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Replacing Pinion Gears

Introduction

Required Items:

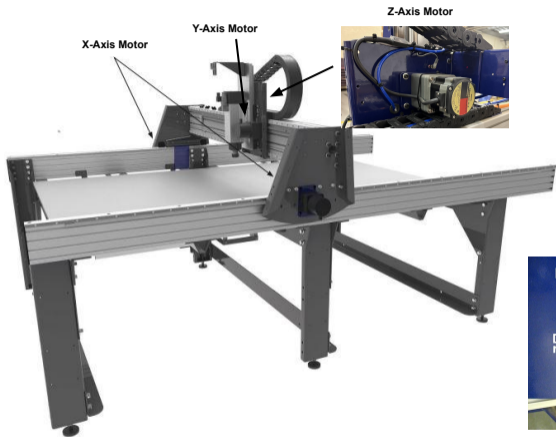
5mm Allen wrench (3/16" if purchase before 2017)

1/8" Allen wrench New pinion gears

If a new set of pinions have not yet been purchased, have the following information available and contact ShopBot Tools.

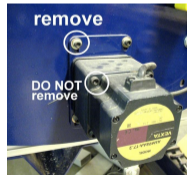
- Number of teeth on the pinions
- Width of the rack
- Width of the bore (the hole that fits onto the motor shaft)
- Model number of motors

Removing Motors



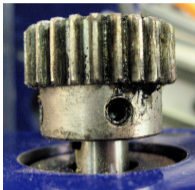
Using the 5mm Allen wrench, remove the four bolts that mount the motor to the frame. As you remove them, take care to support the motor so it doesn't drop.

Remove only the motor mount bolts as shown in the photo. **DO NOT** remove the bolts on the motor housing. This will open the motor's gearbox.



Pinion Removal & Replacement

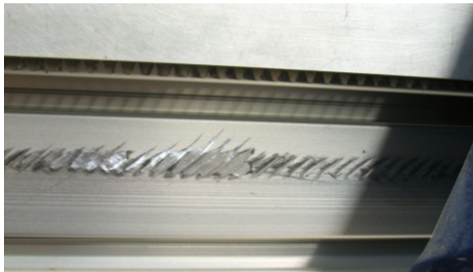
The pinions will be secured to the motor shaft by one or two recessed set screws. Loosen these set screws with your 1/8" allen wrench and slide the pinion off.



Pull the pinion off and replace with the new set. Make sure the size and tooth count match.

Checking for Alignment

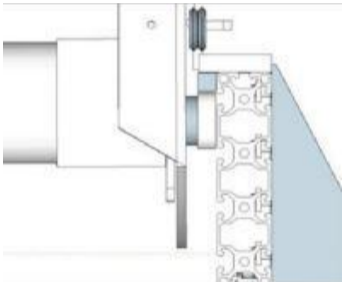
Ideally, the pinion should engage the full width of the rack. This will result in efficient power transmission and will help the rack and pinions to wear evenly. However, check to be sure that the edge of the pinion isn't grinding against the rails, as shown in the photo below.



Start with the pinion mounted flush with the end of the shaft. Holding the motor against the frame and keeping it aligned with the mounting holes, get a visual inspection of how the pinion meshes with the rack. If necessary, adjust the pinion's location on the shaft, then check the alignment again before tightening the set screws.

Mount Motors

While replacing motor mounting bolts, make sure that the pinions are pressed firmly into the rack. After motors are replaced, power on the control box. Grab each side of the gantry and try to push it back and forth. It should feel completely solid. Check that the motors are mounted so that the pinions engage snugly with the rack if play is noticed in the gears. To extend the life of the pinions, keep the rack well-greased using a heavy automotive or industrial grease (available from a local auto parts store), and free from any chips or debris.



Your all finished! If you have any questions or concerns, please contact ShopBot Tools.



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