# NACRA

## ASSEMBLY MANUAL

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Dear Customer,

Welcome to the Nacra family. We wish to thank you that you choose for Nacra Sailing.

It's our constant endeavour to provide you with products that offer excellent performance throughout their ownerships period. Which is why, in addition to producing great catamarans, we have also set up an extensive dealer network around the world.

Naturally, these Nacra Dealers knows everything there is to know about your catamaran and provides you with the best service possible. So please find your dealer in your region on www.nacrasaling.com for any servicing needed and make sure that only genuine spares are used for your Nacra.

This manual will familiarize you with the operation and maintenance of your new Nacra. It will also provide you with the important safety information which should be read and understood before moving on to the assembly manual. The assembly & operation manuals of our catamarans can be found under the "after-sales" button on our website; www.nacrasailing.com.

If this is your first sailboat, or you are changing to a new type of sailboat you are not familiar with? For your iwn comfort and safety, please ensure that you obtain handling and operating experience before assuming control of the catamaran. Nacra Sailing or National Sailing Federations or yacht clubs will be pleased to advise you about sailing schools or competent instructors.

When you have any quary, please feel free to contact your local dealer.

Happy Sailing.

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# 0. TOOLS

1. Torque wrench
   socket 14 mm
   socket 5/16 hex

2. Wrench 7/16 2x

3. Wrench 9/16

4. Wrench 17 mm

5. Wrench 22 mm

6. Allen tool 3mm

7. Flat Screwdriver

8. Philips screwdriver

9. long nose Plier

10. Pump Plier

11. “Loose” tension gauge: fixed

12 Grease: watertight + lithium based

# 1. PLATFORM ASSEMBLY

**Tools needed:**
- torgue wrench
- sockets

## 1.1 HULL ASSEMBLY

1. Place the starboard and port hull next to each other and make sure that the hulls are facing the same way
2. Open the crossbar kit and grease the eight beambolt inserts on the hulls.

**use a big wheel trolley and sterns to level the hulls .**

3. Place the crossbars in the crossbar sockets on the hulls and make sure that the crossbars are facing the right way.

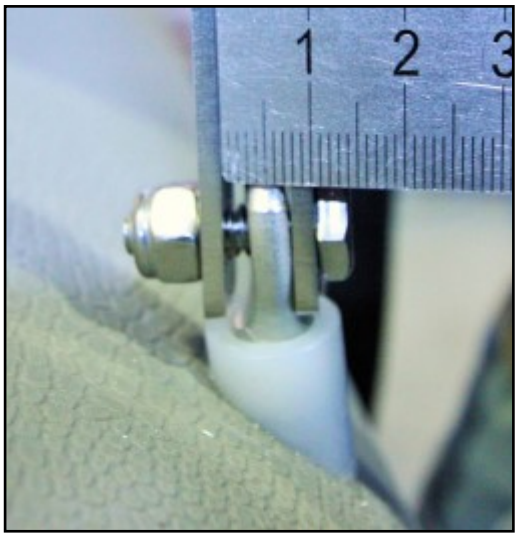
   The front crossbar has a jib track mounted, which should be on top and facing the front of the boat. The rear crossbar has two eyelets mounted on the back which should be facing the back of the boat.

   **Take time to align the crossbars !**

4. Grease all bolts and make sure the fiberglass washer is at the bottem and the metal washer on top . The washers for the front crossbar are allready put in the slot on top of the front crossbar.
5. Handtight all the bolts before putting tension on them.
6. After hand tightening the bolts, use a torque wrench to tighten the beambolts to 30 Nm maximum.

**Do not exceed the recommended 30 Nm, over tightening the bolts results in damaged threads.**

**Tools needed:**
- wrench 7/16
- philips screwdriver




7. Unpack the STA/Master

- Mount the STA/Master on the shroud eye

  - use a 7/16 wrench

- Check if the STA/Master is able to pivot as shown on the pictures.

  - Leave 3mm between shroud eye and STA/Master as shown on the picture

- Be sure that the nylock nut covers the thread of the bolt.

**WARNING**

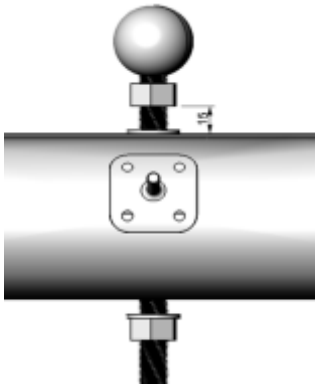
Fully fixing the STA/Master can cause severe damage to the shroud eye.

8. Grease the pre-drilled holes next to the dag erboardcase. Screw the harken cam cleat on the hulls using the harken screws. The wire fairlead is facing inwards.

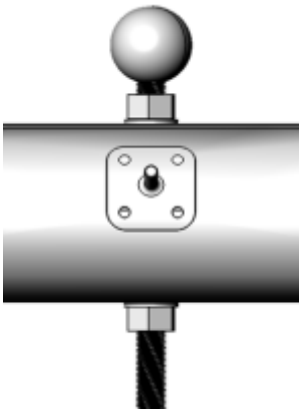
## 1.2 FRONT CROSSBAR PRE-BEND

- There should always be a pre-bend on the front crossbar. This is been achieved by the tension on the dolphinstriker.
- On **new** beams the tension on the dolphinstriker must be reset after: -2 hours of sailing and -10 hours of sailing!
- During the season check the pre-bend regularly.

**Tools needed:**
- wrench 22
- pump plier



1. Release the tension on the nut located on top.
2. Release the tension on the nut located under the crossbar
3. Put grease on both nuts!
4. Measure **15mm** from top crossbar to underside nut



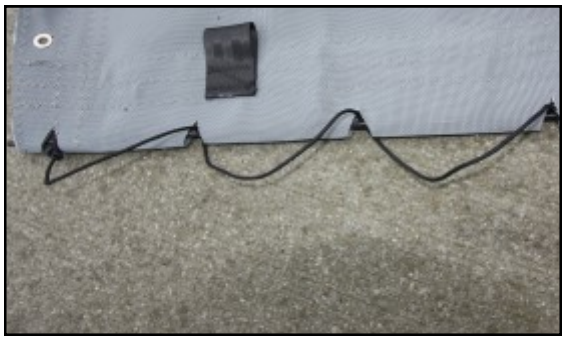
4. screw the nut under the crossbar until both nuts are tightend.

**When the mastpin starts to twist, fixade it with the pump plier wrench. Protect the mastpin from wearing!**

## 1.3 TRAMPOLINE

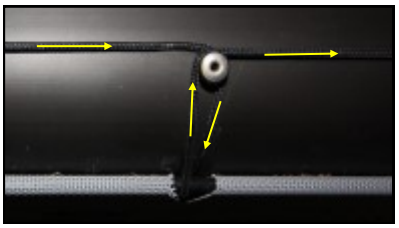
1. Unscrew a beamcap on one side. Then slide the front edge of the trampoline into the designated slot. The hiking straps should be facing up.

2. Insert the trampoline tie-rod into the slot in the rear of the trampoline.



3. Loop the rear lacing line through the tie rod as shown in the picture. Start at the port side of the trampoline!

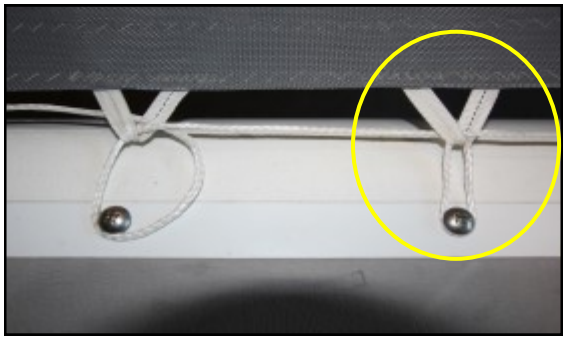
**Make sure the trampoline is in the middle of the catamaran.**



4. Loop the laces using the trampoline tie buttons

5. After tightening go back one button

6. Tie the rear lacing line with half hitch knot



7. Tie the side lace line to the loop closest to the front crossbar. Loop the lacing line making sure the span-nerbands and loop look exactly the same as shown in the picture

**The trampoline must be in the middle of the boat and in a straight line before putting tension on the line!!**

8. Make a loop with the side lacing line at the last

9. go back two spanner bands and take the lacing line through te loop

10. tie the lacing line with half-hitch nut at the back of the pre last spanner.

- Tie the footstraps using the hiking strap ties.

- Use the strapeye on the rear crossbar to tie the footstrap in the middle.

## 1.4 TRAPEZE SHOCKCORD

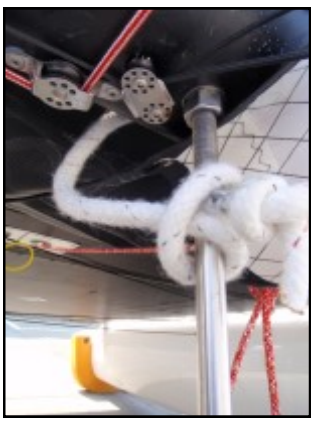
1. Make a loop in the trapeze shockcord.

2. Use the ring adjusted in the middle of the crossbar under the trampoline to guide the shockcord.

3. Tie the shockcord on the rear lacing line on port and starboard side.

NOTE: F18 Infusion
The shockcord goes through the tube in the hull.

## 1.5 RIGHTNING LINE



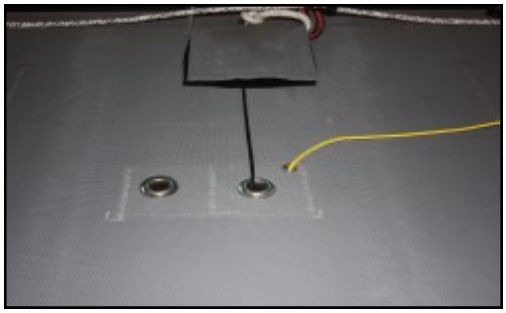
1. Tie one end of the rightning line on the mastpin under the front crossbar, then go through the eye in the middle of the trampoline.

2. Tie a knot at the top of the trampoline en put the remaining line in the pocket.

## 1.6 MAST ROTATION

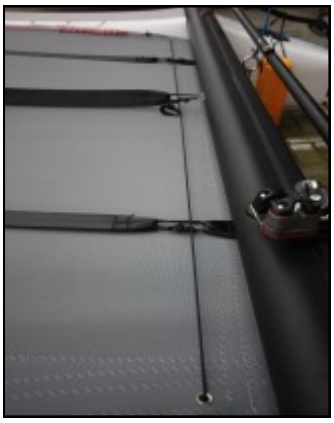
1. Take the mast rotation line and attach one end to the staymaster

2. Go through the harken cleat and under the side lacing line.

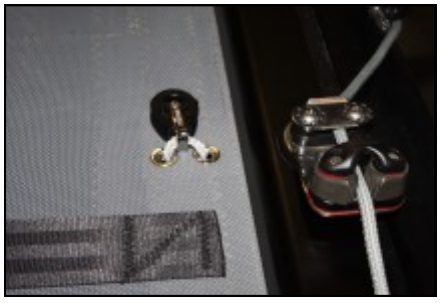


3. Use the grommet located in the middle of the trampoline. Put the remaining line in the pocket.

## 1.7 SPINNAKERHALYARD BLOCKS



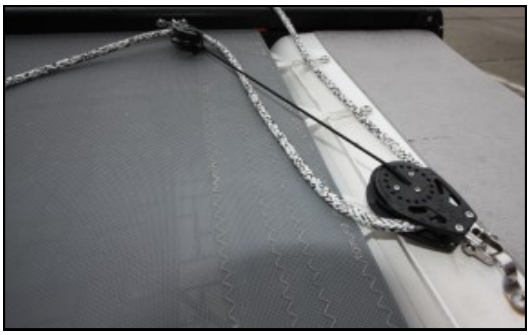
1. Tie a carbo 29mm block in the middle of the spin halyard shockcord. Lead the shockcord under the hiking straps
2. Use the small grommets in the trampoline and tie both ends to the rear lacing line.



3. Mount a 29mm carbo block with the trampoline block tie.

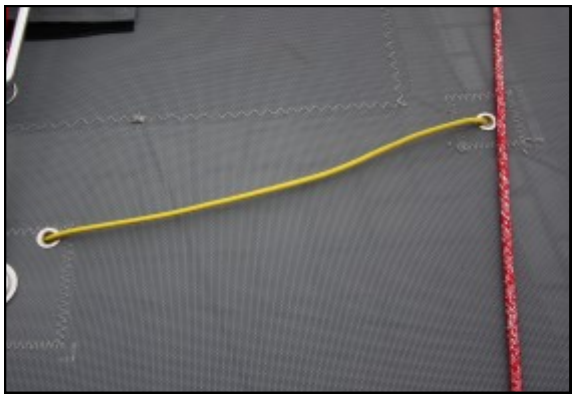
**Make sure you do two loops!** ⚠

## 1.8 SPINNAKER BLOCKS



Attach the 57 mm carbo ratchmatic single spinnakerblocks on the strap eyes on the hull. Tie the spinnakerblock shockcord between the spinnakerblocks.

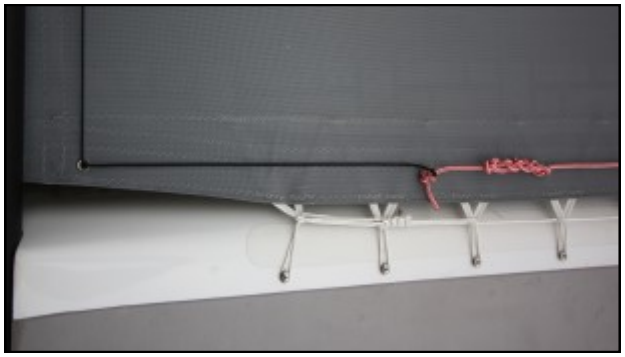
## 1.9 SPIN TACK SYSTEM



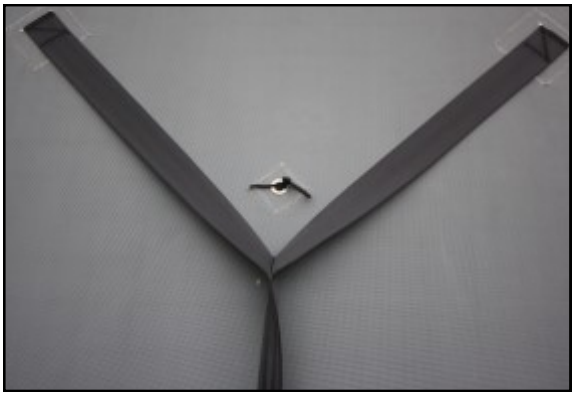
1. Mount the tack-releaseline. Tie a figure 8 knot on the port side underneath the trampoline. Attach the ring 4x 25 at the other end on the starboard side underneath the trampoline.

2. Feed one end of the tackline through the block located underneath the front cross-bar next to the mastpin. Then lead the tackline through the ring, the cleat and the 16mm block next to the cleat.

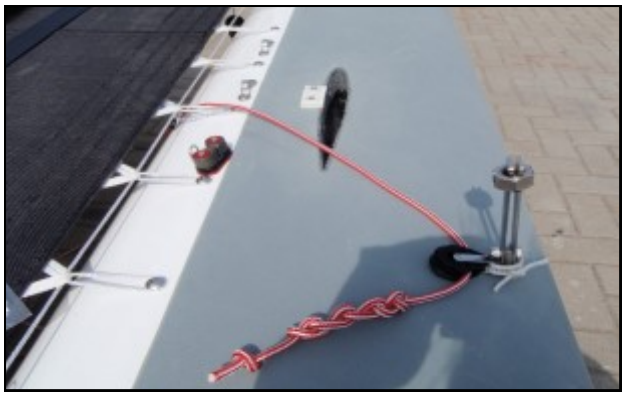
3. After the 16mm block use the grommet on the starboard side of the trampoline



4. Tie the tackline shockcord to the end of the tackline and lead the shockcord through the grommet on the starboard side of the trampoline



5. Take the other end of the tackline shock-cord and use the small grommet in the middle of the V-bar to exit. Tie a loop in the shockcord. This loop will be used to tie onto the middle of the spinsheet.



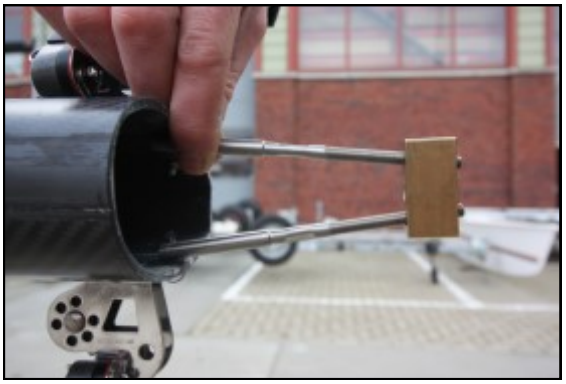
Note:

The F18 infusion and Carbon 20 has the tackline guided by a 29mm carbo block attached on the staymaster.

# 2. MAST ASSEMBLY

**Tools needed:**
- long nose plier

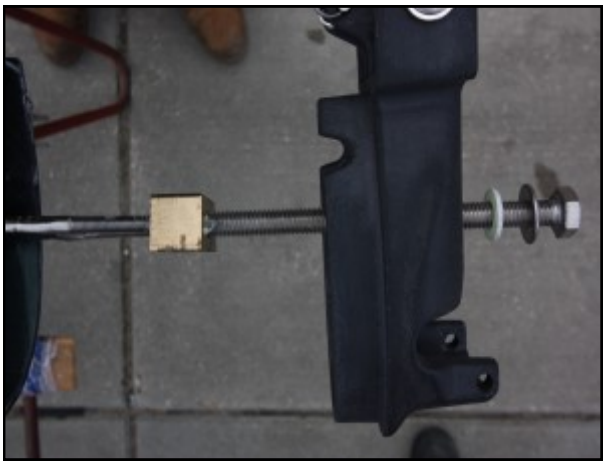
## 2.1 DIAMOND WIRES



- It is preferable to place the mast on supports while building the mast.

1. Get the brass fitting from the rigbox kit diamond adjuster and the diamond wires.
2. Lead the diamond wire through the slots in the mast. Grease the threads of the diamond wires and fit one wire into the brass fitting.
3. To fit the other diamond wire into the brass fitting let another person coorperate by turning the diamond wire at the other end.

**The brassfitting is asymmetric. Make sure the brassfitting is in the same position as shown in the pictures!**



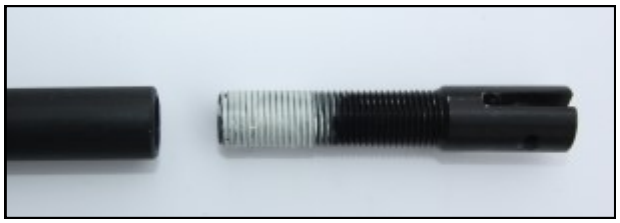
4. Grease the diamond adjuster bolt and adjust the washers and mastbase in the order as shown on the picture.
Place the mastbase on the mast and pull the diamondwires further through the diamond slots in the mast.

5. Bend the diamond wire tang away from the mast

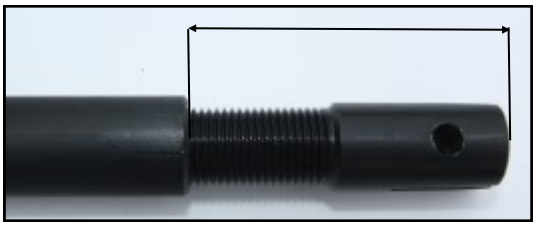
6. Adjust the diamondwires on the diamondwire tang with the two clevis pins 1/4 x 1/2 from the spreader attachment rigbox kit.
**The ring must be on the outside! Tape the Ring!**

## 2.2 SPREADERS

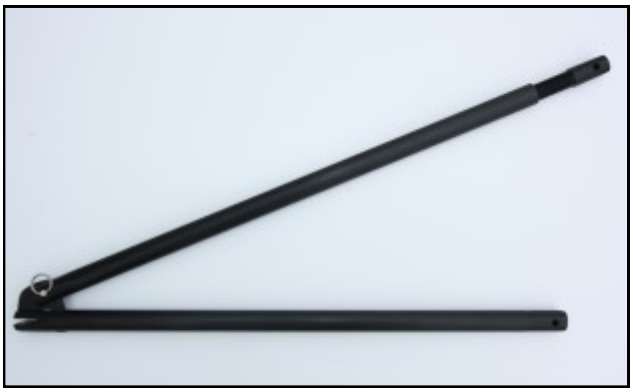
**Tools needed:**
- long nose plier



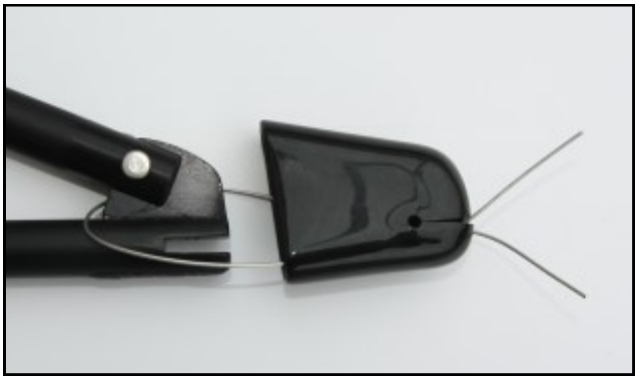
1. Grease the spreader tip



2. The spreadertip must be inserted at least 1cm! Lateron you can set the prefered spreader rake.



3. Assemble the two spreader bars using the clevis pins 3/16 x 5/8.
Now mount the spreaders on the mast with the spreadertip facing forward.
**The splitrings must face the bottom of this mast!**



4. Take the spreader tip cover and a monel-wire piece. Wind the wire around the spreader arm and put the two ends through the cover. Slide the cover over the spreader arm

5. Slide the diamond wires into the slots of the spreaders.
**Make sure the diamond wire is completely in the slot!**

6. Twist the wire ends around each side of the diamond wire.

7. Twist the two ends into each other.

8. Cut off the excess monel wire and ensure it is bent neatly onto the diamond wires to prevent the wire from tearing the sails.

9. Use vulkanizing tape to tape the spreader ends and the pins and rings

**Protect your sails, make sure no sharp wire ends are sticking out!**

## 2.4 SPREADER RAKE

Measure the spreaderrake by placing a batten on the diamond stays next to the spreaders. Measure to the back of the mainsailtrack.

You can change the spreader rake by unleashing the tension on the diamonds and adjusting the spreader tip. Always check if the spreader tips are screwed out equally.

Base settings: set spreaders on 45 mm.

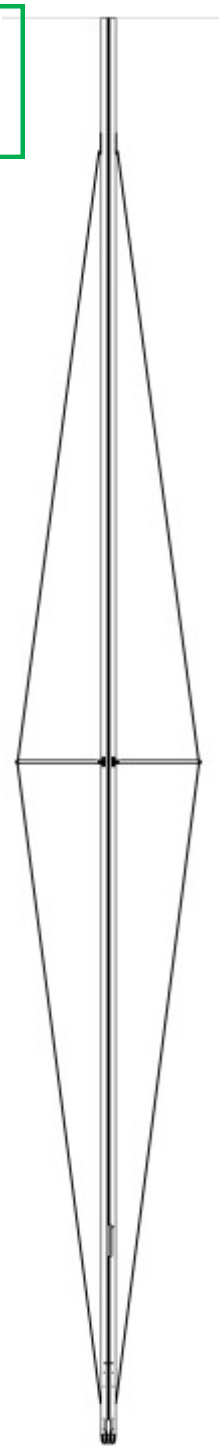
Not respecting the minimum or maximum spreader rake can cause severe damage/ breakage of the mast while sailing.

| Minimum spreader rake | Maximum spreader rake |
|---|---|
| 15 mm | 70 mm |

For specified tuning settings, check the trimsheets on www.nacrasailing.com

## 2.3 DIAMOND TENSION

**Tools needed:**
- wrench 17mm
- "Loose" tension gauge



1. Put tension on the diamond wires by tightening the mast bolt with an wrench size 17mm. Use the "loose" tension gauge to measure the tension on the diamonds.

   Base setting Nacra 17, Nacra F18 infusion and Nacra F20 Carbon ( FCS)
   * Set the diamond tension at 35 ( 225 KG) for 4mm wire.

   Base setting Nacra 16
   * set the diamond tension at 28 (190 KG) for 3mm wire.

| Diameter wire | Minimum load (KG) | Maximum load (KG) |
|---|---|---|
| 3 mm | 170 KG | 250 KG |
| 4 mm | 195 KG | 360 KG |

Overdoing the minimum or maximum diamond tension can cause severe damage to the mast while sailing.

2. After putting tension on the mast check if the mast is straight. Take a look along the rail from mast base to mast top.

   If the mast is bended to <u>starboard:</u>

   - Unleash the diamond tension
   - Detach the <u>port</u> diamond wire at the tang and shorten the wire with 1 full twist clockwise.
   - Attach the <u>port</u> diamond wire at the tang and put tension on the mast bolt again. Redo this process if necessary

   If the mast is bended to <u>port:</u>

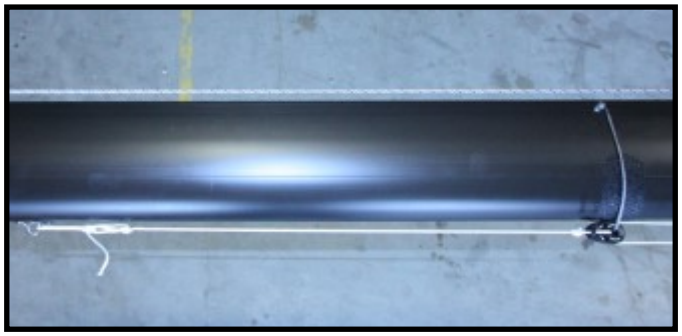
   - Unleash the diamond tension
   - Detach the <u>starboard</u> diamond wire at the tang and shorten the wire with 1 full twist clockwise.
   - Attach the <u>starboard</u> diamond wire at the tang and put tension on the mast bolt again. Redo this process if necessary

3. Tape the rings of the diamond tang when done.

## 2.5 SPINAKER HALYARD

1. Take the spin bale line and a carbo 29 mm T2 block. Lead one end of the spin bale line through the pre drilled holes in the mast and tie a figure 8 knot. Lead the other end of the spin bale line through the  of the block before mounting it to the mast.

   **Tape the ends of the bale line to slide easily through the pre  drilled holes**!



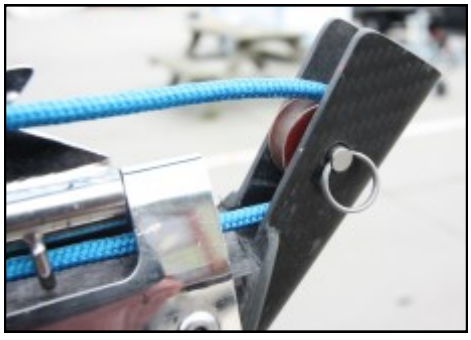
2. Adjust the block line to the top of the block and the strapeye above. Fixate the block on the same height as the bale line!


3. Adjust the big bullet pivoting. The cleat is facing downwards

4. Pull the spinaker halyard throug the topblock

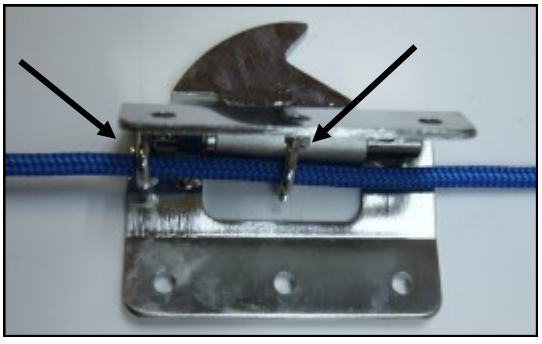
5. Attach the dynema wire end of the spinaker halyard temporary to the big bullet

## 2.6 MAIN HALYARD

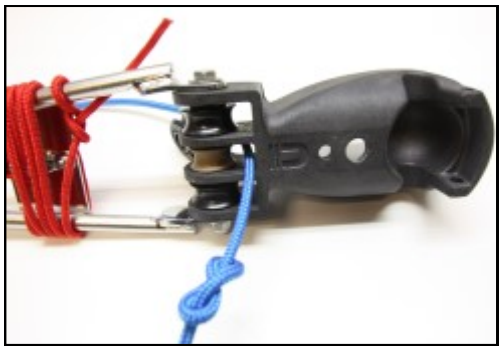


1. Mount the mast sheeve with the clevis pin 1/4 x 3/4 WL

   **Tape the ring!**



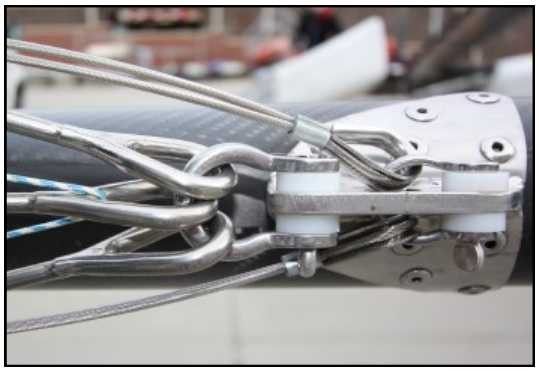
2. Lead the main halyard line first around the mast sheeve. Then through both eyes of the main halyard swifel and guide the line towards the mastbase, using a small screwdriver
   **Make sure the line goes through both eyes of the main halyard swivel!**



3. Tie a figure 8 knot at the bottom of the mast

4. Tie the other end of the main halyard line with a figure 8 knot to the eyelet on the main halyard ring. Tie everything temporally to the mast.

## 2.7 FIXING THE STAYS



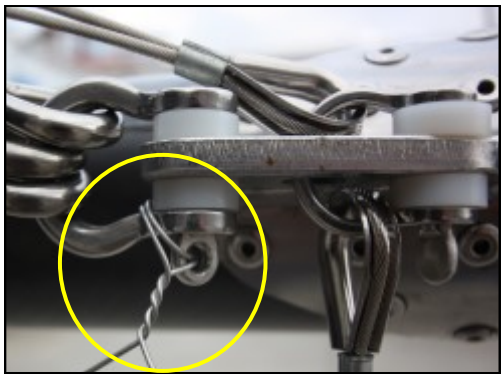
1. Take the shackle 8mm 5/16, 2 nylon washers, the shrouds and forestay. Adjust them as shown in the picture. The fore stay must be in the middle.
**Make sure the ring of the forestay is inwards!**

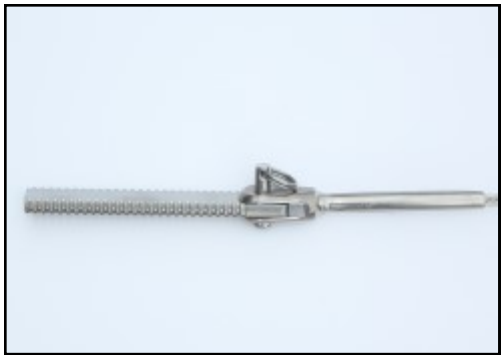
2. Take the shackle 6mm 1/4, 2 nylon washers and the trapeze wires. Put the shackle through the middle hole and adjust a trapeze wire on each side.
**Tighten both shackles firmly!**

**Tools needed:**
- long nose plier

3. Secure the shackle using the last monel wire piece. Do as shown in the picture.

**Cut the excess wire and bend it back through the hole of the shackle pin before taping it!** ⚠





4. Tape the monel wire piece using the vulcanizing tape.
**Check for sharp edges and tape if necessary!**

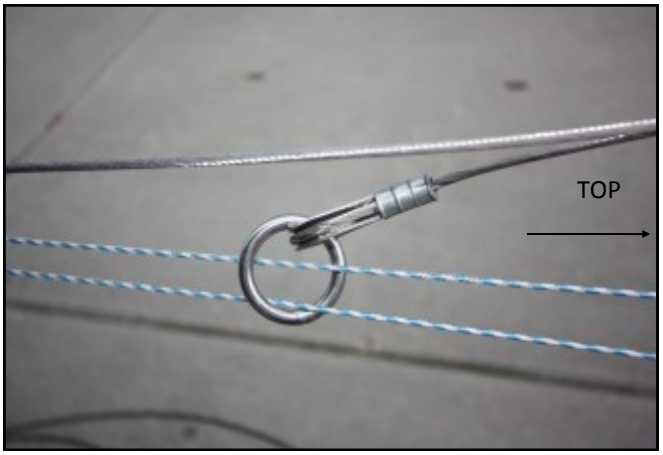
5. Unscrew the wire-end of the staymaster and mount it to the fork terminal of the shroud. Use the clevis pins 1/4x5/8.

## 2.8 JIBHALYARD

1. Take the jibhalyard and go through the eye of the adjusted forestay.

2. Both ends go through the ring at the forestay

   **check if the ring is located at the mastside.**




3. Adjust one end with a bowline at the eyelet of the S-hook. The other end is adjusted with a figure-8 knot using the small hole

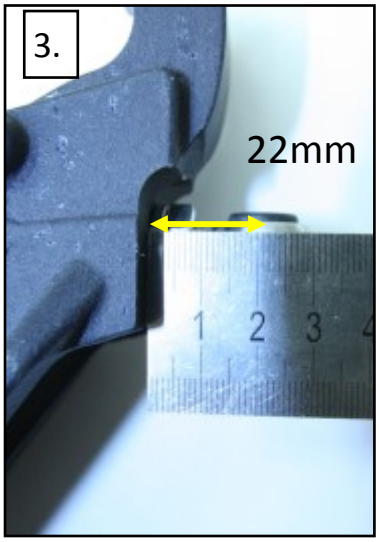
## 2.9 CUNNINGHAM SYSTEM

1. Take the 1:16 cunningham kit and tie the d12 5mm line to the 16 mm double blocks.
2. Loop the cunninghamline through the blocks as shown on the drawing.

# 3. RUDDERS

1. Assemble the upper and lower casting on the rudderblade. Use a flat screwdriver

2. Use the self locking slot for the nylock nut at the **port** side of the castings!

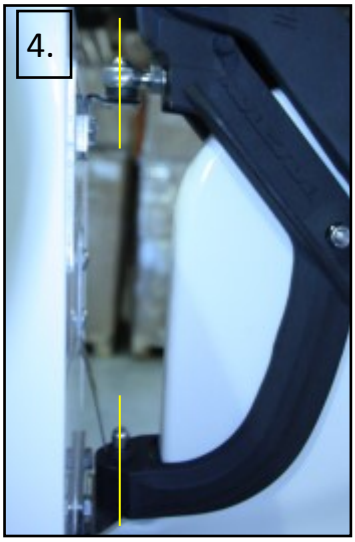



3. Measure from the back of the casting to the heart of the eye screw.

   This must be 22 mm!

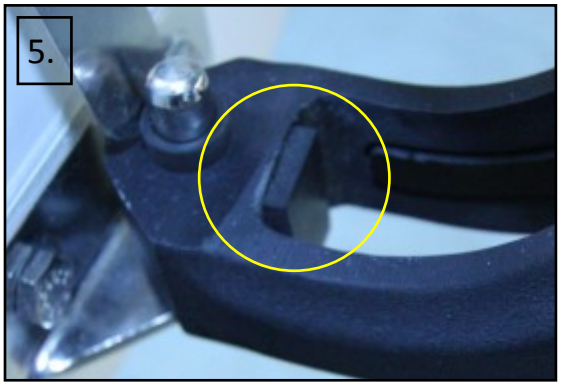
   - fix the eyescrew with a 9/16 wrench.

4. Check if the casting is able to pivot with out any resistance. If not, gently bend the pin of the rudder gudgeon in the right direction.




5. If you want to change the rudder rake, change the rubber for a smaller or bigger rubber.

   Parts are available at parts@nacrasailing.com

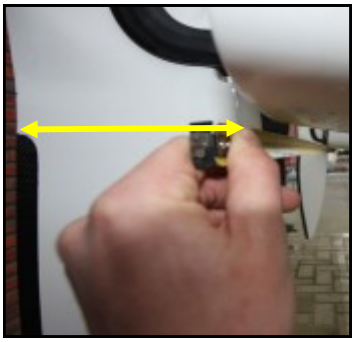



**Warning**

Changing the standard supplied distance (22mm) of the rudder system eyescrew can cause severe damage to rudder system, stern and rudder .

**Tools needed:**
- flat screwdriver
- philips screwdriver
- 7/16 wrench 2x
- 9/16 wrench

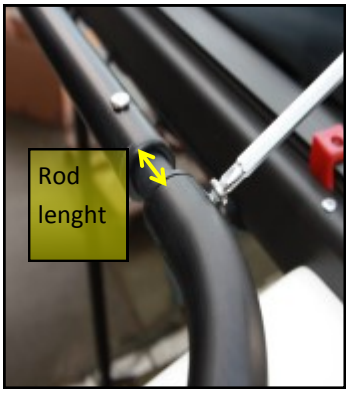
3. Put the boat on high support or a trailer to allign the rudders. High enough to lock down the rudders



5. Take the Philips screw out of the tiller-arm.

6. Place the tiller extension in between the arms
**check if the connector for the joystick is on top!!**

7. Measure the length between the middle of the rudders at the back and front of the rudders. Measure at the same horizontal level!



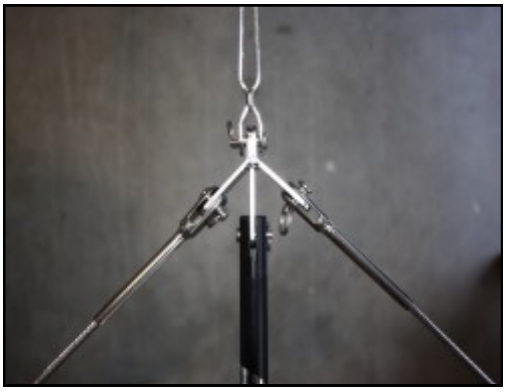

8. The rudders must face 2 mm inwards, this is adjustable by changing the rod length.

9. Check if the rod lenght is the same at both sides before you screw in the phillipscrew.

10. Fix the sliding bolt for the kick up tension, with the rudder locked in. Push the bolt forward and fix the bolt while you're still pushing forward. Use two 7/16 wrenches.

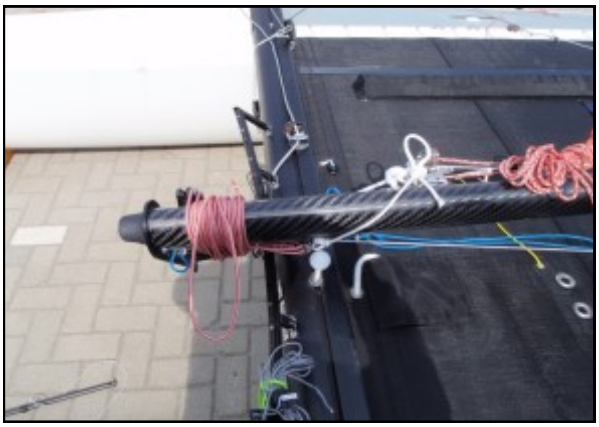
# 4. RIGGING

## 4.1 PREPARATION



1. Mount the bridle wires, stay adjuster and compression pole on the bridle connection fitting.
   Use the clevis pins 1/2 x 1/4
2. Adjust the ring 3x20 ss under the bridle on each side as shown in the picture.

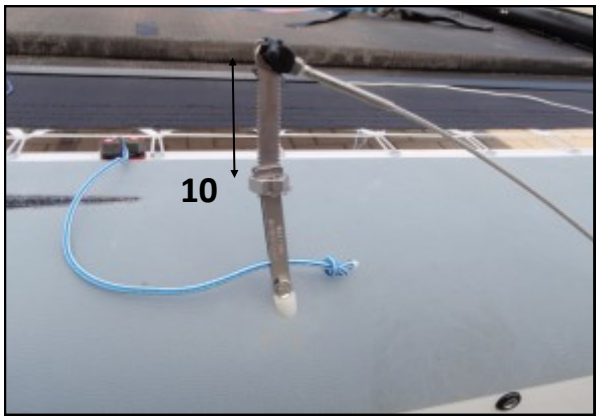
Note: The F18 Infusion has no compression pole and bridle connection fitting but a spi pole holder ring.



3. Place the mast with care on the trampoline with the masttrack down, support the back of the mast to prevent it from scratching!
4. Check if the rigging and the shackles are connected on the mast as have shown in the manual.

5. Attach the schrouds to the staymaster to the staymaster use the clevispin 1/4 x 5/8 WL .

   **Make sure the staymaster is at his maximum length:10!**

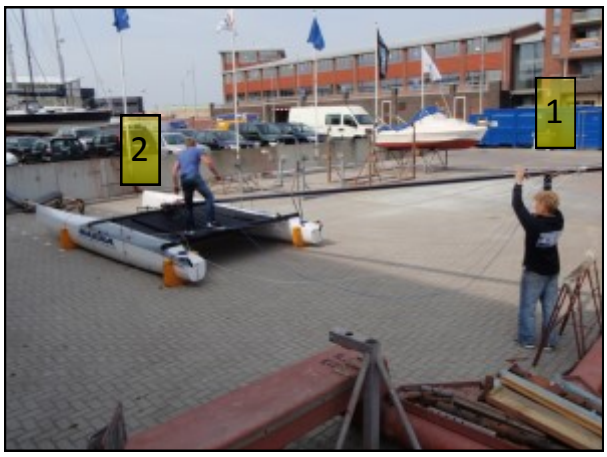



6. Attach the adjustable trapeze to the trapeze wires. Check page ...how to assemble the system.
7. Tie the adjustable trapeze wire to the trapeze shockcords.

   **Check if the shrouds and trapeze wires are in the right order before raising the mast!!**

## 4.2 RAISING THE MAST

Before raising the mast the boat should be steady on level ground. If the surface is not level, point the bows downhill. If the boat is on a trailer be sure it is tied down and the trailer tongue is secure to the hitch!




1. Place the mastbase on the mastball.
2. **1** holds the mast up with one spreader arm facing downwards, so the mastfoot doesn't hit the crossbar!
   **2** mount the mast pin and splitrings in the mastfoot.

**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!**

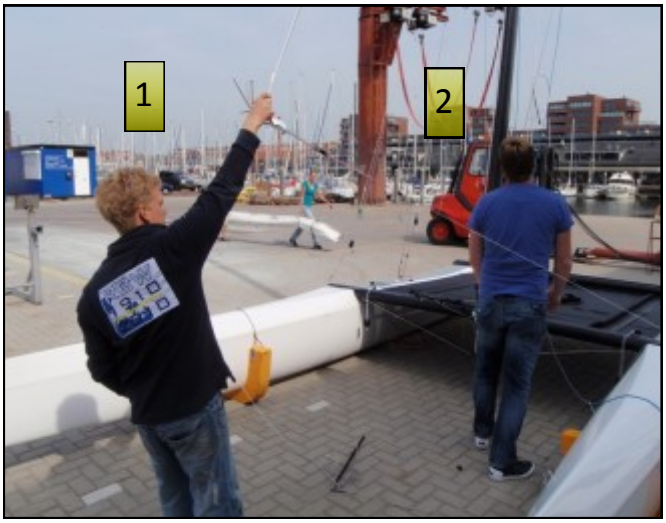
3. Check if all wires are in between the hulls
4. **1** walks forward lifting the mast and hand over the mast to **2**
   **2** holds the mast with one spreaderarm facing downwards!
5. **1** grabs the trapezewires located on the front



5. **1** pulls the mast by hanging easily on the trapezewires
   **2** push the mast upwards, still making sure the mastfoot doesn't hit the crossbar.

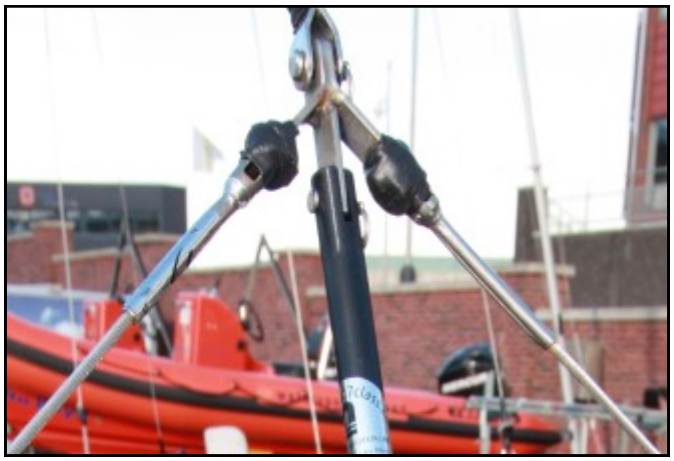
## ⚠ WARNING!

**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.**

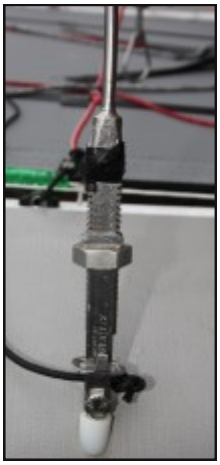



6. **1** holds the mast forward pulling on the trapeze
   **2** grab the forestay


7. **2** attach the forestay to the shroud adjuster.



8. Tape the rings!
9. Put tension on the shrouds.

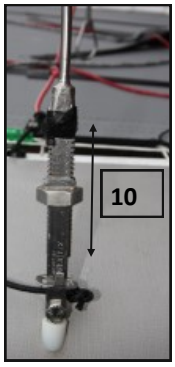


## ⚠WARNING!

**<u>CAUTION</u>: 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.**

## 4.3 LOWERING THE MAST

Before lowering the mast the boat should be steady on level ground. If the surface is not level, point the bows downhill. If the boat is on a trailer be sure it is tied down and the trailer tongue is secure to the hitch!





1. Detach the spipole!
2. **Check if the mast pin is in the mastfoot !!**
3. Undo the tension of the staymasters. Set them on maximum length:10
4. **1** holds the mast forward pulling on the trapeze
   **2** release the forestay from the stay adjuster.


4. **1** guides the mast by hanging easily on the trapezewires
   **2** lowers the mast, twist the mast with one spreaderarm facing downwards!! making sure the mastfoot doesn't hit the crossbar.


5. **1** hangs backward lowering the mast
   **2** lower the mast with one spreaderarm facing downwards!


6. **1** holds the mast up with one spreader arm facing downwards, so the mastbase doesn't hit the crossbar!
   **2** pull the pin out of the mastbase and take the mast of the mastball. Put the mast gently on the crossbar.

## ⚠ WARNING!

**<u>CAUTION</u>: 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.**

## 4.4 SNUFFERBAG

1. Take the spipole, snuffer ring and snufferbag and a hex …….mm.

2. Unscrew the hexscrew out of the spipole

3. Slide the snufferbag into the slot of the snuffer ring

4. Screw the snufferring handtight on the spipole,attach the snufferbag on the spipole using the velcro band.

## 4.5 SPIPOLE

Note: F18 infusion

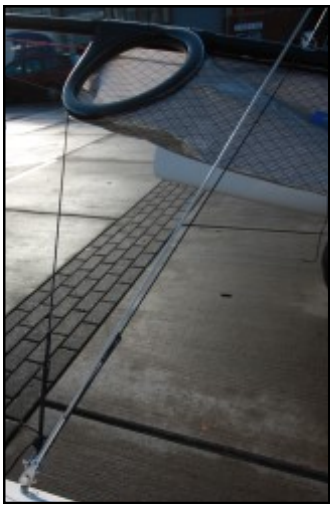
First slide the spipole througt the spipole holder ring .

1. Slide the spipole over the spipole pin on the front crossbar.

**Make sure the jibsheet is on top of the spipole**

2. Attach the spipole on the spipole outholder

3. Push the spipole gently down in order to attach the front spipole bridle located on the front of the spipole on the bridle pin with the clevispins 3/16 x 3/8.

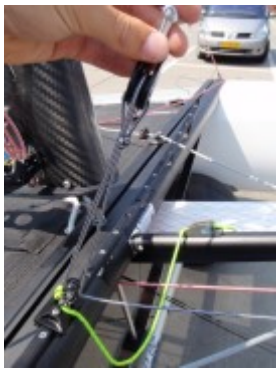


4. Tie the snufferline in front of the snuffer-ring. The other end must be tied on the ring at the bridle

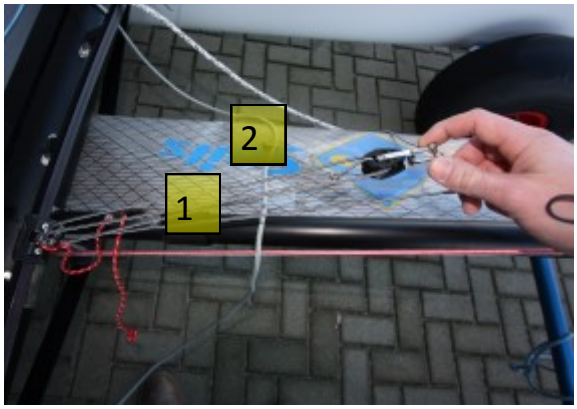
**The line goes in the slot on the front of the snuffer ring**

5. Tie the spipole bridle line in front of the spipole outholder. Tie the other end to the rings at both bridle wires.

## 4.6 JIBSHEET



1. Take the jibsheet small, one carbo 29mm block and a Shackle D 5mm.
2. Tie one end onto the middle of the 29mm block and the feed the jib-sheet through the the first sheave of the double block located on the traveller of the selftacking track.
3. Feed the line through the carbo 29mm block and through the second sheave of the double block.




4. The jibsheet small (1) must be on top of the jibsheet big (2).

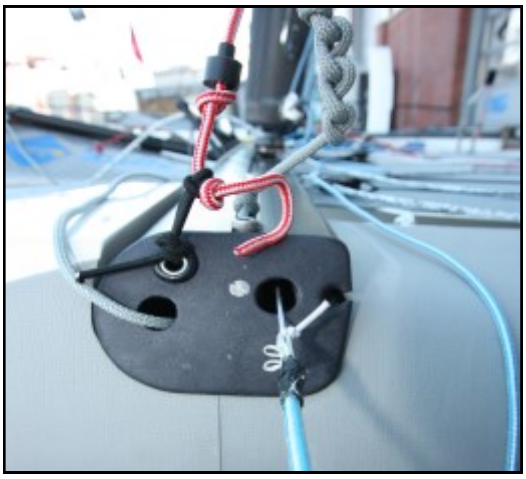
5. Loop the end through the block on the spipole located back of the compression pole

6. Tie the end of the jibsheet small to the 16mm block already attached at the jibsheet big.

7. Feed the track travellerline of the jib through the cleat mounted on the spi-pole to range the track.

## 4.7 TACKLINE-CUNNINGHAM-BOOM

- Pull the tackline forward and feed the the tackline through the 29mmblock on the front of the spipole. Tie a figure-8 knot in the line.

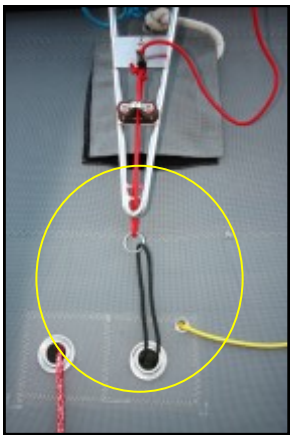


- Tie both ends of the cunninghamline to the shock-cord coming, wich is accessable by pulling the mouseline pre-installed in the front crossbar.

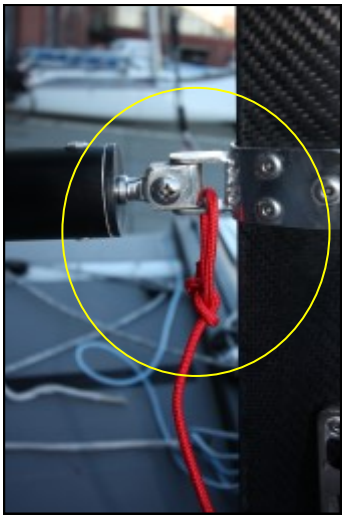
- Mount the boom on the mast using the philips screw .

**Tools needed:**
- philips screwdriver

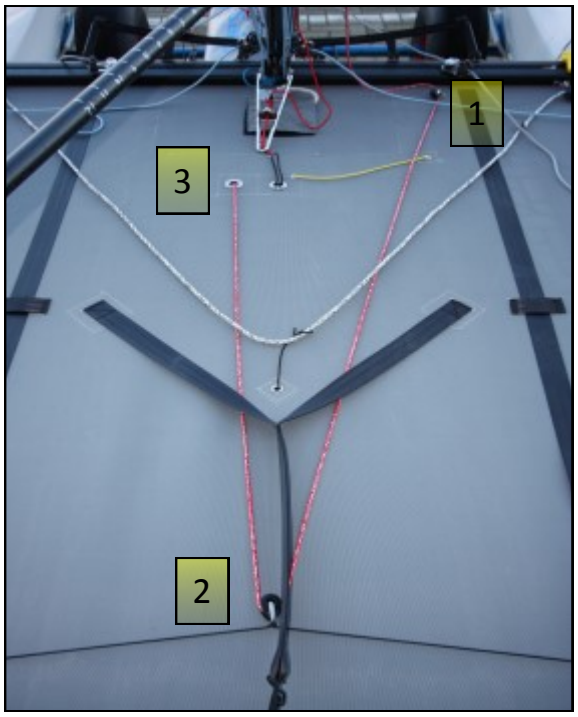
## 4.8 MASTROTATION



1. Loop the pre-installed mastrotationline through the ring located at the mastratator arm. Then go back through the same grommet.
2. Use the cleat on the other side and tie the end of the line to the staymaster.
3. Tie the end of the quick release line to the boombale



## 4.9 SPINHALYARD

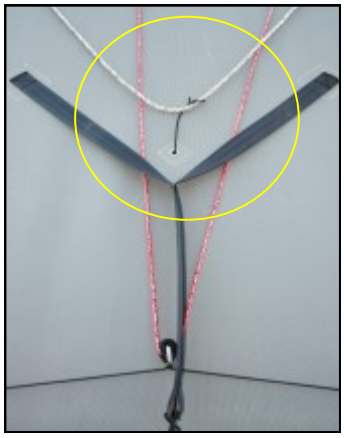



1. Feed the spinakerhalyard through the trampoline 29mm block. Go underneath the cunningham line.
2. Go underneath the v-bar and through the retrieval 29mm block.
3. Use the port big grommet to go underneath the trampoline

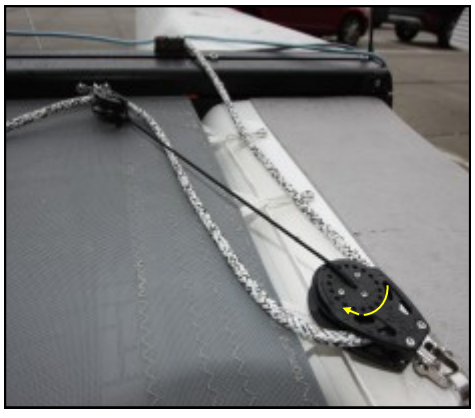
4. Go through the grommet in the snufferbag

5. Use a batten or tiller extension to pull the spinhalyard through the snufferbag. Tie the line temporary onto the spipole.

## 4.10 SPINSHEET



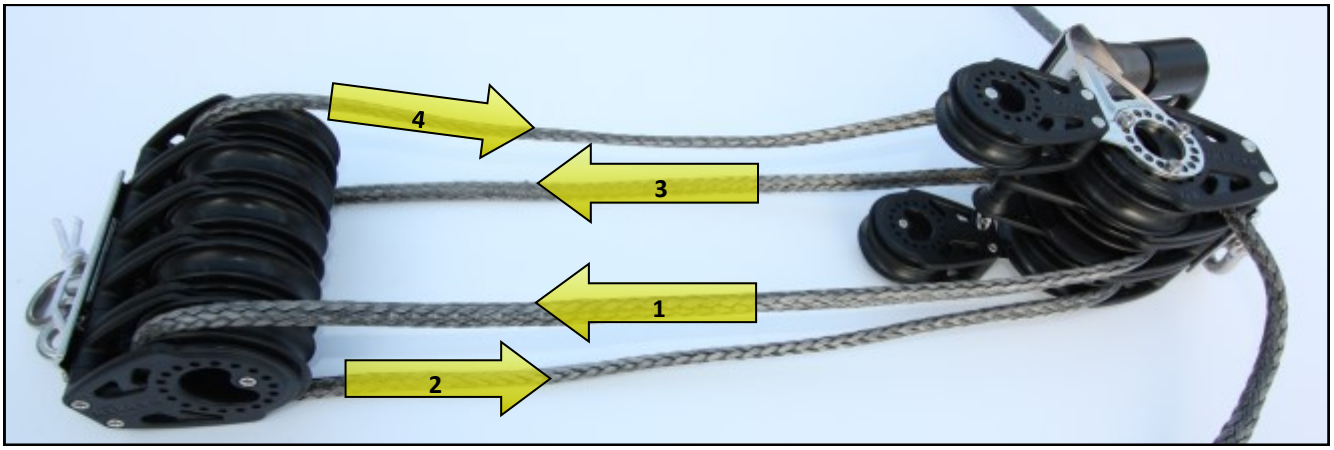
1. Tie the shockcord located in front of the v-bar to the middle of the spinsheet.

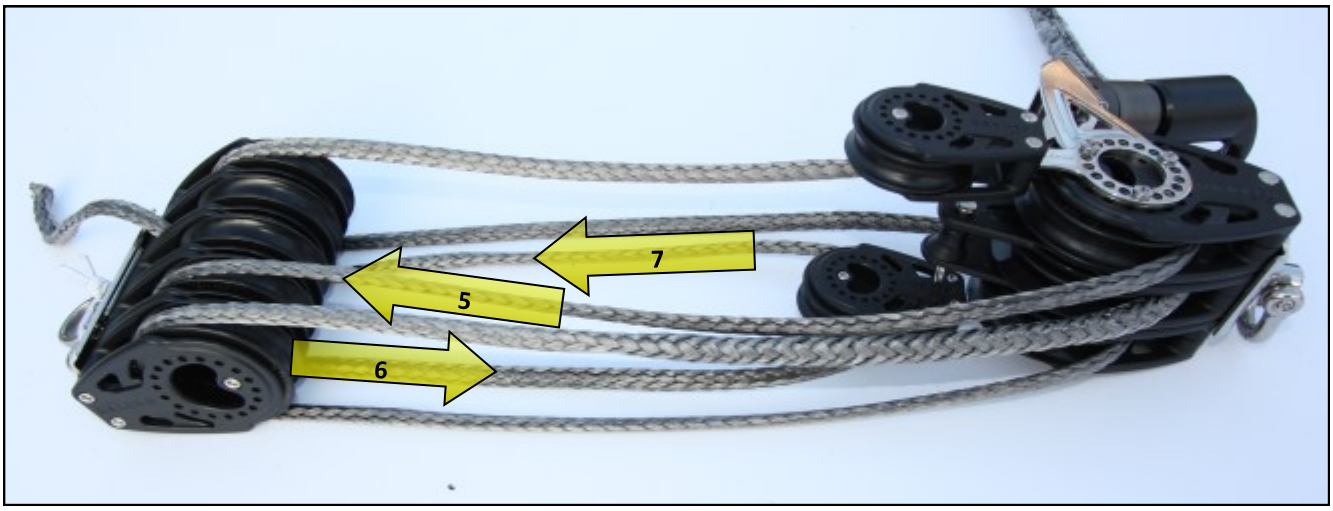


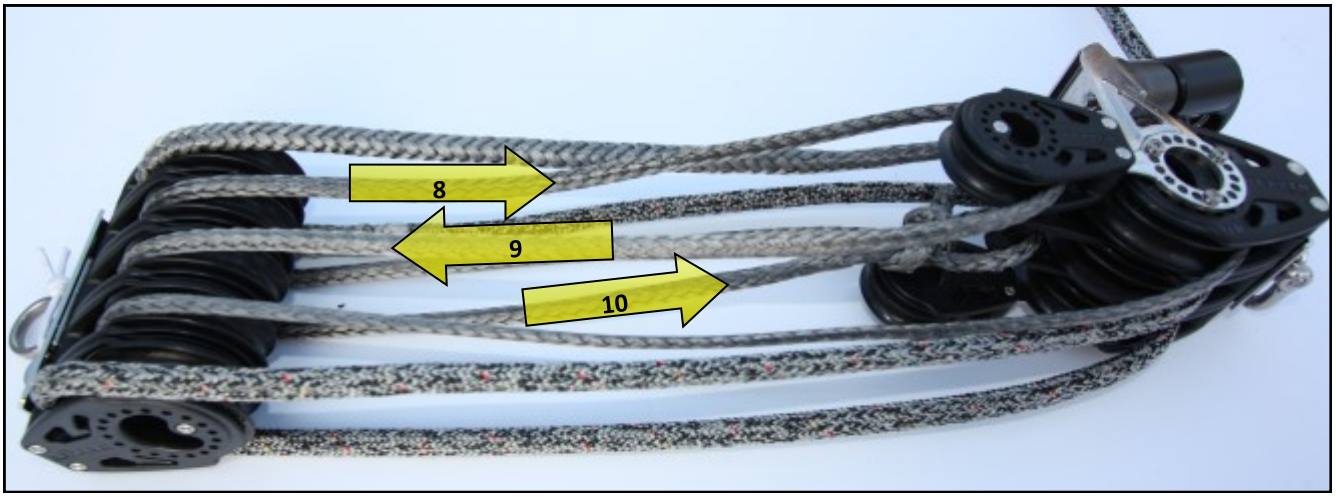
2. Go through the spiblocks as shown on the picture.

**make sure the arrows of the rathmatic are inboard!**

## 4.11 MAINSHEET 1:10



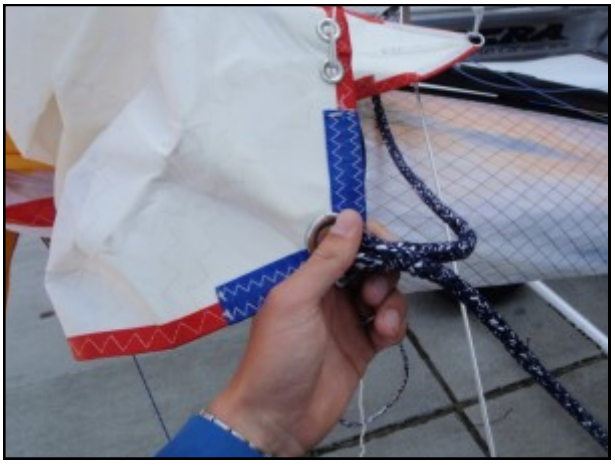
# 5. SETTING THE SAILS

## 5.1 SPINAKER


1. Attach the tack of the spinaker to the tackline

2. Follow the leading edge of the sail and tie the spiakerhalyard to the head of the spinnaker. Tie the end of the spinaker halyard coming from the top of the mast.

3. Take the other end of the spinakerhalyard and go through the rings and tie the end to the loop on the 3rd patch



4. Follow the foot of the sail back to the clew. Here you can attach both ends of the sheet the spinsheet. Make sure the sheets are in front of the forestay

## 5.2 RAISING THE JIB

1. Hook the jib on the S-hook. Close the zipper while raising , with the jibhalyard zipped in with the jibhalyard in between.

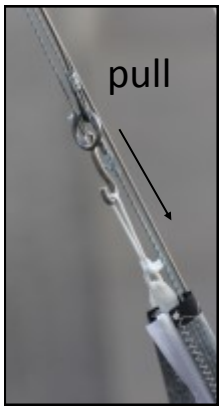
2. Raise the jib until the S-hook is pulled through the ring.
3. Gently pull the jib down to lock the S-hook in the ring.

Note: the jibdownhall is only standard on the

4. Feed the jibdownhall line through the 16mm-block located on the starboard side next to the compression pole. Go through the ring on the tack of the sail and loop around the pole in order to tie it around the ouholderbase.
5. Attach the jibsheet small to the clew of the sail

## 5.3 LOWERING THE JIB

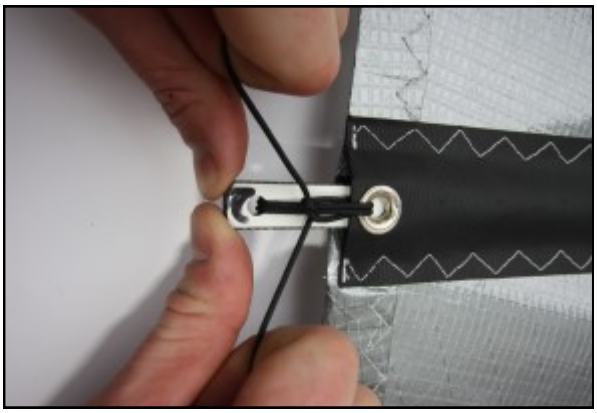
1. To lower the jib release the jibdownhall and the jibsheet small.
2. Raise the jib a bit and pull on the other line, while keeping tension on both lines, in order to unlock the S-hook of the ring

## 5.4 BATTENS

1. Pull the two batten tension lines through the small hole in the batten from bottom to top. Make sure each line stays on his own side.

2. Go through the grommet in the battenpocket from outside in.



3. Push the batten forward for tension, tie the overhand knot at the same time. Just get rid of the wrinkles in the sail

4. Finish tying with a square knot and tuck the loose ends in the batten pocket.

## 5.5 RAISING THE MAINSAIL

1. Roll the mainsail from the bottom to top.

2. Attach the mainhalyard to the sail.

**The knot must be on the mast side. Occaisionally it can happen that the system works better with the knot on the other side.**

3. Guide the mainsail into the slot of the mast

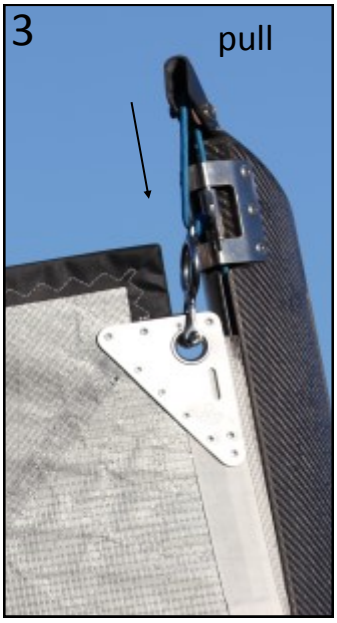

4. Lift the mailsail with the mainhalyard

5. Lift the mainsail until you reach the masthook.
6. Gently pull down to lock the mainhalyard ring in the masthook.
7. Slide the foot of the sail in the mastslot.

## 5.6 LOWERING THE MAINSAIL


1. Pull on the mainhalyard to raise the mainsail.


2. Twist the mast 60˚ while still having tension on the mainhalyard.




3. Pull the mainsail down.

4. Gently lower the mainsail and roll the the mainsail starting at the foot of the sail.

**Prevent the sail from folding!**

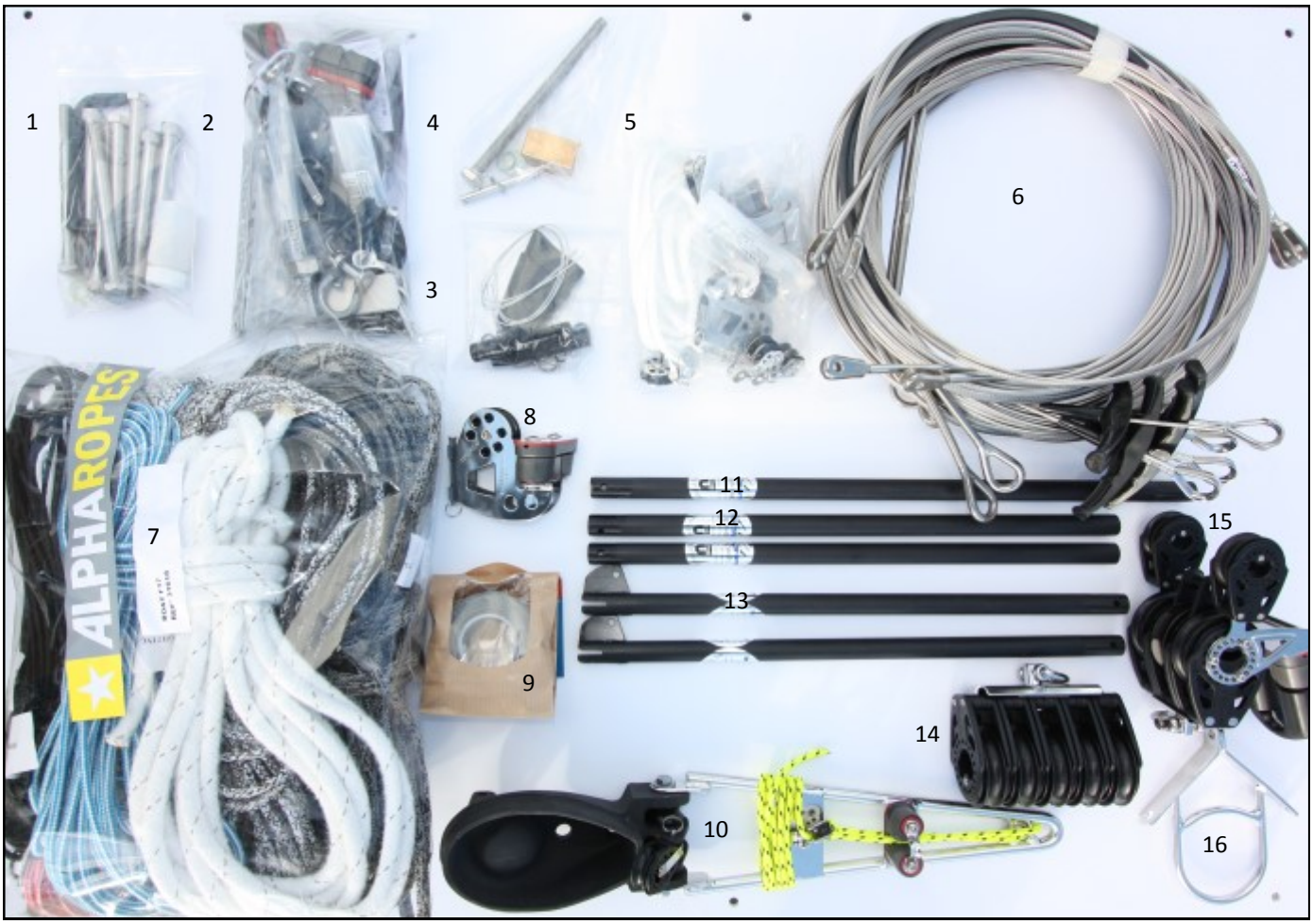
**Always roll your mainsail top down with the topbatten taken out**

# 6. PARTS

## 6.1 ARRIVAL OF PARTS

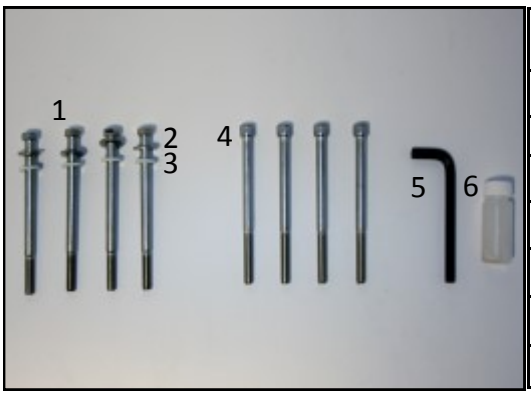
| DESCRIPTION | REFERENCE | | | | QUANTITY |
|---|---|---|---|---|---|
| | NACRA F16 | NACRA 17 | NACRA F18 infusion | NACRA F20 Carbon | |
| **Hull port** | 12058P | 12059P | 12048-2P | 12051P | 1 |
| **Hull strbd** | 12059S | 12059S | 12048-2S | 12051S | 1 |
| Spipole complete w/o ring: **in hullbox** | 31573 | 31622 | 30994 | 31145 | 1 |
| **Mast** | | 31620 | 30169 | 31185 | 1 |
| **Hardwarebox** | 40006 | 40007 | 40004 | 40005 | 1 |
| Front crossbar complete | 31584 | 31607 | 30045 | 31142 | 1 |
| Rear crossbar complete | 31583 | 31610 | 30086 | 31144 | 1 |
| Centerboard port | 31599 | 31673P | 31232 | 31156P | 1 |
| Centerboard strbd | 31599 | 31673S | 31232 | 31156S | |
| Rudderblades | 31600 | 31747 | 30131 | 30131 | 2 |
| Uppercasting with hardware Port | 40117 | 40116 | 40108-2 | 40108-2 | 1 |
| Uppercasting with hardware strb | 40116 | 40117 | 40107-2 | 40107-2 | 1 |
| Lowercasting with hardware | 30114-2 | 40100-2 | 30114-2 | 30114-2 | 2 |
| Boom complete | 31574 | 31611 | 31078 | 31260 | 1 |
| Tillerbar with connection part | 30137 | 31612 | 30137 | 31562 | 1 |
| Joystick | 30371 | 30371 | 30371 | 31173 | 1 |
| Trampoline | 60270-01/02 | 60277-01/02 | 60284-01/02 | 60260-01/02 | 1 |
| Trampoline tie rod | 30291 | 30291 | 30291 | 31276 | 1 |
| Mainsail | options | 60273-01 | Options | options | 1 |
| Jib | options | 60274-01 | options | Options | 1 |
| Spinnaker | options | 60275-01/02/03 | Options | options | 1 |
| Spi snuffer bag | 31572 | 31674 | 30924 | 31238 | 1 |
| Spi snuffer ring | 30916 | 30916 | 30916 | 30916 | 1 |
| Owners manual | | | | | |
| CE documents | | | | | |
| Sailnumbers | 31530 | | | | |
| **Rigbox** | 40017 | 40018 | 40015 | 40016 | 1 |

# 6.2 RIGBOX



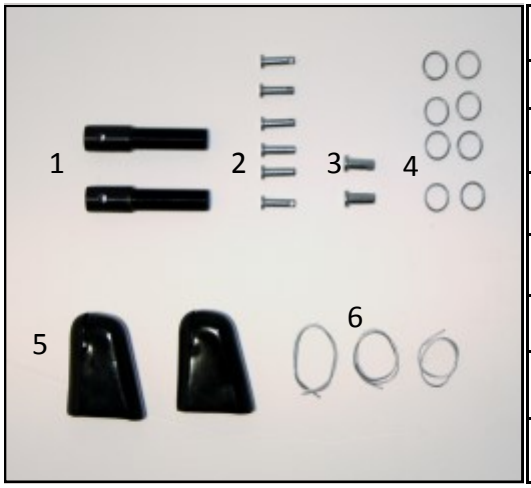

| NR. | DESCRIPTION | REFERENCE | | | | QUANTITY |
|---|---|---|---|---|---|---|
| | | NACRA F16 | NACRA 17 | NACRA F18 infusion | NACRA F20 Carbon | |
| 1 | Kit crossbar | 40120 | 40120 | 40120 | 40120 | 1 |
| 2 | Kit misc | 40129 | 40130 | 40122 | 40122 | 1 |
| 3 | Kit spreader attachment | 40124 | 40124 | 40124 | 40124 | 1 |
| 4 | Kit diamond adjuster small | 40126 | 40126 | 40126 | 40126 | 1 |
| 5 | Cunningham system 1:16 | 31731 | 31731 | 31731 | 31731 | 1 |
| 6 | Riggingset | 40508 | 40505 | 40502 | 40503 | 1 |
| 7 | Linepackage race | 31589 | 31618 | 30682 | 31169 | 1 |
| 8 | big bullet pivoting exit | 31719 | 31719 | 31719 | 31719 | 1 |
| 9 | vulkaniserend tape | 10110 | 10110 | 10110 | 10110 | 1 |
| 10 | mast base complete | 40114 | 40111 | 40111 | 40112 | 1 |
| 11 | compression pole | 31700 | 31700 | ---------- | 31190 | 1 |
| 12 | spreader bar aft black | 30335 | 30335 | 30335 | 31194 | 2 |
| 13 | spreader bar fwd black | 30336 | 30336 | 30336 | 31193 | 2 |
| 14 | 57mm boom block 5sh | 30673 | 30673 | 30673 | 30673 | 1 |
| 15 | 57mm ratchet block 5sh | 30958 | 30958 | 30958 | 30958 | 1 |
| 16 | Spipole holder ring | ————- | ————- | 30216 | ————- | 1 |

## 6.3 ASSEMBLY KITS



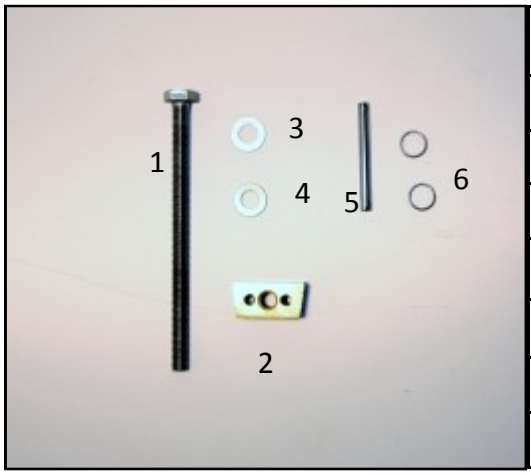

### RIGBOX KIT CROSSBAR 40120

| NR | DISCRIPTION | REFERENCE | QUANTITY |
|---|---|---|---|
| 1 | Crossbar bolt front | 30360 | 4 |
| 2 | Crossbar bolt rear | 30361 | 4 |
| 3 | Washer ss rear crossbar | 31114 | 4 |
| 4 | Fiberglass washer | 31113 | 4 |
| 5 | Allen tool size 5/16 | 31456 | 1 |
| 6 | NACRA grease | 31697 | 1 |




### RIGBOX KIT SPREADER ATTACHMENT 40124

| NR | DISCRIPTION | REFERENCE | QUANTITY |
|---|---|---|---|
| 1 | spreader bar screw fine | 30337 | 2 |
| 2 | clevis pin 3/16 x 5/8 WL | 31624 | 6 |
| 3 | clevis pin 1/4 x 1/2 WL | 30524 | 2 |
| 4 | Split Ring | 30553 | 8 |
| 5 | spreader tip cover | 30322 | 2 |
| 6 | Monel wire piece | 31462 | 3 |



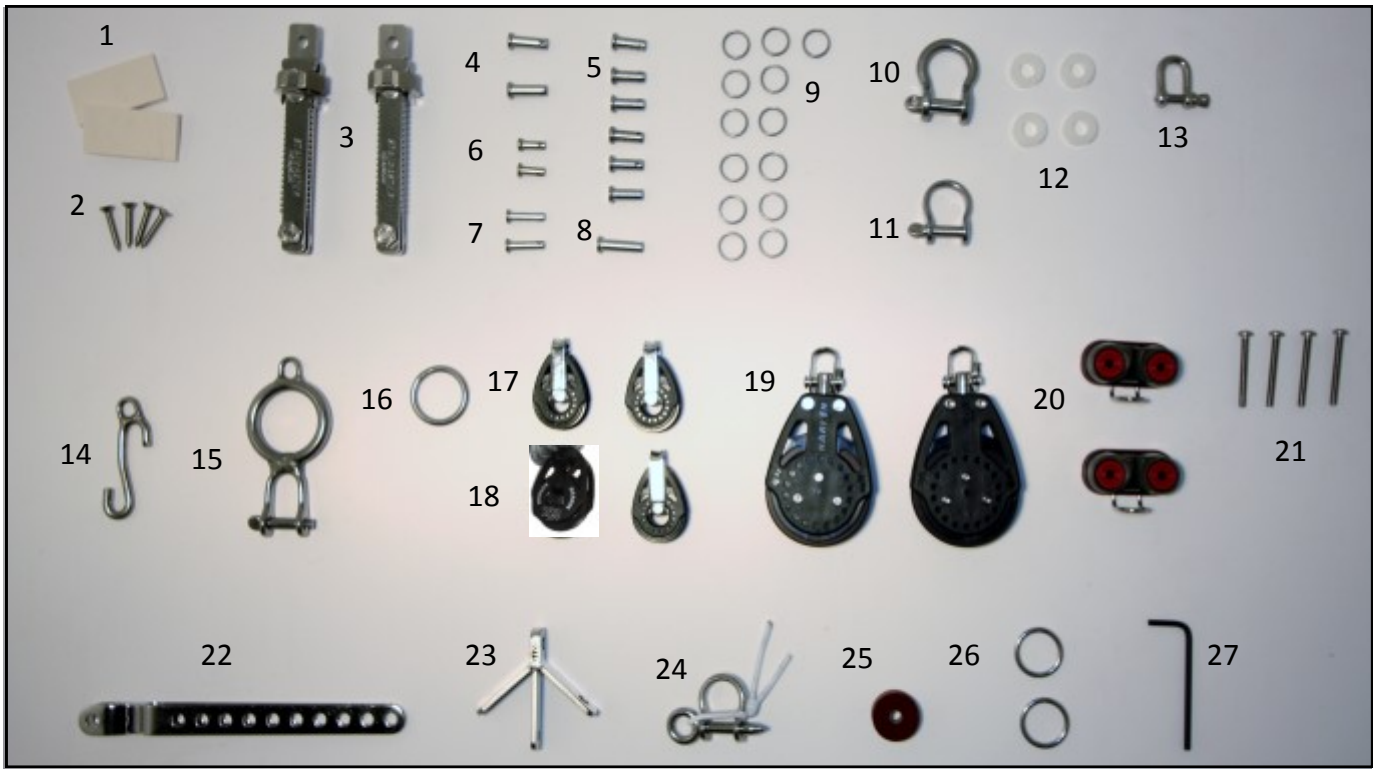

### RIGBOX KIT DIAMOND ADJUSTER 40126

| NR | DISCRIPTION | REFERENCE | QUANTITY |
|---|---|---|---|
| 1 | bolt diamond adjuster | 30187 | 1 |
| 2 | brass fitting | 31701 | 1 |
| 3 | washer ss front crossbar | 31117 | 1 |
| 4 | fiberglass washer | 31113 | 1 |
| 5 | mast step pin | 30356 | 1 |
| 6 | Split Ring | 30553 | 2 |


### CUNNINGHAM SYSTEM 1:16 31731

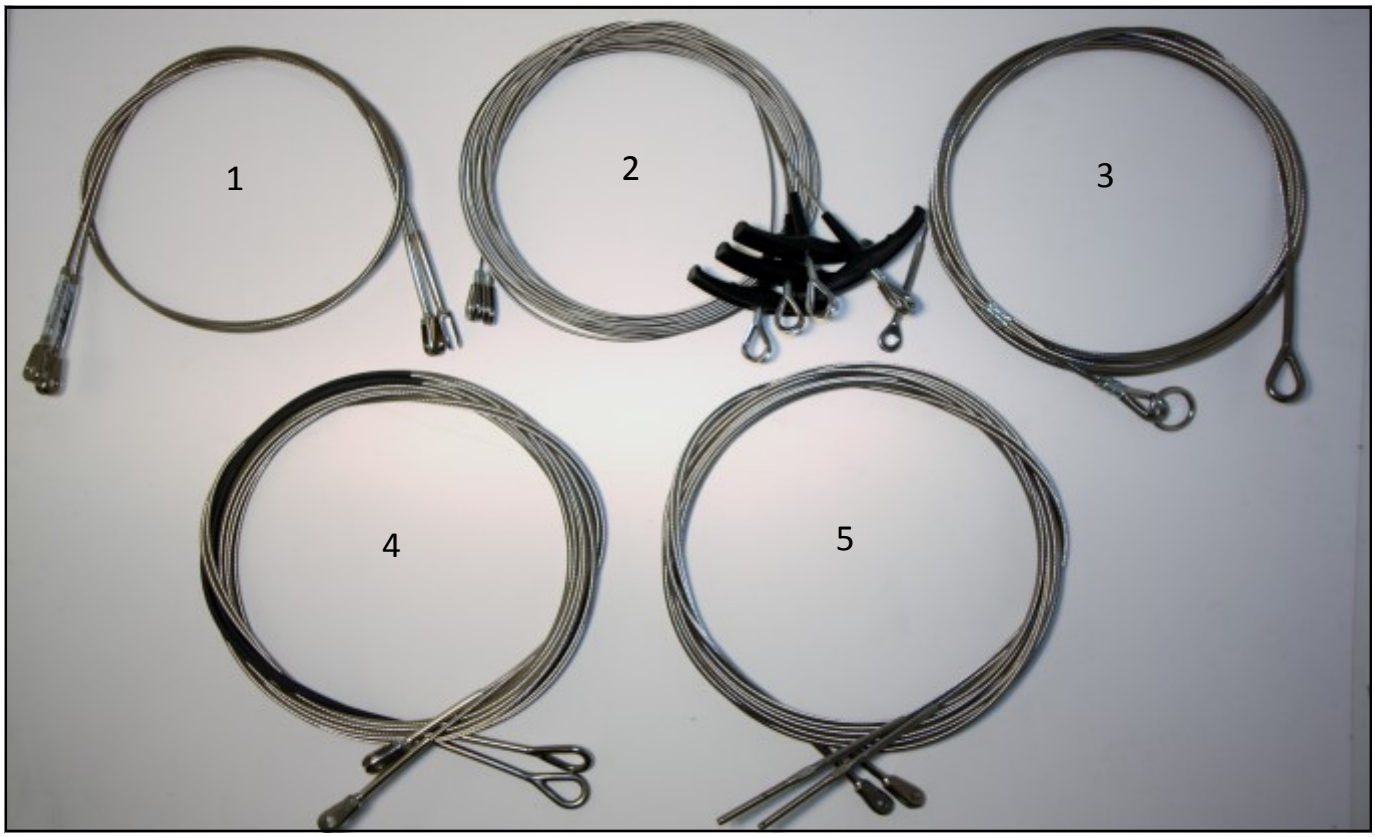
| NR | DISCRIPTION | REFERENCE | QUANTITY |
|---|---|---|---|
| 1 | 16mm double | 30649 | 2 |
| 2 | wire block 29mm | 30634 | 2 |
| 3 | Split Ring | 30553 | 2 |
| 4 | d12 5mm | 10055 | 2 |
| 5 | bullet pivoting exit | 31720 | 1 |

# 6.4 MISC KIT



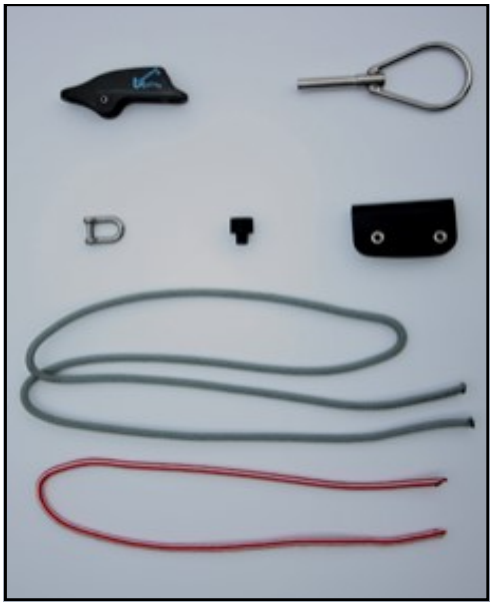

| NR | DISCRIPTION | REFERENCE | QUANTITY |
|---|---|---|---|
| 1 | Daggerboard holder wide (spare) | 31590 | 2 |
| 2 | Screw 4.2x25mm (spare) | 31463 | 4 |
| 3 | Staymaster 1/8” | 30372 | 2 |
| 4 | Clevis pin 1/4 x 5/8 WL (staymaster) | 31077 | 2 |
| 5 | Clevis pin 1/4 x 1/2 WL (bridle) | 30524 | 6 |
| 6 | Clevis pin 3/16 x 3/8 WL (spibridle) | 30488 | 2 |
| 7 | Clevis pin 3/16 x 5/8 WL (compression pole) | 31624 | 2 |
| 8 | Clevis pin 1/4 x 3/4 WL (Mast sheeve) | 30416 | 1 |
| 9 | Split ring | 30553 | 13 |
| 10 | Shackle 8mm 5/16 | 30779 | 1 |
| 11 | Shackle 6mm 1/4 | 30685 | 1 |
| 12 | Shackle washer nylon | 40201 | 4 |
| 13 | Shackle D 5mm | 31458 | 1 |
| 14 | s-hook jib | 30334 | 1 |
| 15 | Main halyard ring w/shackle | 30312 | 1 |
| 16 | Ring 4x25mm ss | 30816 | 1 |
| 17 | Carbo 29mm single fixed assymetric (1 extra for f18 inf./C20) | 30640 | 4 |
| 18 | Harken 29mm T2 carbo soft attach single (spi block top) | 31904 | 1 |
| 19 | Carbo 57 ratchmatic single | 30605 | 2 |
| 20 | Cleat harken small w/ wire fairlead | 31470 | 2 |
| 21 | Screw for harken cam cleat | 31466 | 4 |
| 22 | shroud adjuster | 30326 | 1 |
| 23 | Bridle connection fitting (Only F16/N17/C20) | 31698 | 1 |
| 24 | Shackle 6mm w/shockcord | 30683 | 1 |
| 25 | Mast sheave (spare N17) | 30185 | 1 |
| 26 | Ring 3x20mm ss | 30702 | 2 |
| 27 | Allen tool size 3 | 31714 | 1 |

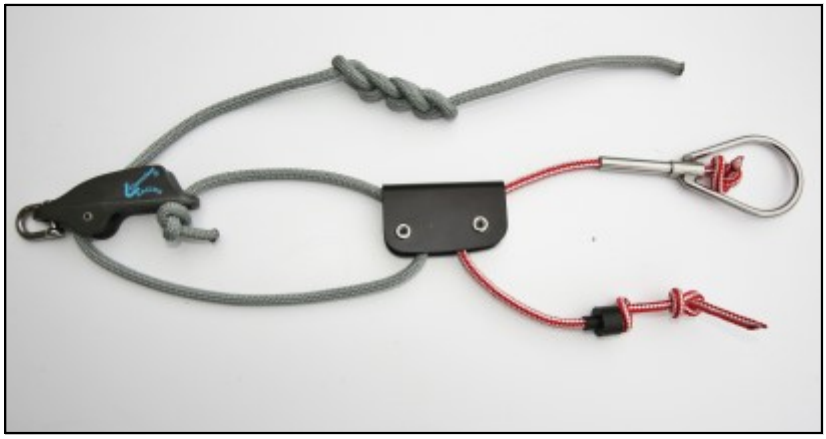
## 6.5 RIGGINGSET



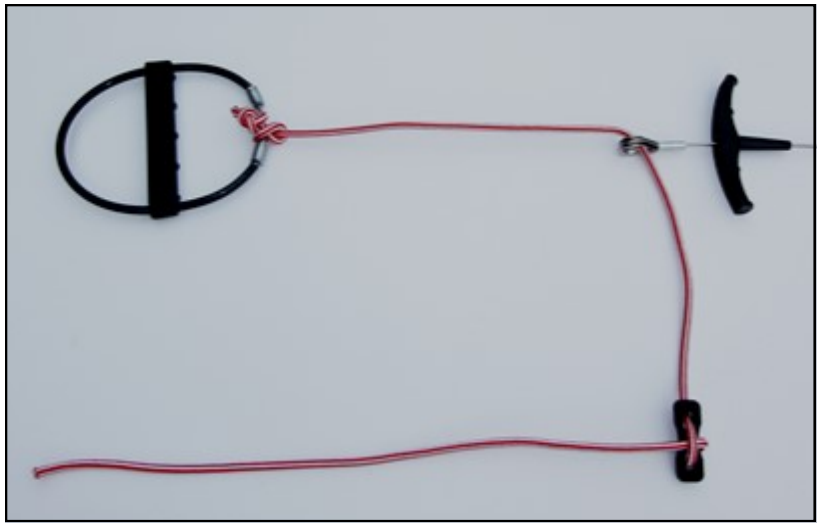

| NR. | DESCRIPTION | REFERENCE | | | | QUANTITY |
|---|---|---|---|---|---|---|
| | | NAERA F16 | NAERA 17 | NAERA F18 INFUSION | NAERA F20 Carbon | |
| | forestay | 31728-2 | 31613 | 30218-2 | 31147-2 | 1 |
| | shroud | 31581-2 | 31614 | 30696-2 | 31146-2 | 2 |
| | trapeze wire double | 31582 | 30222 | 30222 | 31151 | 2 |
| | diamond wire | 31578 | 30223 | 30223 | 31154 | 2 |
| | bridle wire | 31577 | 31617 | 30220 | 31148 | 2 |

# 6.6 TRAPEZE SYSTEMS





| option adjustable trapeze | | | |
|---|---|---|---|
| **NR.** | **discription** | **reference** | **quantity** |
| 1 | Shackle D 5mm hex | 31707 | 4 |
| 2 | Clam cleat trapeze cl253 | 30923 | 4 |
| 3 | Trapeze block black | 30692 | 4 |
| 4 | Trapeze ring race | 30681 | 4 |
| 5 | Trapeze stop | 30938 | 4 |
| 6 | Line package adjustable trapeze | 31713 | 1 |



| option can’t miss | | | |
|---|---|---|---|
| **NR.** | **discription** | **reference** | **quantity** |
| 1 | Trapeze ring can’t miss | 30333 | 4 |
| 2 | Trapeze height adjuster | 30695 | 4 |
| 3 | Line package standard trapeze | 31712 | 1 |