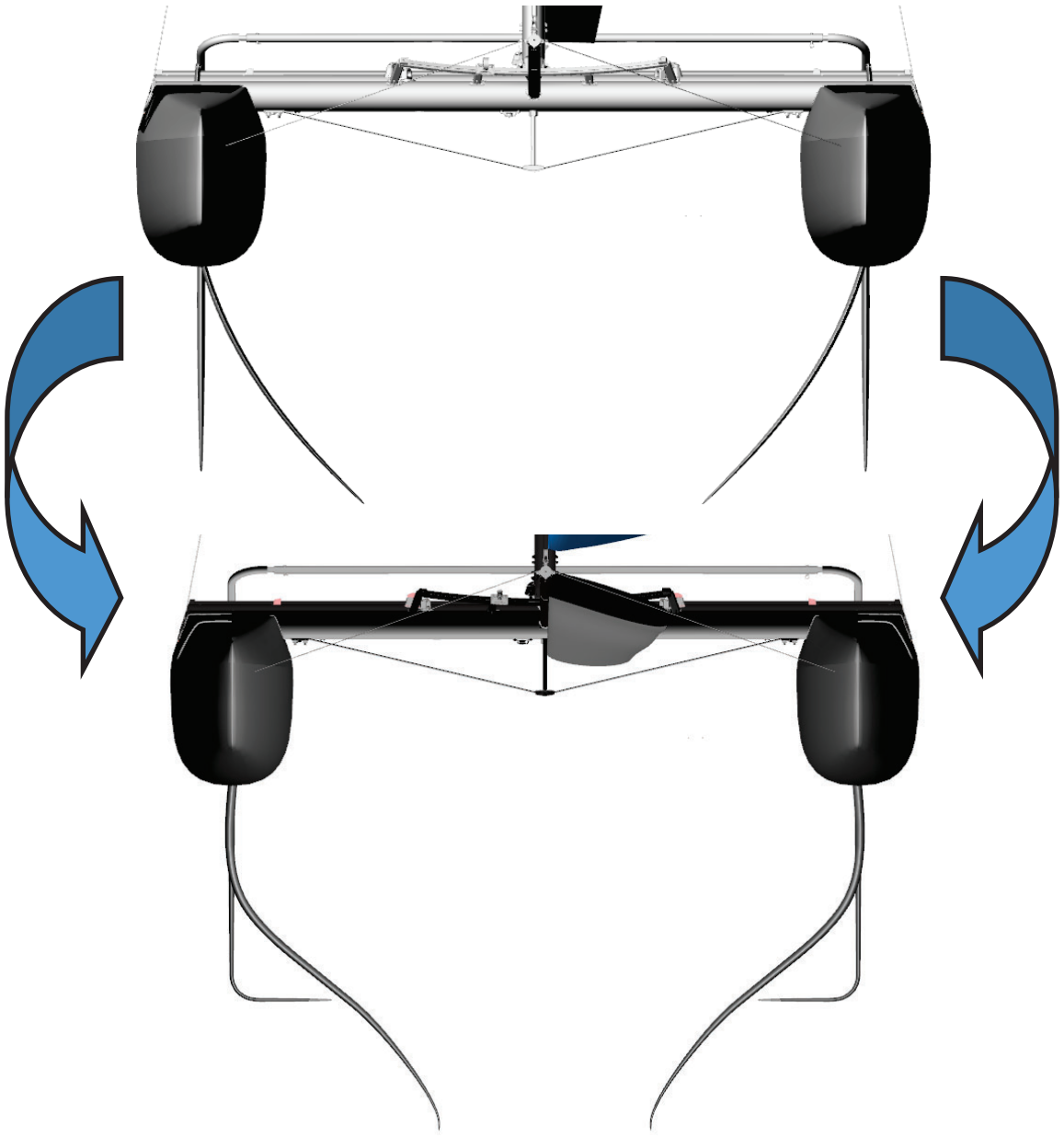
NACRA 15

Conversion Manual



recommended tools:

- *Allen tool* 3/8
- 7/16 *open-ended spanner*
- Screwdriver PH
- Screwdriver Flat
- Knife
- Chisel
- Torx bit
- 1/4 UNC tap
- 5 mm Drill
- 6.5 mm Drill
- 8 mm Drill

Information about tillerbar:

The FCS kit contains an extra tiller bar. Because the gudgeons have gone outside, a longer tillerbar is necessary.

Only the tube supplied, other parts can be transferred from standard tillerbar

All nacra 15's are prepared for an upgrade kit, this means that the daggerboard cases need a small adjustment to install the foiling kit.

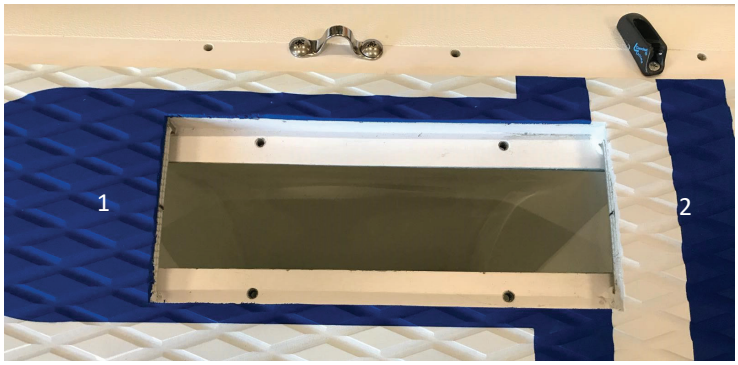
parts must be removed to convert the daggerboard case. make sure you do this according to this manual with the prescribed tools.

Step 1: remove bearings

Take out the standard bearing set.

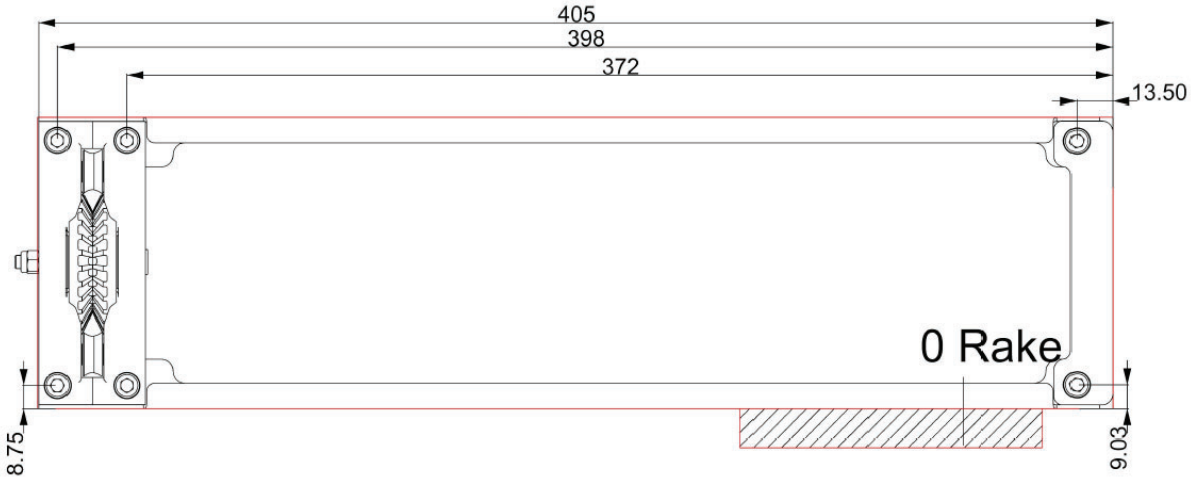
Also remove the bottom bearing.

The daggerboard case is filled with bridges. there is a small bridge (1) at the front of the bearing and a bridge (2) at the rear of the bearing. These must be removed.



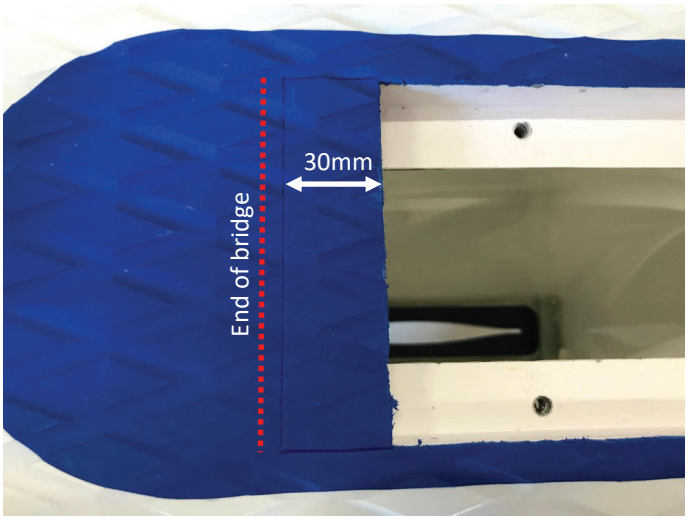
Case dimensions

Before cutting parts and drilling holes check these dimensions as a reference



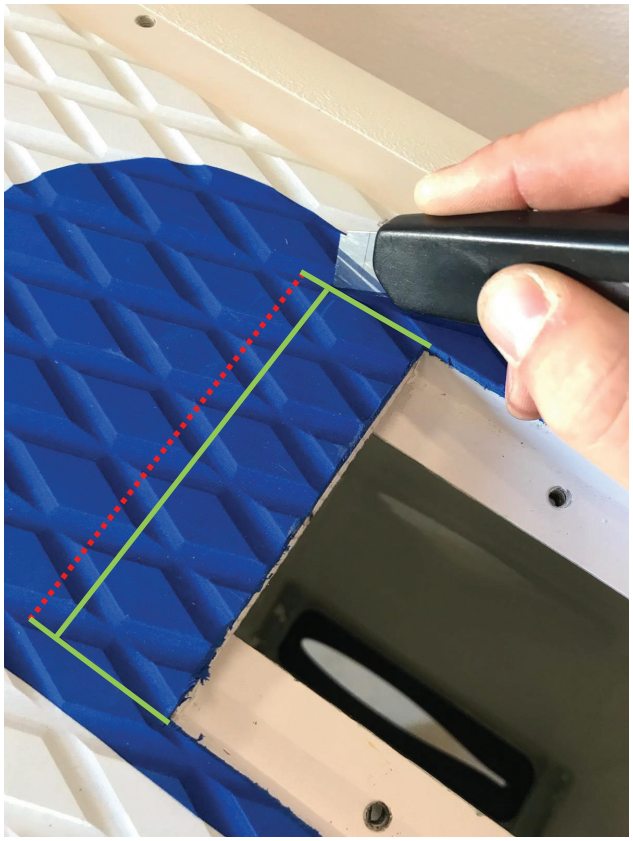
Step 2: Measuring front bridge

Measure the distance to the front of the daggerboard case with a ruler on the inside of the bridge.
For a better finish of the progrip it is wise to mark the part to be cut at 30 mm.



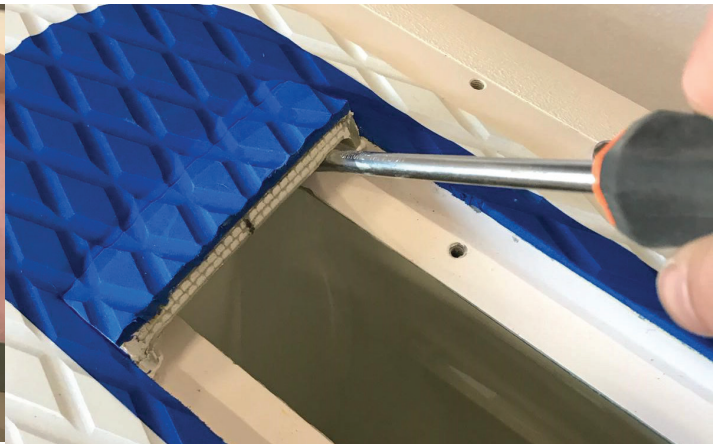
Step 3: cut the progrip

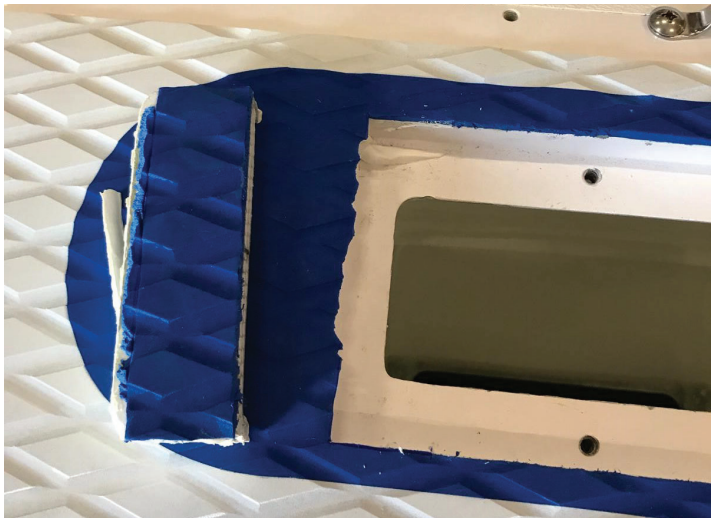
The green lines can be cut out with a knife. make sure the pro-grip is completely cut. if that is not the case it will crack.



Step 4: Remove front bridge

The next step after cutting the progrip is to remove the first bridge. Grab a large screwdriver and put it under the bridge. try to lift the bridge with the screwdriver. turn both sides over and over until the bridge comes off completely. Then carefully re-move the bridge from the progrip.





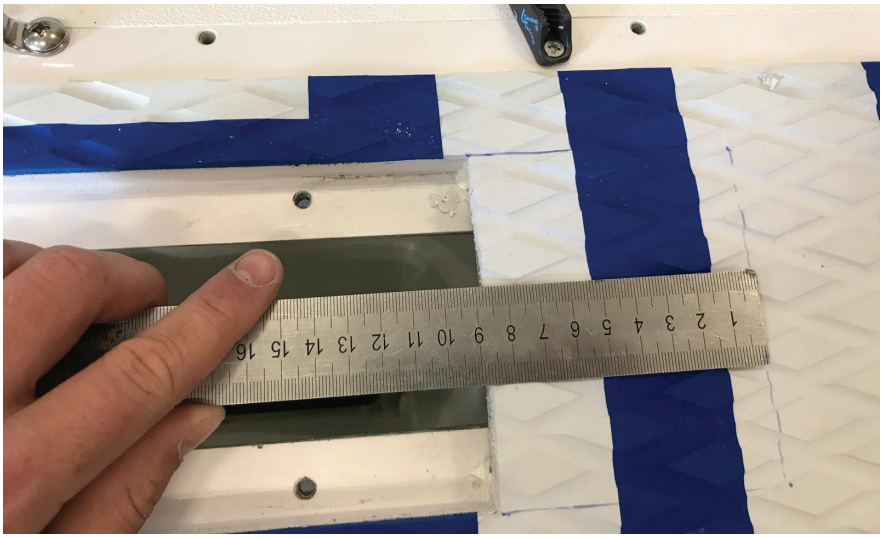
Step 5: removing progrip and sikaflex

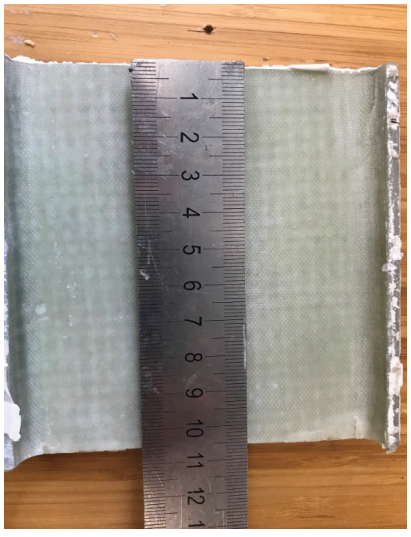
cut the progrip along the edge of the daggerboard case. do this with a sharp knife this ensures a better end result.

Also remove the remains of the sikaflex, this must be clean to place the FCS kit.

Step6: Measure rear bridge.

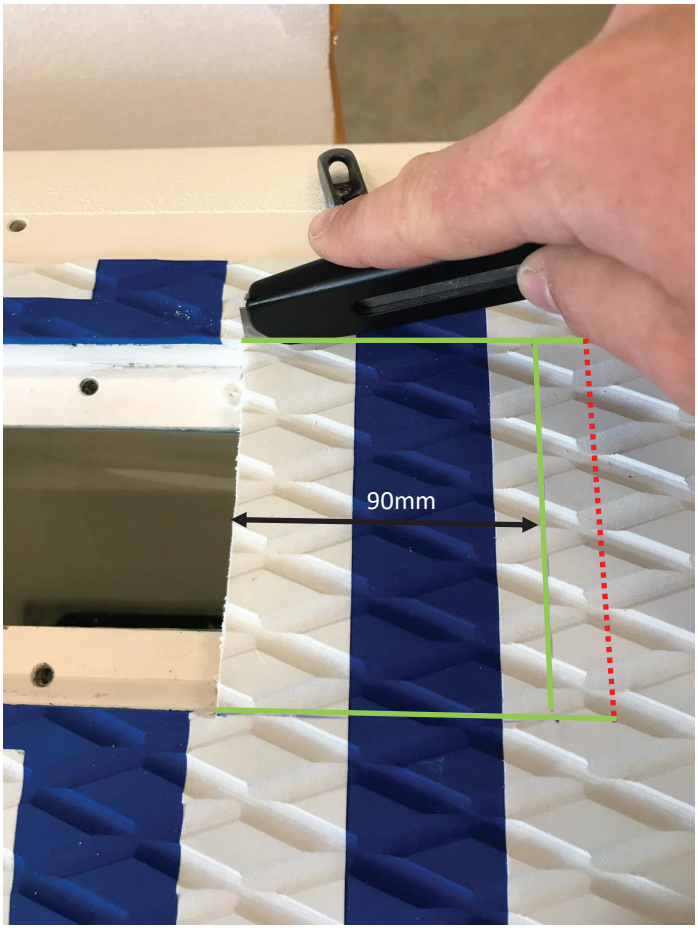
The back is difficult to measure. Mark this bridge at 90 mm.
The bridge has a length of 105mm but also here it is better to mark it shorter because of the progrip





Step 7: cut the progrip

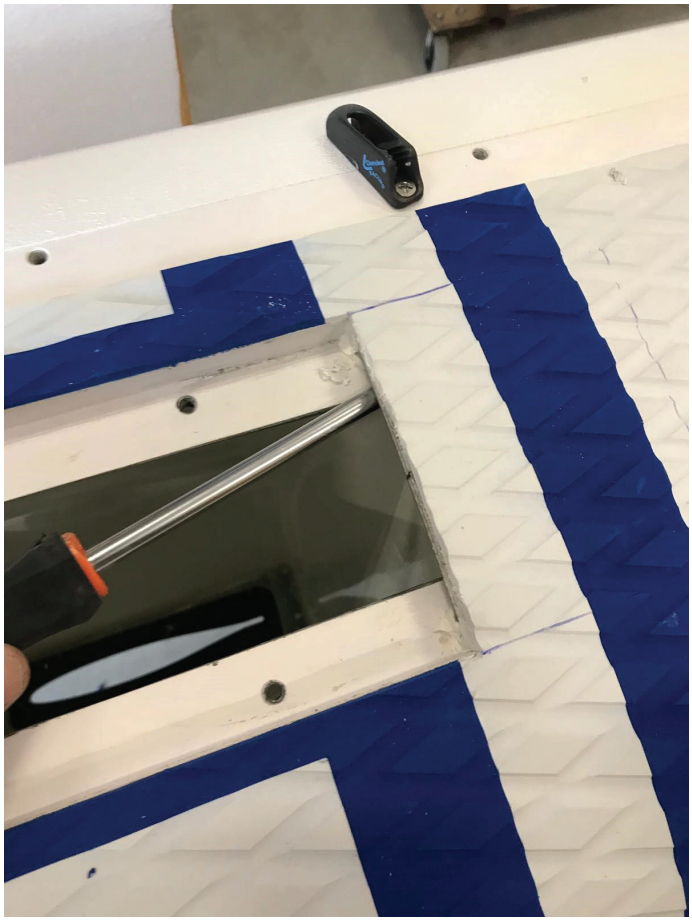
The green lines can be cut out with a knife. make sure the pro-grip is completely cut. if that is not the case it will crack.



Step 8: Remove rear bridge

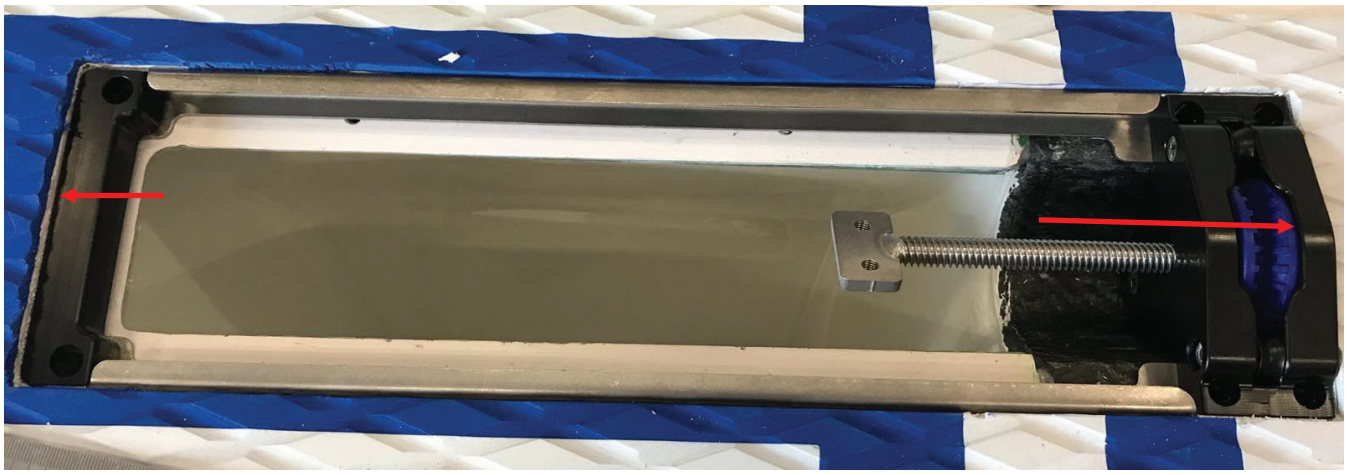
the next step after cutting the progrip is to remove the rear bridge. Grab a large screwdriver and put it under the bridge. try to lift the bridge with the screwdriver. turn both sides over and over until the bridge comes off completely. then carefully remove the bridge from the progrip.

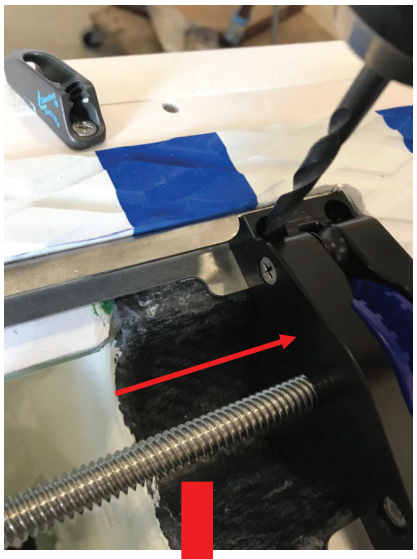
Also repeat *Step 5: removing progrip and sikaflex at the rear.*



Step 9: drilling and tapping

Place the wormdrive system in the daggerboard case. Make sure that the wormdrive system and the front stopper are fully connected to the front and back before drilling.



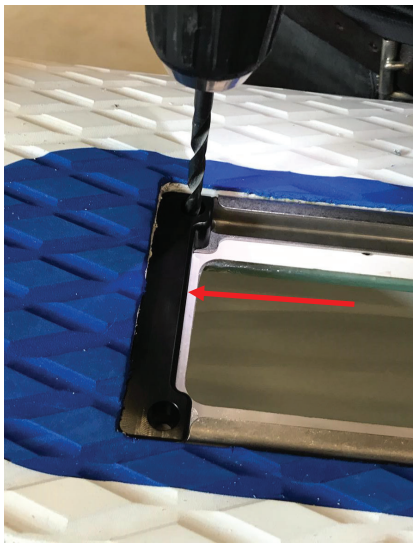


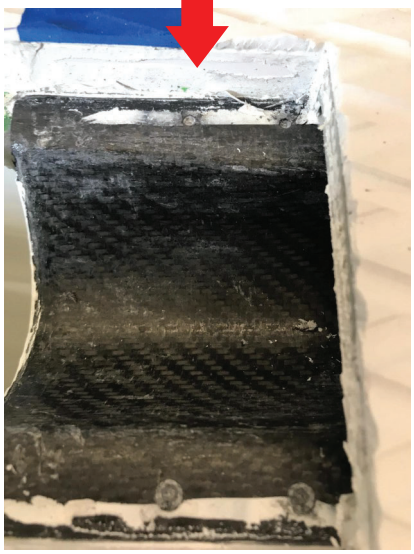
Take the 6.5mm drill.

Press the system with one hand in the direction of the arrow.

Make a small center with the 6.5mm drill, **DO NOT** drill completely through the hull.

Repeat this step at the front stopper.

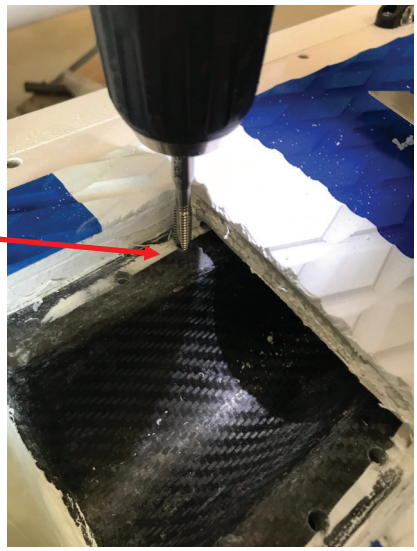




Drill the wormwheelhouse centers through with a 5 drill.

The frontstop centers can be drilled with the 6.5mm drill. (there will be no threat)

After drilling, tap the wormwheelhouse holes with a 1/4 UNC tap.



Step 10: Assembly and installing wormdrive system

Installing the FCS kit is simple. Use for the wormwheelhouse the 1/4 UNC bolts.
These can be fixed again with some molykote. Use the 3/16 allen tool for tighten the bolts.

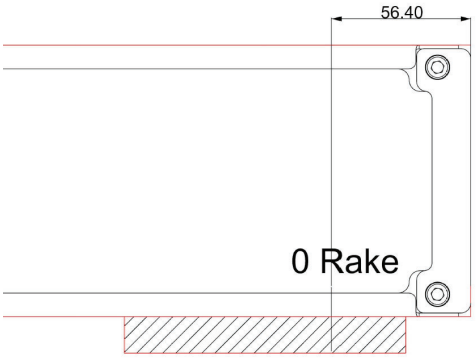
DO NOT OVERERTIGHTEN THE BOLTS

The 2 new 1/4 UNC bolts that are supplied are used for the front stop.
The frontstop is fastened with bolts and nuts. Don't forget to put the washers under the nut.
Use the 3/16 Allen tool and a 7/16 *open-ended spanner* for tighten the front stop.

Step 11: Install trimblock indicator

Print the template: *Trimblock indicator position (print 1:1 on A4)*

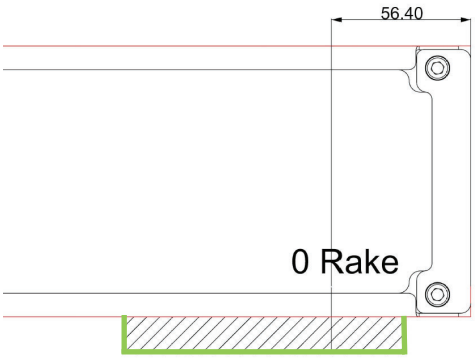
—> Cut the template (red lines)



Place the template on the hull, make sure the indicator will is on the inboard side of the bearing.

—> Mark the green outlines on the progrip

—> Cut the green lines and remove the progrip.



—> Sand the bottom of the trimblock indicator and the hull for a better adhesion between those 2.

—> Glue the trimblock indicator and place the indicator on the hull. Use 2 component glue.

13: Gudgeon change

Take of te standard gudgeons and remove the sikaflex.

The gudgeons are propably well attached to the stern because of the sikaflex.

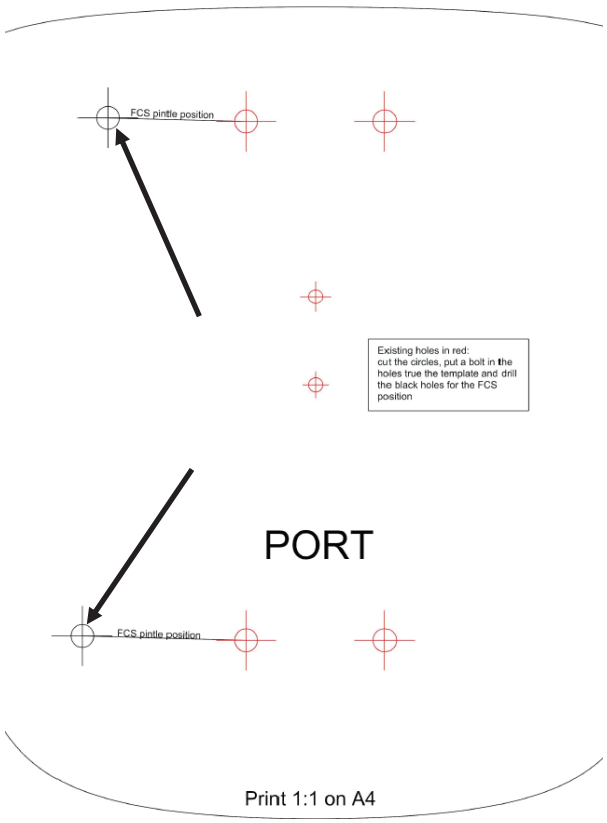
With a groove plier you can pull the gudgeons of.

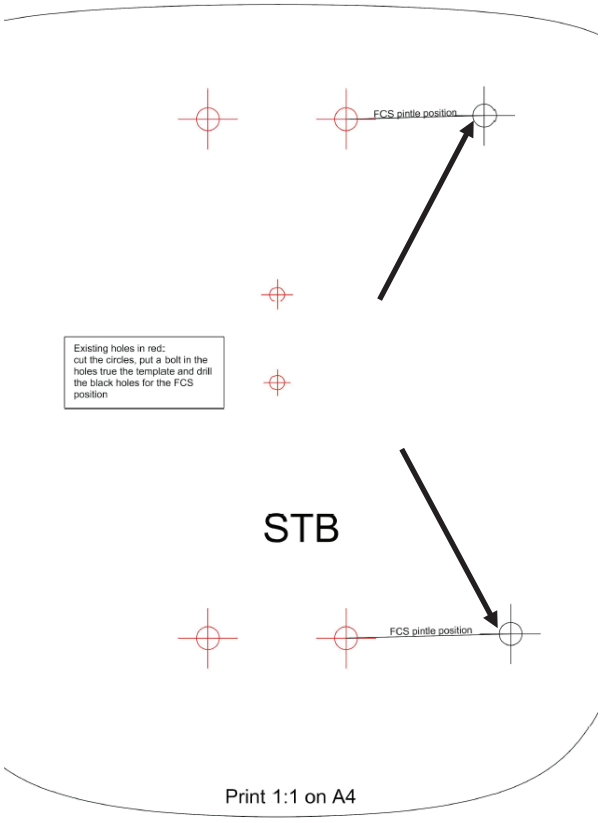
Print the template N15_FCS_stern templates 1:1 on A4. This template has the new gudgeon position.

—> Cut the templates .

—> Place the template on the hull.
(the outside holes of the standard gudgeons will be used again)

—> take the 5 mm drill and drill the black marked hole true the stern. Make sure you place the right template at the right stern. The new gudgeons are angled and placed on the outboard side of the stern. After drilling with the 5mm drill you can make the hole larger with a 8mm drill.





13: Gudgeon change

the final step is to place the new gudgeons.

Because the gudgeon has been moved to the outside, the stern must be reinforced on the inside by means of a G10 plate. This is included in the FCS package.

—> put a little sikaflex on the gudgeons, put the bolts through it.

—> Place the gudgeon on the new position on the stern.

—> Go into the hatch with your hand and place the G10 block behind the new drilled hole. Don't forget to glue the G10 with the 2 component glue.

—> then put the washer and the nut on the bolts and tighten them with a 13mm *open-ended spanner*.

—> Ensure that the bolts are properly tightened. ***(max 12n/m)***

repeat these steps for all gudgeons.

—> the final step is to place the bolts with the rubber washers underneath. this way the boat can easily be rebuilt to the standard version.

place the gudgeons as shown in the photo.

Explanation new gudgeon

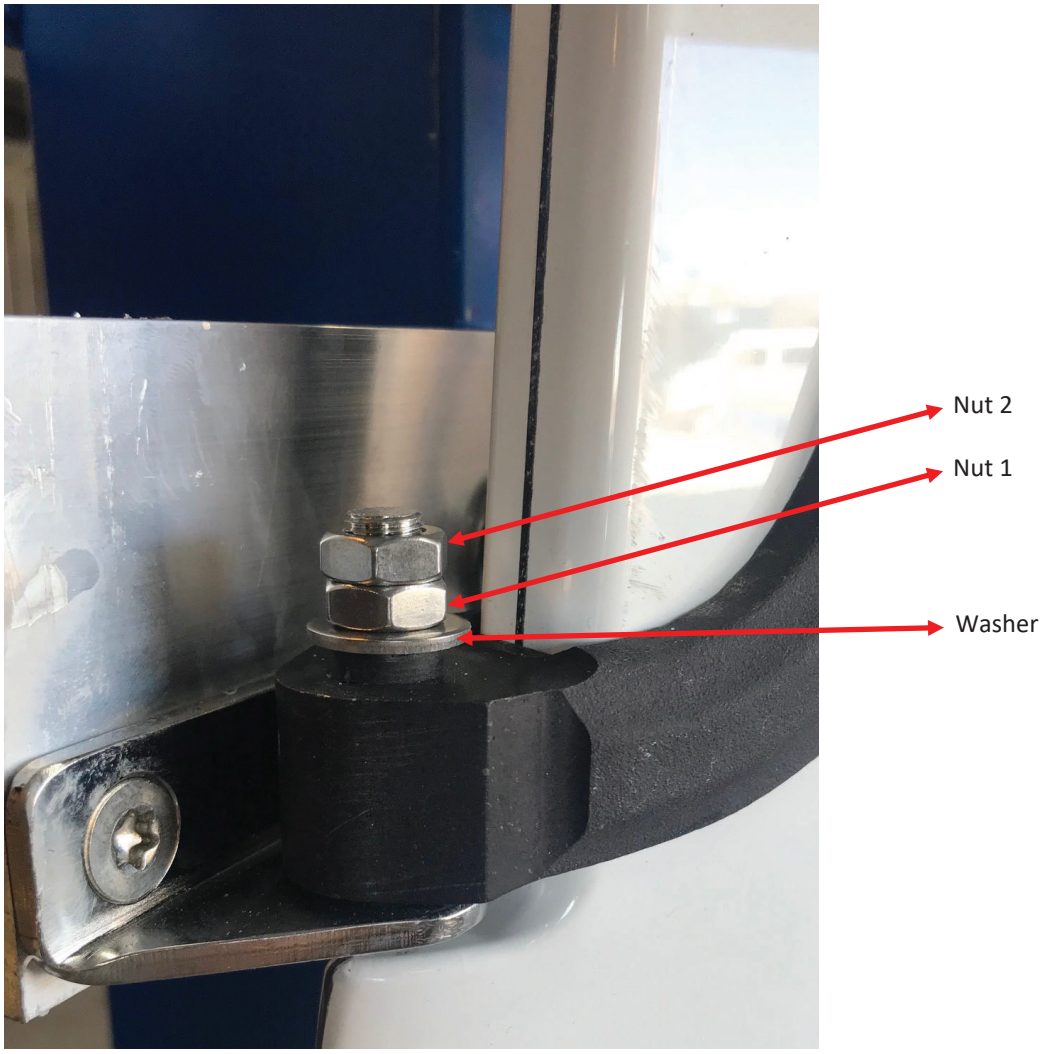
The new lower gudgeon is included in the supplied FCS kit. Previously the rudder system was held in place by the rudder casting hold down.
The new system works with 1 washer and 2 nuts.

—> First place the rudder system on the gudgeons.

—> Place the washer

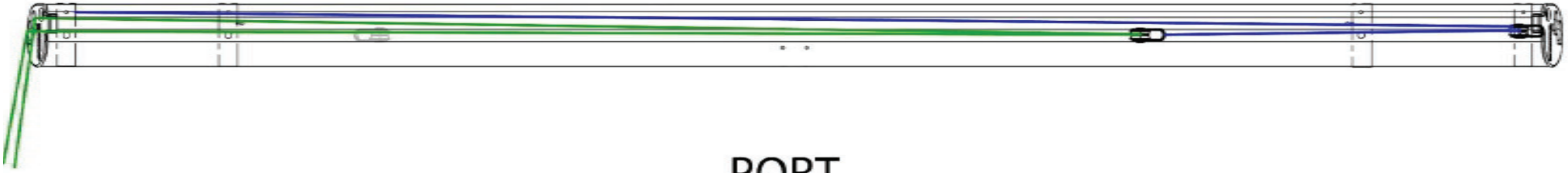
—> Then place the first nut and tighten it until there is no more play in the rudder system. make sure that the ruddersytem can still move freely without resistance.

—> Then place the 2nd nut and screw nut 1 and 2 together.



Rear crossbar line system

STARBOARD



PORT

If your beam has an old revision insert, it must be removed to place the new endcap. Follow the following steps to remove the old insert and install the new one.

NOTE only required with an insert as can be seen on the first photo

A. Drill out the rivet with a 5mm drill

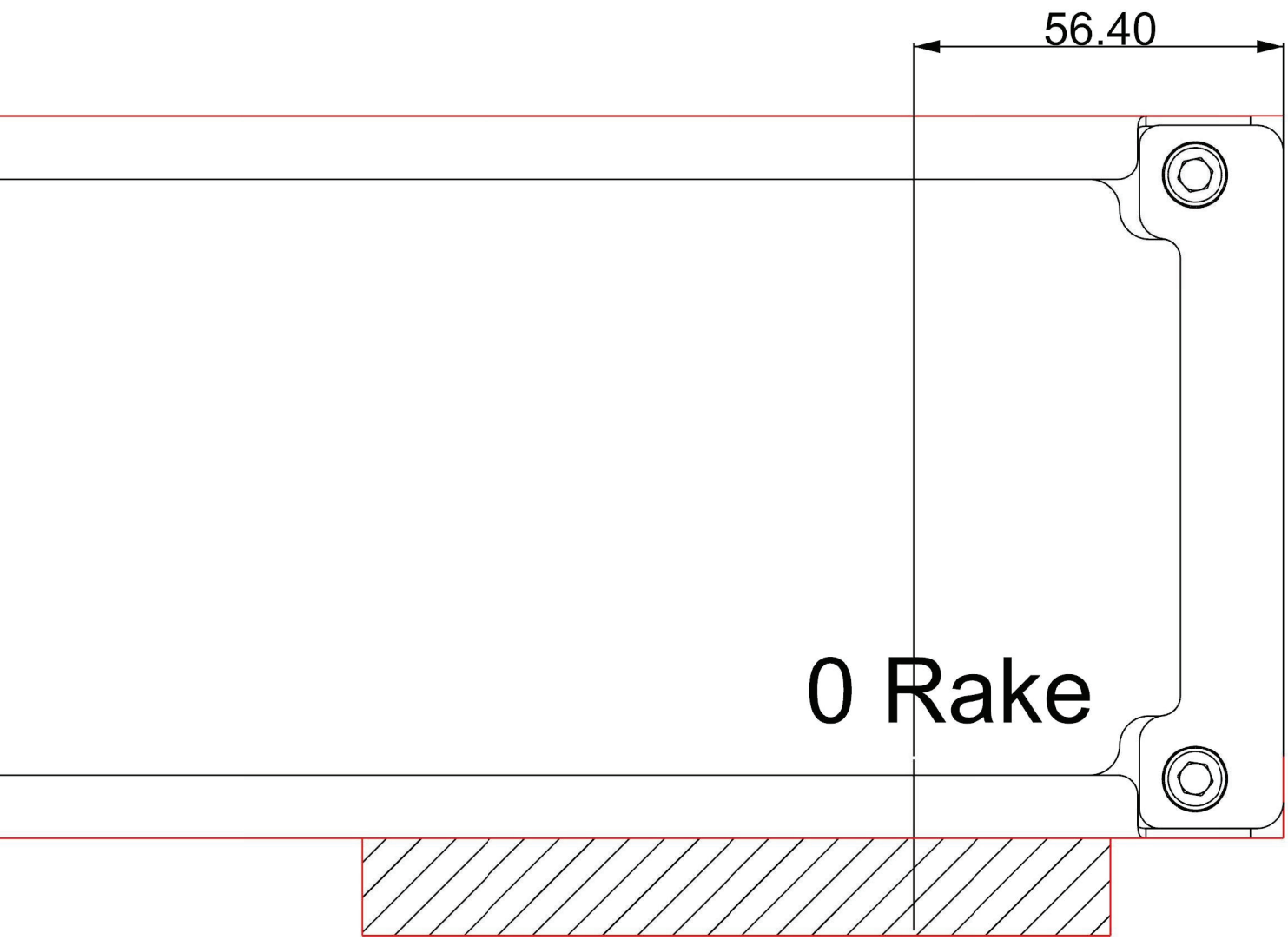
B. Tie a rope around the casting and pull firmly

C. Clean the surface and put sikaflex or puraflex in front of the hole for the beambolt.

D. Slide the insert in the beam and place a pin or use a beambolt for positioning the insert.

Measure if the insert sits straight in the beam.

E. Dill a 5 mm hole in the insert. Use a 4.8x18 rivet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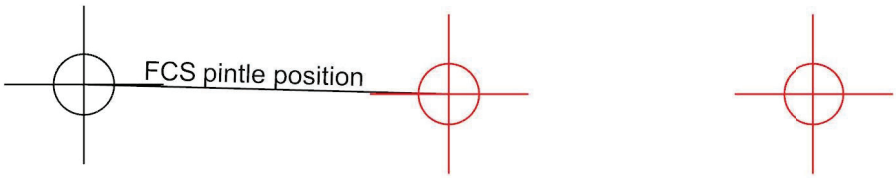
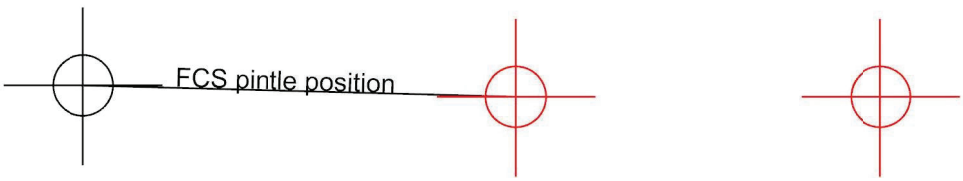
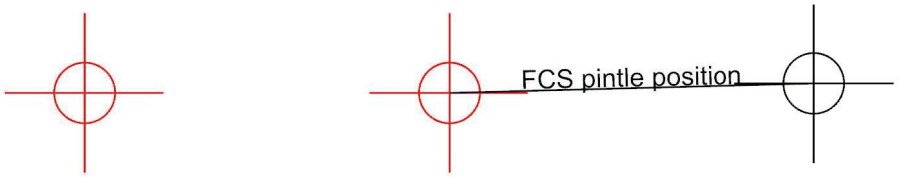


Existing holes in red:
cut the circles, put a bolt in the holes true the template and drill the black holes for the FCS position

PORT



Print 1:1 on A4



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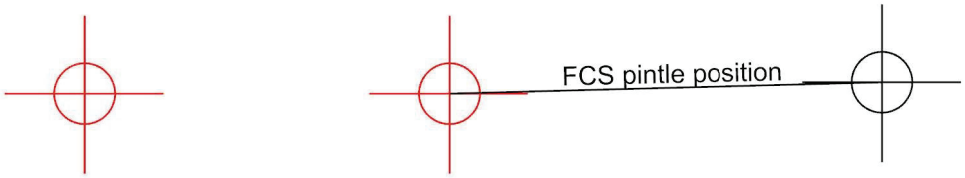
cut the circles, put a bolt in the holes true the template and drill the black holes for the FCS position

STB



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