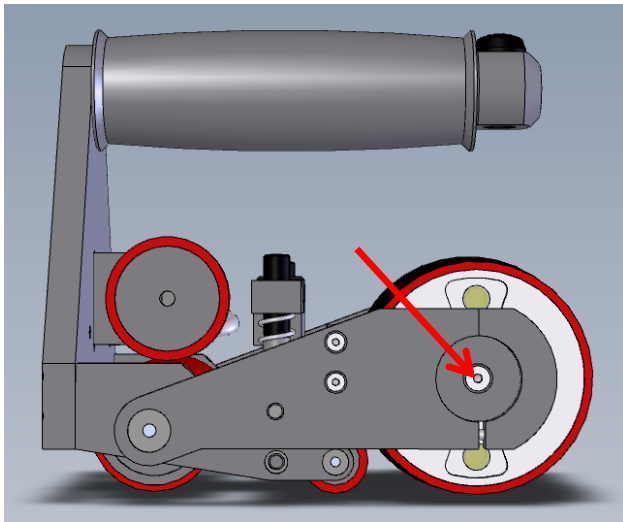


# Tyre replacement on a Sonatest WheelProbe

*Applies to part numbers: AWP-xx-xx-xx-xx-x*

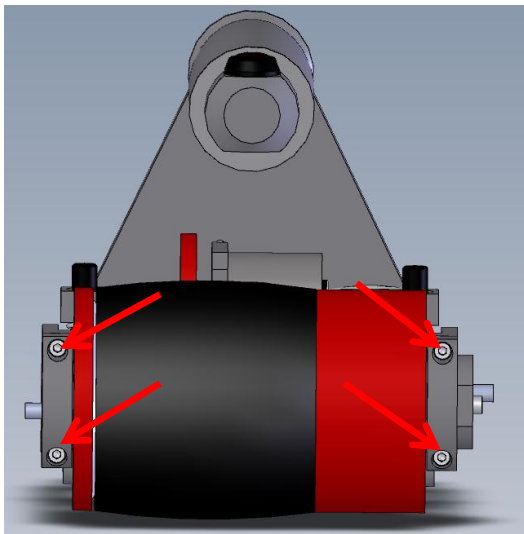
## Step 1: Loosen the retaining disc fixing screw

Perform this step first, as it is easier to do with the roller clamped in position.



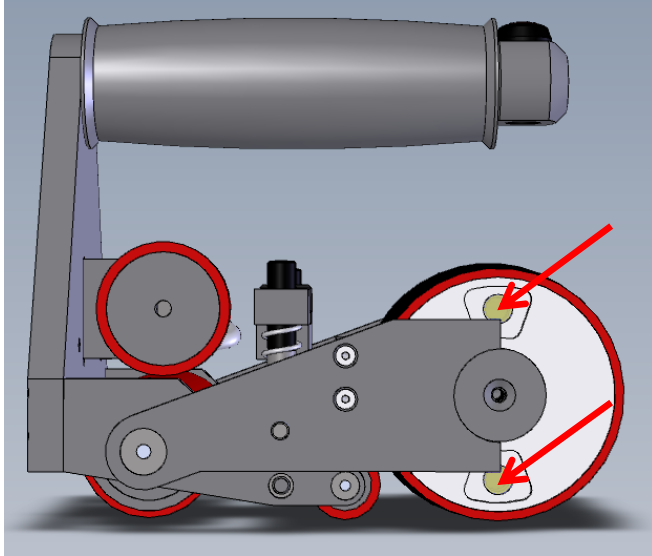
This fastener can be stiff, apply copper grease on re-assembly. If in doubt replace with a new fastener. Do not completely remove the fastener at this stage.

## Step 2: Remove the four M4 Caphead screws from "C" Clamps



Undo the 4 fasteners shown, remove them and remove the two C clamps.

### Step 3: Remove both rubber bungs and drain water

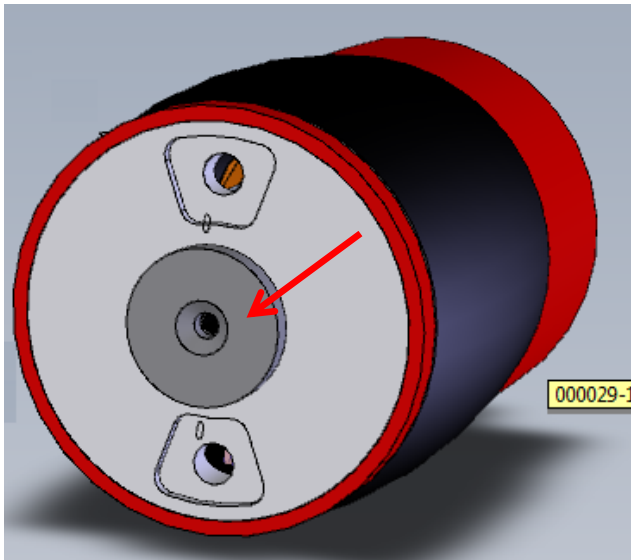


With the “C” clamps removed, access to the rubber bungs is easier. Empty the wheel probe water into a container.

### Step 4: Remove the roller assembly from the buggy

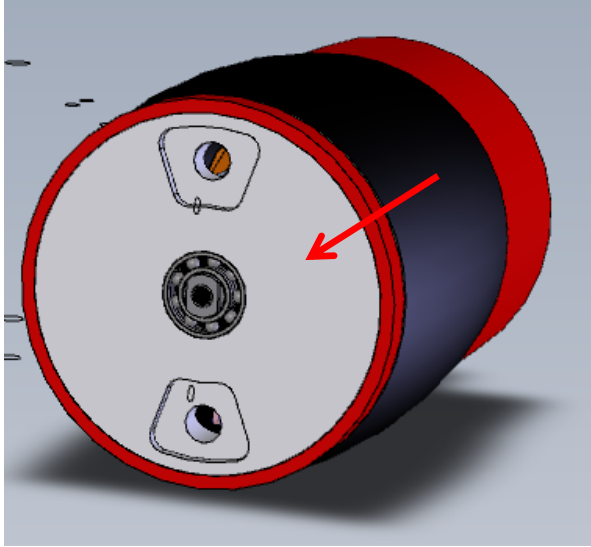
*Gently* remove the roller from the buggy assembly. Note that the array cable is fastened to the buggy, you only need to remove the assembly enough to get access to remove the tyre.

### Step 5: Remove the retaining disc



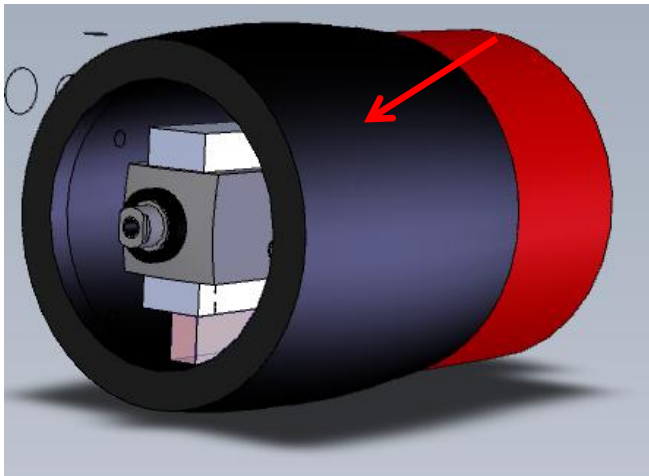
Fully remove the countersink fastener, and remove the retaining disc from the axle.

### Step 6: Remove the roller end plate



Gently pull the end plate away from the assembly. Do not twist the plate or use force to remove, as this may cause damage to the small bearing and seal.

### Step 7: Remove the tyre



The tyre should now be easy to remove.

### Step 8: Examine condition of array, axle and seals

Whilst the wheel probe is disassembled, examine the array and axle for corrosion, limescale or microbiological build-up. Clean the front surface of the array with plain water and a non-abrasive cloth. Remove any deposits but be very careful not to scratch the surface of the black anodised aluminium components.

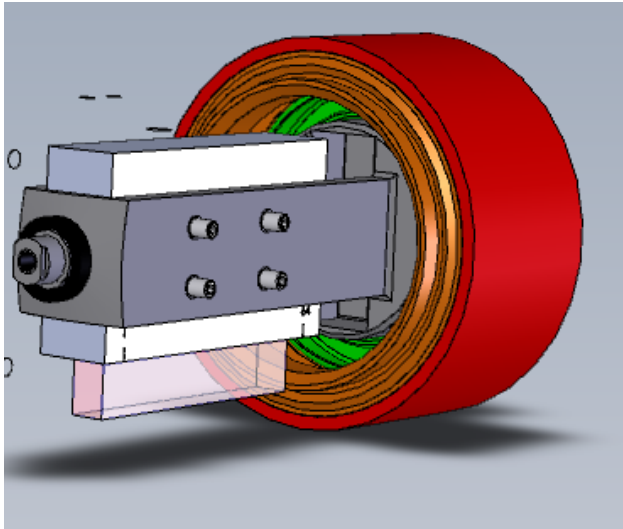
Check the smooth operation of the main bearing and seal. Check that the front face of the array is aligned with the axle. Check that the small seal in the side plate is in good condition.

### Step 9: Fit new tyre

Check that the condition of the new tyre is good, and free from deposits. Check that the sealing faces at each end of the tyre are smooth and free from damage.

Do **not** squeeze the tyre by hand, as this can cause cracking in the rubber.

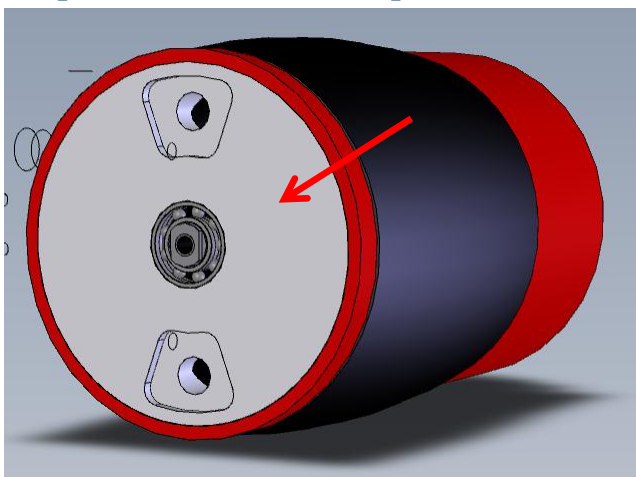
Fit the new tyre in place of the old one. Fit one rubber gasket either side of the tyre where supplied.



Note the vertical position of the array in this picture is incorrect, the array face should be flush with the axle.

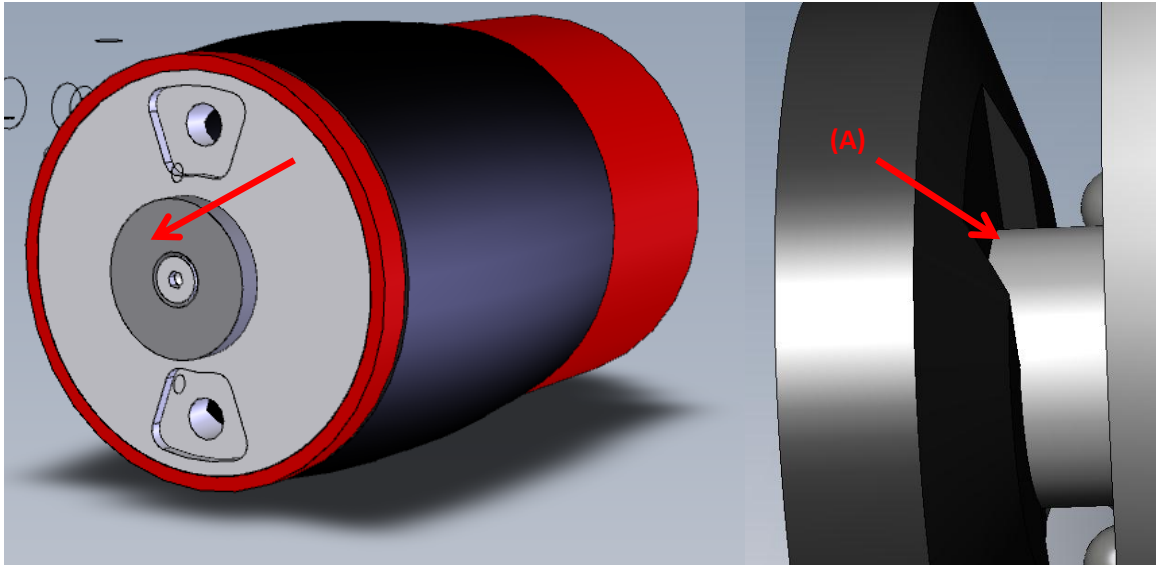
**Note the orientation of the array. Mark the outside of the axle with an arrow to indicate the direction the array points.**

### Step 10: Re-fit the end plate



Fit the side plate onto the axle, taking care not to damage the small bearing and green seal as it fits over the end of the axle. Press the side plate firmly against the tyre.

### Step 11: Fit the retaining disc

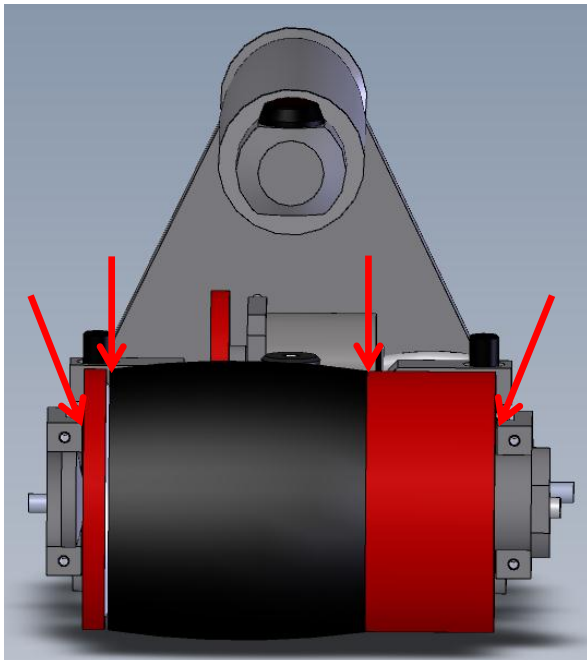


Check that the slot in the disc aligns with the slot in the axle (A).

Apply some copper grease to the countersink fastener, and always use a new fastener if damage occurred during removal.

Screw in the fastener ensuring the disc is properly located. Apply hand torque only.

### Step 12: Mount the roller into the buggy assembly

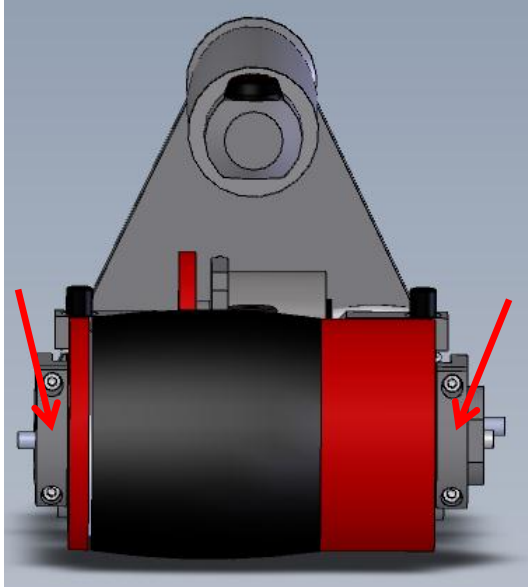


Check the gap between the side plates and the tyre. The tyre should be firmly clamped between the side plates. If the tyre is loose, check the alignment of the circular retaining disc in Step 11.

Check that the main bearing is free to turn, and the inner race is located properly on the frame.

### Step 13: Refit the “C” clamps to hold the roller in place

Check the orientation of the array. Ensure that the array is pointing **down**, refer to the mark made on the axle in Step 9.



Do not fully tighten the four cap head fasteners at this stage

### Step 14: Re-fill the wheel probe and check operation

Fill the WheelProbe with De-Ionized/Distilled water and a Biocide/Corrosion inhibitor solution as recommended, and fit the rubber bungs into the side plate.

Roll the wheel probe to ensure smooth operation, check for binding or friction between the side plates of the roller and the WheelProbe side arms and “C” clamps.

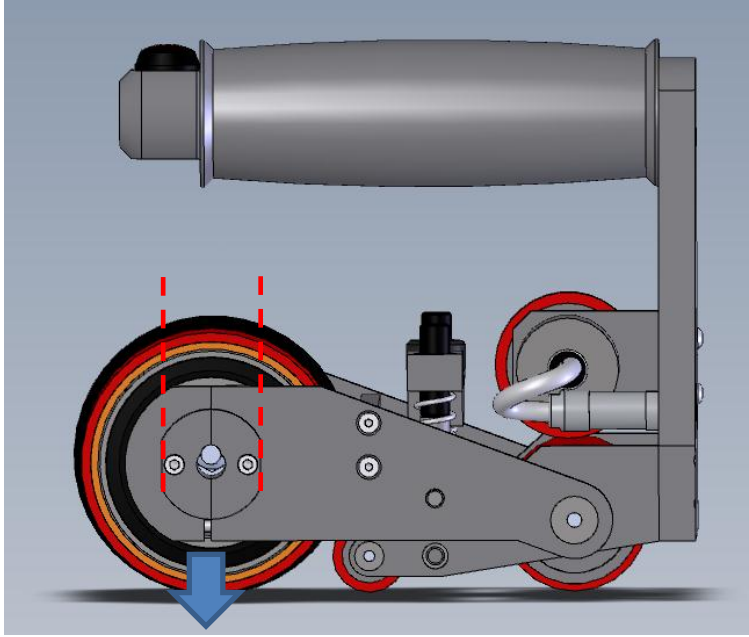
Ensure that the gaskets at each end of the tyre are correctly seated. They should be flush with the outer diameter of the tyre, a protruding gasket will eventually work loose and cause a leak.

Roll the WheelProbe on a flat dry surface and ensure there are no water leaks from around the edges of the tyre or gasket.

### Step 15: Set 0 degree position

Connect the WheelProbe to a suitable Ultrasonic Inspection Instrument ( Sonatest RapidScan2 / veo ) and obtain an A-Scan echo from the centre of the array.

Obtain a large adjustable spanner and fit over the flats on the axle, slacken the four cap head fasteners sufficiently to allow the axle to rotate smoothly using the spanner. Do not attempt to apply excessive force using the spanner.



Press the wheel probe firmly on a flat surface, and adjust the angle of the axle to obtain the maximum amplitude echo. Use an Inspection Gate to monitor the amplitude of the echo.

Tighten the four cap head fasteners to lock the axle in position, and re-check the amplitude of the echo.