

# Building the axle hung power unit for the Class 08

Parts required

Motor:- These are on E Bay, search for Mabuchi FC280SA, see below.

NOTE the motor is double ended, 4,000 rpm and comes with the 12 tooth pinion attached.

The excess shaft needs removing, do the gear end first then the longer end.

Fixing is 2 off M2.5 CS Allen screws, 3mm long, you can find these on E Bay

Bearings

2 off. 9mm OD, 4mm ID, 4mm wide. Reference 684ZZ

Gear Wheel

72 tooth 0.5 Mod gear in nylon or Delrin. I got mine from Radio Spares, part number:- 521-7203. It has a 6mm diameter hole for the shaft.

Brass Tube

4mm OD 3mm ID, needs to be K&S. I found that a cheaper manufacture did not have the accuracy required.

Grub Screw

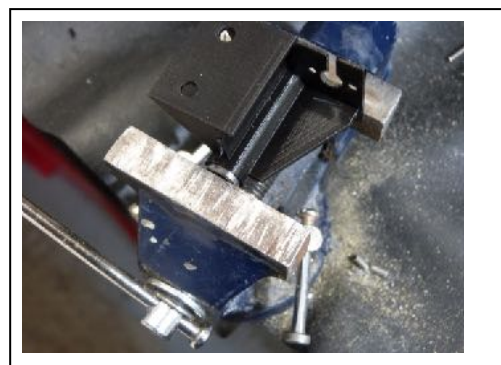
One off M3 x 4mm, again on E Bay

Brass

Round bar, 25mm diameter and 12 mm diameter.

Notes on building the power unit

1. After printing the support it needs cleaning up, especially where the motor fits. The openings for the ball races need a slight bevel putting on to allow the bearing to be inserted easily.
2. Insert the bearings one at a time, use a small vice to ensure they go fully into the housing.



3. Fit the motors, note how the plastic housing goes up between the gear and the motor until it is level with the shaft. The locating boss should then go through the hole and the two M2.5 countersunk screws used to fasten it in place. The terminals can be either above or below the motor depending on how you want to run the wires. The image shows a single motor unit I have built that bolts onto the underside of a bogie plate, my next project.



4. Make the two brass bushes to mount the wheels and gear. The 4mm holes need to be reamed. The non driven boss is made to be a push fit into the wheel, the driven end can be fixed with adhesive and a pin if required. If using a pin it needs drilling for before the bush is fixed onto the brass tube.

5. Remove the large boss on the gear wheel. I made a fixture to do this.

6. Cut the brass tube to length, this needs to go between the axle boxes.

7. Soft solder the driven boss onto the brass tube in the position shown. Solder paint is good for this, alternatively you could use Loctite.



8. Build up the gear wheel and driven wheel on the bush.

9. Push the tube through the bearings and fit the other wheel. Check the back to back distance between the wheels is 40mm. If it is too much you will have to remove some of the brass on the non-driven wheel, this can be done in the 3 jaw. If the back to back is less than 40mm enough you will need a small spacer.



10. Tighten the M3 grub screw onto the brass tube so that it just holds the boss in place, do not fully tighten it until the 3mm shaft is in place.

11. Thread the M3 shaft through one of the axle boxes, then through the 3mm ID brass tube. If it does not line up you may need to remove a piece from the tabs on the 3D printed motor plate. Note the large spigot on this needs removing for the 08, it is only required if the motor mount does not sit under a set of running boards.



12. Thread the axle through the bearing in the opposite axle box. The axle needs to protrude the same distance beyond the axle box on either side. Tighten the M3 screw in the non-driven bush.