

GM2 Gear Ratio Modification

The following instructions detail how to modify the Solarbotics GM2 gear motor from a torquey slow 224:1 ratio to a speedy 14:1 ratio. A similar modification can also work with the GM3 but it's a bit more involved due to the crown gear used.



Step 1

Take out the two screws and open up the gear casing, you may need to use a flat head screwdriver to pry apart the two halves.

Step 2

Remove the gear with the slip clutch (the output gear) as well as the gear driving the output gear.

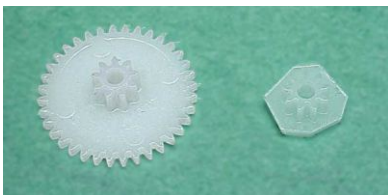


Step 3

Remove all of the remaining gears except the one on the motor output.

Step 4

Of the two smaller white gears you want to save the one with the **bigger center gear**, this one meshes better with the output gear (the one with the slip clutch).



Step 5

The problem with simply removing gears is that the output shaft will be countersunk in the gear casing. To fix this problem you will need a spacer of some sort; one of the unused gears works well. I use the green gear, but the other spare white gear could also be used. Be sure to clip away some of the edge of this spacer gear so that it doesn't interfere with the gear works.



Step 6

Slide the spacer onto the middle shaft.



Step 7

Place the white gear we saved earlier (the one with the larger center gear) on top of the spacer. You will most likely have to slide the small pinion gear on the motor shaft up a bit to get the pinion to mesh with the white gear. Slide the pinion so that the two gears are level. If you go too far the gear on the motor output won't have enough grip.



Step 8

Almost done, just add the final output gear (again the one with the slip clutch), snap on the motor casing and put in the two screws, that's it. Done!



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