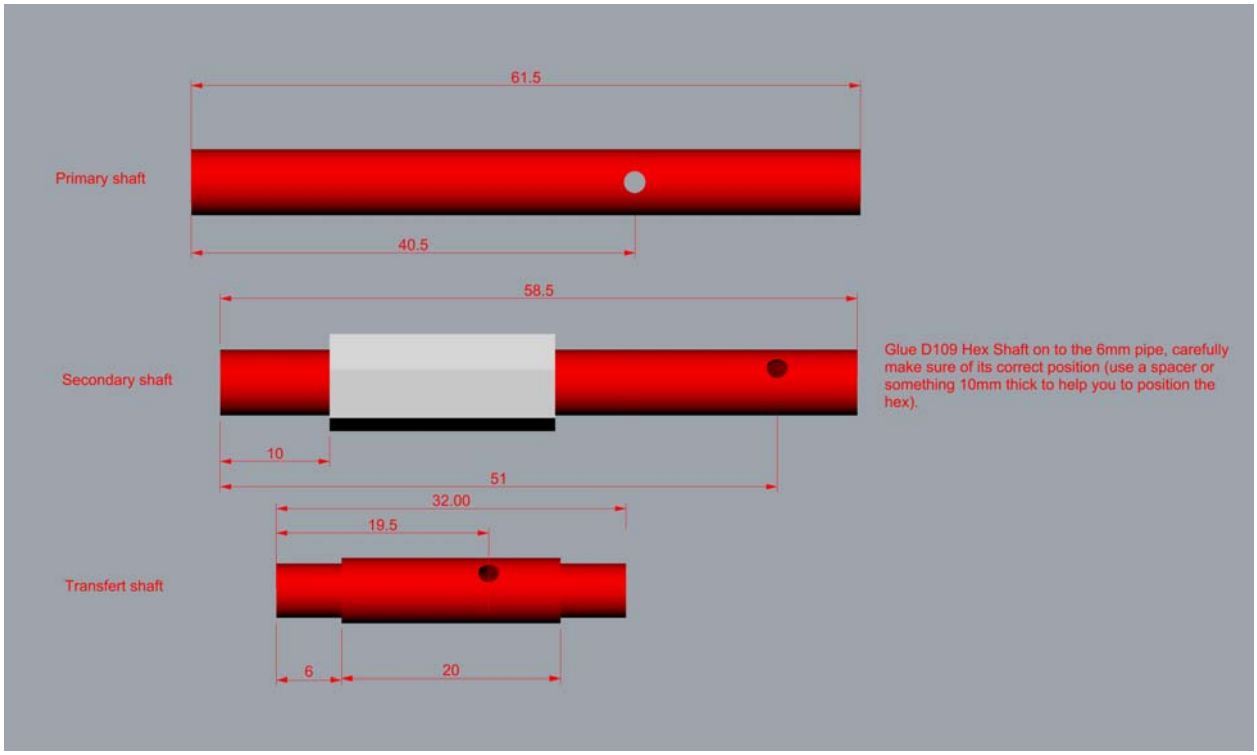
Ossum Jeep Gear box V1
Clement Berard 06/2019

REVISION 24/07/19: bearing size corrected MR105 replaced by MR106.

Gear box assembly instructions:

1) Shafts preparation:
   Primary and secondary shafts are 6mm pipe. Wall thickness doesn't matter but should be at least 0.5mm thick if made off brass and 1mm thick if aluminum.
   Transfer shaft is 6mm stepped down to 5mm for CV joints connection, I use a 5mm brass pipe inserted into a 6x0.5mm brass pipe.

   Before to glue D109 Hex make sure it can freely slide on the 6mm pipe (re-drill the hex to 6mm as necessary). Once you are comfortable with the play prepare a 10mm shim to position the hex on the shaft. You are ready to glue the hex on the pipe with CA, but be careful the glue will set very fast!

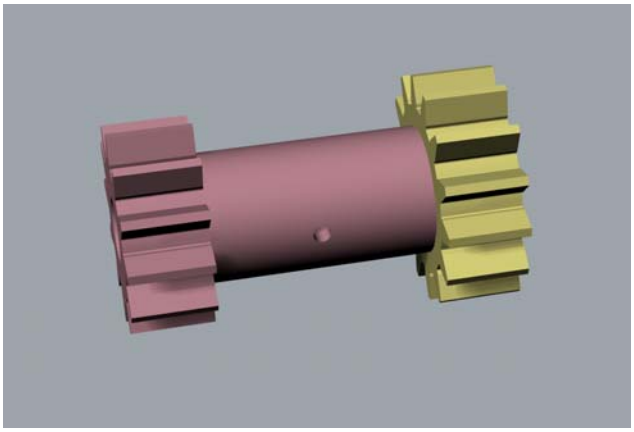


   Do not drill the grub screw holes for now. It will be done after first trial fit.

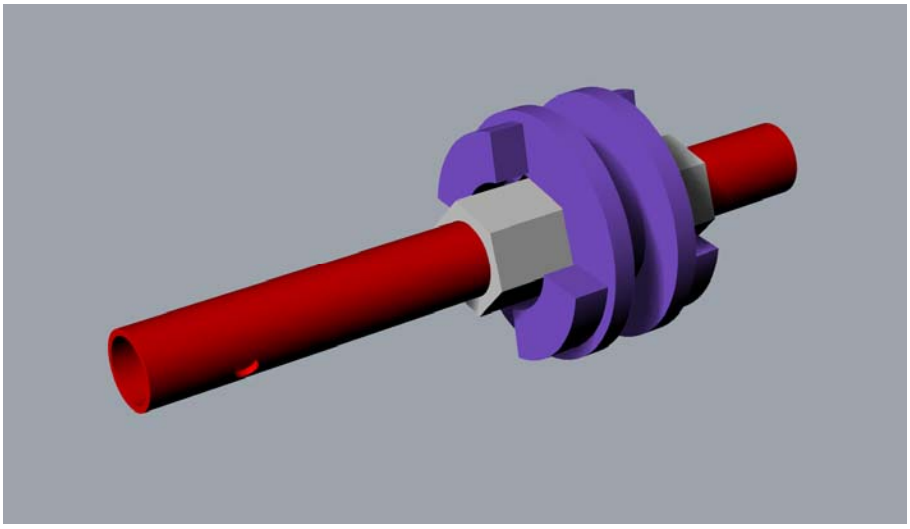
2) Pulley preparations - Motor 15T pulley and Motor 52T pulley -
   Hand drill grub screw holes to 2.4mm (it should be 2.5mm for M3 but 2.4mm give best results)
   Tap M3 threads on grub screw holes
   Finish by hand boring the shaft holes to 6mm for 52T pulley and 4mm for 15T pulley
   Insert 4 off M3 x 5mm socket set screw

3) Gear preparations

Glue D105 input gear onto D106 input gear, there are mortise and tenon to add strength and ease alignment.



Glue D110 Shift Plates on ether sides of D111 Spacer, Cover the Hex Shaft D109 with tape and use it to align the Shift Plates and Spacer while gluing them.

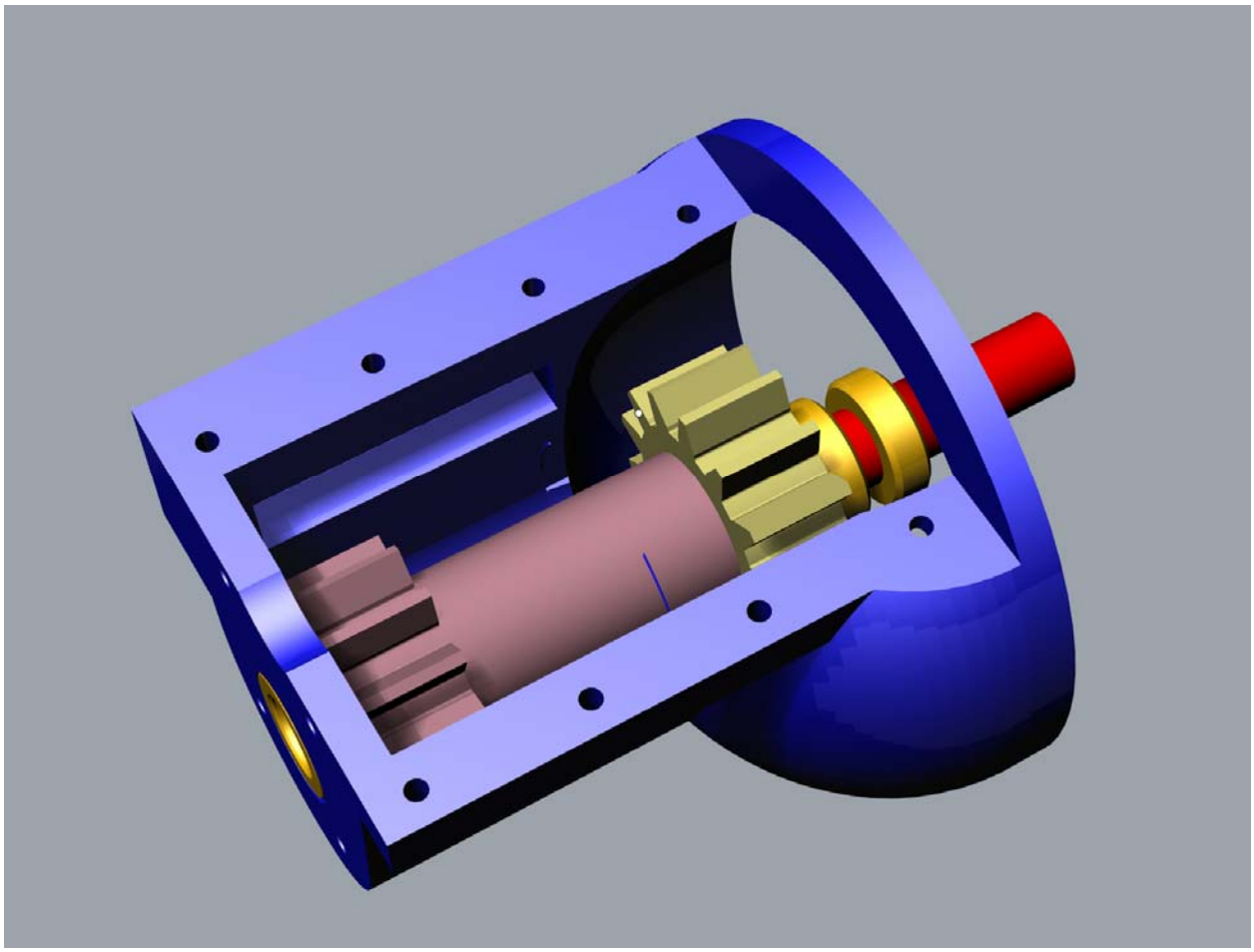


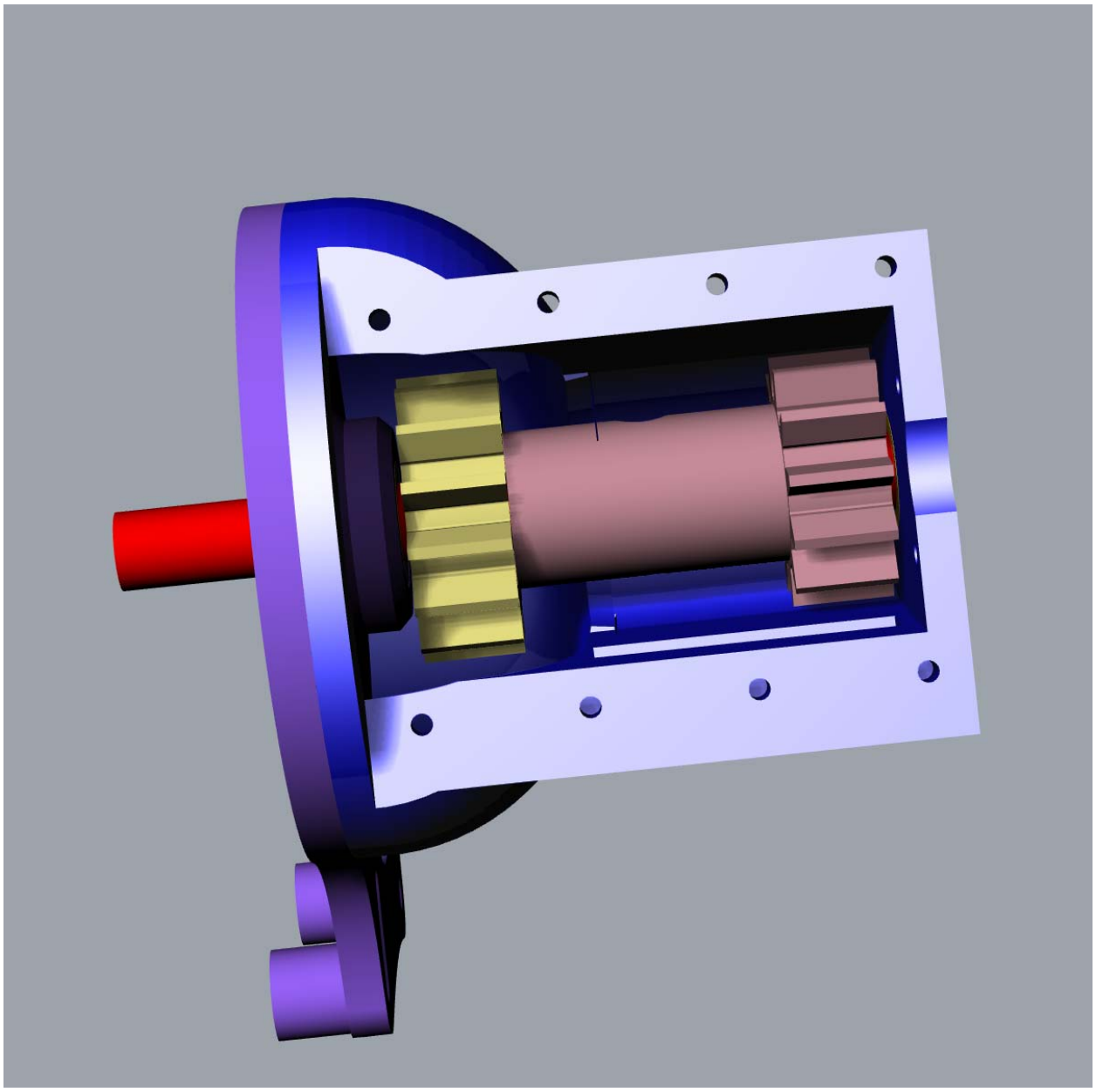
Insert MR106 bearings x 4 onto D107 and D108 Output Gears. If the holes are too small re-bore them by hand using a 10mm end mill, if you don't have an end mill just slightly shave the bore walls with an exacto knife.

4) Assembly

Insert input gears on to primary shaft. Note that the smallest sprocket (long neck one) is the first gear and shall face the back of the gear case. Add 3 MR106 bearings and close the assembly with the Motor Pulley Flange. Test the assembly for free rotation, you can add shim washers on each sides to reduce the play and stop the first gear from rubbing on the case.

Ossum Jeep Gear box V1
Clement Berard 06/2019

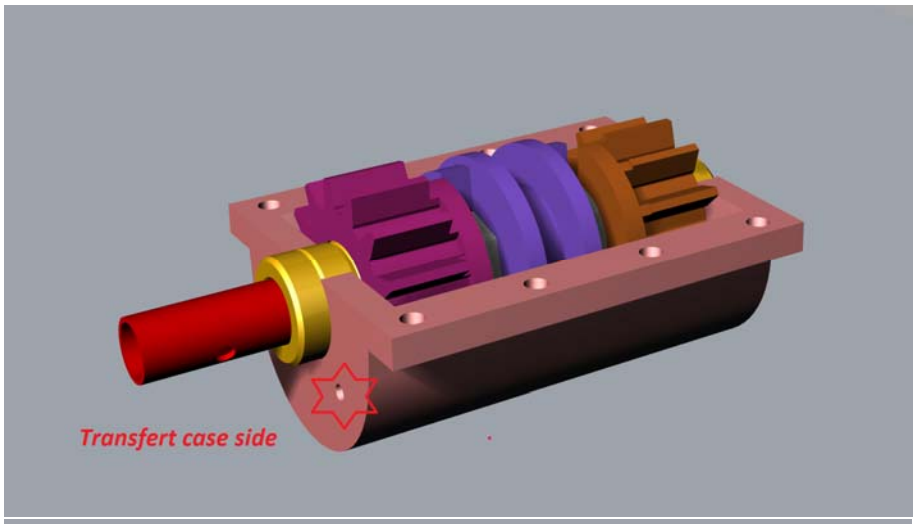


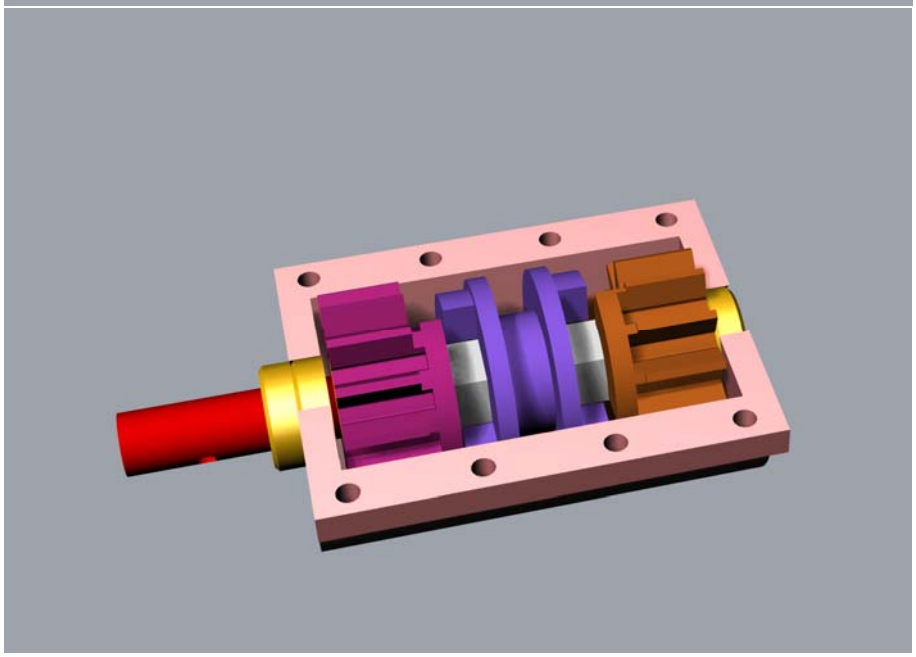


Once you are satisfied with this step mark up the grub hole location, you can now disassemble the gears from the shaft and drill 2mm hole. Re-assemble using a 2mm x 10mm CHC screw to secure primary gears onto primary shaft. Ground off any screw end protruding from the assembly.

Insert output gears and shift plate assembly onto secondary shaft. Add 3 MR106 bearings as pictured. Make sure to position the largest gear (first gear) on the carter side with 2 holes

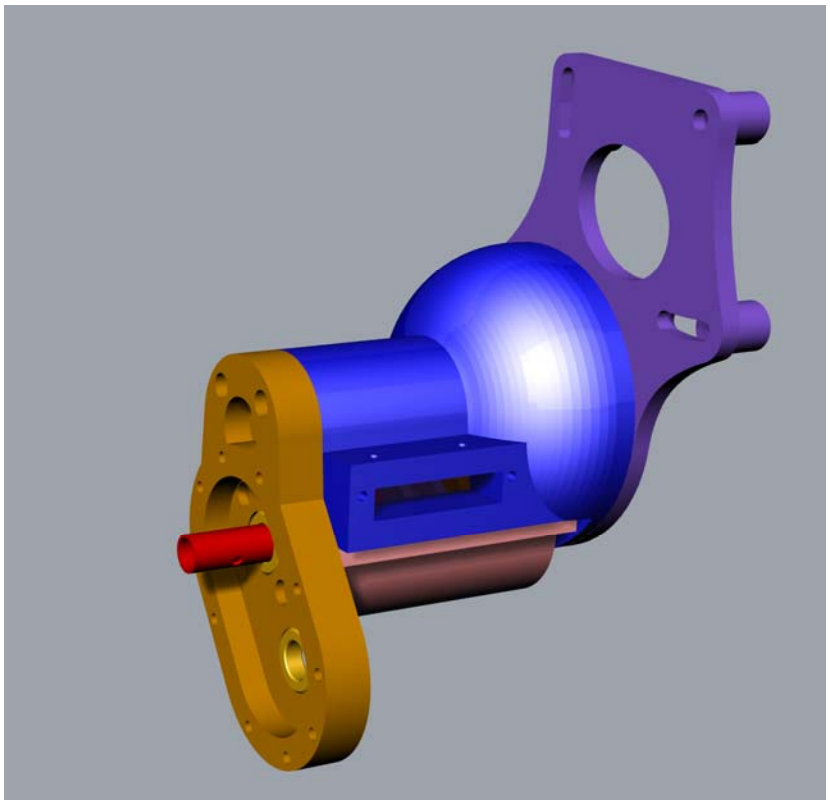
Ossum Jeep Gear box V1
Clement Berard 06/2019



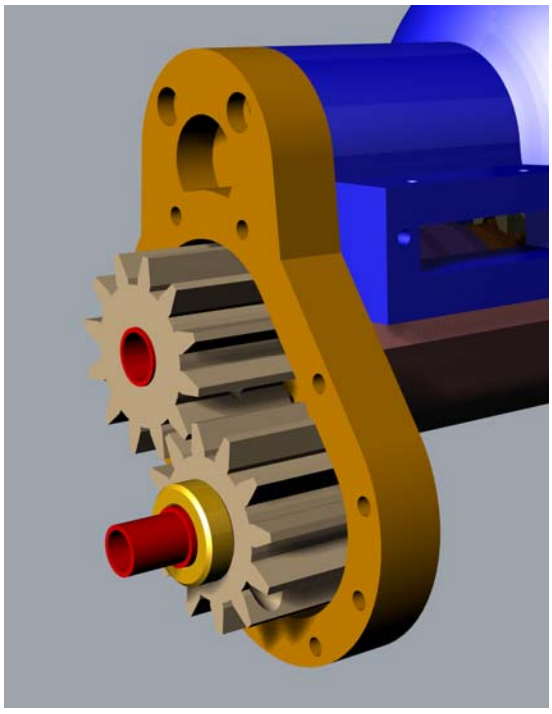


Assemble primary assembly with secondary assembly and add 2 Way Transfer Flange. Be sure that screw of transfer flange does not protrude into gears, Use 2mm x 4mm screw, cut the tip off if necessary.

Ossum Jeep Gear box V1
Clement Berard 06/2019

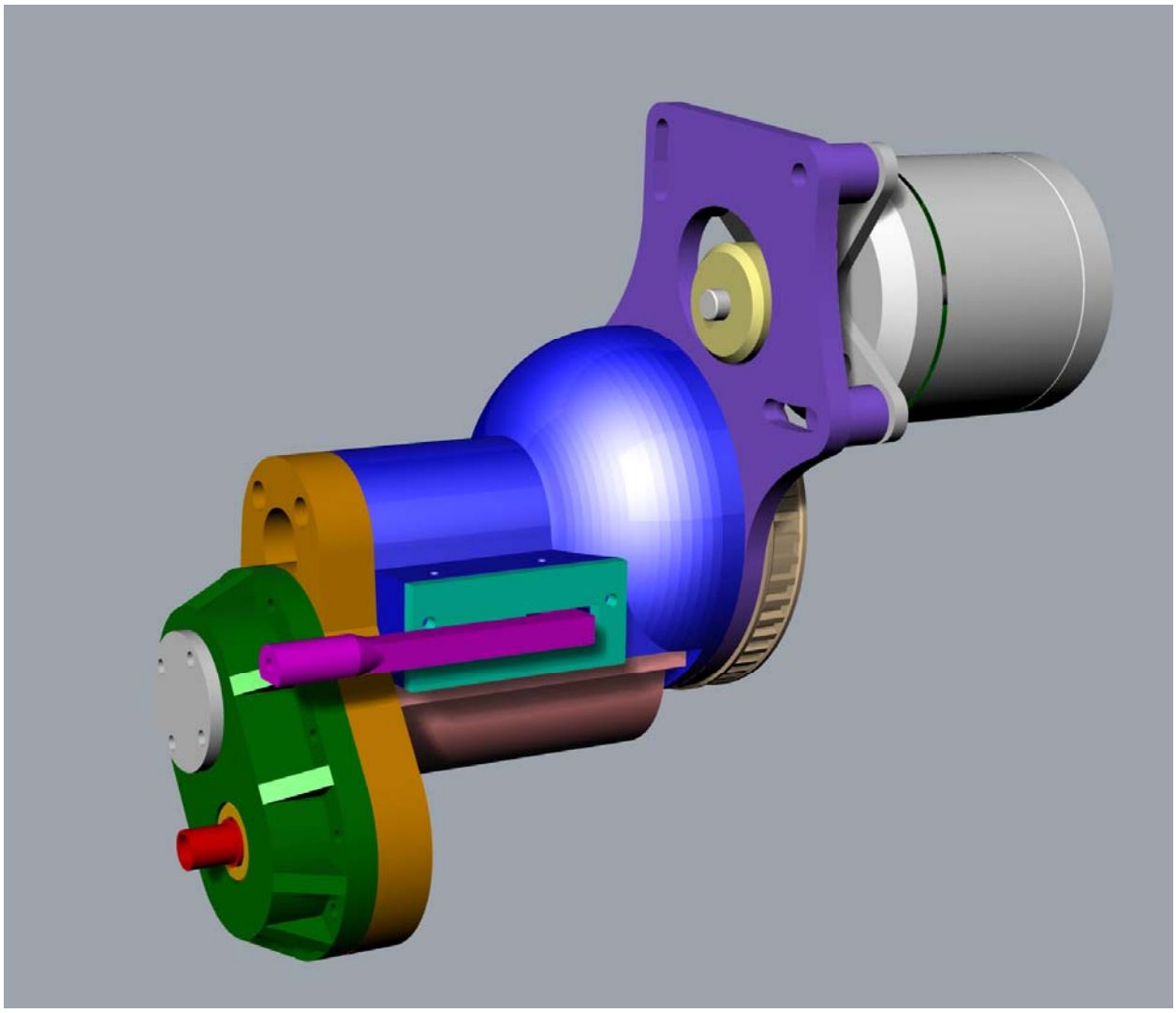


Add transfer gears D113 & D114 and mark up the locking holes position for drilling. Use 2 M2 x 12 mm CHC screw for locking the gears.



Complete the assembly with the remaining case and blank.

Ossum Jeep Gear box V1
Clement Berard 06/2019



HAPPY SHIFTING!