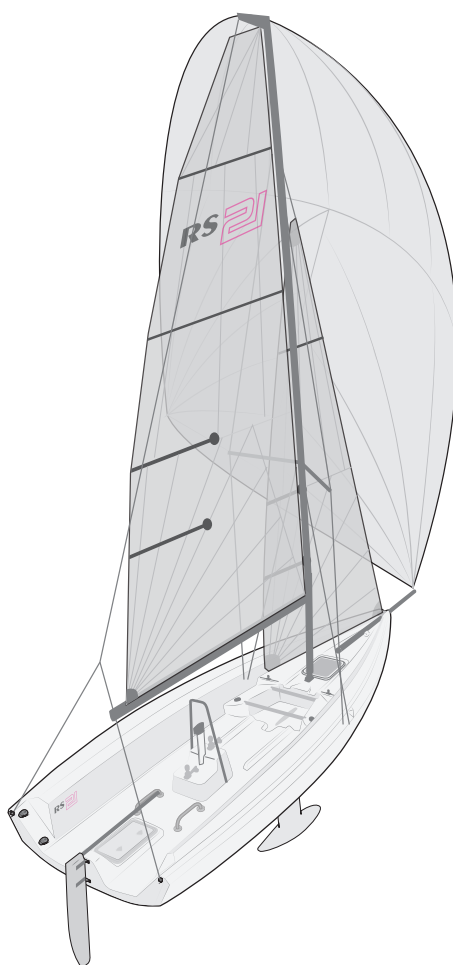




Rigging Manual V16



PLEASE FOLLOW RIGGING MANUAL IN THE CORRECT ORDER



Contents

1 - Introduction	1
2 - Specification	2
3 - Components	3
3.1 - Customer pack	3
3.2 - Rope pack	4
4 - Initial Commissioning	5
4.1 - Stanchions and guard rails	6
4.2 - Adding the spinnaker pole	9
4.3 - Asymmetric spinnaker tack line	11
4.4 - Asymmetric spinnaker launch line	12
4.5 - Adding the hoop	13
4.6.1 - Dressing the mast - Lowers	14
4.6.2 - Dressing the mast - Spreaders	15
4.6.3 - Dressing the mast - Forestay	16
4.6.4 - Dressing the mast - Backstay	17
4.6.5 - Dressing the Mast - Halyards	18
4.7.1 - Stepping the mast	23
4.7.2 - Stepping the mast with the Keel Up	27
4.8 - Rough rig setting	28
4.9 - Adding the boom	32
4.10 - Vang	33
4.11 - Mainsheet	35
4.12 - Main halyard tension system	36
4.13 - Cunningham	37
4.14 - Jib halyard tension system	39
4.15 - Jib tack line	40
4.16 - Jib sheet	41
4.17 - Asymmetric spinnaker sheet	43
4.18 - Spinnaker bag	44
4.19 - Rudder	45
4.20 - Preparing the mainsail	46
4.21 - Battens	46
4.22 - Sail care	47
4.23 - Adding the Epropulsion	48
5 - Using the boat	56
5.1 - Lowering the keel	57
5.2 - Raising the keel	58
5.3 - Hoisting the mainsail	59
5.4 - Outhaul	61
5.5 - Hoisting the jib	62
5.6 - Motor	63
5.7 - Weed cutter	66
5.8 - Storing sail bags	67
5.9 - Fenders	67
5.10 - Lifting the boat	68
5.11 - Removing / Adding the keel	69
5.12 - Bilge pump	70
5.13 - Mooring the boat	70
5.14 - Antifouling	70
5.15 - Fitting Symmetric Spinnaker	71
5.16 - Fitting the Furling Jib System	79
6 - Knots	83
7 - Glossary	85

1. Introduction

Congratulations on the purchase of your new RS 21, and thank you for choosing an RS product. We are confident that you will have many hours of great sailing and racing in this truly excellent design. The RS 21 is an exciting boat to sail and offers fantastic performance. This manual has been compiled to help you to gain the maximum enjoyment from your RS 21, in a safe manner. It contains details of the craft, the equipment supplied or fitted, its systems, and information on its safe operation and maintenance. Please read this manual carefully and be sure that you understand its contents before using your RS 21.

This manual will not instruct you in boating safety or seamanship. If this is your first boat, or if you are changing to a type of craft that you are not familiar with, for your own safety and comfort, please ensure that you have adequate experience before assuming command of the craft. If you are unsure, RS, your RS Dealer, or your national sailing federation – for example, the Royal Yachting Association – will be able to advise you of a local sailing school, or a competent instructor.

Please keep this manual in a secure place and hand it over to the new owner if you sell the boat.

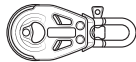
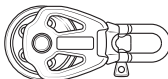


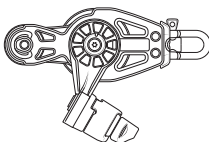




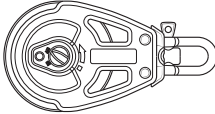

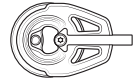



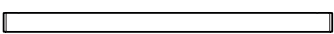
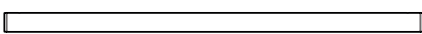


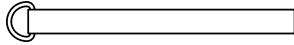

For further information, spares, and accessories, please contact:

RS Sailing
Premier Way
Abbey Park
Romsey
Hampshire SO51 9DQ
Tel: +44 (0)1794 526760
Email: info@RSSailing.com

For details of your local RS Dealer, please visit www.RSSailing.com

Designer	Richards / Whitehouse / RS Sailing
Length	6.34m
Beam	2.2m
Draught	1.38m
Displacement	650kg
Hull construction	Eco-friendly composite
Keel	Lifting - with bulb
Rudder	Removeable - composite
Mainsail area - Race	16.2m ²
Jib are - Race	8.4m ²
Gennaker area - Race	40m ²
Mainsail area - Club	16.2m ²
Jib area - Club	8.4m ²
Gennaker area - Club	35m ²
Spinnaker area - Club	30m ²
Mast	One piece carbon composite
Shrouds and froestay	Stainless steel wire
Halyards - Main, jib, gennaker	Dyneema / polyester
Boom	Aluminium alloy
Bowsprit	Carbon composite



	Part	Usage	Quantity
	30mm Block, Single, Swivel	Backstay/Kicker	2
	40mm Block, Single	Launch line/Kicker/Mainsheet	5
	30mm Block, Single, Strap	Jib Cunningham	1
	30mm Block, Sing./beck. Swiv.	Cunningham	1
	40mm Block, Fiddle, Cam	Cunningham	1
	40mm Block, Fiddle	Kicker	1
	40mm Block, Single/becket	Kicker	1
	45mm Block, Wire	Kicker	1
	20mm Block, Single Becket	Electric Drive	1
	60mm Block Single	Kite sheets/Mainsheet	3
	40mm Block, Single Strap	Mainsheet	2
	40mm Block, Single, Strap	Jib Clew	2
	Shackle dia 5, Slotted, Narrow	Backstay	2
	Shackle ø5x11x26, BOW ST	Kicker	1
	6mm Stopper Knob - Black	Jib Tack Deadend/Pole Out/Main Halyard/Jib Haly / Spinn Haly	5
	Spinnaker Bag Tube, L=650	Spinnaker Bag Pole	1
	Spinnaker Bag Tube, L=830	Spinnaker Bag Pole	1
	30mm Three Singles on a Ring	Backstay	1
	Rudder Pin	Rudder	1
	Keel Strap	Keel Securing Strap	1
	Rubber Tapered Bung and Line	Jib Cunningham Stopper	1

Cut Length (m)	Finished Length (m)	Size (mm)	Description	Qty	Type	Colour	Comments
4.40	4.40	5	Launch Line	1	Evo Race78	Black / Blue Melange	
10.00	10.00	6	Tack Line	1	Evo Race78	Black / Red Melange	
2.20	2.20	4	Jib Cunningham Purchase	1	Evo Race78	Black / White Melange	
2.60	2.60	4	Jib Cunningham Control	1	Evo Race78	Black / White Melange	
31.00	31.00	8	Spin Sheets	1	Braid on Braid	Red / Black Melange	
3.50	3.50	5	Cunningham	1	Evo Race78	Black / Blue Melange	
1.10	0.90	4	Cunningham Tail	1	Rig12	Black	Small Soft Eye Spliced One End
6.00	6.00	5	Vang	1	Evo Race78	Black / Pink Melange	
2.90	2.50	5	Vang Purchase	1	Rig12	Black	Small Soft Eye Spliced Both Ends
11.50	11.50	8	Jib Sheet	1	Braid on Braid	Blue / Black Melange	
16.30	15.50	8	Mainsheet	1	Braid on Braid	Black / White Melange	Cover Only Eye Each End (Whipped)
1.00	1.00	1.5	Mainsheet Whipping	1	Rig12	Black	
2.50	2.50	4	Engine Uphaul	1	Evo Race78	Grey / White Melange	
0.40	0.40	1.5	Engine Block Tie	1	Compact78	Black	
8.50	8.50	5	Backstat Control	1	Evo Race78	Black / Neon Yellow Melange	
0.50	0.50	4	Backstay Block Tie	1	Rig12	Black	Blocks Tie
6.18	5.5 - 4.7	4	Backstay Purchase	1	Rig12+	Black	Soft Eye One End Adjustable Eye Other
0.25	0.25	2	Back Rest	2	Rig 12	Black	
1.45	0.35 - 0.62	4	Stanchion	2	Rig 12	Black	Soft Eye One End Adjustable Eye Other
1.45	0.77 - 0.50	4	Stanchion	2	Rig12	Black	Soft Eye One End Adjustable Eye Other
			Halyards				
18	18	6	Main Halyard	1	Evo Race78	Black / White Melange	
16.8	16.8	6	Jib Halyard	1	Evo Race78	Grey / White Melange	
19.5	19.5	6	Spin Halyard	1	Evo Race78	Black / Neon Yellow Melange	



Rigging Manual

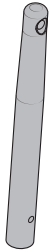
4. Initial Commissioning



PLEASE FOLLOW RIGGING MANUAL IN THE CORRECT ORDER



a) Locate the following items:



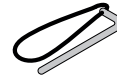
6 x Stanchions



4 x Guard rail pad



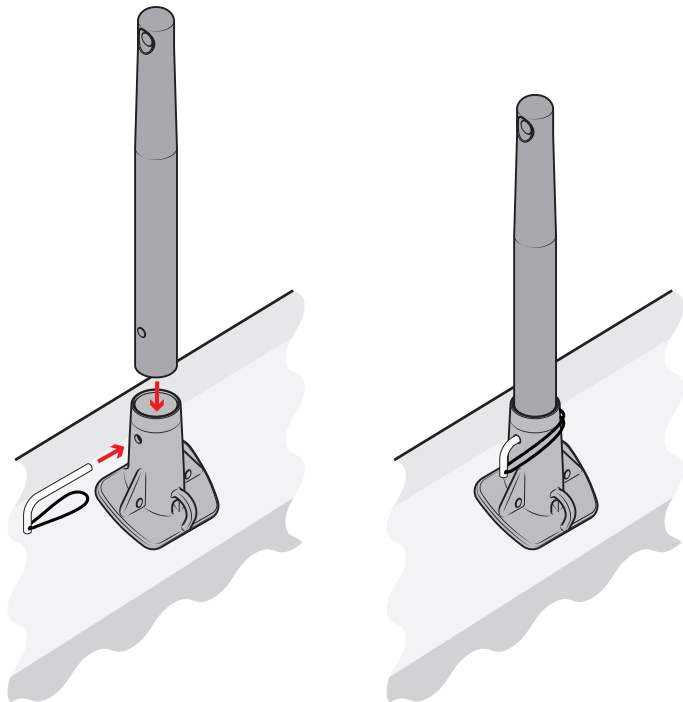
6 x Guard rail ropes



6 x Stanchion Pins

b)

Insert the 6 stanchions and insert pins and secure in place with the shockcord loop.



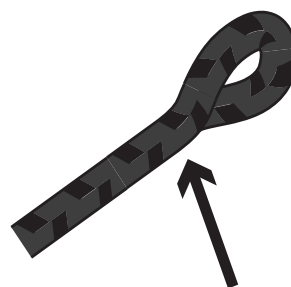
Note: The guard rail ties differ for the regular and race versions.

d)

Standard spec has no splice.



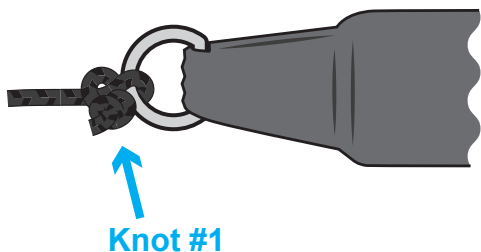
Race spec has spliced loop.



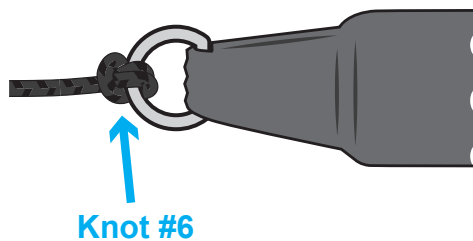
Not the adjustable end.

- e) Attach the 4 long adjustable guard rail ropes onto the D-ring at each end of the guard rail pads, leaving a D-ring free at the end of each pad.

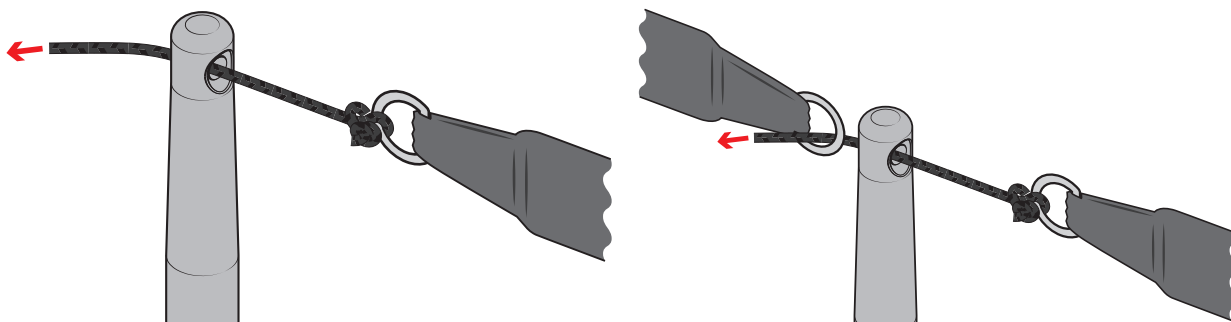
Standard spec.



Race spec.



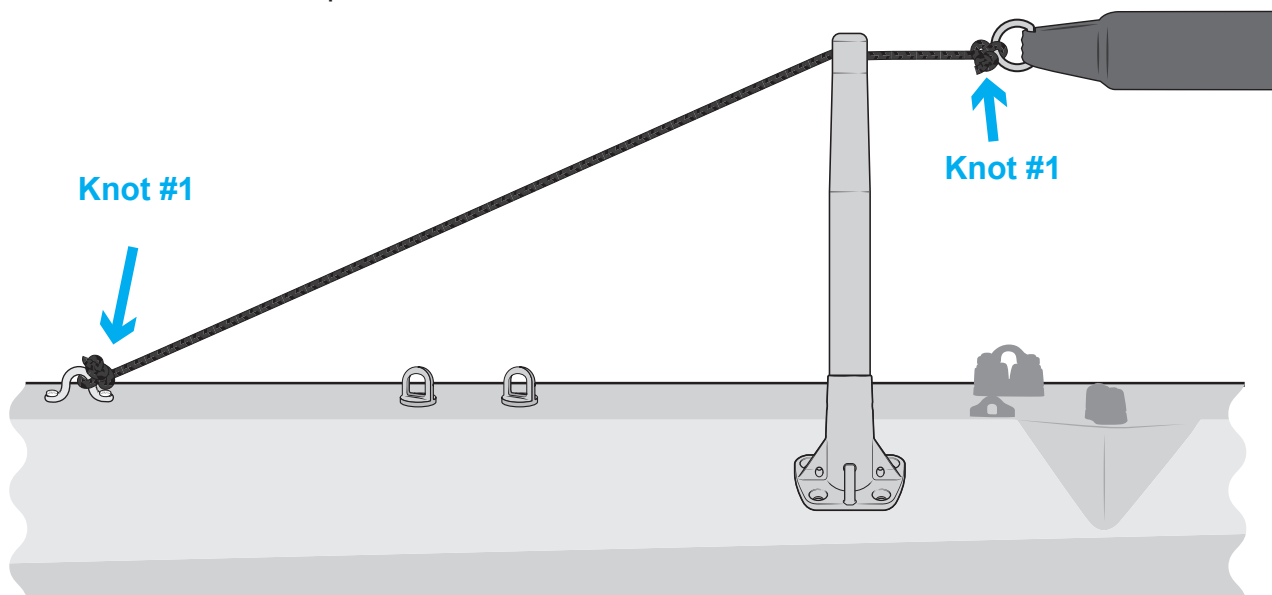
- f) Pass the other ends of the long guard rail ropes through the hole in the top of the stanchions (in a forward direction for the front stanchions and an aft direction for the aft stanchions). Use the 2 short ropes to attach the 2 guard rail pads together through the centre stanchion.



- g) **Standard spec.**

Attach the loose end of the forward guard rail rope to the eyes on the gunwale. Attach the aft guard rail rope to the back stay shackle on the stern of the boat.

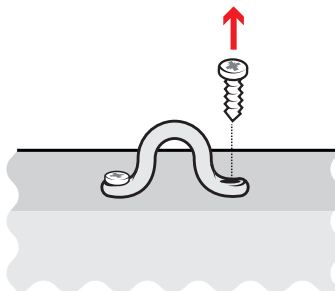
For the standard spec use **knot #1**.



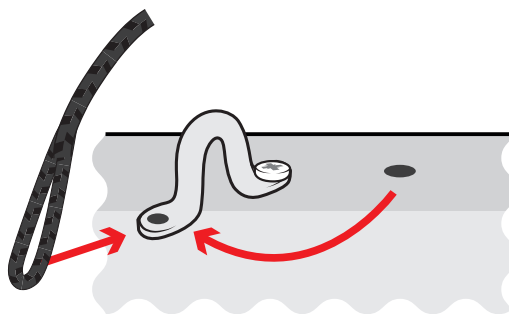
h)

Race spec.

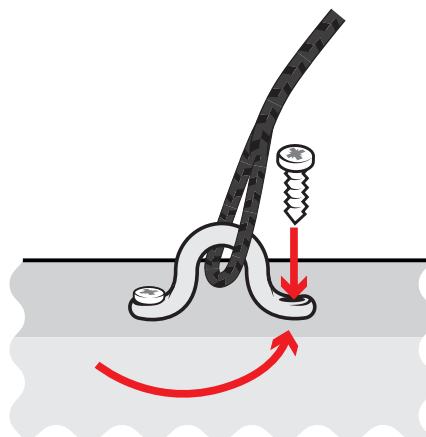
Remove one screw from the deck eye.



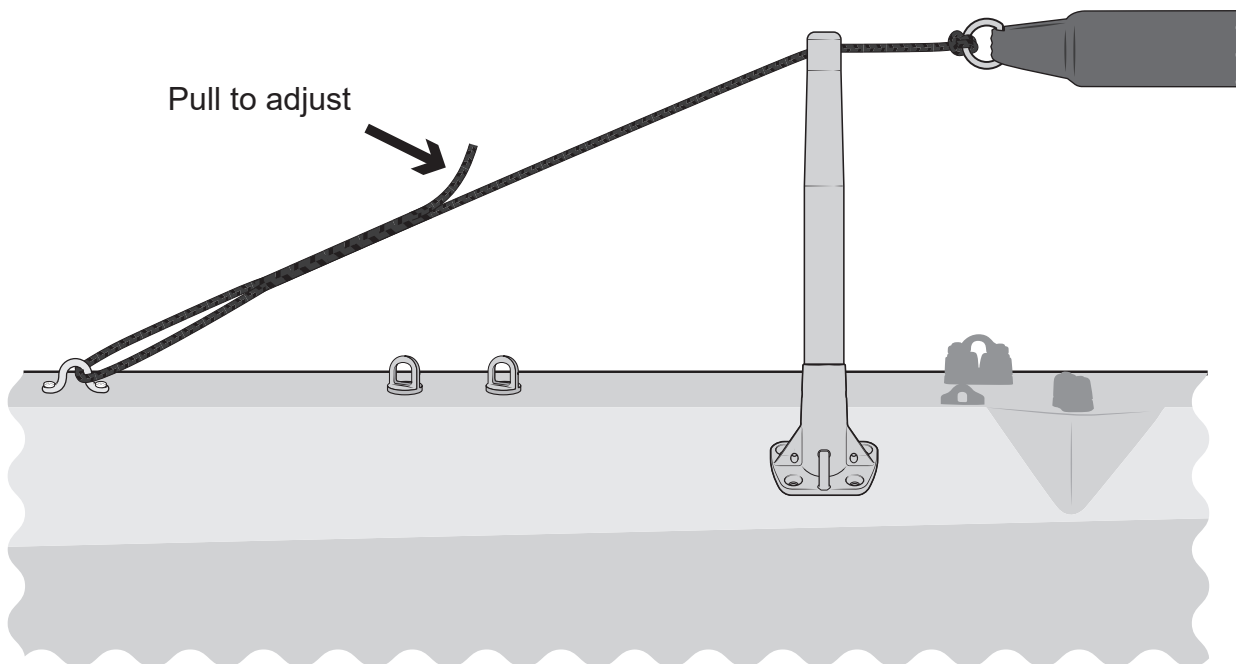
Rotate the deck eye to allow you to slip the loop over it.



Rotate the deck eye back into place and replace the screw.



Pull to adjust



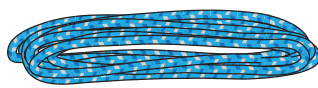
The spinnaker pole may already be attached to your boat.
If it is already attached you can move straight on to **section 4.3**.

a)

Locate the spinnaker tack line, launch line and 40mm block in the packs.



Tack line



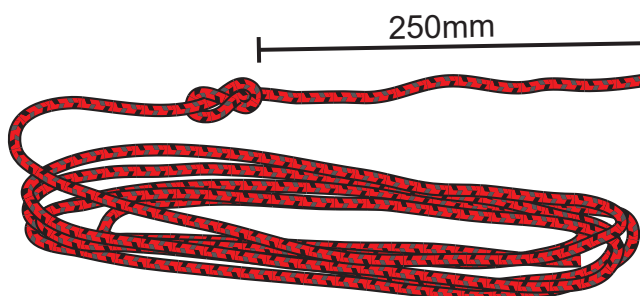
Launch line



40mm block

b)

Tie **knot #3** approximately 250mm from one end of the tack line.

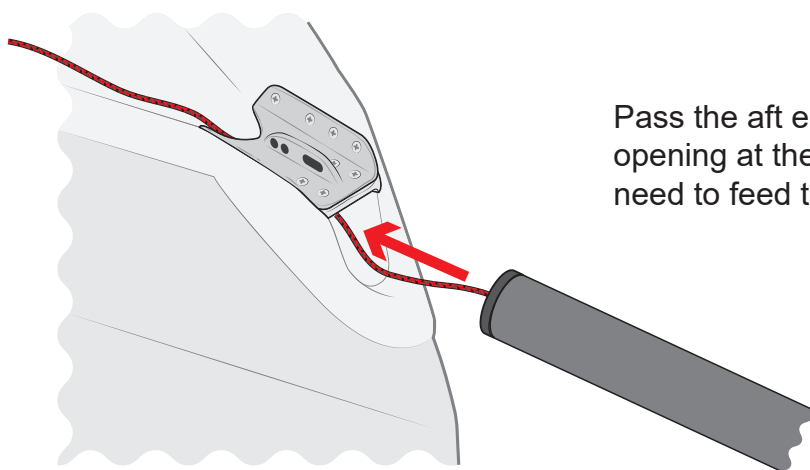


c)

The front end of the pole can be identified by the small hole in the end cap (the aft end has a larger hole).

Pass the other of the tack line in through the hole in the front end cap of the pole, through the pole and out the hole at the aft end.

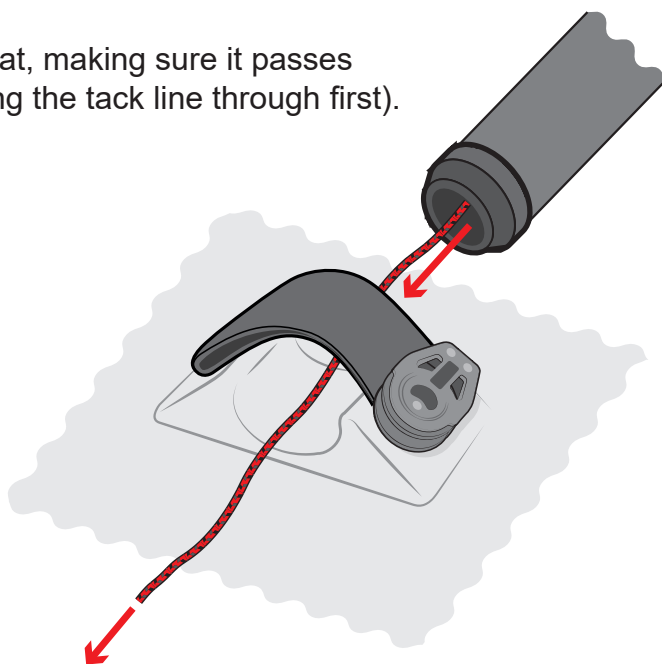


d)

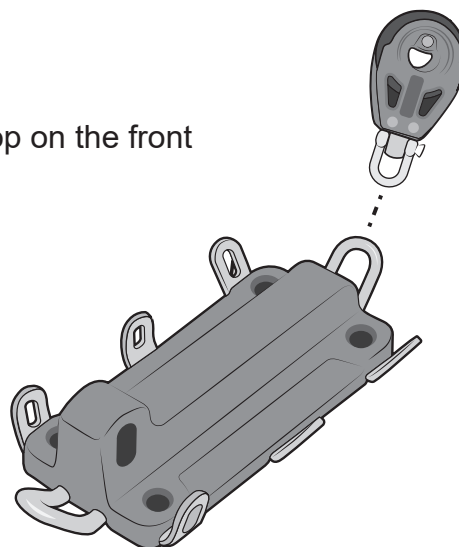
Pass the aft end of the pole in through the opening at the bow of the boat (You will need to feed the tack line in first).

e)

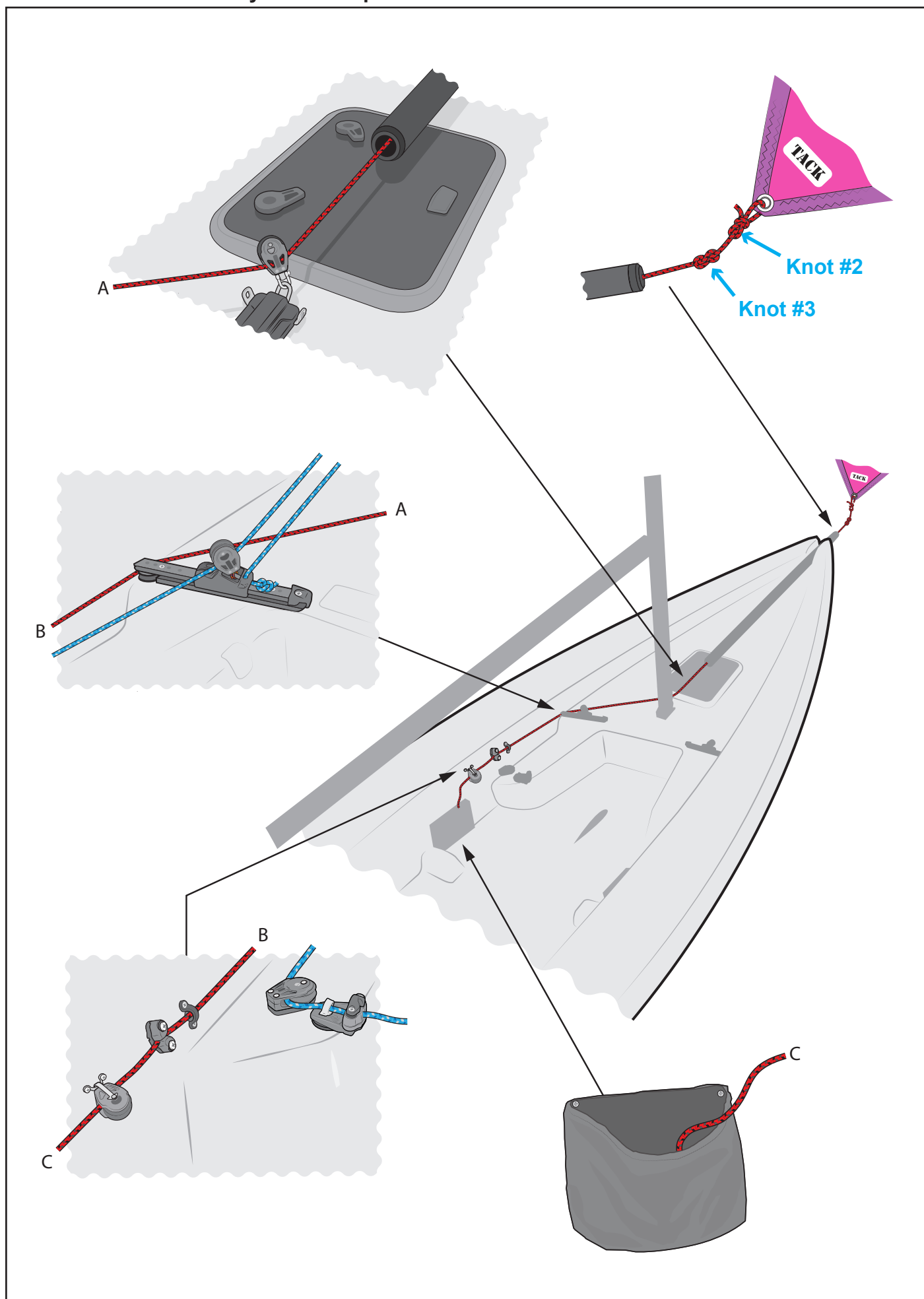
Continue to push the pole into the boat, making sure it passes underneath the webbing strap (feeding the tack line through first).

**f)**

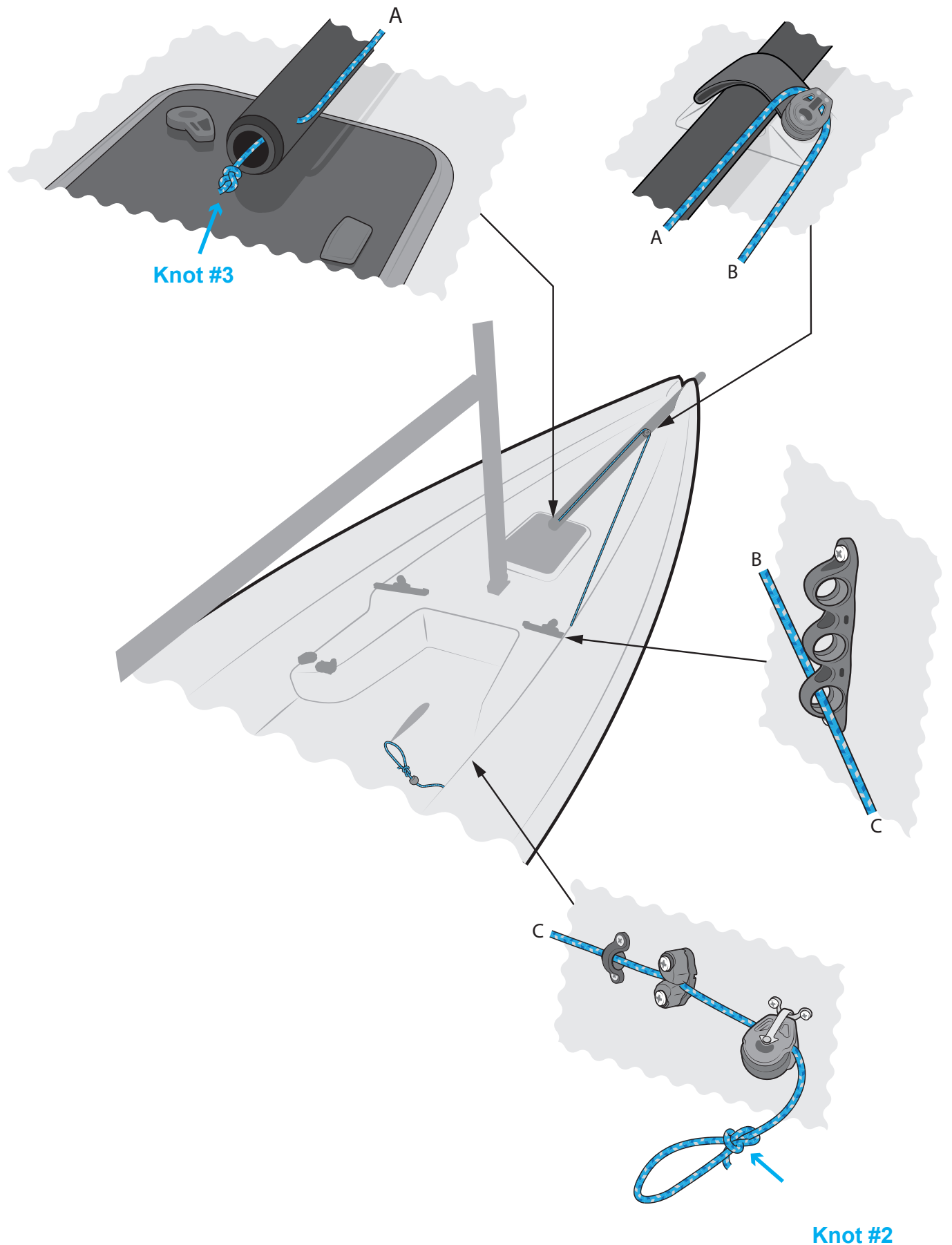
Shackle the 40mm block to the metal hoop on the front of the mast step.



Continue to add the tack line as shown on the following page.



a) Add the launch line as shown.

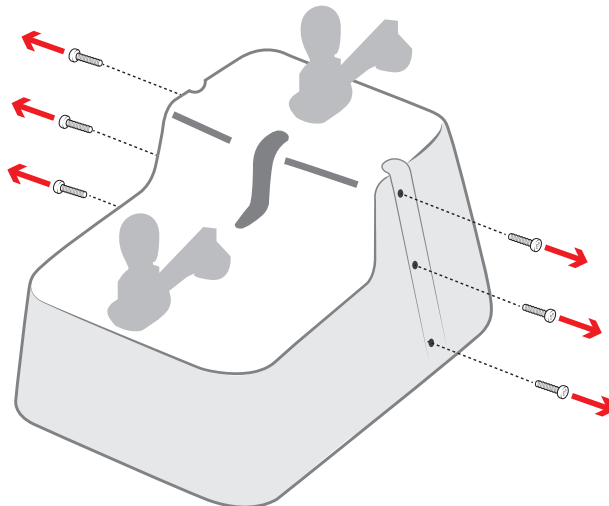


Your boat may arrive with or without the hoop attached.

If the hoop is already attached move straight on to **section 4.6**.

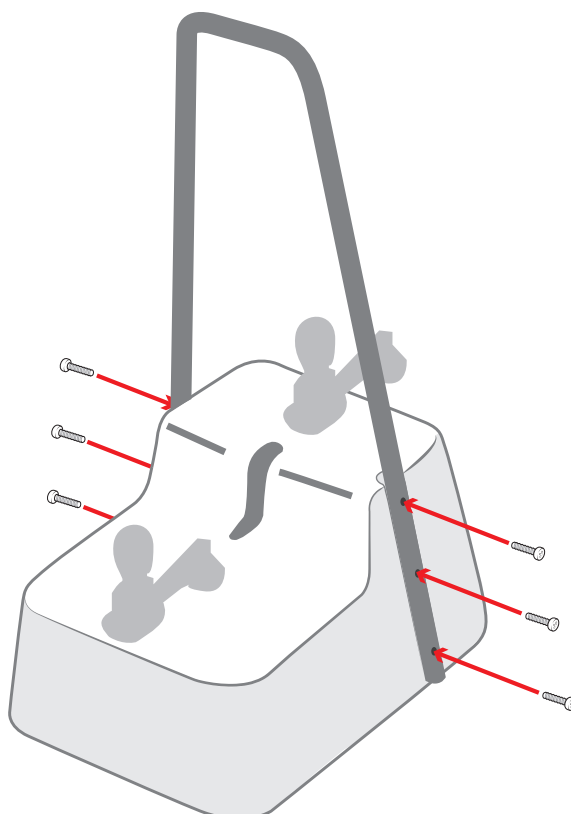
a)

There are 3 screws on each side of the centre console which hold the hoop in place. Remove all 6 screws.



b)

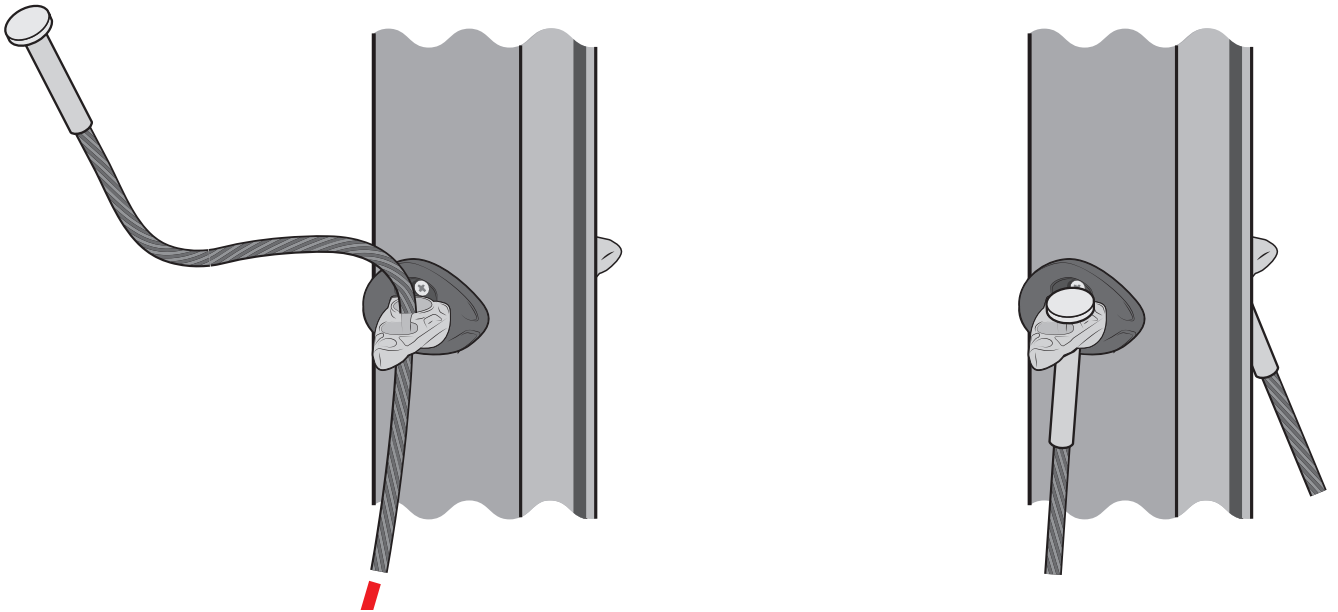
Fit the hoop into place and replace the screws.



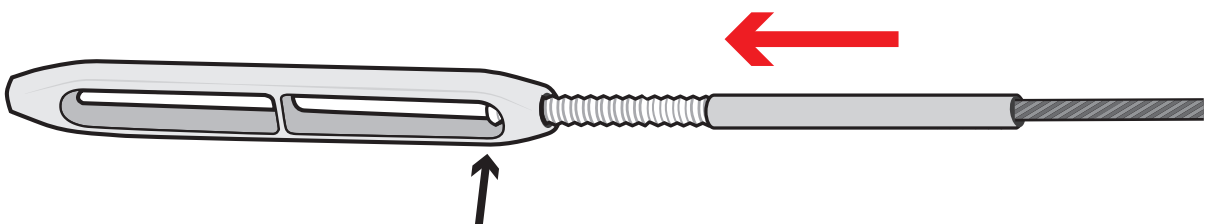
- a) Remove the bottle screw from the lowers.



- b) Thread the wires through the hole in the spreader bracket.

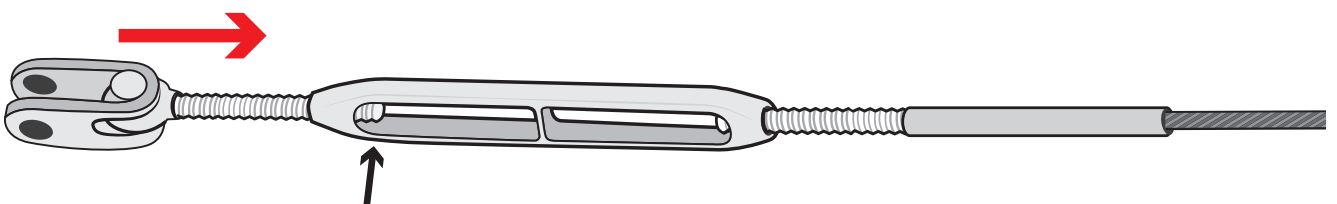


- c) Replace the bottle screw.



Tighten until the wire just appears on the inside of the bottle screw.

- d) Add the lower part of the bottle screw (fork toggle).



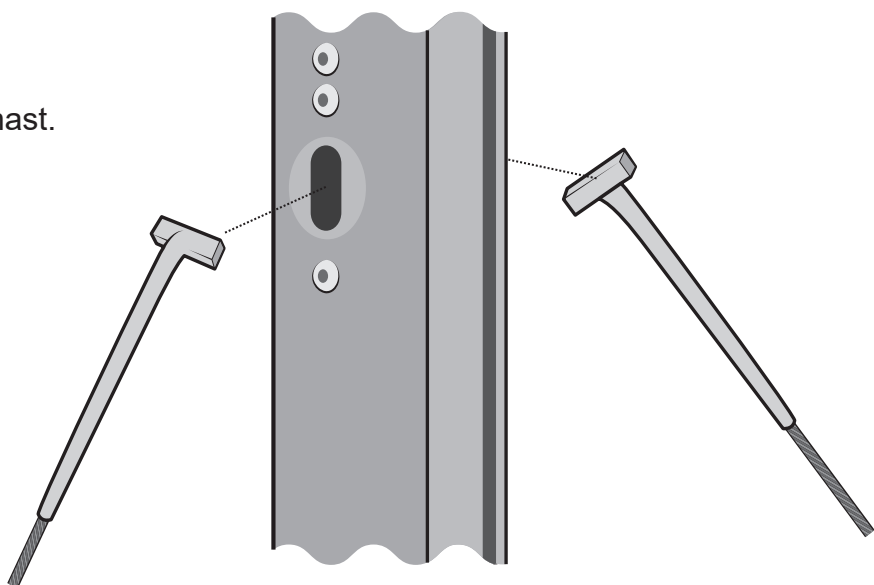
Tighten until it just shows on the inside of the bottle screw.

To complete this section you will need:

- Spreaders x 2
- Shrouds x 2
- Forestay
- Backstay
- Backstay flicker and 3 x machine screws
- Main halyard
- Jib halyard
- Spinnaker halyard

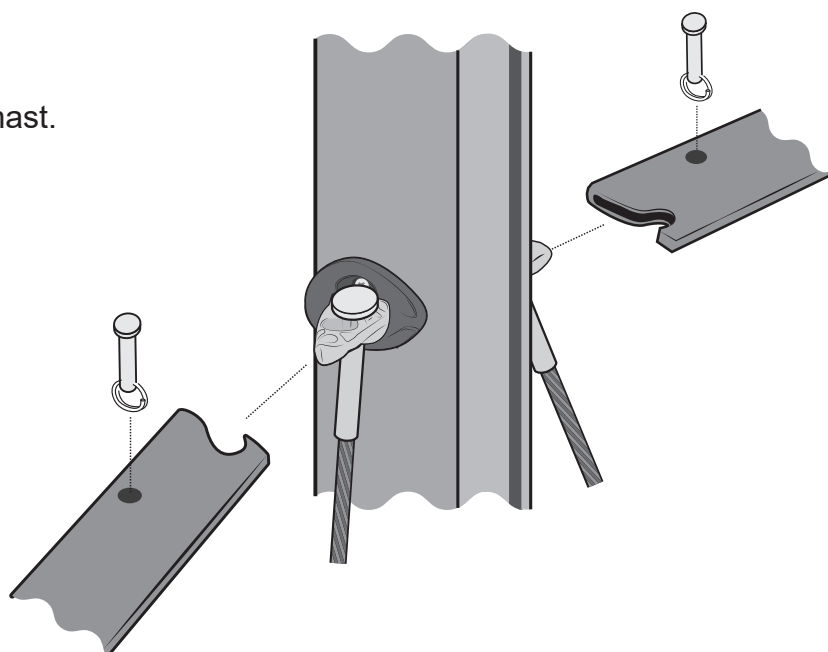
a)

Fit the two shrouds to the mast.



b)

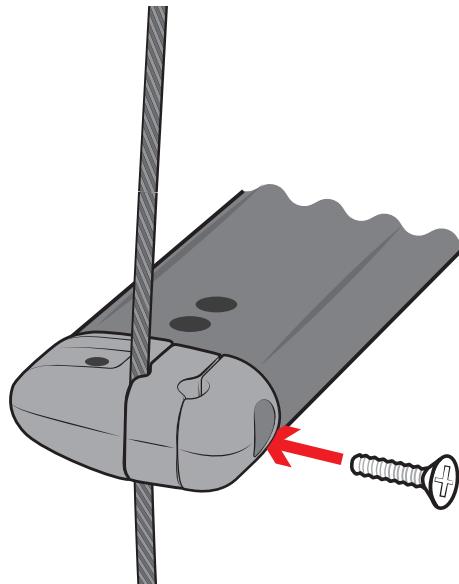
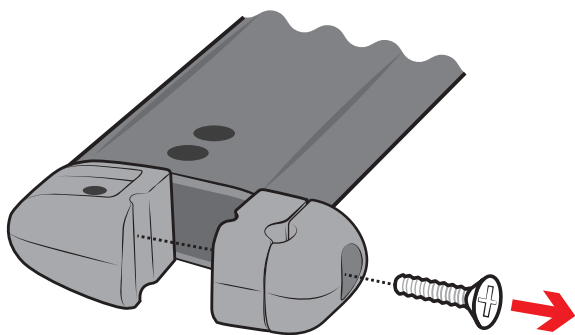
Fit the spreaders to the mast.



c)

Remove the screw and the front face of the spreader tip.

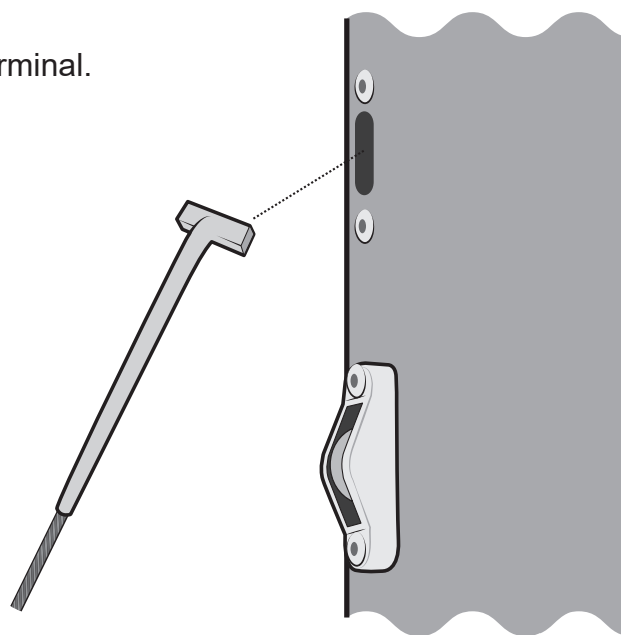
Thread the shroud wire into the gap and replace the front face of the spreader tip and the screw.



Repeat for the other shroud and spreader.

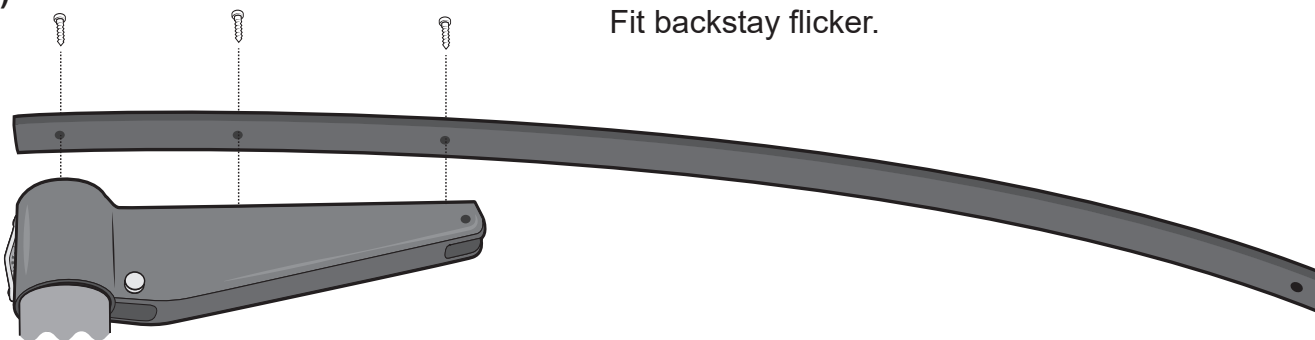
a)

Attach the forestay to the mast with the T-terminal.



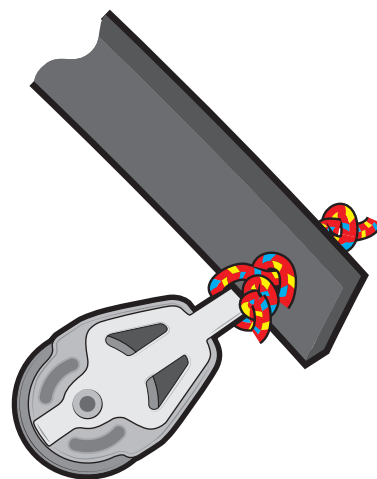
a)

Fit backstay flicker.



b)

Add the block and line to the end of the backstay flicker.
Tie the block as close to the flicker as possible.



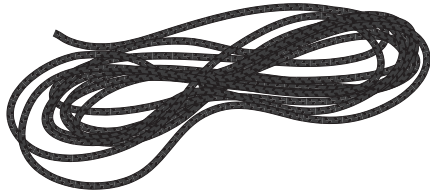
c)

Attach the backstay through the flicker block and terminate it on the pin at the mast head fitting.

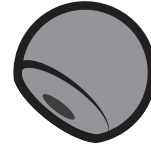


Note: There are mouse lines for the halyards already running through the mast.

- a) Locate the following items:

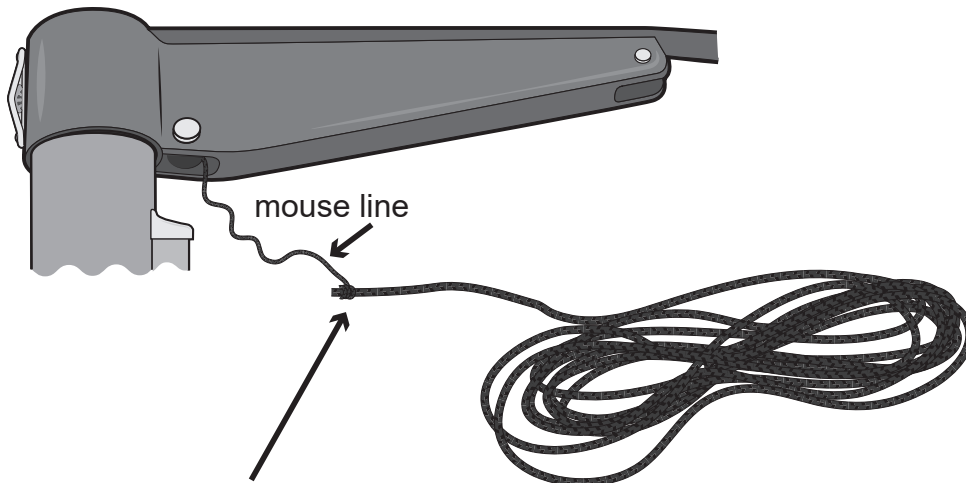


Main halyard



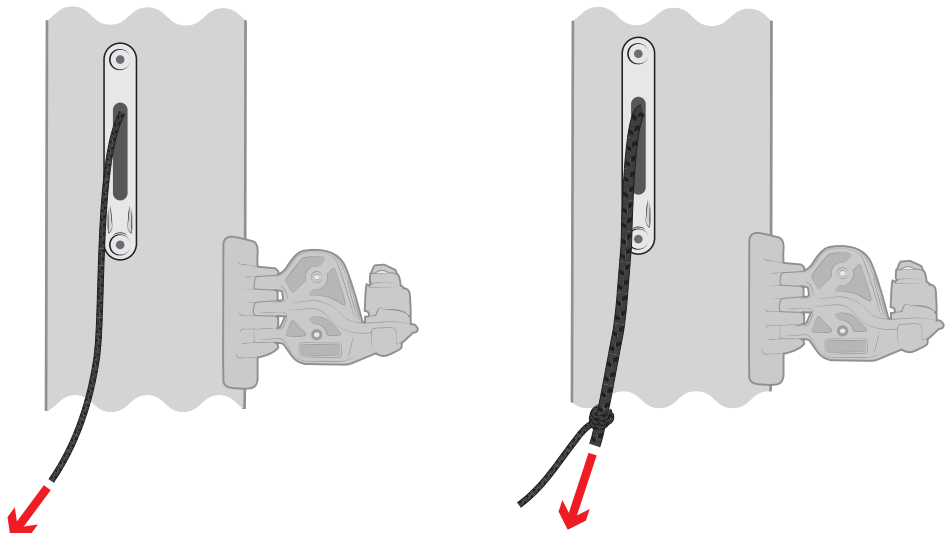
Plastic bobble

- b) The main halyard is composed of two lines, a thicker red rope with a loop and a thinner line attached to it.



Tie end of the halyard line to the mouse line which emerges from the mast head using **knot #7**.

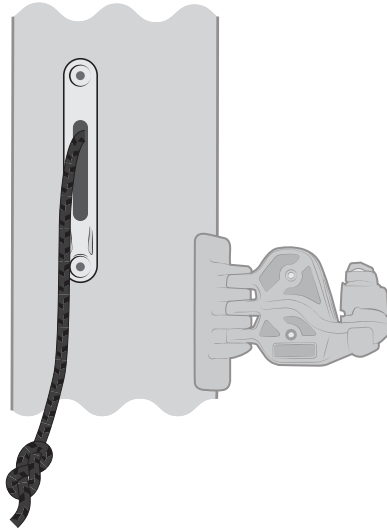
- c) Pull on the other end of the mouse line (which emerges from the port side of the mast, near the mast foot).



- d) Add the bobble to the other end of the main halyard (the end emerging from the top of the mast.)

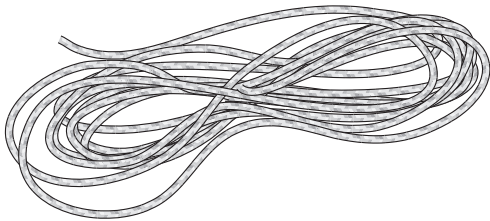


- e)

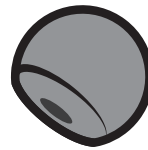


Once the mouse line has been pulled fully through the mast and the halyard line emerges from the hole in the mast, stop pulling the line. Untie the mouse line, tie knot #4. Secure both ends of the halyard near the mast foot to prevent them from being lost inside the mast.

- f) Locate the following items:

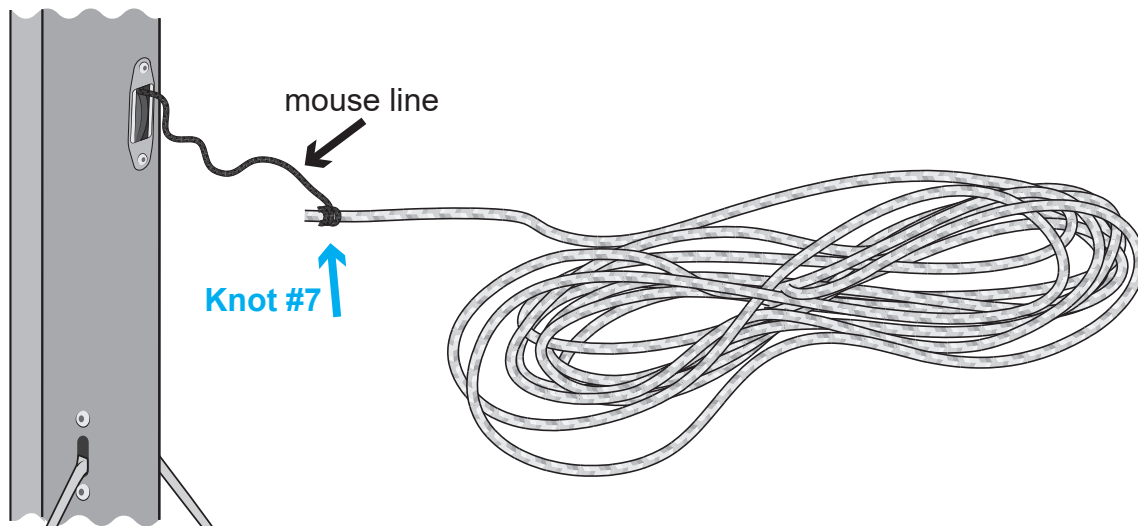


Jib halyard



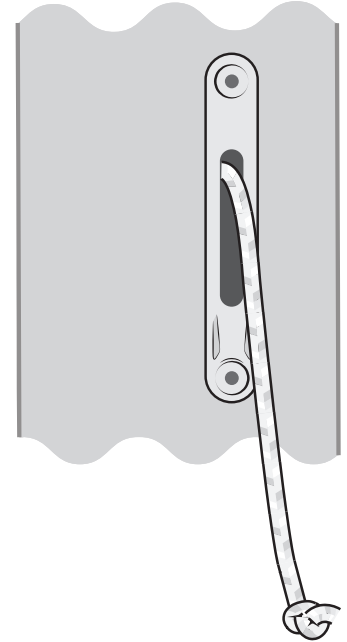
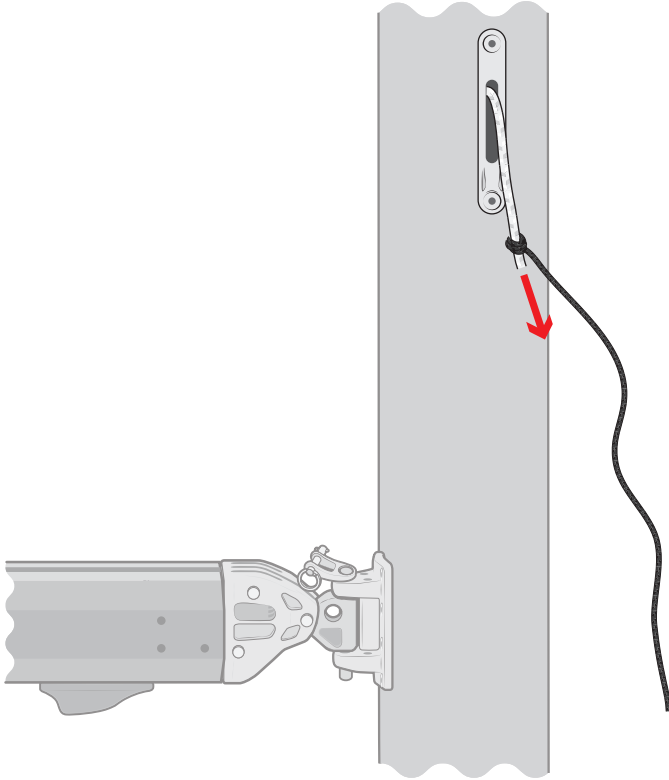
Plastic bobble x1

- g) Fitting the jib halyard is a similar process to the main halyard. The mouse line for the jib halyard emerges from the front of the mast about 3/4 of the way towards the top, and from a hole in the port side of the mast, just above the gooseneck.



h)

Pull the mouse line through until the jib halyard emerges from the mast. Untie the mouse line and tie **knot #4**. Secure both ends of the halyard near the mast foot to prevent them from being lost inside the mast.

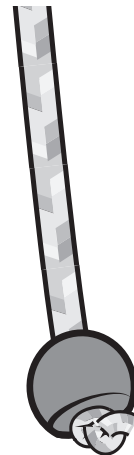


i)

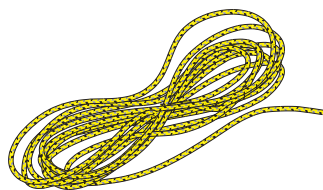
Add a plastic bobble to the other end of the jib halyard (the end emerging from top of the mast).



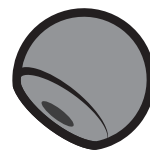
Remember to secure both ends at the bottom of the mast once the halyard is fitted.



- j) Locate the following items in the rigging pack.

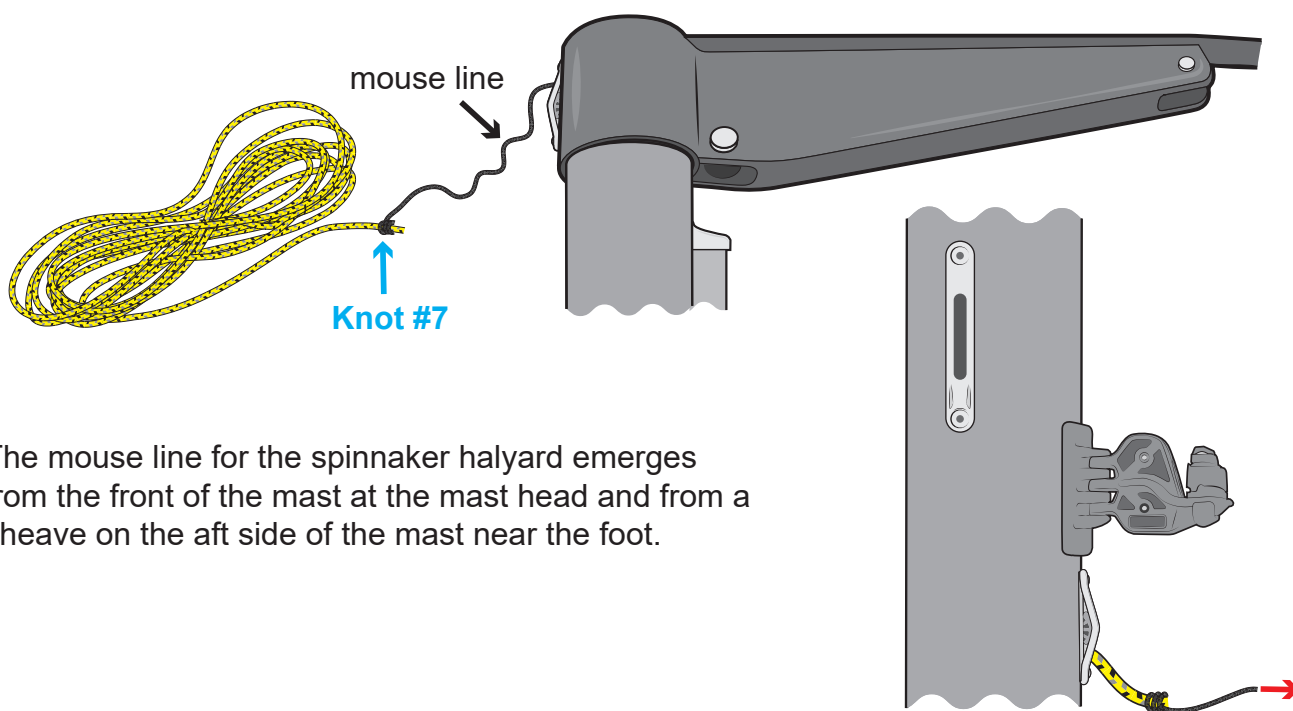


Spinnaker halyard



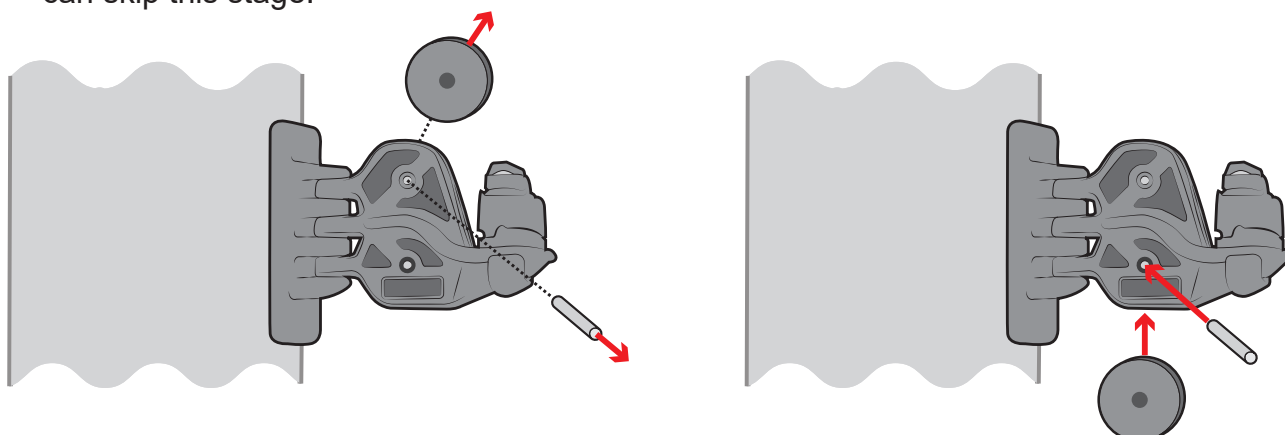
Plastic bobble

- k) Fitting the spinnaker halyard is a similar process to the main and jib halyards, except the spinnaker halyard is only composed of a single piece of rope.

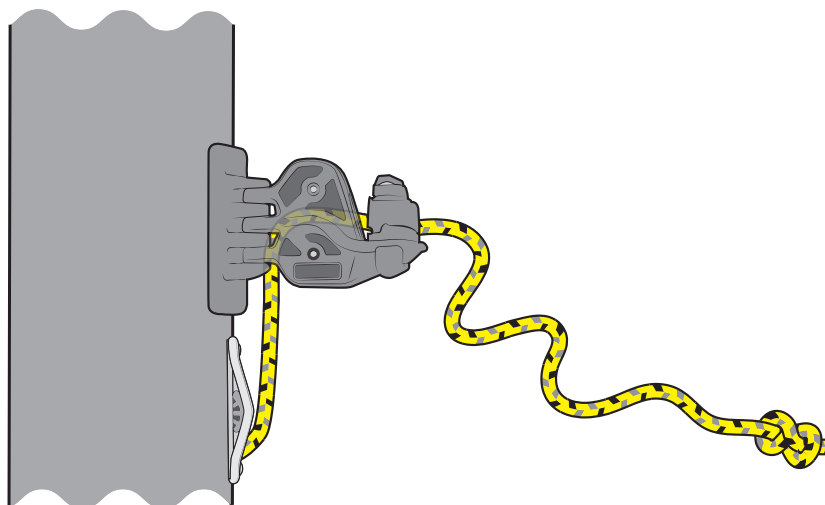


The mouse line for the spinnaker halyard emerges from the front of the mast at the mast head and from a sheave on the aft side of the mast near the foot.

- l) Check the flipflop cleat just above where the spinnaker halyard emerges from the mast. If the sheave is in the top position you will need to punch out the centre pin and replace the sheave in the bottom position. If the sheave is already in the bottom position then you can skip this stage.



- m) Pass the end of the spinnaker halyard around the sheave and through the cleat as shown, and tie **knot #3** in the tail.

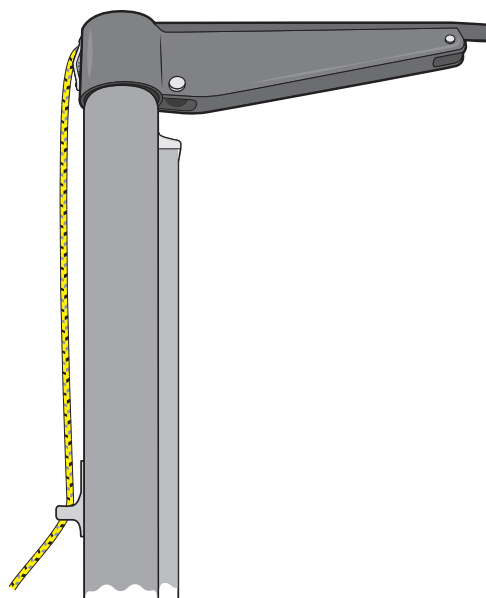


Remember to secure the other end of the spinnaker halyard near the base of the mast.

- n)

If you are using the club spinnaker or symmetric spinnaker, lead the other end of the halyard back down from the head of the mast and pass it through the metal casting on the front face of the mast (approximately 75mm from the mast head).

If you are using the race spinnaker move straight on to the next step.

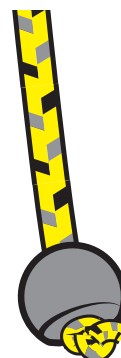


- o)

Add a plastic bobble to the other end of the spinnaker halyard (the end emerging from top of the mast).



Remember to secure both ends at the bottom of the mast once the halyard is fitted.





BEFORE STEPPING THE MAST, CHECK THAT YOU ARE NOT IN THE VICINITY OF OVERHEAD POWER CABLES



REMEMBER

Check that both ends of the main halyard, jib halyard, and gennaker halyard are tied off at the bottom end of the mast so that they are within easy reach when the mast is stepped.

A minimum of 2 people are needed to step the mast.

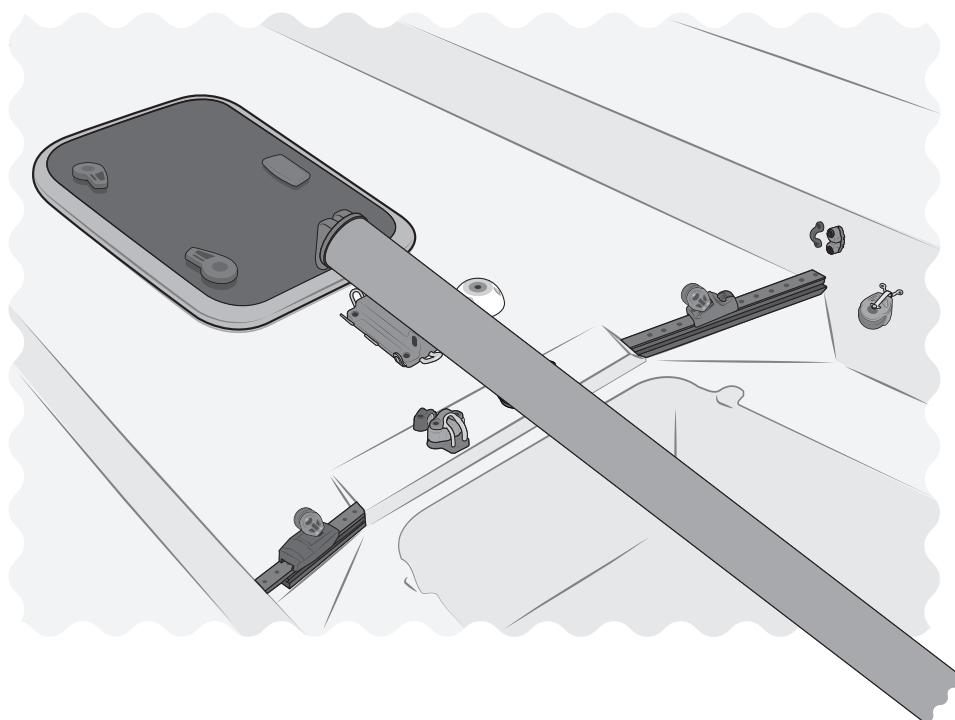
Note:

It is easiest to step the mast with the keel down so you can lay the mast centrally in the boat.

If you need to step the mast with the keel up you will find instructions in section 4.7.2.

a)

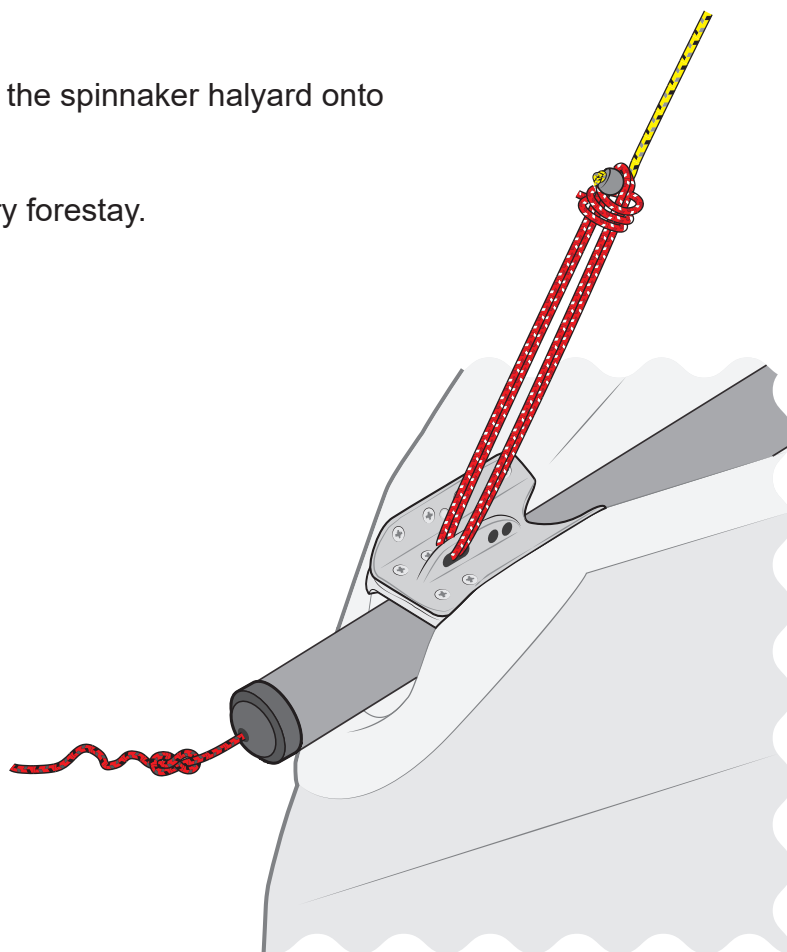
Lay the dressed mast on the boat with the heel just in front of the mast step.



b)

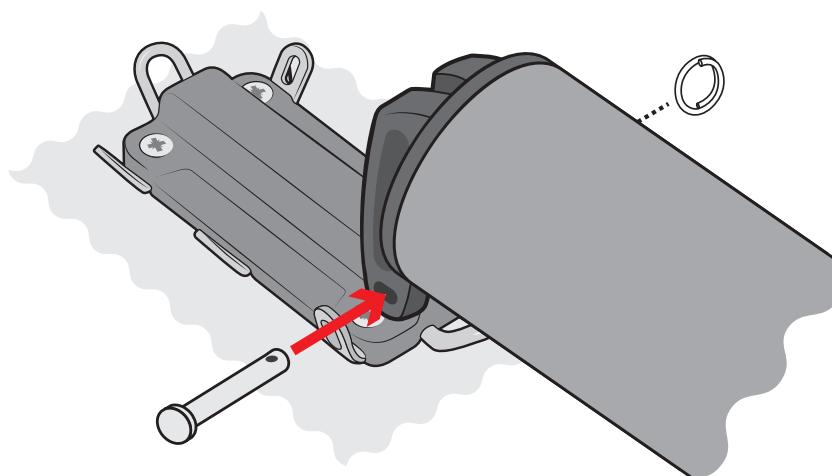
Using some spare line, tie the spinnaker halyard onto the bow stem fitting.

This will act as a temporary forestay.



c)

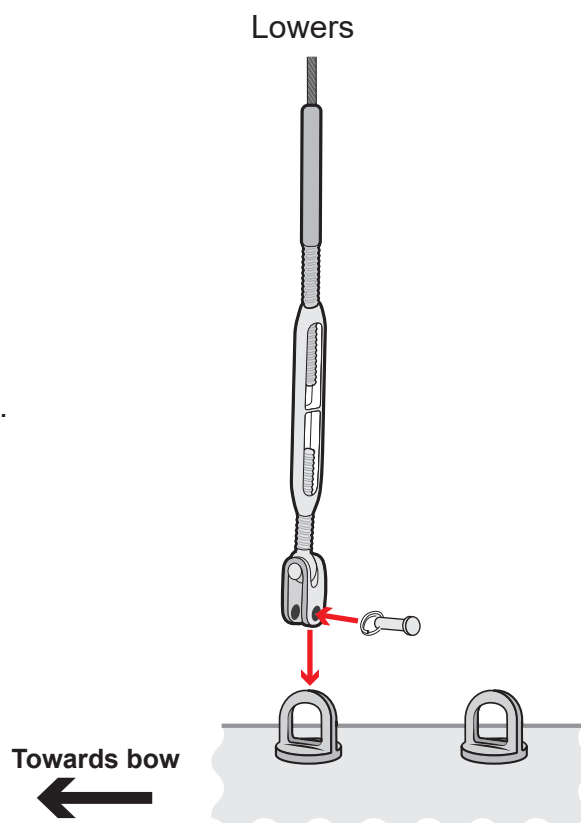
With the tallest person at the back, lift the mast up and move it backwards.



The back of the mast should be lifted above the mainsheet hoop. The person at the front of the mast should attach the heel of the mast to the mast step with the pin and ring.

d)

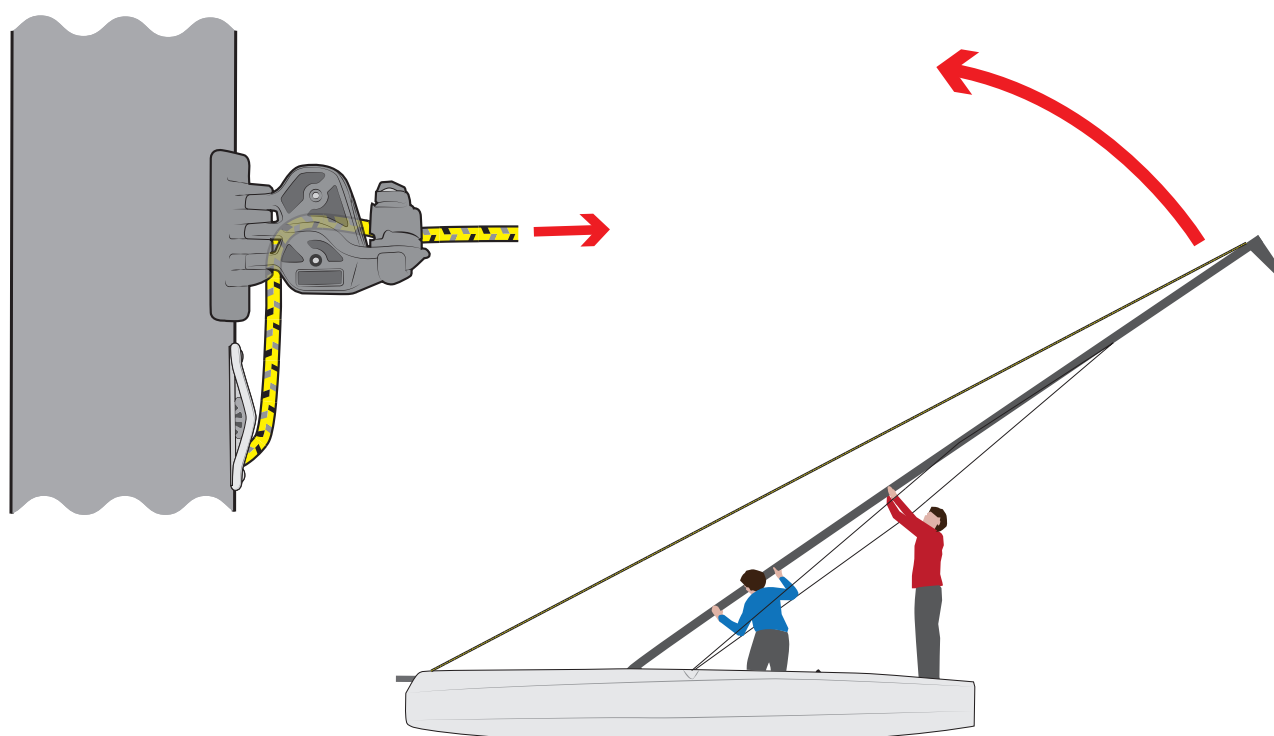
Loosely attach the lowers.



e)

Walk the mast upright.

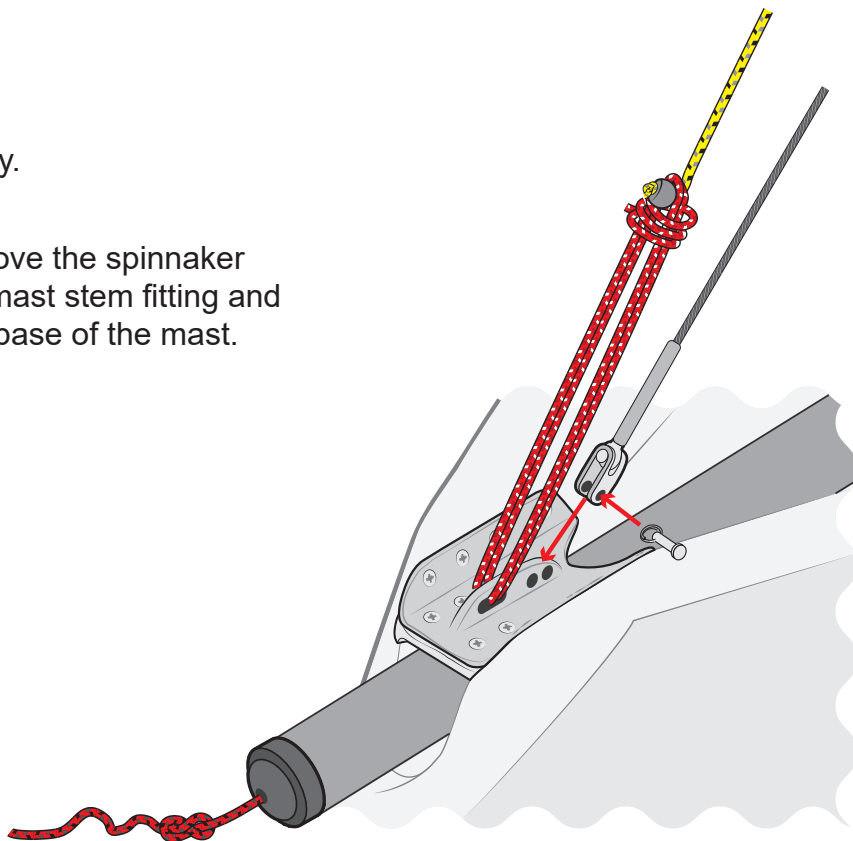
Pull the spinnaker halyard tight at the cleat to act as a temporary forestay.



f)

Attach the forestay.

You can now remove the spinnaker halyard from the mast stem fitting and attach it near the base of the mast.



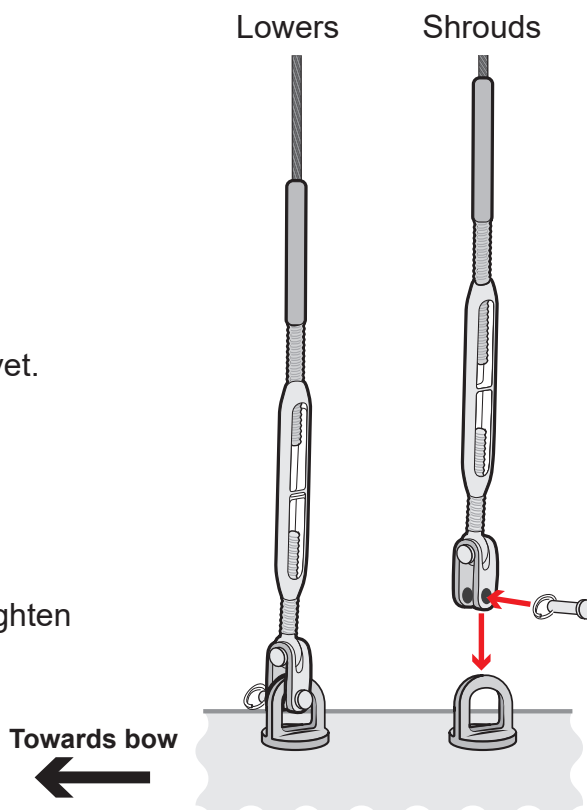
g)

Attach the shrouds.

Take up the tension but don't make them tight yet.

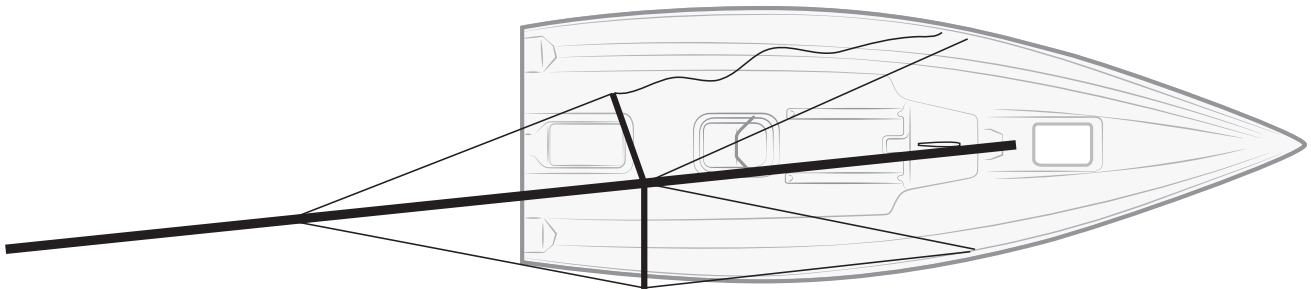


It is very important that you don't tighten the shrouds yet.



To step the mast with the keel up:

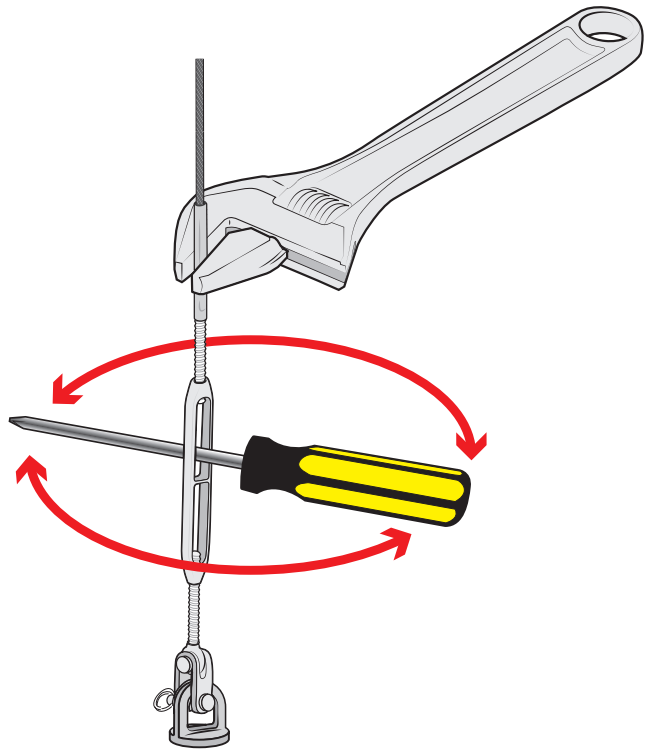
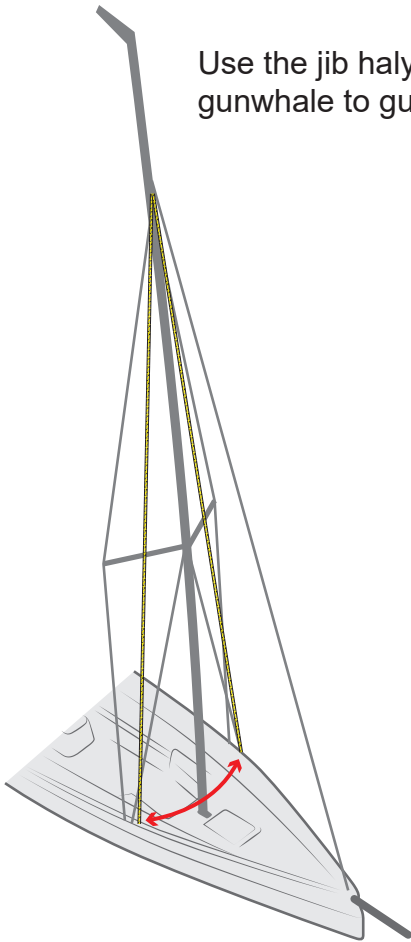
- Lay the mast in the boat slightly off to one side with the heel at the mast step.
- Attach both of the lowers and the one shroud on the same side of the boat as the mast.
- Pick the mast up above the keel.
- Attach the other shroud.
- Fit the mast foot to the mast step with the pin.
- Walk the mast upright.



To complete this section you will need a long tape measure and an adjustable spanner.

a)

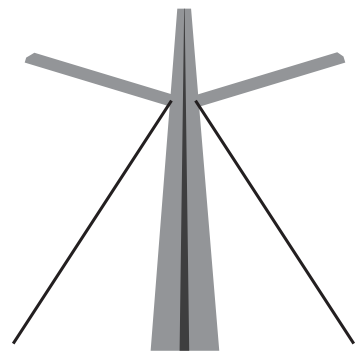
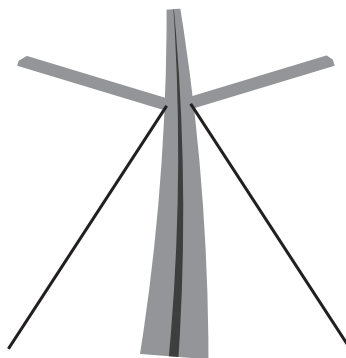
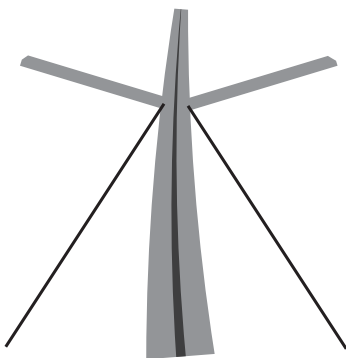
Use the jib halyard to make sure the mast is vertical. Take it from gunwhale to gunwhale and adjust shrouds as required.



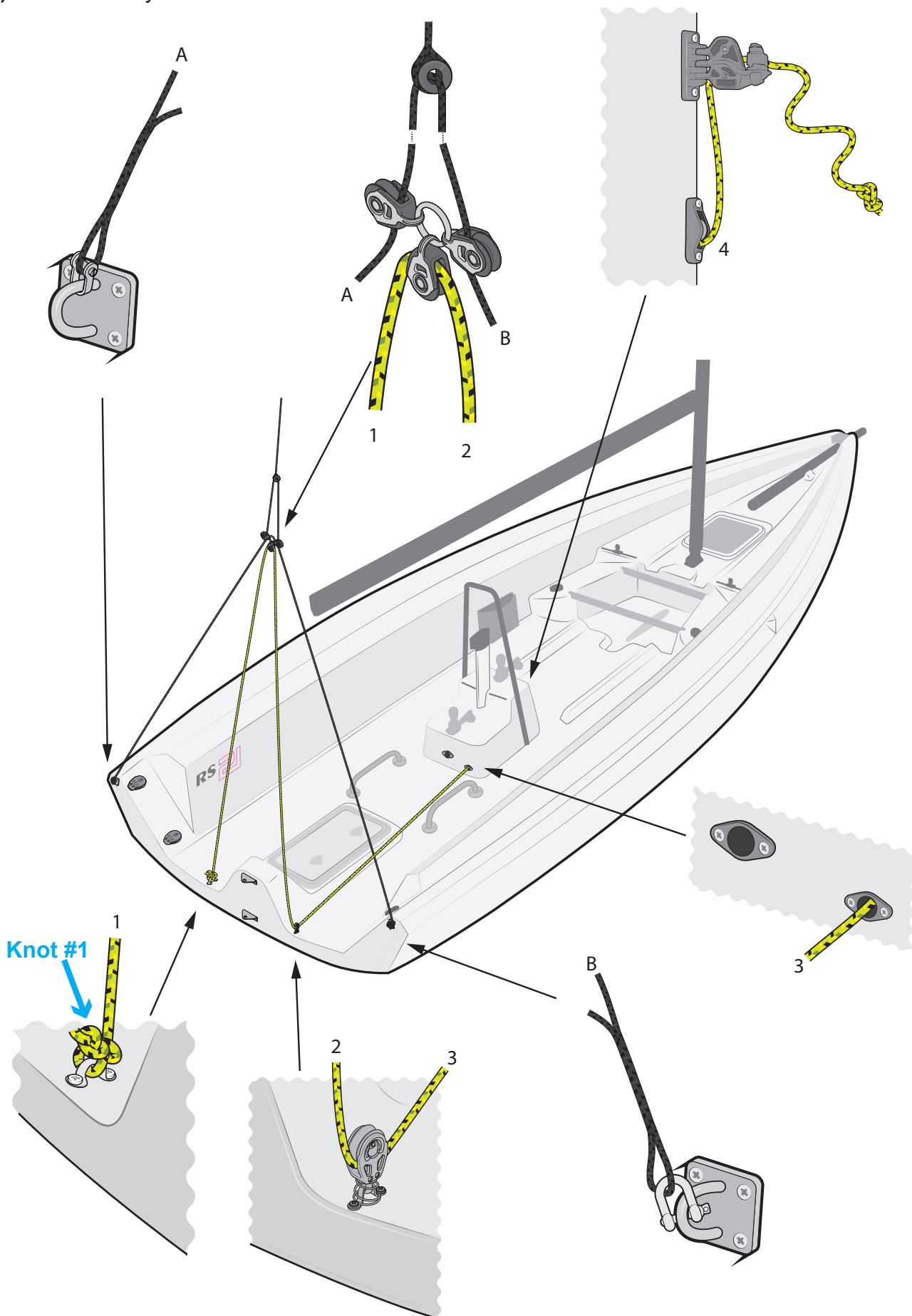
b)

Sight up the track to see how straight the mast is.

Adjust the lowers to move the bottom section.



c) Add backstay.



d)

Attach one end of your tape measure to the main halyard and hoist it to the top of the mast, keeping the other end in your hand.

e)

Cleat the main halyard and pull tight on tape measure. Measure the distance from the top of the mast to the top back edge of the transom (above the rudder gudgeon).

You should be aiming to set the mast rake so that this distance is 9550mm

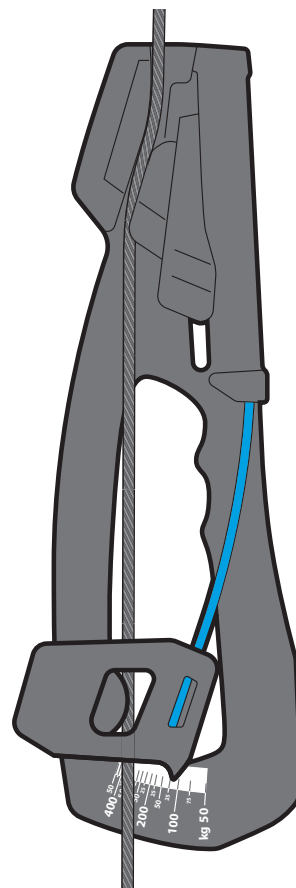


f)

Using a rig tension gauge, wind down the cap shrouds and lowers in equilibrium until they reach the numbers shown on this table.

Wind Speed (Knots)	Cap Shroud (full turn)*	Tension	Lowers (full turn)*	Tension	Jib Car	Tack Height	Vang/Kicker
0-6	-2	200	-1	120	1	2.5"	snug to max ease
7-11		275		155	1	2"	snug to max ease
12-15	+4	400	0	155	2	1"	snug +
16-20	+6	475	+1	212.5	3	1"	tight

Base is set at 7-11knots. Headstay is 120 on gauge with backstay slack | *Full turns on the adjusters. Tensions using the Spinlock Rig Sense Gauge.

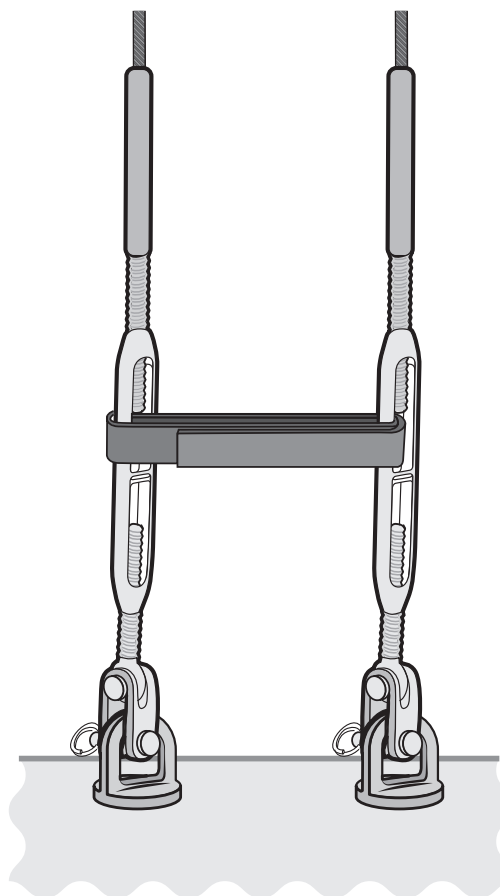


g)

Once you have reached the base settings, add the velcro shroud straps between the shroud and lower bottle screws to prevent them from working loose.

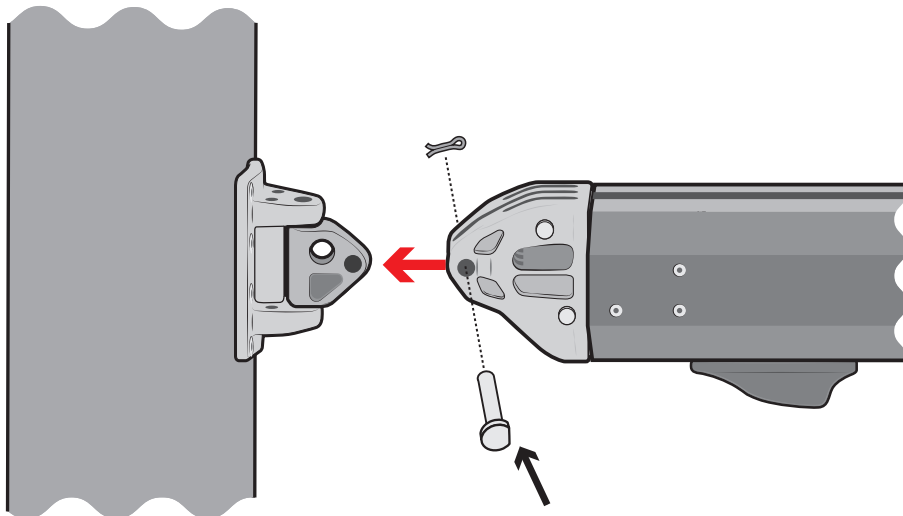


Tape all split pins / rings.



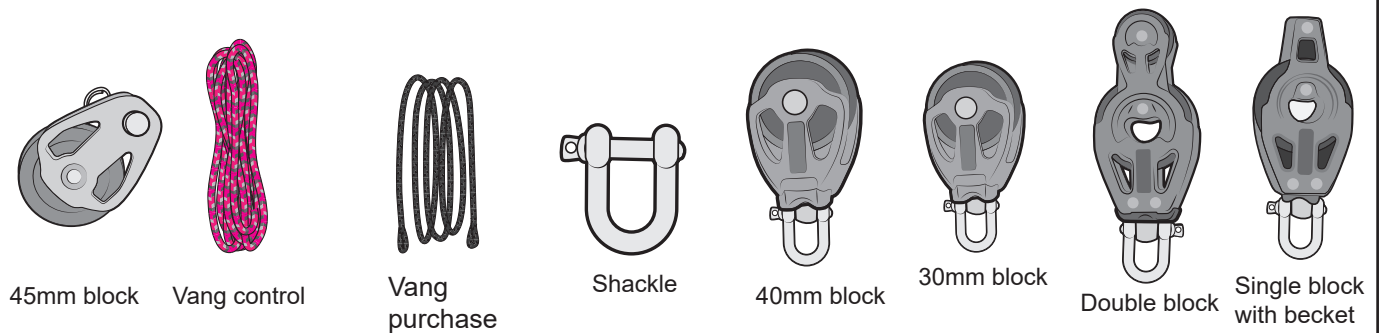
a)

Add the boom using the clevis pin and split pin.

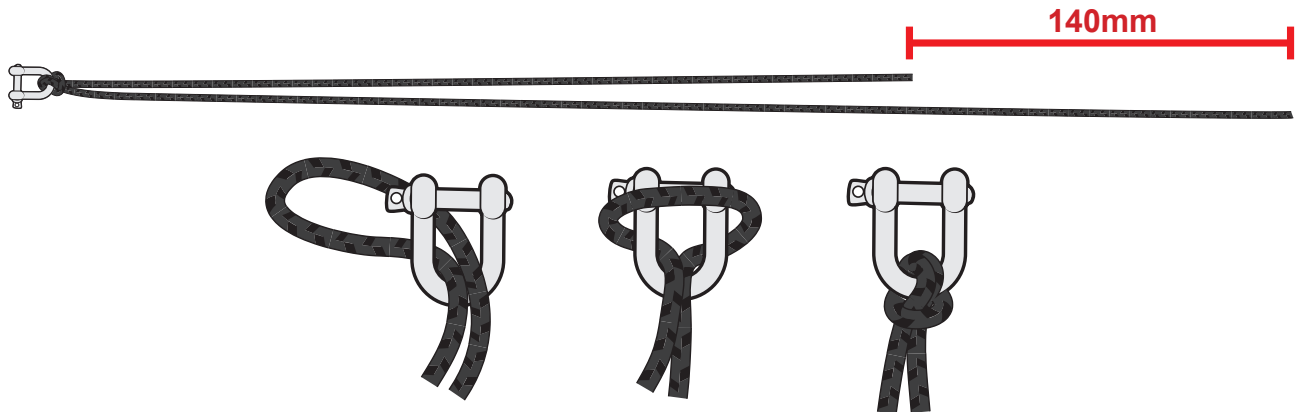


Note that there is a flat section on the head of the clevis pin which means it can only fit one way round and cannot rotate once fitted.

- a) Locate the following items in the rigging pack:

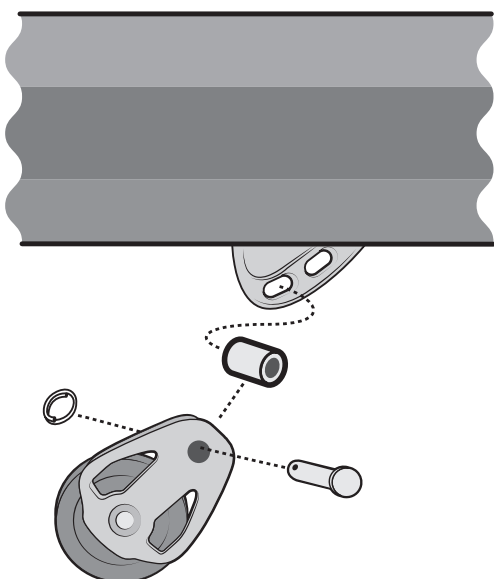


- b) Locate the black vang purchase line and attach it to one of the shackle from one of the 40mm blocks using **knot #6**, leaving one end 140mm longer than the other.



- c)

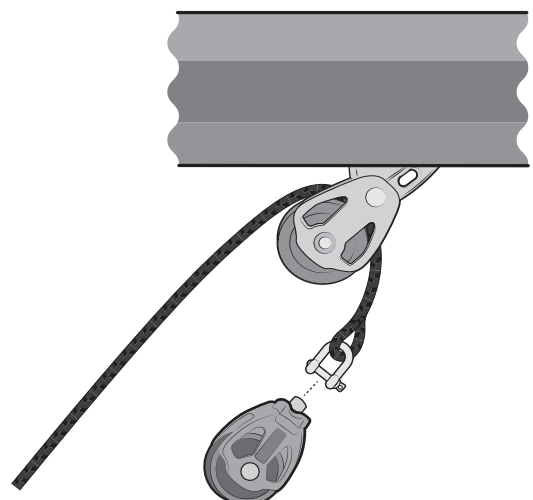
Add the 45mm block to the boom.



- d)

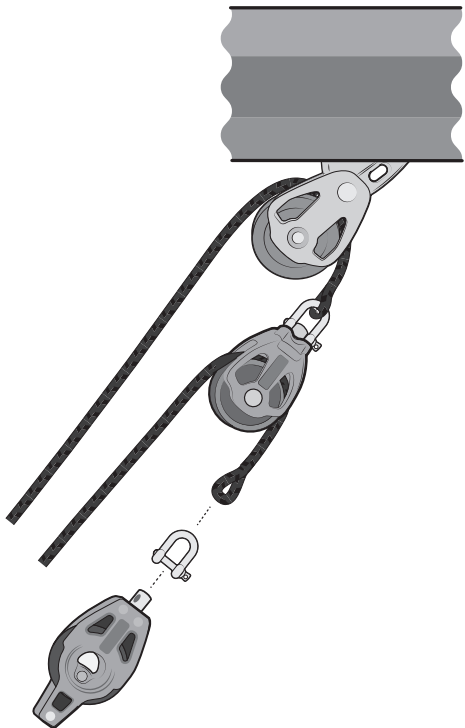
Pass the longer end of the black rope through the block on the boom and attach it to the shackle by passing the shackle through the spliced loop.

Attach the shackle onto the 40mm block.



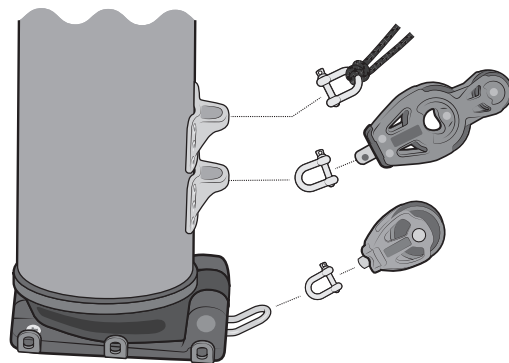
e)

Pass the shorter end of the black rope through the block which you added in **step d** and shackle it onto the double block.



f)

Shackle the black rope, double block and 30mm block onto the mast as shown.

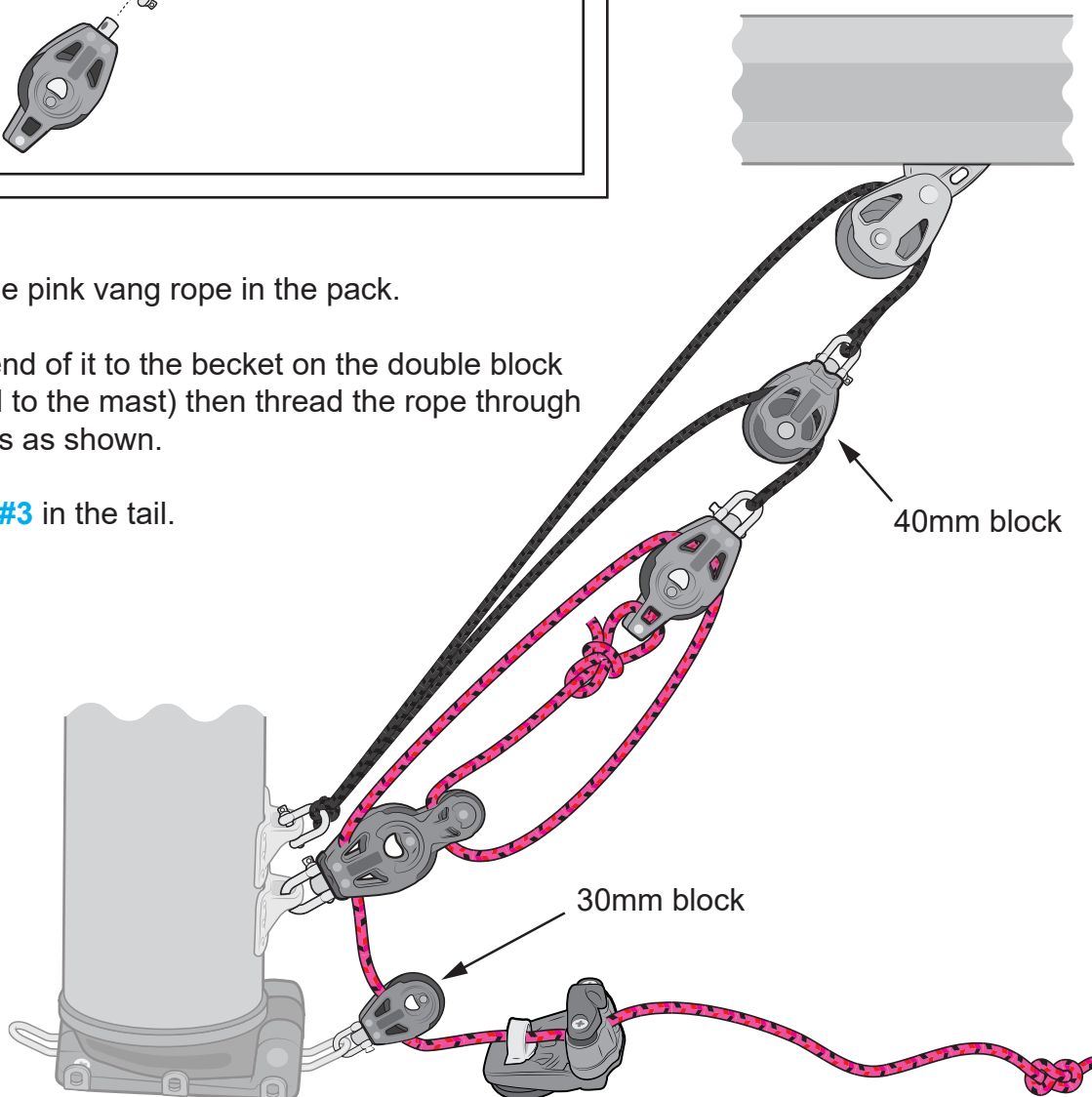


g)

Locate the pink vang rope in the pack.

Tie one end of it to the becket on the double block (attached to the mast) then thread the rope through the blocks as shown.

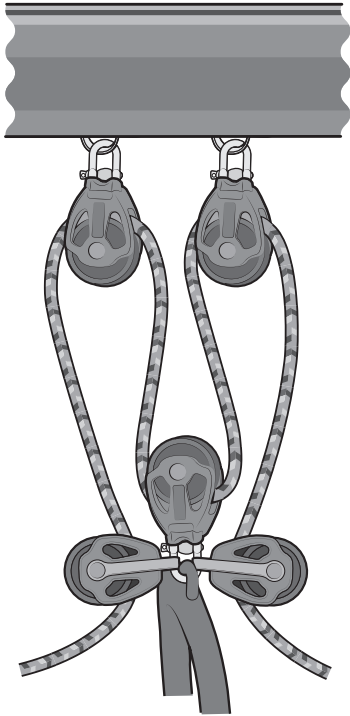
Tie **knot #3** in the tail.



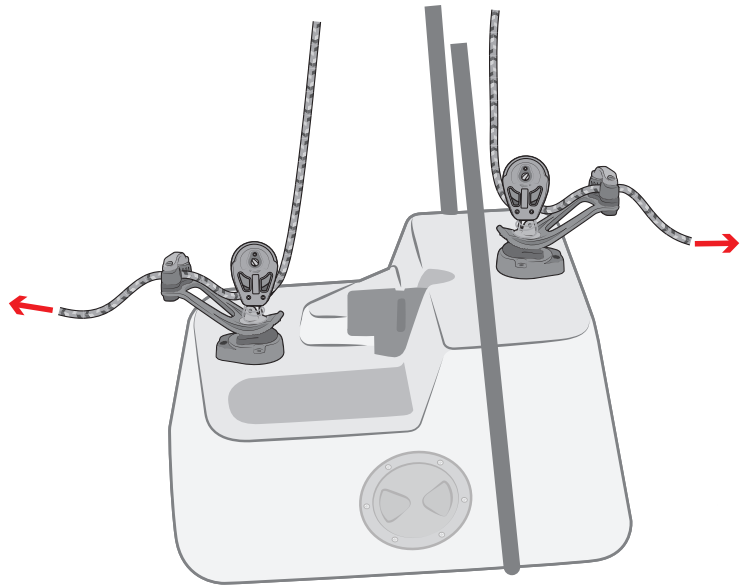
- a) Locate the mainsheet in the rope pack.



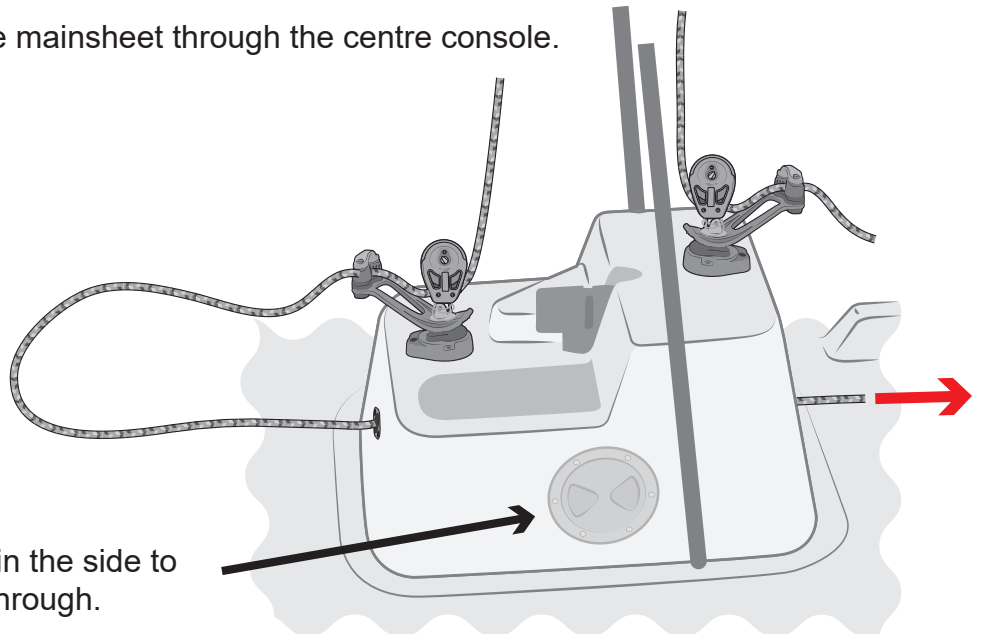
- b) Thread the mainsheet through the 40mm blocks on the boom and hoop as shown.



- c) Pass the tails through the ratchet blocks as shown.

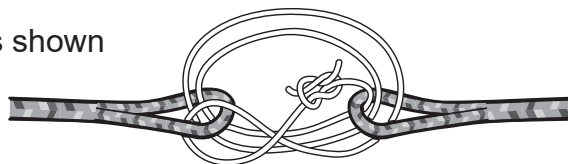


- d) Pass one end of the mainsheet through the centre console.



You can open the hatch in the side to help you pass the rope through.

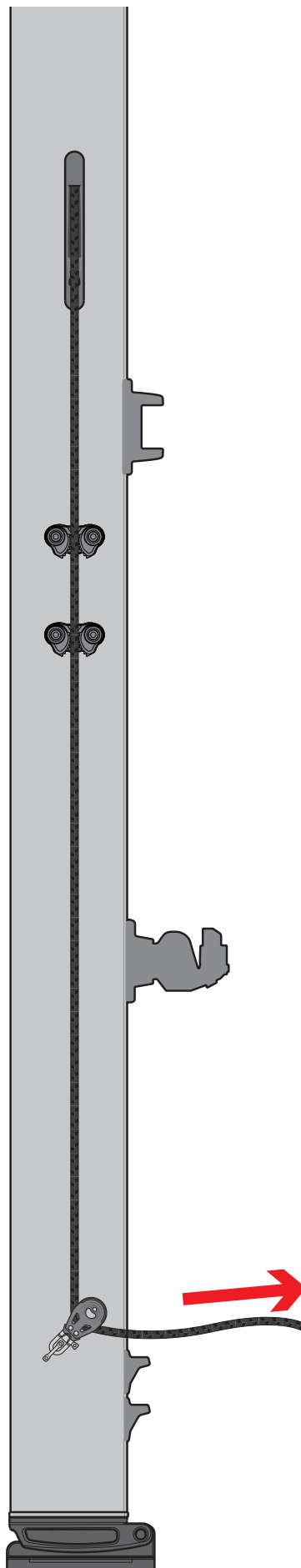
- e) Tie the ends together as shown using whipping twine.



Cut and burn the tails.



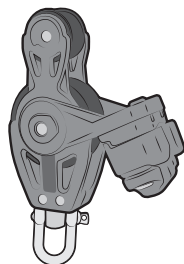
- a) Feed the main halyard through the 2 cleats and through the cheek block so the halyard runs back into the boat. .



a) Locate the following items in the customer packs.



30mm block with becket (top)



40mm block with fiddle/swivel/fixed cam (bottom)



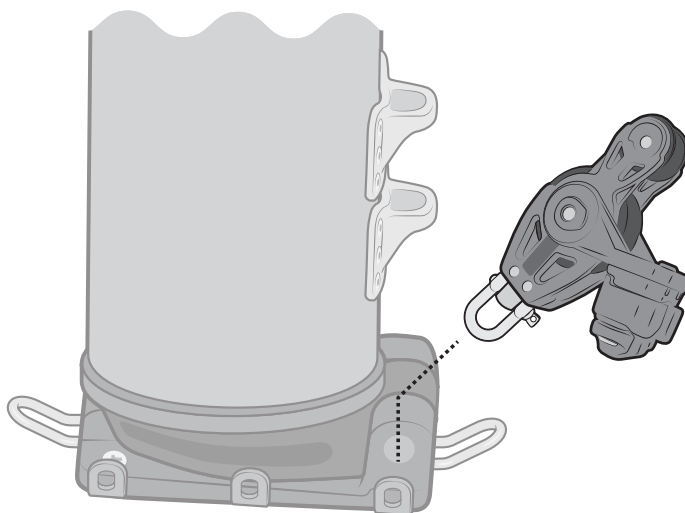
Cunningham



Cunningham tail

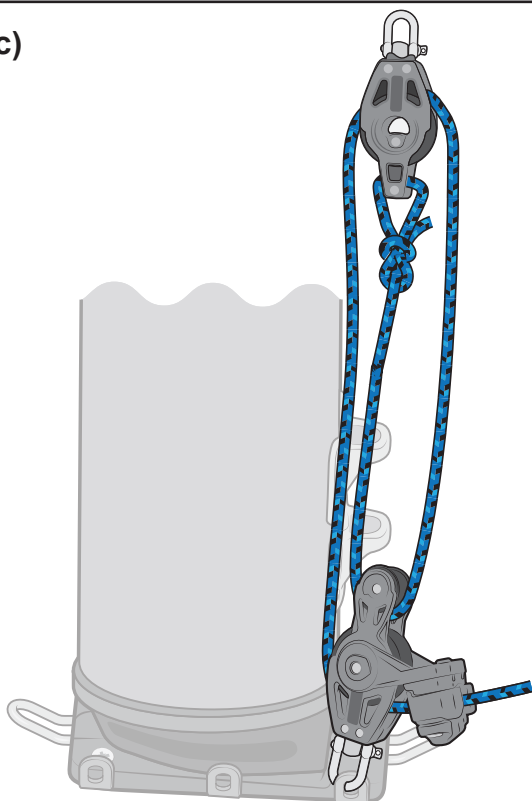
b)

Shackle the bottom block onto the middle metal eye on the port side of the mast step.



c)

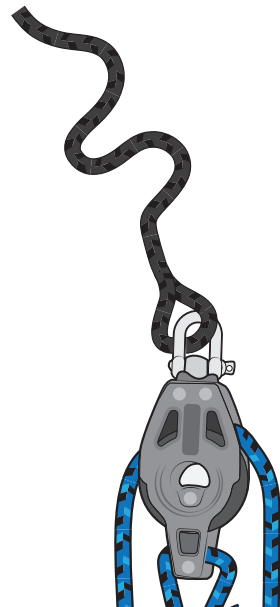
Tie one end of the cunningham control line to the block with becket with **knot #2** then pass it through the blocks and cleat as shown.



Tie **knot #3** in the tail.

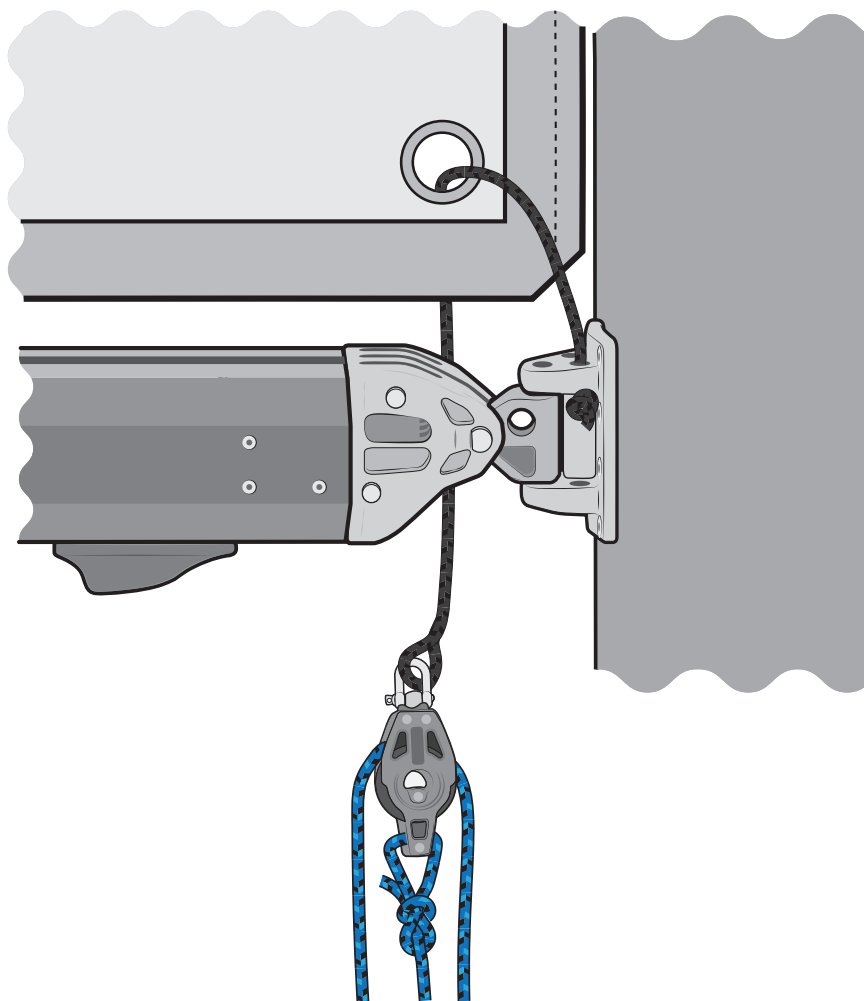
d)

Loop the cunningham tail onto the top block (30mm block with becket) using the shackle.

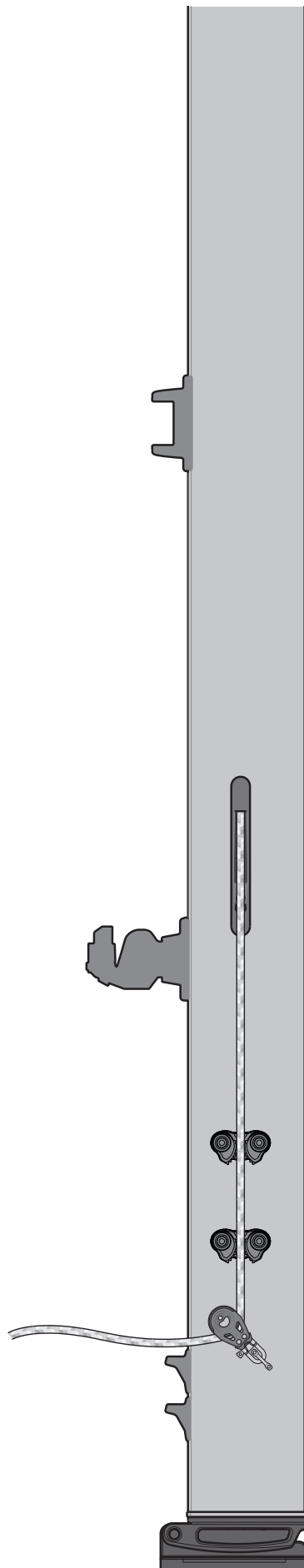


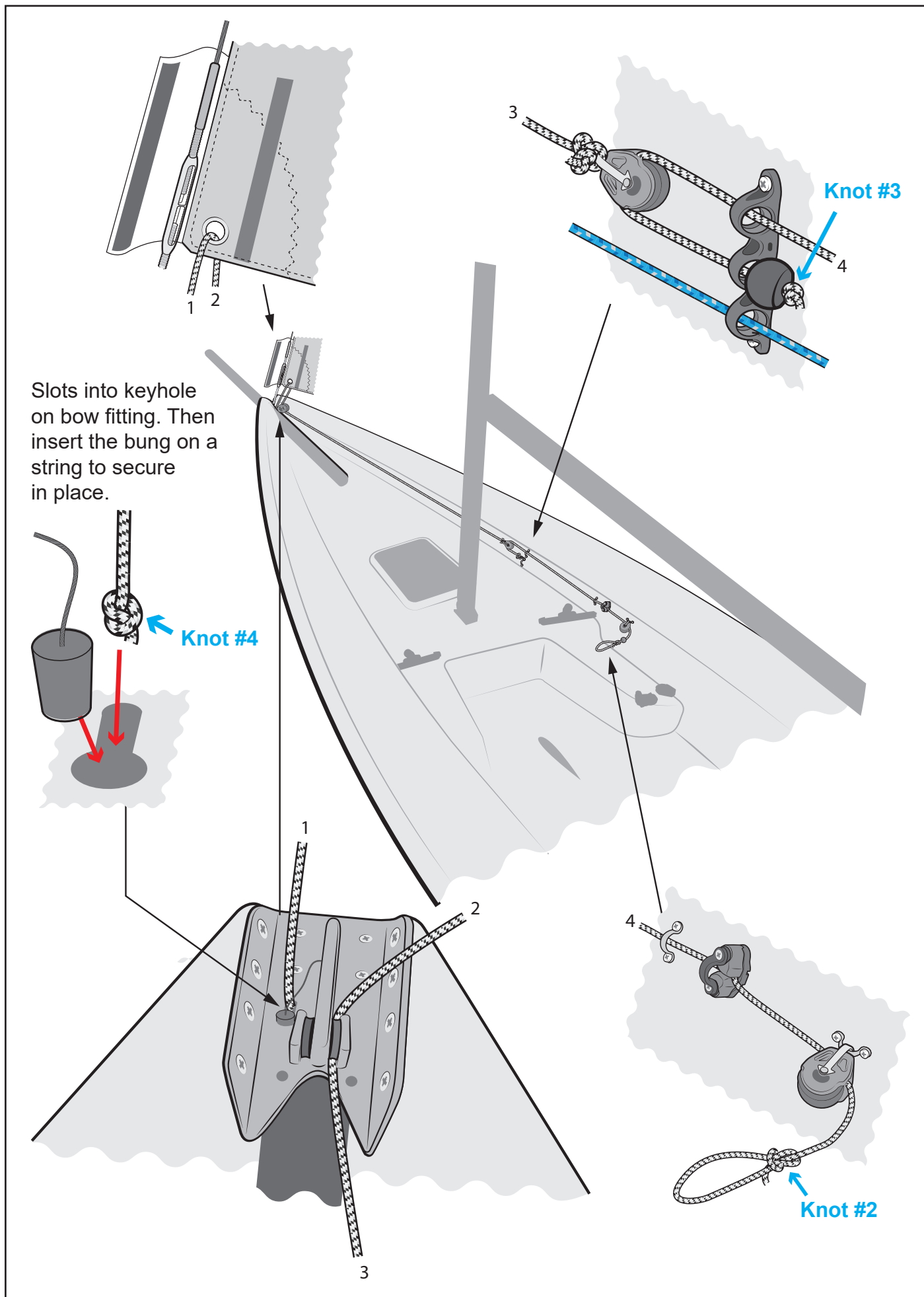
e)

To use the downhaul, pass the downhaul tail through the cringle on the tack of the sail and tie it off on the hole in the gooseneck fitting.

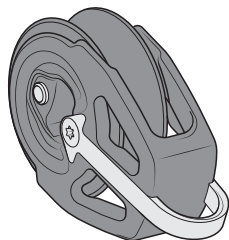


- a) Feed the jib halyard through the 2 cleats and through the cheek block so the halyard runs back into the boat. .

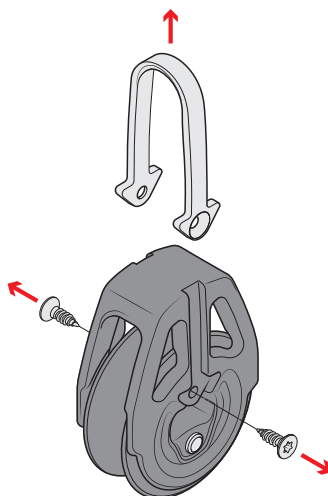




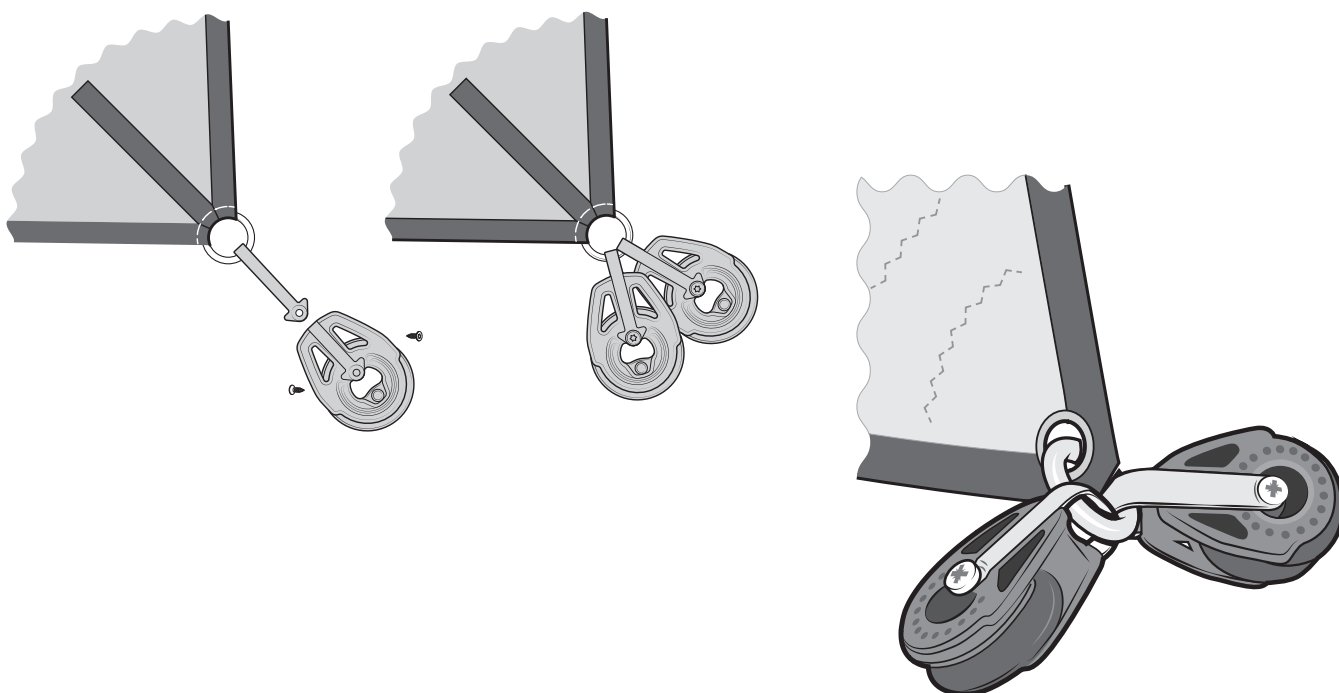
- a) Locate the 2 x 40mm jib clew blocks in the hardware pack.

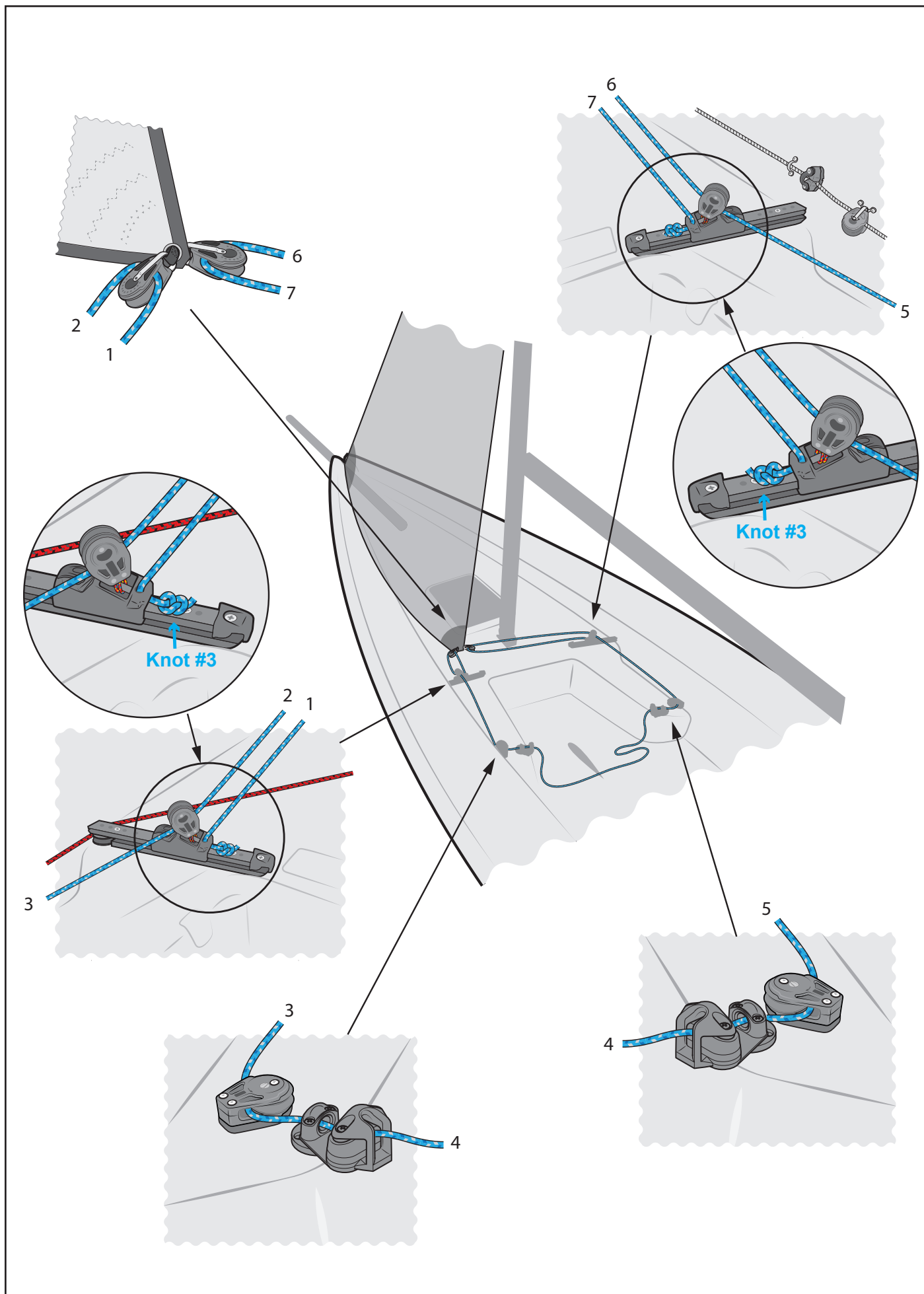


- b) Dismantle the jib clew blocks as shown.



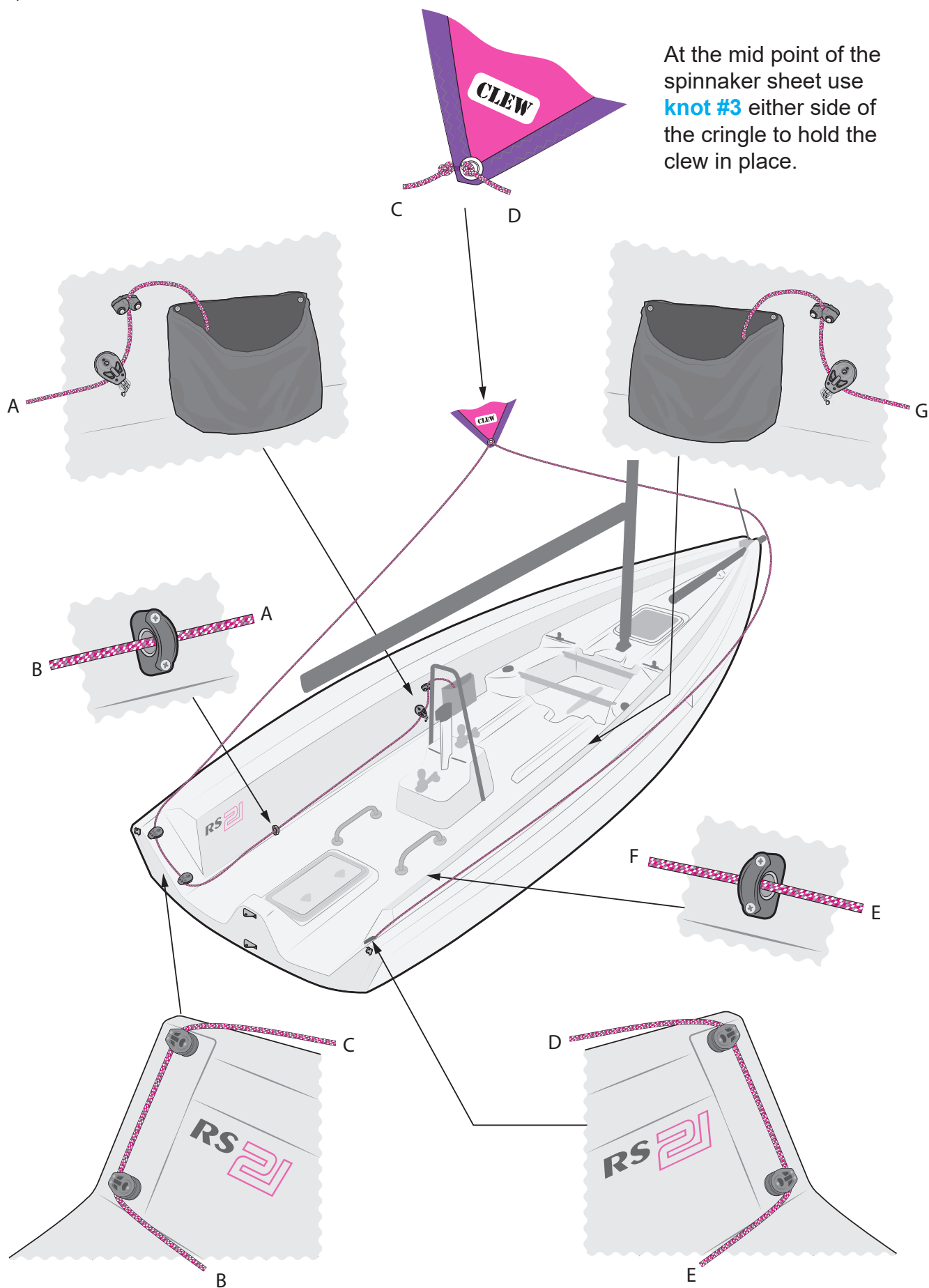
- c) Reassemble the jib clew blocks through the ring in the clew of the jib.



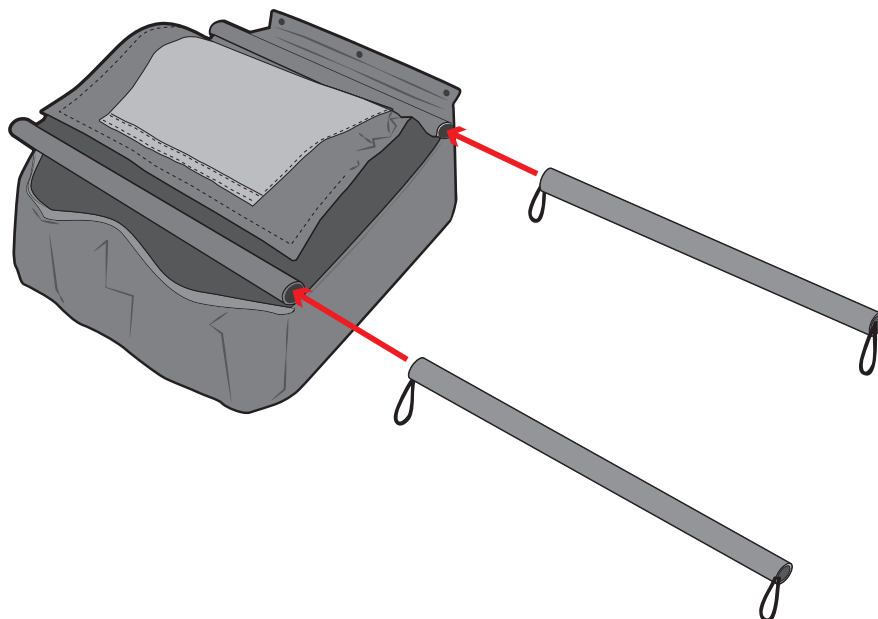


a)

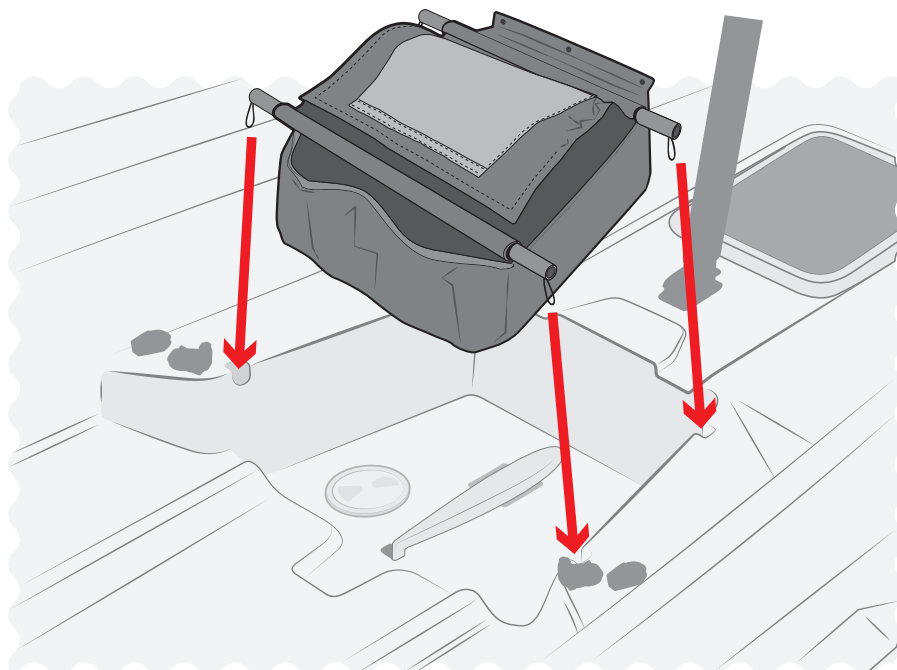
At the mid point of the spinnaker sheet use **knot #3** either side of the cringle to hold the clew in place.



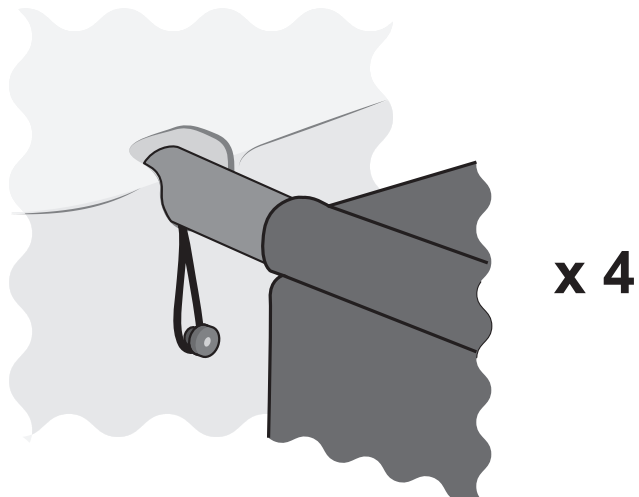
a)



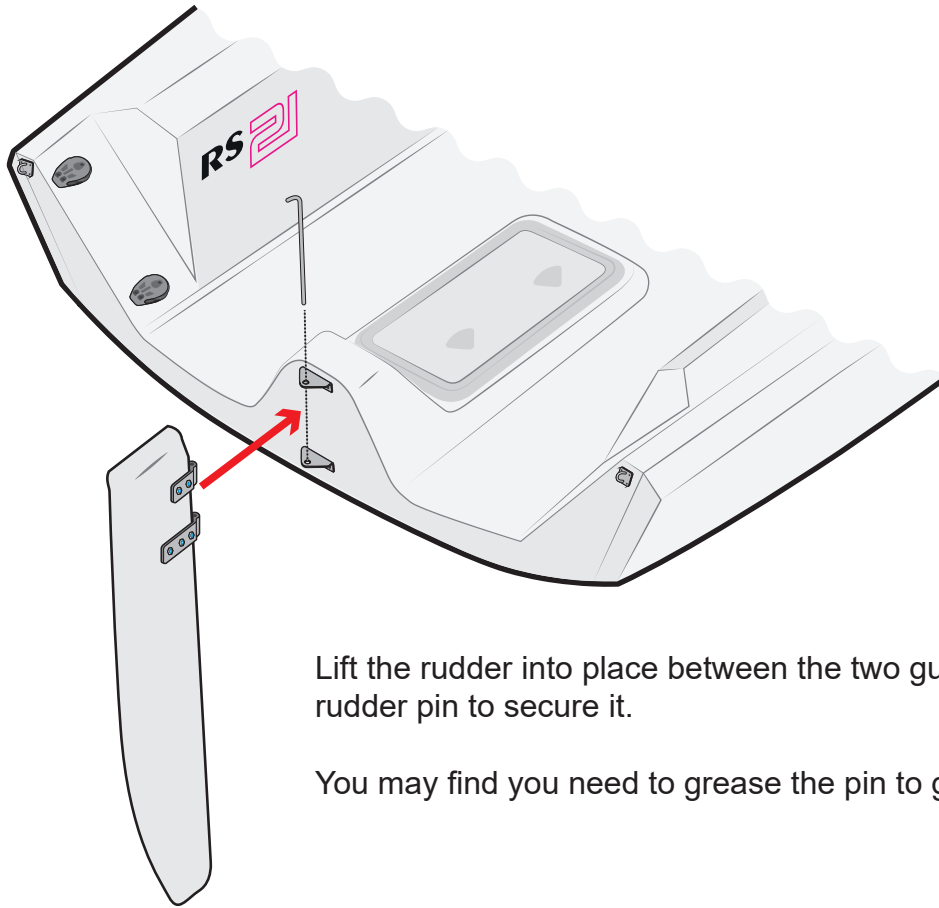
b)



c)



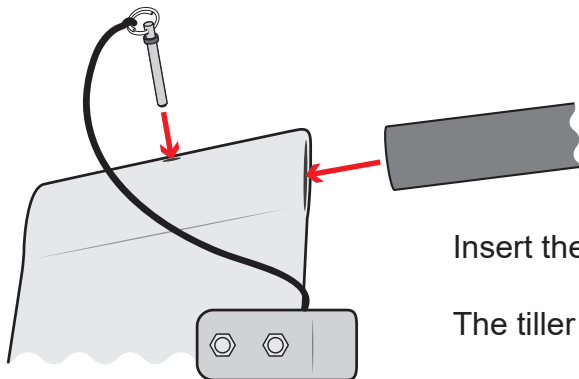
a)



Lift the rudder into place between the two gudgeons and insert the rudder pin to secure it.

You may find you need to grease the pin to get it through.

b)

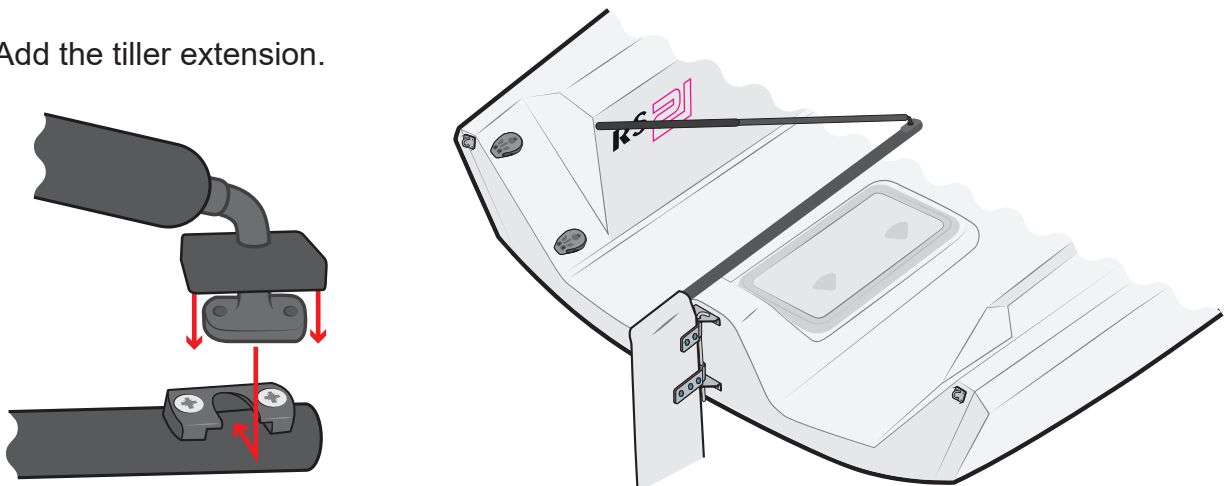


Insert the tiller into the rudder and add the tiller pin.

The tiller will prevent the rudder pin from coming out.

c)

Add the tiller extension.

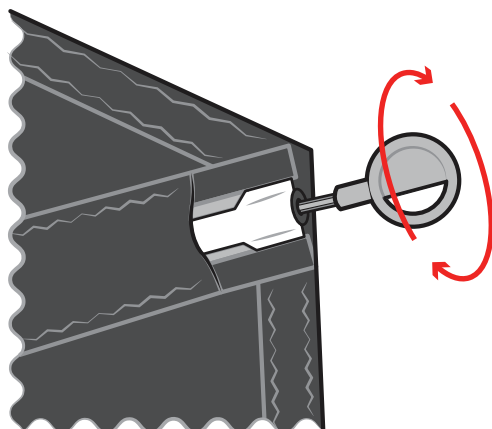
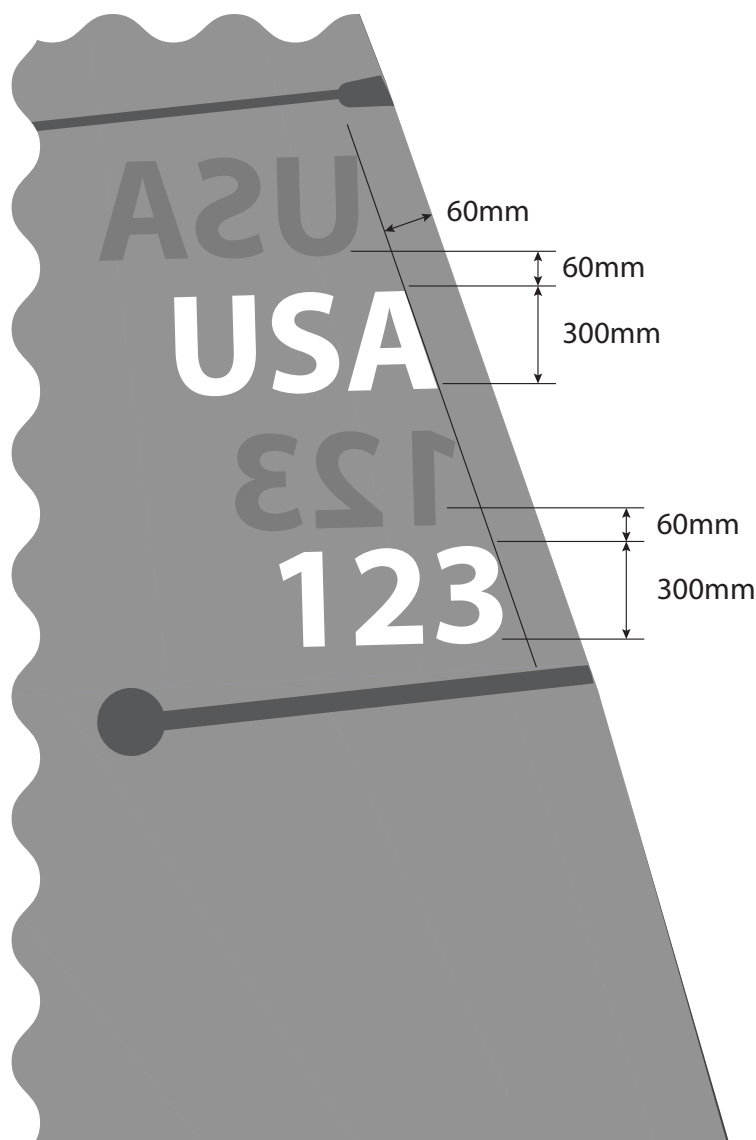


a)

Unroll your new sail. There are faint lines on the sail to show you where to stick the sail numbers.



NUMBERS MUST BE PLACED HIGHER ON THE STARBOARD SIDE.



Batten key should be on clew of sail.

Check the inboard ends of the battens are positively located in the inboard plastic end fitting. To tension, turn the key clockwise until the cloth becomes just tight. If it is over tightened you will have trouble tacking the head of the sail in light weather. Insufficient tension and the sail will set up too flat with wrinkles running down from the head.

Wash salt off sails after use and dry. Roll from the head. It is easier to fold the head in (as shown) so the top of the battens coincide before starting rolling. Store sail in its bag in dry conditions away from sunlight. Although the sail is made from a quality high denier fabric it is best to slightly slacken the top 2 battens' tension for long term storage.

When using a new sail for the first time, try to avoid extreme conditions as high loads on new sailcloth can diminish the racing life of the sail.

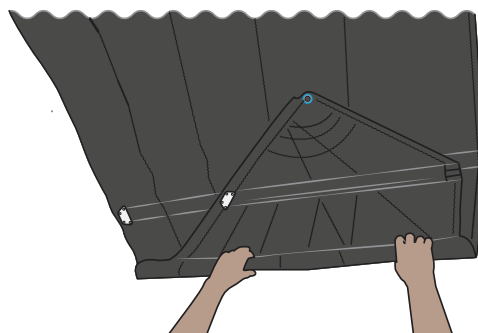
If your sail is stained in any way, try to remove it using a light detergent and warm water.

DO NOT attempt to launder the sail yourself.

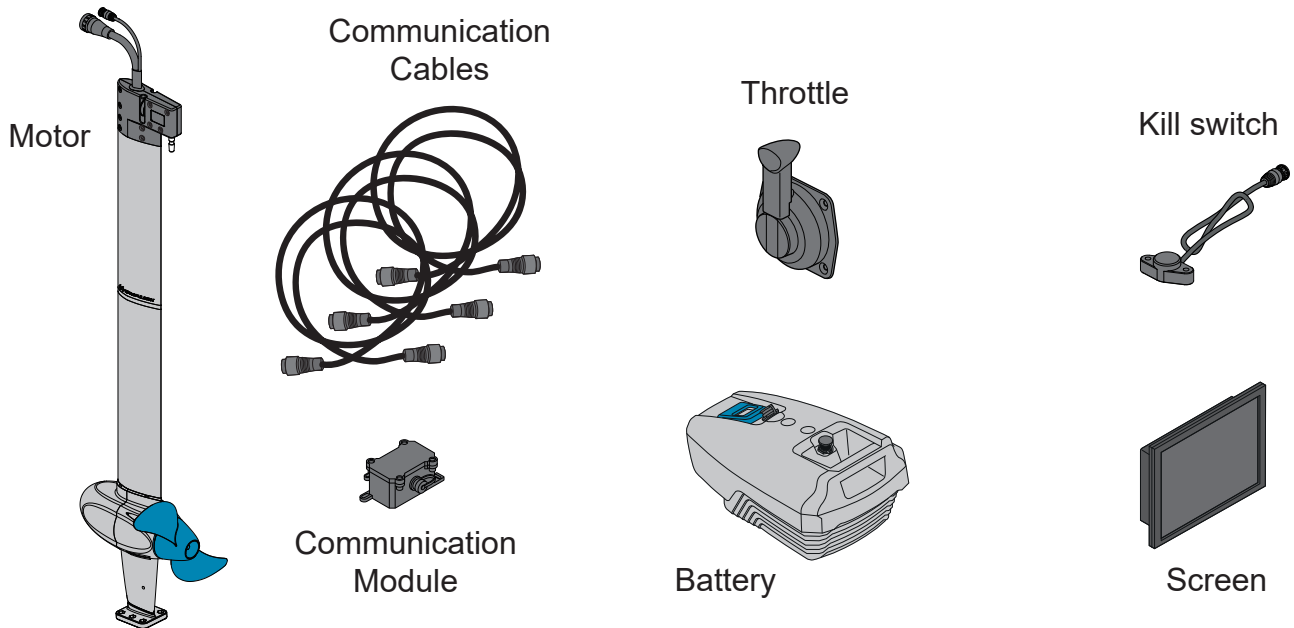
A sail can be temporarily repaired using a self-adhesive cloth tape, such as Dacron or Mylar. The sail should be returned to a sail maker for a professional repair. Check for wear and tear, especially around the batten pockets, on a regular basis.



Roll from 2nd Batten.

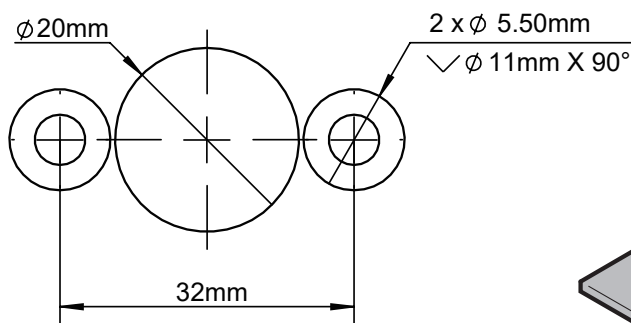


Locate the following items:



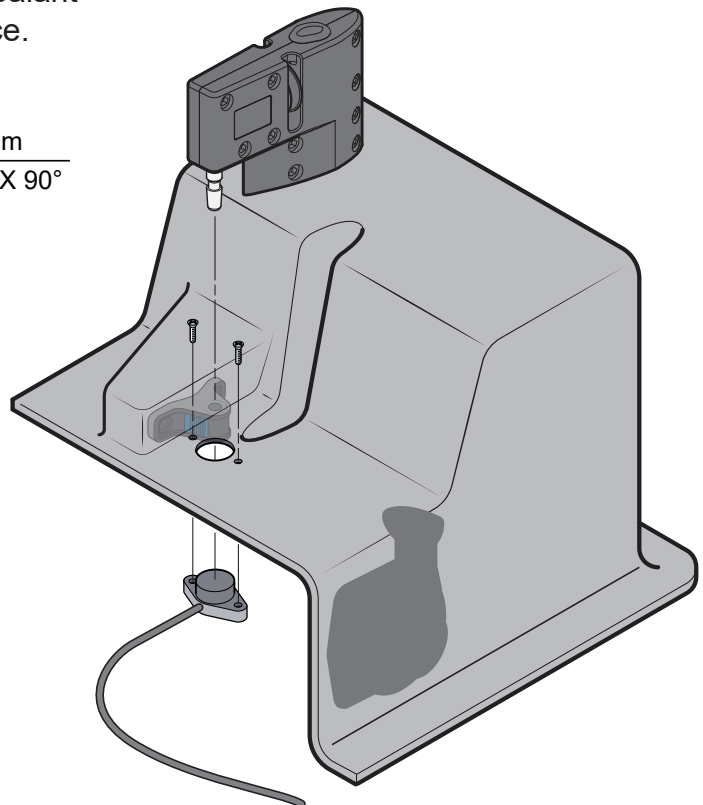
a) Kill switch installation

Three holes need to be drilled in the console, ensuring the location pin is in the centre of the 20mm sensor. A small amount of sealant should be used to fix the sensor in place.



Two No.5 x 16 pozi countersunk head screws are used to fix the kill switch to the underside of the console.

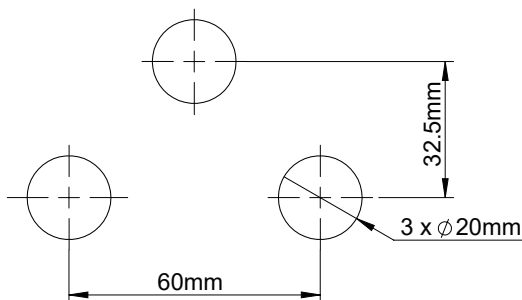
Test the height of the locator pin, using the motor head, adjust so there is a small gap between the pin and the sensor.



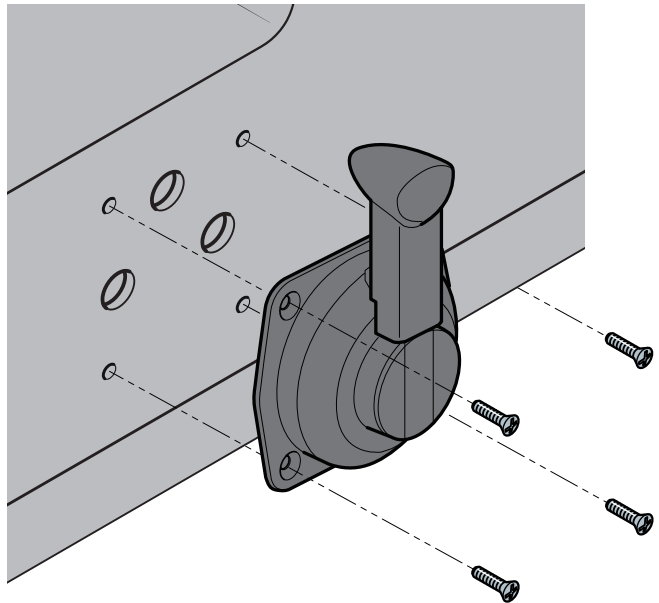
b) Throttle installation

Make sure the proposed location reserves enough room for operating and will allow rotating the throttle without hitting obstructions. This will be approximately 85mm above the deck.

Drill holes in the console through the fixing guide referring to the dimensions in the drawing.

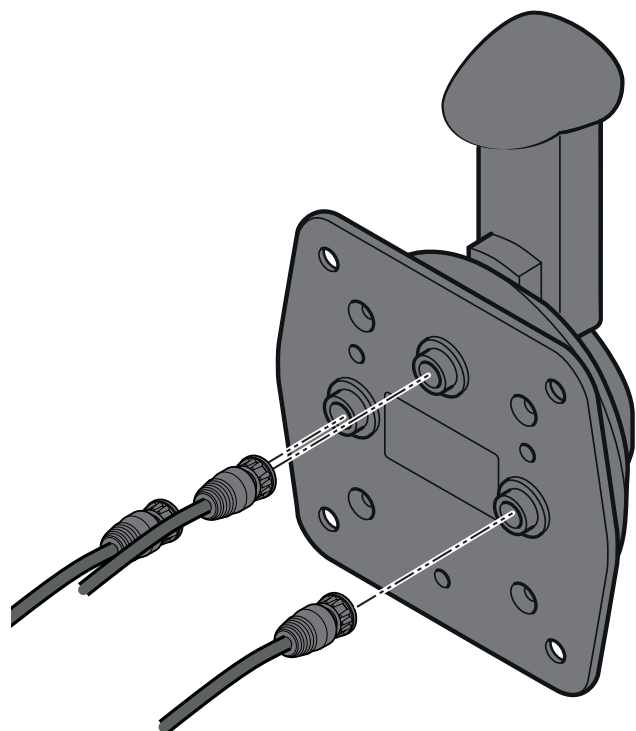
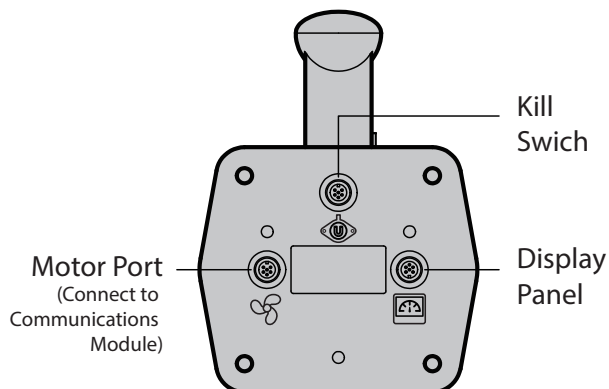


Fix the throttle to the side of the console using the 4 No.6 x 16 self tapping screws provided.



- c) Now connect 3 cables to the back of the throttle. First the thinner cable coming from the motor, then the kill switch cable and finally the communication cable that will go to the display panel.

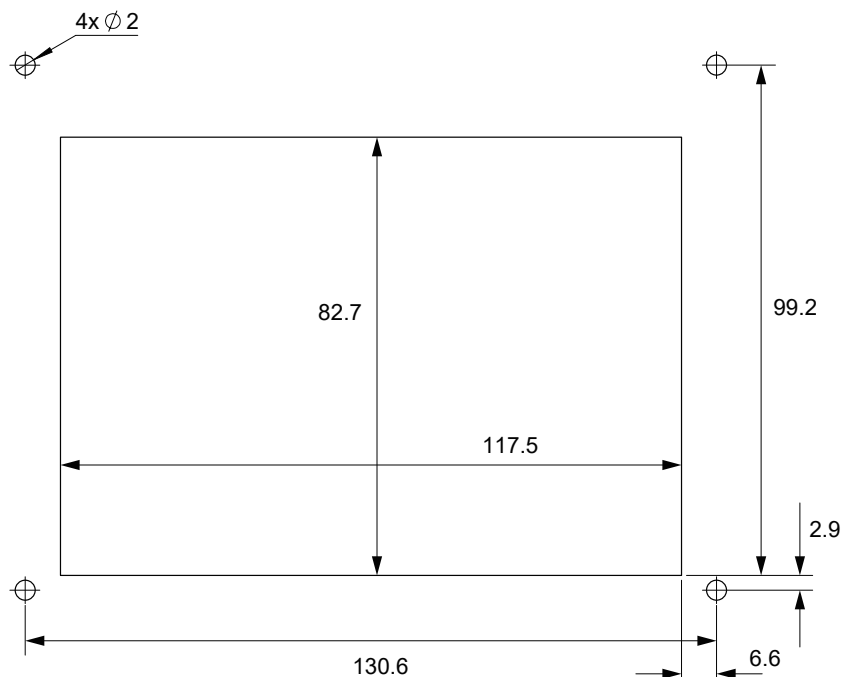
Note: Make sure the correct cable is connected to the correct port on the back of the throttle, as indicated below.



d) Screen installation

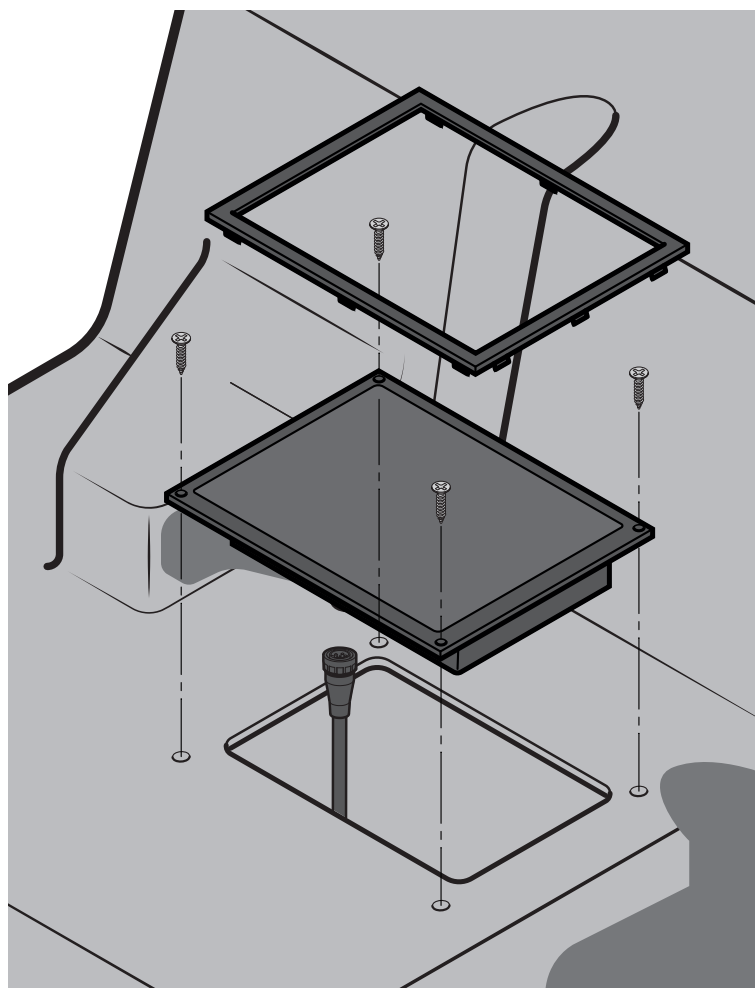
Fix the display panel in the top of the console.

Drill hole in the recess following the fixing guide.



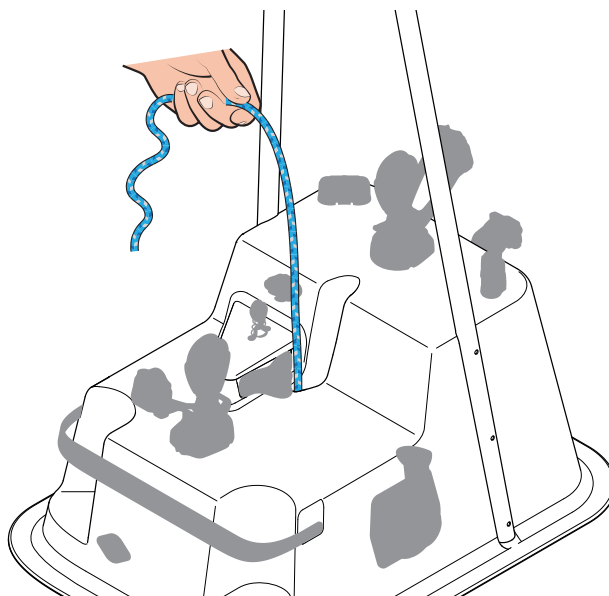
Attach the communication cable from the back of the throttle to the display.

Fix the display panel using 4x No4 x 3/4" Pan Head self tapping screws. Do not over tighten the screws.



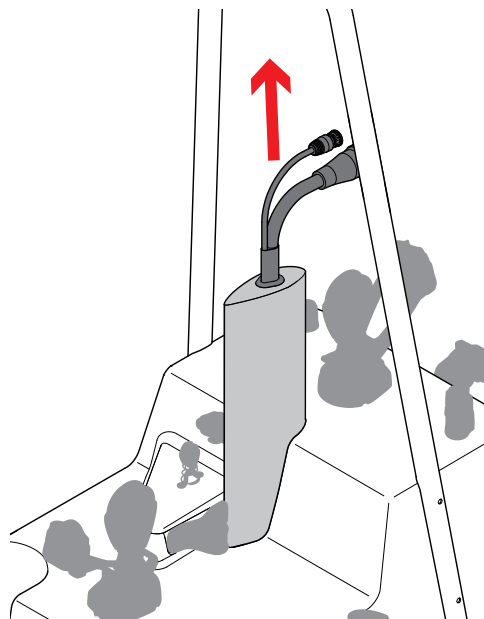
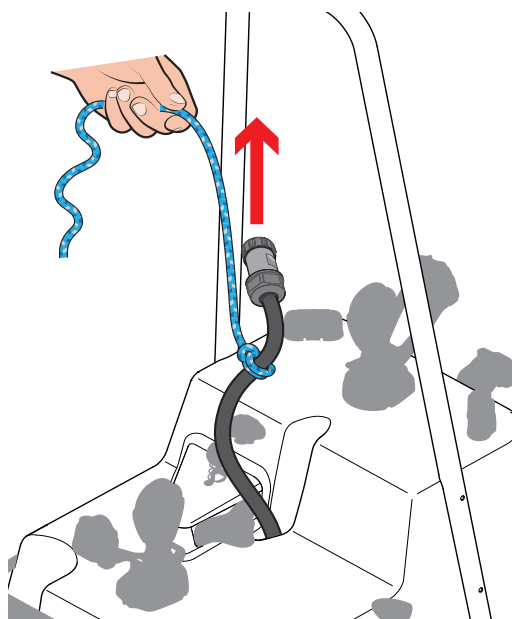
- e) Lay the motor on the floor beneath the boat.

- f) Pass a rope down through the hole in the console from above the deck.

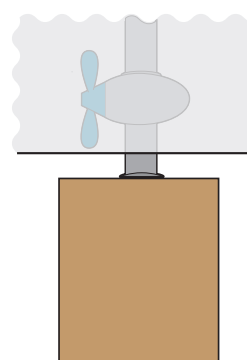
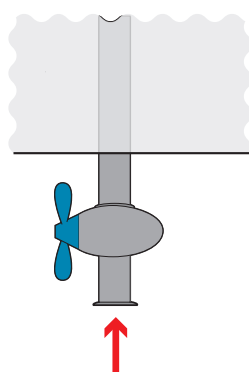


- g) Use this rope to pull the motor cable up through the hole.

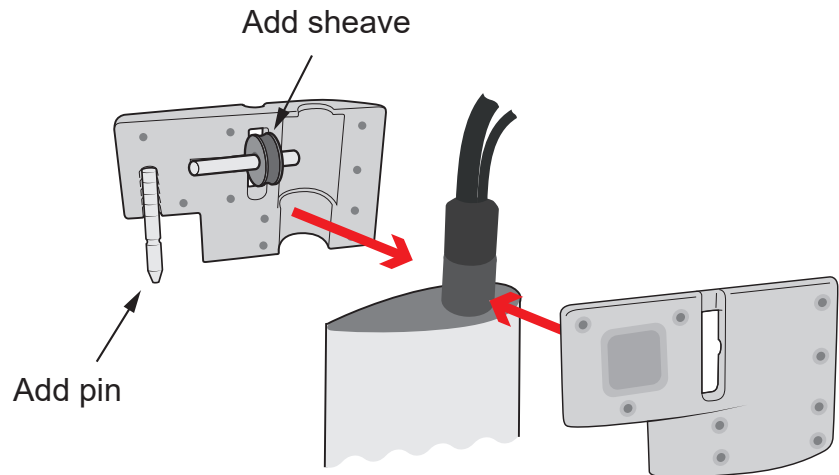
Once you have hold of the motor cable above deck you can use this to pull the motor shaft into the hole.



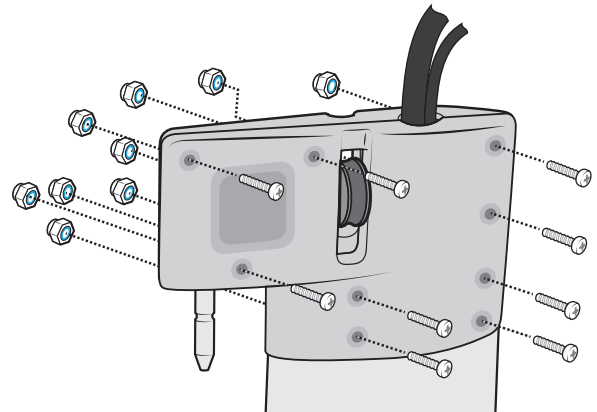
- h) Put something underneath the boat to hold the motor in place so you can work on the top part of it without it falling back down.



- i) Add the handle to the top of the motor shaft.



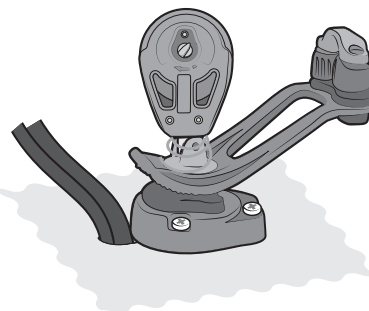
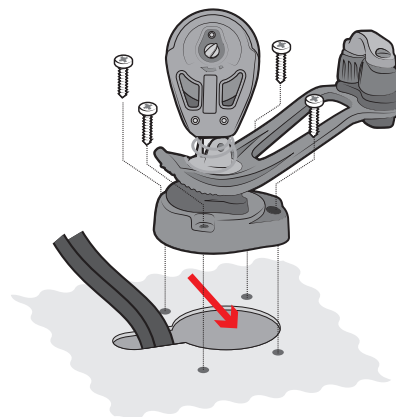
- j) Bolt the two sides of the handle together, making sure that the pin and sheave locate properly in place.



- k) Remove the forward mainsheet block and jammer base to reveal a hole.

Pass the cables down through the hole.

Ensure the cables are properly seated in the cutout then replace the mainsheet block and jammer base.



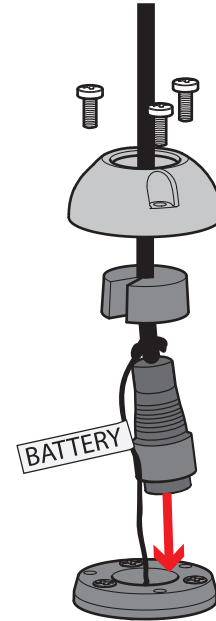
- l) Remove the hatch in the front of the console.

This will reveal a deck gland with a mousing line emerging from it labelled 'battery'.

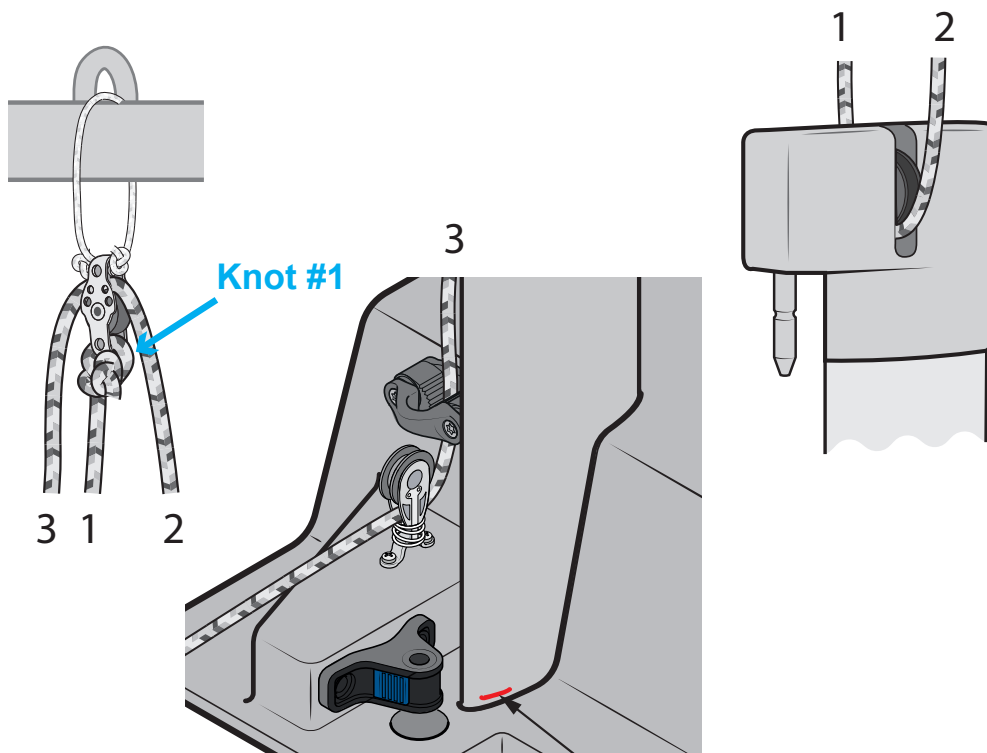
Remove the 3 screws from the deck gland and pass the larger power cable through the gland assembly (see image to the right).

Pull the cable through from the front hatch.

Re-assemble the deck gland and refit the 3 screws



- m) Add the motor lifting line as shown and cleat it off.

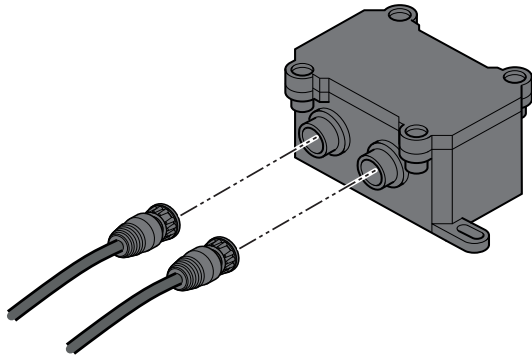


With the motor in the fully up position, make a mark on the extrusion so you know how far to pull it in when you are on the water.

You can now remove the chock which you added in **step h**.

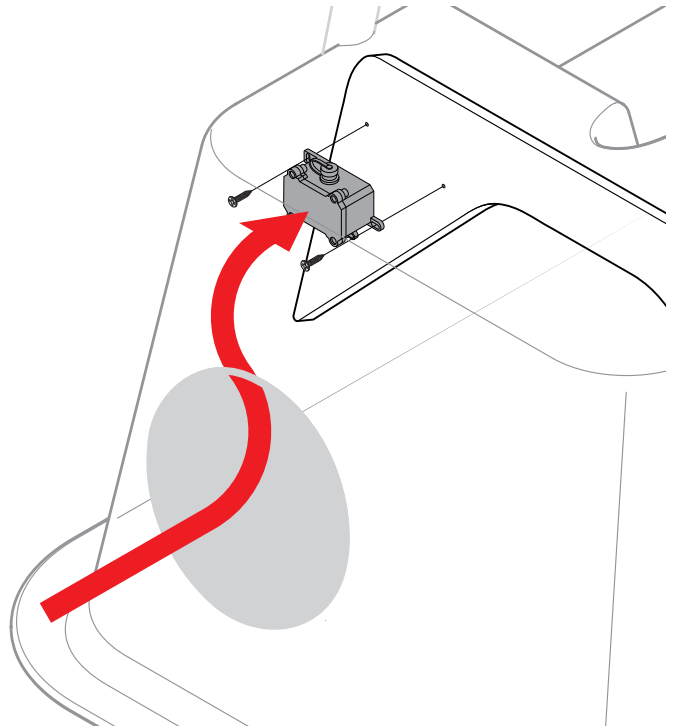
n) Fitting the Communications Module

Fit the communications module through the front hatch on the console. Attach it to the wooden bulkhead in the console using the M4 screws provided.



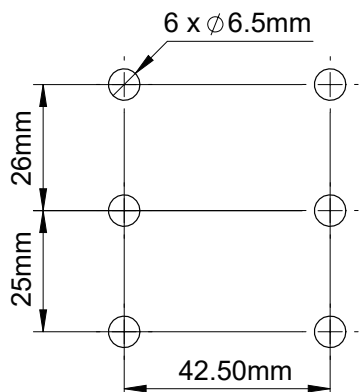
Attach the the cables from the motor and the throttle to the 2 connectors on the side of the module.

Note: Make sure the correct cable is connected.

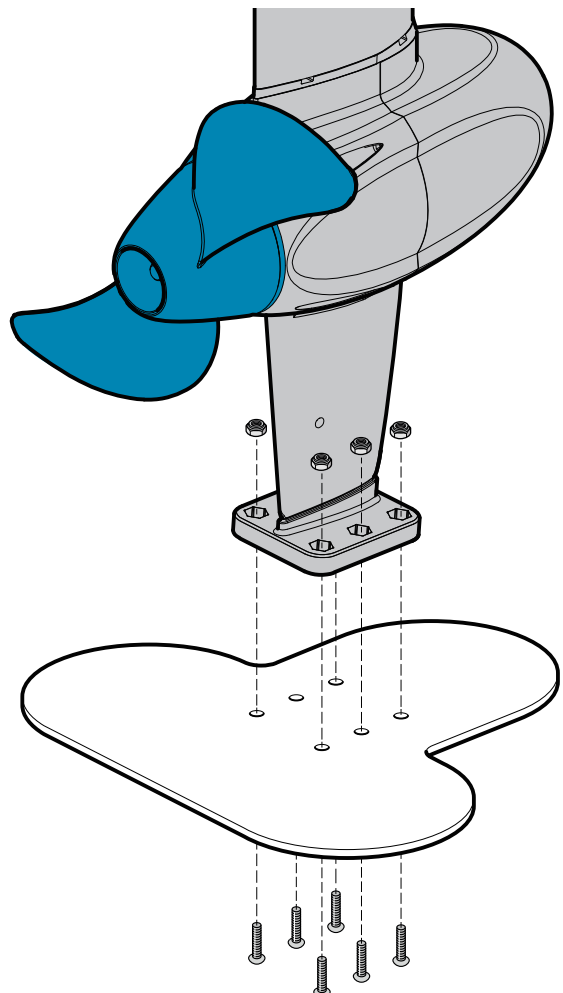


o) Bottom Plate Installation

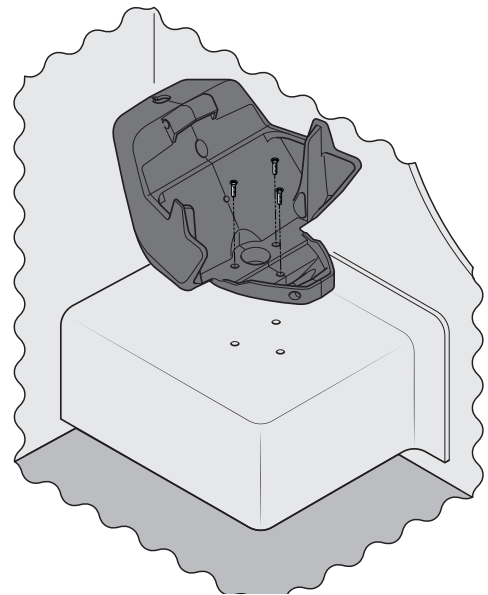
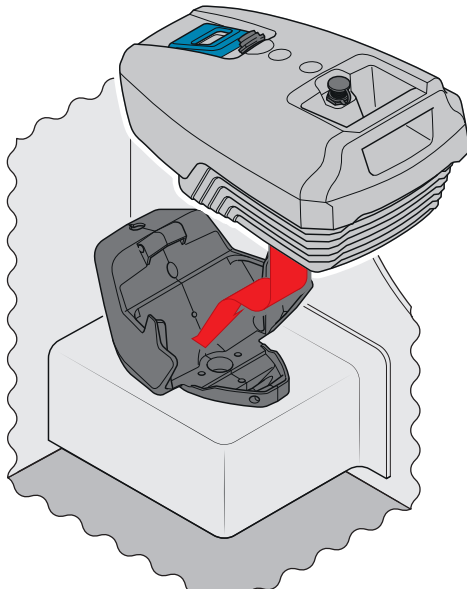
Drill six Ø6.5mm holes in the bottom plate according to the size shown below.



Fix the hull plate to the skeg mount with 6 x M6 x 16mm hex socket countersunk bolts with M6 locknuts.

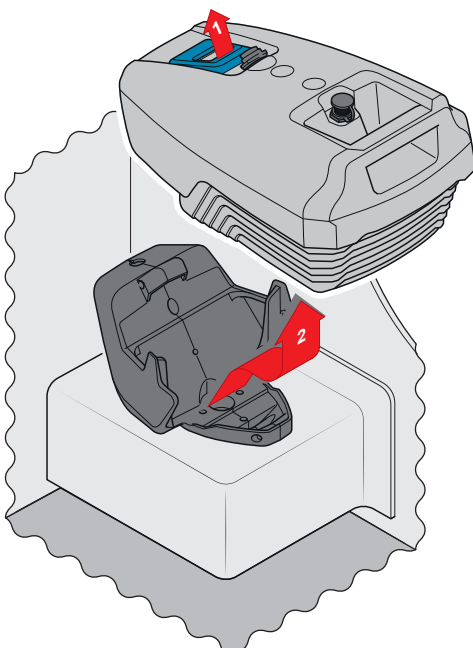
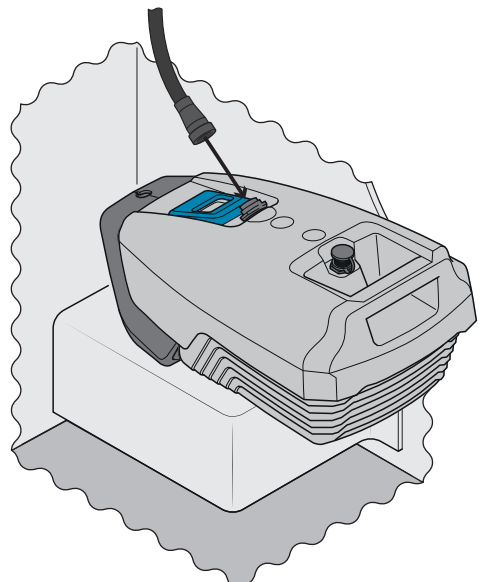


- p) Install the battery base using 14 x 2" pozi pan screws. Make sure the base is located so the battery can locate without hitting the bulkheads.



Installing the battery, lower the battery and the slide forward and down until you hear an audible "CLICK". Check the battery is located securely before sailing.

Once all the cables are connected, connect the battery cable to the battery as indicated in the image.



Removing the battery, Lift the blue handle and lift and slide the battery back and away from the bracket.



Rigging Manual

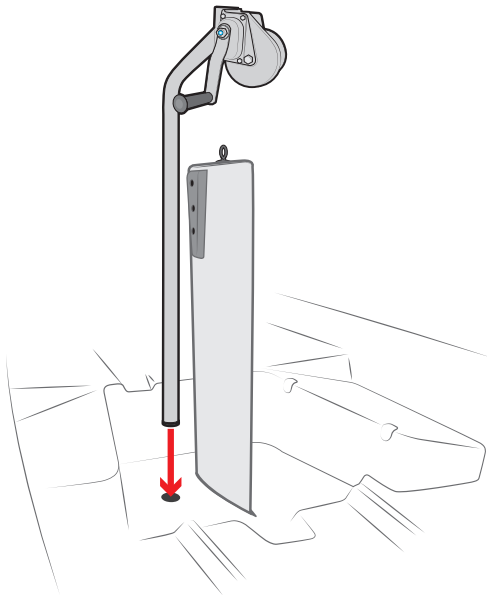
5. Using the Boat



PLEASE FOLLOW RIGGING MANUAL IN THE CORRECT ORDER



- a) Put the keel hoist into it's pot.



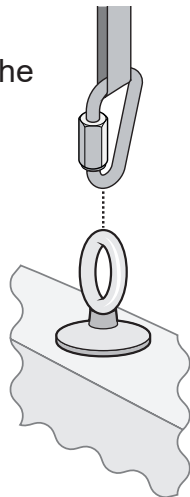
- b)

Before you lower the keel for the first time use electrical tape to mark a position on the keel hoist that is level with the top of the keel. This is a reference point to tell you when winding the keel back up you have reached the top.



If you keep winding once the keel is fully raised you risk damaging the boat.

- c) Shackle the strap from the keel hoist onto the keel.



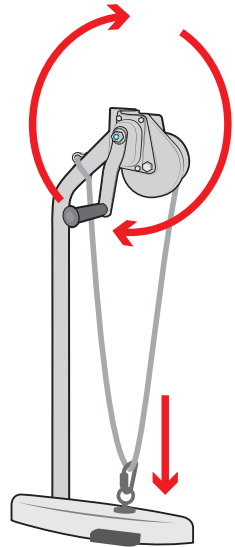
You can now launch the boat.

- d)

Once you are in deep enough water, wind the keel down using the hoist.



Do not let go of the handle!

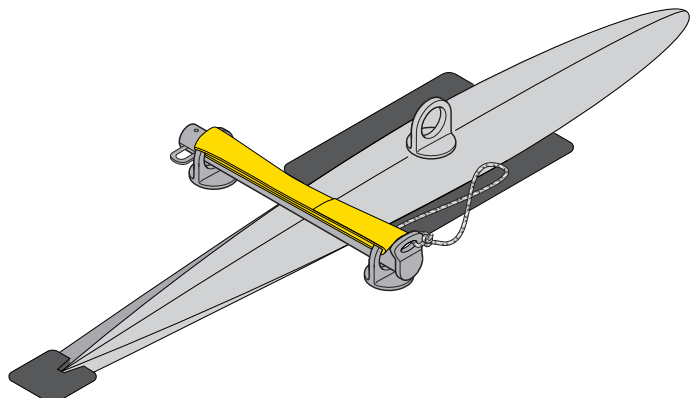


- e)

Unshackle the rope from the keel, remove the hoist and replace the hatch.

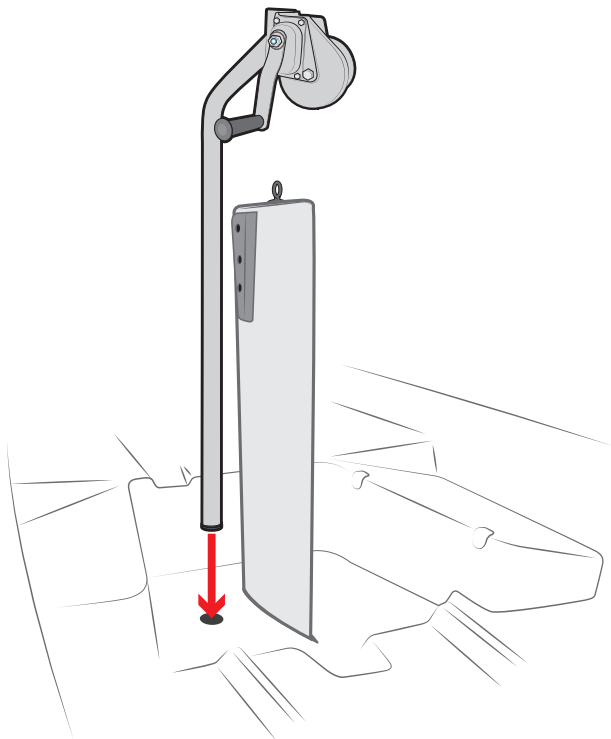
- f)

Add the velcro retaining strap and secondary pin as shown.



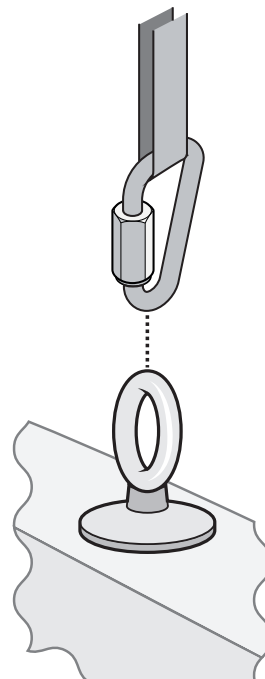
a)

Put the keel hoist into it's pot (inside the hatch just to the port side of the keel).

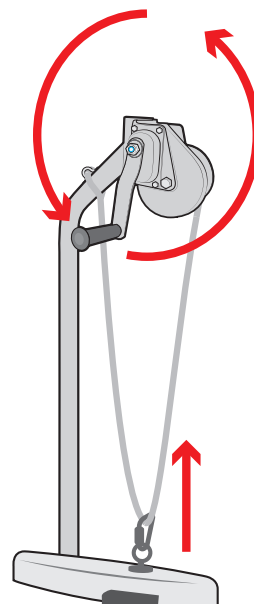

b)

Undo the velcro strap which is holding the keel down.

Shackle the rope from the keel hoist onto the keel.

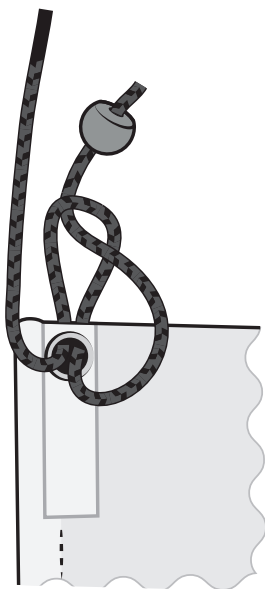

c)

Wind the keel up using the hoist.

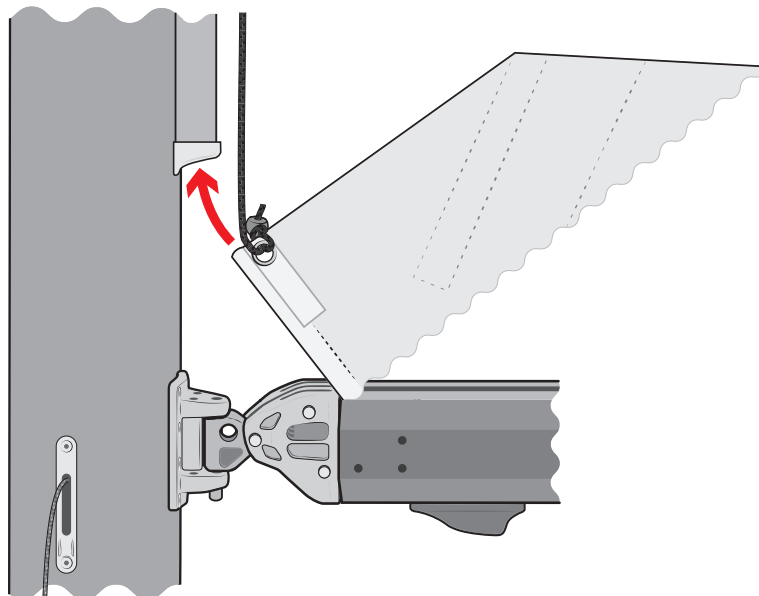


a)

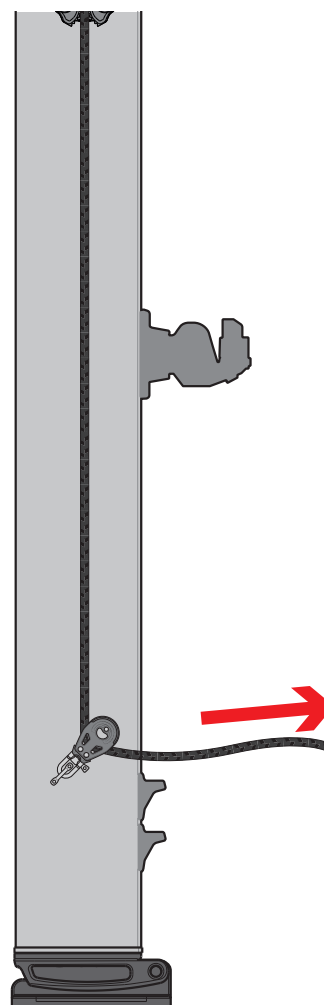
Shackle the main halyard to the head of the mainsail.

**b)**

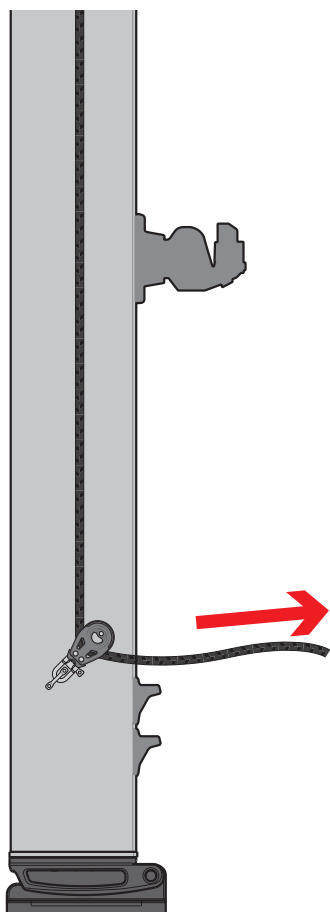
Put the top of the main sail into the opening in the mast track, just above the gooseneck.

**c)**

Hoist the mainsail by pulling on the line which comes out of the port side of the mast.



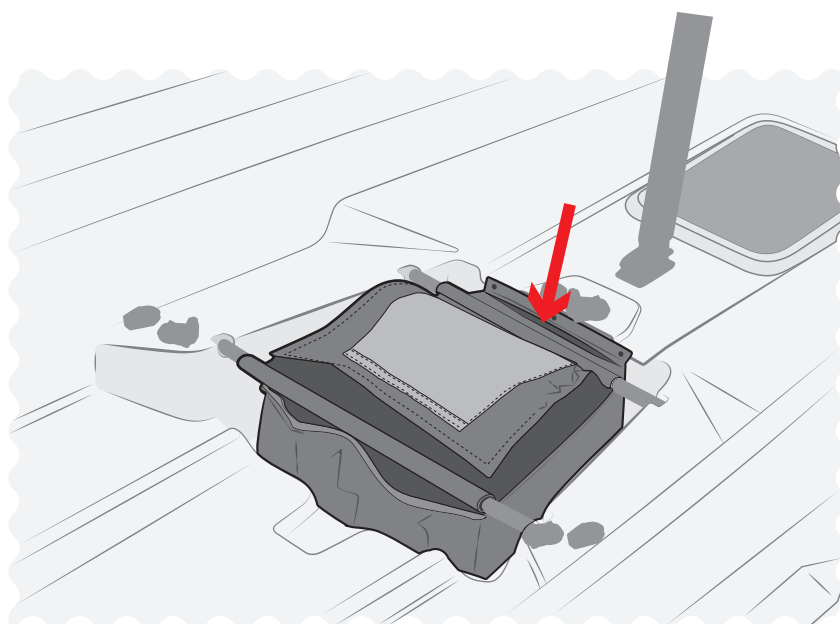
d)



Pull on the main halyard until the sail reaches the top of the mast, make sure the halyard is locked into both cleats on the side of the mast.

e)

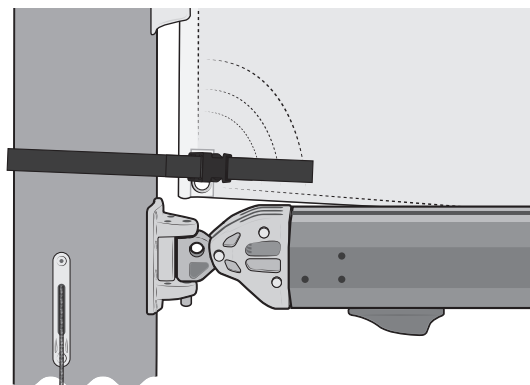
There is a pouch on the front edge of the spinnaker bag which can be used to stow the tails of all halyards.



a)

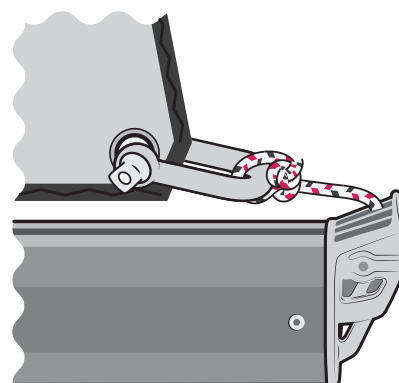
Attach the tack strap around the mast before adjusting the outhaul

NOTE: Do not attach the main sail to the shackle on the goosneck.



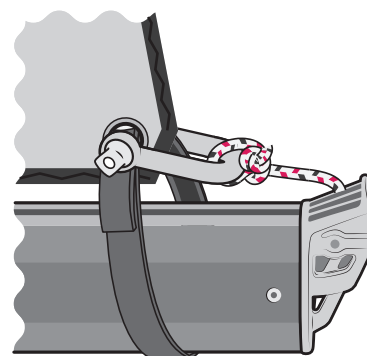
b)

Attach the outhaul to the clew of the sail.



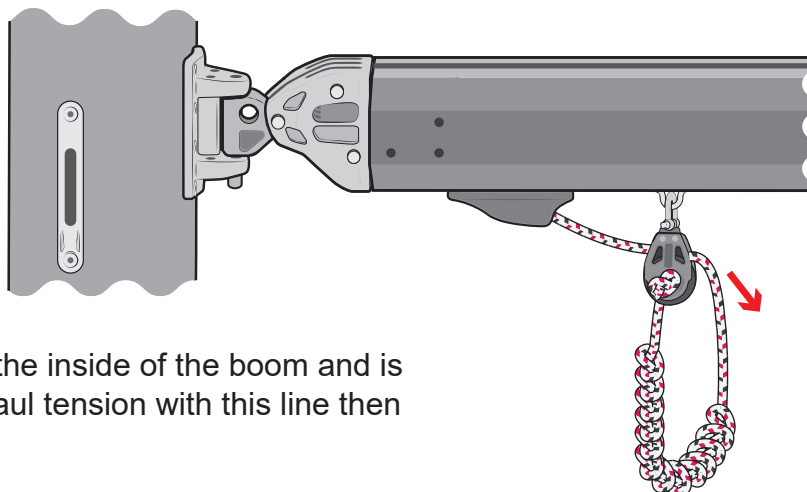
c)

Add the clew strap.



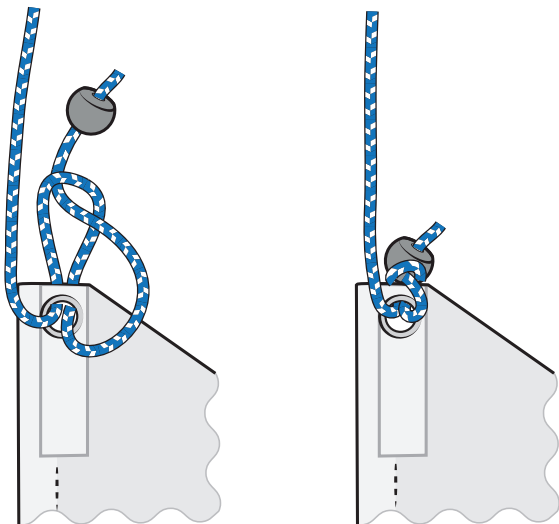
d)

The outhaul line runs through the inside of the boom and is already attached. Pull on outhaul tension with this line then cleat it off.



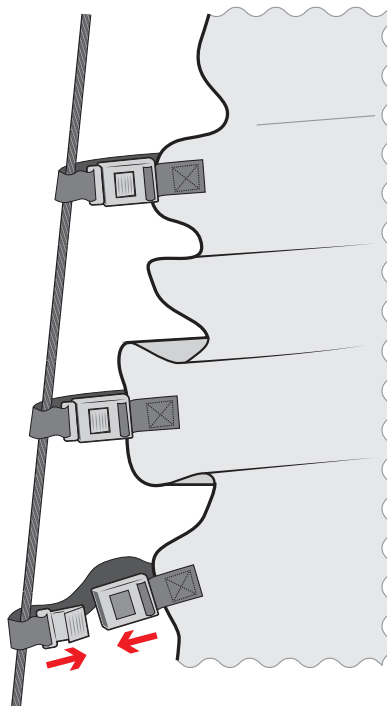
a)

Attach the jib halyard to the head of the jib.



b)

Hank the luff of the jib onto the forestay.

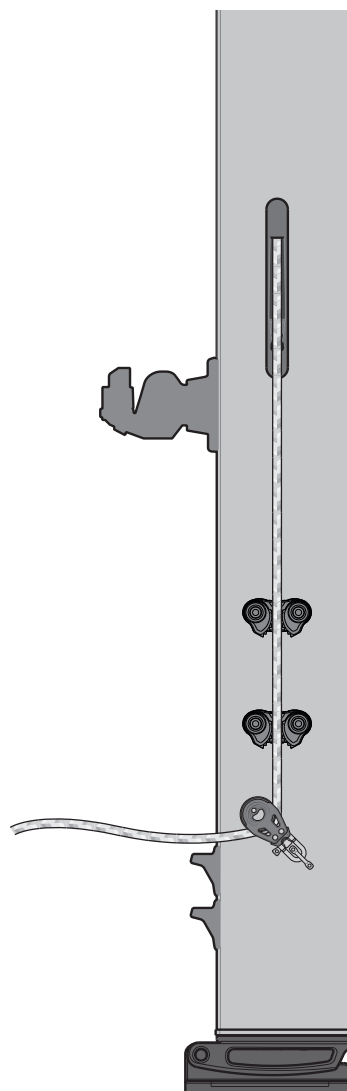


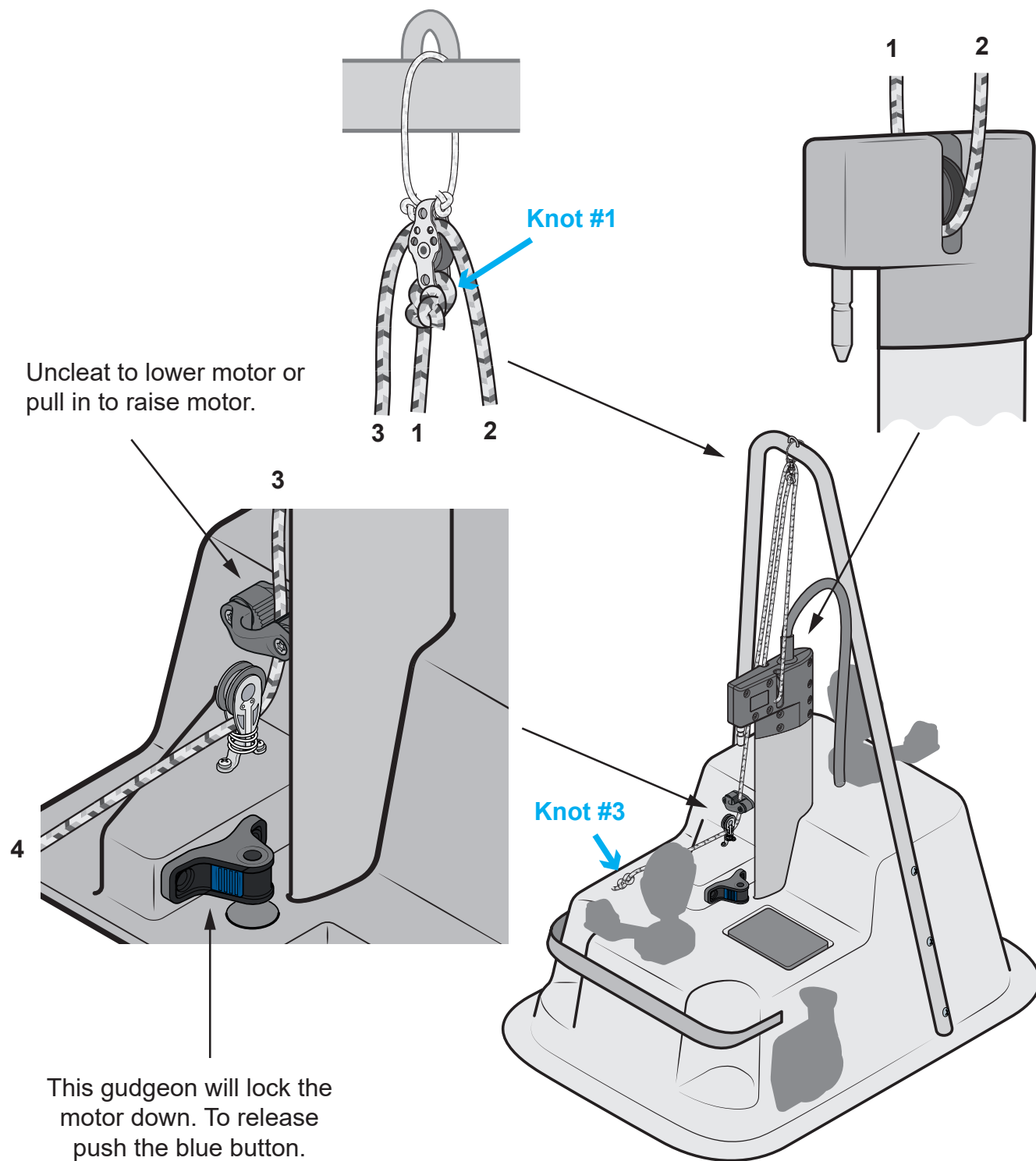
c)

Hoist the jib by pulling on the line which comes out of the starboard side of the mast, just below the level of the gooseneck.

When the jib is almost fully hoist, a rope loop will emerge from the hole in the mast.

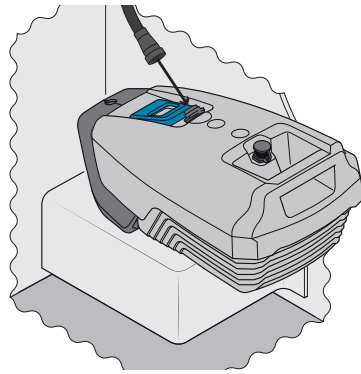
Hook the snap shackle on the block (added in **step 4.9b**) onto this rope loop and continue to hoist the jib.





a)

Connect the battery.



b)

Uncleat the engine lifting line and lower the engine.



Only lower the engine when you are moving at less that 3 knots.

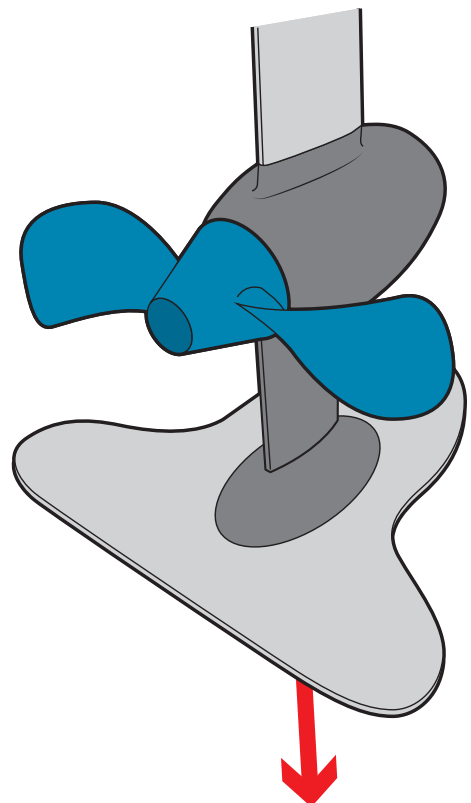
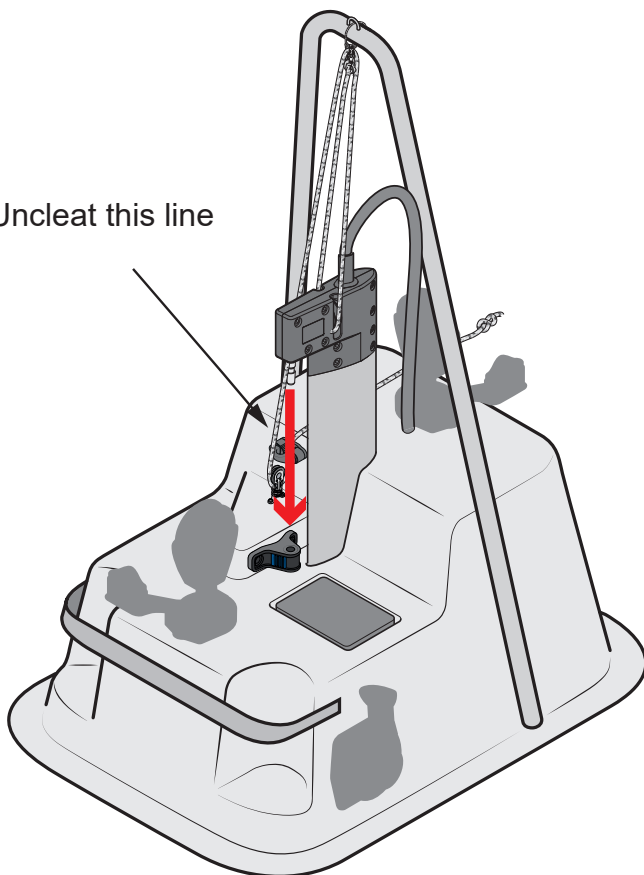


You may need to push downwards on the Epropulsion handle to get the engine to drop.



Make sure you drop the engine fully so that the pintle on the handle clicks into the gudgeon.

Uncleat this line



c)

Make sure the throttle is set to neutral.

Turn on the power.

d)

Add kill cord to the throttle.



If you remove the kill cord whilst the engine is running, make sure the throttle is set to neutral before you re-attach the kill cord.

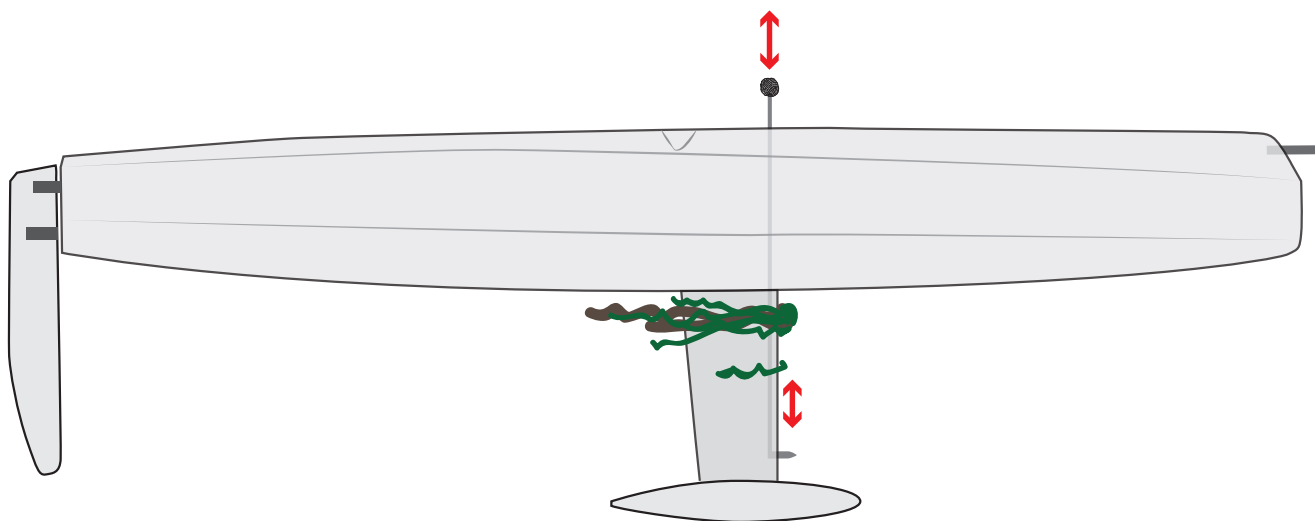
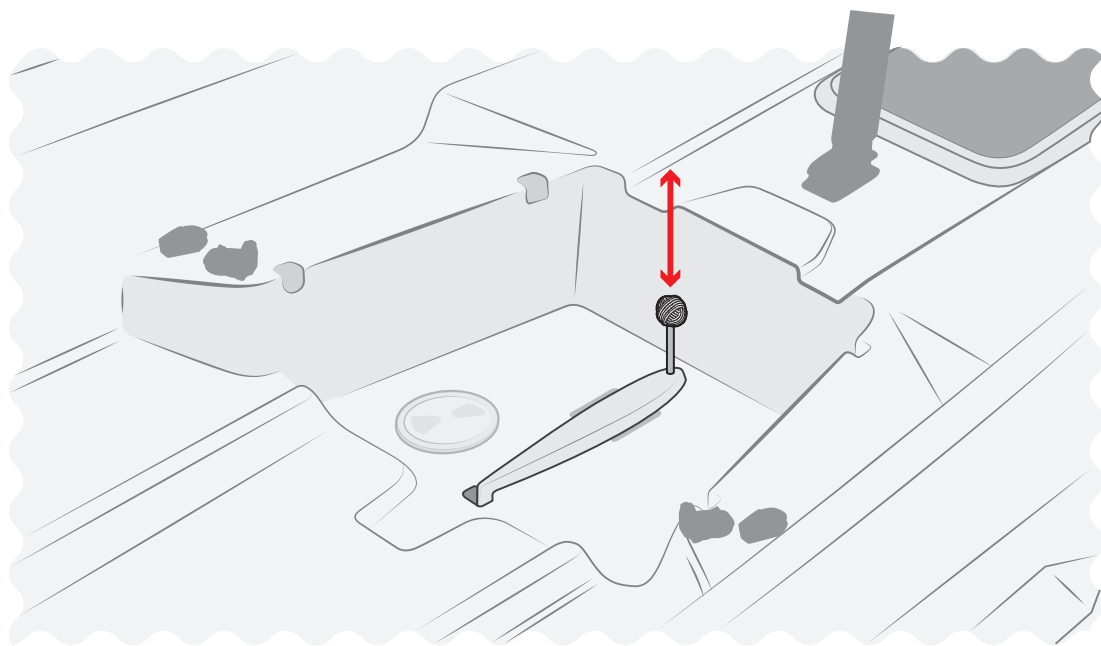
e)

To lift the motor:

- Turn power off.
- Remove kill cord.
- Press blue button.
- Pull in motor lifting line.
- Stow the tail of the lifting line and the kill cord in the pouch on the side of the console.

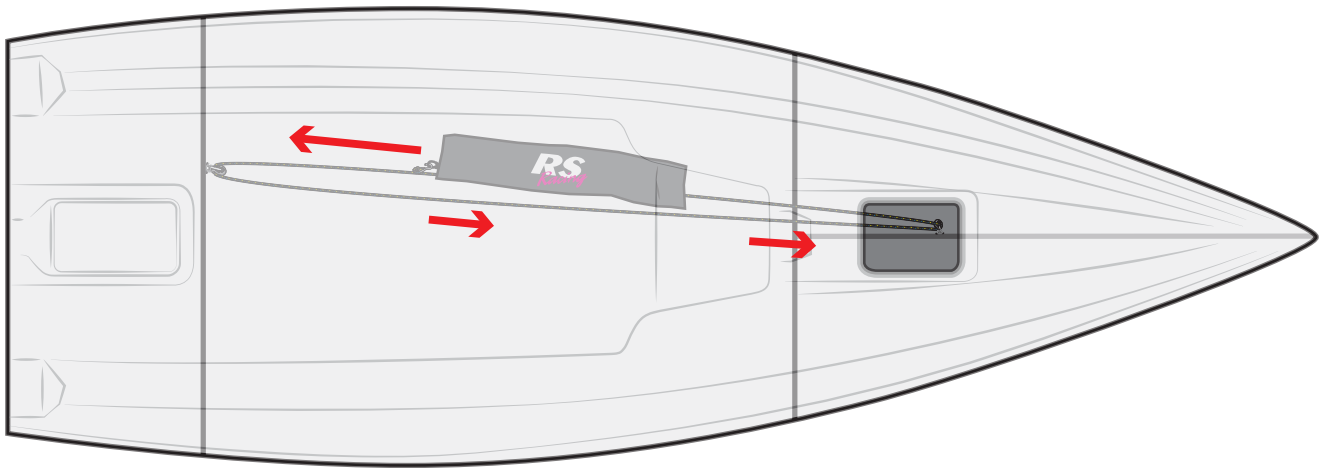
As an optional extra, a built in weed cutter is available which runs through the front of the keel, with a blade that is hidden inside the keel bulb .

If you have weed stuck on your keel, pull the rod which emerges from the top of the keel and the blade will run up and down the keel until the weed is removed.

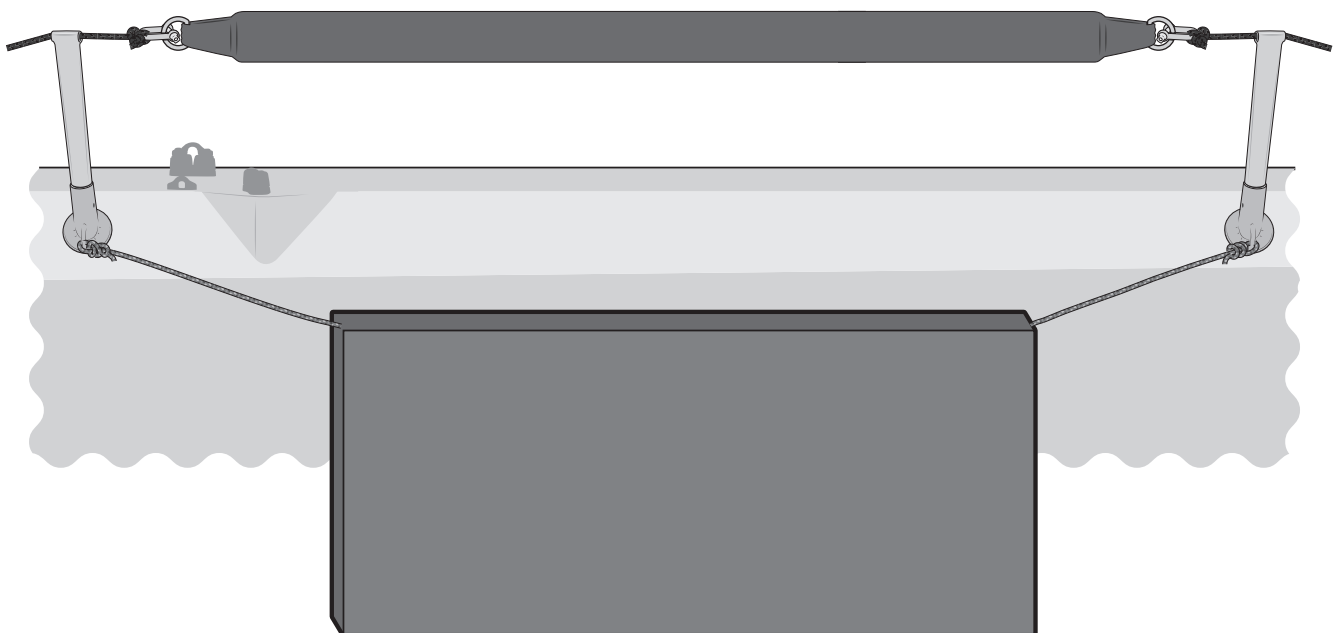


Inside the forward hatch there is a loop of rope with a hook on it, which runs around a block on the aft bulkhead.

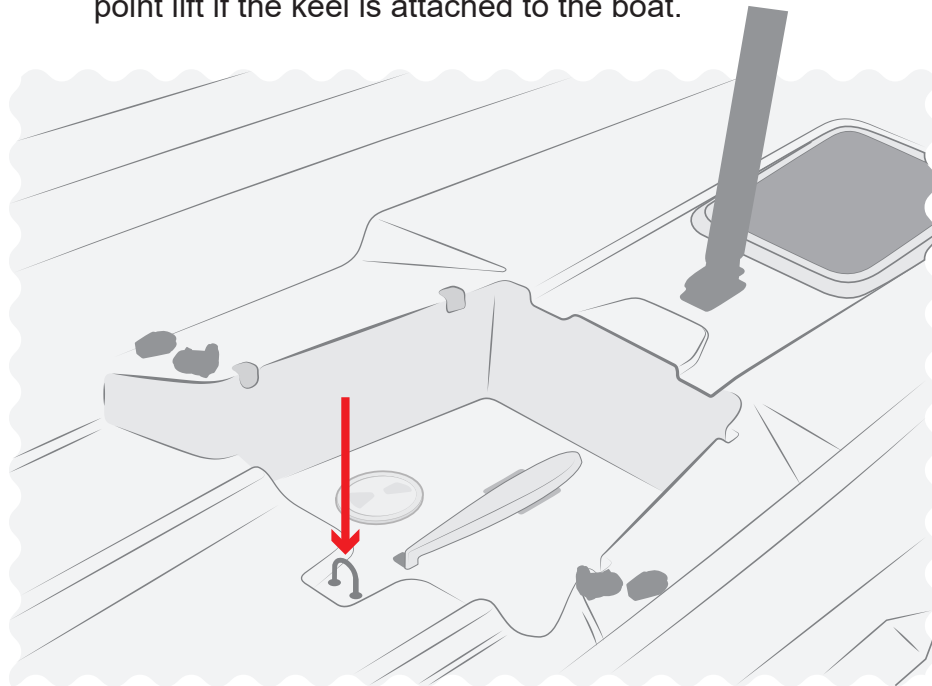
To stow your sail bags, hook them onto this rope and pull on the other end of the rope. This will pull the sail bag aft.



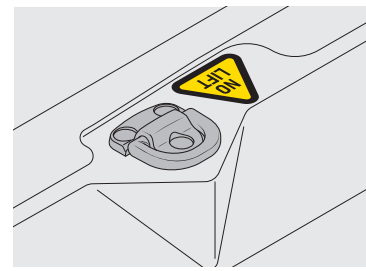
There are eyes on the stanchion bases for tying on the fenders.



- a) There is a lifting eye just aft of the keel which can be used for a single point lift if the keel is attached to the boat.

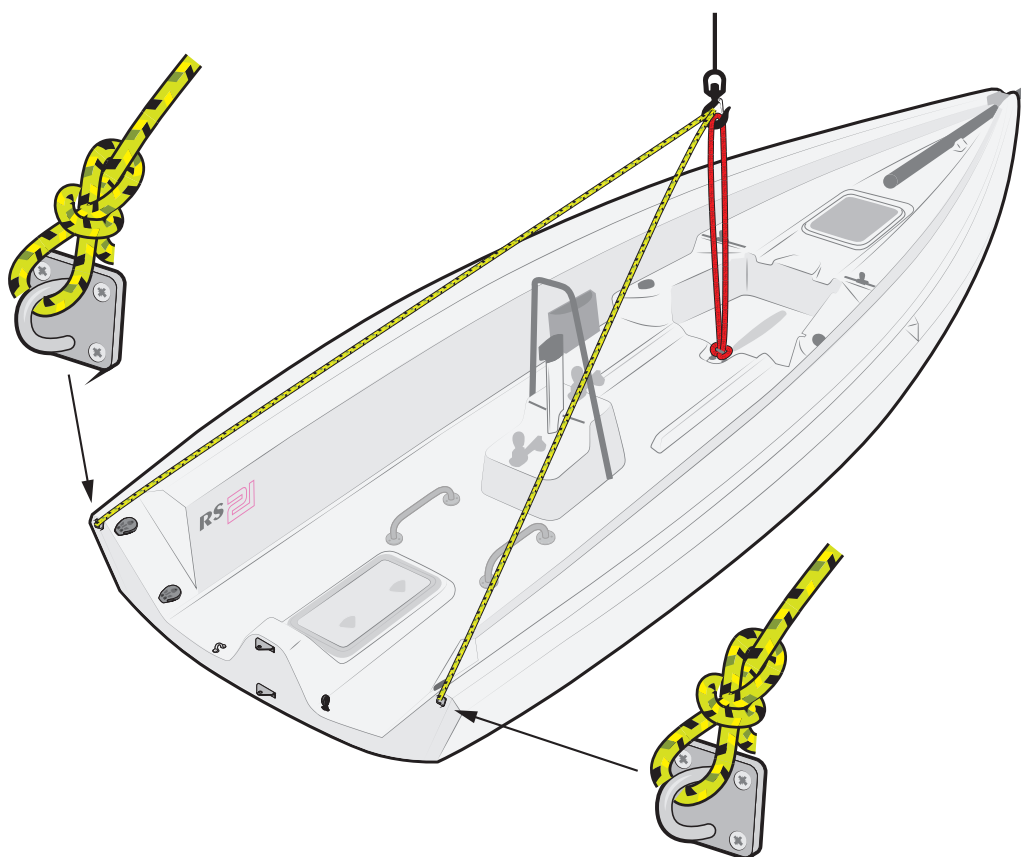


Do not use the padeyes to lift the boat

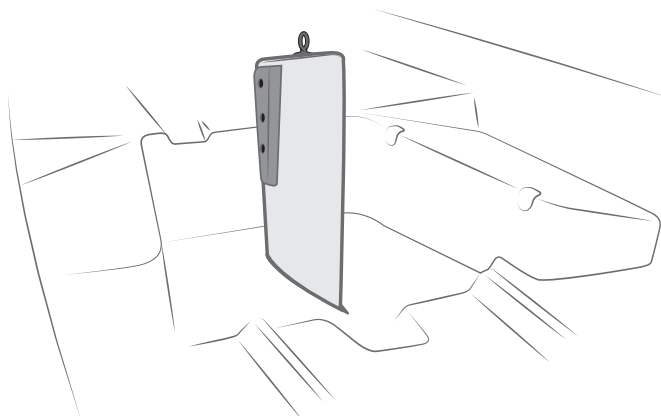


- b) If the boat is to be lifted without the keel attached:

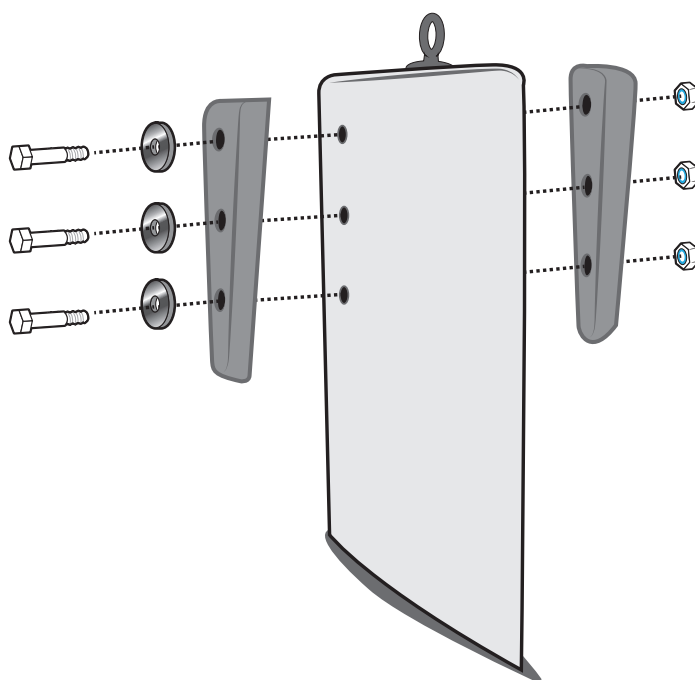
- Fit the lifting strop to the same eye as you would if the keel was fitted.
- Run 2 lines from the lifting strop to the backstay eyes on the transom.



- a) To remove the keel with the boat on a crane, first drop the boat down so that the chocks at the top of the keel are accessible.



- b) Remove the two chocks from the keel using a 2 x 13mm spanners.
- If the weed cutter is fitted, remove the rope bobbles.



- c) Lift the boat off the keel.

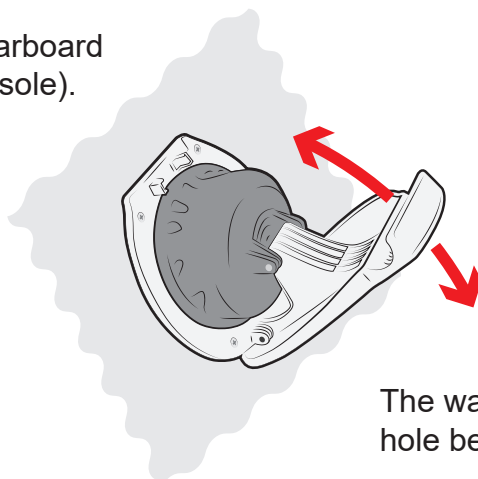


It is very important that you lift the boat evenly.

- d) To add the keel, reverse this process.

5.12 - Bilge Pump

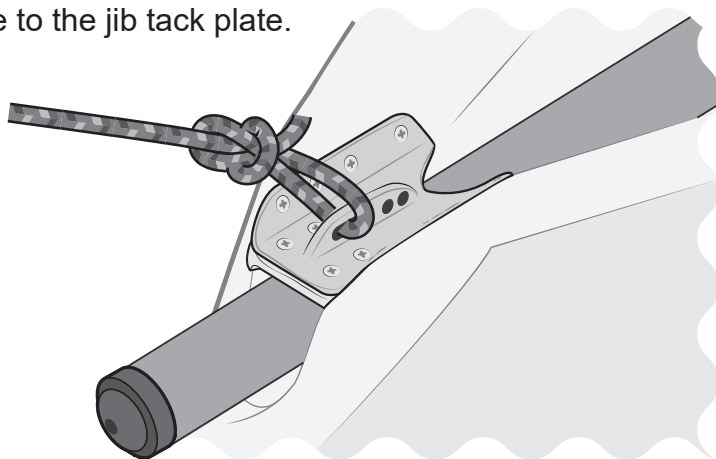
The bilge pump is located on the starboard cockpit side (just forward of the console).



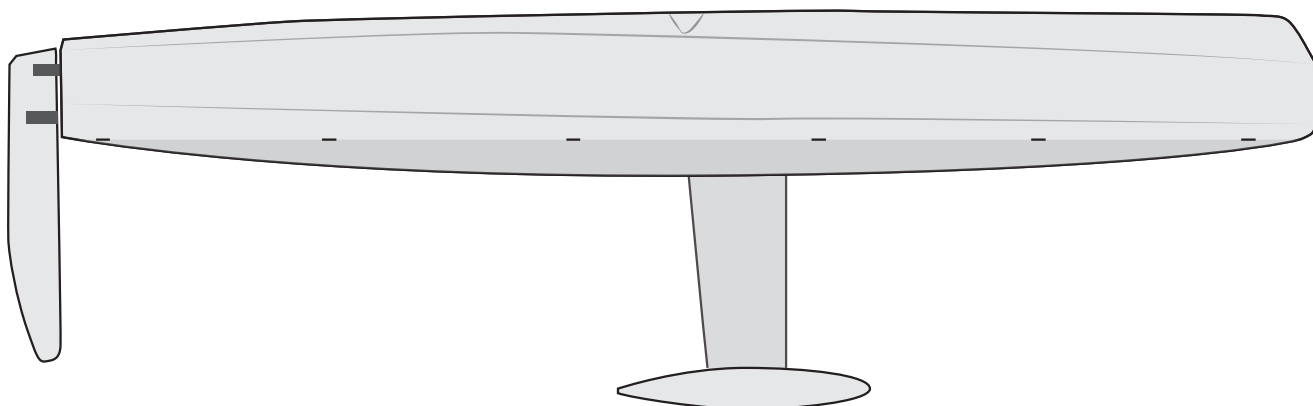
The water exits from a hole behind the rope bag.

5.13 - Mooring the boat



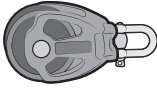



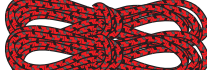

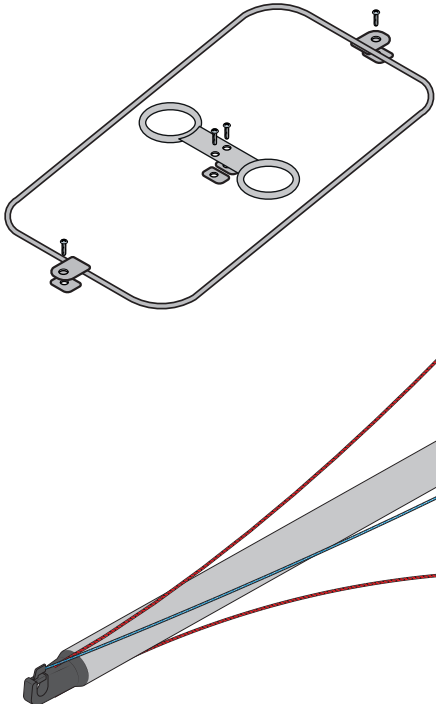
When mooring the boat, tie the bow line to the jib tack plate.

**5.14 - Antifouling**

There are faint marks along the waterline approximately every metre. When antifouling you can use these marks to line up the masking tape.

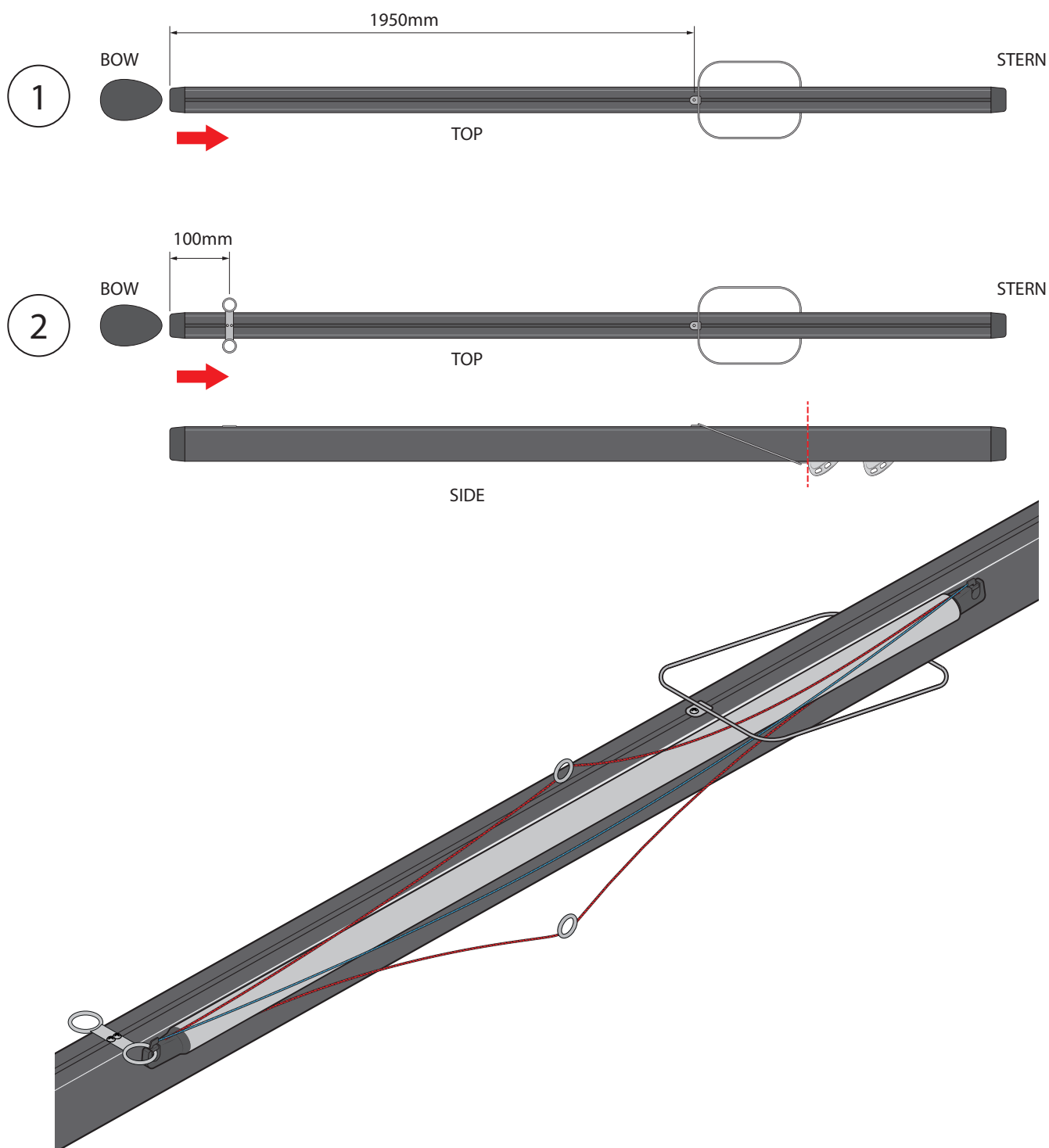


5.15 - Fitting Symmetric Spinnaker - Components

	Part	Quantity
	30mm block with swivel	2
	38mm Cleat	2
	38mm Line guard	2
	38mm Fairlead	2
	40mm block with swivel	2
	40mm block with strap	2
	Spinnaker Pole Uphaul - 11m	2
	Spinnaker Pole Downhaul - 4.2m	2
	Twining Line - 2.4m	2
	Spinnaker Sheets - 16m	2
	Spinnaker pole storage kit	1
	Spinnaker pole	1

Fit the aft part first by loosening the fixing screw/plates. Slide the top fixing into the slot on top of the inboard end of the boom. Slide the part down the boom until the lower fixing is against the mainsheet fitting. Now rotate the fixing plate on the under side and slot it into the recess in the boom. As you tighten the fixing it will rotate to clamp the part in place. Then tighten the fixing on the top of the boom.

Nest fit the front fitting, loosen the fixing screws/plates enough to slide them into the slot in the top side of the boom. Slide the fitting along until it is 100mm from the inboard end of the boom. Tighten the fixings to hold the fitting in place.





BEFORE LOWERING THE MAST, CHECK THAT YOU ARE NOT IN THE VICINITY OF OVERHEAD POWER CABLES



REMEMBER

Check that both ends of the main halyard, jib halyard, and gennaker halyard are tied off at the bottom end of the mast so that they are within easy reach when the mast is lowered.

A minimum of 2 people are needed to step the mast.

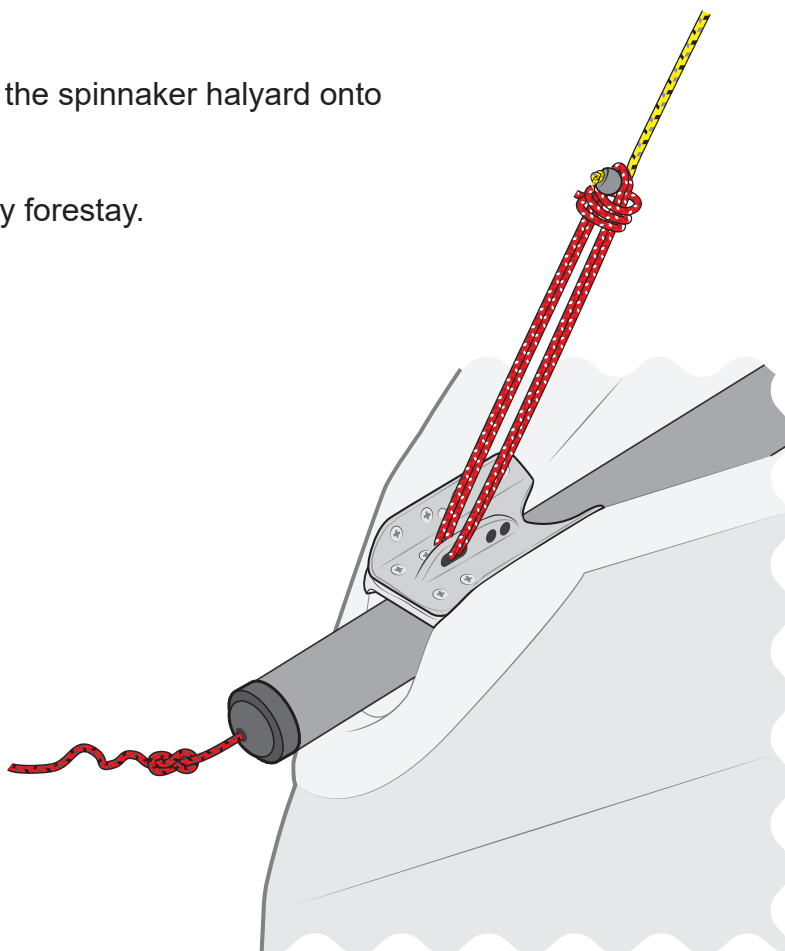
Note:

It is easiest to lower the mast with the keel down so you can lay the mast centrally in the boat.

a)

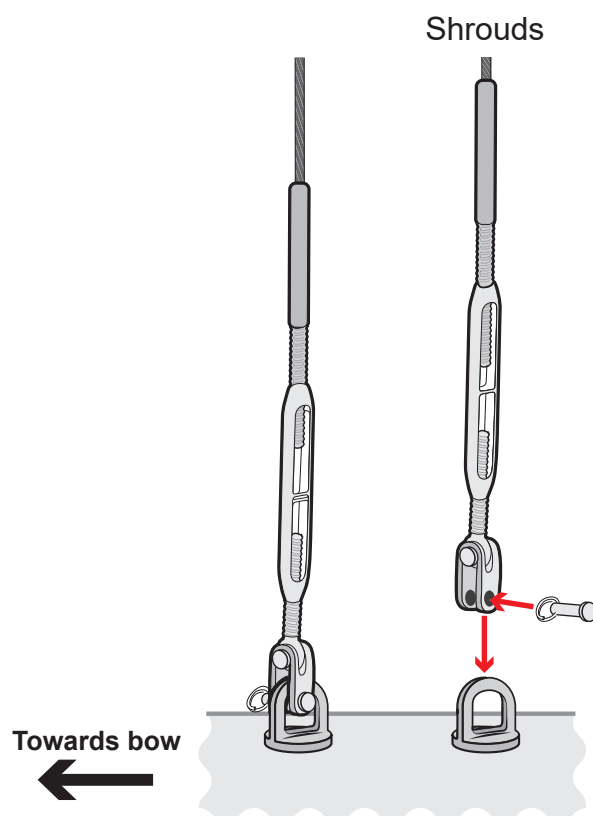
Using some spare line, tie the spinnaker halyard onto the bow stem fitting.

This will act as a temporary forestay.



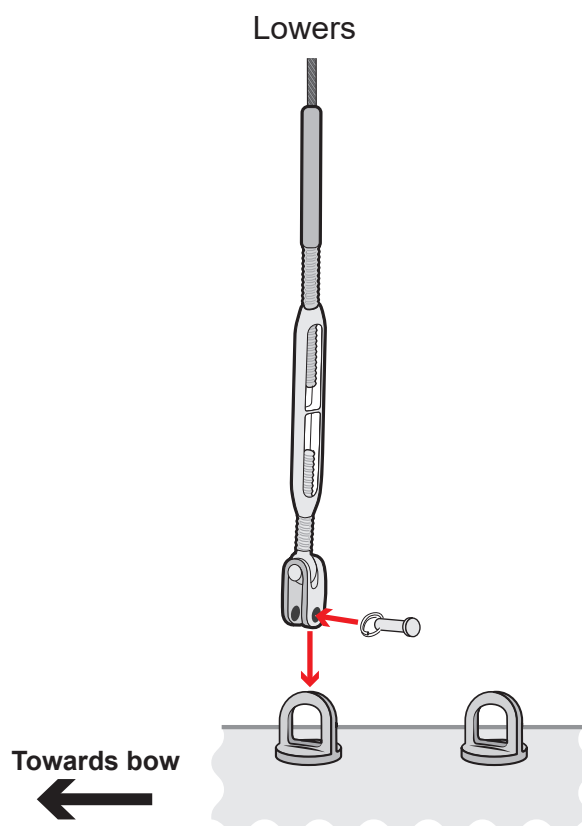
b)

Detach the shrouds.



c)

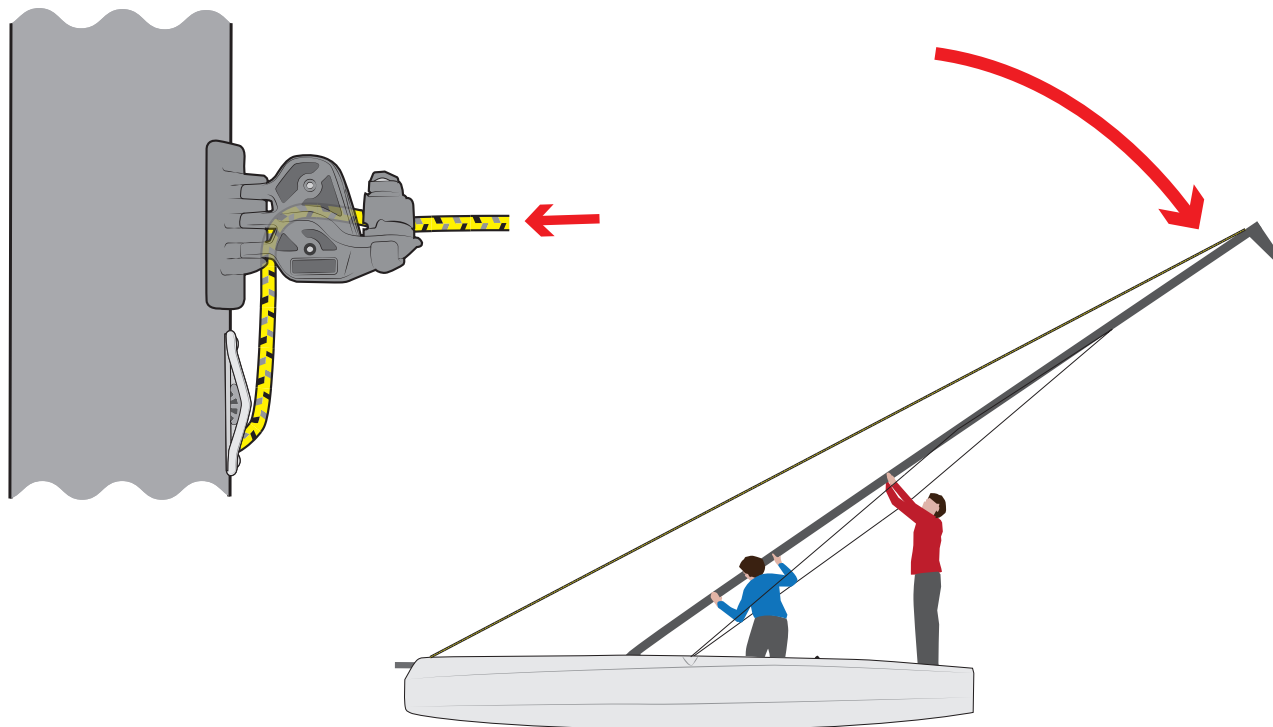
Supporting the mast.
Detach the lowers.



d)

Lower the mast carefully

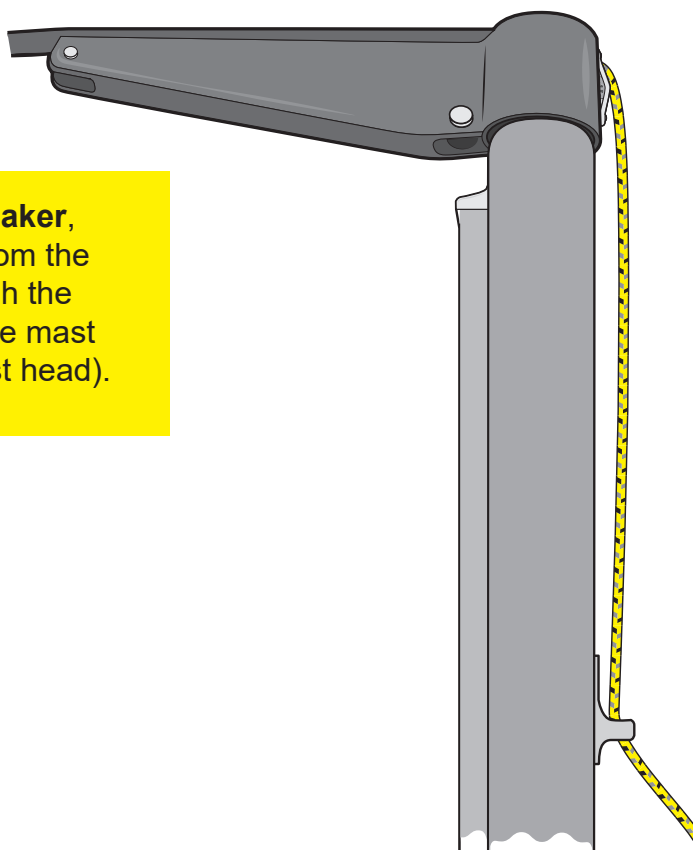
Using the spinnaker halyard at the cleat to control the decent of the mast..

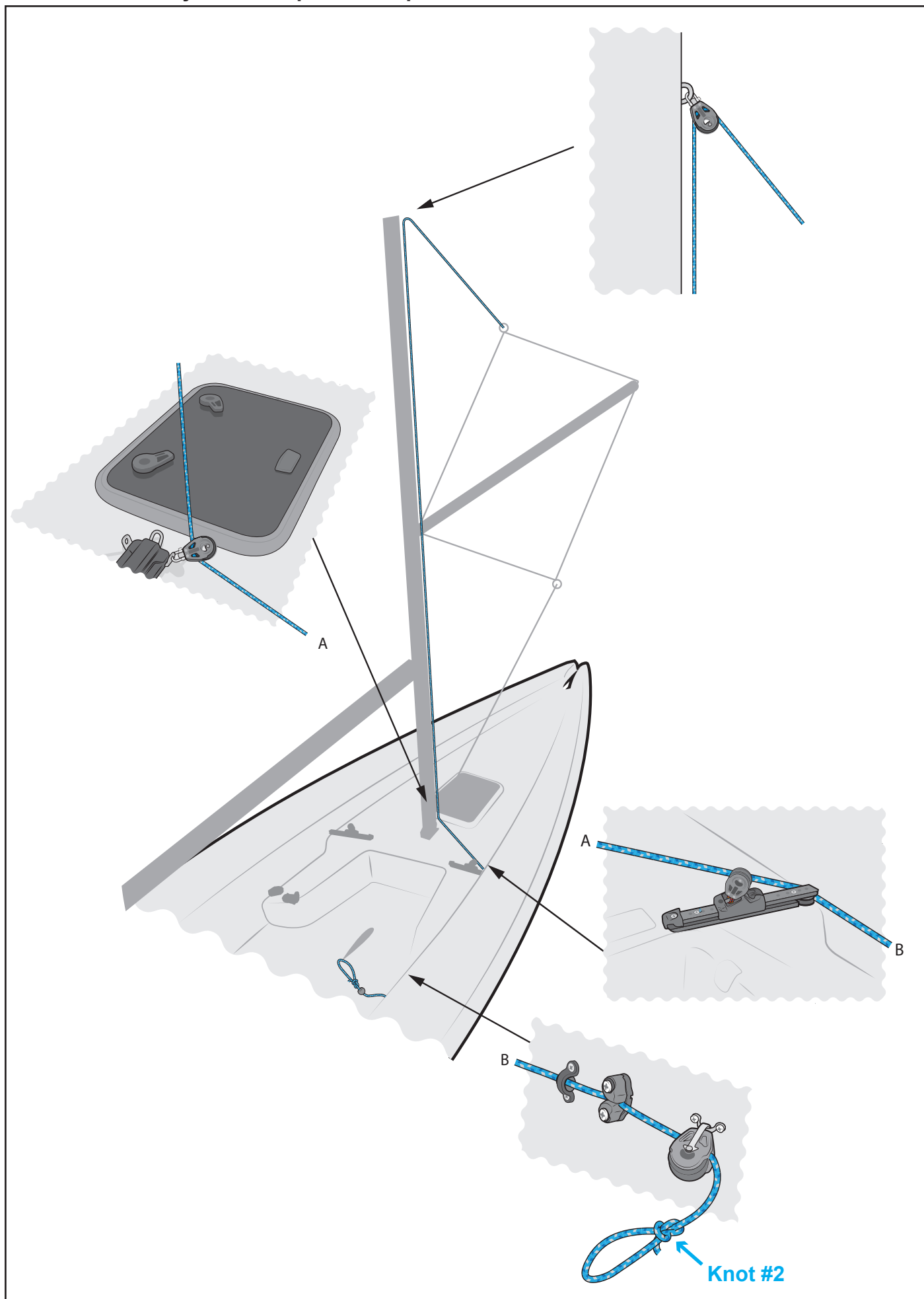


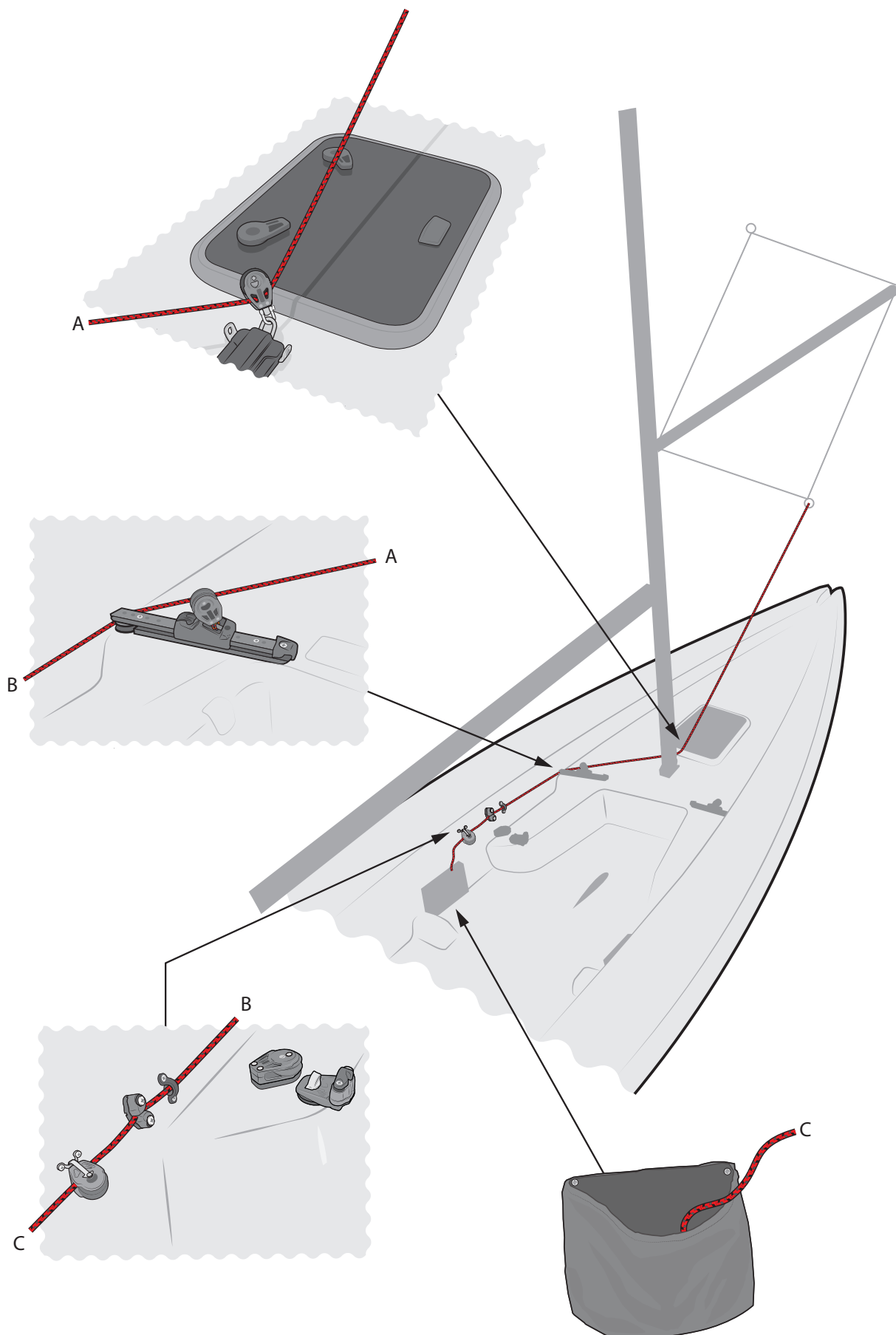
e)

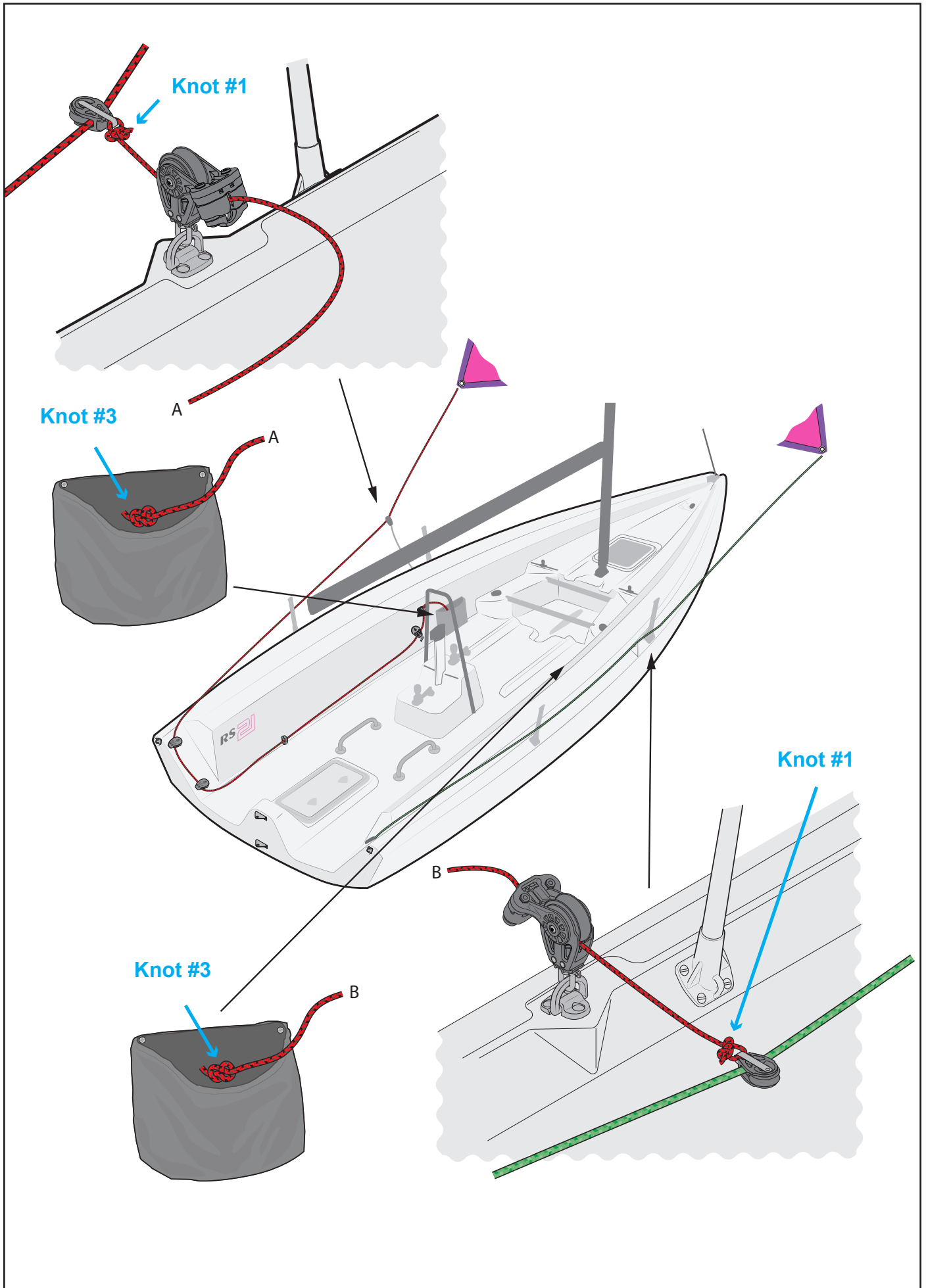
When using the symmetric spinnaker, lead the end of the halyard down from the head of the mast and pass it through the metal casting on the front face of the mast (approximately 75mm from the mast head).

Now raise the mast as described in the Rigging Guide

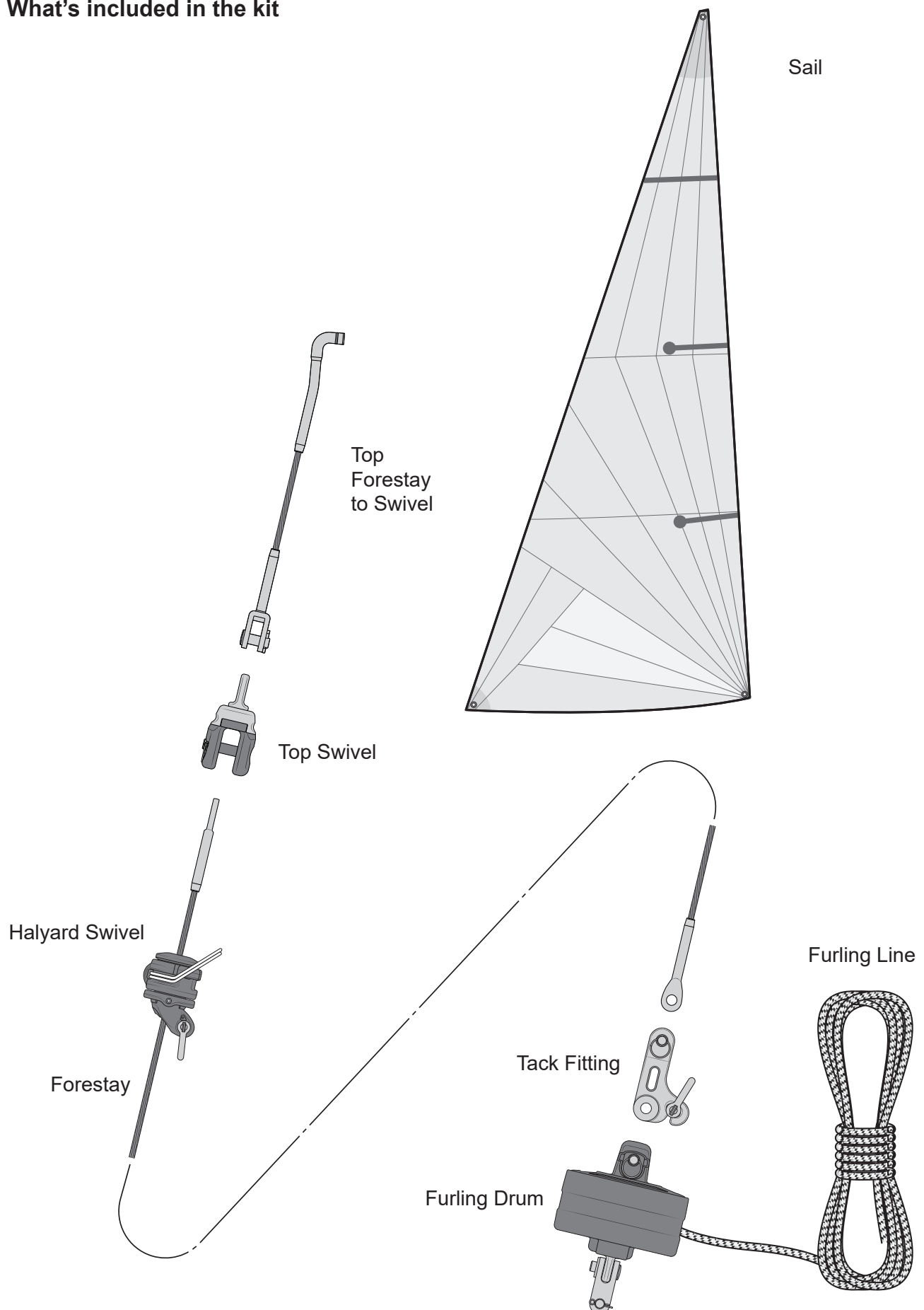








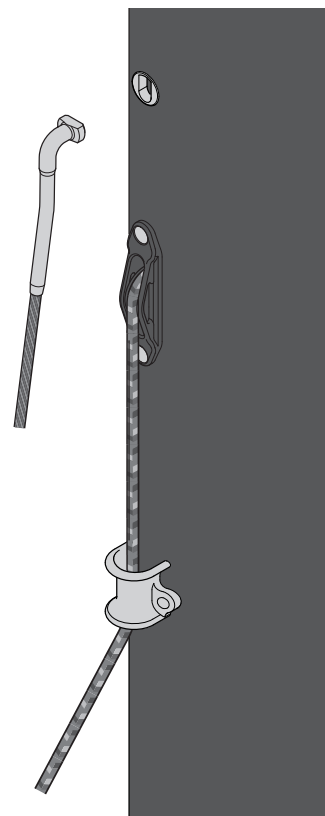
What's included in the kit



a)

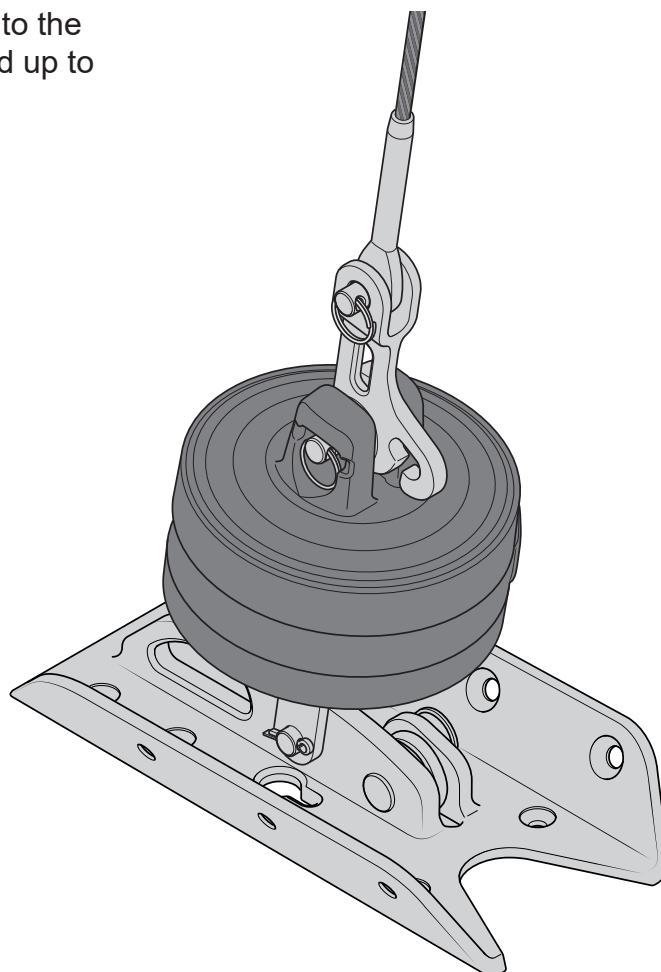
Before stepping the mast, attached the furling forestay t-terminal to the mast.

Thread the jib halyard through the fairlead that is just below the sheave.



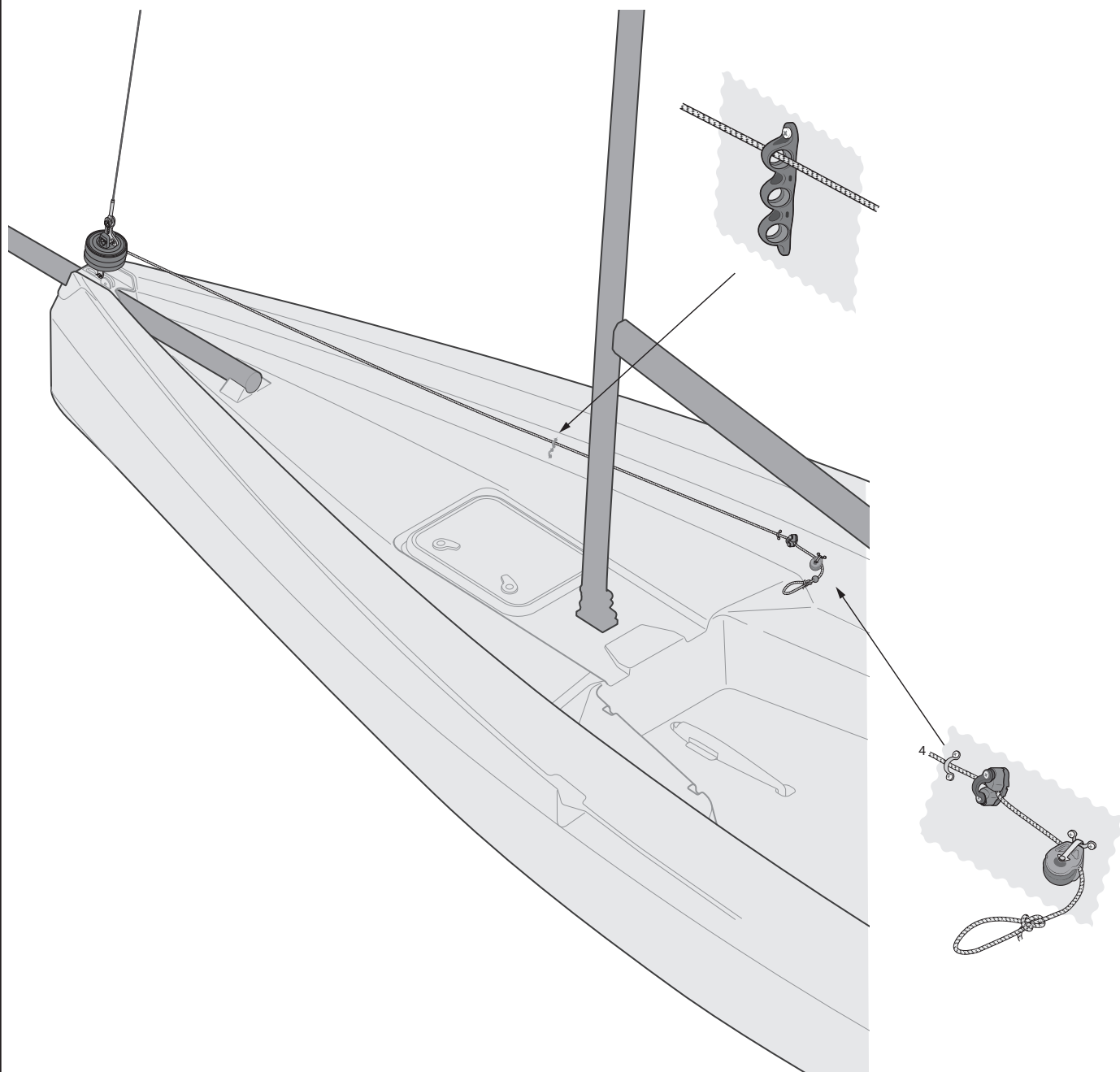
b)

Stand the mast up and attach the drum to the tack plate. Ensure the split pin is opened up to prevent the pin from moving.



c)

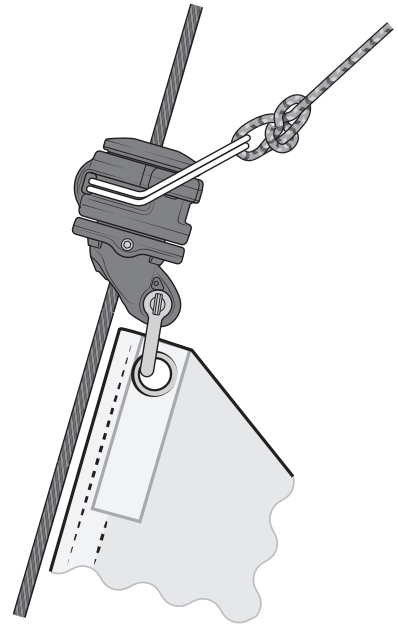
Thread the furling line through the triple fairlead on the foredeck and then through the existing jib cunningham eye and cleat on the starboard side.



d)

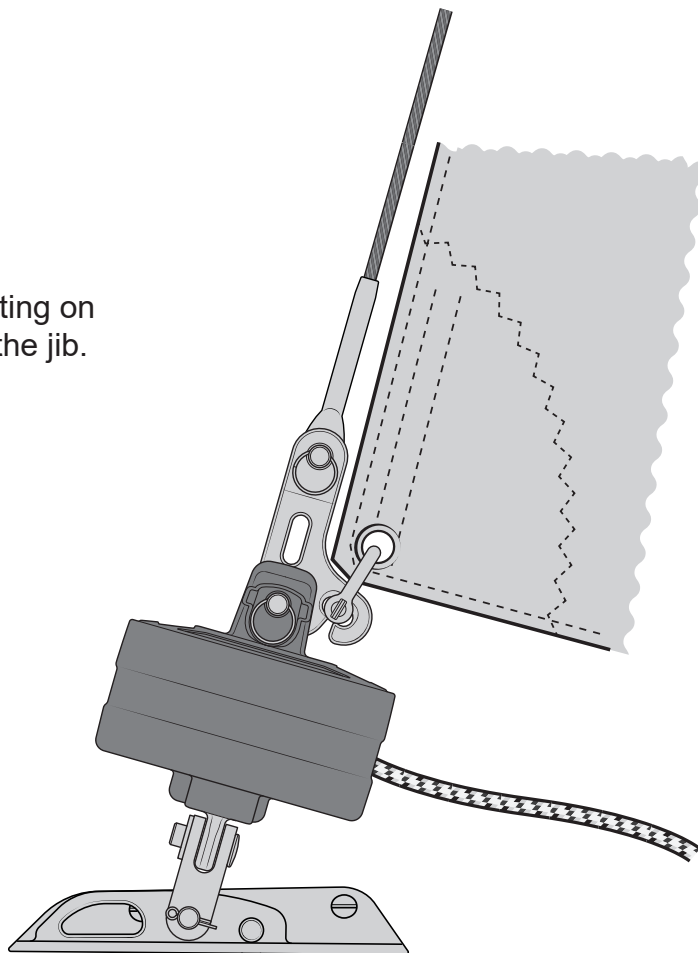
Hoisting the Jib

Tie the jib halyard to the top of the halyard swivel. Attached the head of the jib to the bottom of the halyard swivel.



e)

Attach the tack to the tack fitting on top of the furler drum. Hoist the jib.



f)

Furling the Jib

To furl the jib, pull the furling line and secure the line in the cleat. Tidy the line away into the cockpit bag..

Knot #1



Knot #2



Knot #3



Knot #4



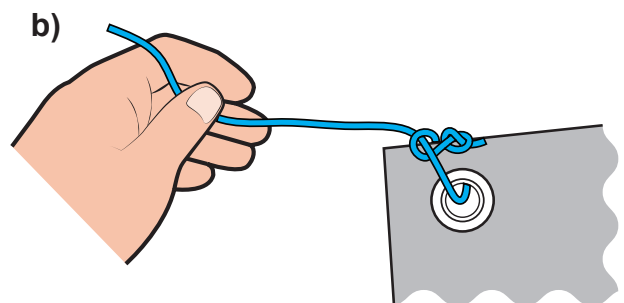
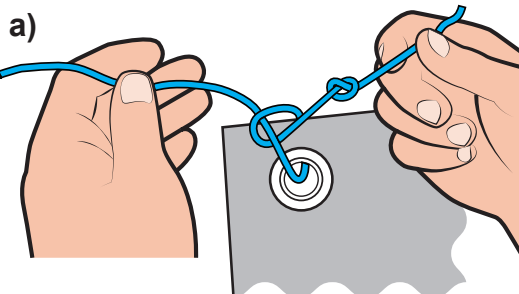
Knot #5



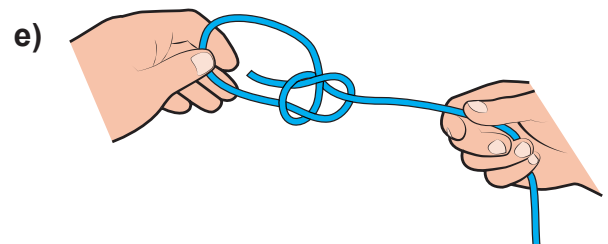
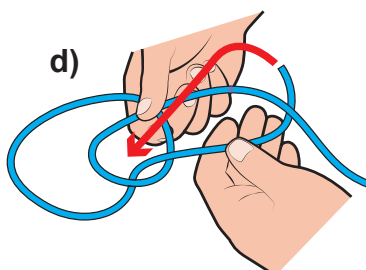
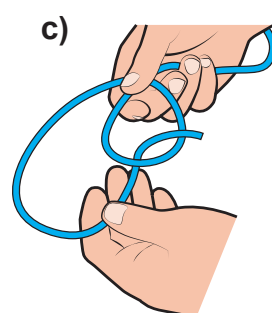
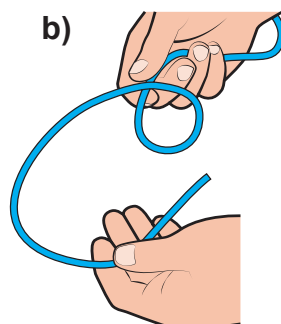
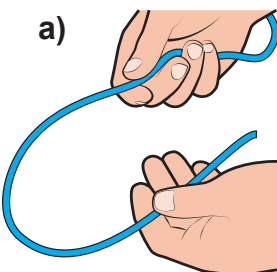
Knot #6



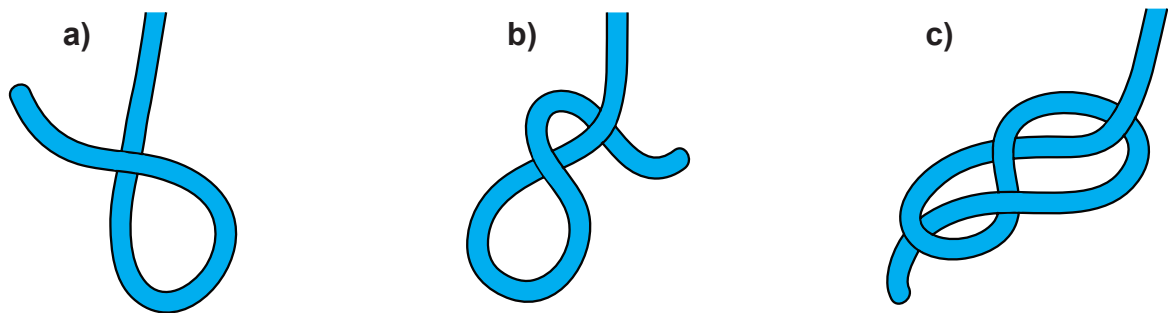
Knot #1 - Knot on knot



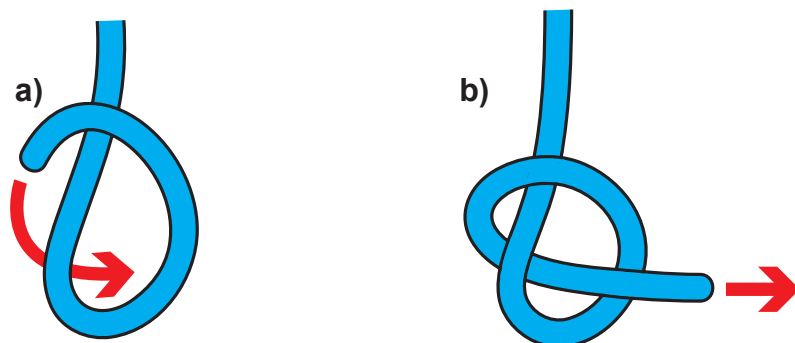
Knot #2 - Bowline



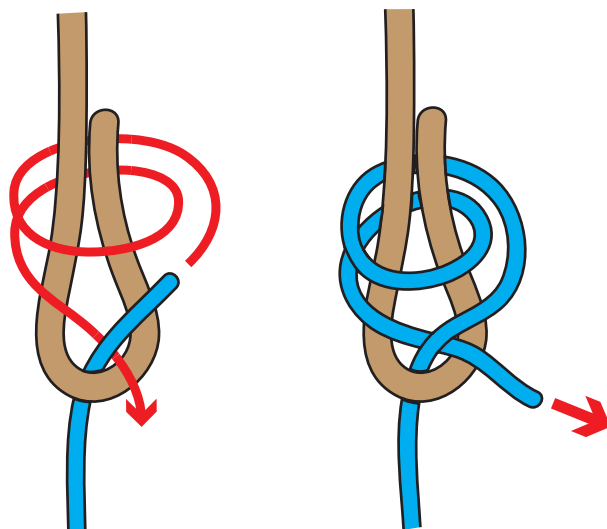
Knot #3 - Figure of eight



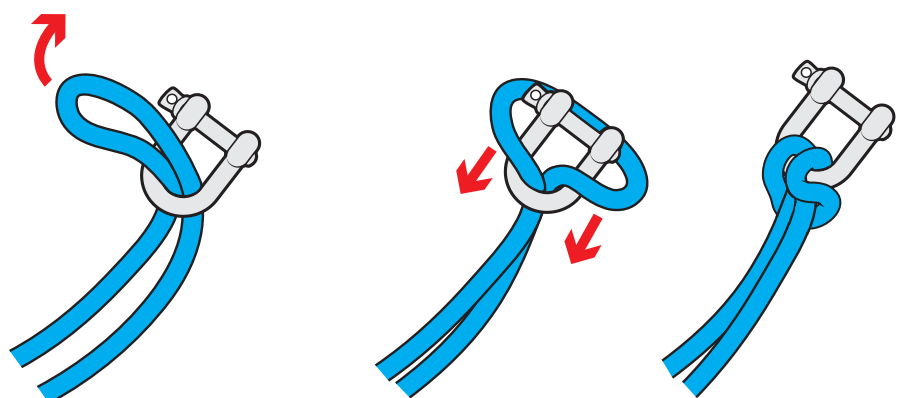
Knot #4 - Overhand knot



Knot #5 - Double sheet bend



Knot #6 - Cow hitch



A

Aft	At the back
Anchor Line	Rope that attaches the anchor to the boat
Astern	Behind the boat
Asymmetric	Gennaker flown from a retractable pole at the bow

B

Back	To 'back the sail'; allowing the wind to fill the back of the sail
Bailer	A bucket or other container used for bailing water
Batten	A thin strip of wood/plastic inserted in the sail to keep it flat
Batten Key	A key used to adjust the batten
Batten Pocket	A pocket on the sail that holds the batten
Beam	Width of the boat at the widest point of the side of the boat. The phrase 'wind on the beam' means that the wind is coming from the side.
Bear away	To turn downwind
Beat	To sail a zig-zag course to make progress upwind
Beaufort Scale	A measure of wind strength, from Force 1 to Force 12
Bilge Rail	The moulded line that marks the transition from the side to the bottom of the hull
Block	A pulley used for sail control lines
Boom	The spar at the bottom edge of sail
Boom Pad	The pad that fits onto the boom
Bow	The front of the boat
Bow Lifting Handle	The handle at the front of the boat, used for lifting
Bowline	A useful and reliable knot, with a loop in it
Bow Snubber	The part of the trolley that the bow rests on
Builder's Plate	Plate that contains build information
Bung	A stopper for the drain hole

Buoy	Floating object attached to the bottom of sea – used variously for navigation, mooring, and to mark out a race course
Buoyancy Aid	Helps you to stay afloat if you fall in the water
Buoyancy Compartment	Water-tight compartment in the hull that maintains buoyancy
Burgee	Small flag at the top of the mast to show wind direction

C

Capsize	To overturn
Capsize Recovery	To right, or recover, the boat after a capsize
Catamaran	A boat with two hulls
Centreboard	The foil that sits below the hull to counteract the sideways push of the wind, and to create forward motion
Centreboard Case	The casing in the hull in which the centreboard sits
Centreline	An imaginary line that runs through the centre of the hull, from the bow to the stern
Chart datum	Depths shown on a chart, at the lowest possible tide
Cleat	A device to grip ropes and hold them in place – some grip automatically, while others need the rope tying around them
Clew	Lower corner of the sail, closest to the stern
Close hauled	Sailing as close to the wind as you can; point of sailing to sail upwind
Cockpit	The open area in the boat providing space for the helm and the crew
Collision Regulations	The 'rules of the road' to avoid collisions
Compass Rose	The compass shown on a chart to aid navigation
Crew	Helps the helmsman to sail the boat, and usually handles the jib sheets
Cutter	A boat with two headsails or jibs

D

Dacron	A brand of polyester sailcloth that is wrinkle-resistant and strong
Deck	A floor-like surface occupying part of the hull
Deck Moulding	A moulded deck
Downhaul	Applies downwards tension to a sail
Downwind	To sail in the direction that the wind is blowing
Drain Hole	A hole in the hull from which trapped water can be drained

Draught The depth of the vessel below the surface

E

Ease To 'ease sheets' means to let the sail out gently

F

Fairlead A pulley block used to guide a rope to avoid chafing

Foils The daggerboard and the rudder

Foot The bottom edge of a sail

Fore Towards the front of the boat

Forestay The wire line that runs from the front of the mast to the bow of the hull, holding the mast in position

Furl To gather a sail into a compact roll and bind it against the mast or forestay

G

Gennaker A large sail that is hoisted when sailing downwind

Gennaker Chute Webbing pocket in which the gennaker is stowed when not hoisted

Gennaker Pole The sprit that protrudes from the front of the hull, to which the tack of the gennaker is attached

Gnav Bar Bar that sits between the mast and the boom, performing the same function as a kicking strap

Gnav Control Line Line that applies and releases tension to the gnav

Gooseneck The 'jaws' of the boom that clip onto the mast

Gunwhale The top edge of the hull, that you sit on when leaning out to balance the boat

Gybe To change tack by turning the stern of the boat through the wind.

H

Halyard The rope used to hoist sails

Halyard Bag Bag attached to the hull, in which the halyards can be stowed

Head The top corner of a sail

'Head to Wind'	To point the bow in the direction that the wind is blowing from, causing the sails to flap
'Heave to'	To stop the boat by easing the main sheet and backing the jib
Heel	A boat 'heels' when it leans over due to the sideways force of the wind
Helm/Helmsman	The person who steers the boat, or another name for the tiller
Hoist Block	Block behind which the gennaker halyard is pulled when hoisting the gennaker
Hull	The hollow, lower-most part of the boat, floating partially submerged and supporting the rest of the boat

I

'Into the Wind'	To point the bow in the direction that the wind is blowing from, causing the sails to flap
Inversion	A capsize where the boat turns upside down, or 'turtles'

J

Jammer	Another word for a cleat
Jib	The small sail in front of the mast
Jib Sheet	The rope used to control the jib

K

Kicking strap	The rope system that is attached to the base of the mast and the boom, helping to hold the boom down
Knot	A measurement of speed, based on one minute of latitude

L

Launching	To leave the slipway
-----------	----------------------

Latitude	Imaginary lines running parallel round the globe from east to west. They help you measure position and distance on a chart.
Leech	The back edge of the sail
Leeward	The part of the boat furthest away from the direction in which the wind is blowing
Leeway	The amount of sideways drift caused by the wind
Leverage	The result of using crew weight as a 'lever' to counteract heel caused by the wind
Lie to	A way of stopping the boat temporarily by easing sheets on a close reach
Lifejacket	Unlike a buoyancy aid, a lifejacket will keep a person fully afloat with their head clear of the water
Longitude	Imaginary lines running round the globe from north to south, like segments of an orange. Used with lines of latitude to measure position and distance
Lower Furling Unit	The fitting at the bottom of the forestay that enables the jib to be furled
Luff	The front edge of the sail

M

Mainsail	The largest sail on a boat
Mainsail Clew Slug	The fitting that sits in the track on the boom, to which the clew of the mainsail is attached
Mainsheet	The rope used to control the mainsail
Mainsheet Bridle	The rope runs across the transom of the boat, to which the mainsheet is attached
Mainsheet Centre Block	The main block, usually fixed to the cockpit floor, through which the mainsheet passes
Man Overboard Recovery	The act of recovering a 'man overboard' from the water
Mast	The spar that the sails are hoisted up
Mast Foot	The bottom of the mast
Mast Gate	Fitting which closes across the front of the mast at deck level, holding the mast in place

Mast Lower Section	The bottom section of a two-piece mast
Mast Step	The fitting on the deck that the mast fits into
Mast Top Section	The top section of a two-piece mast
Meteorology	The study of weather forecasting
Moor	To tie the boat to a fixed object
Mylar	A brand of strong, thin, polyester film used to make racing sails

N

National Sailing Federation	Body that governs sailing in a nation. In the UK, this is the Royal Yachting Association
Navigation	To find a way from one point to the other
Neap Tide	Tides with the smallest tidal change

O

‘Off the Wind’	To sail in the direction that the wind is blowing
Outboard Bracket Kit	Bracket which enables an outboard engine to be attached to the transom
Outboard Engin	Small portable engine that attaches to the transom
Outhaul	The control line that applies tension to the foot of the sail, by pulling the sail along the boom
Outhaul Hook	The fitting on the boom that hooks the eye at the back of the sail, and to which the outhaul is attached

P

Painter	The rope at the bow used to tie the boat to a fixed object
Pontoon	A floating jetty to moor your boat to
Port	The left-hand side of the boat, when facing forwards

R

RS Dealer	A third-party who sells the RS range
Reach	Sailing with the wind on the side of the boat

Reef	To make the sails smaller in strong winds
Retaining Pin	On a trolley, to hold the launching trolley to the road base
Road Base	A trolley that you place your boat and launching trolley upon to trail behind a vehicle
Rowlocks	U shaped fittings that fix onto the gunwale and holds your oars in position while rowing
Rowlock Holes	The holes in the gunwhale into which the rowlocks fit
Rudder	The foil that, when attached to the stern, controls the direction of the boat
Rudder Blade	The large, rigid, thin part of the rudder
Rudder Downhaul	The control line that enables you to pull the rudder into place
Rudder Pintle	The fitting on the transom onto which the rudder stock fits
Rudder Stock	The top part of the rudder, usually including the tiller, into which the rudder blade fits, and which then attaches to the rudder pintle
Run	To 'run with the wind', or to sail in the direction that the wind is blowing

S

Safety-Boat Cover	Support boats, usually RIBs, in case of emergency
Sail	An area of material attached to the boat that uses the wind to create forward motion
Sailmaker	A manufacturer of sails
Sail Number	The unique number allocated to a boat, displayed on the sail when racing
Sail Pressure	A sail has 'pressure' when it is working with the wind to create motion
Sailing Regatta	An event that usually comprises of a number of sailing races
Shackle	A metal fitting for attaching ropes to blocks, etc.
Shackle Key	Small key used to undo tight shackles
Sheet	A rope that controls a sail
Shroud	The wires that are attached to the mast and the hull, holding the mast up
Side Safety Line	The line that runs along the side of the hull
Single Handed	To sail a boat alone
Single-Line Reefing System	An efficient method of reefing with one line

Slider	Sliding fitting on the boom to which the gnav bar is attached
Soundings	The numbers on a chart showing depth
Spars	The poles, usually carbon or aluminium, to which the sail is attached
Spreaders	Metal fittings attached to the mast which hold the shrouds out
Spring Tide	The tides with the biggest range and strongest currents
Starboard.	The right-hand side of the boat, when facing forwards
Stern	The back of the boat
Stern Lifting Handles	The handles at the stern, used for lifting the boat
Stopper Knot	A form of knot used to prevent a rope from sliding through a fitting, such as a pulley or a cleat

T

Tack	a) To change direction by turning the bow of the boat through the wind b) The bottom front corner of a sail
Tack Bar	The bar at the bow of the hull, to which the tack of the jib is attached
Tack Line	The rope that emerges from the front of the gennaker pole, to which the tack of the gennaker is attached
Tender	A small vessel, usually used to transport crew to a larger vessel
Tidal height	The depth of water above chart datum
Tidal range	The difference between the depth of water at low and high tide
Tidal stream	The direction in which the tide is flowing
Tiller	The stick attached to the rudder, used to steer the boat
Tiller Extension	A pole attached to the tiller to extend its reach, usually used when hiking
Toe Straps	The straps to tuck your feet under when you lean out to balance the boat.
Top Furling Unit	Fitting at the top of the forestay which enables the jib to be furled
Towing Line	A rope attached to the boat, used to connect to a towing vessel
Transit	An imaginary line between two fixed objects, used to ensure that you are staying on course
Transom	The vertical surface at the back of the boat
Trim	Keeping the boat level fore and aft
Trimaran	A boat with three hulls
Trolley	A wheeled structure, used to move the boat around on land
Trolley Supports	The part of the trolley in direct contact with the hull

U

'Under Weigh' A term derived from the act of 'weighing' anchor, meaning to be in motion

Upwind To sail against the direction in which the wind is blowing

W

Wetsuit Neoprene sailing suit designed to keep you warm when wet

Windward The part of the boat closest to the direction in which the wind is blowing