



Parts4Marx Tech Tips

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Removing and Replacing an Armature Pinion Gear

Removing an armature gear is not an easy job because the armature itself is fragile. You must avoid bending the center shaft and collapsing the commutator plate. The process requires a pinion gear puller and a small bench vise. You will also need some sort of thick ring spacer. It can be wood or metal, $\frac{9}{16}$ " thick. Pinion gear pullers may be available from slot car or radio controlled vehicle hobbyists. They are getting harder to find because those hobbies are not as popular today.

1. Break wooden toothpicks in half and pack the underside of the commutator plate, especially beneath the metal tabs that are at the edge of all three sides.
2. Place the ring over the gear side. It must have a hole big enough for the gear to go through and small enough to support the armature.
3. Place into the vise and press and move the shaft to ensure clearance for the puller.
4. Pull off the gear with the pinion gear puller. At this time, clean the shaft and replace the bearing if necessary. If the bearing does not turn freely, it is probably because at this point it may be on the spline.
5. Press the new gear on the shaft. Take care to not bend the shaft. Stop when the gear is level with the shaft.
6. Put the spacer on the commutator side, and SLOWLY press the shaft in. Watch the commutator plate and if it is flexing, pack the underside better. This is the critical point where you can collapse or distort the commutator plate. Press it together, leaving enough clearance so that the bearing turns freely.