

Building Sumo Wheels (Simple Lathe operation)

Equipment & Materials

Metal working lathe

2.5 mm hex key

Polyethylene round bar

Note: Do not proceed with this tutorial unless you have been properly trained on the lathe and its operations. By no means is this tutorial meant to supplement first hand lessons.

1. Mount a piece of Polythene or other machinable plastic in the lathe chuck. Make sure it is at least long enough to make both your wheels. Also it can not stick out of the chuck more then twice its diameter.



2. Use a facing bit to face off the plastic. Plastic is soft so large cuts can be made if necessary. But do not exceed $\frac{1}{4}$ " depth. Cut across the plastic until the surface is perfectly flat.



3. Change the bit over to a left hand tool bit. Measure the plastic and determine how much need to be removed in order to reach the desired diameter.



4. Use the longitudinal feed wheel to travel along the material. several passes may have to be done before reaching the desired diameter. Cut along the plastic a distance off twice your wheel thickness plus $\frac{3}{8}$ ". Remember for every $\frac{1}{8}$ " you move the bit in you are removing $\frac{1}{4}$ " of the diameter.



5. Switch the tool bit over to a parting tool. Make sure that the parting tool is parallel to the faced off front of the plastic. move the parting tool across the stock until the desired width is reached.



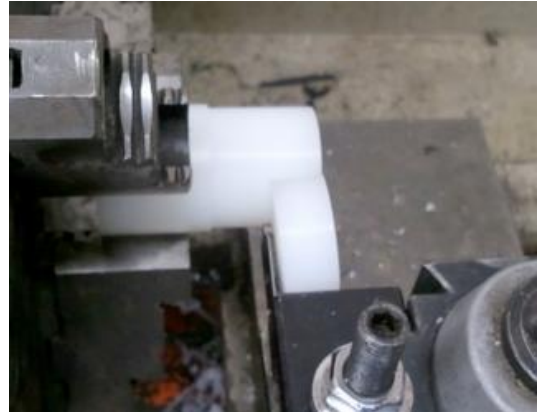
6. Feed the parting tool slowly into the spinning stock. continue feeding it until the new wheel falls off.



7. Change the bit back to the right hand facing bit and face off the ruff material left by the parting tool. Try and remove as little material as possible.



8. Change the bit back over to the parting tool. Use the first wheel as a measurement tool to measure over off the second wheel. once measured, repeat step 6 and cut off the second wheel.



9. Place one of the wheels in the chuck. chuck up a small center drill in the tail stock drill chuck.



10. Drill just the tip off the center drill into the plastic. Any more then the tip will make the hole too large for the Tamiya axle.



11. Remove the center drill from the tail stock drill chuck and replace it with a 3/32" drill bit. drill all the way Through the wheel with the bit.



12. Replace the drill bit with a 2.5mm hex wrench that has a sharp “V” ground in the front of it. DO NOT TURN ON THE LATHE. Force the hex wrench through the wheel. this process cutting the same spline in to the wheel as the Tamiya gearbox axle.



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Your wheels are now finished. How do you make them grip? that is up to you.