

**Laser**   
**VAGO** 



**RIGGING MANUAL**

# **Safety Afloat**

This instruction manual is not a guide to sailing your craft and it should not be considered suitable for the task of learning to sail a boat. Please read the manual before rigging and sailing your Laser Vago.

## **Before you go sailing:**

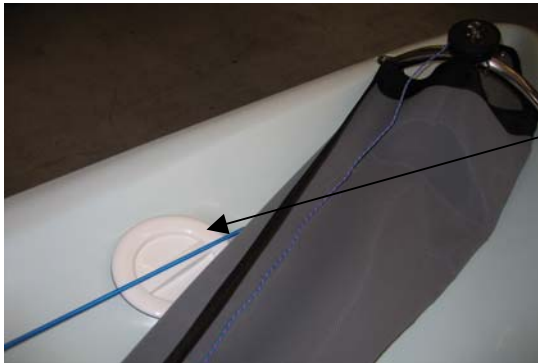
- Check you are wearing suitable clothing and safety equipment for the conditions and time of year.
- Always wear a buoyancy aid or life jacket
- Make sure a third party knows where you are sailing and how many there are of you.
- Check the weather forecast
- Check the time of high and low tides if applicable.
- Seek advise of local conditions if sailing in a new area.
- Always check the condition of your craft before setting off.
- A sailor's safety knife should be carried on board.
- **Check for overhead cables when rigging, launching and recovering.**

## **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. Ensure that you and your crew can cope with any changes in the wind conditions
- Understand and be competent in the sailing skills and righting techniques.

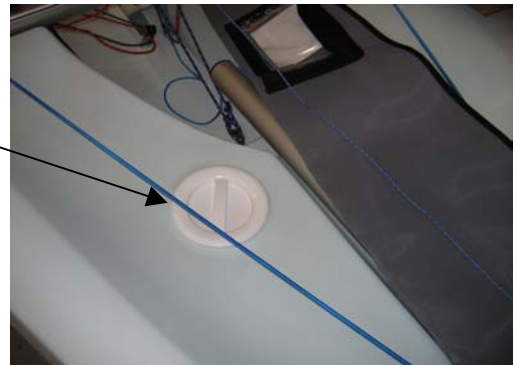
## **Important information**

There are three hatches and one transom drain bung on the Vago, these must all be checked to ensure tightness and correct fitment prior to every time you sail:



**1. Under the gennaker sock on the port side**

**2. On the starboard foredeck**



**3. On the aft deck**

**NB: Also check that the rear bung is hand tight.**

**Example of INCORRECT hatch fitment:**



## **Vago Rigging Instructions**

The Vago rigging instructions are a guide to rigging your boat. Due to production supplies certain parts may be different from those shown in description, colour, and specification. Performance Sailcraft Europe reserves the right to change specifications without prior notification.

### **LASER CENTRE**

Options, accessories and spares are available from Laser Direct +44 (0) 1327 841610

[www.lasersailing.com](http://www.lasersailing.com)

The Laser Centre  
Station Works  
Long Buckby  
Northampton  
NN6 7PF  
UK



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**Customer Help Line: Please contact Customer Services on Tel: 00 44 (0) 1327 841608.**

## **Glossary**

**Bow:** Front of the boat

**Stern:** Back of the boat

**Fore:** Forward

**Aft:** Rearward

**Clew:** Back lower corner of a sail

**Tack:** Forward lower corner of sail

**Head:** Top corner of sail

**Luff:** Forward edge of the sail

**Foot:** Bottom edge of the sail

**Leech:** Rear edge of the sail

**Burgee:** Wind direction indicator (usually a small flag)

**Batten:** A thin stiffening strip in the sail to support the leech

**Mast:** Main vertical spar supporting the rig/sails

**Boom:** Spar at the Bottom of the mainsail

**Gennaker pole:** the Pole, which extends to fly the gennaker tack from.

**Cleat:** A fitting used for holding /securing ropes

**Forestay:** The wire supporting the mast at the bow of the boat

**Shrouds:** Wires that hold mast in boat and supporting the mast from  $\frac{3}{4}$  up and out to hull side. Attached with shroud adjuster to shroud anchor point

**Lower shrouds:** Wires that tie off  $\frac{1}{4}$  up mast and shackle to shroud anchor points

**Jib:** Front sail

**Sheet:** Rope for controlling the inward/outward position of the sail

**Gennaker:** Isometric sail hoisted when sailing downwind

**Gunwale:** The outermost edge of the boat

**Gudgeon:** Fitting on the transom and rudder used to hang rudder

**Cunningham:** Purchase system for tightening the forward edge/luff of the sail

**Gnav:** Purchase system for tightening the rear edge/leach of the sail

**Vang:** Otherwise known as the Kicking strap, Gnav

**Outhaul:** Purchase system for tightening the bottom edge/foot of the sail

**Halyard:** A rope or wire used to lower or hoist sails

**Mast Heel:** Fitting on the bottom edge/foot of the mast

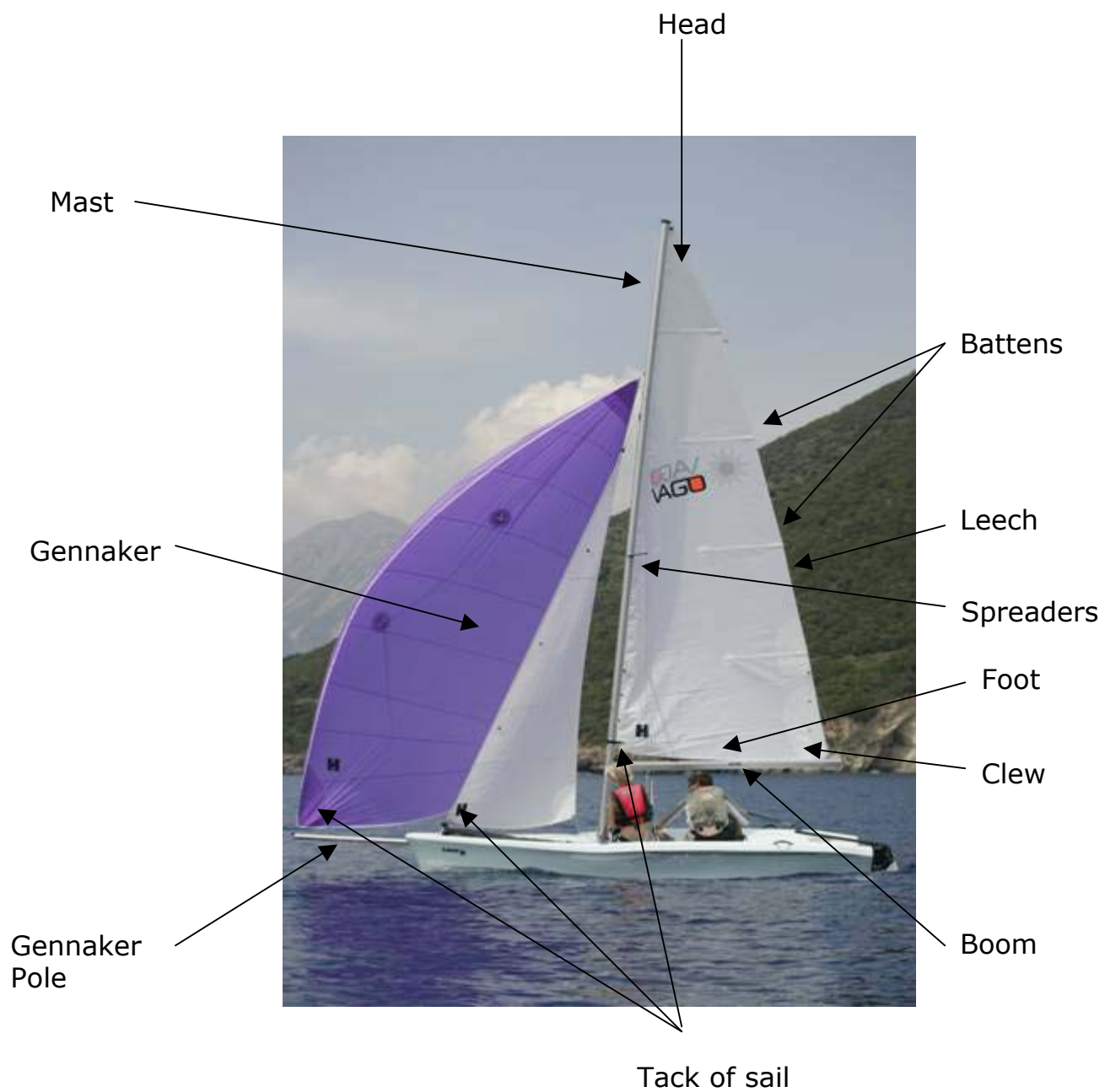
**Mast step:** Fitting on the boat where the mast heel/foot of the mast is located

**Spreaders:** Metal struts placed in pairs to support the mast side ways and control the bend in the mast

**Stem fitting:** Stainless fitting at the bow which the forestay attaches

**Rudder:** Blade and attachments used for steering the boat

## Useful Boat Terminology



## **Maintenance and Service**

- Keep the equipment clean by frequently flushing with fresh water. In corrosive atmospheres stainless parts may show discoloration/brown staining around screw holes and rivets, this is not serious and can be removed with a fine abrasive.
- Excess water should be removed from the hull.
- Ropes, rigging and fittings should be checked at regular intervals for wear and tear.
- All moving parts should be lightly lubricated to avoid jamming, i.e., McLube, Dry Teflon or a dry silicone based spray. Do not use Oil.
- Inspect shackles, pins and fittings – tape up to stop snagging, coming undone.
- When refastening screws do not re – use Nylock nuts more than three times.
- Damaged or worn parts should be replaced.
- Sails should be thoroughly washed down with fresh water, dried and stored in a dry place.
- Trailers should be rinsed with fresh water and checked at regular intervals. It is recommended that the trailer be serviced annually.
- Repairs to the polyethylene hull should be undertaken by people with the relevant equipment and skills. Contact Laser Centre for advice.
- UV light will cause fading to some components and fittings, a cover is recommended to reduce the UV degradation.
- **Do not leave the rig under tension when not sailing or during storage.**
- **Your Vago should only be used in conjunction with the Vago specific Performance Sailcraft gunwale hung launching trolley. The use of any other launching trolley may damage the hull and invalidate your warranty.**
- **The hull should not be left on a pebble beach, as the polyethylene could dent.**
- **Care must be taken to support the hull adequately if storing on racking or similar. Any sustained point loading could permanently dent or distort the hull.**

## Sail Number Positioning

It is advised to apply the sail numbers in a dry, clean and wind free environment.

### **Standard Sail**



1. Lay the sail on a flat surface starboard side up.
2. The numbers on the starboard side are always higher than the port side.
3. Measure 60mm down, from the seam directly below the logo.
4. Mark a line, parallel to the seam.
5. Measure 100mm in from the leech on this line.
6. The first number is positioned 100mm in from the leech and with the top of the number on the line parallel to the seam.
7. The numbers are 60mm apart.
8. Turn over the sail and position the port numbers 60mm below the top seam of the panel below. The numbers are parallel to the seam.

### **XD Race Sail**

1. Lay the sail on a flat surface starboard side up.
2. The numbers on the starboard side are always higher than the port side.
3. Measure 200mm down, from the second batten pocket from the **bottom** of the sail.
4. Mark a line parallel to the batten pocket. Use tape
5. Measure 100mm in from the leech on this line.
6. The first number is positioned 100mm in from the leech and with the top of the number on this tape line
7. The numbers are 60mm apart.
8. Turn over the sail and position the port numbers 60mm below the starboard numbers and parallel to them.





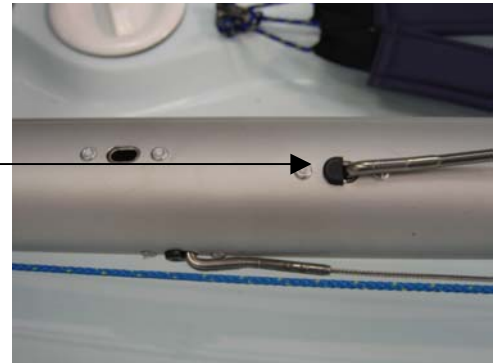
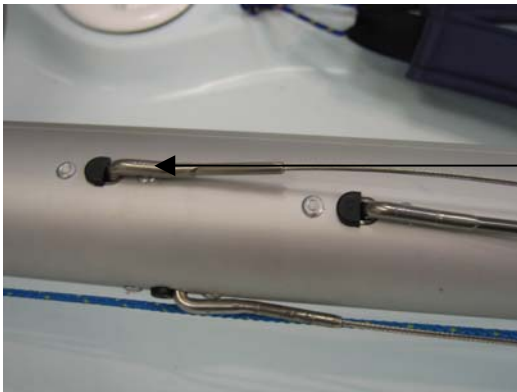
## **Rigging And Raising The Mast**

1. Unwrap the mast.



2. Ensure all the halyards are led to the base of the mast and each halyard rope end has a knot tied in it.

3. Insert blanking plugs, (tight fit to produce seal) a medium size flat blade screwdriver maybe required to fit.



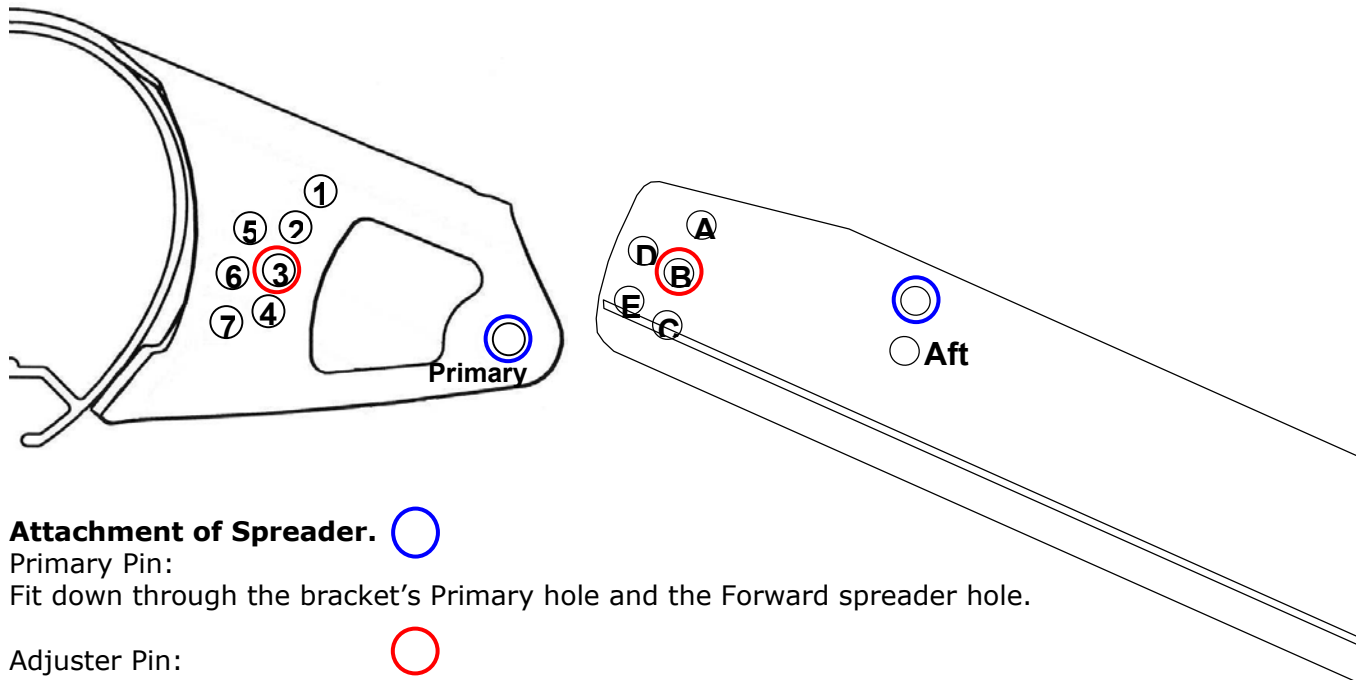
4. If applicable, fit trapeze wires and plugs in the top terminal positions on the mast. (Note: Trapeze kit is an option on the standard rig but is included in the XD rig)

5. Fit spreaders (See next page for diagram)



6. Ensure that all the spreader pins and rings are taped up or serious damage could occur to the sails.





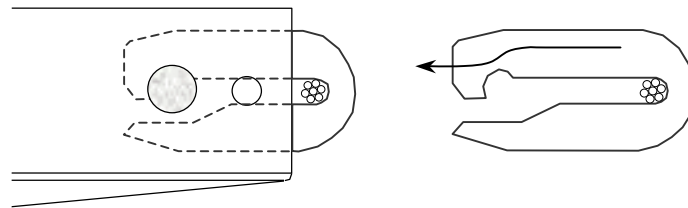
**Attachment of Spreader.** ○

Primary Pin:

Fit down through the bracket's Primary hole and the Forward spreader hole.

Adjuster Pin:

Fit down through bracket adjuster hole 3, and through spreader adjuster hole B.



**Spreader Ends**

Remove the clevis pin and slide out the spreader end hook.  
 Slide the hook over the shroud, and slide back into the spreader.  
 Refit the clevis pin and split ring.

**Security**

All clevis pins must be fitted with the flat head on top, and locked with a split ring. Tape all split rings, pins and the outboard end of the spreader extrusion. This will reduce chafe on the mainsail and prevent flailing sails/halyards becoming damaged. Self-amalgamating tape is best, but PVC electrical tape is an adequate alternative.

| Class      | Bracket Connection Pin |          |
|------------|------------------------|----------|
|            | Primary                | Adjuster |
| Laser Vago | Fwd                    | 3B       |

7. Raise the mast and position the mast heel on the mast step. The mast heel recess/slot should straddle the bolt in the mast step. **(Note - This is a two person operation as someone will need to hold the mast upright while shrouds and forestay are connected - Ensure that there are no overhead power cables)**

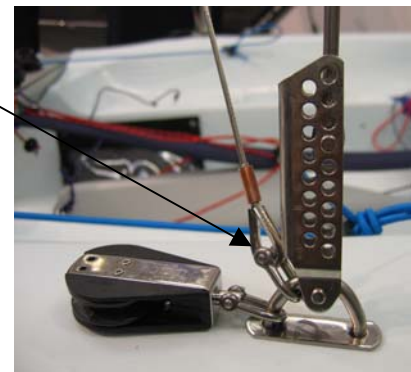


8. Attach the shrouds to the shroud anchor point with the adjuster pin position in the 4th hole down on the back of the vernier adjuster.



9. Temporarily attach the forestay around the jib tack bar. (Not the furling drum)

10. Shackle the lower shrouds to the shroud anchor point. The shackle goes in between the vernier adjuster and ratchet block. (The ratchet block should always be at the front.)



11. Loosely tie the other end of the lower shrouds to front of mast. **(Note: The lower shroud tension is adjusted after the jib halyard has been tensioned.)**



12. Attach the trapeze rings to hull mounted shock cords by feeding the elastic loop through the ring at the bottom of the pulley. (Note: Trapeze kit is an option on the standard rig but is included in the XD rig)

13. Place the Loop of elastic shock cord over the metal trapeze ring and pull tight.



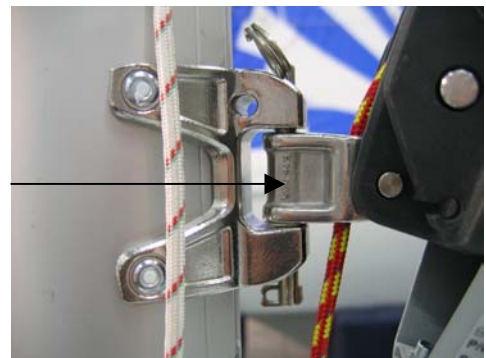
14. Tip - Best seaman like practise would be to tie two double half hitch stopper knots in the adjuster line (a hand width apart).

### **Boom and Gnav**



1. Unpack the boom and Gnav tackle.

2. Attach the boom to the mast using the drop nose pin. (Articulating toggle at the bottom)



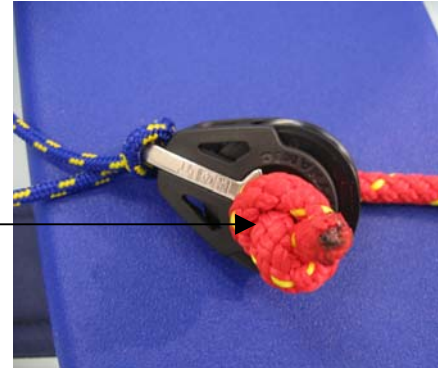
3. Tie the Gnav control line from the boom to the double block and becket at the base of the mast in the boat. (Tip - Best seaman like practise would be to use a bowline)





4. Attach the gnav strut to the gnav anchor point using the drop nose pin. (Articulating toggle at the bottom with joint orientation as shown)

5. Thread the mainsheet through the centre of the block attached to the bridle rope and tie a half hitch stopper knot.



6. Feed the mainsheet through the blocks and to the mainsheet jammer as shown.

Tip - double check the mainsheet passes through the switch-able ratchet in the correct direction

Tip - Best seaman like practise would be to tie the loose end of the mainsheet to one of the rear toe straps to prevent flailing and sheet falling overboard.



## **Sails**

### **Jib**



1. Ensure furling drum line is fully wound completely onto furling drum before you attach the jib.

2. Unroll the jib and attach jib tack to furling drum. Tape up pins on jib tack.





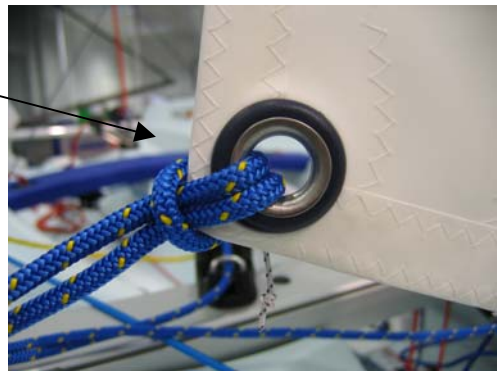
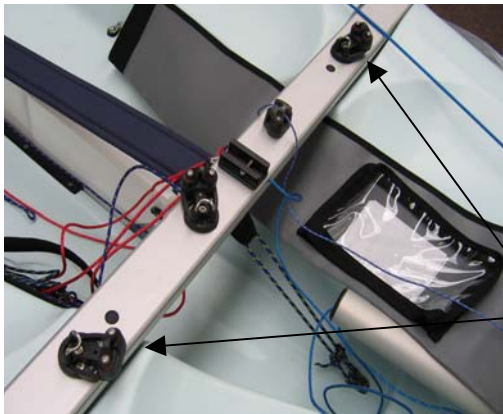
3. Attach the head of the jib to the jib halyard furling swivel and tape up prior to hoisting.

4. Hoist jib by pulling the white halyard out of aft face of the mast then hook the jib halyard purchase system onto jib Halyard wire. (Ensure hook is facing aft.)



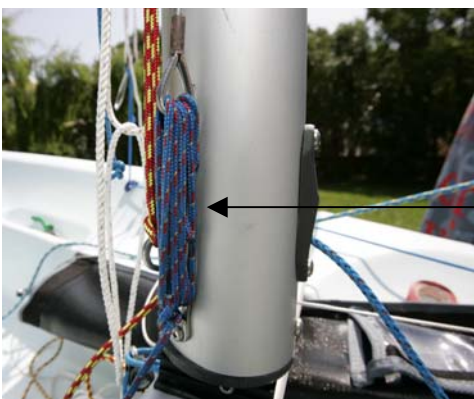
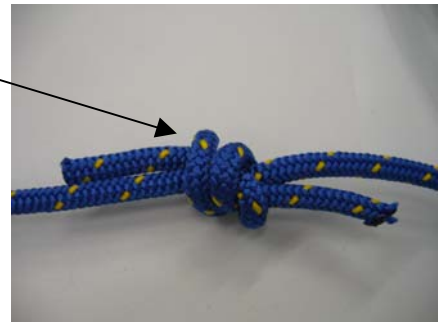
5. Tension the jib halyard purchase system until the jib luff wire is taught. Cleat and tidy the rope end in the pocket on the underside of the gennaker sock. (If a loose gauge is used to measure the rig tension do NOT exceed 15 units or 70Kg's - measured on the shroud 0.75 metres above the vernier adjuster)

6. Attach the centre of the jib sheet to the jib clew.

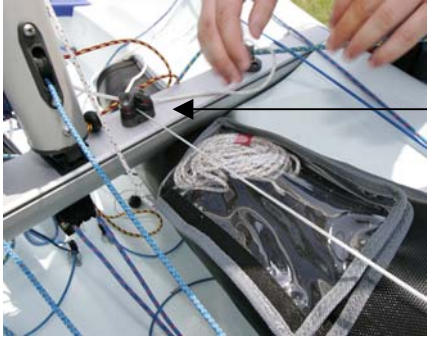


7. Thread the free ends of the jib sheet through the swivel jib fairlead cleats on the outer ends of the front beam.

Tip – Best seaman like practise would be to tie the sheet ends together to prevent flailing and inhibit sheets falling overboard.



8. Remove the forestay from the jib tack bar and tie to the P clip at the bottom of the mast on the starboard side.



9. Furl the jib by pulling the furling line. The furling line cleat is positioned on the front beam port/left hand side.

### **Lower shroud tensioning**

- After tensioning the jib halyard re-adjust the lower shrouds so that they are just tight. **It is essential that the mast is straight** before the mainsail is hoisted (Fore and aft and side to side). Lower shroud tension should be adjusted accordingly.



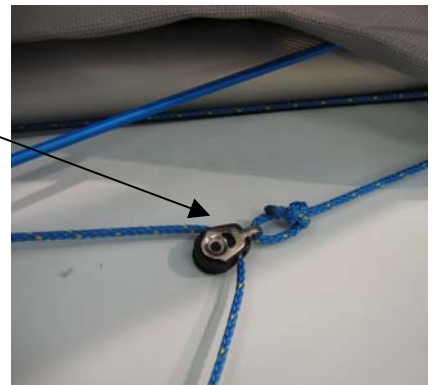
### **Gennaker**

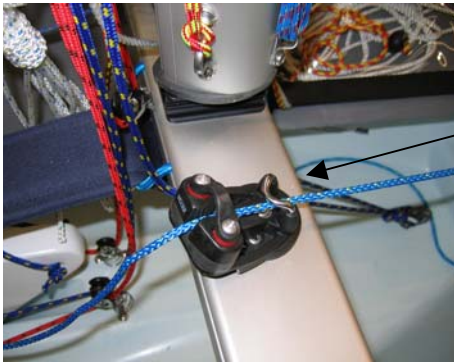
1. Temporarily tie the gennaker halyard to one of the lower shrouds. (Blue halyard exiting from  $\frac{3}{4}$  height up mast, just above the jib halyard sheave box)



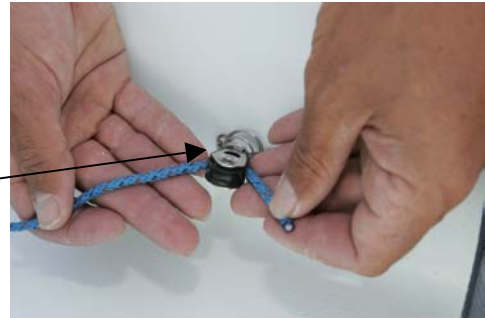
2. Ensure the end of the gennaker halyard taken from the base of the mast is free of knots and tangles.

3. Take the gennaker halyard from the base of the mast and pass forward, under the gennaker sock and round the gennaker pole outhaul block. (The gennaker pole outhaul block is attached to the blue rope led from the pole as shown in the picture)





4. Thread the halyard aft and through the gennaker halyard cleat on the starboard /right hand side of the front beam.



5. Pass the halyard to the port side of the boat and thread it through the block at the aft end of the gennaker sock.

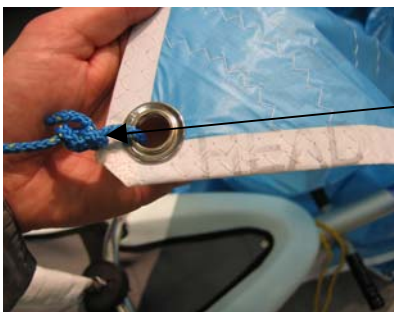


6. Tie the end of the halyard to something such as a batten or tiller extension and carefully pass the end of the halyard up the sock until you can grasp it from the front end of the gennaker sock opening.

7. Tie this end of the halyard temporarily around the jib tack bar and remove the batten/extension from the sock.

8. Unfold the gennaker:

- a. Identify the Tack.  
(Written on the sail)
- b. Secure to the gennaker pole tack line to the sail using a bowline. (The tack line comes out of the front of the Gennaker pole.)
- c. The plastic bobble should be between the sail and the pole end.



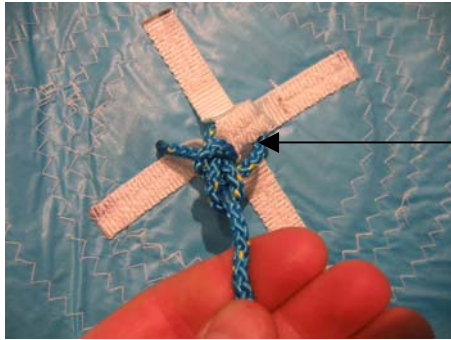
9. Untie the gennaker halyard from the lower shroud and secure to the Head of the gennaker using a bowline.

10. Untie the downhaul end of the gennaker halyard from the jib tack bar. (You previously passed through the sock)

a. Pass the downhaul end of the gennaker halyard through the lower downhaul patch ring on the port side of the sail.

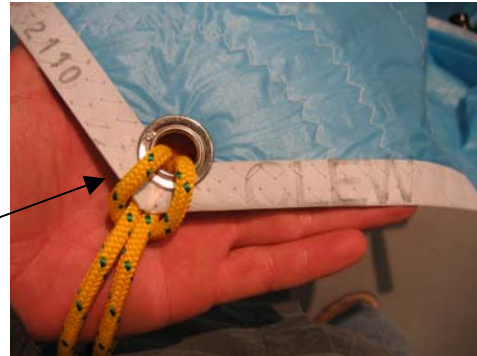






c. Secure to the upper downhaul patch using a bowline.

10. Attach the centre of the gennaker sheet to the clew of the gennaker.



11. Pass the free ends of the gennaker sheets aft (One sheet either side of the jib luff) and through the gennaker sheet ratchet blocks attached to the shroud anchor points. There are arrows on the ratchet block to indicate which way the rope should pass. When under load, the ratchet will engage. (Note – The sheets must pass forward of the shrouds at all times.

12. Tie the free ends of the gennaker sheet together.



13. Ensure the boat is pointing directly into the wind and hoist the gennaker. Take great care to ensure that the gennaker does not get snagged around the trolley; a second person should help with this to ensure it does not snag anywhere. Check the gennaker is not twisted and the Sheets are not tangled with the halyard. **ALWAYS TAKE GREAT CARE TO PULL UP THE GENNAKER SLOWLY AND DO NOT KEEP PULLING IF IT BECOMES TANGLED OR TIGHT.**

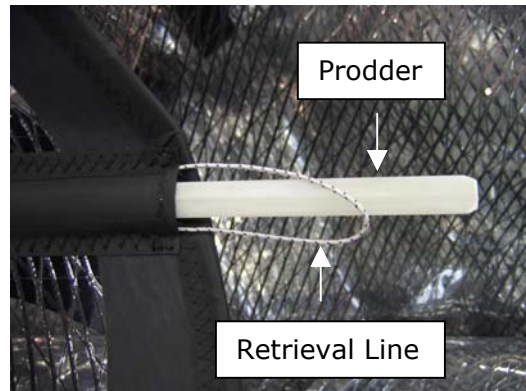
14. Uncleat the halyard and gently pull the gennaker into the sock by pulling the halyard through the block at the aft end of the sock. A second person should help with this and be positioned at the front of the boat to ensure the gennaker does not get snagged anywhere.

## Mainsail – XD and Standard sail



1. Remove the mainsail from the bag and unroll.
2. Ensure all battens are tight in their pockets and the Velcro locking mechanisms are positively engaged:

a. To release the tension from a batten, slide the batten prodder (supplied) carefully between the two halves of the velcro locking mechanism and pull the retrieval line slowly.



b. To re-tension the batten locate the tip of the prodder in to the location point at the end of the velcro strip then insert between the batten and the batten pocket inner side. Push the prodder until the desired batten tension is attained then withdraw the prodder gently while pressing both sides of the batten pocket together to re-engage the velcro locking mechanism.

3. Position the boat so that it is head to wind – bow into the wind.
4. Place the mainsail in the cockpit of the hull with the luff closest the bow (front) and the leach closest the stern (back).
5. Take the main halyard:



- a. Ensure there is no twists in the halyard and it is clear of the spreaders.
- b. Form a loop in the end of the halyard; pass the loop through the eye in the head of the mainsail. (Pass loop from starboard/right to port/left side)
- c. Pass the bobble through this loop and pull tight to secure. (Ensure the bobble is positioned on port/left side as shown – This ensures the bobble will not get caught in

the "V" between the Gnav bar and the mast during hoisting)



6. Locate the head of the mainsail into the mast track. The GNAV bar must be on the starboard side of the sail with sail and halyard to the port side of the GNAV bar.
7. Hoist the mainsail using the main halyard, which exits the mast on the lower port side. Note - Hoisting the mainsail is a two person operation as assistance will be required to feed the mainsail in to the mast track while the other hoists using the halyard (This will prevent the sail pulling out of the track and jamming which could cause luff rope damage.)



8. When the mainsail is fully hoisted, coil the halyard and store in the halyard bag on the underside of the gennaker sock.

### **Outhaul**

1. Secure the Velcro tack strap around the mast.

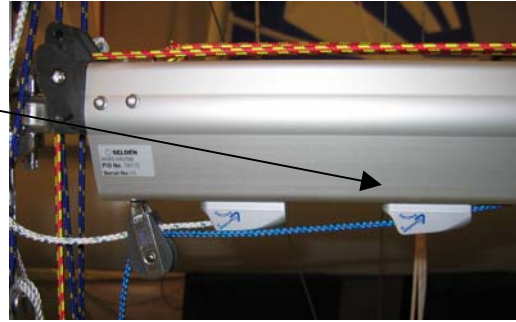


2. Feed the plastic slug slide on the clew outhaul into the cut out on the top of the boom.

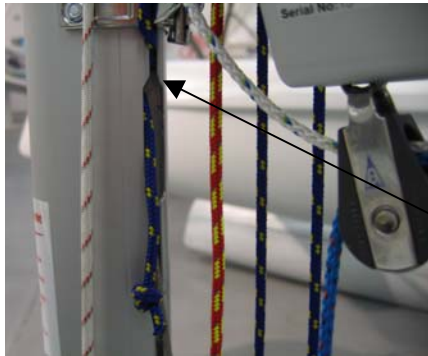
3. The outhaul line (blue) is then passed through the eye in the sail (From port/left to starboard/right side) and anchored on the starboard/right side with a simple knot located in the slot formed in the boom end casting.



4. Outhaul tension is controlled using the blue rope, cleat and fairlead at the forward end of the boom.



**Cunningham**



1. Pass the rope at the end of the cunningham purchase system through the eye at the bottom of the mainsail luff (from starboard/right hand to port/left hand side).
2. Anchor the end of the cunningham purchase system by sliding a half hitch knot in to mast track just below the gooseneck.

3. Cunningham tension is controlled using the blue rope cleat and fairlead block on the top of the centreboard case on the starboard/right hand side of the boat.



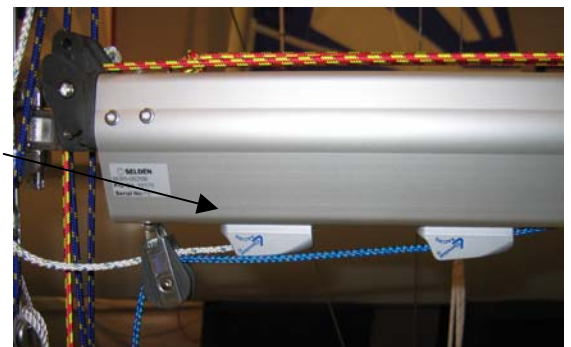
**Single Line Reefing**

1. Rig the single line reefing. (See next page for diagram)

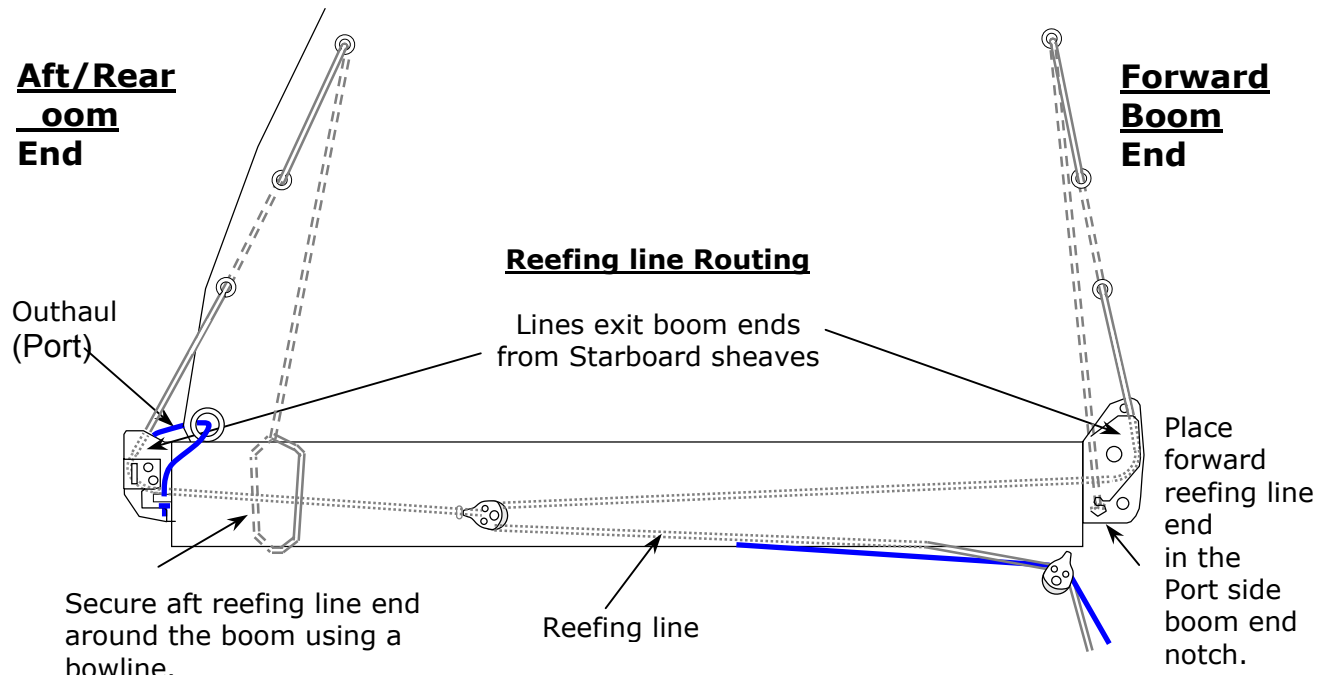


2. Although single line reefing is only applicable to the standard Vago, you will find a pocket at the forward end of the foot of both Std & XD mainsails (port side) to tidy the loose end of the single line reefing system.

3. Single line reefing tension is controlled using the white rope, cleat and fairlead at the forward end of the boom.

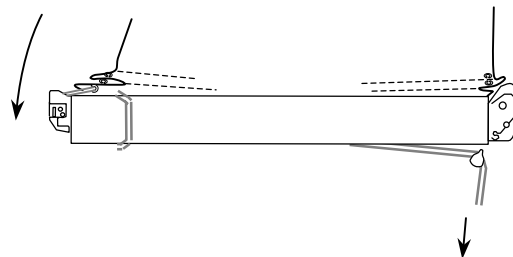
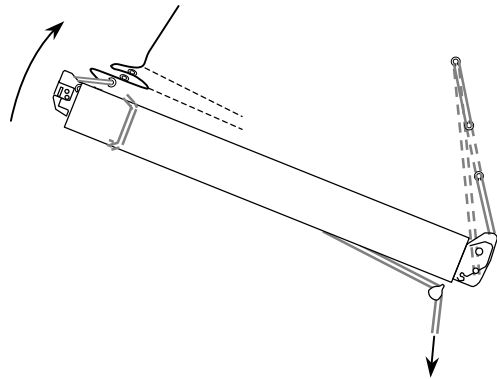


## Single Line Reefing Instructions



### Method

1. Ease sheet & GNAV.
2. Pull the reefline. The boom will angle up until all of the aft reefing line slack is taken in or GNAV travel limit is reached.
3. Ease the halyard, and continue pulling the reefline. The boom outer end will move down towards horizontal.
4. When the reefline has pulled the clew and tack down hard, jam it off.
5. Re-tension the halyard and adjust the GNAV & sheet.



## **Rudder**

1. Attach the rudder assembly to the transom – **Fit the rudder retaining split rings to the holes in both pins.**



2. If the boat is to be used for institutional usage, it may be advantageous to rig up an additional safety leash line as shown. (Two miscellaneous lengths of short rope are supplied in the storage pocket of your Vago)

**Your Vago Is Now Ready For Launching.**



**Note:** The picture shows the complete boat with the gennaker raised; this would normally be stowed for launching.

## **Launching And Basic Safety On The Water**

### **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.
- Check the weather forecast
- Check the time of high and low tides if applicable.
- Seek advise of local conditions if sailing in anew area.
- Always check the condition of your craft before setting off.
- **Check for overhead cables when rigging, launching and recovering.**

### **Launching**



- Raise the mainsail with the boat facing into the wind.
- Launch the boat using the appropriate launching trolley.
- Take the boat into the water with the bow facing into the wind.

- Ensure that there is enough water to float the boat off the trolley.
- One person should hold the boat whilst the other gets in and prepares to set off.





- When there is enough water below you, lower the centreboard and rudder fully.
- Cleat the rudder downhaul in the cleat on the tiller and ensure that the wing nut on the side of the rudderstock is tight.

- The hook at the back of the centreboard case should be attached to the centreboard rope handle when sailing.
- The centreboard hook should be removed before coming ashore.



**The Rudder And Centreboard Should Be In The Fully Down Position At All Times When Sailing And Isometric Boat.**

### 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.



**WARNING:** When wearing a trapeze harness, take particular care when climbing on to the centreboard and back in to the boat after capsize. (As the trapeze harness hook could easily damage the various surfaces)

### Enjoy Your Vago Sailing!

