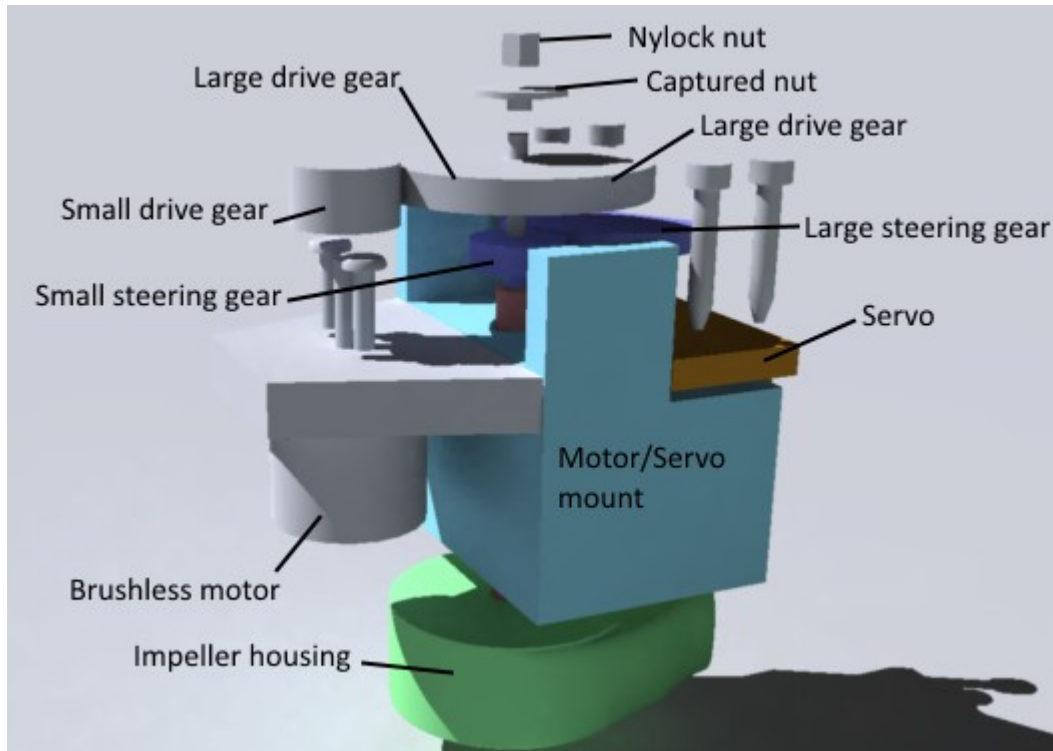


Boom boat Motor assembly

The Motor assembly securely holds the brushless drive motor, steering servo, drive shaft and all the associated gears in a single unit that fits into the Boom boat and is held in place with a couple of screws.

The following image gives a general view of the motor assembly for the Boom boat.



Assemble instructions:-

- Using the 3D printed parts kit first fit the brushless motor to the motor/servo mount and secure with two M4 pan head screws. Ensure that the screw length does not penetrate too far into the motor or you could damage the windings.
- Next fit the servo to the assembly using 4 servo self-tapping screws. It is best to pre-drill the screw holes to prevent the 3D printed mount from splitting.
- Fit the drive gear to the motor. The gear will require drilling out its centre hole to 3mm. It is then a push fit and is best made by using a clamp to ease the gear onto the drive shaft.
- Fit the two O-rings to the assembly at the top and bottom of the drive shaft hole. Fix them in place with a little super glue.
- Test that the steering shaft fits through the assembly and can be rotated without too much force. If the fit is too tight, ream out the shaft hole with a 6mm drill bit.
- Glue with contact adhesive a foam sheet to the bottom of the motor assembly. This will form a gasket and seal the bottom of the Boom boat where the steering shaft passes through the bottom of the hull.
- The remaining assembly must be completed with the unit fixed in the Boom boat hull. Slide the assembly into the hull and align it in place with the steering/drive shaft hole. Use a 6mm drill pushed through the hull and into the assembly to ensure accurate alignment.
- Drill two holes either side of the steering/drive shaft hole to take countersunk self-tapping screws. Once the screws are fitted and tightened down with the motor assembly in place, test

the steering shaft fits through and can be rotated without too much force.

- With the steering/drive shaft fitted fix the small steering gear to the top of the steering shaft and secure in place with a small self tapping screw. To gain access to the screw you will require a small screw driver that can be held within the Boom boat hull.
- Next fit the large steering half gear to the servo and hold in place with the servo screw. On first fitting this will require extra pressure as the 3D printed gear cannot accurately reproduce the servo shafts' splines.
- The main drive shaft gear must be fitted with the M3 captured nut. This is fixed by pressing it on using a bench vice. As this gear will be subject to high torque it is best to apply a little superglue to the pressed on nut to prevent it coming loose.
- The main drive shaft gear can then be screwed onto the drive shaft, make sure that the gear is screwed down until just before the drive shaft becomes stiff to rotate.
- Holding the drive shaft screw still add the M3 Nylock nut and lock them together by counter rotating against each other.