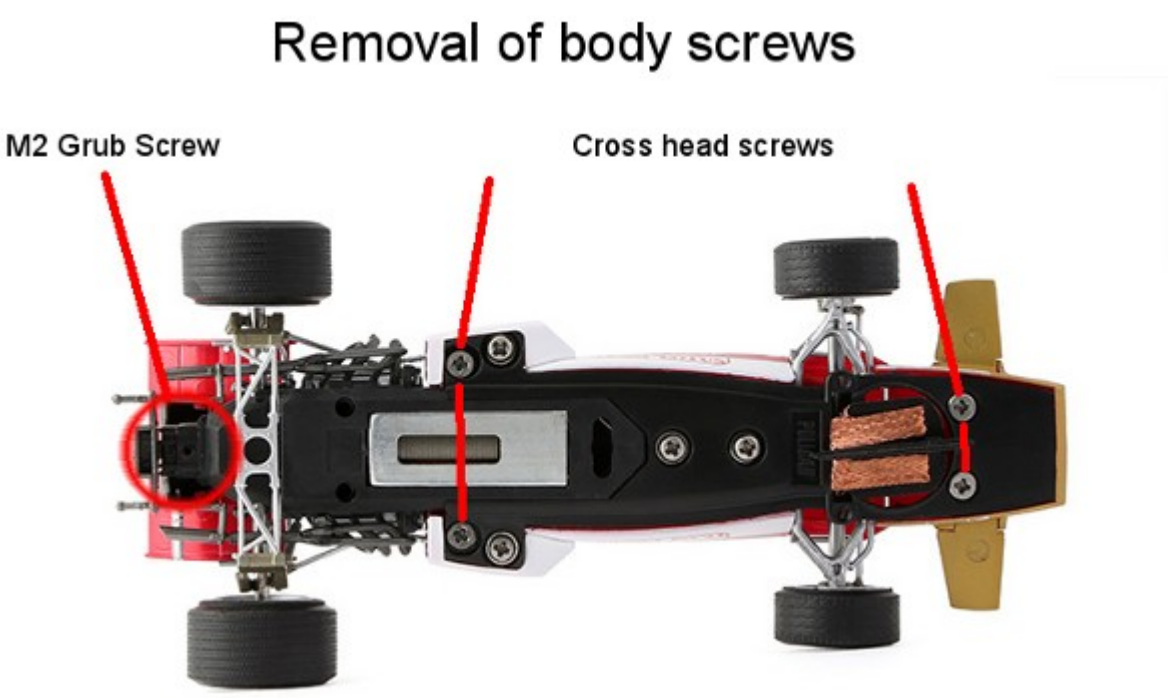
Assembly of the Lotus 72

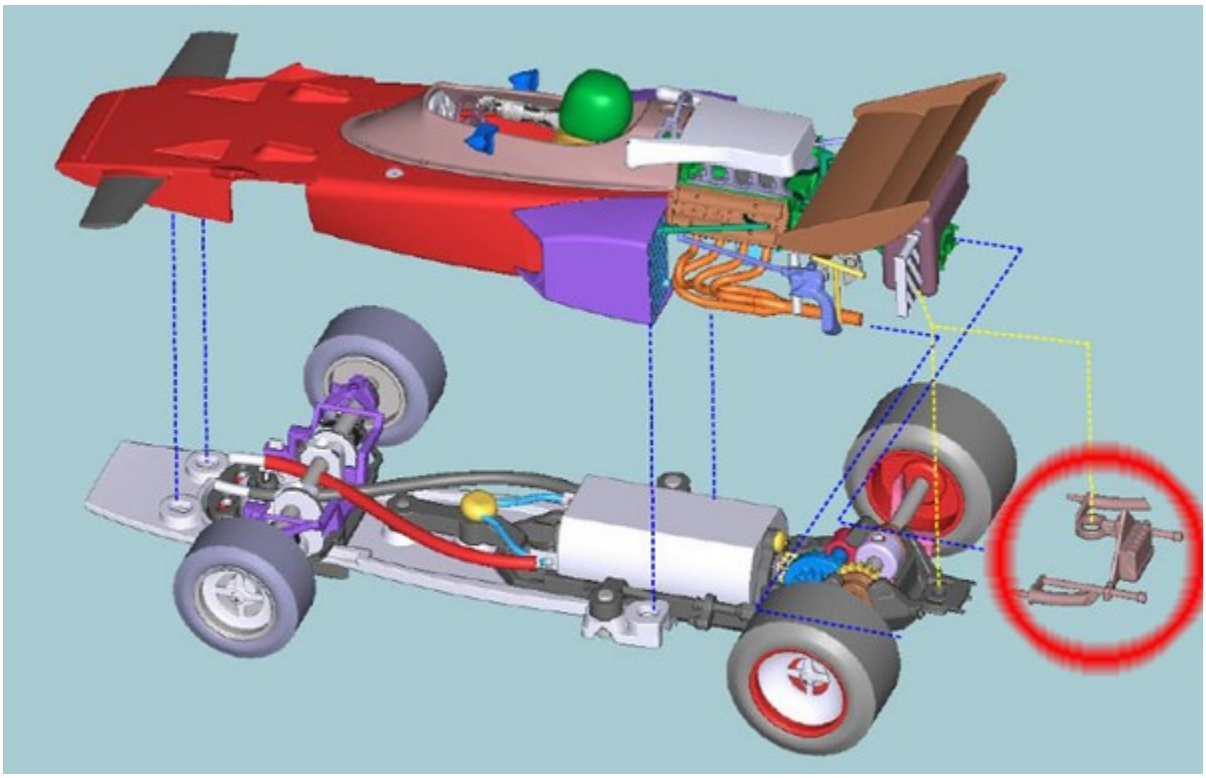
The Lotus 72 is the first new Policar F1 model from APS. It features an ingenious and innovative gearbox, housed inside a proper replica of the Hewland FG400 real gearbox.

This document details all the necessary step to disassemble the Lotus 72 and its gearbox.

Start by removing the four main body screws, and the grub screws at the rear end of the gearbox.



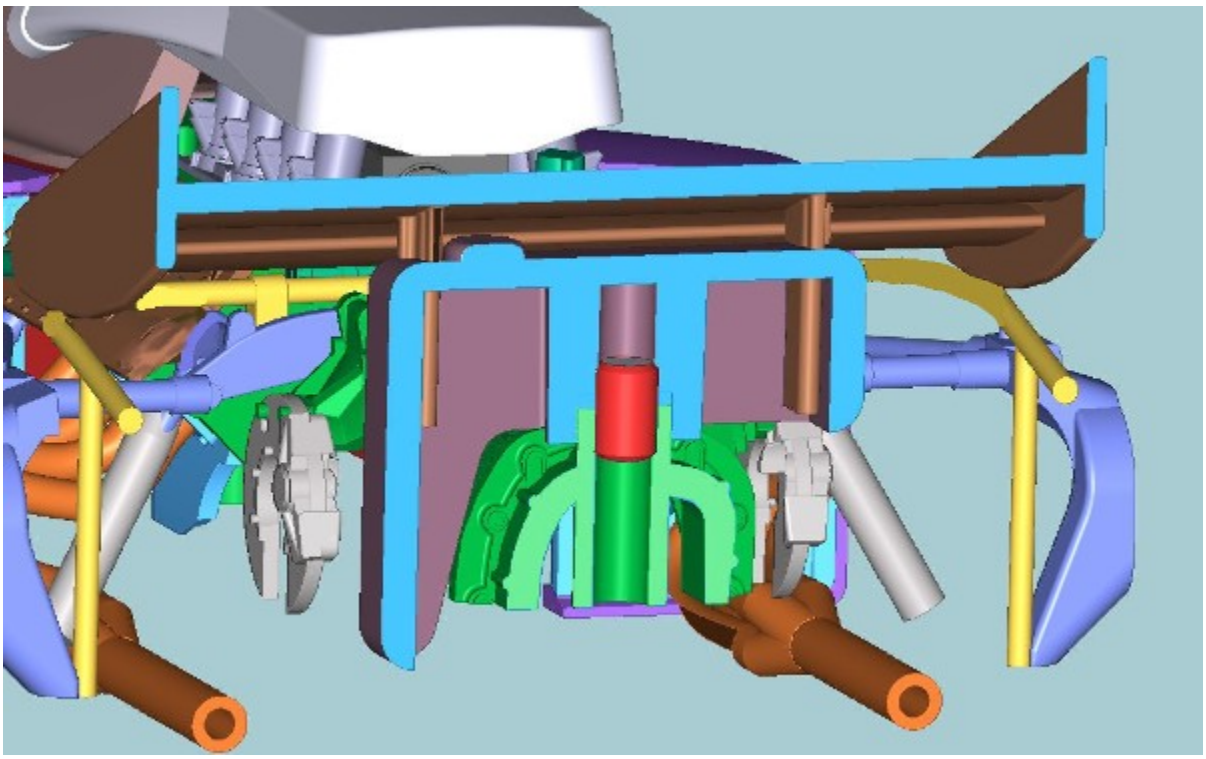
Once the grub and screws are removed, you can proceed to detaching the body from the chassis. This requires careful removal of the exhaust terminals (the rear end part representing the battery as well). Be very careful when removing the body: as the exhaust run under the rear shaft, body must be lifted and moved forward at the same time.



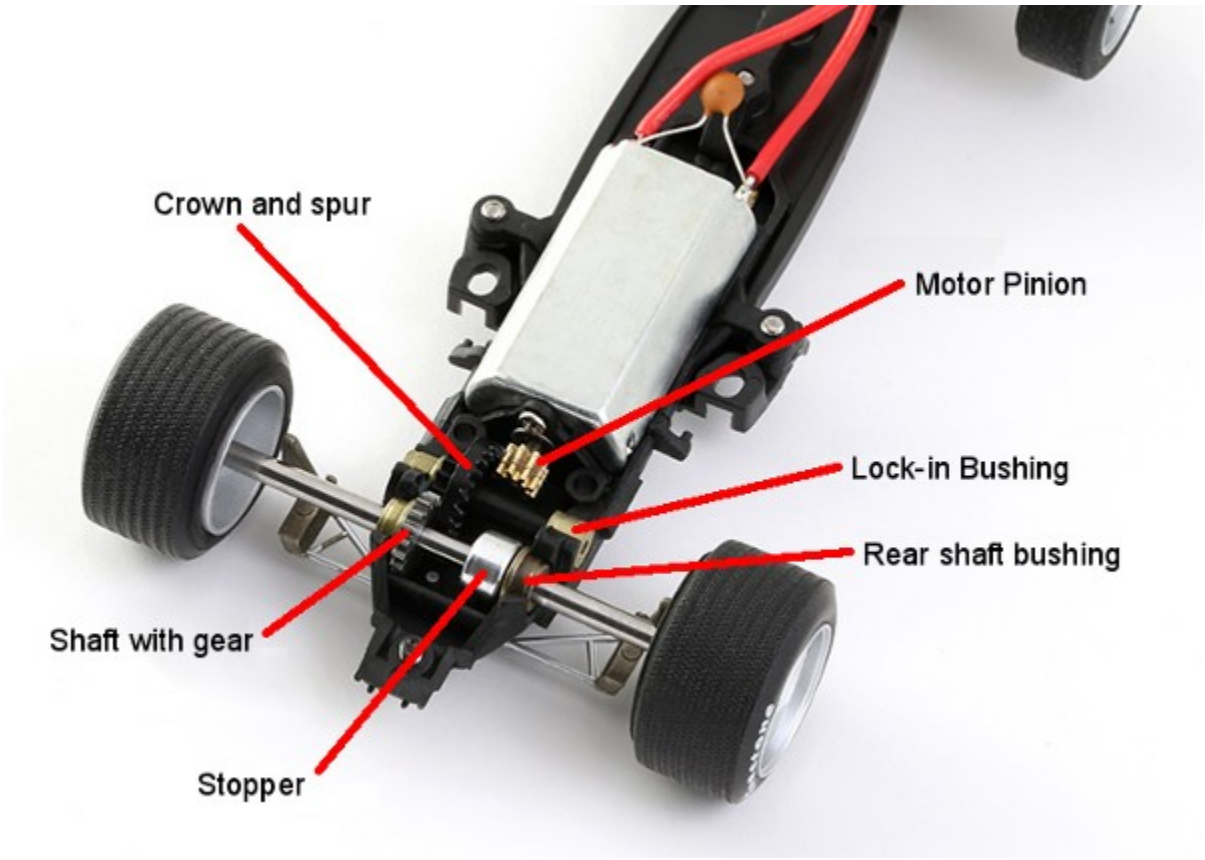
Take a look now at the naked chassis. You may want to route the wires under the front shaft.

Front and rear wings may be replaced with spare parts. However, the first Policar model CAR01a has them glued in, so more work may be necessary

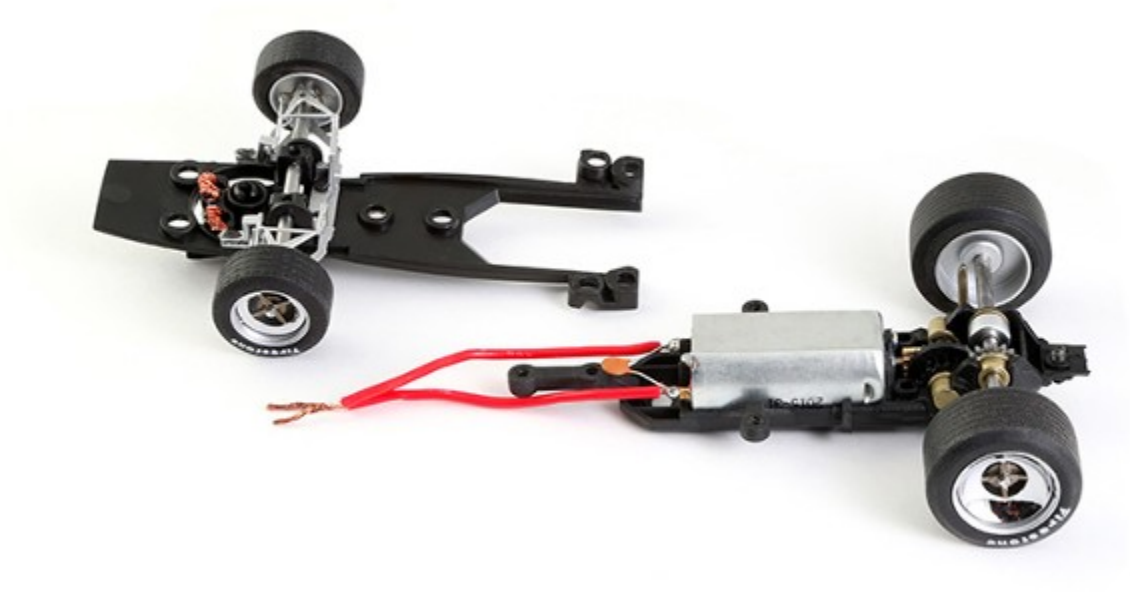
Note that the rear wing is designed to be assembled to the gearbox with a blind 6mm M2 grub screw - so in case it pops off, you can easily screw it back into position:this is a cross section of the rear wing and the gearbox, and the red cylinder is the grub screw holding both together:



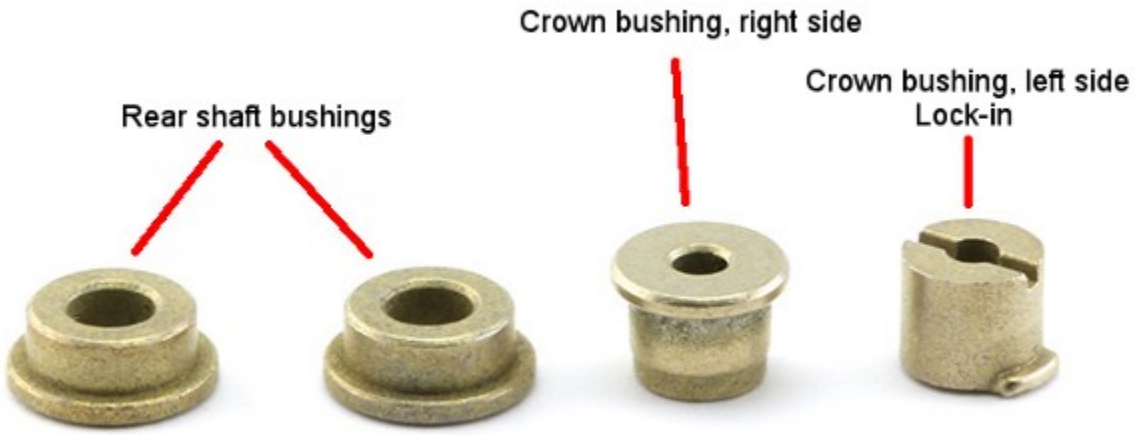
This is how the gearbox looks like



Motor mount and main chassis may be quickly separated by removing the four screws

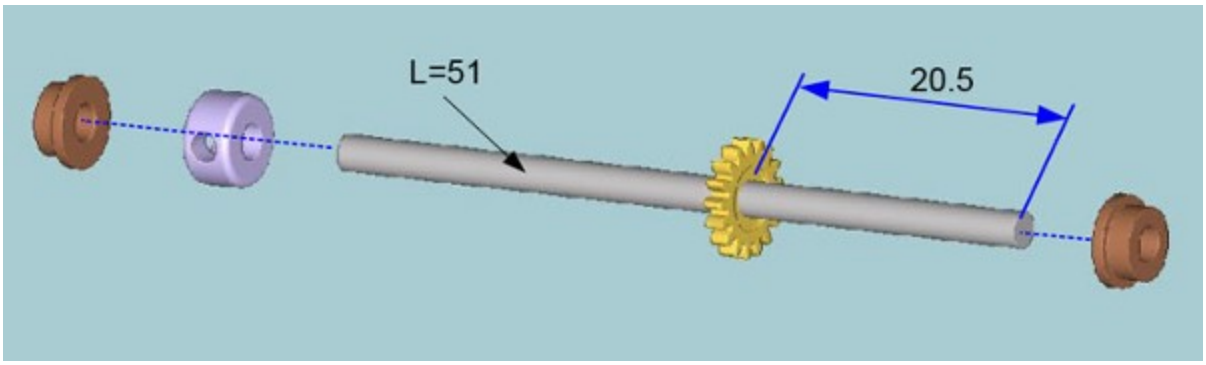


Take note that there are four bushings in the motor mount:

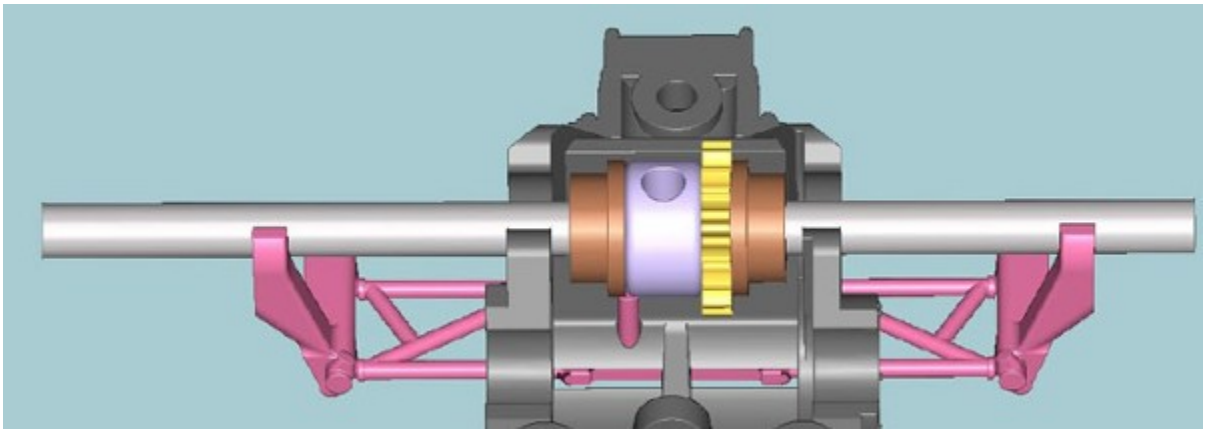


Rear shaft comes preassembled with a 17 teeth steel spur gear. More gears (16 and 18 teeth) are available as spares.

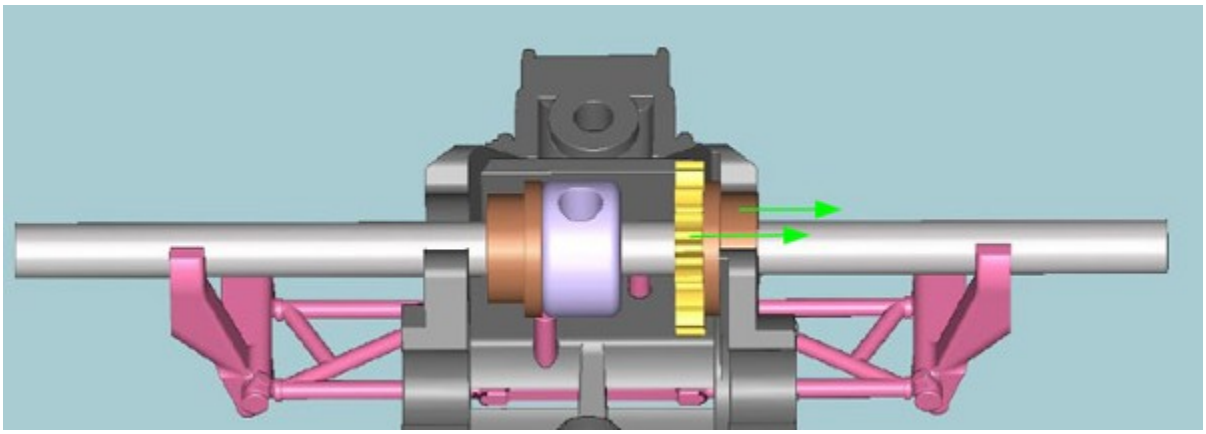
To mount it in the motor mount, the two bushings and the stopper must be in place:

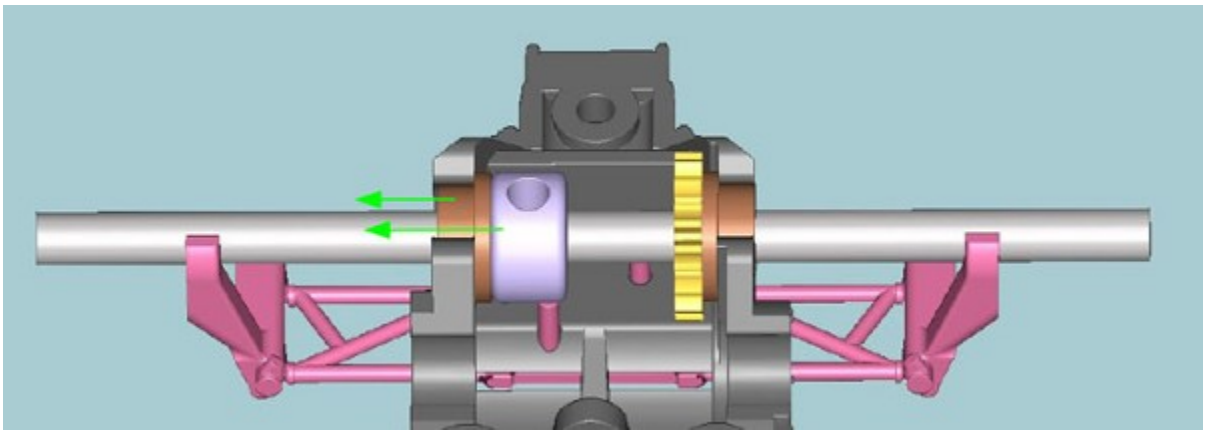


Now, position the complete shaft where it needs to be:



Slide the bushings on place:





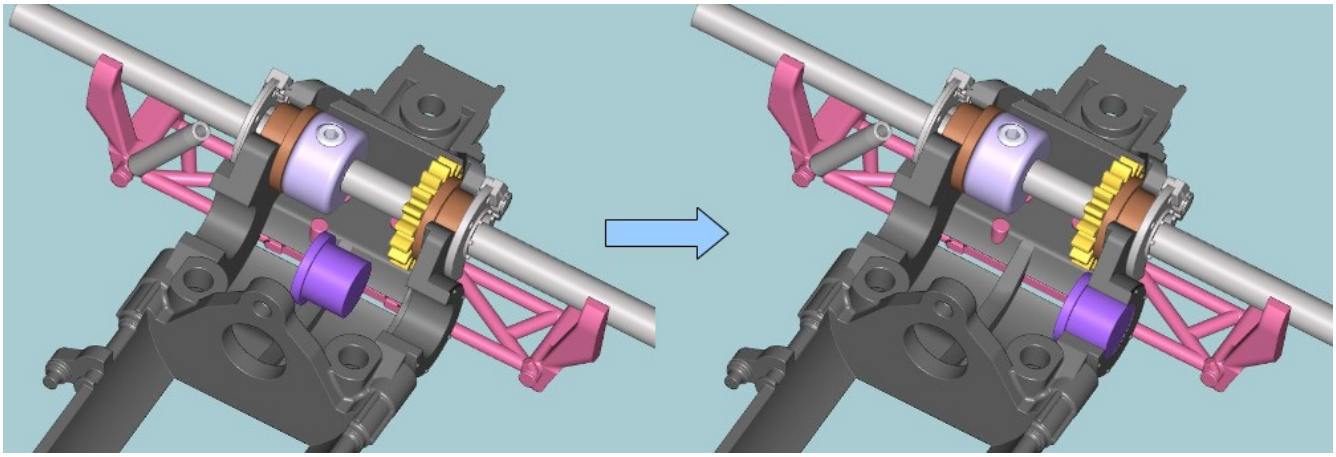
then lock the stopper with the grub screw.

To remove the shaft, follow the same procedure, but in inverse order.

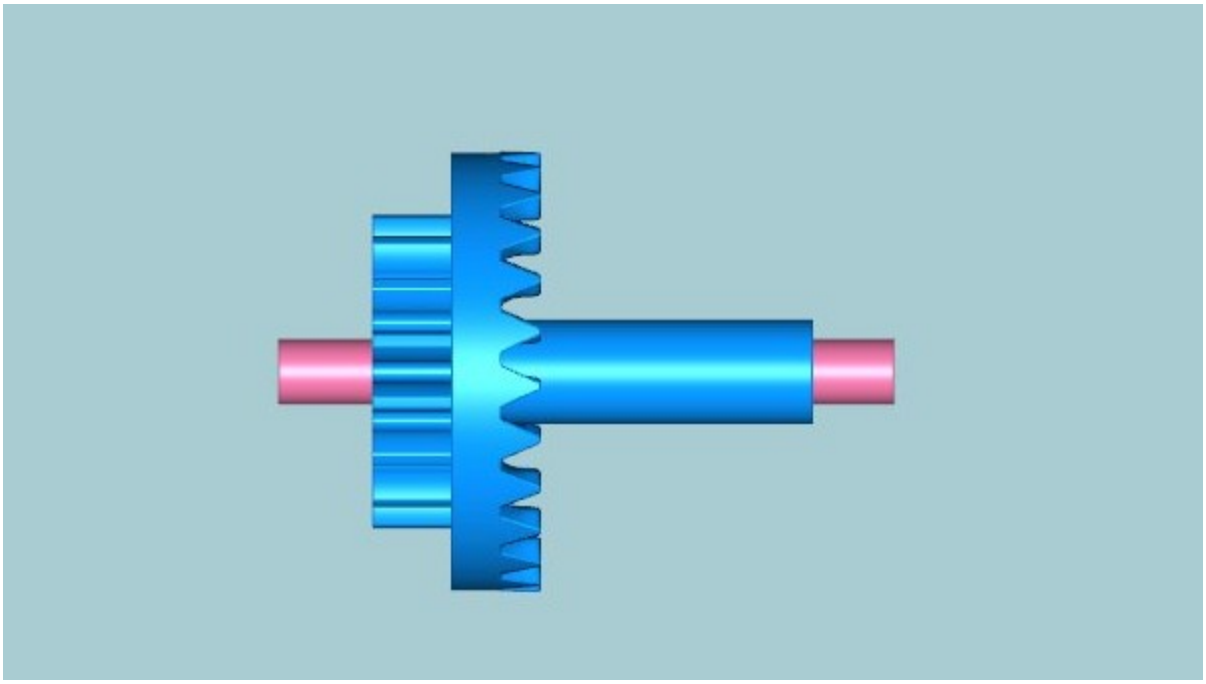
Ball bearings are available as spares, for the rear shaft bushings(Slot.it CH105)

Now to the crown/spur gear assembly:

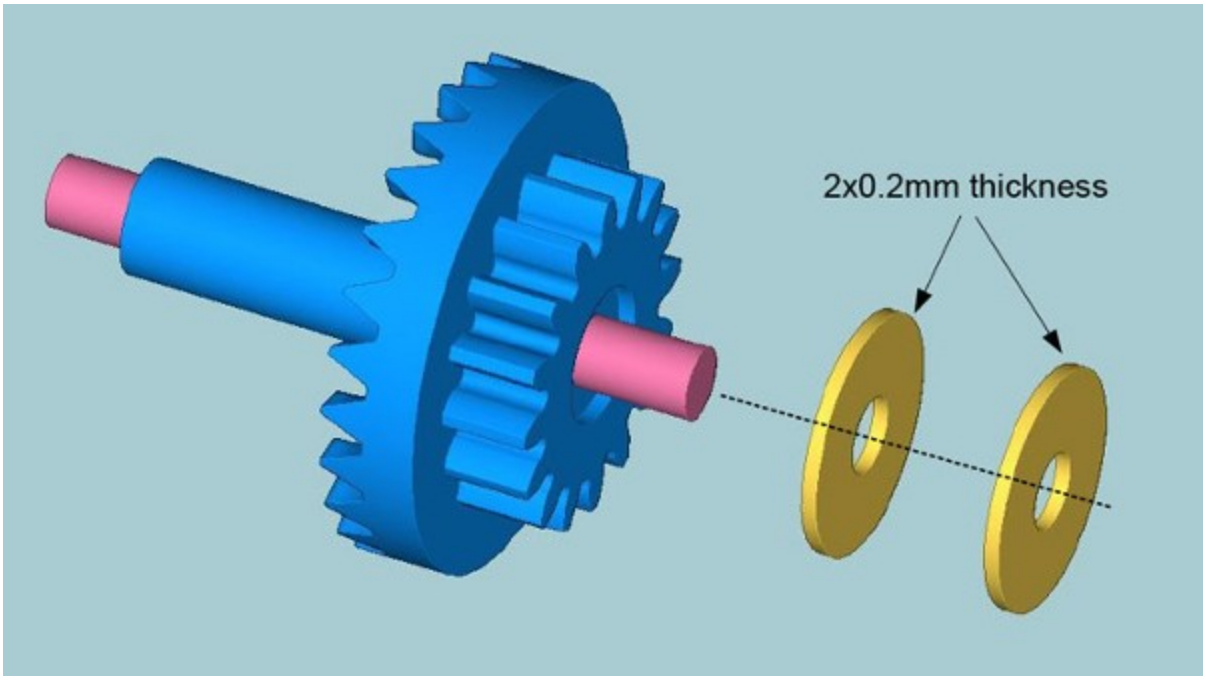
First, the left bushing of the crown assembly must be inserted in the motor mount:

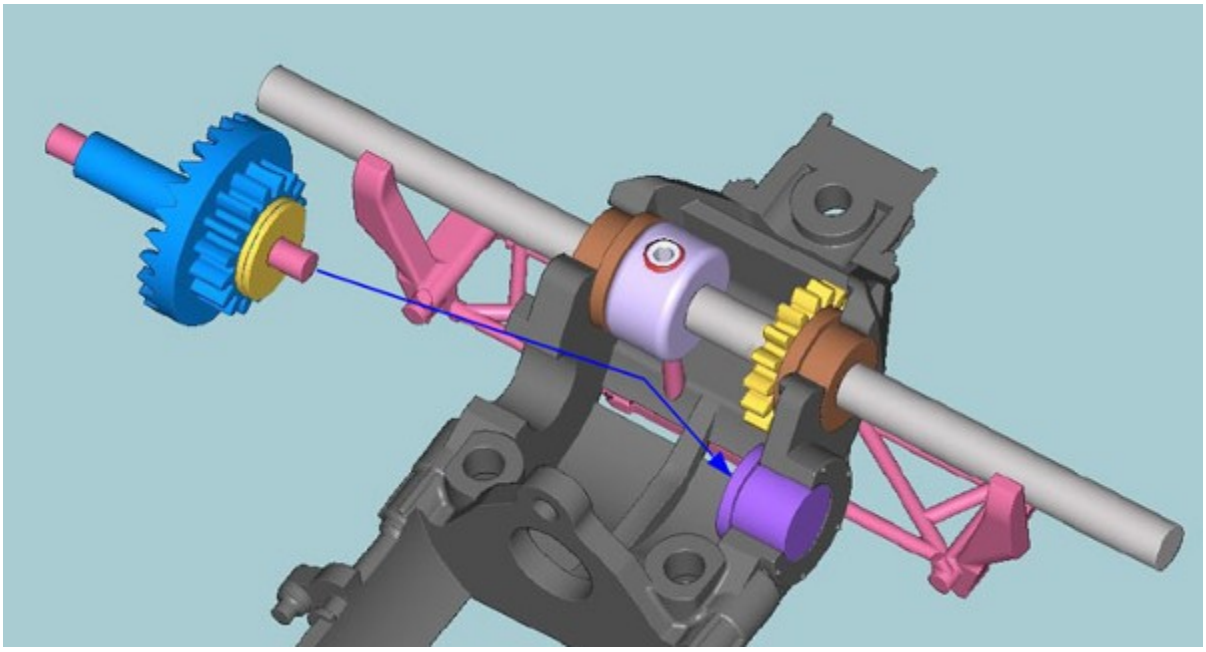


Then, insert the shaft in the the crown: the shaft must be at the center of the crown, with two protruding edges of equal length



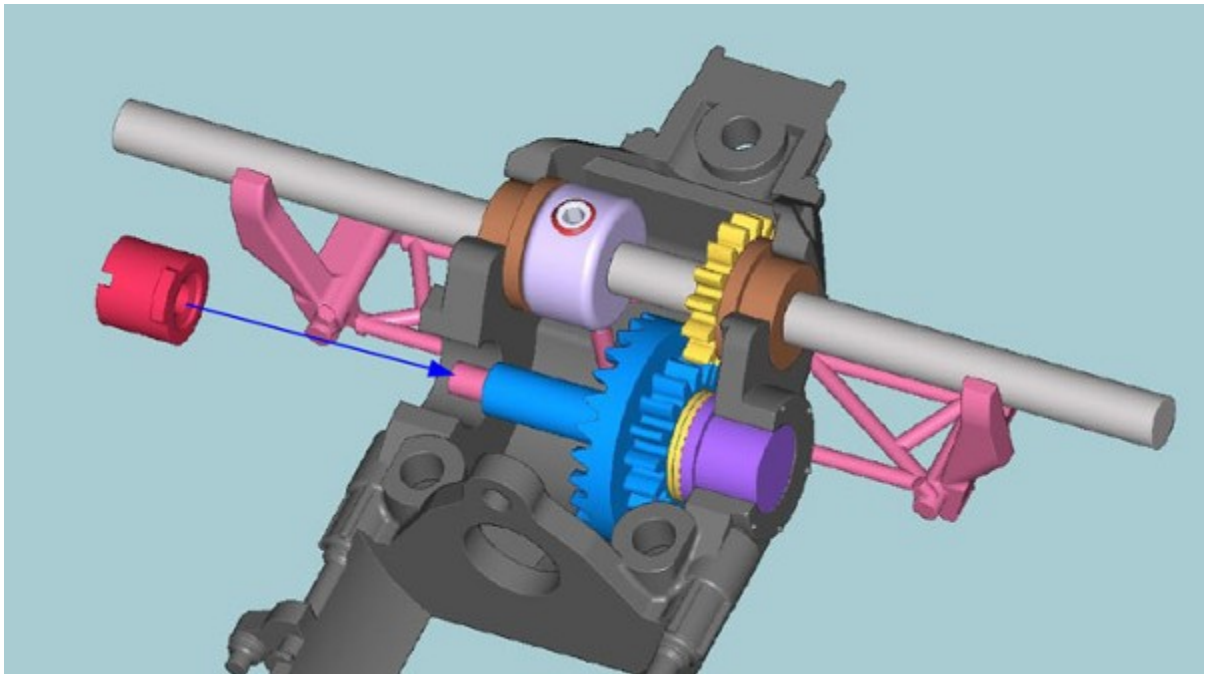
Now the crown+shaft assembly must be inserted, including two 0.2mm shims (0.4mm shims in total), in the motor mount

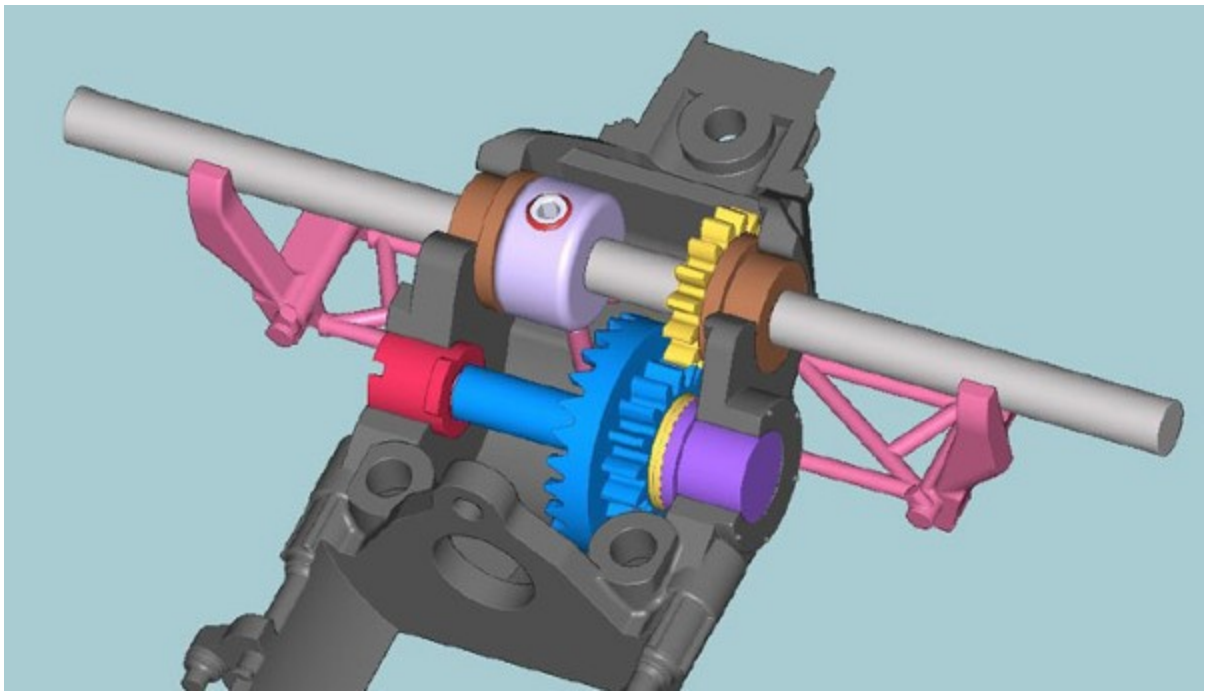




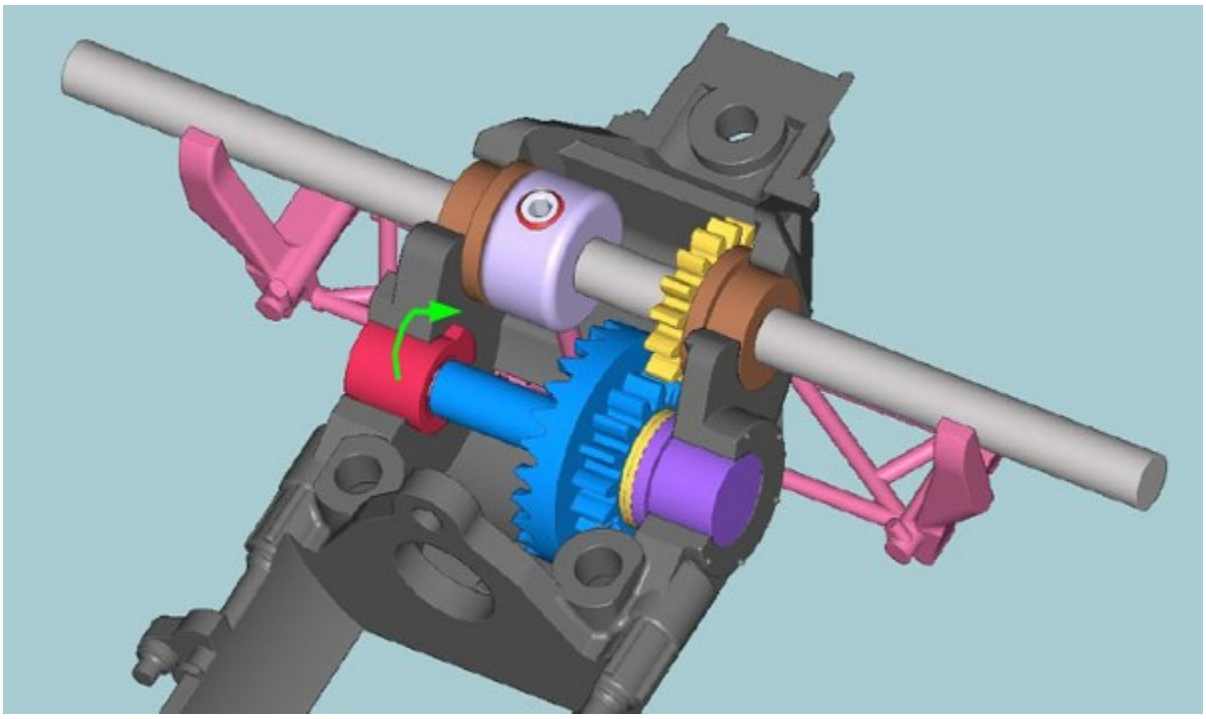
The shims are absolutely essential. Failing to insert the shims will lead to early damage to the crown gear.

The last bushing will keep everything safely in please. Make sure the small tab is facing inside the motor mount

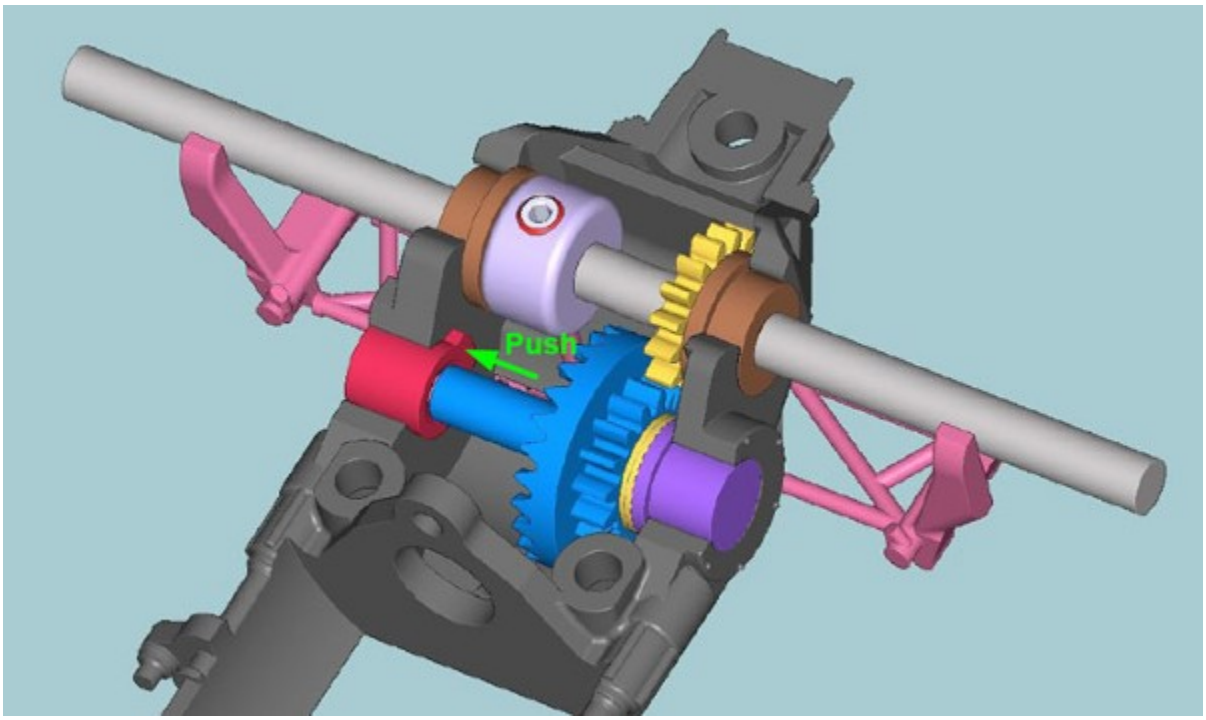




Using a flat head screwdriver, turn the locking bushing so that everything stays safely in place

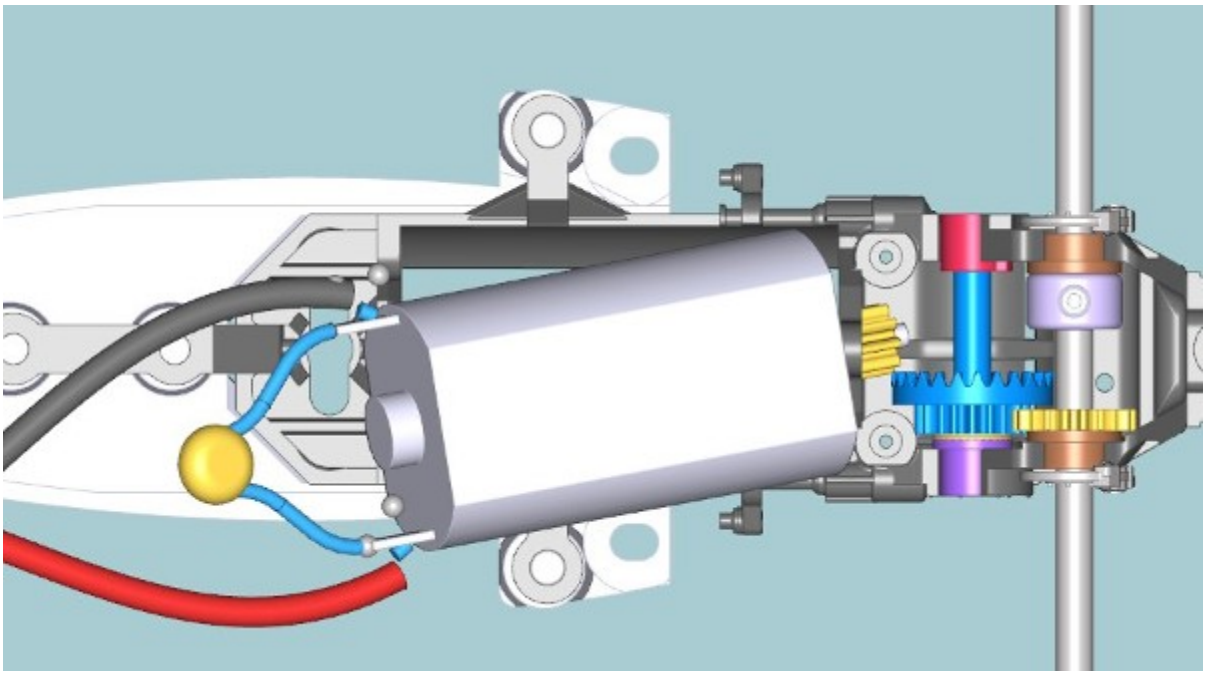


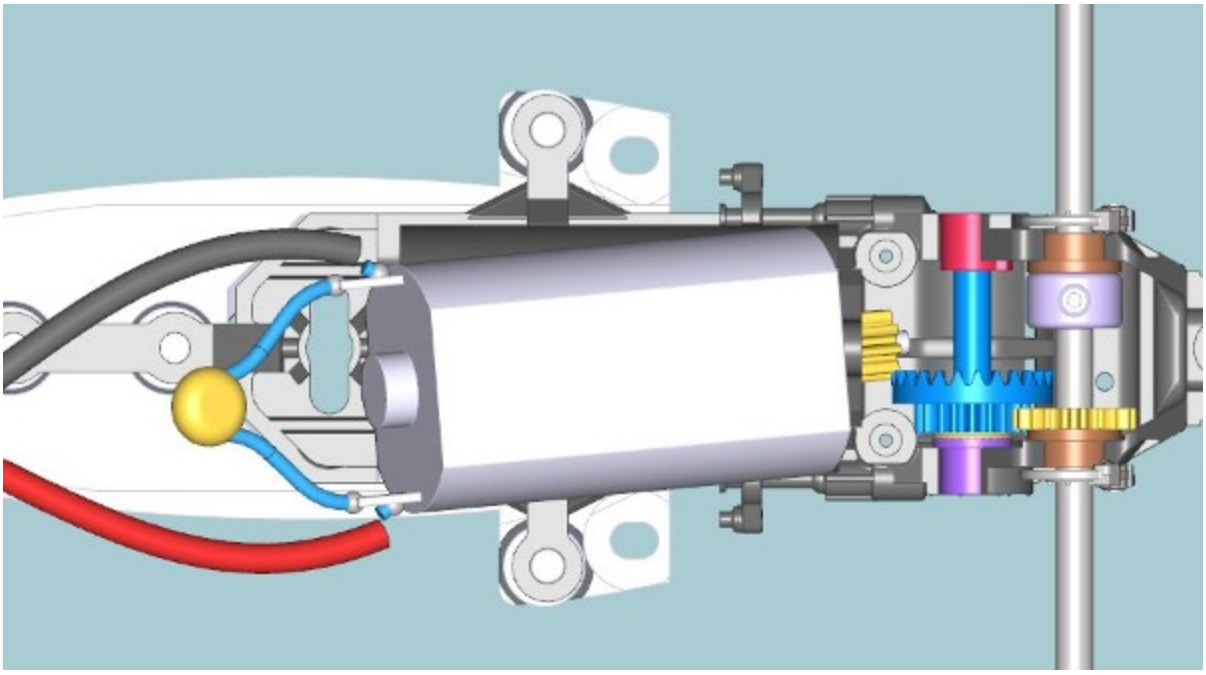
Now push the bushing back against the motor mount, to allow proper spacing for the crown assembly

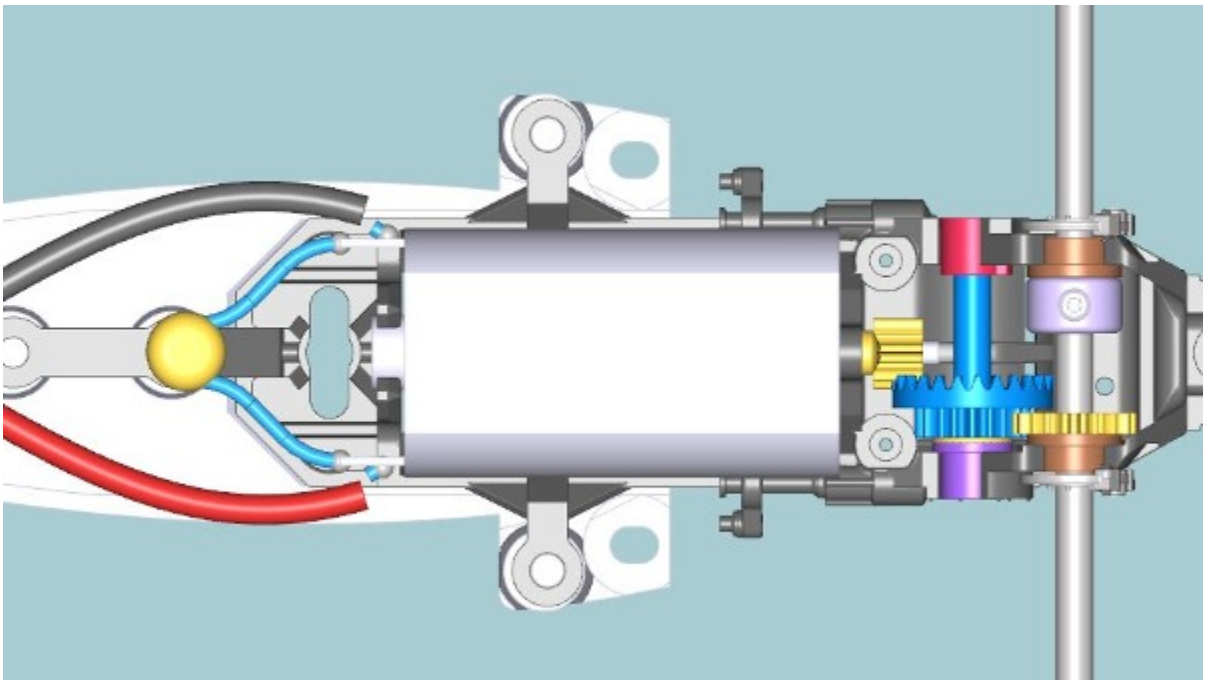


Now it's time to insert the motor.

It is important, in order to prevent any damage to the crown gear, to insert the motor as suggested in the pictures - first with an angle to the left, then straight while pressing it down

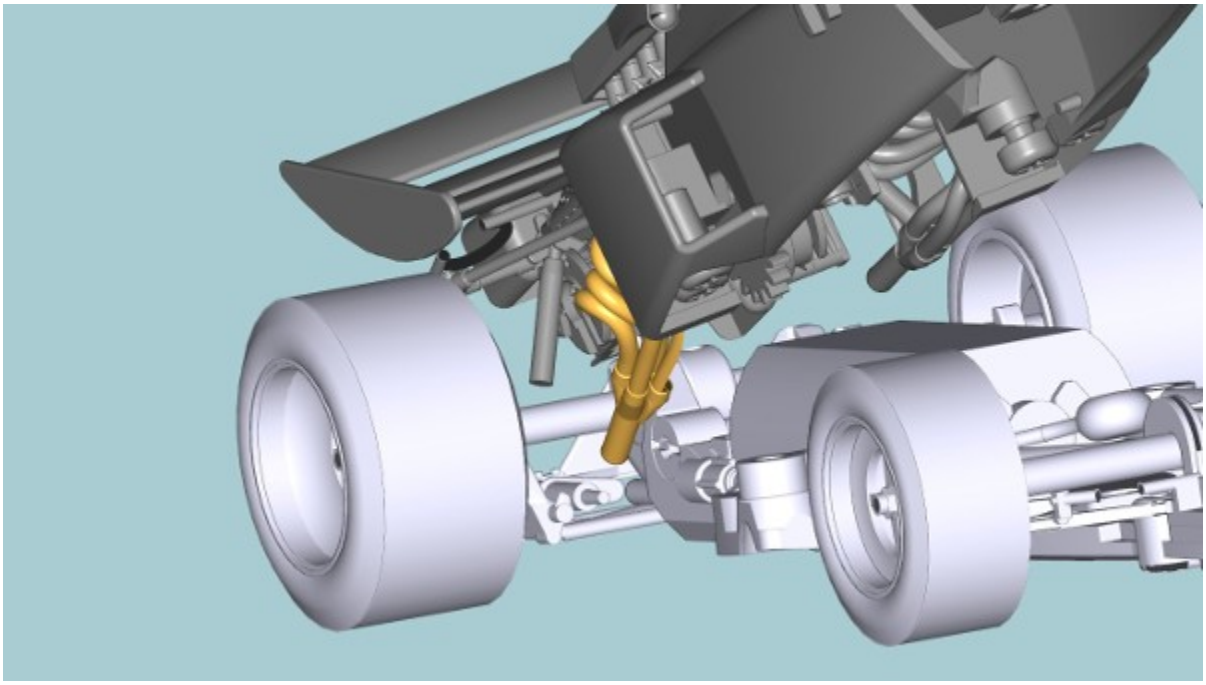


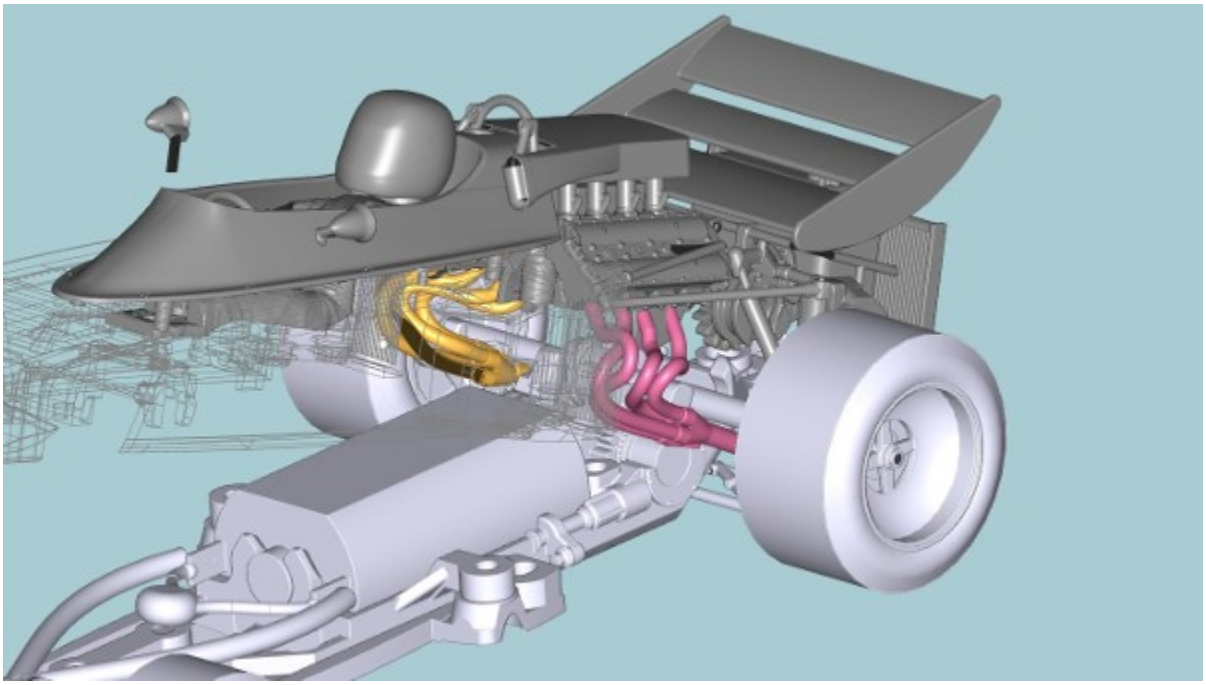




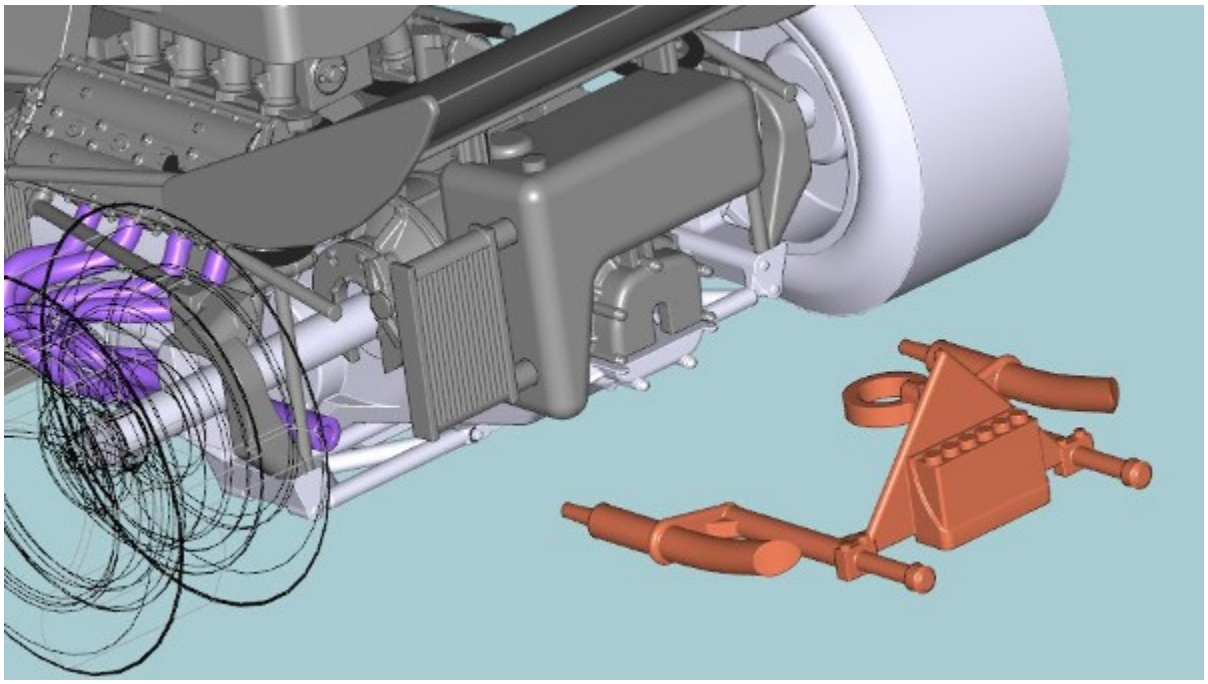
This is how it will all look like

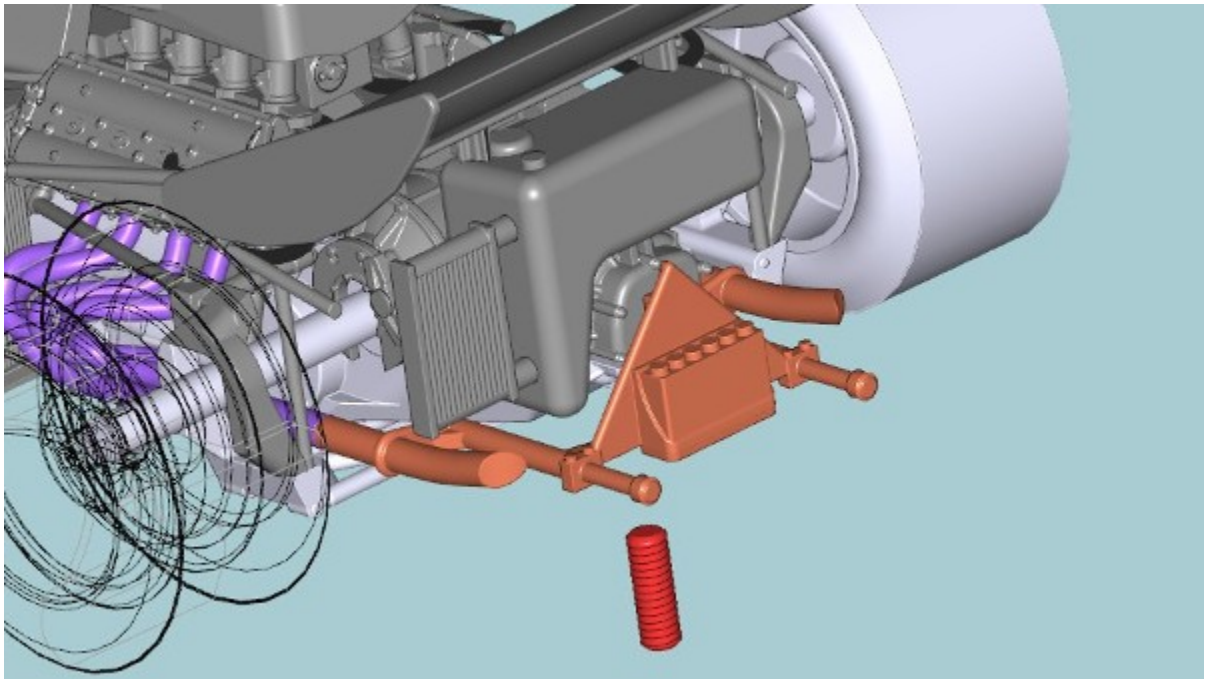
Now comes the most difficult part: putting the body back on the chassis. In early Lotus production (CAR02a), the exhausts part which is attached to the body must slide under the rear shaft. This must be done with extra care as it is easy to damage the torsion bar part. It is advisable to insert one of the exhausts under the rear shaft, pull the body up to allow the shaft to slide under the torsion bar, then repeat for the other side of the car.

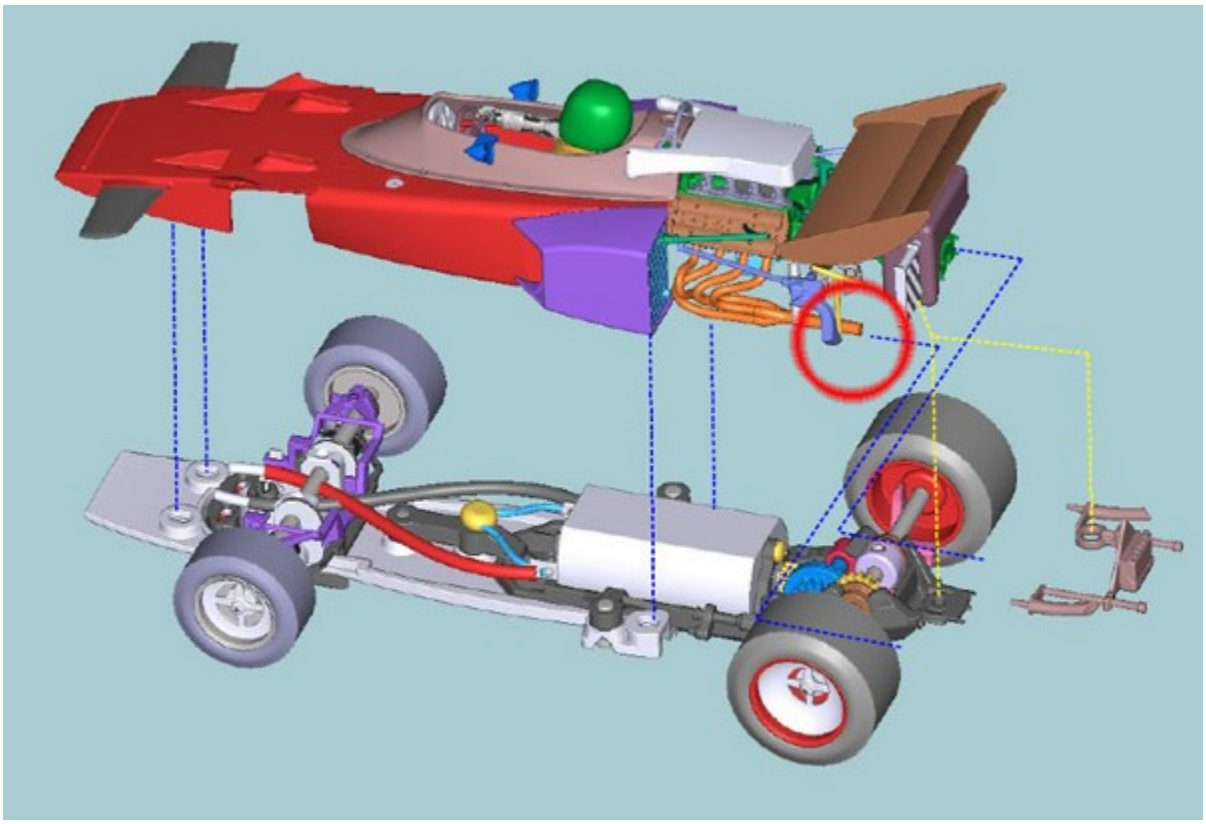




Last thing: put the terminal exhaust and battery in place, then screw the mini grub screw back in








GOLD LEAF
TEAM LOTUS
2
POLICAR
Lotus 72 - 1st Hockenheimring 1970
Jochen Rindt