



## VANGUARD SAILBOATS

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# LASER 2 RIGGING INSTRUCTIONS

## **A** Unpack and identify all the major parts:

1. Hull

2. Mast Kit

Contains: Top Mast

Bottom Mast

Boom (Boom is shipped with three straight and one twist shackle attached)

Spinnaker Pole (Race Boat Only)

3. Boat Kit

Contains: Rudder Assembly

Tiller with Tiller Extension

Daggerboard

Mainsail

Jib

Spinnaker (Race boat only)

Packed loose in box with hull:

Sail Numbers

1 Hatch Bag

3 Battens

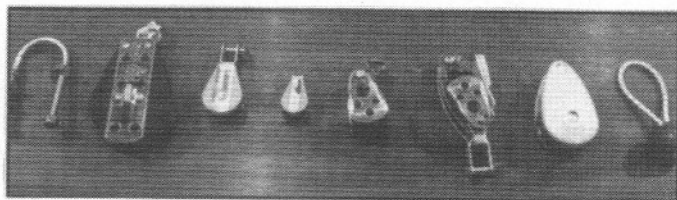
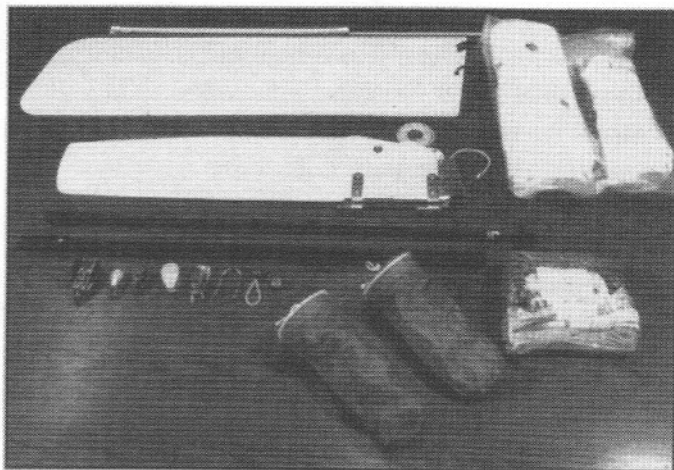
Line Bag

Warranty Card

Sail Care Instructions

ILCA Membership Form

USSA Membership Card



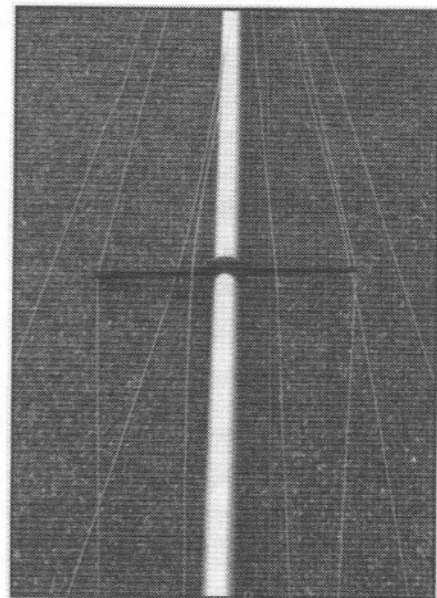
Block Package:

Contains: U-bolt, Ratchet block, Swivel bullet block, Small bullet block, Double bullet block, Double bullet block w/ jam, Large bullet block, Shockcord with ball retainer. (L to R.)

*These instructions include detailed drawings of all parts of the boat and its fittings. To make rigging the boat an easier task it is strongly recommended that you study these drawings and familiarize yourself with all parts of the boat before starting.*

## **B** Rigging the Mast.

4. *Spreaders.* Spreaders are shipped taped to the mast but not installed. It is the responsibility of the dealer to install the spreaders. The spreaders are pre-fit at the factory. To install them they must be riveted to the mast using the four supplied rivets.



5. *Diamond Wires.* The diamond wires are shipped installed on the mast. To rig them for sailing loosen the turnbuckles on the bottom of the wires and slide the wires into the grooves at the end of the spreaders. Tighten turnbuckles and secure with lock nuts. It is desirable to have equal length and tension on the diamond wires to insure the mast is straight during sailing. Check the length using a tape measure and adjust turnbuckles as needed to match the length on each side.

6. *Shrouds.* The mast is shipped with the shrouds attached but coiled up. Remove the tape holding the coils and stretch out the shrouds down the back side (the side with the groove in it) of the mast.

7. *Trapeze Wires* (Race boat only). The trapeze wires are also shipped attached to the mast and coiled. They attach at the same point as the top end of the diamond wires. Uncoil the wires and stretch out down the back side of the mast.

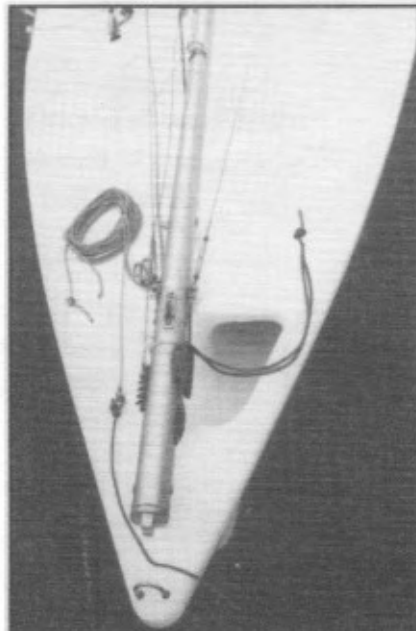
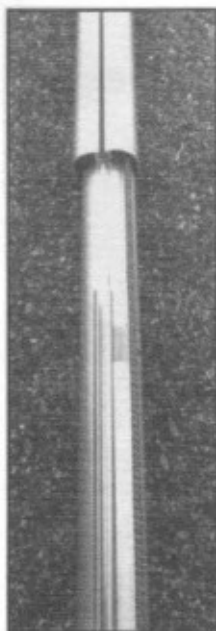
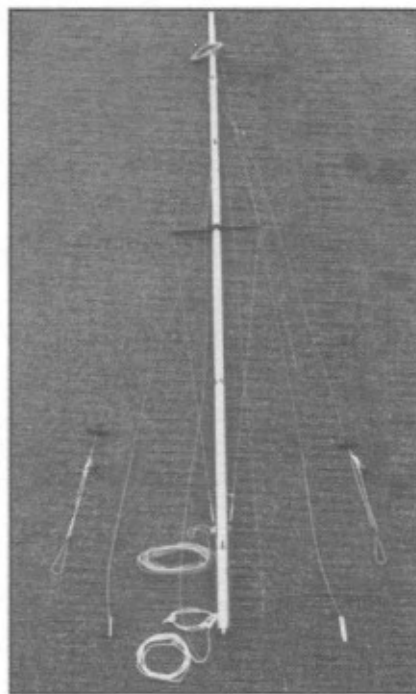
8. *Upper Mast and Main Halyard.* Install the upper mast by sliding the upper mast into the lower mast. It is important to keep the main halyard on the left side when inserting the upper mast. This is the same side as the yellow sticker. The main halyard is shipped in a coil at the top of the bottom mast. After inserting the upper mast uncoil the main halyard and thread the free end through the plastic eye at the top of the upper mast. Pull the free end down to the bottom of the mast and secure both ends of the halyard to the plastic cleat mounted on the mast.

9. The *Jib Halyard* consists of one piece of wire with a loop in each end and a piece of small diameter rope tied to the lower end of the wire.

Uncoil the rope portion and tie the free end around the mast. Then pull the wire portion out of the mast so that the rope is inside the mast and the wire is outside. Secure the wire end and put one of the straight shackles (shipped attached to the boom) into the small wire loop.

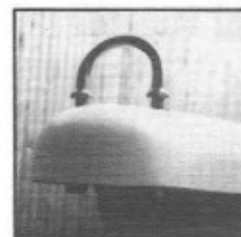
10. *Spinnaker Halyard and Pole Topping Lift* (Race boat only). The spinnaker halyard is shipped coiled at the base of the mast. Uncoil the rope and pull the top end of the halyard down to the base of the mast. Secure the loose ends together for stepping the mast. The topping lift is shipped in the line bag. Thread one end through the steel lined fairlead on the front of the mast and pull down the mast to the clam cleat at the base. Secure the loose end for later attachment to the spinnaker pole.

The mast is now ready for stepping into the boat. Both ends of all halyards and the spinnaker topping lift should be secured at the base of the mast. The shrouds and trapeze wires should be free of tangles and stretched out down the back side of the mast. The back side of the mast is identified by the groove.



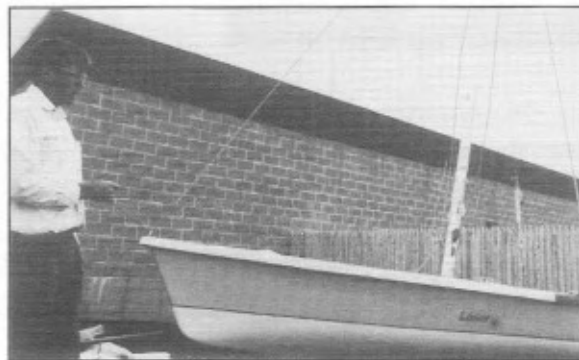
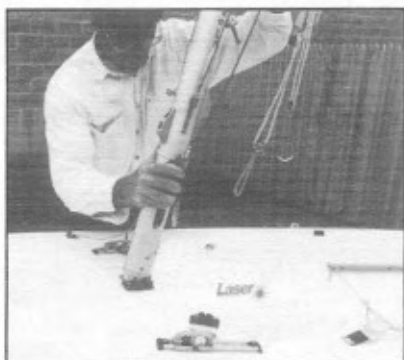
## **C** Stepping the Mast.

*Before stepping the mast make sure there are no overhead wires in the area. Contact between overhead wires and the mast can cause severe injury and death.*

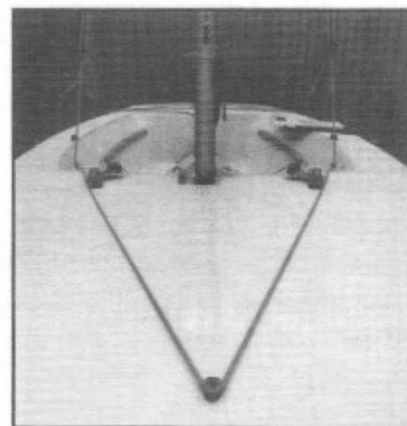


11. Locate the U-bolt from the block package and install in the predrilled hole at the front of the boat. The nuts for this require a 10mm deep socket ratchet wrench.

12. Lay the mast on the boat with the top extended over the stern and the back side (the side with the groove) down on the deck. Attach both shroud wires to the eye straps on the side of the deck. Locate the forestay rope from the line package and tie it on to the end of the forestay. The forestay wire should be free of tangles and laid on the top of the front of the mast. Raise the mast to a vertical position with the bottom of the mast on the ground. Once vertical, pick up the mast and fit the bottom of the mast into the mast step casting on the deck. The mast will have to be tilted back towards the stern of the boat in order to allow the base to fit into the mast step. With the mast being manually held in place tie the forestay tightly to the U-bolt on the bow.



13. Rigging trapeze wires (race boat only). The trapeze wires hang down to the deck behind the shroud wires. Using the trapeze shock cord from the line package tie one end to a trapeze ring. Thread the other end down through the plastic eye at the side of the cockpit then forward to the small cheek block in the middle of the forward deck. Continue to pull the shock cord down the side of the boat to the plastic eye on the opposite side of the cockpit from where you started. Pull the shock cord up through the eye and tie the end to the trapeze ring. The shock cord forms a continuous link between the two trapeze rings.



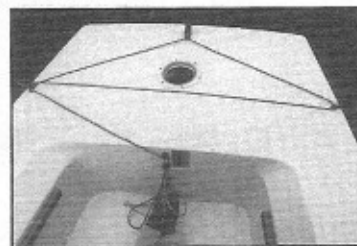
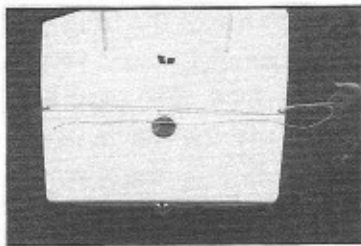
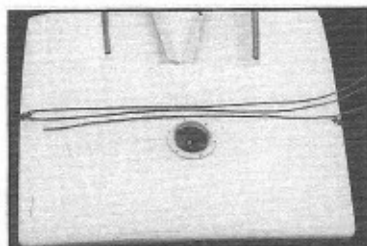
14. Installing the boom. Remove the three remaining shackles shipped attached to the boom and hold with the block package for later use. Install the boom by sliding the forward end over the gooseneck fitting on the mast. The forward end of the boom has the end plug with the hole in the center.



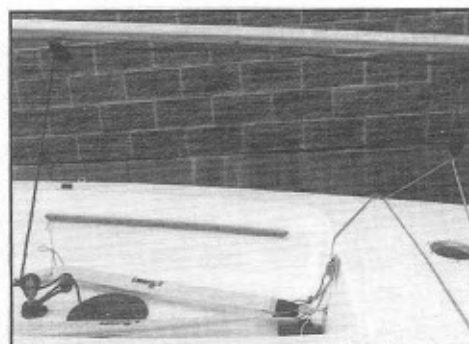


## D Rigging the Lines and the Sails.

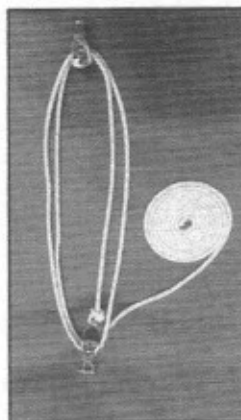
15. Take the *Traveller Line* from the line package. Pass one end through one of the traveller eyes near the back of the boat. Pull the line across the back deck of the boat and "fold" it into three equal lengths. Holding the line to maintain the lengths pass both free ends through the opposite traveller eye. Tie the shorter end into the middle of the longer side of the line approximately eight inches from the second traveller eye. Pass the remaining free end through the cleat located at the back of the cockpit. The next step is to attach the large bullet block to the back side of the loop. It should be attached in the center of the loop. To accomplish this pull the loop back towards the transom until the knot sets against the traveller eye. Locate the center of the loop using the centerline of the deck, pass the loop through the block and then around the sides of the block and pull tight. This completes the traveller installation.



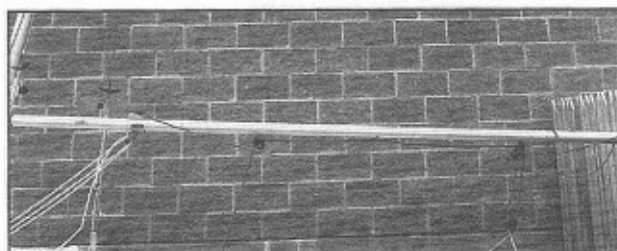
16. *Mainsheet*. Install the ratchet block onto the swivel base located in the middle of the cockpit. Tie one end of the mainsheet to the large bullet block with becket attached to the back end of the boom. Thread the free end through the large bullet block tied to the traveller (passing from front to back) then back up to the sheave of the block on the boom. Pull the line forward through the strap eye on the underside of the boom, to the forward bullet block on the boom and down to the ratchet block.



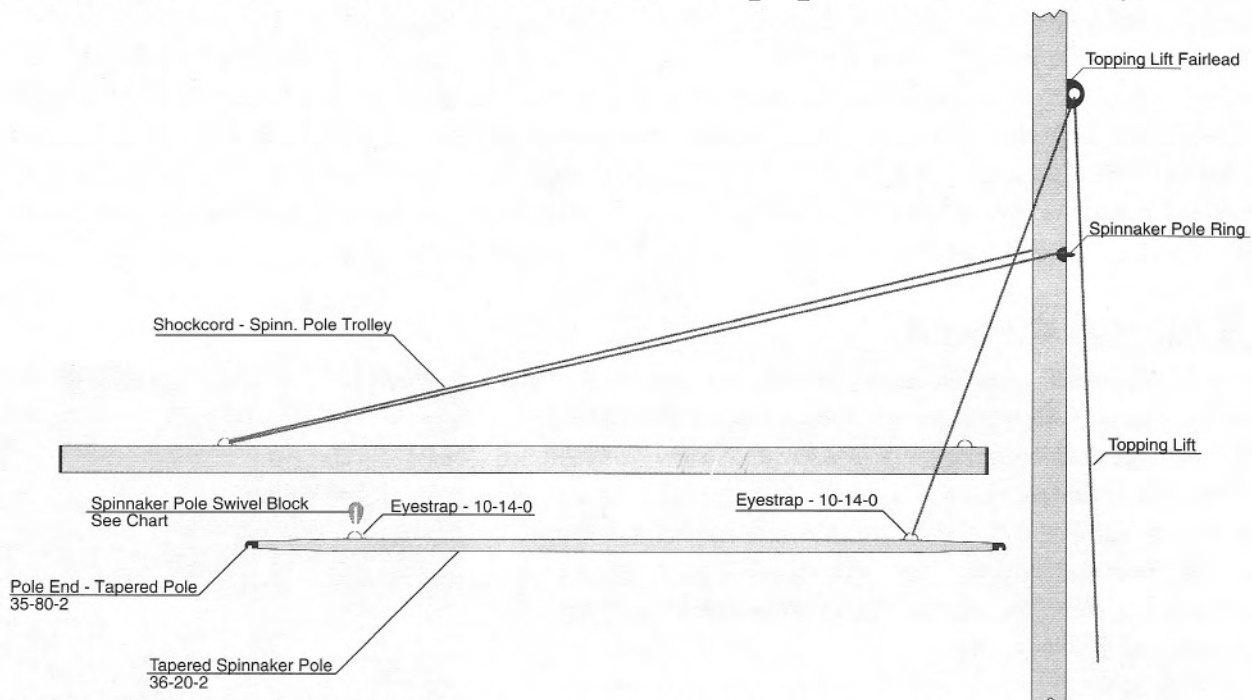
17. *Boom Vang*. Assemble the vang line, double bullet block, and double bullet block with jam as shown in the photo. Shackle the double block with jam end of the assembly to the bail at the base of the mast and hook the double block to the special fitting on the boom.



18. *Outhaul*. Pull one end of the outhaul rope through the clam cleat mounted on the top, forward part of the boom. Thread the loose end through the eye strap at the portion of the boom. Leave the end free for later attachment to the mainsail.

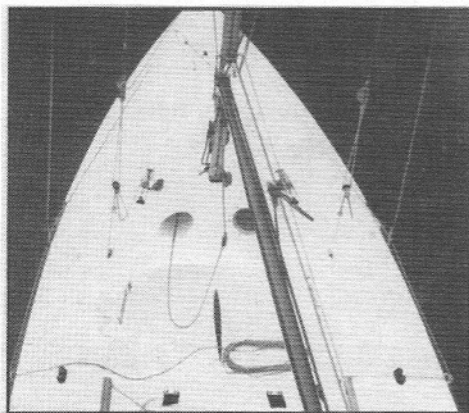
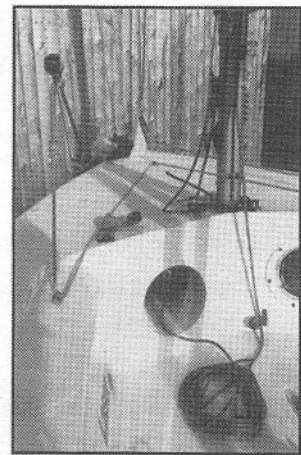


## **E** Rigging the Spinnaker and Spinnaker Equipment. (Race boat only)



19. *Spinnaker Pole and Pole Trolley* (Race boat only). First, attach the shock cord with ball retainer to the eye strap at the forward end of the boom. Second, attach the swivel bullet block to the eye strap on the end of the spinnaker pole. Locate the trolley shock cord from the line bag and thread one end through the swivel bullet block on the pole. Clip the pole end opposite the swivel block onto the shock cord retainer. Tie one end of the shock cord to the eyestraps located on the top of the boom one foot from the back end. Pull the other end of the shock cord forward, around the mast (outside the diamond wires) and back to the eye strap. Pass one end through the eye strap and tie the two ends together. The result is a continuous loop of shock cord that the swivel bullet block on the spinnaker pole can travel on down either side of the mast and boom. To complete the spinnaker pole installation tie one end of the spinnaker pole topping lift to the eyestraps at the front end of the pole and pass the other end through the cleat at the base of the front of the mast.

20. *Spinnaker Halyard* (Race boat only). The spinnaker halyard exits the lower mast and leads down to the lance cleat on the back of the mast. See above figure. To rig the spinnaker halyard for use thread the end of the halyard that exits the base of the mast through the lance cleat and down to the bullet block mounted on the forward end of the cockpit. Then take the end of the halyard and feed it into the aft end of the spinnaker launch tube until you can pull it out on to the foredeck. The result is both ends of the spinnaker halyard are on the foredeck for attachment to the spinnaker.

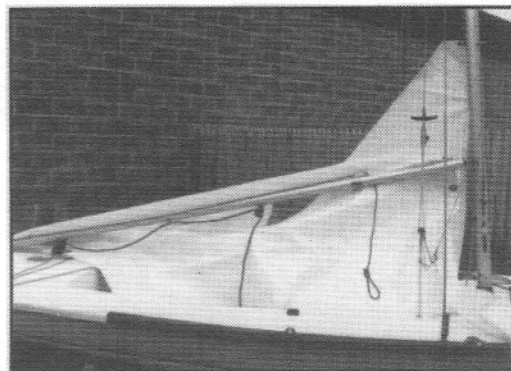


21. *Spinnaker Sheets* (Race boat only). Set up the spinnaker sheets by threading one end of the spinnaker sheet through a spinnaker sheet fairlead, across the cockpit and through the other spinnaker sheet fairlead. The ends of the sheet should be pulled forward, around the shroud wires to the forward deck. The starboard or right hand side of the spinnaker sheet should go forward from the fairlead, around the shroud and the forestay and back to the foredeck for attachment to the spinnaker.

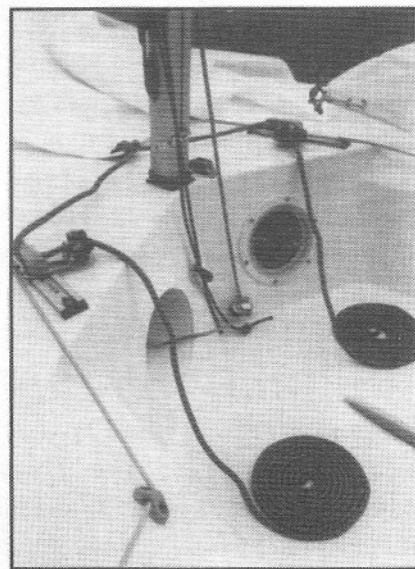
22. *Spinnaker* (Race Boat only). The edges of the spinnaker are color coded. There are two long side edges called leeches, one green and one red. The bottom edge or foot is white. The portion of the halyard that comes down from the mast attaches to the top or head of the sail. This is identified by finding the corner where the green and red edges meet. The two ends of the sheet are tied to the other two corners. The tail end of the halyard that is threaded through the spinnaker launching tube is attached to the center portion of the spinnaker. The spinnaker is made with two holes in the center of it. The halyard passes through the lower hole up to the top hole and secured. Rigged in this way the halyard serves to pull the spinnaker up to set it and also to pull it down into the spinnaker launch tube.

## **F** Rigging the Sails.

23. *Mainsail*. Unroll the mainsail in the cockpit. Locate the tack (lower, forward corner of the sail) and shackle it to the tack eyestraps at the forward end of the boom. Pass the loose end of the outhaul through the clew (back lower corner of the sail) and tie it to the clew fairlead at the back of the boom. Take the clew tie down from the line package, pass it through the clew and around the boom and tie it in a loop. Tie the halyard to the top or head of the sail and feed the boltrope at the front edge of the sail into the groove at the back of the mast. The sail is now ready for hoisting.



24. *Jib*. Unroll the jib on the foredeck. Shackle the forward lower corner of the sail to the U-bolt using the twist shackle. Shackle the halyard to the top of the sail using a straight shackle. Pass both ends of the jib sheet through the back lower corner of the sail and pull them through the loop in the rope to secure them to the sail. Thread the ends to the fairleads on the jib tracks. If rigging a race boat tie one end of the jib cunningham to the U-bolt on the bow. Pass the free end through the hole in the front edge of the sail located 8" up from the corner. Thread the rope back to the U-bolt and then back to the cleat located just to the right of the base of the mast. The jib is now ready to hoist.



## **G** Raising the Sails

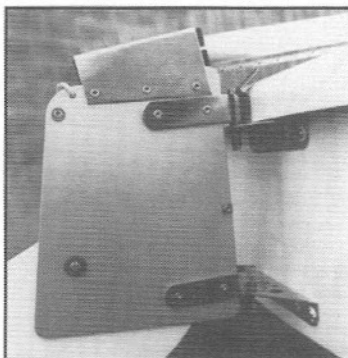
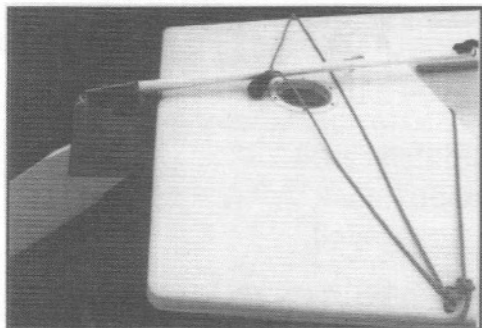
25. **Point the bow of the boat into the wind before raising the sails.** It is easiest to raise the jib before launching the boat. Pull the halyard where it comes out of the mast until the loop in the end of the wire comes out of the mast. Have someone pull the forestay while simultaneously pulling the halyard. When sufficient tension is obtained hook the loop onto the jib halyard rack located on the side of the mast.

To raise the mainsail, pull the main halyard until the top of the sail is at the top of the upper mast. Make sure before hoisting that the mainsheet, boom vang and main cunningham are loose.



## **H** Assemble the Rudder and Tiller.

26. *Rudder and Tiller:* Attach the tiller extension to the tiller. Push the back of the tiller into the top of the rudder assembly. Tie the rudder downhaul rope to the cleat on the side of the tiller. Your rudder is shipped with a tiller retaining pin. To fit the pin to the tiller insert the tiller completely into the rudder head, drill a 1/8" diameter hole in the tiller using the hole in the top of the rudder head as a guide and insert the pin. This pin serves to hold the rudder and tiller together in the event the downhaul line comes loose.



27. *Daggerboard.* Place the daggerboard into the cockpit for use after launching.

## **I** Cautions

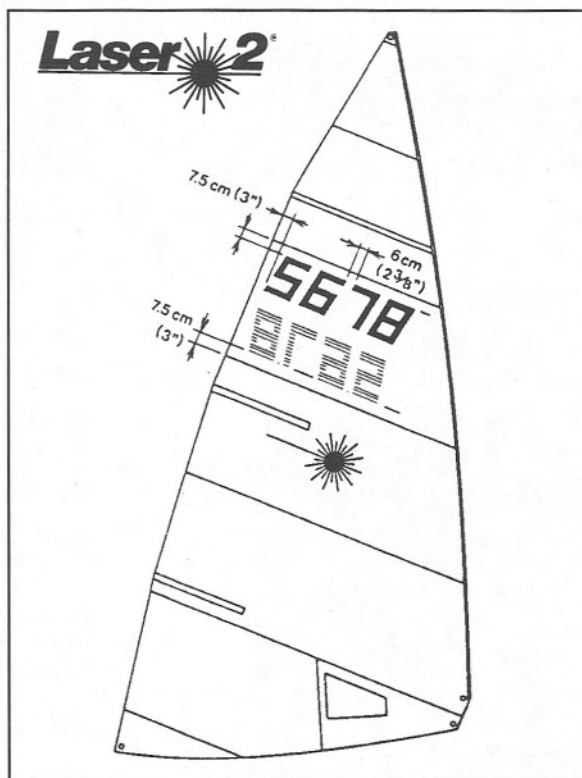
1. Always avoid overhead wires when stepping the mast and raising the sail.
2. If you are new to sailing, it is advisable to seek the help of an experienced sailor before trying out your boat. For maximum safety and enjoyment we advise that you enroll in a sailing course.
3. When transporting on a car or trailering, make certain the hull is well supported. Distribute the load on large well-fitted, padded bunks.
4. When possible, rinse all moving parts after use.
5. Always wear a Coast Guard approved flotation device when sailing your boat.

## **J** Sail Number Applications

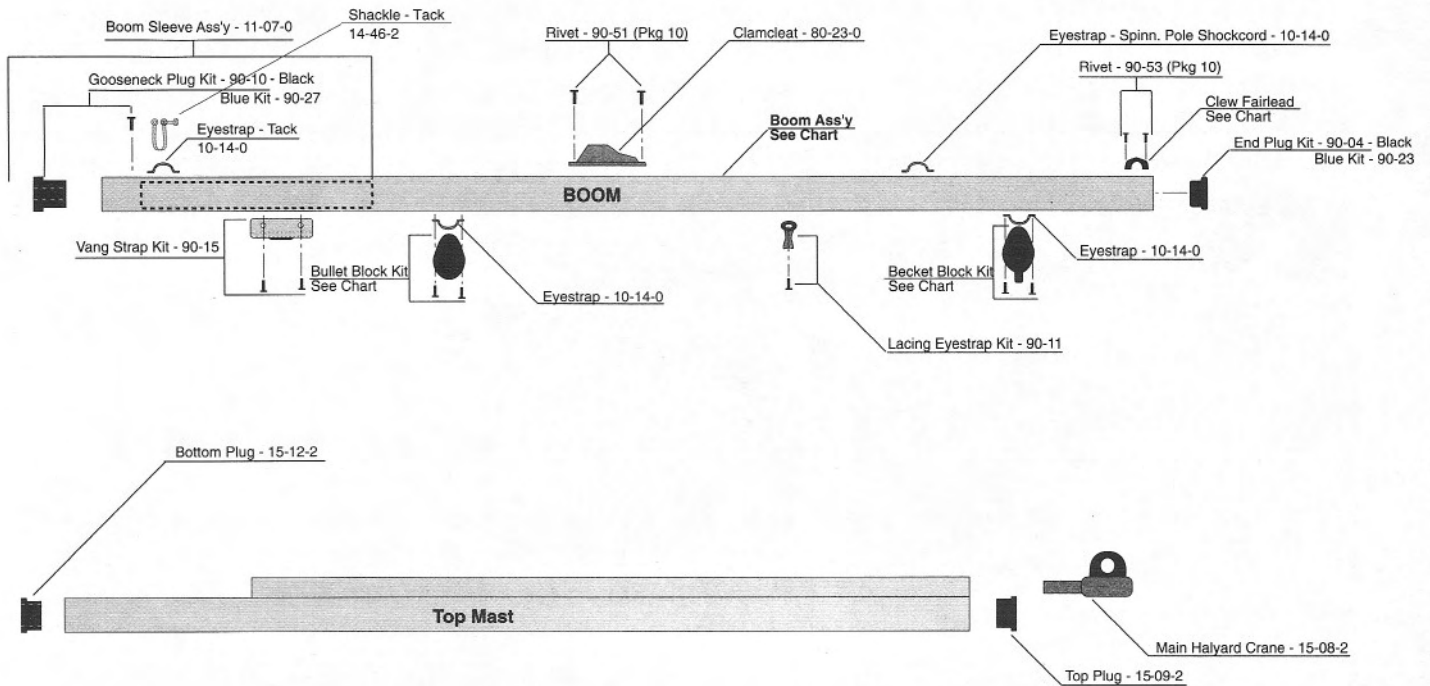
To participate in Laser 2 regattas, you need numbers on the main sail. The sail number should correspond to the number found on the hull. The examples and diagrams shown below indicate how the sail number system works.

*Serial Number*  
*Sail Number*

OQT 5678 A494  
5678



# PART LOCATOR DIAGRAM



## Laser 2<sup>®</sup>

