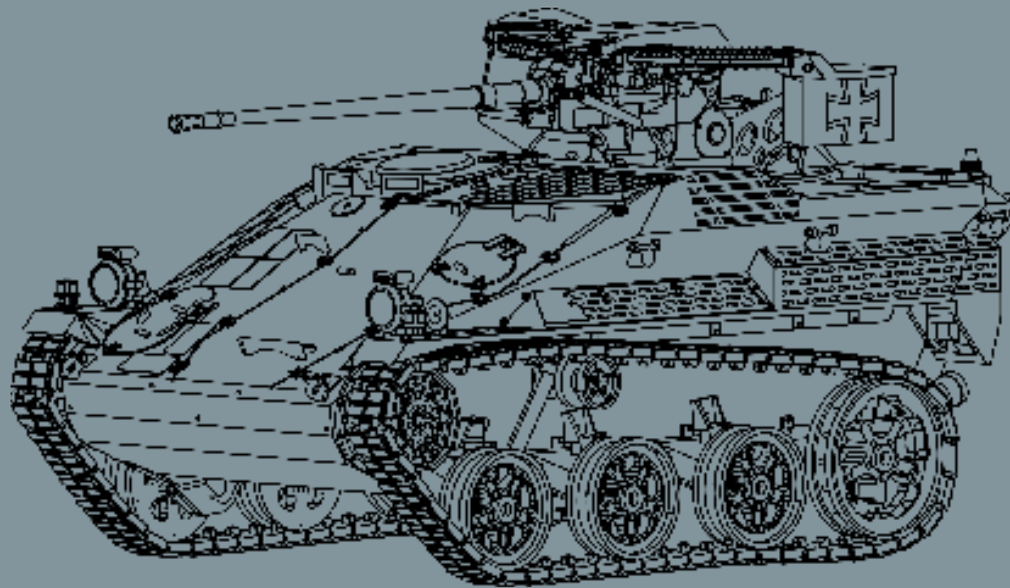


CyberBrick

Wiesel MK20 ^{Munster Edition}



Not suitable for children under 13 years old. Minors should be supervised by an adult when playing the CyberBrick toys.

Model has small parts and details. Remove support with caution!



Waffenträger Wiesel 1

Vehicles History

The waffenträger wiesel (Weapon Carrier Wiesel) is the current smallest vehicle in the German Bundeswehr and often referred to as a Tankette due to its similarities to WW2 tankettes like the L3.

Under the cold war doctrine German Bundeswehr airborne forces would be the focal point of the fighting for this reason they needed to be equipped with good airborne vehicles to replace the Kraka. In the 1970s the first requirements were drafted. At the time it was unknown if it should be wheeled or tracked as long as it fitted the C-130 and C-160 Aircraft. Later this requirement was increased to also fit inside the CH-53G. It also requires the vehicle to be equipped with a 20mm, Hot anti tank missile and 120mm Mortar.

After studies the transport requirements were increased again that 2 wiesels should fit into 1 CH53G which limited and challenged the design further. In July 1973 the official requirements were announced where after in April 1975 270 were ordered which was later increased to 500. In 1977 and 1978 the prototypes were tested. However due to different reasons the wiesel project was terminated before the contracts could go into legal effect.

After this the german paratroopers still needed a replacement for the kraka. For this in 1981 a survey was done. With the results of the survey the requirements were changed again in 1983 adding the usage of a VW2 litre 5 cylinder turbo diesel which led to weight increases. Which in turn led to the use of light weight alloys, in may 1984 a prototype MK20 variant with closed hull was demonstrated. Later another variant with a traversable turret in which weapon and sight systems were mounted was demonstrated which was preferred. After funds had been allocated Porsche finally received the development contract on 7th of June 1985.

This caused new prototype troop trials in 1986 and ending development in 1987 with an order of 210 t0ws and 133 20mm's. Additionally 7 wiesels were sent to the USA for trials The Wiesel has been used in several of the Bundeswehr's missions abroad (UNOSOM II, IFOR, SFOR, KFOR, TFH, ISAF). and most recently in Sudan (2023), where Wiesel 1 MK20 and MELLs units secured an airfield during the evacuation of German citizens.



Required Parts

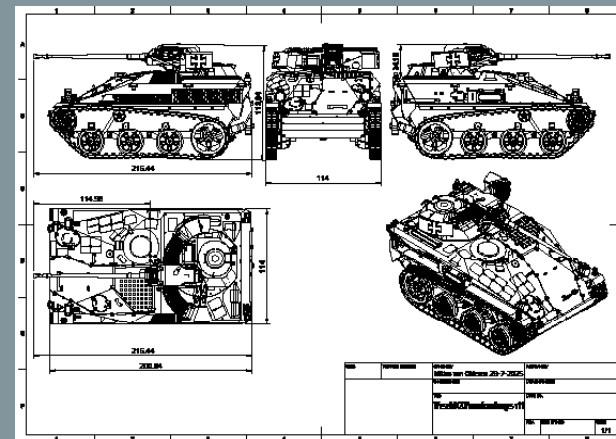
CyberBrick Parts:

Offishal CyberBrick Remote
2X N20 Reduction Gear Motor 400 RPM
2X Servo Motor with Clutch Protection (180)
1X Remote Control Receiver Shield
1X Multi-Function Core Board
1X Power Switch Module with 2Pin XH2.54
1X 14500 7.4V 800mAh Li-ion Battery
4X 4x2mm Round Magnet
1X 0.6mm Black Nylon Cord 5m
40X M2.5x6 BHCS Machine Screw
2x WS2812 LED Hub (optional)
4x WS2812 RGB LED (optional)

Printed Parts:

Print everything form the MakerWorld MF3 file with care. When removing supports pay attention to small details to avoid snapping them!

For some parts Bambulab Glue or a other adhesive is recommended. This is mentioned in the Title of the buildplate



Printing Tips

Tracks:

Wiggle every tracklink before instaling to loosen it up and to detect bad tracklinks. If needed replace bad tracklinks. Printing every track piece on its own gives best result but is painful to put toghther. Thats why it prints in 25 pack wich may result in a few bad track pieces.

Turret:

The Turret has small details around the sight, back of the hatch, and a few round loading pins. remove support carefully here.



Printing Tracks

Track Instruction

To ensure proper track adhesion, please follow one of the following methods:

1. Use Bambu Lab Charcoal Black PLA Matte.
2. Adjust the print settings as follows:
 - o Use a layerheight of 0.1 as the objects standard.
 - o Set the initial layer speed to 25 mm/s.
 - o Set the initial layer infill to 50 mm/s.

Important: Step 2 is ON by default These settings may reset when switching printers or profiles. Always double-check that the correct filament profile and first-layer settings are applied before printing!

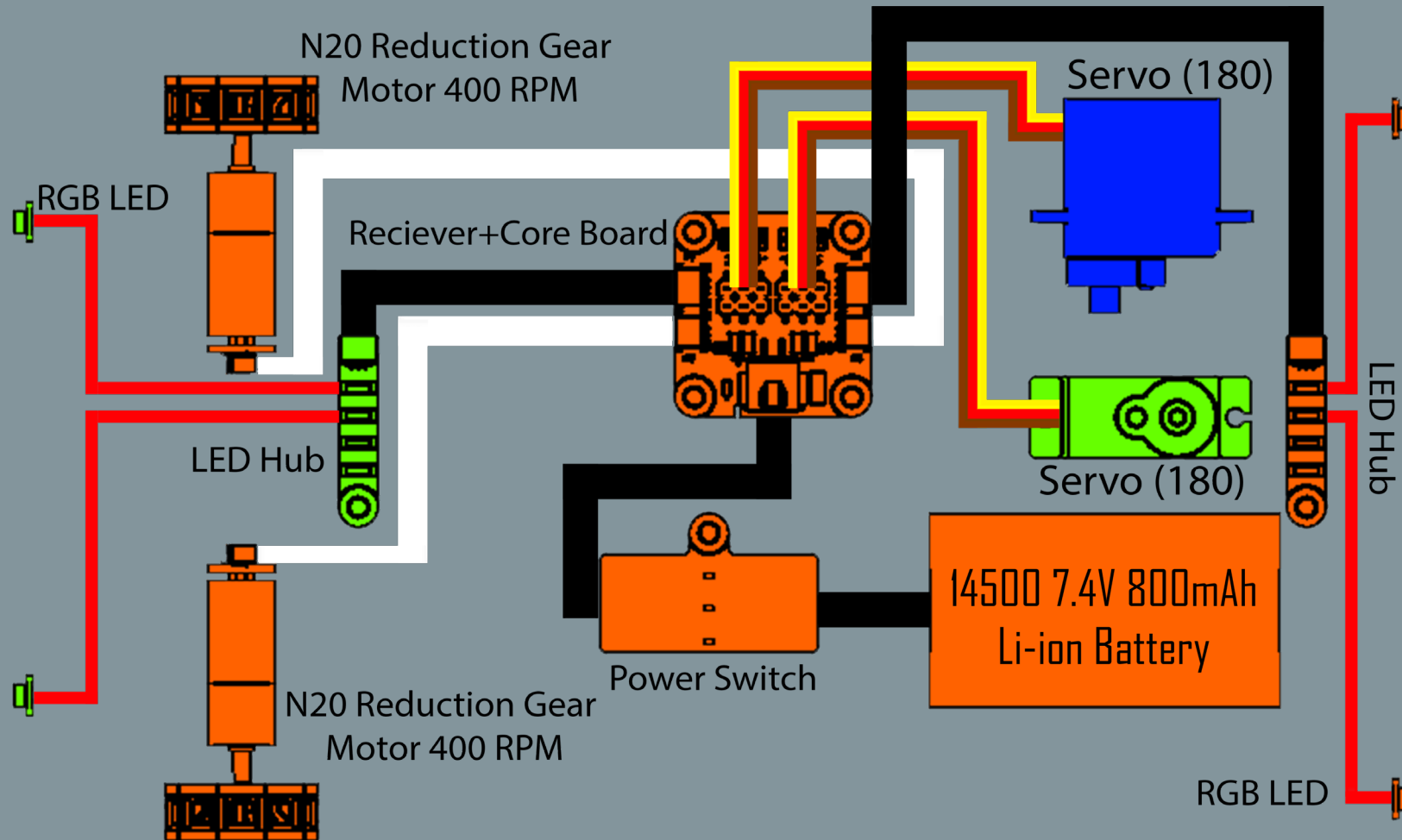
DON'T SKIP

Tests were conducted on a Bambu Lab PEI-Plate. Settings may vary with other plates.



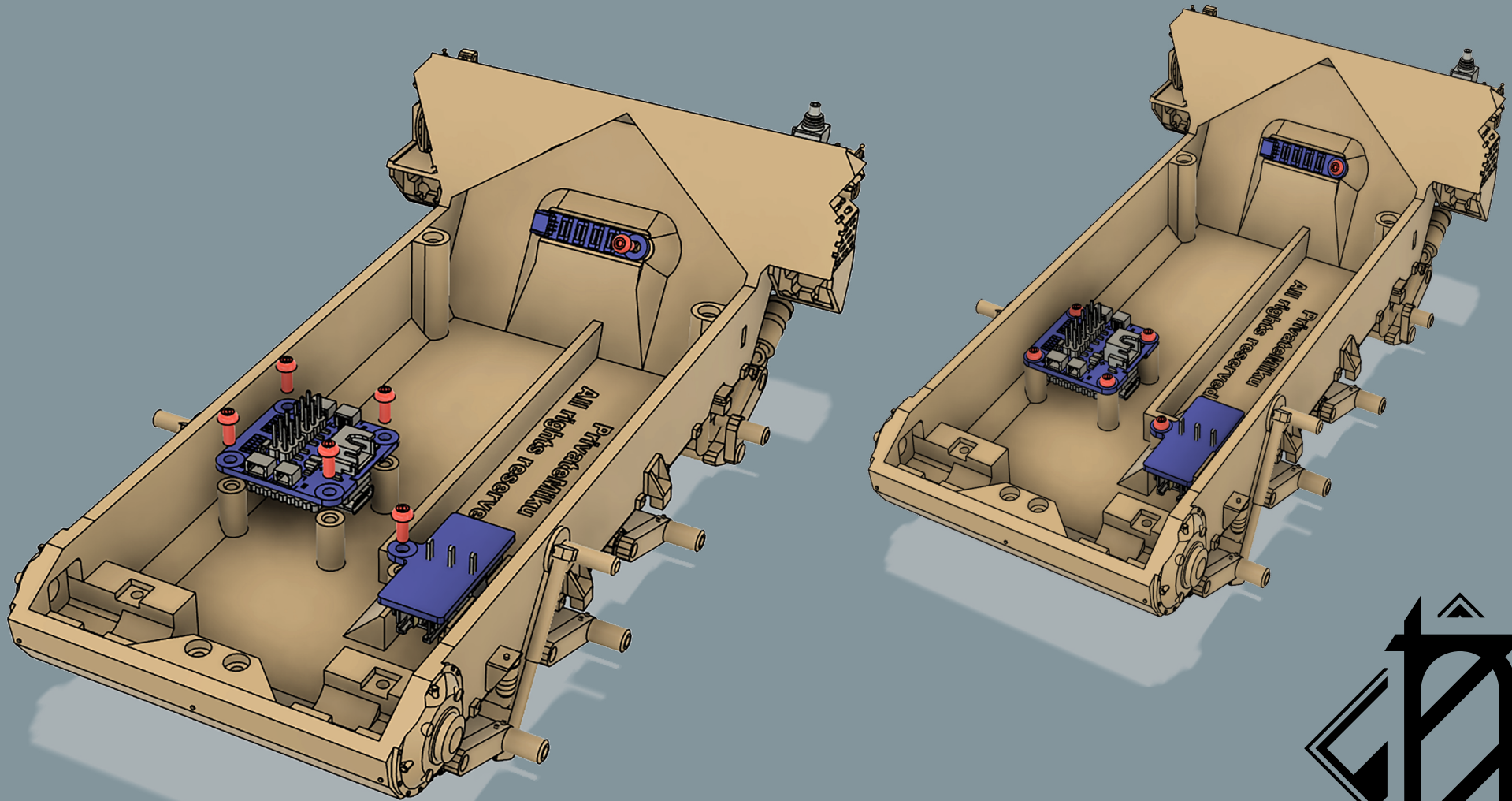
Wiring Diagram

Orange: LowerHull Green: UpperHull Blue: Turret White/Black/Red/Yellow Red Brown: Wires



Lower Hull Assembly

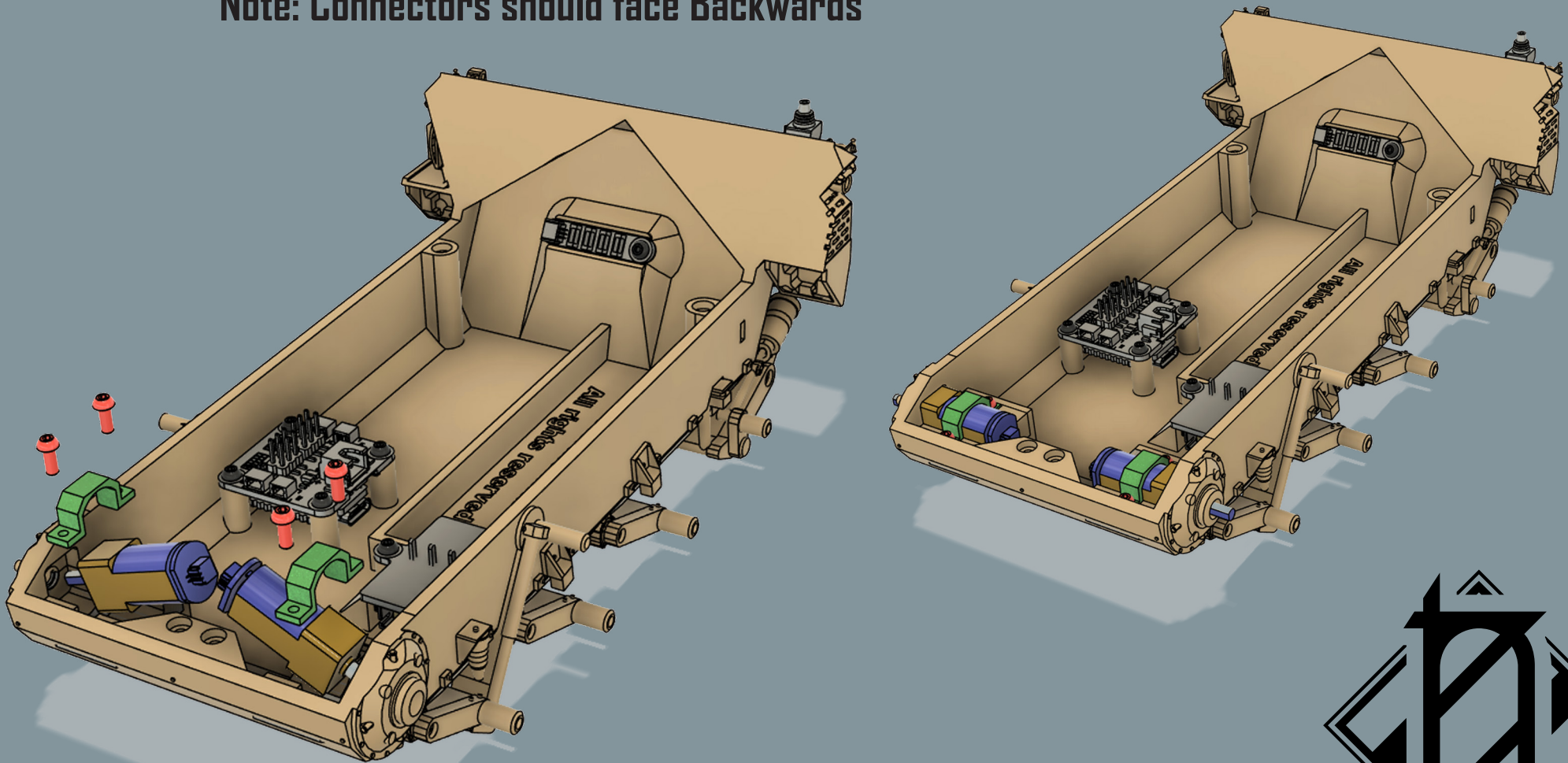
Place the Blue Components and screw them inplace



Lower Hull Assembly

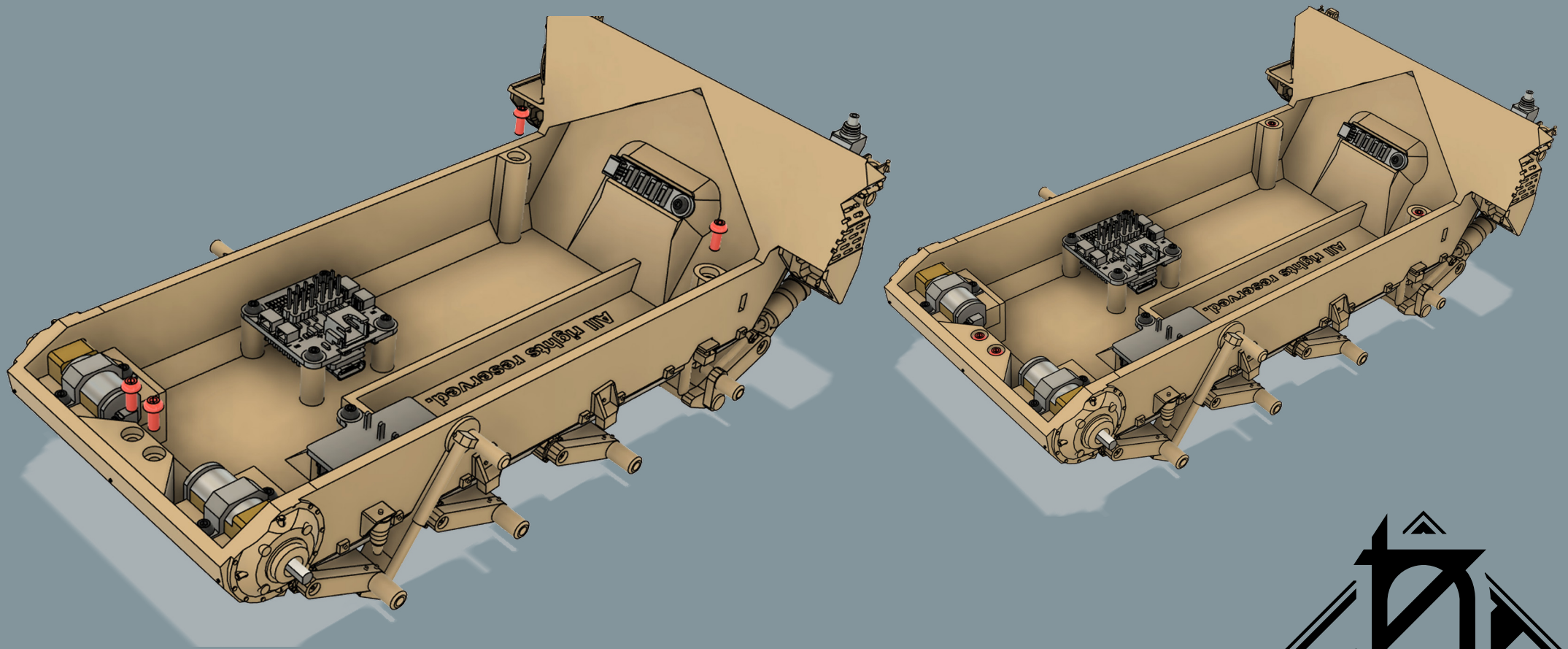
Wiggle in the R20 motors (Blue) and secure them with the engine covers (Green)

Note: Connectors should face Backwards



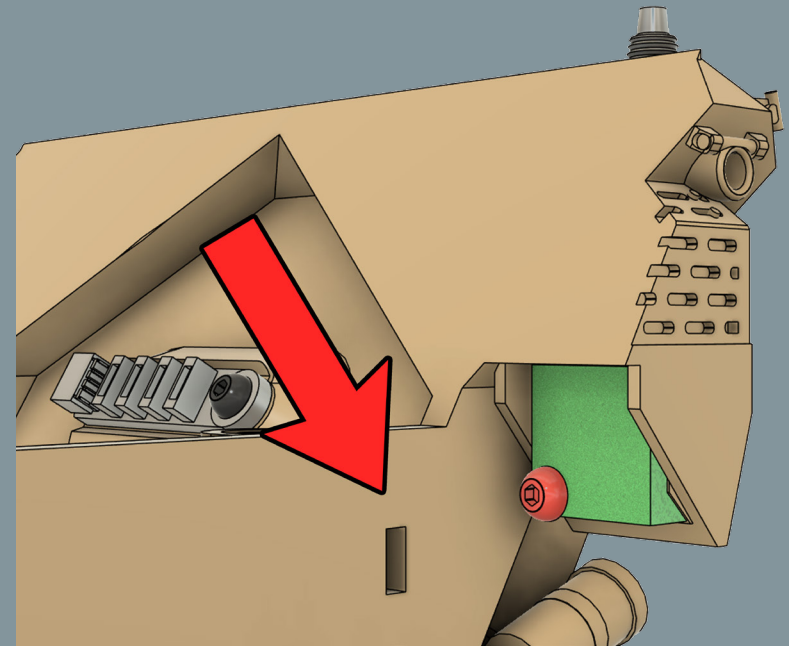
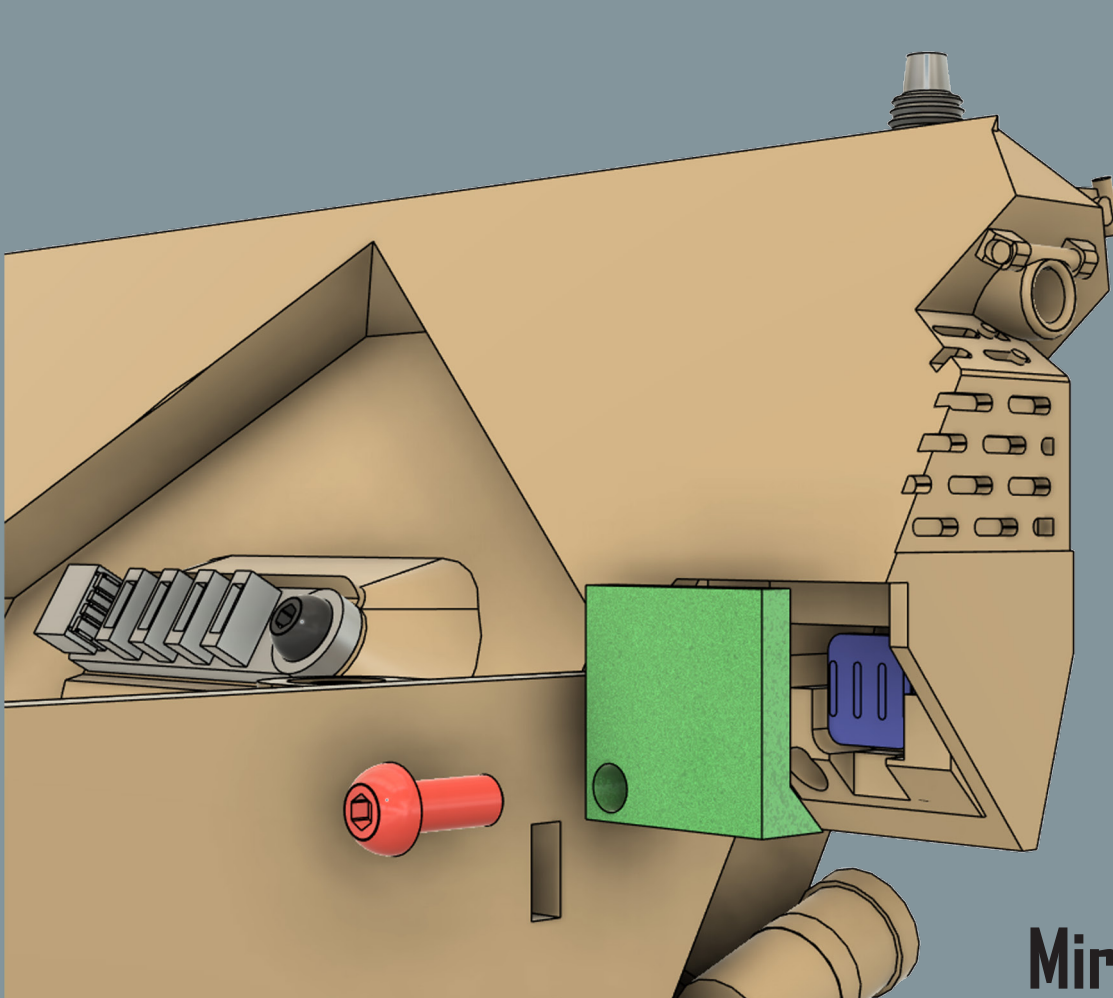
Lower Hull Assembly

Secure the following 4 Screws



Lower Hull Assembly

Insert the LED (blue) into the socket. secure it by the light mounth (green) with 1 red screw
After Insert the cable though the slot with the arrow

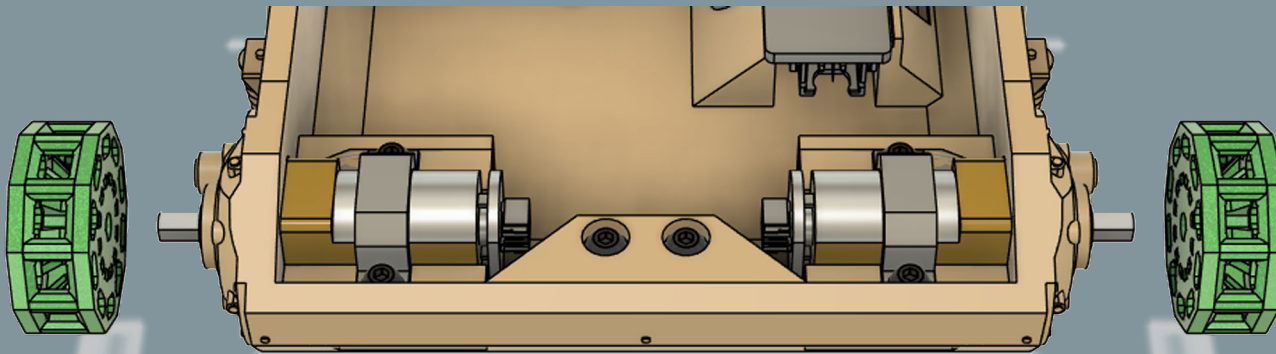


Tip: Use bit of tape to
secure the cable
Mirror on Other side!

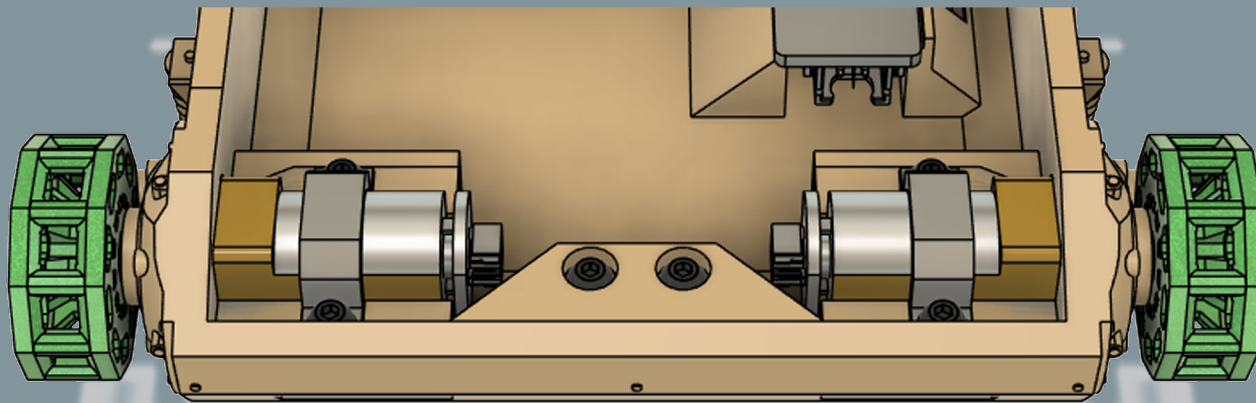


Lower Hull Assembly

Press the Sprockets into place. (This can be a tight fit to ensure they stay on)
Do it gently but forcefully!

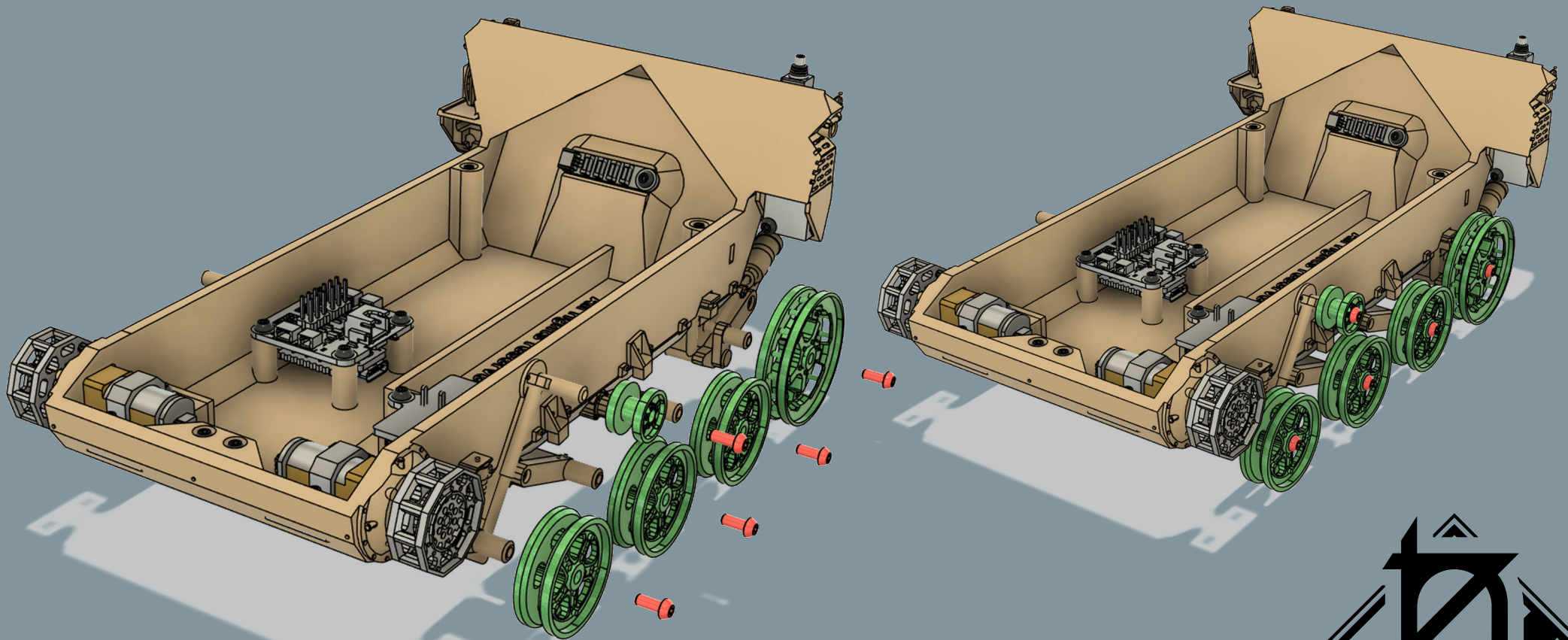


After this follow the Wiring Diagram
Do all LowerHull Wiring Besides the
battery!



Lower Hull Assembly

Secure the other wheels (Green), Dont screw them to tight as then they cant move!



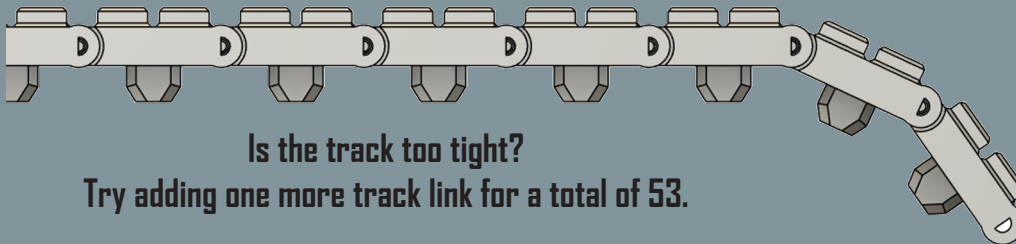
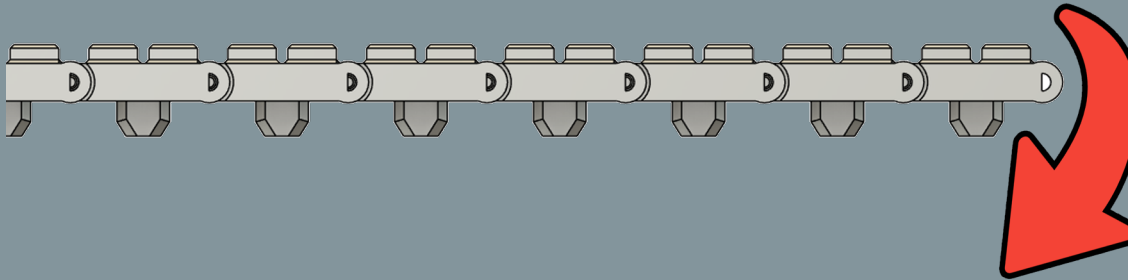
Mirror on Other side!



Preparing Track

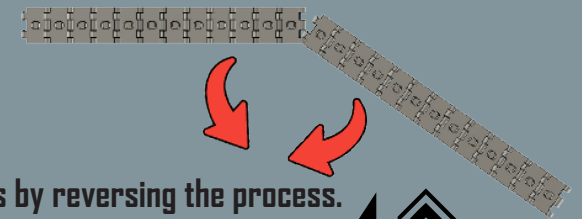
Gently Flex the track inwards to loosen it up after printing! at first it will need a bit more track but after running in for a hour you can remove a few track pecies to tension it.

1 Track section is 17 long. In normal use either side should be 51 Long after running in!



Is the track too tight?
Try adding one more track link for a total of 53.

Disconnecting Track
To disconnect, pull the tracks sideways toward each other, similar to how Märklin C Track is separated.



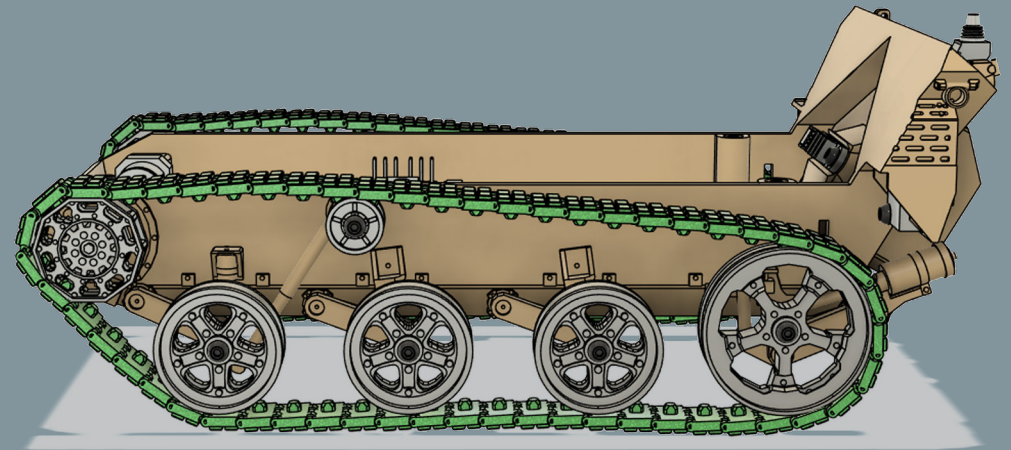
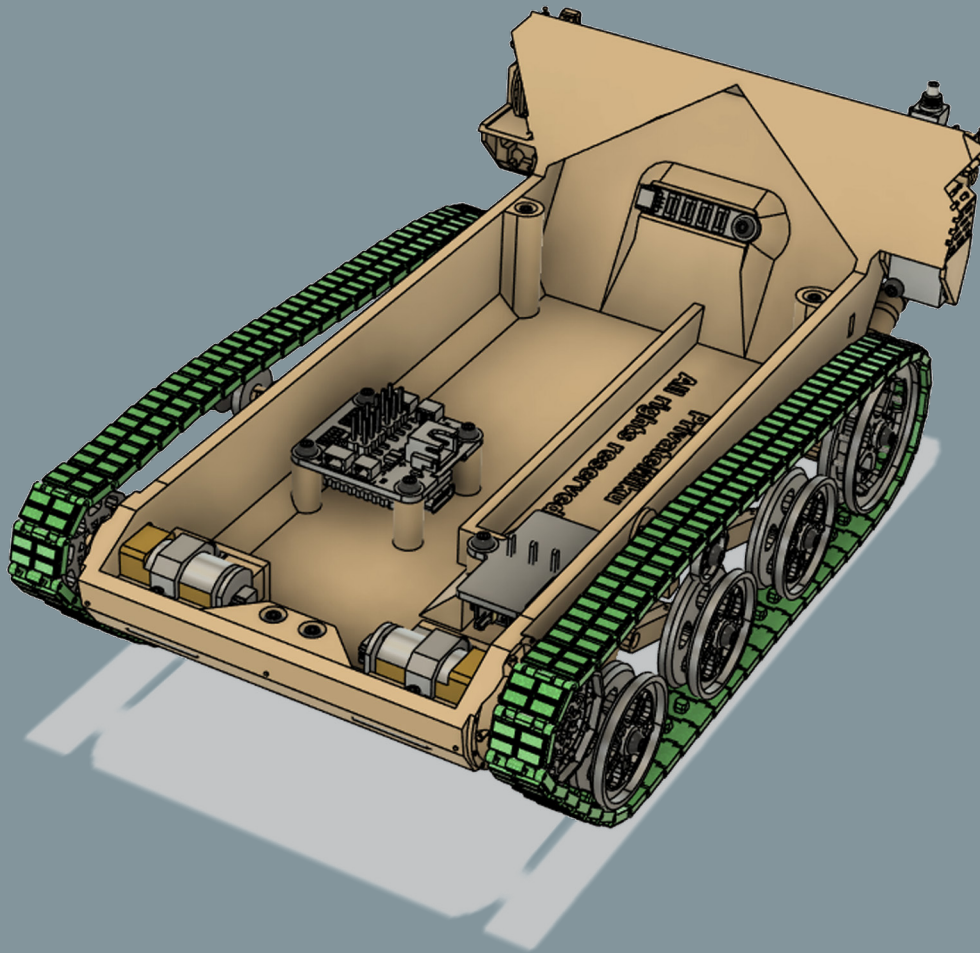
Connect tracks by reversing the process.



Lower Hull Assembly

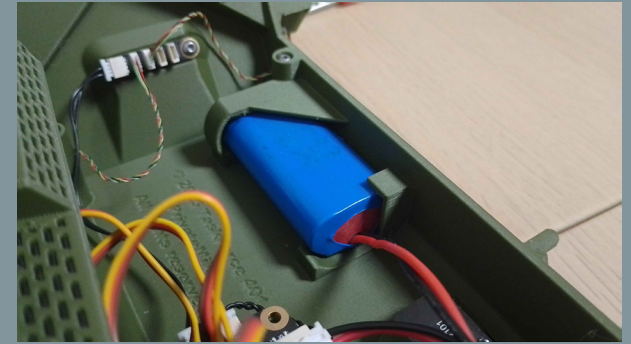
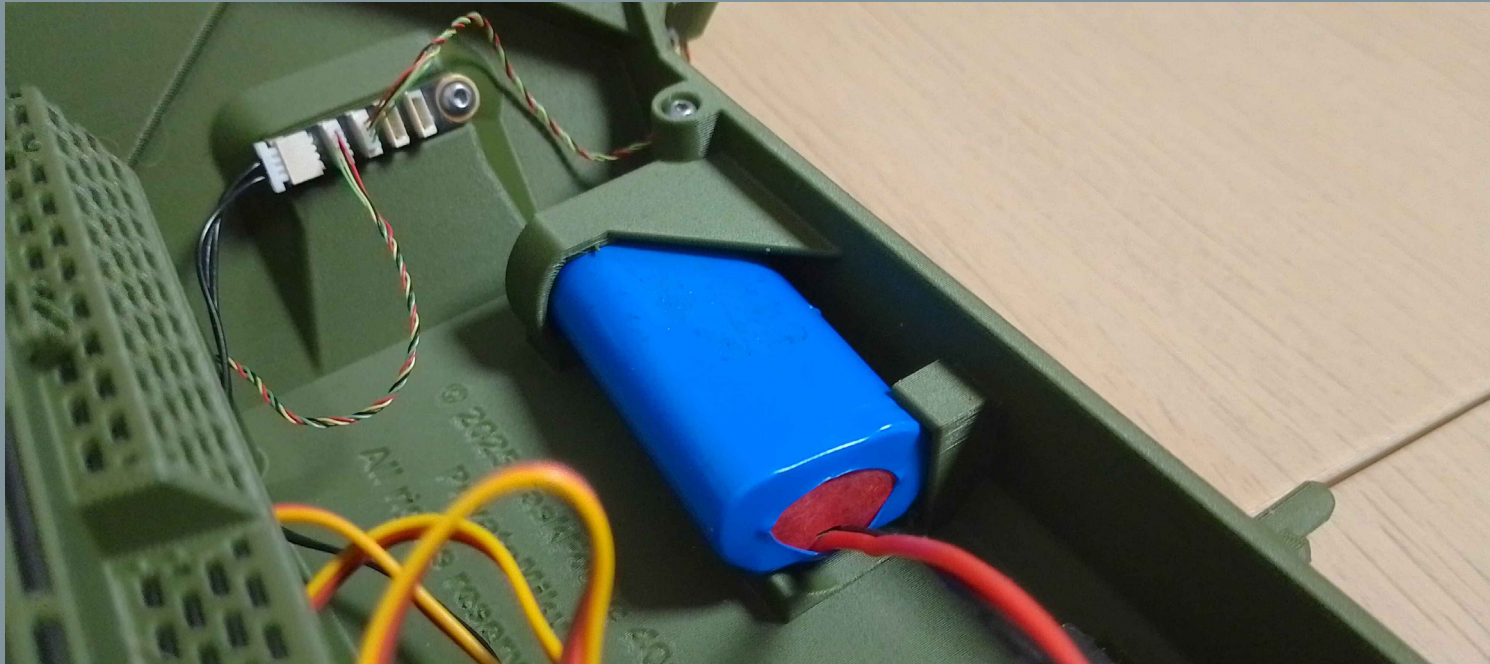
Secure the track around the Sprocket and wheels.

You're now done with the Lowerhull.



Lower Hull Assembly

Place the battery as shown in the first pic. from here you can easily push it inside
make sure the cable is facing downwards so it doesnt catch on it
Now wire up the bottom section according to the wiring diagram

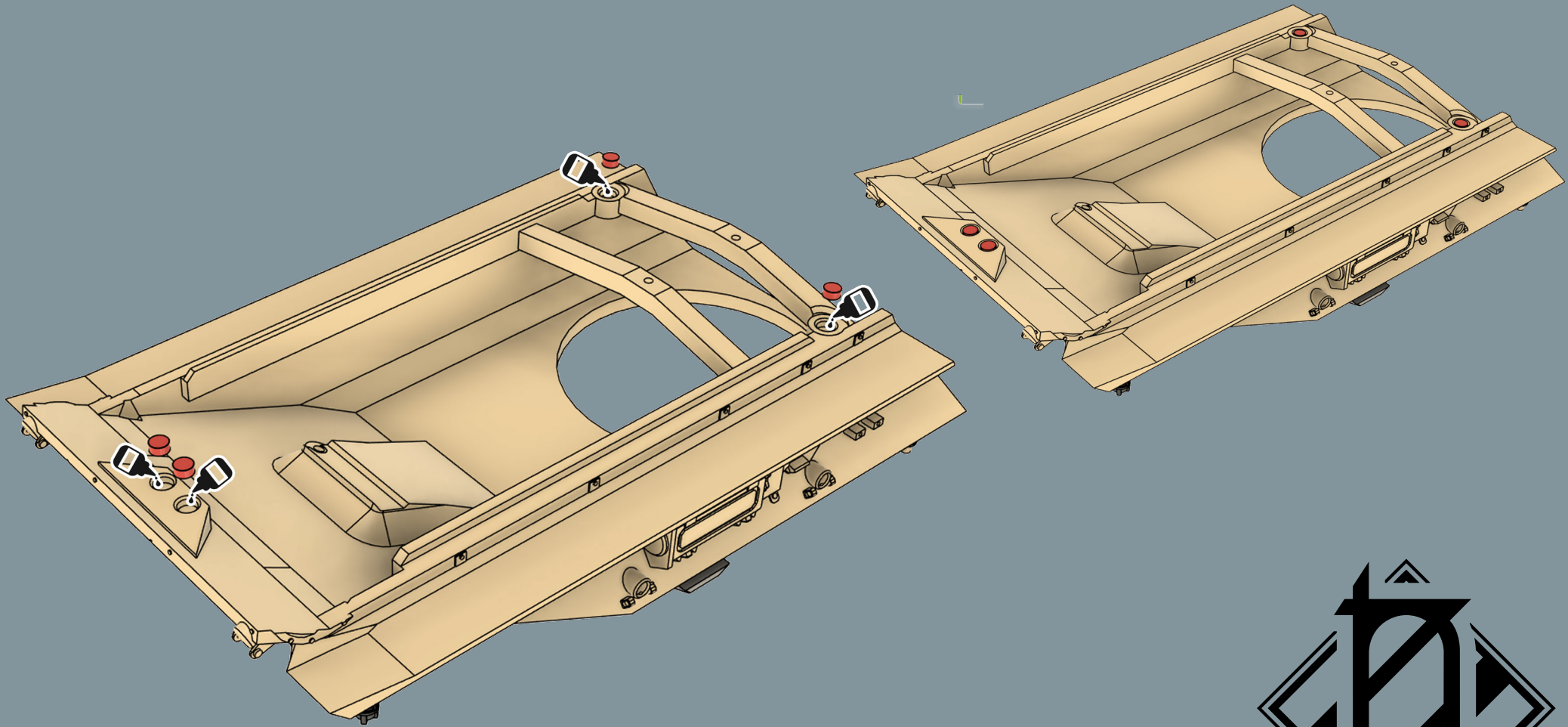


This feature was made possible thanks to
the amazing backers of the Wiesel Tow Crowdfund!



Upper Hull Assembly

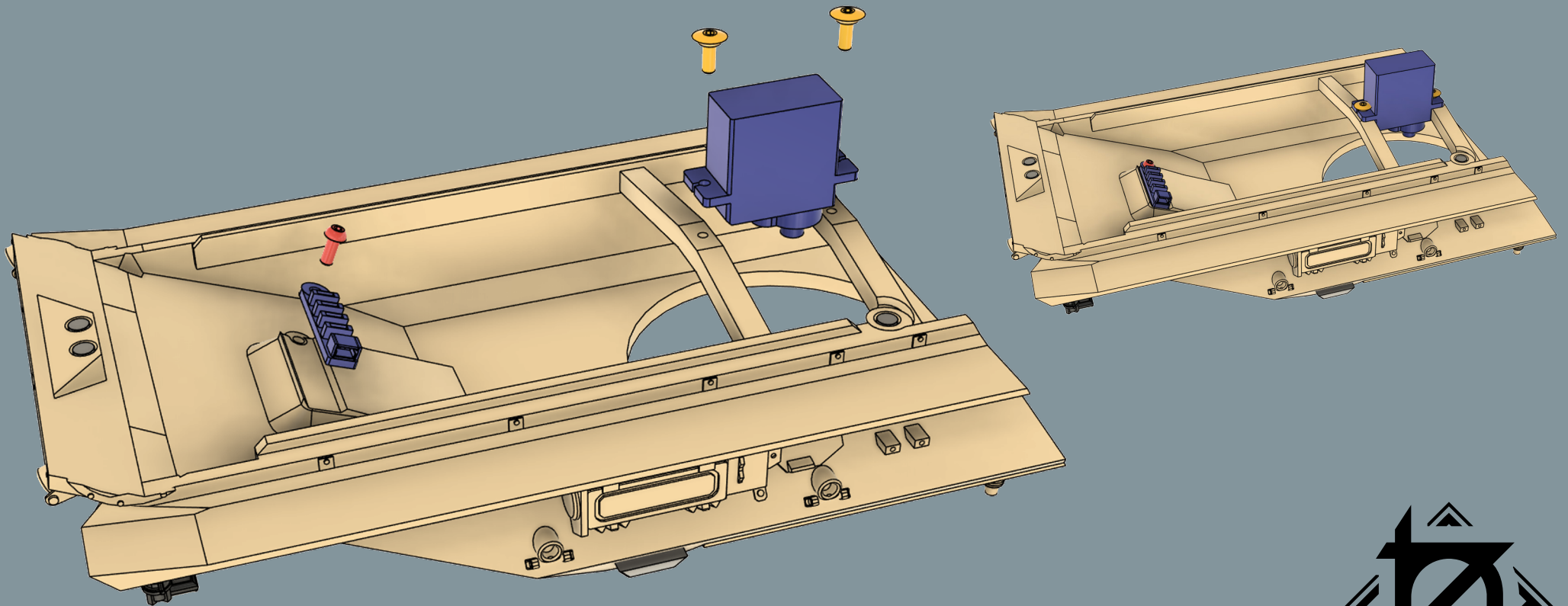
Glue the 4x2 Magnets (Red) into place



Upper Hull Assembly

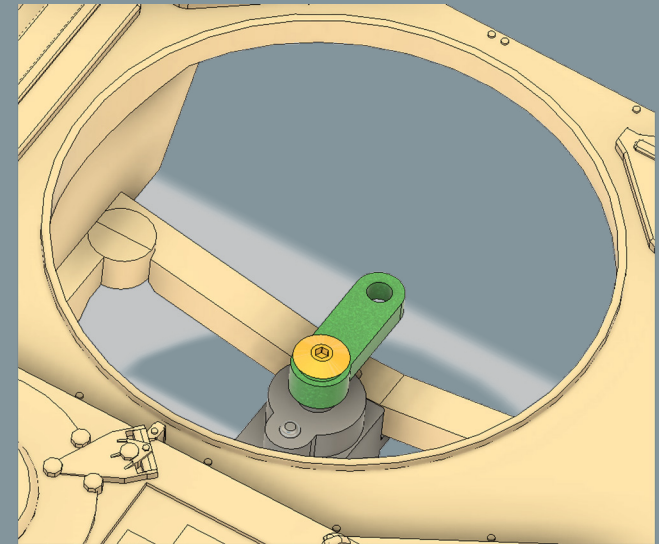
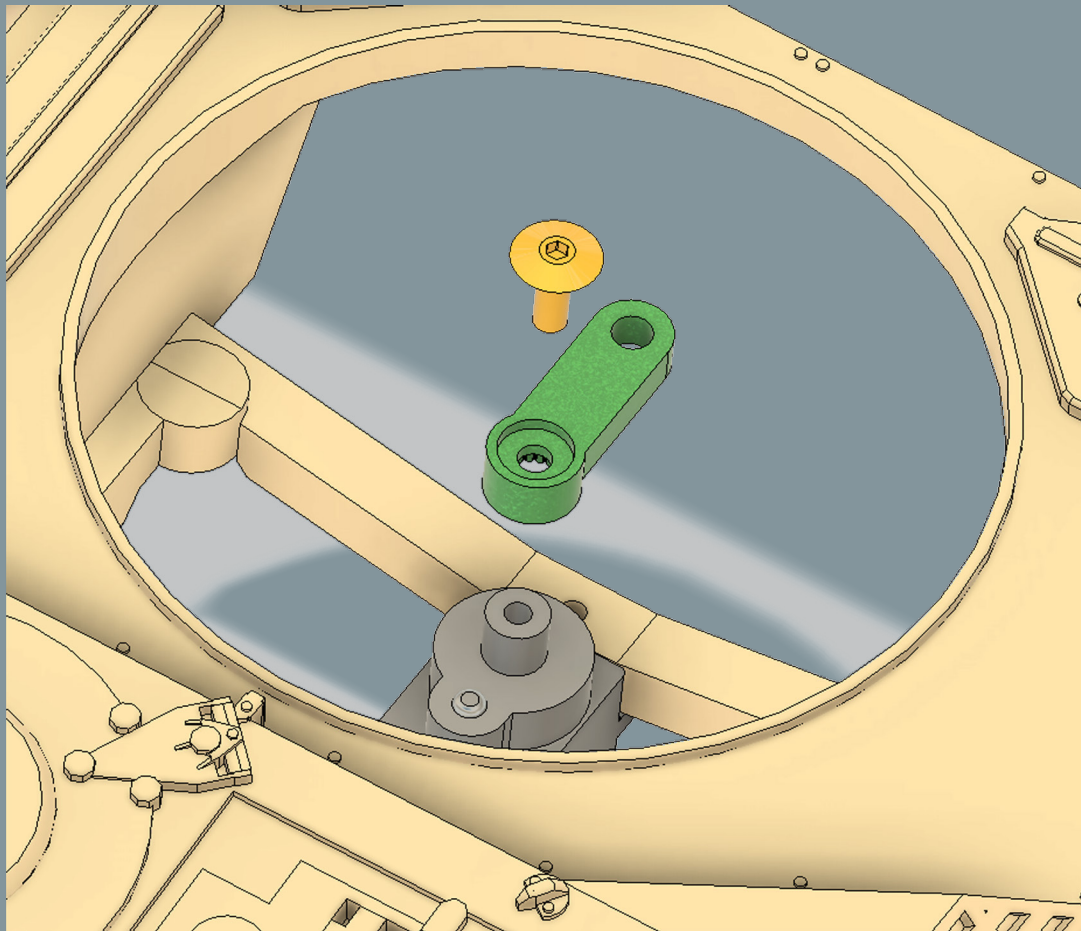
Secure the led hub using a standard screw (red)

While Securing the servo using the servo screws(yellow) Cable should face backwards!



Upper Hull Assembly

To Finish the Upper Hull equip the printed servo mounth facing backwards. (Using Servo Screw)
if its loose you can use a screw to secure it more

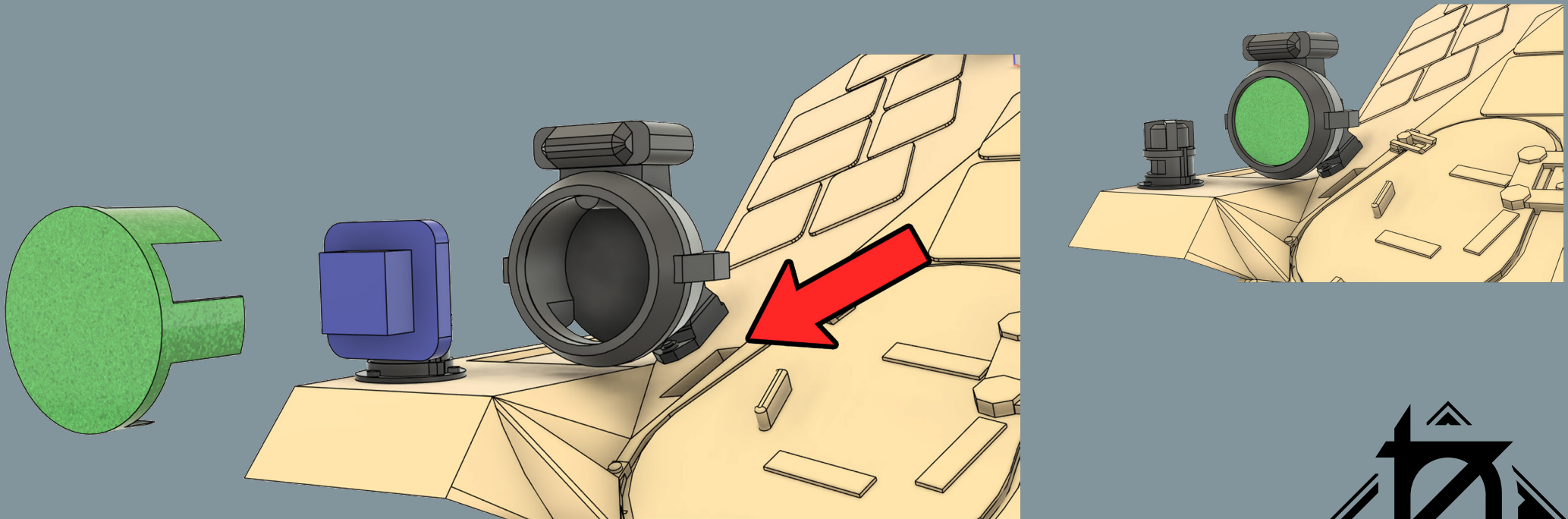


Upper Hull Assembly

Insert the LED Cable at the red arrow and connect it to the hub (See wiring diagram)

After gently pressfit the green cover in place.

Tip: Support the headlamp form behind to avoid snapping!



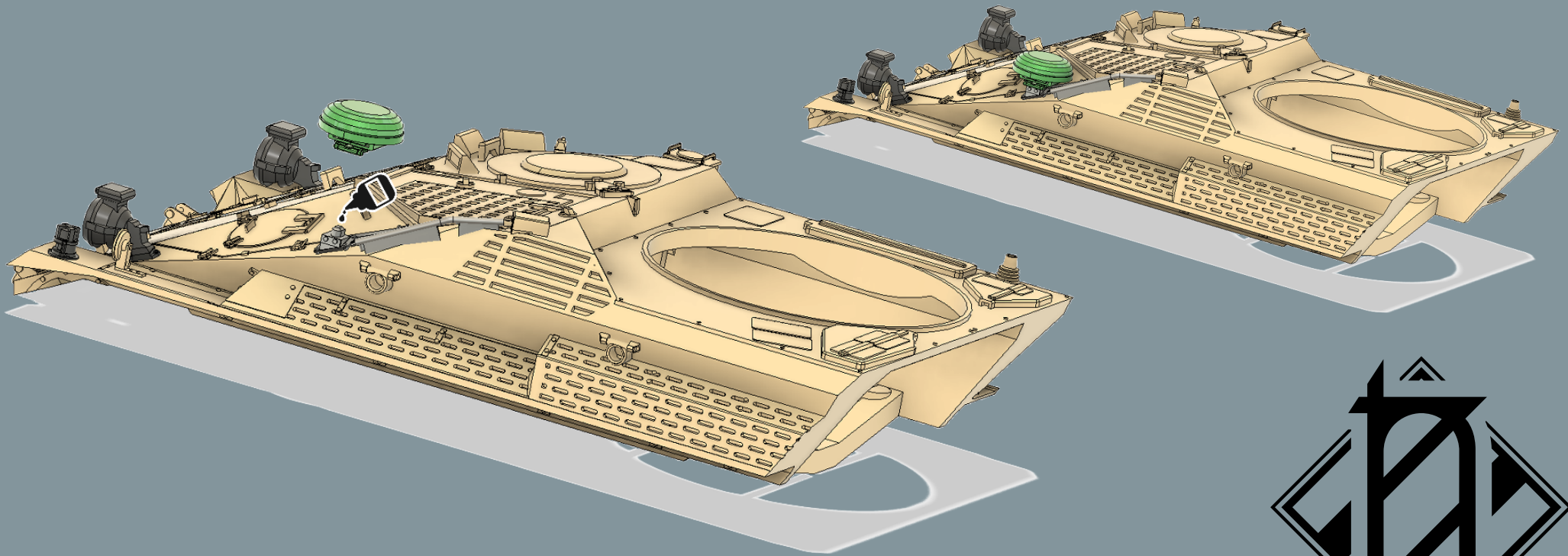
Mirror on Other side!



Upper Hull Assembly

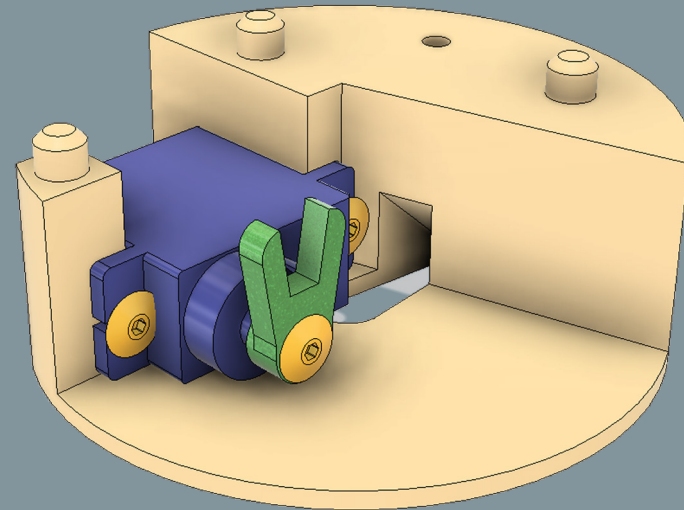
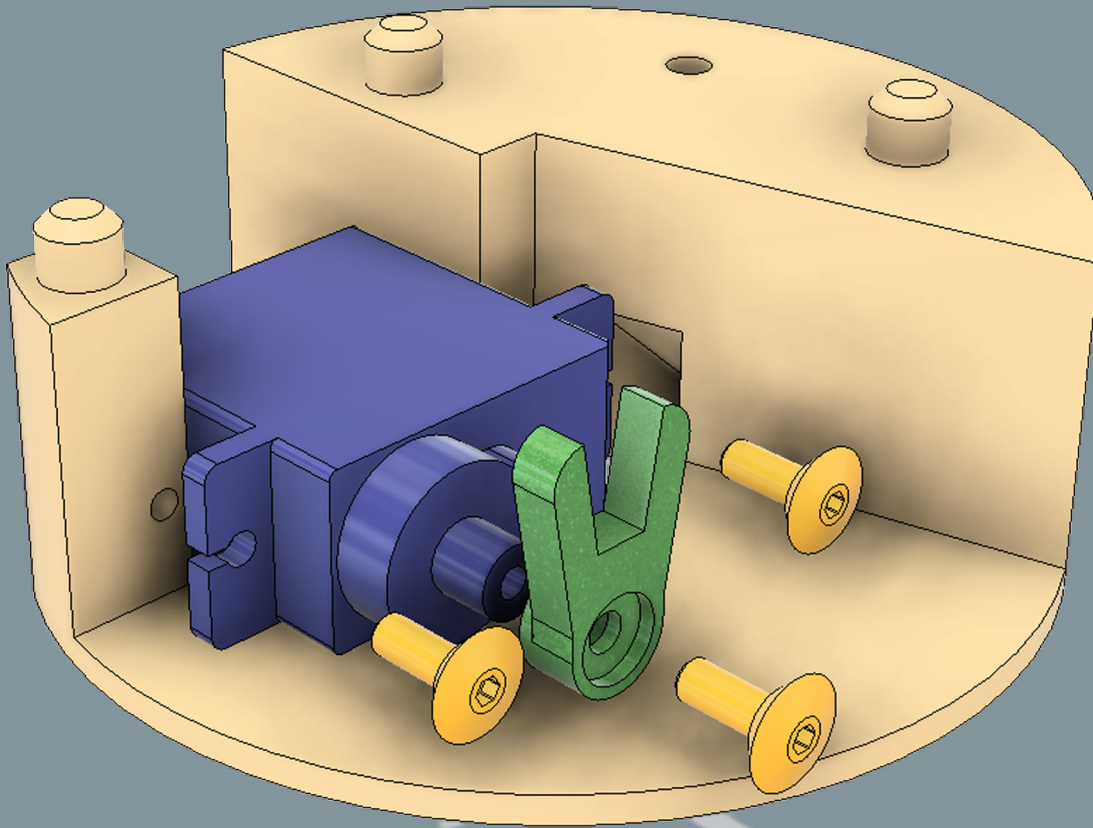
This step applies only to the 1A4 model. If you're building the Mk20, skip this step.

Glue the Dome (green) onto the upper hull



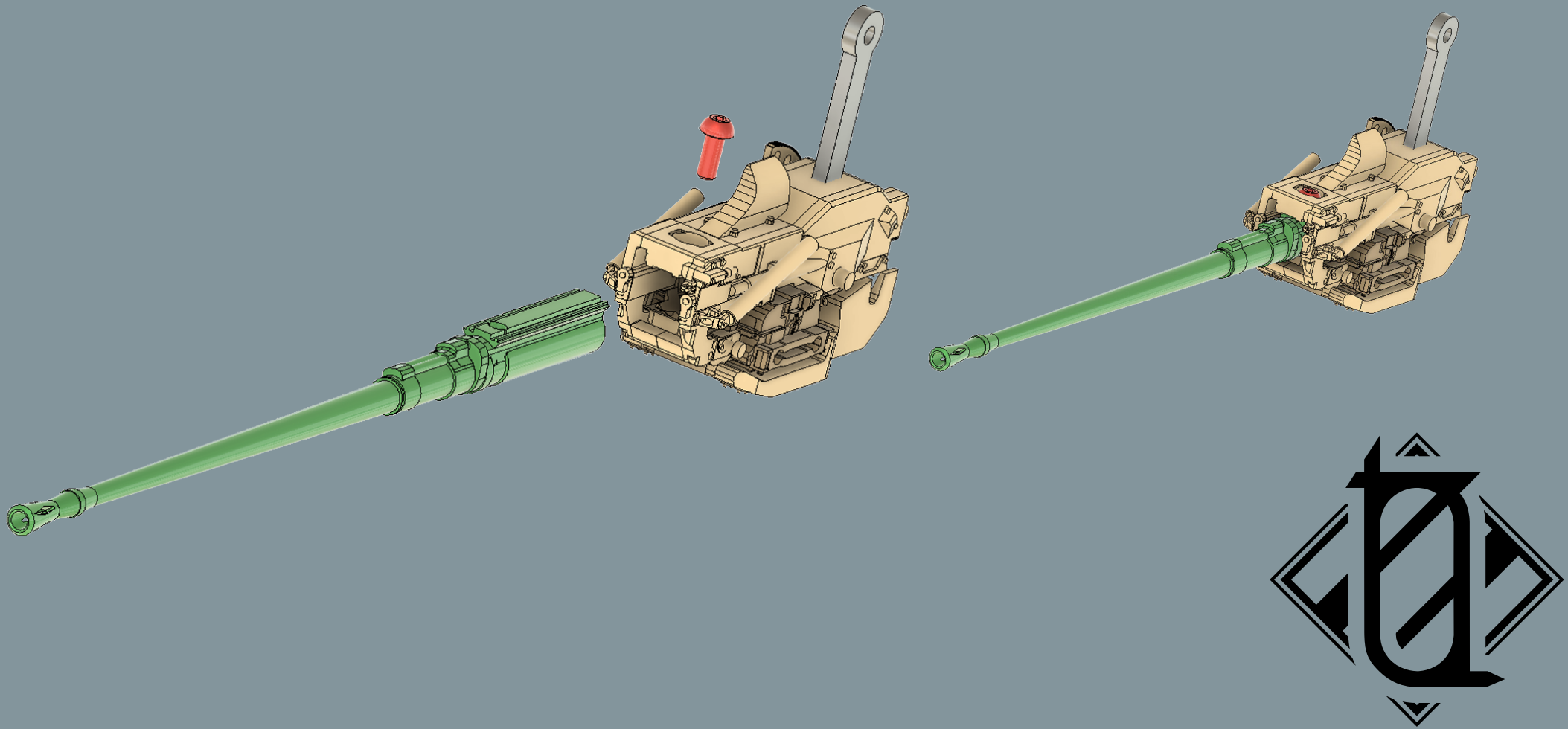
Turret Assembly

Place the servo and Servo connector and screw them together using the servo screws



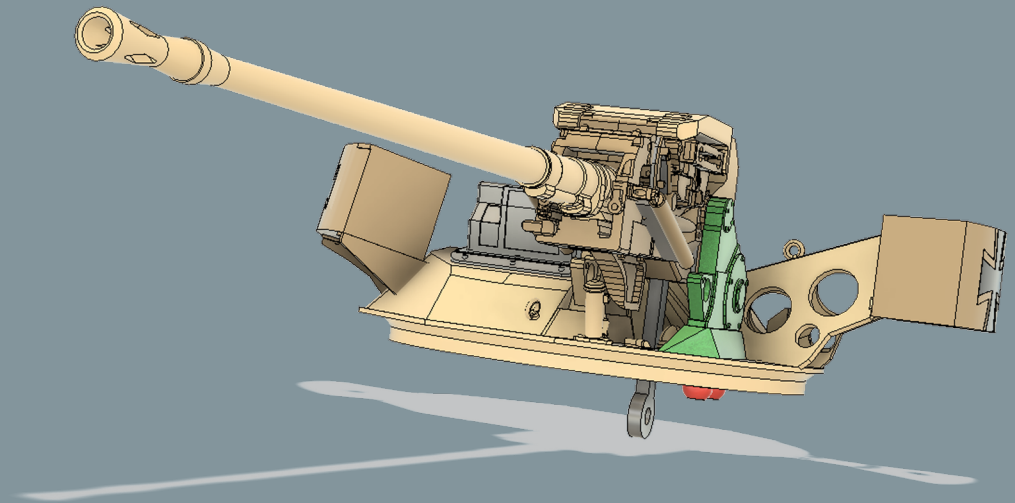
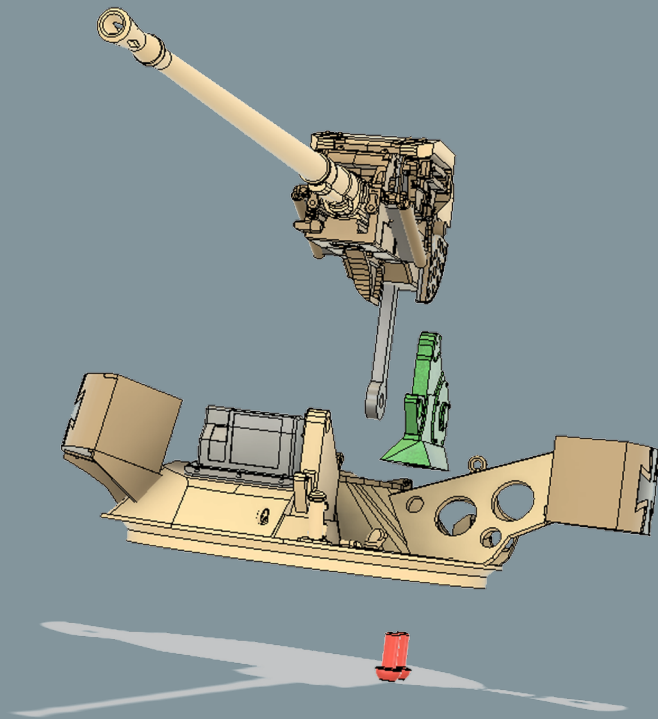
Gun Assembly

Insert gun (Green) into the breach and screw it inplace.



Turret Assembly

Place the 2 knobs of the gun between the main turret and the turret key (Green) then secure the key form below sealing the gun in place. After wiggle the gun up and down to loosen it a bit.

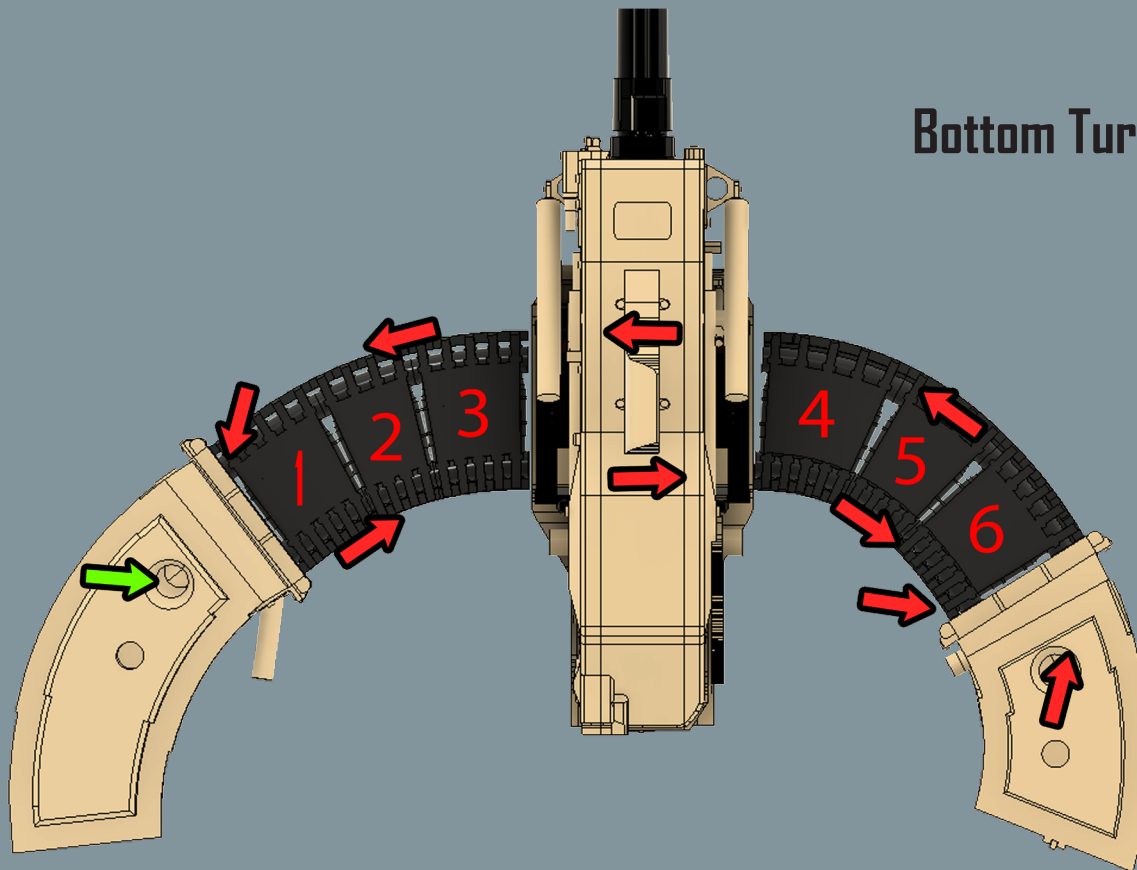


Insert the boom into the cutout in the turret bottom.



Turret Assembly

Take the ammo box lids and belt parts. Each belt part has a number engraved on the bottom. Cut off 20 cm of the 0.6 mm nylon cable. Start at the green arrow and thread the cable through each piece until you create a loop. Then, tie the ends together at the green arrow.

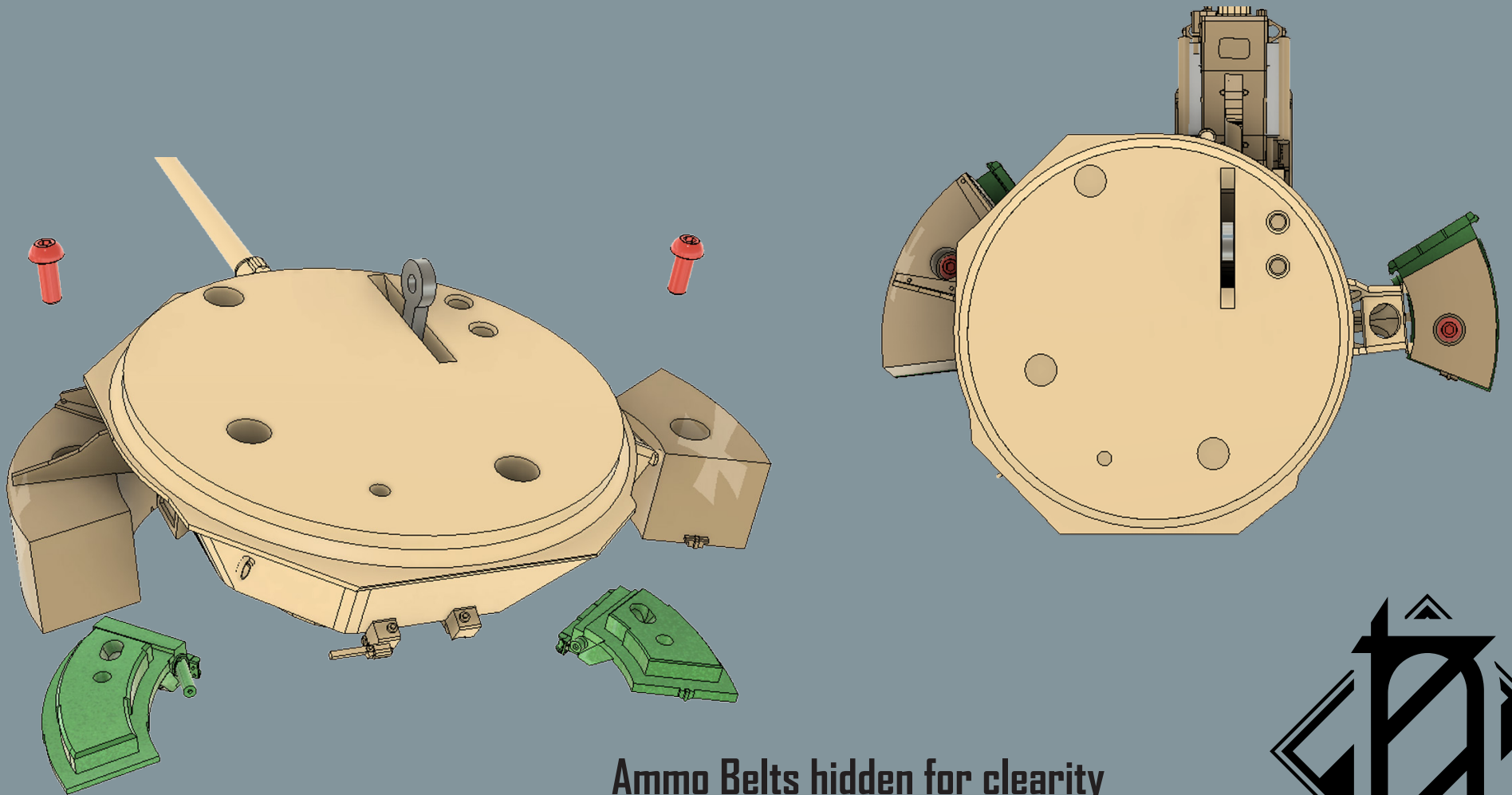


Bottom Turret invisible for clarity



Turret Assembly

Secure the Ammo box lids with 2 2.5mm screws

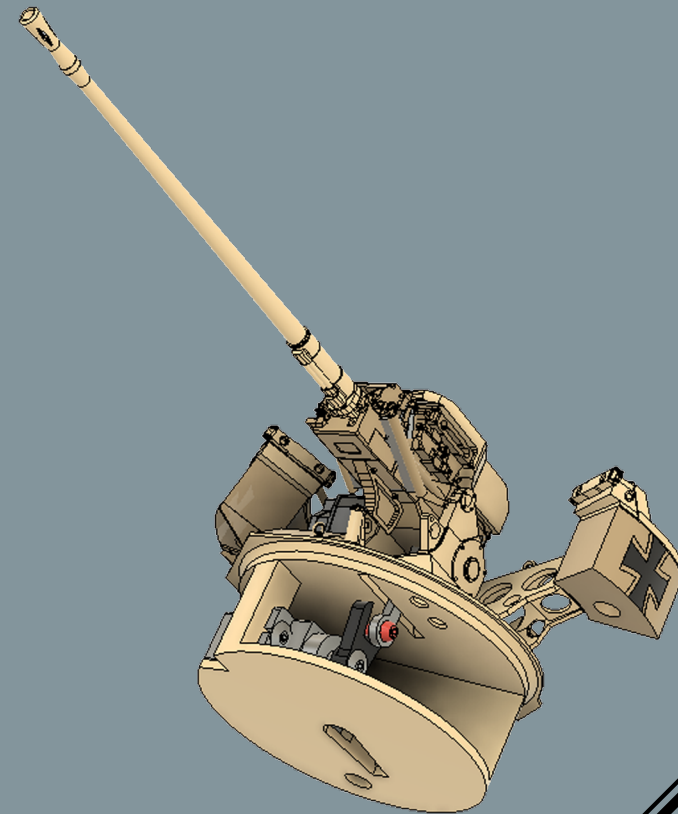
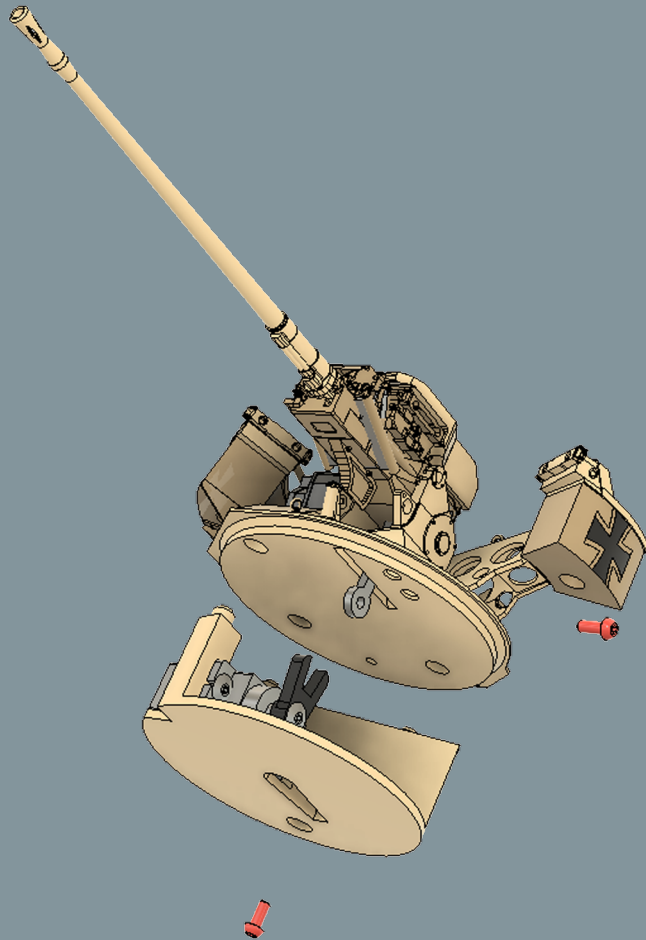


Ammo Belts hidden for clarity



Turret Assembly

Secure the turret basket to the turret with 1 screw from the bottom,
then insert a screw in the guns boom for movement

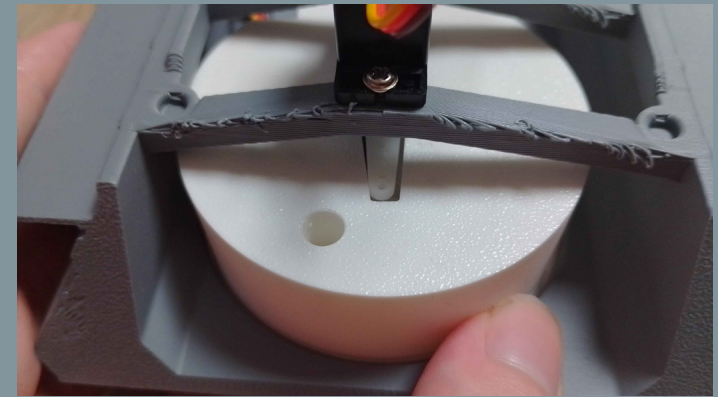
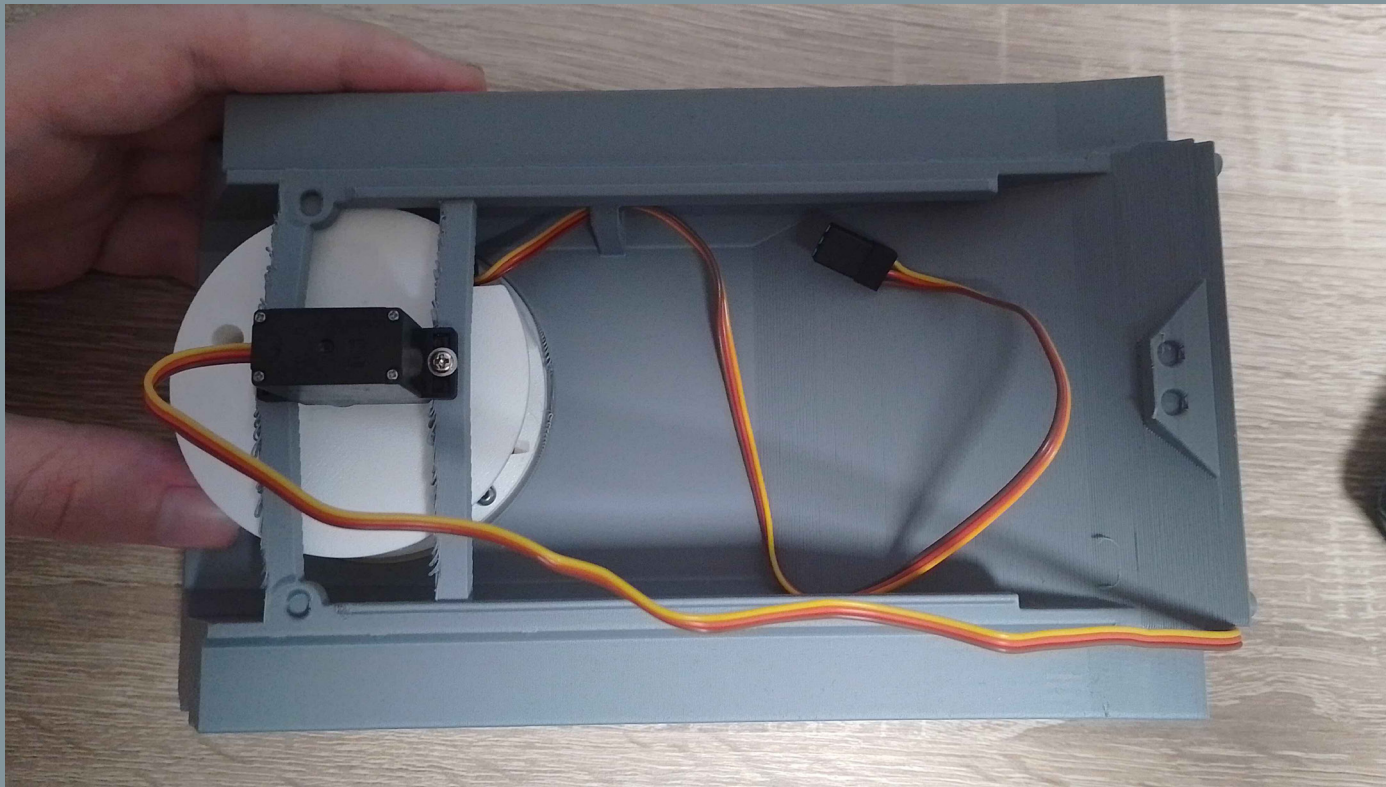


Ammo Belts hidden for clarity



Final Assembly

Slot in the Turret on the servo boom. You can then Carefully screw it in place using a 2.5 form the cyberkit set. Put the cable for gun elevation through the special slot in the side for guiding.



Final Assembly

Put the upper hull onto the lower hull using the magnets earlier installed.
Then wire it up using the wiring diagram. You're done now!

Please double-check
if the servos are
wired correctly!

Optionally, two
antennas can be
printed and carefully
inserted into the
antenna holders at
the back.



(Nationaal Militair Museum)



Comming Soon!



Wiesel 1A1 Tow

--Completed - Now Live on MakerWorld--



Wiesel 1A4 20MM

--Completed--

See roadmap nexst page!



Thanks for Building!

Thank you for consider or building the TaskForce 401 Wiesel. This project was a challange to work on after having mainly done industrial Production at printfarms or 1/87 Marklin WW2 Railway wagons. Below this you will see my roadmap of improvements i wanna make or Sub variants i wanna release. This will mainly include the Wiesel TOW, as the 20MM and Tow are part of the TaskForce 401 Story i created.

If you have build this model please share pictures! I realy love seeing everyones builds!

Roadmap 1/16 Wiesel

- Create working headlights (Completed)
- Better Tracks (Completed)
- Working hatches (Completed)
- Make working suspension (unsure yet)
- Wiesel 1A4 (Completed)
- Wiesel 1A1 Tow (Completed)

