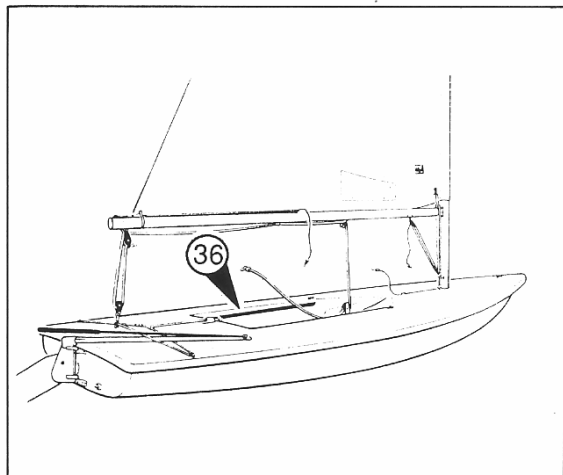
- * Periodically check that the rudder retaining clip secures the rudder stock correctly. Vertical adjustment is available by the two securing screws (Fig 34) ▶

DAGGERBOARD FRICTION PAD

- * The daggerboard friction pad can be adjusted fore and aft by the two screws either side of the daggerboard casing. It reduces daggerboard movement and will require periodical adjustment.

CAPSIZE ASSISTANCE

The Laser can be simply righted after a capsize with minimum amount of water in the cockpit area. To assist you in getting back into the boat from the water, hand grabrails are situated alongside the inner edge of the cockpit area (Fig 36)▲



LASER ACCESSORIES

LASER ACCESSORIES

- 1368 Barrell Race Swivel
- 1600 Laser Top Cover
- 1602 Combo Bag
- 1606 Laser Under Cover
- 1618 Carbon Race Tiller & Extension
- 1619 Gorilla Tiller
- 1675 Laser Radial Rig
- 1680 Laser 4.7 Rig

A full list of Laser accessories are available from your nearest dealer.

THE LASER OPTIONAL RIGS RADIAL/4.7

The Laser is available with two alternative rigs, Radial and 4.7.

THE RADIAL RIG

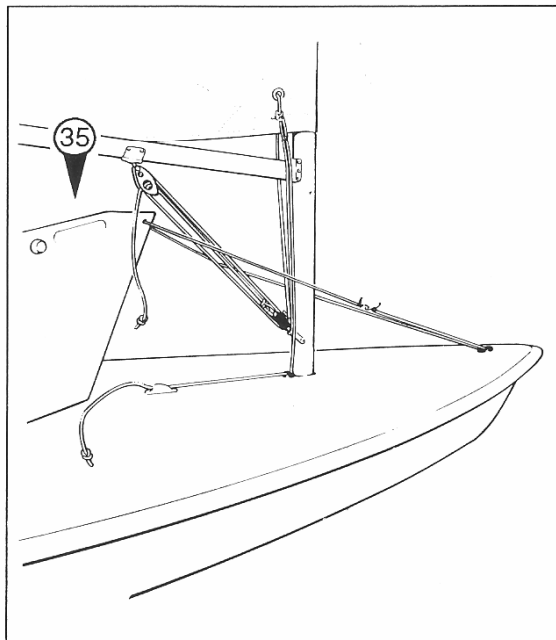
A sail to suit many lightweight sailors, ladies, or those who find the Standard Laser sail too powerful. An ideal sail for the whole family to use when racing or on holiday.

LASER 4.7 RIG

An excellent sail for young sailors or those with basic sailing experience. It is light to rig and easy to handle whatever the weather conditions.

LIFTING & LOWERING THE DAGGERBOARD

- * The daggerboard can be adjusted vertically by gripping the top by hand and pulling at an angle slightly forward of vertical. The restraining shockcord tension and friction pad adjustment will secure it in all positions. NB Generally do not raise the daggerboard above the height of the boom when sailing. (Fig 35). ▲



WARNING 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.

LASER MAIL ORDER

To order your Laser parts and accessories:
Phone Laserline 01295 268191 and quote your Visa or Access number.

WARNING

Avoid sailing in strong winds with new spars as they require an initial hardening process.

GENERAL MAINTENANCE AND SERVICE

WEEKLY

- 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.

MONTHLY

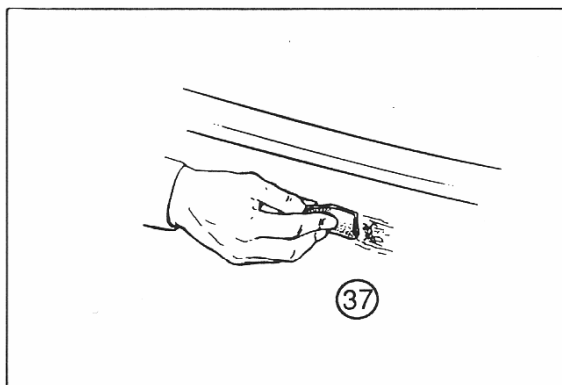
- 1 Boats and rigging should be checked periodically for wear or damage.
- 2 All moving parts such as jamming cleats and blocks should be lubricated lightly with WD40 or similar.

END OF SEASON

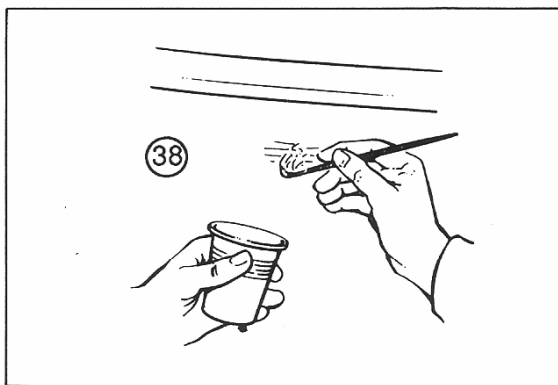
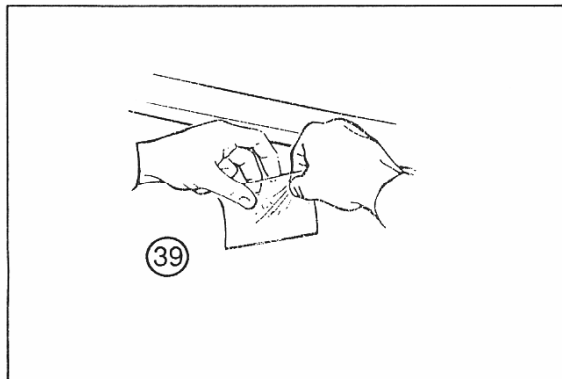
- 1 At the end of each season it is a good idea to check your boat thoroughly for signs of damage or wear.
- 2 Damage or worn parts should be replaced using the Laser part identification system.
- 3 The hull should be washed down with fresh water and a protective cover placed over it.
- 4 Spars and rigging 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 trolley should be washed, checked and greased where necessary.

GELCOAT REPAIRS

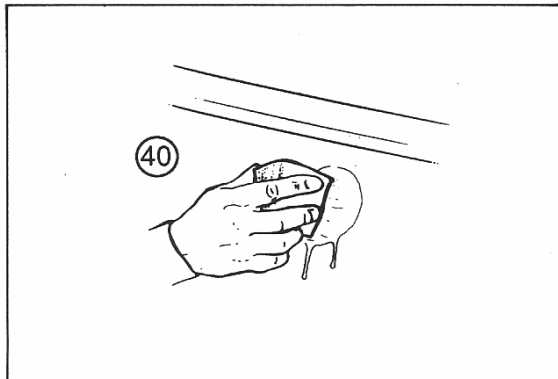
Should you damage the Gelcoat surface of your boat, you should repair it as soon as possible. The correct Gelcoat colour can be ordered through your Laser dealer.



- 1 Sand back the damaged or flaking Gelcoat until a solid areas is produced. Make sure the area is clean and there are no sharp edges (Fig 37) ▲ .
- 2 Mix the Gelcoat with approximately 2% of hardner and apply using a fine artist's brush or similar (Fig 38) ▼ . Cover the area with sellotape and allow to dry (Fig 39) ▲ .



- 3 Brushes and equipment should be washed out in Acetone if required for further use.
- 4 When dry, carefully remove sellotape and sand the surface with wet and dry sandpaper until it blends in with the original area (Fig 40) ▲ .
- 5 Finally polish the area using a fibre glass rubbing compound or similar.



WARNING

If substantial damage is sustained to your Laser, you take it to the Laser Repair Centre.
Telephone: 01295 268191.



Certificate of Assessment

We hereby confirm that the

Laser 1

built by

Performance Sailcraft Europe Limited

Banbury

Oxfordshire, U.K.

Boat type:	Sailing Dinghy
Design category:	C
Length of hull:	4.23 m
Beam of hull:	1.37 m
Unladen weight :	81 kg
Maximum number of persons:	3
Maximum load:	175 kg
Including: Persons at 75kg each Carry on load	

has been assessed for

Stability Only

and found to conform to the following ISO standards

ISO/WD3 12217-3

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Ken Kershaw

Royal Yachting Association

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