



F18 INFUSION Manual

NAERA
Sports and Fun Catamarans

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Introduction

Thank you for buying your new Nacra F18 Infusion! This manual covers everything you need to know about assembling your new Nacra Infusion. Familiarize yourself with this complete manual to help ensure proper assembly and maintenance.

This is a two part manual. If you get your boat out of the box you have to begin with the 'Part 1. Assembly'. In that section the whole boat is being prepared for 'Part 2. Rigging'.

If you get your boat on the trailer and your dealer has already done the assembly part for you, you can begin with 'Part 2. Rigging' and then go sailing! 'Part 2. Rigging' continues with the boat (and every subsystem) as we left it in 'Part 1. Assembly'.

Some parts of the manual are only for the 'Standard' version and other parts are only for the 'Race Package' version of the Infusion. This is indicated properly in this step-by-step manual.

Before you go sailing also check the tuning guide for tips!

Part 1. Assembly

This part of the manual is only for people who get their boat 'out of the box' and have to assemble their boat completely. If your boat is already assembled by your dealer, you can continue with Part 2. Rigging.

1.1. Tools needed for Assembly

You will need:

- Sharp knife
- Needle nose pliers
- Phillips screw driver
- Regular screw driver
- Tape measurer
- Pop rivet tool
- 17 mm ring spanner
- Torque wrench (5/16 hex key and 9/16 spanner)
- Loose gauge
- 5 mm metal drill
- Tape for securing rings
- Grip tape



1.2. Glossary

Bow: Front of the boat

Batten: Thin strip in the sail

Bridle wire: Wire that connects the bow and forestay

Boom: Spar at the foot of the sail

Cleat: Fitting used for cleating ropes and halyards

Clew: The lower and most aft corner of the sail

Crossbar: Bar that connects the rudders

Dolphinstriker: Load bearing bar under the front beam

Downhaul/Cunningham): Rope to tighten and stretch the luff of the sail.

Foot: Bottom edge of the sail

Forestay: Wire supporting the mast in aft direction. Located in front of the boat.

Goose neck: A fitting used to connect the boom to the mast

Halyard: Rope used to raise or lower sails

Head: The top of the sail

Hound: Point where the sails are connected to the mast

Jib: Front sail

Jib sheet: Control rope for the jib

Leech: Trailing edge of the sail

Luff: Leading edge of the sail

Mainsail: Big sail at back of the boat

Main sheet: Control rope for the mainsail

Mast rake: Angle of the mast to the boat

Shackle: U-shaped metal strip with a pin to secure wires

Shrouds: Wire supporting the mast in lateral direction

Spinnaker: Big sail hoisted at the front of the boat when sailing downwind

Spinnaker pole: The pole in between the hulls to fly the spinnaker

Spreaders: Metal bars placed in pairs to control the bend in the mast

Staymaster: Adjustable schroud connector to control the schroud tension

Stern: Back of the boat

Tack: Forward lower corner of the sail

Tiller: Telescopic rod connected to crossbar to steer the boat

Traveller: Track on the backbeam to connect the mainsheet

Trapeze: Wire meant for hanging on the side of the boat while sailing

1.3. Hulls

1.3.1 Mounting the beams

Step 1.

Place the starboard and port hull box next to each other and make sure that the hulls are facing the same way.

Step 2.

Position the hulls approximately 2 m apart from each other. Be careful not to scratch the boat, so it is best to use hull supports and a cattrack or the cardboard supports in the hull box, by cutting the excess cardboard away.

Step 3.

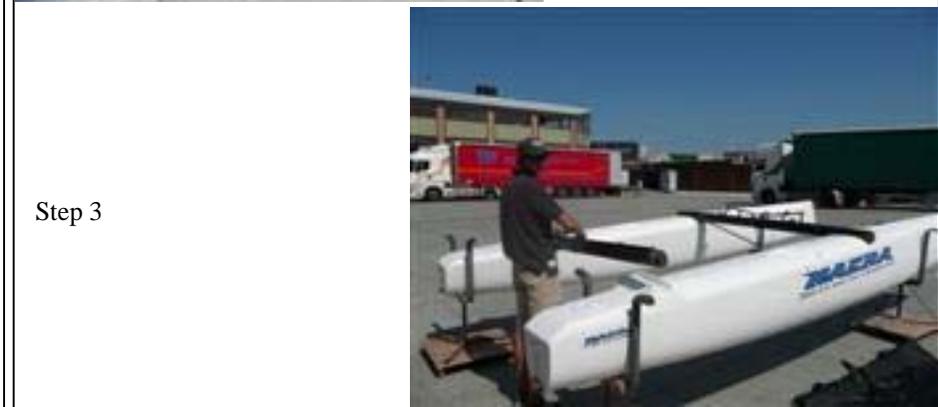
Place the crossbeams in the beam sockets on the hulls and make sure that the beams are facing the right way. The front beam has a jib track mounted, which should be on top and facing the front of the boat. The rear beam has two eyelets mounted on the back which should be facing the back of the boat. Take time to align the crossbeams with the pre-drilled bolt holes.

Step 4.

Take the four beam bolts together with the washers and grease. Grease all the bolts and also grease the bolt holes a bit. If both beams are aligned well, hand tighten all the bolts to get the thread started. The forward bolts are Allen heads. The plastic washer should be on the bottom and the metal one on top. The washers are already put in the front beam.



Mounting the beams
Step 1 & 2



Step 3



Step 4

Step 5.

After hand tightening the bolts, work your way around the boat and tighten all the beam bolts to about 24 Nm on the torque wrench. Do not exceed the recommended 24 Nm as over tightening results in damaged threads.

1.3.2 Fixing the mast rotation cleats

Get the two mast rotation cleats from the rigging box and screw them in the pre drilled holes in the hull, which are located about 50 cm behind the front beam.

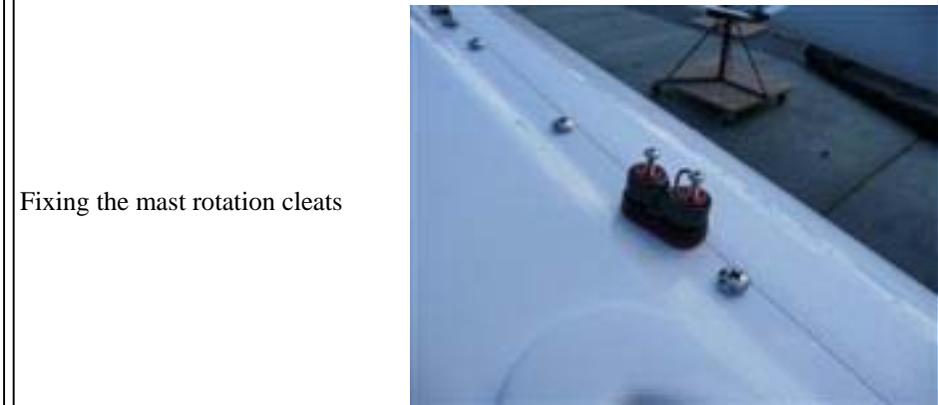
1.3.3. Placing the trampoline lacing wear tape

Step 1.

Take the two rolls of trampoline lacing wear tape and round the ends with scissors. This will prevent the tape from coming off easily. Make sure the hull is clean!



Step 5



Fixing the mast rotation cleats



Placing the trampoline lacing wear tape
Step 1

Step 2.
Place the trampoline lacing wear tape next to the trampoline spanner buttons and make sure the tape is put on properly.

Step 3.
Place a piece of trampoline wear tape around the eyelet for the spinnaker sheet block.



Step 2
The hull should be clean!



Step 3

1.3.4. Placing the side stay adjusters [STANDARD ONLY]

Place the sidestay adjuster onto the hull with a clevis pin and ring. Don't forget to tape the ring!



Placing the side stay adjusters
[Standard Only]

1.3.4. Placing the staymaster [RACE PACKAGE ONLY]

Mount the staymaster onto the hull with the bolt and nut. Make sure the nut is inboard. Tighten it firmly, but make sure the staymaster is still able to turn a little.



Placing the side stay adjusters
[Race Package Only]

1.4. Trampoline

1.4.1. Fitting the trampoline

Step 1.

Slide the front edge of the trampoline into the slot in the forward beam. The foot straps should be facing up. Make sure the trampoline is in the middle of the catamaran.

Step 2.

Insert the fiberglass tie rod into the slot in the rear of the trampoline.

Step 3.

Attach the rear lacing line. To do this, tie one end of the aft lacing line to a button which is located the most right or left of the rear beam (it does not matter on which side you start). With the other end of the line we continue through the tie rod in the trampoline. We then go back to the button we came from and then move to the next button and repeat this process until we reach the other end of the beam. Make sure you do this the right way, since there is only one right way to do this (look at the pictures).



Trampoline
Step 1



Step 2

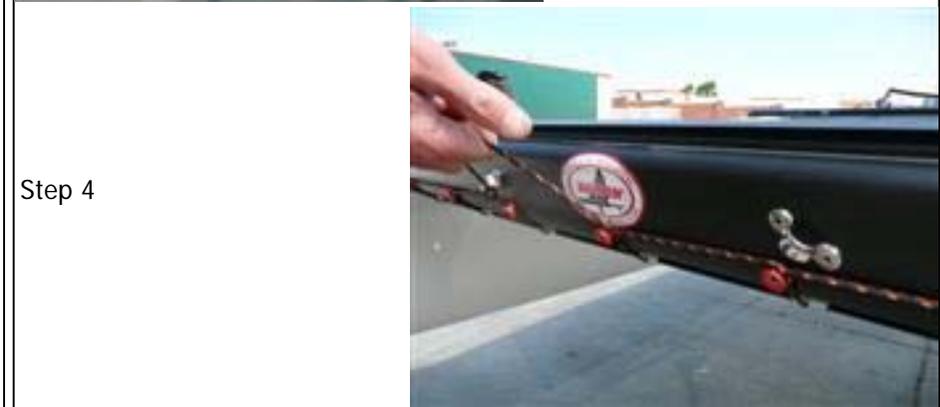


Step 3

Step 4.
Tighten the rear lacing line firmly and then tie it down at the end.



Step 3



Step 4



Step 4

Step 5.

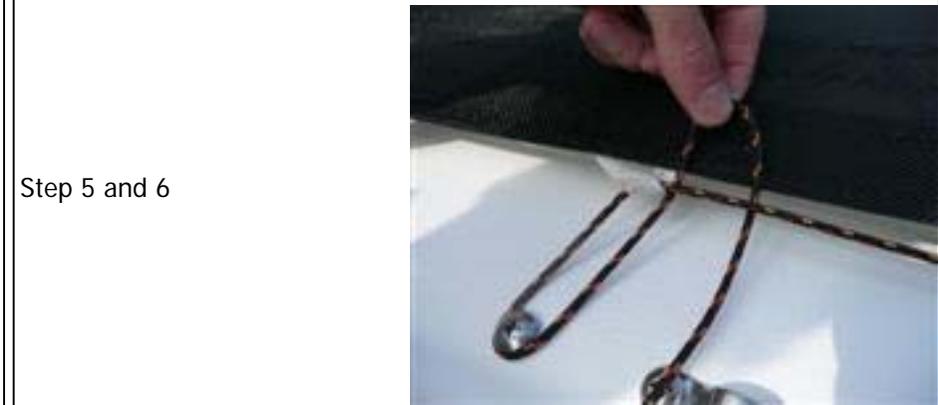
Take one of the side lacing lines and tie it down onto the first trampoline spanner band. That is the one closest to the front beam on either side of the boat. We take the other end of the lacing line and take it around the first button on the hull. We then go back through the trampoline spanner band and then move to the next trampoline spanner band. When moving to the next trampoline spanner it is important to run the lacing line under the part of the line which came from the previous spanner (look at the pictures). Repeat this process and tie the lacing line down at the end. As we have only done one side of the trampoline so far, you should not tighten it very firmly. Just have a bit of tension.

Step 6.

Repeat step 5 for the other side of the trampoline and tighten it very firmly. Make sure your trampoline is in the middle of your hulls after this whole process.



Step 5 and 6



Step 5 and 6



Step 5 and 6

1.4.2. Fixing the foot straps

Step 1.

Tighten both side foot straps firmly with the hiking strap tie lines.

Step 2. [RACE PACKAGE ONLY]

Take the eyelet for the middle foot strap and position it in the middle of the rear beam horizontally. Drill one 5mm hole for the eyelet and put a rivet in the eyelet and pop rivet the eyelet onto the rear beam. Make sure the eyelet is still horizontal as we have to do a second rivet.

Step 3. [RACE PACKAGE ONLY]

Drill the second hole for the last rivet when you are sure the eyelet is horizontal. Then pop rivet the last rivet in place.

Step 4. [RACE PACKAGE ONLY]

Tie the middle foot strap into place firmly



Fixing the foot straps
Step 1



Step 2 and 3 [RACE PACKAGE ONLY]



Step 4

1.4.3. Trapeze shockcords

Step 1.

The trapeze shock cords for the crew are already put in the front beam and need no attention. Take the two aft trapeze shock cords for the helm out of the box.

Step 2.

Put the aft trapeze shock cord through the trapeze hole in the hull and tie a knot on the outside to prevent the shock cord from getting through the hole again.

Step 3.

Go under the trampoline and take the other end of the shock cord and put it through the ring in the middle of the front beam.

Step 4.

Tie the shock cord down onto the trampoline spanner band on the back of the trampoline.

Step 5.

Do the same for the other trapeze shock cord.



Trapeze shockcords
Step 1 and 2



Step 3



Step 4 and 5

1.4.4. Spinnaker block

Take a block from the box and tie it onto the trampoline using the red rope. Make sure you do two loops! Look at the picture for the location.



Spinnaker block
Make sure to do two loops and tighten it firmly!

1.5. Spinnaker pole

1.5.1. Fixing the snuffer ring and shute

Step 1.

Slide the spinnaker shute through the snuffer ring.

Step 2.

Place the spinnaker pole horizontal. This means that all of the already mounted fittings and blocks are on top and standing vertical.

Step 3.

Take the tape measure and place the snuffer ring 120 cm from the front of the spinnaker pole. It is quite convenient to mark the 120 cm point on the spinnaker pole with a pencil.

Step 4.

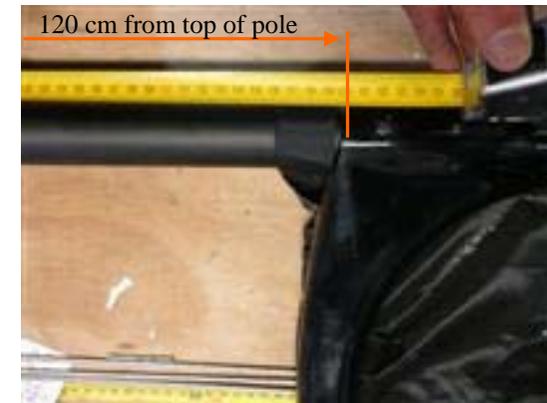
Make sure that the snuffer ring is facing slightly down on the spinnaker pole and then drill two holes through the shute and spinnaker pole. The holes should be about 5 cm from the front and rear of the snuffer ring (see picture).

Step 5.

Take the spinnaker shute together and place it in the snuffer ring. Then put the snuffer ring bag around it. Just to keep it all together.



Spinnaker pole
Step 1



Step 2 and 3



Step 4 and 5

1.6. Mast

Masts should be regularly inspected for water tightness and diamond wire wear. Make sure fittings are sealed with silicone. Replace wires that show any signs of wear. Check diamond wire attachment points, turn buckles and seizing wire. These areas could cause serious mast failure!

1.6.1. Cunningham clam cleats [RACE PACKAGE ONLY]

Step 1.

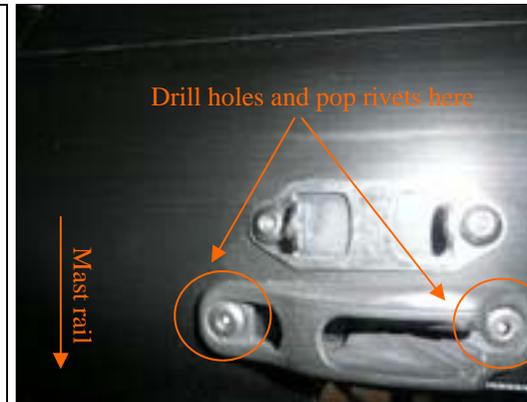
Take the two cunningham clam cleats, a 5 mm. drill and 4 rivets with a rivet gun.

Step 2.

Place the cunningham clam cleats 1 cm next to the mounted fitting for the cunningham cleat (close to the mast rail) and make sure it is vertical. Then drill one hole for a rivet through the cunningham clam cleats into the mast. Pop the rivets in the hole.

Step 3.

Now you can still twist the two cunningham clam cleats and make sure the cunningham clam cleats are still vertical. Now drill the second hole and pop the rivets in place.



Cunningham clam cleats [Race Package Only]
Step 1,2 and 3
Do this on both sides!

1.6.2. Mast base and diamond wires

Step 1.

Take the mast base, brass diamond adjuster block, the diamond adjuster bolt and metal washer, diamond wires and grease out of the box. It is preferable to place the mast on supports, this makes it easier to build the mast.

Step 2.

Grease the threads of the diamond wires and turn one diamond wire in the brass diamond adjuster block. When the diamond wire is fixed, place a ring at the bottom. Make sure that the brass diamond adjuster block is facing the right way! The brass diamond adjuster block should be able to slide into the mast correctly and the diamond wires should be diverging upwards (see pictures of step 2 and 3!!).



Mast base and diamond wires
Step 1



Step 2



Step 2

Step 3.

Turn the second diamond wire in the brass diamond adjuster block. This will be slightly more difficult than the first diamond wire, since the other diamond wire is already fixed. To make things easier let one person turn the diamond wire at the end and let the other person turn the diamond wire in the brass diamond adjuster block. You may have to use pliers since the diamond wire thread is slippery, due to the grease. Don't forget the rings at the bottom!



Step 3



Step 3
Make sure the wires are diverging!

Step 4.

Take the top ends of the diamond wires and slide them through the diamond inserts in the mast base. Then slide the brass diamond block in the mast.



Step 4

Step 5.

Grease the diamond adjuster bolt, place the washer and put the bolt through the mast base. Then turn it in the brass diamond block, but only get the thread started. We don't want to put tension on the diamond wires, since we still have to attach them in the top.



Step 5
Grease the bolt!
Only get the thread started!

Step 6.

Push the mast base in the mast.



Step 6

1.6.3. Fixing the diamonds

Step 1.

Bend the diamond wire connector away from the mast.



Fixing the diamonds
Step 1

Step 2.

Place the diamond wire onto the diamond wire connector and attach it with a clevis pin and ring. The ring should be on the outside. Don't forget to tape the ring!

Step 3.

Put some wear tape under the diamond wire connector. Then bend the diamond wire connector to the mast again.



Step 2 and 3
Tape the ring

1.6.4. Spreader arms

Step 1.

Take the forward and aft spreader bars and spreader bar adjuster screws from the box. Grease the thread of the spreader bar adjuster screws.



Spreader arms
Step 1
Grease the threads

Step 2.

Assemble the two spreader bars together by using the clevis pins from the box.



Step 2

Step 3.

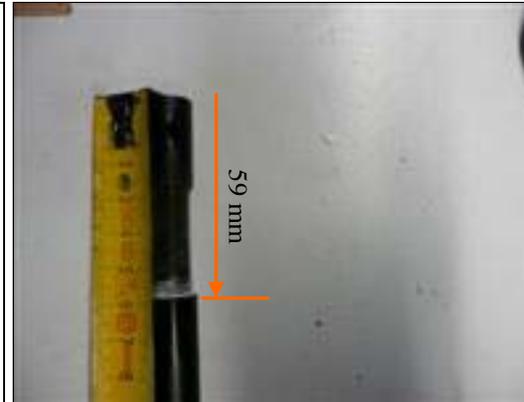
Measure the distance from the beginning of the spreader bar adjuster screw to the beginning of the spreader bar. This distance should be 59 mm on both spreaders for now. This is a very powerful trim option on the boat and regulates the spreader rake. The amount of required spreader rake varies from team to team and influences the pre-bend of the mast. We will discuss and measure this later in the manual.

Step 4.

Attach the spreaders to the mast with the clevis pins and rings. Make sure the rings are on the bottom. Don't forget to tape the rings.

Step 5.

Take the rubber end cap and some of the supplied thin wire to secure the diamonds. Wind the thin wire around the end of the spreader arm and then put the two ends of the wire through the rubber end cap. Then slide the rubber end cap over the end of the spreader arm.



Step 3



Step 4
Tape the rings



Step 5

Step 6.

Slide the diamond wires into the corresponding slots at the end of the spreaders. Make sure the diamond wire is completely in the slot!



Step 6

Make sure the diamond wire is completely in the slot!

Step 7.

Secure the diamond wire onto the spreader with the thin wire. Do this by twisting both thin wire ends around each side of the diamond wire. Then bring the two ends together and twist them into each other. Cut off the excess thin wire ensuring it is bent neatly onto the diamond wires as to prevent the wire from tearing the sails.



Step 7

Step 8.

Measure the spreader rake by placing a sail batten (or something else) on the diamond wires, directly besides the spreader arm. Then measure the spreader rake with the tape measure. The pre-bend should be between 45-55 mm. See the trim sheet for tips. Also check if the spreader bars are perpendicular to the mast!

To adjust the spreader rake turn the rake adjuster screws in or out. Make sure there is no tension on the diamond wires while adjusting! The distance on both rake adjuster screws should be the same. Always check if the spreader bars are perpendicular to the mast!



Step 8

Make sure both spreader bars are perpendicular to the mast!

Step 9.

Put tension on the diamond wires by screwing in the mast bolt. Measure the tension on the diamond wires with the loose gauge. This value should be between 38-42. More tension means more pre-bend in the mast and that means less pressure in your sails. For now, put the tension on 38 (125kg/280lbs). See the trim guide for tips!

1.6.5. Spinnaker block

Step 1.

Take the spinnaker bale line and a block. Slide the spinnaker bale line in one of the pre-drilled spinnaker bale line holes and let it come out in the hole on the other side. Tie a figure 8 knot to prevent it from sliding back again.

Step 2.

Take the other end of the spinnaker bale line and take it through the middle of the block.

Step 3.

Go around the mast with the spinnaker block line and slide it through the hole we just used next to the previous one. Let it come out on the other side again and tie a figure 8 knot.



Step 9



Spinnaker block
Step 1,2 and 3



Step 1,2 and 3

Step 4.

Take the spinnaker block line and tie it to the top of the block. Tie the other end to the eyelet in the top of the mast. Make sure this line is tight when the spinnaker halyard block is pulled down. Test this by pulling the block down.

Step 5.

Take some wear tape and place it underneath the spinnaker halyard block. Make sure the tape covers the area of the mast when the block is pulled down by the spinnaker!

1.6.6. Mainsail halyard

Step 1.

Mount the wheel for the mainsail halyard in the top of the mast with a clevis pin.

Step 2.

Take the mainsail halyard and slide it through the mast; starting at the top. Don't forget to go through the mainsail lock. Take a screwdriver and guide the halyard to the bottom of the mast. Make sure the halyard is in the sail track.



Step 4 and 5



Mainsail halyard
Step 1



Step 2
Also go through the mainsail
lock!

Step 3.

Tie a figure 8 knot at the bottom of the mast and tie the other end of the halyard to the eyelet on the metal halyard locking ring. Do this with a figure 8 knot. Tie everything to the mast.



Step 3



Step 3

1.6.7. Fixing the stays

Step 1.

Take the big shackle, the forestay, two side stays and plastic washers from the box.

Step 2.

Place the forestay in the shackle and make sure the part of the fore stay with the ring is on the bottom.

Step 3.

Place the two side stays next to both sides of the forestay.

Step 4.

Attach the shackle to the mast hound in the bottom hole. Use plastic washers on both sides. Tighten the shackle firmly and secure it with some thin wire to make sure it does not come off. Put some tape around the thin wire!

1.6.8. Jib halyard

Step 1.

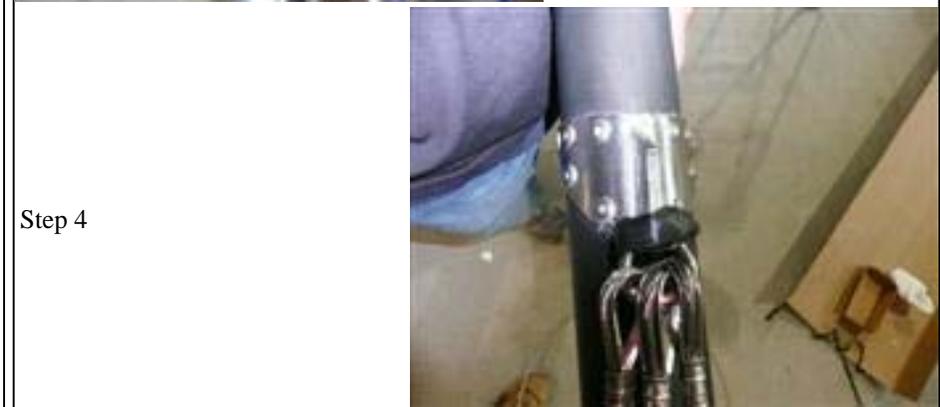
Take the jib halyard and put it through the eyelet in the top of the forestay.

Step 2.

Take both ends through the ring under the eyelet.



Fixing the stays
Step 1,2 and 3
Make sure the part of the forestay with the ring is closest to the mast!



Step 4



Jib halyard
Step 1 and 2

Step 3.

Tie one end of the jib halyard to the top of the jib halyard S-hook. Put the other end through the pre drilled hole in the S-hook and tie a 8 knot.



Step 3

1.6.9. Adjustable trapeze units [RACE PACKAGE ONLY]

Step 1.

Take all of the parts from the box.



Adjustable trapeze units [RACE PACKAGE ONLY]

Step 1

Step 2.

Take the trapeze line from the trapeze hook through the trapeze block. Make sure that you put this line through the side of the trapeze block where the distance between the middle of the wheel and the bottom of the trapeze block is biggest. Then go through the white trapeze stopper and tie a knot at the end.



Step 2

Step 3.

Put the adjustable trapeze line through the clam cleat and trapeze block in the way shown on the pictures. Mount a shackle on top of the clam cleat.



Step 3

Step 4.

Repeat this for all 4 adjustable trapeze units.



Step 4

1.6.10. Fixing the trapeze wires

Step 1.

Take the other shackle, two trapeze wires, 4 plastic washers and 4 adjustable trapeze units (for the race package we just assembled them, but for the standard type we do this in step 3).

Step 2.

Put the two trapeze wires in the shackle and attach the shackle to the mast hound in the top hole. Again, use two plastic washers on both sides. Tighten the shackle firmly.



Fixing the trapeze wires
Step 1 and 2

Step 3. [STANDARD ONLY]

Take the trapeze hooks, trapeze lines and dog bones from the box. Tie one end of the trapeze line to the trapeze hook and take the other end through the end of the trapeze wire. Then take it through the dog bone.



[STANDARD ONLY]
Step 3

Step 3. [RACE PACKAGE ONLY]

Attach the adjustable trapeze units to the bottom of the trapeze wires. Tighten all the shackles firmly and put tape around them.



[RACE PACKAGE ONLY]
Step 3

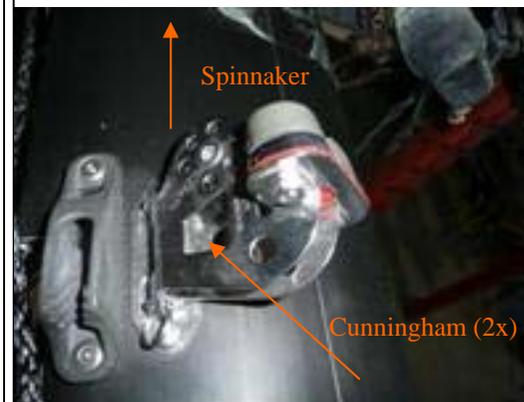
1.6.11. Cleats

Step 1.

Attach the two cunningham cleats on the mast.

Step 2.

Attach the spinnaker cleat on the mast.



Cleats
Step 1 and 2

1.6.12. Cunningham

Step 1.

Put the cunningham line through the double pulleys and the mast base as shown on the picture. Make sure the lines don't cross. In the end you should have two ends on both sides of the mast coming out of the cunningham cleats.

Step 2. [STANDARD ONLY]

Put the double pulley in the mainsail hook. And tie everything to the mast.

Step 2. [RACE PACKAGE ONLY]

Take the short cunningham line and tie it down to the double pulley. Tie everything to the mast.



Cunningham [BOTH VERSIONS]
Step 1



[STANDARD ONLY]
Step 2



[RACE PACKAGE ONLY]
Step 2

1.6.13. Mast rotation quick release [RACE PACKAGE ONLY]

Step 1.

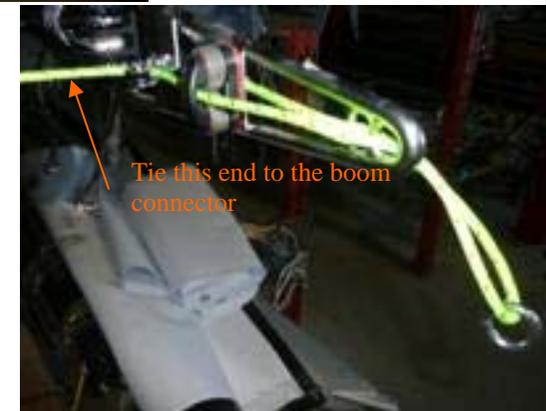
Tie the quick release line down to the eyelet under the cleat.

Step 2.

Take the other end of the quick release line and take it through the eye at the end of the rotator arm. Then go through the ring and go back through the rotator arm using the hole next to the previous one. Then go through the cleat and the block. Tie the end of the line to the boom connector.



[RACE PACKAGE ONLY]
Mast rotation quick release
Step 1



[RACE PACKAGE ONLY]
Step 2

1.7. Rudders

Step 1.

Put your boat on high supports or the trailer, because we are going to put the rudders on the boat. They should also be able to lock down. Then slide your rudders on the rudder pins on the stern. The bent rudder arms should be facing inboard.

Step 2.

Measure the rudder rake, taking the tape measure and measuring the distance from the black rudder casting and the center of the eye screw. The basic setting is 21 mm. See the trim sheet for tips! To adjust the rudder rake (the angle which the rudders make under the boat) it is possible to screw the eye screw in or out when you take the rudders off the pins.

Step 3.

If the rudder rake is right, then tighten the nut properly and slide the rudders back onto the pins.

Step 4.

Install the hardware for the joystick in the middle of the crossbar. Make sure the hardware is still able to turn around, so don't tighten it too firmly!



Rudders
Step 1



Step 2 and 3



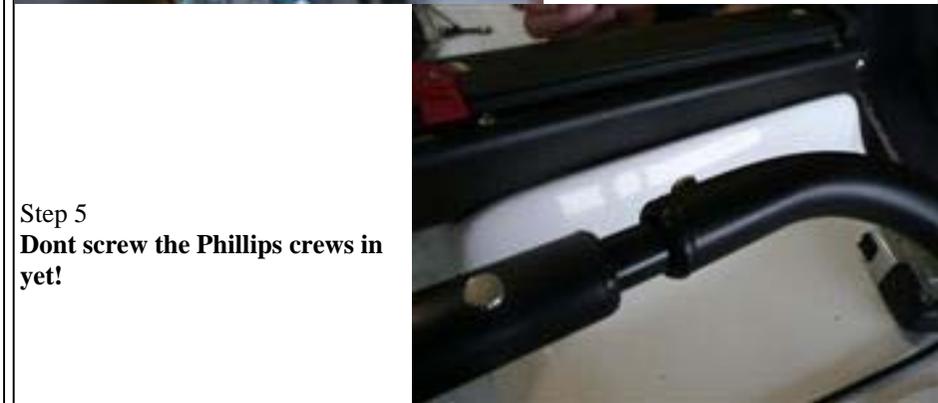
Step 4
Don't overtighten

Step 5.

Unscrew the two phillips screws on both ends of the crossbar and place the crossbar over the two rubber rods on the tiller arms. Make sure the hardware for the joystick is on top. Don't screw the phillips screws yet, because we need to align the rudders!



Step 5



Step 5
Dont screw the Phillips crews in yet!

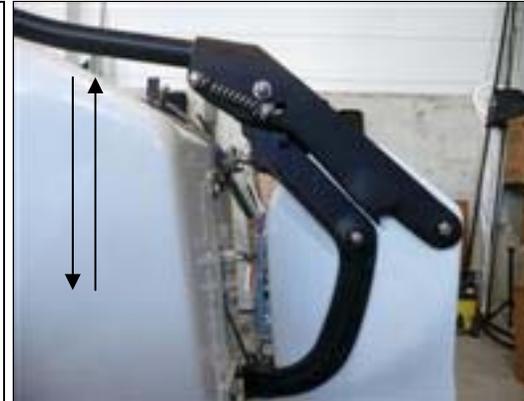
Step 6.

Lock the rudders in the down position. Look at the pictures for instructions. It's the same when you're out on the water. To unlock the rudder simply pull the tiller arm upward or pull the tip of the rudder backwards.



Step 6
Locking the rudders part 1

Step 7
Measure the distance between the port and starboard leading and trailing edges of the rudder blades. The trailing edge should be 2 mm more out than the leading edge. Move the rudders in or out to attain the right measurement.



Step 6
Locking the rudders part 2
The rudder is now locked.



Step 7
Measuring the leading edge



Step 7
Measuring the trailing edge

Step 8.

When the rudder alignment is correct, predrill holes into the rubber rods and install the phillips screws into the rubber rod to lock the position. Make sure the length of the rubber rods on both ends are about equal.



Step 8
Make sure the rod length is about equal on both sides!

Step 9

At last you can adjust the sliding bolt to adjust kick up tension. We recommend the setting used in the picture (bolt in forward position).

Step 9



1.8. Ropes and halyards

1.8.1. Spinnaker sheet

Step 1.

Take two blocks and the spinnaker sheet blocks. Install the two blocks on the front beam and install the spinnaker sheet blocks on the hulls. Connect the two blocks with the short shock cord supplied.

Step 2.

Take one end of the spinnaker sheet and put it through the spinnaker sheet block on the hull. Make sure you put it through the right way (the block only works one way). Also do this for the other side.

Step 3.

Go through the spinnaker sheet block on the front beam. Also do this for the other side.

Step 4.

Tie a spinnaker tension shock cord to the middle of the spinnaker sheet. Make sure the knot can not move, so tighten it properly!

Step 5.

Take the other end of the shockcord through the hole in the trampoline and go under the trampoline.

Step 6.

Take the shockcord through the hole on the right, rear corner of the trampoline and leave it there for a moment. We will attach the tack line to this shockcord later on in the manual.

1.8.2. Spinnaker retrieve block

Step 1.

Take a block and the spinnaker tension shock cord and tie the block to the middle of the shock cord.



Spinnaker sheet
Step 1, 2 and 3



Step 4,5 and 6
Tighten the knot properly!



Spinnaker retrieve block
Step 1
Go under all the foot straps!

Step 2.

Put both ends of the shock cord through the holes on each rear side of the trampoline. Make sure you go under all the foot straps! On the starboard side you also have the tack line shock cord running through the hole in the trampoline. Tie the shock cord down to the trapline lacing lines.

1.8.3. Tack release line and tack Line

Step 1.

Take the tack release line from the box and put both ends through the two holes in the trampoline. Tie a figure 8 knot to the end in the middle of the trampoline (underneath the tramp!). The right end of the tack release line can hang under the trampoline for now

Step 2.

Take one end of the spinnaker tack line and make a few knots at the end. This will make it easier to pull the tack of the spinnaker forward. Make it look like the one on the picture. Then tie the shock cord which came out of the right, rear corner of the trampoline to this end of the tack line.



Step 2



Tack release line and tack line
Step 1



Step 2

Step 4.

Tie a block to the stay adjuster/staymaster with the red trampoline block tie line. And take the tack line through the block.

Step 5.

Go under the trampoline with the tack line, going through the slot between the trampoline lacing line and the trampoline next to the mast rotation cleat.



Step 4 and 5

Step 6.

Take the tack release ring and tie the right end of the tack release line to it (the end which was hanging under the trampoline).

With the tack line, go through the block under the front beam, then go through the tack release ring, then go through the tack line cleat and then through the block near the middle of the front beam.



Step 6

Step 7.

Put the remaining line in the pocket of the trampoline, we will do the rest later when the spinnaker pole is mounted in the rigging section.



Step 7

1.8.4. Jib sheet

Step 1.

Take the thin jib sheet from the box and tie one end to the block on the jib track. Also connect a shackle to a block and put the thin jib sheet through this block.

Step 2.

Go through the pulley on the jib track with the thin jib sheet.

Step 3.

Put the rest of the jib sheet in the bag in the trampoline. We will do the rest when the spinnaker pole is being mounted in the rigging section.



Jib Sheet
Step 1 and 2



Step 3

1.8.5. Mast rotation

Step 1.

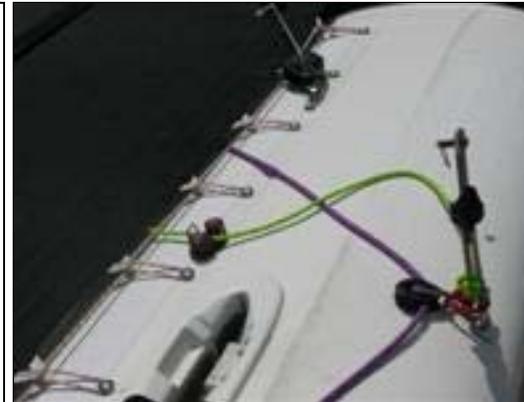
Take the rotator line from the box and tie one end to the side stay adjuster/ staymaster.



Mast rotation

Step 2.

Go under the trampoline with the rotator line, by going through rotation block and then through the slot between the trampoline and the lacing line.



Step 2

Step 3.

Go through the big hole in the middle of the trampoline and put the rest of the line in the trampoline bag. We will do the rest when the mast is raised in the rigging section.



Step 3

1.8.6. Righting line

Step 1.

Take the righting line from the box and tie one end to the dolphin striker. Make sure the knot is tight!



Righting line
Step 1

Step 2.

Take the other end through the hole in the trampoline and tie a figure 8 knot directly above the hole, to prevent the righting line from accidentally sliding through the hole while sailing.

Step 3.

Put the rest of the line in the trampoline bag.



Step 2 and 3

1.8.7. Mainsheet

Take the mainsheet and the two mainsheet blocks from the box. Put the mainsheet through the blocks as shown on the pictures. Make sure the lines don't cross each other. There are two versions for the mainsheet.

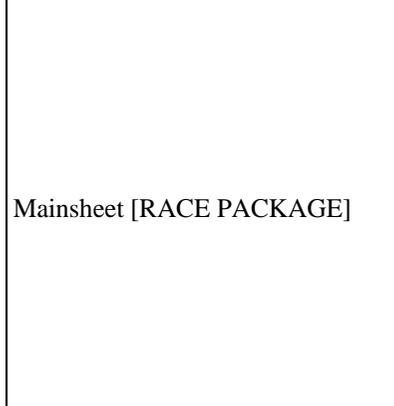




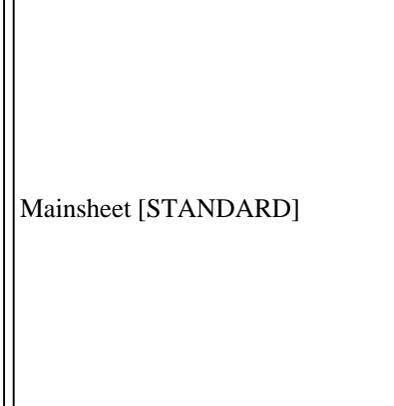
Mainsheet [RACE PACKAGE]



Mainsheet [RACE PACKAGE]



Mainsheet [RACE PACKAGE]



Mainsheet [STANDARD]



Mainsheet [RACE PACKAGE]



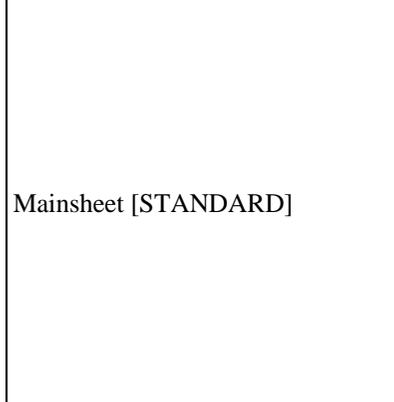
Mainsheet [STANDARD]



Mainsheet [STANDARD]



Mainsheet [STANDARD]



Mainsheet [STANDARD]



Mainsheet [STANDARD]

1.8.8. Mainsail traveler

Step 1.

The main sheet and the traveler on the Nacra F20 Carbon are made out of one single rope. Take the loose end of the main sheet and put it through the cleat and the blocks on the traveler cart.

Step 2.

Tie either of the twin ends to one of the eyelets on the rear beam.



Mainsail traveller
Step 1 and 2

Part 2. Rigging

The manual now continues with the boat as we left it in Part 1, so if you don't exactly know how everything was supposed to be just check it in Part 1!

2.1. Raising the mast

2.1.1. Preparing

Step 1.

Take the two bridle wires, the bridle connector and the fore stay adjuster and mount them together as shown on the picture.

Step 2.

Connect the bridle wires to the hulls and make sure that the stay adjuster is facing the right way. The metal jib fixer should be facing backwards. Don't forget to tape the rings!

Step 3.

Take the mast and place the mast base on the trampoline, near the mast ball on the front beam. Support the back of the mast, to prevent it from scratching the beam. It is best to place the mast in such a way that the sail track is on the bottom and the front of the mast is up, because this will make it easier to see in which order the stays and trapeze wires should be attached. Check that the stays are connected the right way on the mast hound and the shackles are tightened properly.



Preparing
Step 1



Step 2
Tape the rings



Step 3
Check that the stays are connected the right way!

Doublecheck everything!

2.1.2. Fixing the stays and trapeze wires

Step 1.

Attach the bottom of the sidestays to the staymaster [RACE PACKAGE] or stay adjuster [STANDARD]. Make sure the staymaster is at its maximum length, that is number 10. If you don't have a staymaster, but a standard stay adjuster use the top hole for the pin to have maximum length.

Step 2.

Attach the adjustable trapeze unit to the trapeze shockcords. The trapeze wire which is most on front of the mast belongs to the crew and the one that is most on the back of the mast belongs to the helm. The trapeze shockcord which comes out of the two sides of the front beam belongs to the crew and the ones which come out of the hull belong to the helm. Tie the trapeze shockcord down to the end of the line of the adjustable trapeze unit which goes to the trapeze hook.



Fixing the stays and trapeze wires
Step 1
Maximize staymaster/stay adjuster length



Step 2
Rear trapeze wire



Step 2
Front trapeze wire

2.1.3. Spinnaker halyard

Step 1.

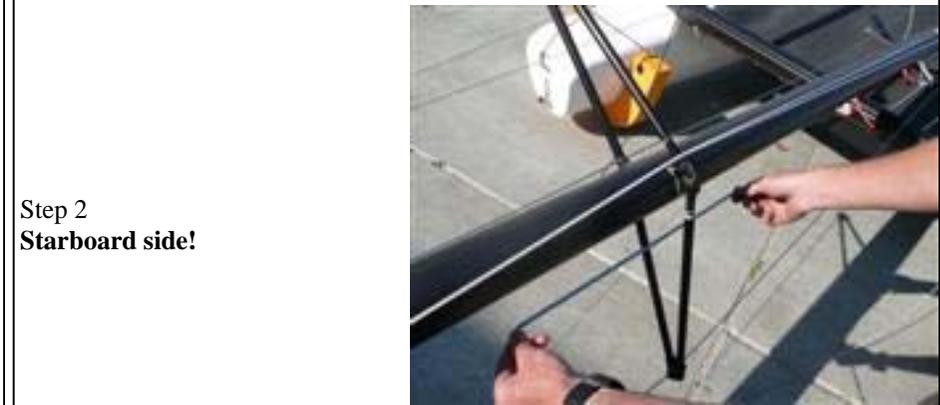
Take the spinnaker halyard and go to the mastbase. Take one end of the halyard (RACE PACKAGE: the thin end) and go through the spinnaker hoist block.



Spinnaker halyard
Step 1

Step 2.

Go through the gap in the right rake adjuster bars with that same end. Go through the slot at the starboard side of the mast!



Step 2
Starboard side!

Step 3.

Go to the top of the mast and pass the stays on the forward side of the mast.



Step 3
In front of all the stays!

Step 4.

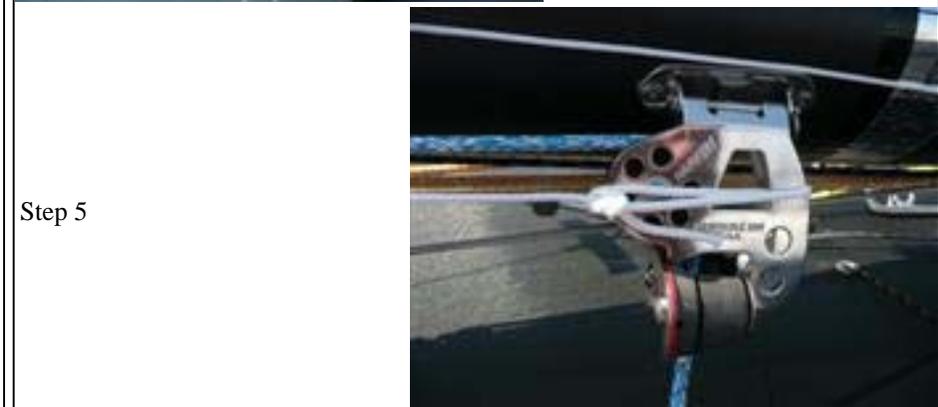
Take the end of the halyard through the block in the top of the mast from the inside to the outside of the mast.



Step 4

Step 5.

Take this end down again and tie it to the spinnaker halyard block. With the other end you can tighten the line, cleat it in the spinnaker hoist block and then put the rest of the line in the trampoline bag.



Step 5

2.1.4. Raising the mast

Step 1.

Raising the mast for the first time it is best to be with three people. We will show you how to do it with two people. Make sure the mast is on level ground or if that's not possible ensure the bow is downhill to make it easier to raise the mast. **CAUTION: Check for overhead wires and be sure the area behind the boat is clear of people! A mast which comes in contact with electrical power lines can cause serious injury or death.**

Step 2.

One person takes the top of the mast and the other places the mast base on the mast ball. Make sure the mast is at right angle with the front beam. Not rotating the mast may put excessive load on the mast pin/ball which may cause damage to any of these items or cause the mast to come off when lowering causing potential damage or injury.



Raising the mast
Step 1 and 2
Check for overhead wires and be sure the area behind the boat is clear of people!

CAUTION: Check for overhead wires and be sure the area behind the boat is clear of people! A mast which comes in contact with electrical power lines can cause serious injury or death.

Step 3.

Check that all the stays and trapeze wires are free of obstructions. Also check that the jib halyard is free. The person at the mast base takes a trapeze wire to help the person at the back with raising the mast. It is best to put your foot on the mast base to prevent it from coming off the ball.

Step 4.

The person at the top of the mast walks forward and lifts the mast at the same time. The person at the mast base, who is holding a trapeze wire, tries to pull the mast up as well. Be sure to hold the mast base on the mast ball with your foot!

Step 5.

The person who is lifting the mast steps on the trampoline while lifting the mast. It is important that the person at the mast base pulls on the trapeze wire to make it easier for the person at the back. If the lifting is too heavy, then put a third person on the trampoline to take the mast.



Step 3
Put your foot on the mast base to prevent the mast from coming off the ball!



Step 4
Hold your foot on the mast base!



Step 5

CAUTION: Check for overhead wires and be sure the area behind the boat is clear of people! A mast which comes in contact with electrical power lines can cause serious injury or death.

Step 6.
When the mast is in upright position one person pulls on the trapeze wire to keep the mast up. The other person fits the forestay in the forestay adjuster with a clevis pin. When you do this for the first time, fit the clevis pin in one of the holes. We have to check the mast rake now. Check the tuning guide for tips!



Step 5



Step 6



Step 6

CAUTION: Check for overhead wires and be sure the area behind the boat is clear of people! A mast which comes in contact with electrical power lines can cause serious injury or death.

2.1.5. Lowering the mast

Step 1.

Raising the mast for the first time it is best to be with three persons. We will tell you how to do it with two people.

Make sure the mast is on level ground or if that's not possible make sure the bow is downhill to make it easier to lower the mast.

Step 2.

Make sure the staymasters are as long as possible (setting 10). If you have the standard side stay adjuster put the clevis pin in the top hole. The mast must be rotated to 90 degrees to be able to be lowered. Not rotating the mast may put excessive load on the mast pin/ball which may cause damage to any of these items or cause the mast to come off when lowering causing potential damage or injury. **CAUTION: Check for overhead wires and be sure the area behind the boat is clear of people! A mast which comes in contact with electrical power lines can cause serious injury or death.**

Step 3.

One person stands on the trampoline and pushes the mast forward, while holding the mast at right angle with the front beam. The other person takes out the clevis pin from the forestay adjuster, while holding a trapeze wire to support the person holding the mast. He then places one foot on the mast base to prevent the mast base from coming off the mast ball.

Step 4.

The person who is holding the mast walks backwards while lowering the mast. The person with the trapeze wire should pull on the trapeze wire to make lowering the mast easier. Make sure the mast base does not come off the mast ball, by placing your foot on the mast base!



Lowering the mast

Step 1,2 and 3

Check for overhead wires and be sure the area behind the boat is clear of people!



Step 4

Put your foot on the mast base!



Step 4

Keep your foot on the mast base!

CAUTION: Check for overhead wires and be sure the area behind the boat is clear of people! A mast which comes in contact with electrical power lines can cause serious injury or death.

Step 5.

When the mast is lowered, make sure the mast is properly supported to prevent it from scratching your boat or beams.



Step 4 and 5
Support the mast

CAUTION: Check for overhead wires and be sure the area behind the boat is clear of people! A mast which comes in contact with electrical power lines can cause serious injury or death.

2.2. Rigging the boat

2.2.1. Spinnaker pole

Step 1.

Take the spinnaker pole and put it through the bridle connector ring. Then put it on the spinnaker pole pin on the front beam. Make sure the jib sheet is on top of the spinnaker pole!



Spinnaker pole
Step 1



Step 1
**Jib sheet (red rope) on top of
spinnaker pole!**

Step 2.

Connect the two spinnaker pole bridle wires to the hulls with two clevis pins. Don't forget to tape the rings! Also take the spin pole line and tie it to the spinnaker pole in front of the spinnaker shute (look at picture for location). Then go through the rail in the spinnaker shute and tie the line to the bridle tank putting. Make sure there is some tension on the line to prevent the spinnaker pole from twisting to much while sailing.



Step 2

2.2.2. Jib sheet

Step 1.

We previously put the end of the jib sheet in the trampoline bag and already tied the other end down to a pulley on the jib track. Take the end from the trampoline bag and put it through the pulley on the spinnaker pole.



Jib sheet
Step 1

Step 2.

Tie the jib sheet down to the pulley attached to the red jib sheet.



Step 2

Step 3.

Check if your jib sheet system looks the same as on the picture.



Step 3

2.2.3. Tack line

We previously put the end of the tack line in the trampoline bag. Take this end through the pulley on the end of the spinnaker pole. Be sure to go under the bridle wires.



Tack line

2.2.4. Jib traveler

One end of the jib traveler should already be attached to the jib track. Take the other end through the clamcleat on the beginning of the spinnaker pole.

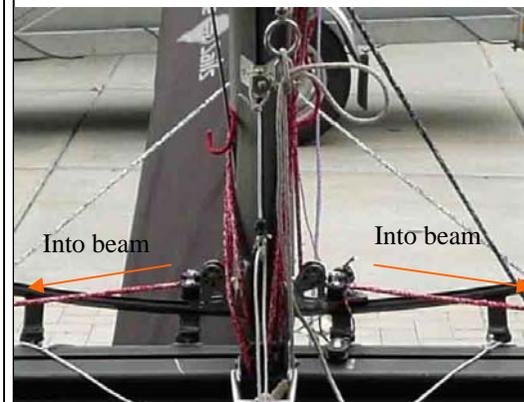


Jib traveller

2.2.5. Cunningham

Step 1. [BOTH VERSIONS]

Take the two ends of the cunningham (which come out off the cunningham cleats on mast) and place them on either side of the front beam. That is where the blue line goes into the beam.



Cunningham
Step 1

Step 2.

Pull on the blue line that comes out of the front beam and you will find that is tied onto an shockcord. Tie the cunningham line to that shockcord and then untie the blue line. The cunningham line can now go into the front beam while sailing!

2.2.6. Boom

Take the boom and connect it to the boom connector on the mast with a clevis pin. Tape the ring!

2.2.7. Mast rotation

Step 1.

We previously put the one end of the mast rotation line in the trampoline bag and tied down the other end to the staymaster/side stay adjuster.

Step 2. [RACE PACKAGE ONLY]

Take the mast rotation line through the ring of the quick release and then go back under the trampoline through the same hole in the trampoline. Go through the mast rotation cleat again and tie it down to the staymaster/side stay adjuster.

Step 2. [STANDARD ONLY]

Take the mast rotation line through the eye on the end of the mast rotation arm and then go back under the trampoline through the same hole in the trampoline.



Step 2.



Mast rotation [BOTH VERNONS]
Step 1 and 2

Step 3. [BOTH VERSIONS]

Go through the mast rotation cleat again and tie it down to the staymaster/ side stay adjuster.

2.2.8. Spinnaker halyard

Step 1.

The spinnaker halyard has already been put through the pulley in the top of the mast so we have the two ends at the mast base.

Step 2.

Take the end which goes through the spinnaker hoist cleat and take it through the pulley in the front of the trampoline.

Step 3.

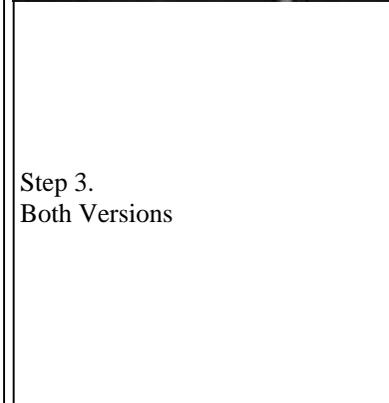
Then go through the cleat at the back of the trampoline, which is attached to a shock cord. Make sure you go under all the foot straps (race package!).

Step 4.

Take the spinnaker halyard through the hole in the trampoline next to the mast rotation hole.



Step 2 [BOTH VERSIONS]



Step 3.
Both Versions



Spinnaker halyard
Step 1, 2, 3 and 4
Go under the foot strap!

Step 5.

Take the halyard through the spinnaker shute and then go through the snuffer ring. Tie the end down to the spinnaker pole. Tie the other end to the spinnaker pole.



Step 5



Step 5

Step 6.

Take the spinnaker shute and attach the two shockcords to the trampoline.



Step 6

2.3. Fixing the sails

2.3.1. Spinnaker

Step 1.

Take the tack of the spinnaker and tie the tack line to the ring as shown on the picture. It is best to fix the spinnaker on the port side of the boat.



Spinnaker
Step 1



Step 1

Step 2.

Follow the leading edge of the spinnaker, then take the head of the spinnaker and tie the spinnaker halyard (which comes from the top of the mast) down to the ring in the head.



Step 2

Step 3.

Take the other end of the spinnaker halyard and put it through the two rings in the spinnaker. Then tie it down to the top path as shown on the picture.



Step 3

Step 4.

Follow the trailing edge of the spinnaker, take the clew of the spinnaker and then tie the spinnaker sheet down to it as shown on the picture. Make sure both ends of the spinnaker sheet run around the forestay and above all the bridle wires.



Step 4

2.3.2. Raising the jib

Step 1.

Take the jib halyard and make sure the halyard is not tangled or turned. It should be running free to the halyard ring in the top of the mast.

Step 2.

Make sure your boat is facing the wind and then connect the jib halyard to the jib. The top of the S-hook should be facing backwards, because the jib will not lock otherwise. Look at the picture! Some teams choose to tie a very strong piece of rope to the top of the jib. This will make it a bit easier to connect the S-Hook and will also lower the jib, which is more efficient but is not necessary. This rope needs to be very strong!

Step 3.

Pull on the halyard a bit and close the zipper around it. Make sure the halyard also is in the zipper.

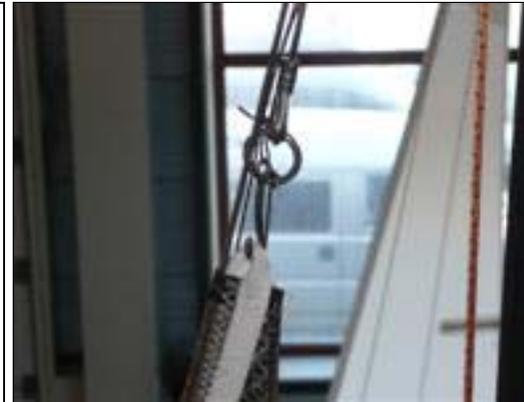


Raising the jib
Step 1, 2 and 3
Also put the halyard in the zipper!

Step 4.
Hoist the jib and close the zipper at the same time. When you are nearly there look up to the jib halyard ring and hoist the S-hook through the ring and a bit further. Then pull the jib down a bit to lock it in the ring. The S-hook has now locked the jib.

Step 5.
Put the rest of the halyard in the zipper and then close the zipper completely.

Step 6.
Take the jib cunningham and tie it down to the ring in the tack of the jib. Then take the other end and put tension on the luff of the jib. Also try to connect the shackle to the ring in the tack of the jib. There are various ways to do this.



Step 4



Step 5



Step 6
There are various ways to do this! You can create purchase by doing a loop.

Step 7.
Take the pulley with the shackle near the jib track and attach it to the clew plate.



Step 7

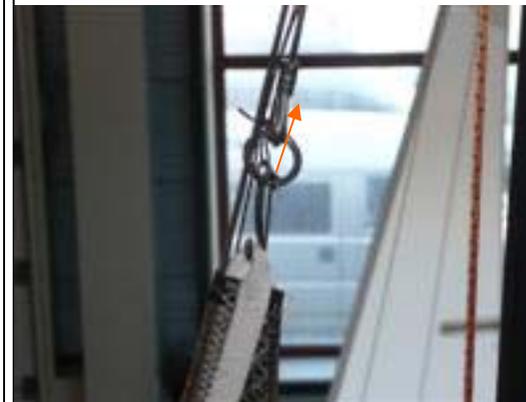
2.3.3. Lowering the jib

Step 1.
Undo the jib sheet and the jib cunningham.



Lowering the jib
Step 1

Step 2.
Unzip the jib a bit and pull on the halyard to raise the jib a bit. Then hold the jib in position with one hand and pull on the other side of the halyard to twist the S-hook. Then pull down the jib. When you do this properly the S-hook will go through the ring again, without locking again.



Step 2 and 3
Pull the jib up a bit and then twist the S hook with the halyard. Then pull the jib down.

Step 3.
After unlocking the jib, pull the jib down and unzip at the same time.

2.3.4. Mainsail battens

Step 1.

We are first going to put tension on all the battens, starting at the bottom. Take the two batten tension lines from the sail and put them through the hole on the end of the batten.



Mainsail battens
Step 1

Step 2.

Then go through the hole on the other side of the sail and tie a knot as shown on the picture.



Step 2

Step 3.

Pull on the two batten tension lines with the knot in it and just get rid of the wrinkles in the sail. It is not necessary to over tension the battens. Then tie another knot as shown on the picture.



Step 3 and 4
Don't overtighten, just get rid of the wrinkles!

Step 4.

If you are done with a batten then roll the sail up and go to the next batten until you reach the top of the sail.

2.3.5. Raising the mainsail

Step 1.

Take the mainsail halyard and fix the shackle to the top of the mainsail. Make sure the knot in the mainsail halyard ring is facing the mast.



Raising the mainsail

Step 1

The knot should face the mast

Step 2.

Put the sail in the sail track in the mast and pull on the halyard at the same time. This is best to do with two people: one at the mast who is putting in the sail and one pulling on the halyard.



Step 2

Step 3.

When you reach the top of the mast the ring slides over the mainsail lock and you should be able to hear a click. Make sure the mast is facing the same way as your sail. Otherwise turn you mast by hand. Pull on the luff of the sail to make sure the sail is properly locked. You should not be able to pull the sail down. It only stretches. Put the halyard in the trampoline bag.



Step 3

Make sure the mast and the sail are facing the same direction while locking!

Step 4.
Put the tack of the mainsail in the mast rail.

2.3.6. Lowering the mainsail

Step 1.
Take the halyard out of the trampoline bag and take the cunningham off the sail. Also take the tack out of the mast rail. It is best to be with two people again: one person at the mast and the other behind the trampoline with the halyard.



Step 3
Make sure the mast and the sail are facing the same direction while locking!



Step 4



Lowering the mainsail
Step 1

Step 2.

The person with the halyard pulls on the halyard to raise the sail a bit and holds the halyard tight. This will put the ring above the locking system.

Step 3.

The person at the mast then twists the mast at right angle with the sail and pulls the sail down. Twisting the mast like this will unlock the ring.

Step 4.

As you are pulling the sail down it is best to roll up the sail at the same time.

Step 5.

When the sail is totally down and rolled up from the bottom, roll it up again but this time from the top. While you are rolling the sail untie all the battens again.

2.3.7. Mainsail cunningham

Step 1. [STANDARD ONLY]

Take the two cunningham hooks and slide them through the ring in the tack of the mainsail. Make sure the cunningham is not tangled or turned.



Step 2 and 3
Hoist the main a bit further and then twist the mast to 90 degrees. Then pull the sail down!



Step 4 and 5



Mainsail cunningham
Step 1 [Standard Only]

Step 1. [RACE PACKAGE ONLY]

Put the custom shackle with the pulleys in the ring in the tack of the main-sail. There now is a pulley on either side of the sail and the shackle goes through the tack ring. You can leave this shackle with pulleys on at all times.

Step 2. [RACE PACKAGE ONLY]

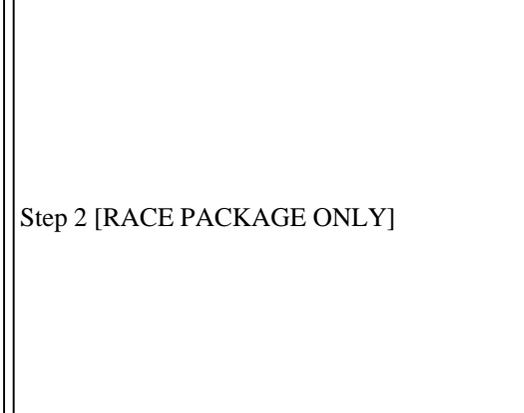
Take the end of the short cunningham line and take it through the pulleys in the custom shackle. Then take it through the clamcleat on the bottom of the mast.

2.3.8. Mainsail outhaul

Take the outhaul line and tie a 8-knot on one end. Take the other end through the hole in the end of boom. Then go through the sail and tie another 8-knot and slide the knot in the boom to lock the outhaul. Just put a tiny bit of tension on this line. While sailing you should be able to put a fist between the sail and the middle of your boom.



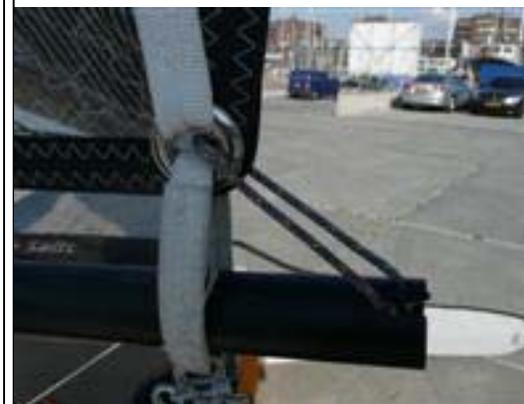
Mainsail cunningham
Step 1 [RACE PACKAGE ONLY]



Step 2 [RACE PACKAGE ONLY]



Mainsail outhaul



3. Tuning guide

3.1. Mast rake

The basic setting is the upper screw of the rudder spring on the transom. To measure, do this:

Step 1.

Untie the shock cord of one of the trapeze wires and extend the trapeze wire with a piece of rope of about 1 meter. Also make sure the side stays are on normal tension (light weather setting)

Step 2.

Take the extended trapeze wire and pull it tightly to the bridle tang fitting. Remember where the rope touches the bridle tang fitting, because this is your reference point.

Step 3.

Take the extended trapeze wire to the transom and see where it touches. It should touch the upper screw of the rudder spring.

Step 4.

To put your mast forward or aft, first loosen the side stays. Then adjust the pin in the forestay adjuster (mast forward means pin down, mast aft means pin up).

3.2. Spreader rake

We recommend the following settings measured between the mast-track and diamond wires (you place a sail batten from wire to wire and measure the distance):

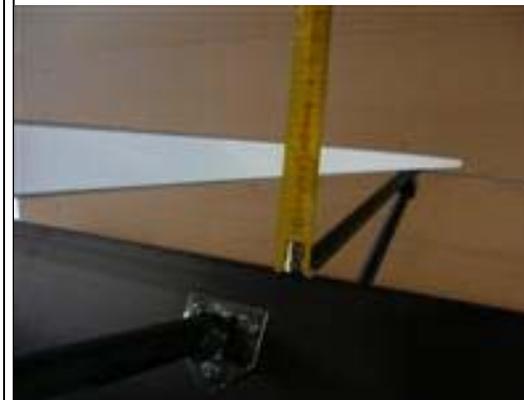
- With 140 kgs on board, we recommend that you use 55 mm of spreader rake
- With 150 kgs on board, we recommend that you use 50 mm of spreader rake
- With 160 kgs on board, we recommend that you use 45 mm of spreader rake.



Mast rake
Step 1 and 2



Step 3 and 4



Spreader rake

3.3. Diamond tension

To measure the tension of the diamond wires we use a Loose & Co tension gauge which you put onto the wire and let go. This one gives you the most accurate readings. The number that we work with, on this tension meter is:
38, until 15 knots (125 kg/ 280lbs)
41, from 15 to 25 knots (165 kg/ 360 lbs)
43, from 25+ knots (205 kg/ 450 lbs)

3.4. Side stay tension

It is not necessary to measure the tension on the side stays. To put the right tension on the side stays have one person hanging on the back of the boat in the trapeze (sails down). The other person tightens the side stay with the staymaster/side stay adjuster.

During sailing the leeward side stay may have a bit of sag.

3.5. Rudder rake

You turn the adjustable eye that is screwed into the lower rudder casting 21 mm out. You measure between the black rudder case to the center of this adjustable eye.



Diamond Tension



Rudder rake

4. Maintenance

- Rinse ENTIRE boat with fresh water after each use. Be sure to flush all blocks and fittings thoroughly.
- Check the sails and trampoline for rips, tears, or loose stitching. Repair immediately to avoid further damage.
- Always keep trampoline lacing tight.
- Check mast ball for wear- REPLACE IF NECESSARY.
- Tape all split rings and cotter pins to prevent loss or damage.
- Check for broken or delaminated battens. Never sail with damaged battens.
- Rinse sails with fresh water, make sure sails are dry and batten tension is released when storing for more than a day.
- Always check beam bolts to ensure proper torque.
- Check hulls for excessive wear on bottoms from beaching and dragging the boat.
- Check hulls for leaks at all hull fittings by covering suspected areas with soapy water and blowing air (from your lungs) into the drain plug holes. DO NOT USE A VACUUM CLEANER AS THE EXCESSIVE PRESSURE CAN DAMAGE THE HULLS. If the water bubbles, there is a leak. Remove the fitting and/or cover with silicone sealant and replace. If the leak is from fibreglassed area (no fittings) this should be reglassed to insure proper permanent bonding sealing .
- Masts should be regularly inspected for water tightness and diamond wire wear. Make sure fittings are sealed with silicone. Replace wires that show any signs of wear. Check diamond attachment points, turn buckles and seizing wire. These areas could cause serious mast and sail damage.
- Periodically check for and replace frayed, worn, or kinked wires, shock-cords, and lines.
- Avoid storing your Nacra for long periods of time with the rigging tensioned to race settings (very tight.)
- Check all shackles, clevis pins, and fasteners for loosening or wear. Replace as needed.
- Periodically check the bearings in the traveler car and replace them if necessary. Rinse thoroughly with fresh water to free any stuck bearings. Periodically check dolphin striker strap tension. It should not move more than 2.5 cm. Re-tighten if necessary.
- Masts should be regularly inspected for water tightness and diamond-wire wear. Make sure fittings are sealed with silicone. Replace wires that show any signs of wear. Check diamond wire attachment points, turn buckles and seizing wire. These areas could cause serious mast failure!

5. Warranty

For a full explanation of the terms of our warranty please read the warranty document available in the download section of our website at www.nacrasailing.com

6. Dealer Support

Nacra's dealer network is famous for it's service. The dealer can help you with anything you need for your Nacra or Prindle. Please take advantage of the many services that authorized Nacra dealers can provide:

- New Nacra catamarans fully assembled
- Nacra, Inter and Prindle catamaran parts and accessories
- Expert advice on boat rigging, repair and maintenance
- A direct source for all catamaran accessories
- Contact for multihull fleets and events

Choosing your next boat or getting your parts could not be simpler than through the Nacra dealer network. Give your dealer a call and you will find out that they are there for you.

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