

# Tyre Making



First thing you will need is pure transparent silicone not the white one not the black one or the one with additives in it to make it stronger but pure transparent silicone.



Glycerin, You can find this stuff at your local pharmacy and it is used as the hardener or kicker in this mix.



Oil colour, This is just to make my tyres orange, You can use any colour you want.

# Tyre Making



Mixing cup and mixing stick.



Vaseline, This will be your mould release.



Gloves and disposable masks for chemicals



Tools, The most important ones here being 5.5mm socket screw driver (because there are parts on the moulds you just can't reach with normal spanners) 5 and a 2.5mm hex keys and a 10mm spanner.

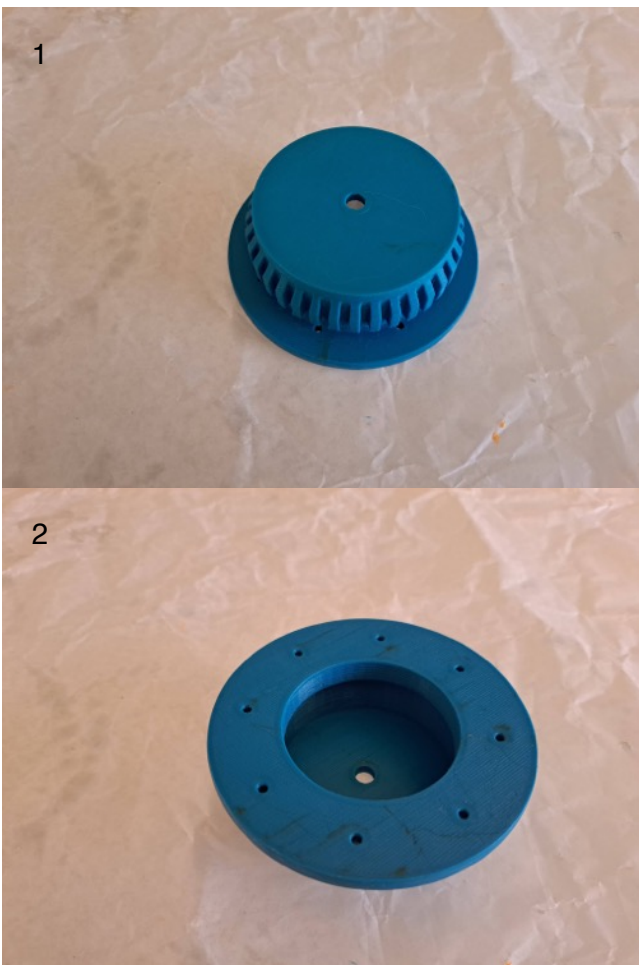
# Tyre Making



Plumbing tread tape and hex type fasteners For each mould.

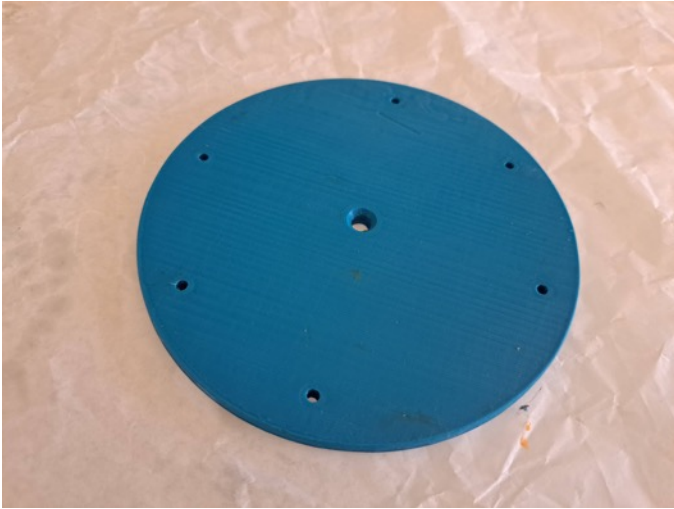
- 1pc 6x30mm bolt
- 4pc 3x30mm bolts
- 6pc 3x16mm bolts
- 1pc 6mm nut
- 10pc 3mm nuts
- 2pc 6x40mm penny washer
- 20pc 3mm washers

Next you are going to have to go to <https://github.com/ap-tech/Drivetrain/tree/main/Tyre%20mold%20stuff> and download the STLs for the mould parts, Now I'm assuming that you are experienced with 3D printing so there is no 3D printing information here only moulding, There is that kind of info in <https://github.com/ap-tech/Drivetrain/tree/main/Tyre%20mold%20stuff> and in the <https://github.com/ap-tech/Drivetrain/tree/main/>

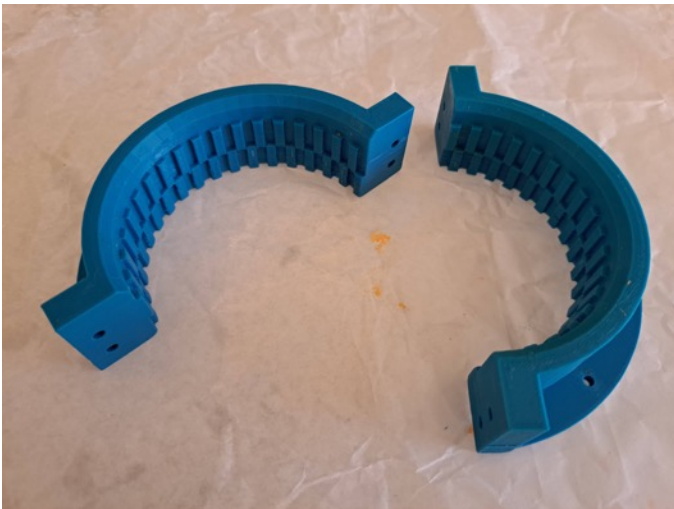


Pic 1 and pic 2 are the same item and are made by sticking Mold\_Cor.stl and Cor\_Cap.stl together with superglue, Cor\_Cap has an indexing lip that fits inside Mold\_Cor.stl

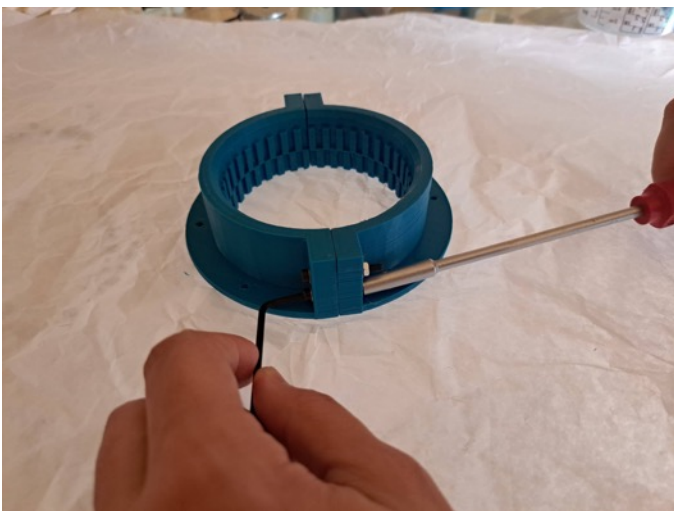
# Tyre Making



Gat 1 Mold\_B.stl

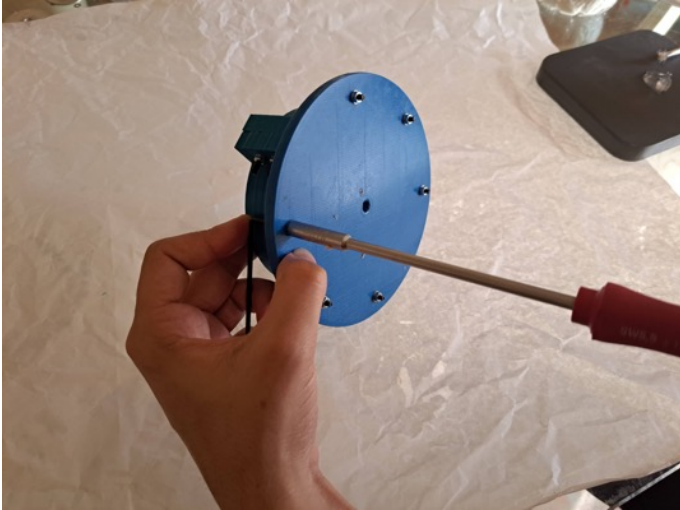


Get 2 of the Tyer\_Tread.stl



Put the 2 Tyer\_Tread.stl pieces together with the 3x30mm bolts 3mm washers on both sides and the 3mm nuts.

# Tyre Making



Attach Mold\_B.stl to the 2 Tyer\_Tread.stl pieces using the 3x16mm bolts, 3mm washers on both sides, And the 3mm nuts, Note the side with the draft on the middle hole goes on the inside, The draft is there to help the 6x40mm bolt index better.



Put the plumber's thread tape on the edge of this part, Try to keep the tape off the bottom of the plate where the tyre will be, Keep it to one side, This can be a bit tricky.



Then using a brush you are gonna cover the inside of the big part and the outside of the smaller one with the vaseline which will act as your mould release, Also prepare the 6x30mm bolt, The 6x40 penny washer, The 6mm nut, The 5mm hex key and the 10mm spanner.

# Tyre Making

Now we are gonna start the silicone mix, You have to be a bit fast for this one because once you mix the glycerin with the silicone the reaction starts, Now the mix is not an exact science so you are gonna hear me use terms like “presses” this is one complete press on the silicone gun handle, Your silicone gun may be completely different or your silicone may be in a tube, Some experimentation may be needed on your side.



Put 5-7 presses of silicone in the mixing cup, Now again the amount depends on your equipment 5-6 presses work for me.



Put a small dab of the oil paint on the mixing stick what you see there is all you need.



I'm using the tap of the glycerin bottle here to measure the amount of glycerin, Again not an exact science, All you need to know is that you need very little of it in the mix and that when you add start mixing immediately using the mixing stick with the oil paint on it.

# Tyre Making



As you can see it goes completely orange with that dab of paint, Make sure that it is mixed well.

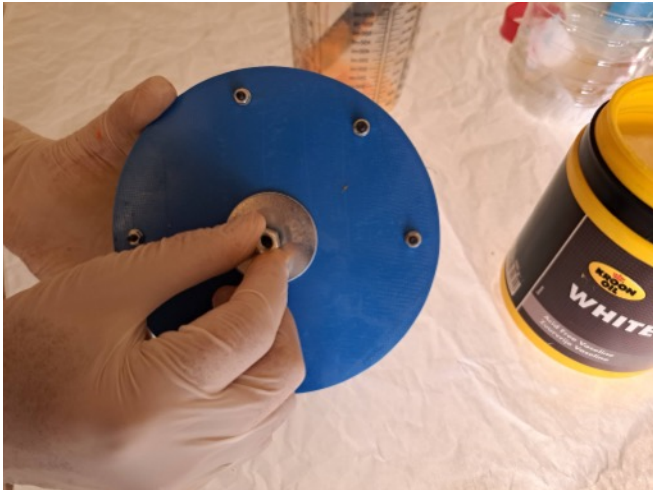


Then using the mixing stick you are going to plaster this stuff on the inside of the mould like what you see in the pic here, Try to make it even and press it in well, Use all of the content of the mixing cup.



Put the 6x30 bolt and the 6x40 washer in the top part of the mould and bring them together as you try to align the bolt to the hole in the bottom of the mould.

# Tyre Making



Close the bolt of from the other side with the 6x40mm washer and the 6mm nut, The washers are very important since you are going to be applying a lot of pressure on 15% infill 3D printed plastic.



Using the 5mm hex key and the 10mm spanner start tightening until you feel that the 2 sides of the mould have met.



The mix should only come out of the 8 holes like this, Which is why I applied the plumber's thread tape on the edge of the core piece.



# Tyre Making



Leave it for 2 days at least before de-moulding.



After 2 days start the de-moulding by removing the bottom (Mold\_B.stl).



Then the sides one by one after removing the 3x30mm bolts.

# Tyre Making



Then using something thin (In this case a flat head screwdriver) pry the tyre away from the mould's core.



And you should end up with this, Leave it to settle for about 3 days after which the vinegar smell would have stopped emitting from it, And it would have stopped sweating the glycerin (ideal if you want to glue this material).



Then after 3 days trim the excess and rinse in warm soapy water, And you should end up with a cool looking tyre for your rover.

Credit to my niece Emma Puglisevich who at the time of 2023-02-26 was 6, She took the photos where both my hands were occupied.

Thanks Emma you Rock!