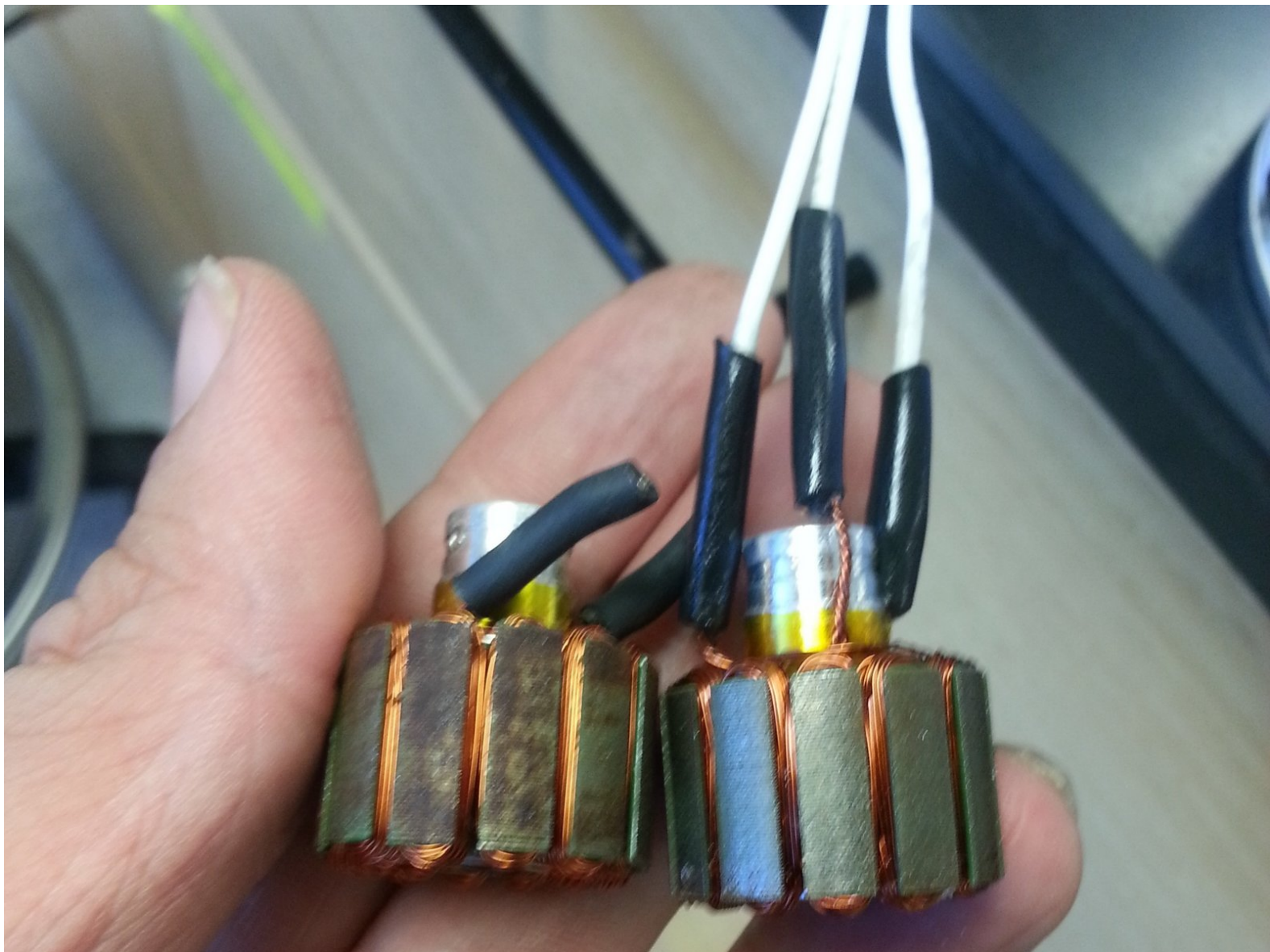


OpenROV

Waterproofing 2.6 thrusters for ocean use (bearing upgrade and motor coating)

In this guide we used stainless steel and ceramic hybrid bearings to replace the mild steel ones that corrode quickly, and used spray enamel to better protect the motor stators and windings.

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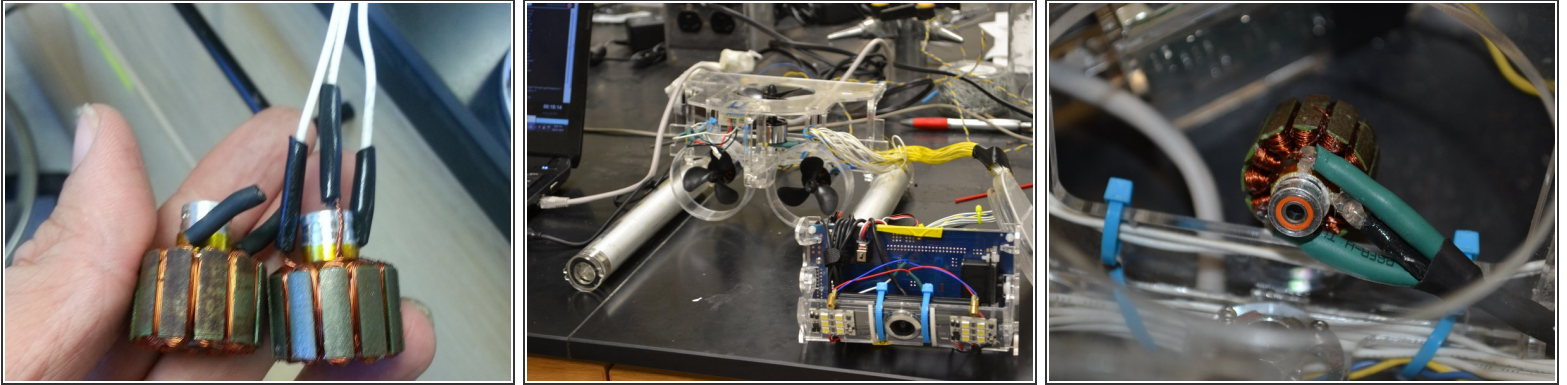
**TOOLS:**

- pin punch (1)
- rubber or soft mallet (1)

**PARTS:**

- Stainless Steel and Ceramic 3x7x3mm and 3x7x3mm bearings (1)

Step 1 — Remove the Thrusters



- This guide will help you get your standard hobbywing thrusters ready for long term and ocean use. In this picture you can see a before and after of a coated and non coated motors that have both been used in the ocean.
- This is a list of items you will need: [3x8x4mm hybrid ceramic stainless steel bearings](#), [3x7x3mm hybrid bearings](#), Rustoleum crystal clear enamel, assorted punches, soft mallet, and a support for removing bearings (can use two very small pieces of wood to support the stators when you tap out the bearings).
- Remove the main plastic body from the chassis by removing all of the o-ring/rubber bands, undoing the reusable zipties and removing the nuts from the two rods.
- Remove the propellers and magnets by pulling them off (you must remove the clip for the vertical thruster.)
- Remove the 2 allen key set screws on both sides of the motor, and wiggle it out of the mount.

Step 2 — Mask and Spray



- Use Rust-oleum crystal clear enamel in a spray can.
- Go outside and place the OpenROV on a large cardboard box and use a piece of cut cardboard to shield the rest of the ROV from the overspray.

Step 3 — Remove the Tape and Bearings



- The bearings and select a pin punch that is skinny enough to fit through the center bearing, and has enough

room to angle it slightly to punch out the rear bearing.

- Here is a video of bearing removal:
<http://www.youtube.com/watch?v=MXyt79raC...>
- Spray on 2 medium coats, wait 10 minutes, then apply 2 more. It is okay if some gets in to the holes for the bearings, it helps them stay in. Try to avoid drips and make sure to cover all windings. If you over apply it, you will need to sand the stators to allow the propeller and housing to fit back on.
- Replacement is the opposite, gently tap the appropriate bearings into the holes using a soft mallet, the front and back are two different sizes.

Step 4



- Be sure to dry with canned air and lubricate the bearings with a silicone based spray lubricant (we use the blaster brand silicone spray) before and after each dive, and if going in salt water, give it a fresh water rinse before using the lubricant.
- Replace the motors in their mounts, the propellers and magnets on the motor, and then mount back into the body and tighten down all of the nuts. Then you are back in business!
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- Facebook page: <https://www.facebook.com/csuciaarr>