VANGUARD®

Vanguard Sailboats
300 Highpoint Avenue
Portsmouth, RI 02871

For the dealer nearest you call
800.966.SAIL

Rigging Manual

Laser® Pro

Getting Started

Unpacking and preparation

Unpack the major parts listed below and lay them out on a soft piece of ground, free of sharp objects. To avoid damaging contents, do not cut into packaging.

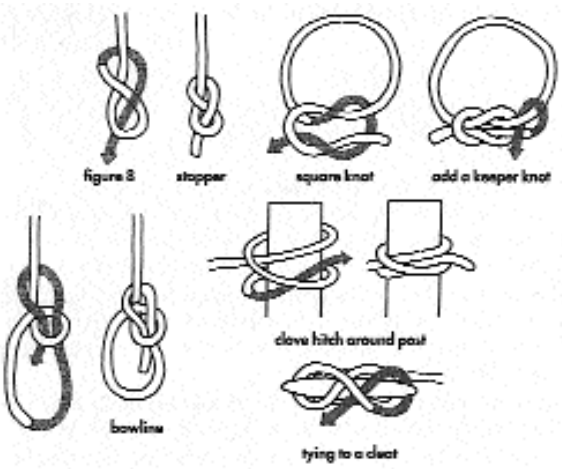
1. Hull
2. Mast kit
    - Top section
    - Bottom section (larger diameter)
    - Boom (with blocks attached)

3. Boat kit
    - Mainsail in bag
    - Tiller
    - Tiller extension
    - Batten set
    - Centerboard assembly
    - Rudder assembly
    - Line bag
    - Sail numbers

4. Block package
    - Top vang block, single
    - Cleat vang block
    - Floating double block
    - 2 single blocks for outhaul
    - 2 double blocks for cunningham
    - Shackle
    - Large traveler block - plastic
    - Small traveler block - plastic
    - Mainsheet ratchet block w/ shackle
    - Mainsheet spring
    - Cleat and block base
    - 2 Lead blocks for block base
    - 2 Cam cleats for cleat base

To rig the Radial or 4.7, use the shorter bottom section and smaller sail provided and follow the instructions for Laser assembly.

Knots



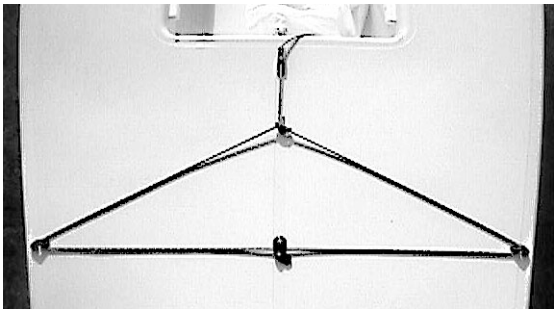
Tools

To rig your Laser the first time, you will need the following:

Knife

White electrical tape

Phillips head screwdriver



Traveller

Hardware installation

There are several blocks and lines you need to install on your new hull the first time you rig it. All lines have been precut. Vanguard Sailboats encourages you to customize line lengths for your sailing style, but be sure to cut and burn all ends to prevent fraying.

Cunningham and Outhaul Hardware

Install the cleat base and block base. Locate the plastic cleat base and stainless block base. Fasten them to the deck using the fasteners provided in the predrilled holes behind the mast step. The block base is installed closest to the mast step.

Traveler

Locate the traveler line and small traveler block. Run the traveler line through one eye, through the block and through the other eye. Now bring the end back to itself and tie a bowline. You are tying a bowline with the two eyes and block in the loop. Lead the long tail through the cleat and tie a stopper knot.

Mainsheet blocks

1. Slide the spring over the shackle on the mainsheet ratchet block and attach it to the eyestrap at the forward end of the hiking strap. To compress the spring, push it down with the block while lining up the pin. Once it is installed, secure it with the ring.

2. Lay the boom on the deck so that the block closest to the end of the boom is even with the traveler eye straps and the other end points toward the bow. Locate the large traveler block and clip it to the smaller block (already on the traveler line) by turning one perpendicular to the other and sliding the slots together. These fittings are called brummel hooks. Tape the two traveler blocks together so they stand up as a unit, to prevent the mainsheet from jamming around the lower block.

Mainsheet

Thread the mainsheet through the ratchet block AGAINST the ratchet, through the forward block on the boom leading aft, through the eyestrap, to the block on the end of the boom, and down to the larger traveler block. Lead it through the traveler block from aft to forward, then tie it off to the becket on the block on the end of the boom with a stopper knot that doesn't interfere with the flow of the sheet.

Daggerboard

Shockcord: Untie the small knot in one end, remove the small metal hook (called a brummel hook), and pass the end of the shockcord through the small hole in the top of the board. Rethread the brummel hook and retie the knot in the shockcord. You can leave the shockcord and stoppers on the board permanently. Set the board aside till launch.

Rudder

Locate the two rudder lines and tie a small stopper knot in the longer one. Feed its other end through the small hole in the leading edge of the rudder from aft to forward and pull the knot up tight against the board, making sure there is no extra line sticking outside the recess. Thread the shorter line through one of the small holes in the top of the rudder head and tie a stopper knot on the underside; its pin will hold the tiller in place. Attach the rudder blade to the rudder head using the supplied bolt. Make sure one washer is assembled on either side of the rudder head, and tighten the nut down enough so that the rudder will remain up or down.

Tiller

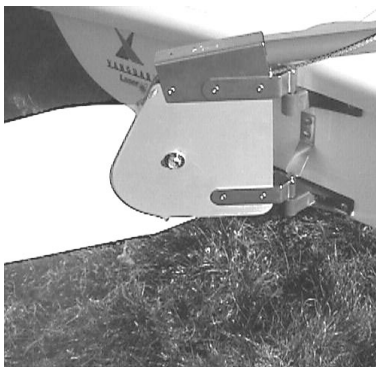
Line up the tiller with the slot in the rudder head and insert, making sure the tiller extension attachment faces up. You may need to use a rubber mallet to line up the hole in the tiller with the hole in the rudder head. Install the retaining pin (attached to the short line you tied into the rudder head) into the holes to prevent the tiller from pulling out. Because the tiller is a tight fit, you may wish to store it in the rudder head permanently. Tape over the retaining pin, to keep it in place and prevent the mainsheet from catching on it. Lead the rudder downhaul line up through the forward and topmost blue spacer and then forward to the cleat on the tiller. Slide the tab on the tiller extension into the slot on the tiller. Make sure it clicks into place and the cover snaps over the top. Tape around the cover plate and tiller to prevent unexpected extension removal.

Assemble mast and sail

Line up the rivet in the collared end of the top section with the gooseneck and insert the top section into the bottom section until the collar is tight against the aluminum. After checking that there are no sharp objects in the area, slide the sleeve of the sail over the mast, aligning the cunningham grommet with the gooseneck and removing any twists in the sleeve. The head of the sail does not rotate easily on the masthead, so double check the aft edge of the head is lined up with the gooseneck before stepping. **Insert the battens.**

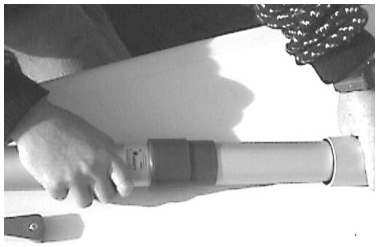
Step mast

Make sure the bow of the boat is pointing into the wind and that there are no overhead electrical wires in the area. Also make sure the mast step hole and mast butt are perfectly clean; any sand or dirt in the mast step will grind into the gelcoat and eventually damage the boat. Place the mast butt against a solid object, lift the top end, and walk toward the butt, raising it hand over hand until the mast stands vertically. Rotate the mast until the gooseneck points toward the stern. Keep your hands a good distance apart while lifting the mast over the hole. Let the mast slide into the step, but do not drop it as you may damage the step. Remove any wraps in the sail sleeve.

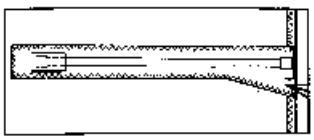


Rudder & Tiller
Assembled and Mounted

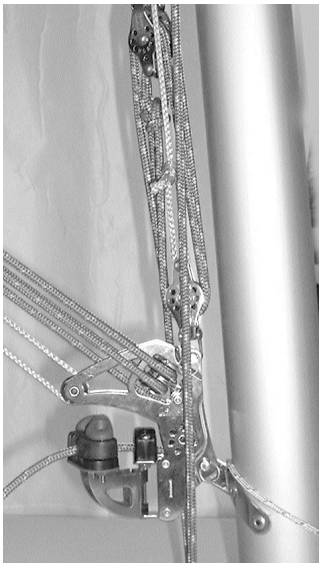
Rudder, Tiller and Traveller
Assembled and Mounted



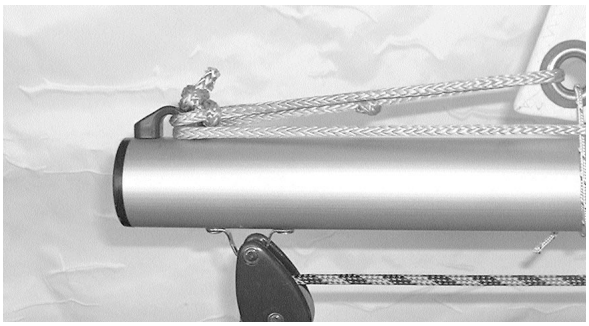
Mast Assembly



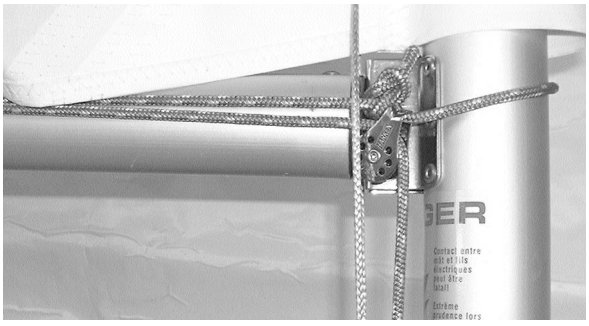
Insert the battens into the batten pockets. The short one goes in the top pocket; the other two are the same length and go in the second and third pockets. To insure batten tips do not fall off inside the pocket when battens are removed, it is suggested that you tape the batten tips.



Cunningham on Vang



Outhaul at clew



Outhaul at gooseneck

Boom

Insert the gooseneck pin into the forward end of the boom and walk aft, exerting forward pressure to keep it in place. Clew Tiedown: Wrap the clew tiedown line twice around the boom and the clew grommet (inside the outhaul), and secure it with a square knot. It should hold the clew tight against the boom but still allow it to slide forward and aft with outhaul adjustment.

Rig the Cunningham

Shackle one double block to the boom vang tang replacing the pin that is currently used for the vang cleat block or vang swivel. This pin will go through the shackle and the vang.

Tie one end of the Spectra line to the becket of that block.

Feed the other end through the tack cringle and tie it to the bail of the other double block.

Tie the pre-stretched line to the becket of the upper double block and lead the rope through the double blocks.

Finally lead the end of the line down through one of the blocks on the block base and then through the cleat on the same side. Tie a stopper knot.

Rig the Outhaul

Tie the Spectra line to one single block.

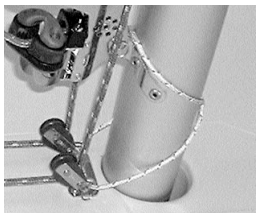
Feed the other end of the Spectra line through the outhaul fairlead, through the cringle in the clew of the sail and tie it to the outhaul fairlead using a small bowline to keep the knot as close to the fairlead as possible.

Lead one end of the pre-stretched line through the bail of the other single block. Loop the tail around the mast above the gooseneck and tie a tight bowline capturing the block.

Lead the tail of this pre-stretched line back through the aft single block, forward to the block tied to the mast, down through the block base and through the cleat. Tie a stopper knot.

Mast retaining line

The Laser class rules state "To secure the mast in the event of a capsize, a loose retention line (that will allow 1800 of rotation) shall be tied between the block base and the vang tang or gooseneck." We have included a piece of line for this purpose.



Mast tie in

Vang

Rigging the Laser 15:1 Boom Vang by Harken

This system consists of six parts: one vang key, three blocks and two pieces of line. The block with the cleat on it will be referred to as the 'cleat block,' the single block with becket will be referred to as the 'top block' and the small double block with becket will be referred to as the 'floating block.' The grey piece of Spectron string is called the primary line, while the red piece of Dyneema line is called the control line.

For tying all of your lines, it is best to use a knot called an 'Australian Bowline.' This consists of an 8-knot secured with a half hitch

Step 1: Lay everything out and make sure that you have everything. Do this in an uncluttered area.

Step 2: Connect the vang key to the top block. It doesn't yet matter which way the key faces in relation to the block.

Step 3: Lead the primary line. Tie the primary line to the becket of the top block, then through the aft most sheave (the one just above the cleat) on the cleat block (leading the line from front to back through the sheave), back up to the sheave on the top block. The ends of the curve in the key should be facing forward (like a shallow 'c') at this point. Lead the primary line from back to front through the sheave on the top block. Finally, tie the primary line to the top of the floating block. At this point, all three blocks are connected together by means of the primary line.

Step 4: Rig the control line. Lay the floating block out so that its becket is forward. The sheaves of the floating block should be perpendicular to the top block's sheave and parallel to the cleat block's double sheaves. Tie the control line to the floating block's becket, then lead it clockwise through the top transverse sheave on the cleat block, back up to and clockwise through the forward sheave (the one with the becket attached to it) on the floating block, down to and clockwise through the bottom transverse sheave on the cleat block, then up to and clockwise through the lower sheave on the floating block. Finally, lead the control line down through the center of the cleat block, under the transverse sheaves and around the bottom sheave from top to bottom, then out through the fairlead and cleat.

Vang installation

Attach the vang cleat block to the tang on the mast. Hook the top "key" of the vang into the slot on the underside of the boom and tighten it. Tie a large bowline in the end of the line, to make it easy to grab while sailing.

Vang Assembly

Launching

Before launching

Check that the two drainplugs (cockpit and transom) are in place and tight. The automatic bailer should be closed. Move the boat close to the water's edge or launch before installing the rudder and daggerboard.

Install rudder

Pass the tiller under the aft section of the traveler and slide the rudder onto the gudgeons. Keep the rudder up until the water is deep enough to extend it down, and then tighten the downhaul and cleat it. Make sure the rudder stop prevents it from lifting off the boat; if necessary, bend the stop out so that it fits as shown below.

Install daggerboard

Slide the daggerboard into the daggerboard trunk. (You will have to turn the boat sideways to the wind to keep the boom clear.) Drop it down as much as depth permits. Lead one end of the shockcord forward through the bow strap and hook the brummel hooks together; this prevents the board from falling out in the event of a capsize. *Properly tensioned, the shockcord will help keep the board at a desired height.*

Unrigging

As you approach shallow water when you come in from sailing, pull up the daggerboard part way, untie the rudder downhaul, and pop up the rudder. After you hop out of the boat, remove the daggerboard and place it in the cockpit. Make sure your mainsheet will run free, and release the vang. To remove the rudder, depress the stop and lift it off.

Once the boat is on land, remove the vang from the boom, undo the outhaul and clew tiedown line, and unstep the mast. You can store the boom on the boat; just tighten up the mainsheet to keep it with the hull. If the boat will be traveling, remove the boom.

The following items can remain assembled:

Rudder

Centerboard

Vang (leave on mast)

Cunningham (leave on mast)

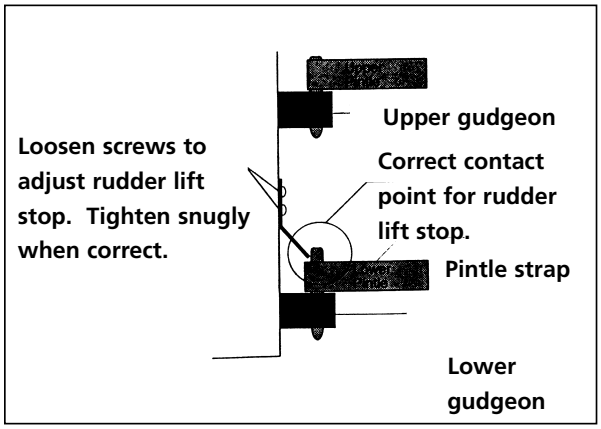
Outhaul (leave on boom)

Sail care tips

If sailing in salt water, all gear should be rinsed with fresh water. The sail should be allowed to dry before it is rolled up. Make sure the window is not creased if you fold the sail. Rolling the sail from the head to foot will prolong the life of your sail. Rolling the sail around the mast is not recommended.

NOW YOU ARE READY TO SAIL

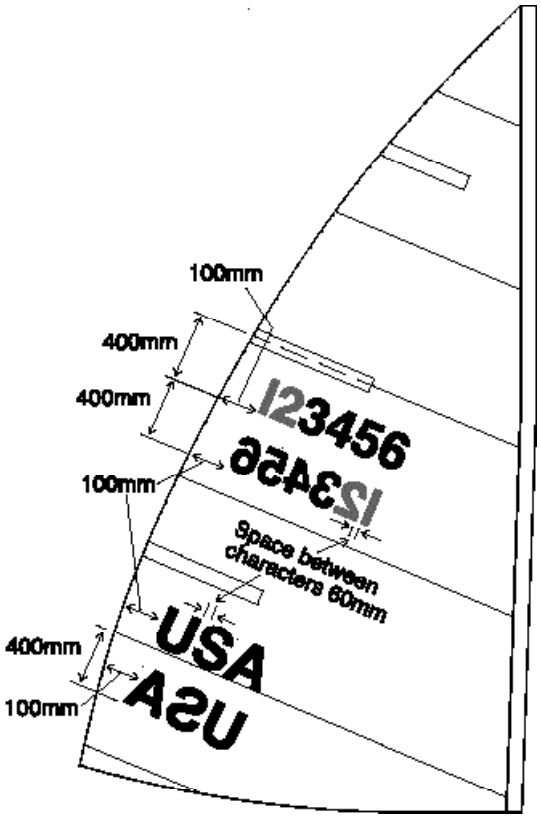
FOR YOUR OWN SAFETY, MAKE SURE YOU ARE WEARING APPROPRIATE CLOTHING FOR THE CONDITIONS, AND PLEASE OBTAIN PROPER TRAINING BEFORE SAILING. HAVE FUN AND DON'T FORGET YOUR LIFE JACKET!



Sail number application

To participate in Laser regattas, you need numbers on your sail. Your sail number corresponds to the serial number of the hull, located on the starboard top corner of the transom. The letter preceding the four digit section of the serial number indicates the first two digits. A=10, B=11, C=12, etc., so if your serial number is: OQT G8989 A393, your sail number is 168989. Use the red sail numbers provided for the first two digits, to make it easier for race committees to identify you properly.

Laser®



Radial®