SWERVE DRIVE
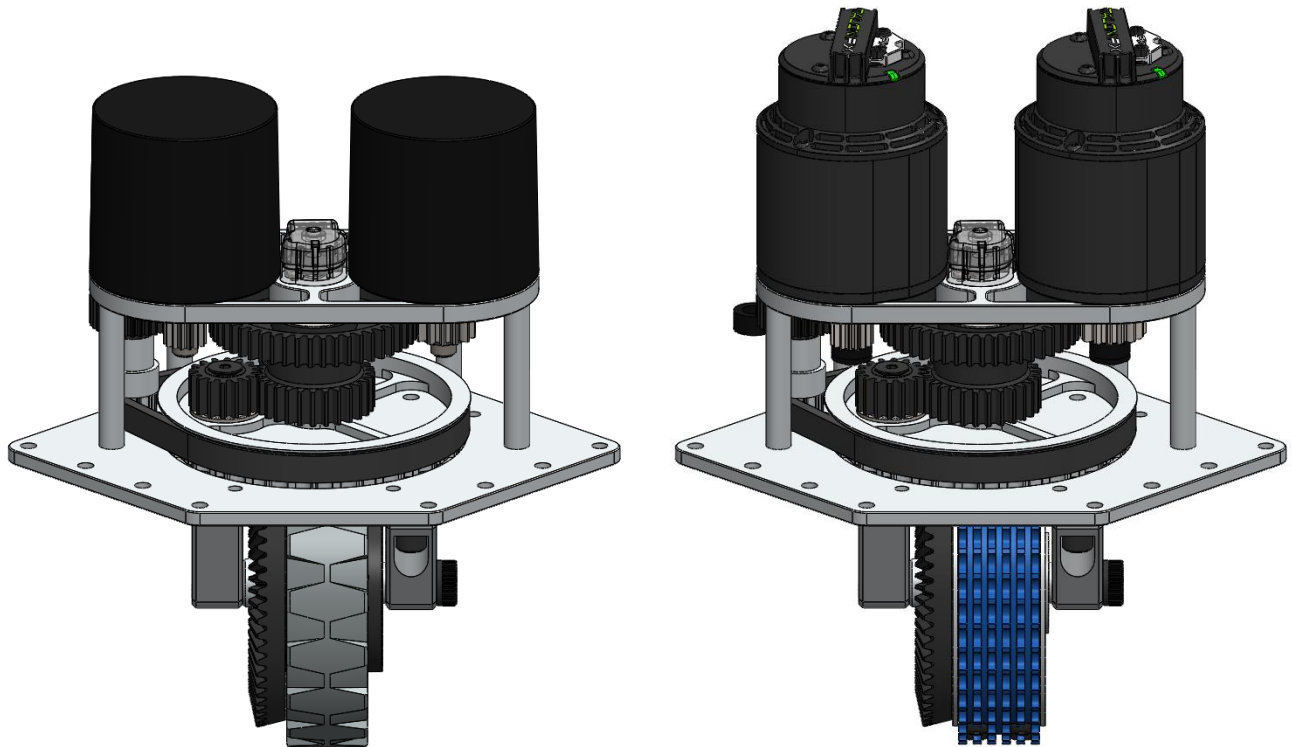## SPECIALTIES

# MK3 Module
Assembly Guide

Recommendations:

- Use Loctite 242 or 243 Threadlocker on all bolts, excluding those used to mount encoder
- Use SDS motor spacers if unable to cut shafts
- Lubricate all gears with grease
- Use SDS Billet Wheels for best traction and tread wear

Step 1: Encoder Mounting

Begin by mounting housing base with both #3 – 48 screws included with the encoder (without Threadlocker). Before inserting the encoder circuit board, attach data cable if using SRX Mag Encoder or soldering on CAN wires if using CANcoder. Place the housing cap and secure with the 2-28 screw included with the encoder (without Threadlocker). Per CTRE Instructions: DO NOT OVER TIGHTEN THE 2-28 SCREW AS THIS MAY RESULT IN PERMANENT DAMAGE TO THE HOUSING. HAND TIGHTEN UNTIL RESISTANCE IS FELT.
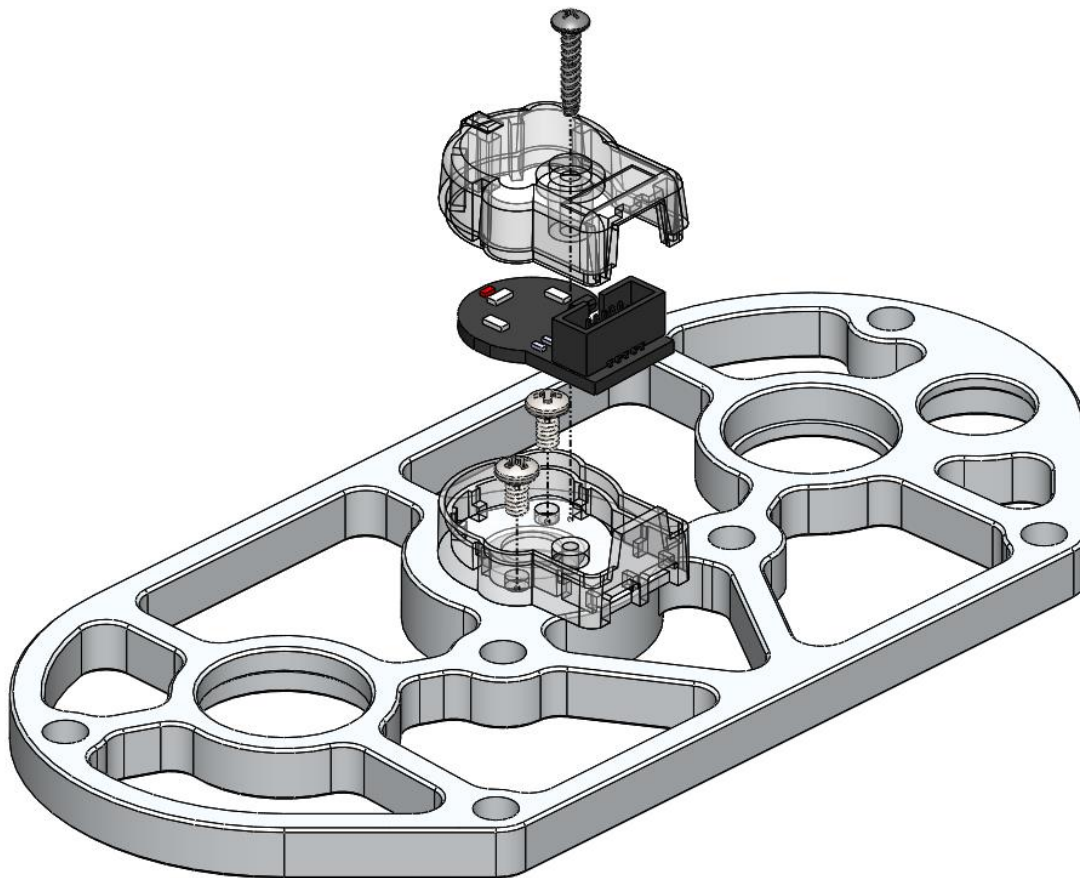
Step 2: Motor Configurations

When using Falcon 500 Motors, it is recommended that the acetal spacers and retention screws included with the motors are used with spline shafts. When using NEO Brushless Motors, it is recommended that the REV press fit process is used for the steering pinion and provided aluminum spacer and retaining ring are used for the drive pinion. Without using SDS motor spacers, it is recommended that .25" (or more) be cut from Falcon 500 and NEO Brushless Motor shafts.

Falcon 500 w/o Motor Spacers (.25" cut):

Steering Motor: .125" and .0625" spacers after 15t 32DP pinion

Drive Motor: .125" spacer before pinion, .25" and .0625" spacer after

Falcon 500 w/ Motor Spacers:

Steering Motor: .25" and .0625" spacers before 15t pinion, .125" after

Drive Motor: .25", .125", and .0625" spacer before pinion, .25" after

NEO Brushless Motor w/o Motor Spacers (.25" cut):

Steering Motor: Press fit

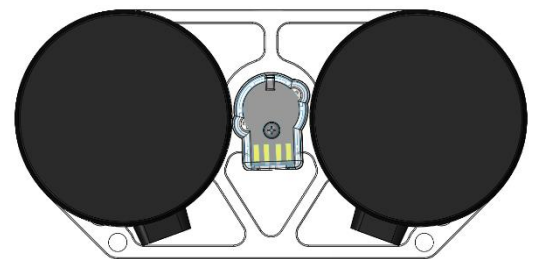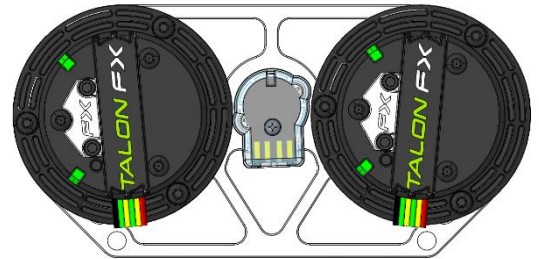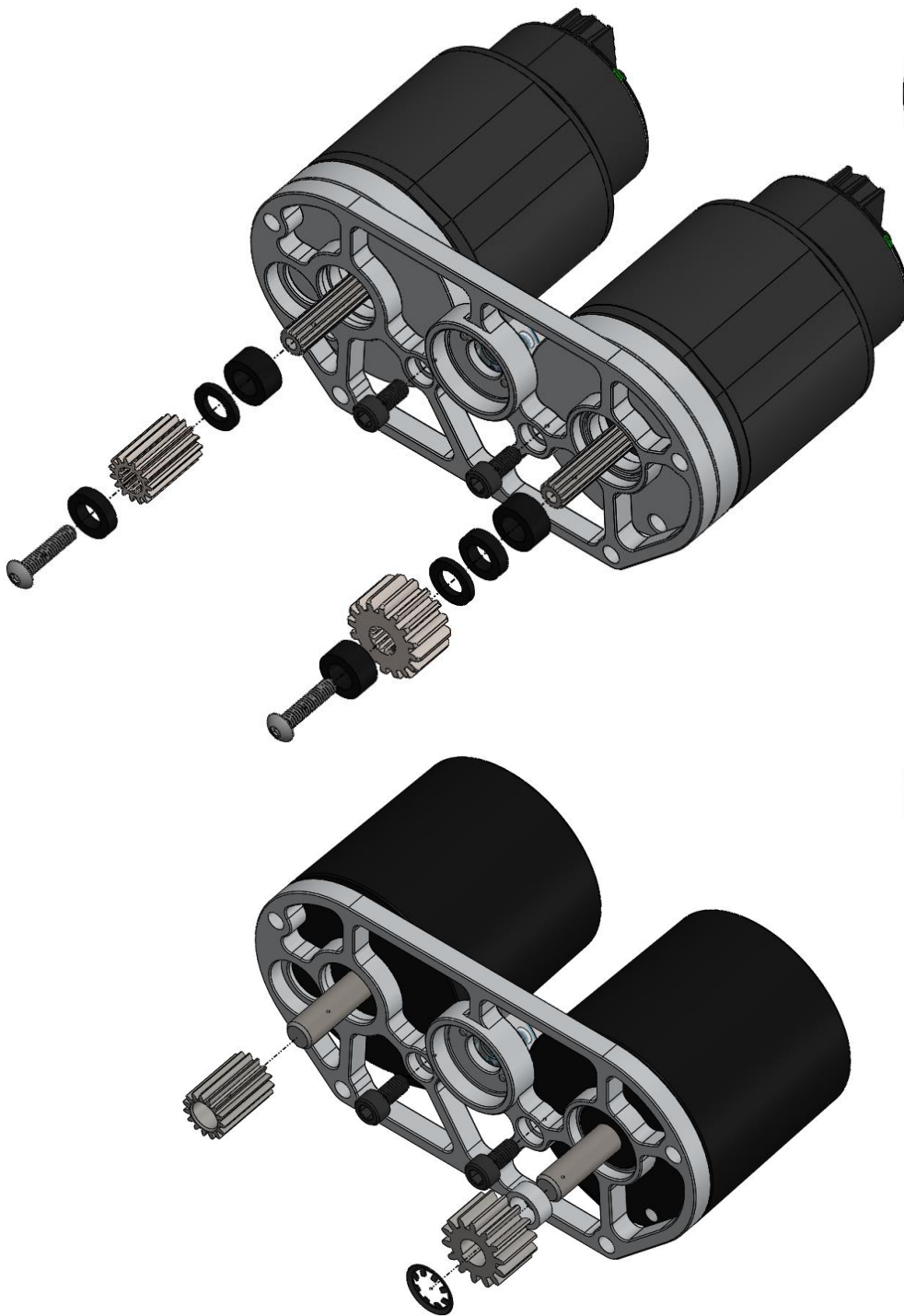**Drive Motor:** .1875" spacer before pinion, retaining ring after

NEO Brushless Motor w/ Motor Spacers:

Steering Motor: Press fit (offset .25" from motor face)

**Drive Motor:** .3125" and .1875" spacer before pinion, retaining ring after

Step 2: Motor Configurations Cont.

Step 3: Wheel Configurations

The two wheels compatible with the MK3 Module are the 4" VersaWheel from VEX and the 4" Billet Wheel from SDS. When using a VersaWheel, mount the 60t Bevel Gear with six self-tapping screws (without Threadlocker). When using the 4" Billet Wheel, use the six #10-32 X .5 Flat Head Screws included with the wheel to attach the 60T Bevel Gear. Insert FR8ZZ bearing and Wheel Spacer on 60t Bevel Side, insert .375" ID bearing on opposite side.
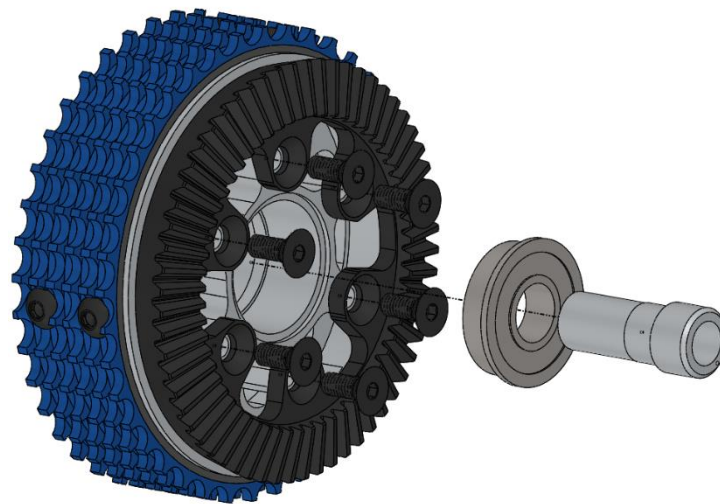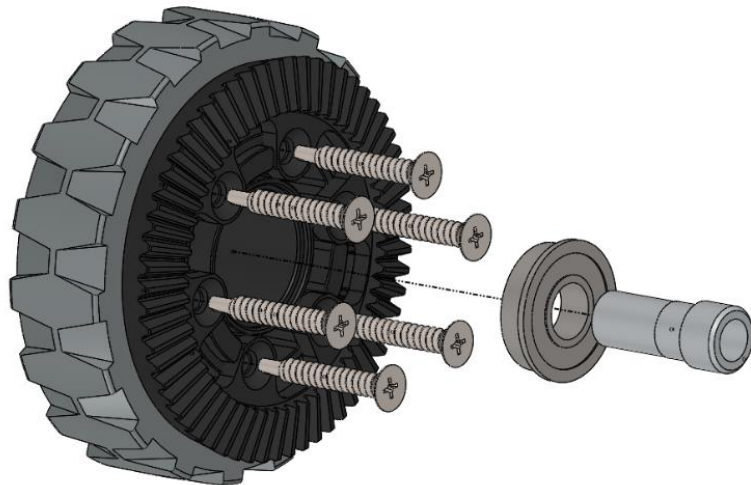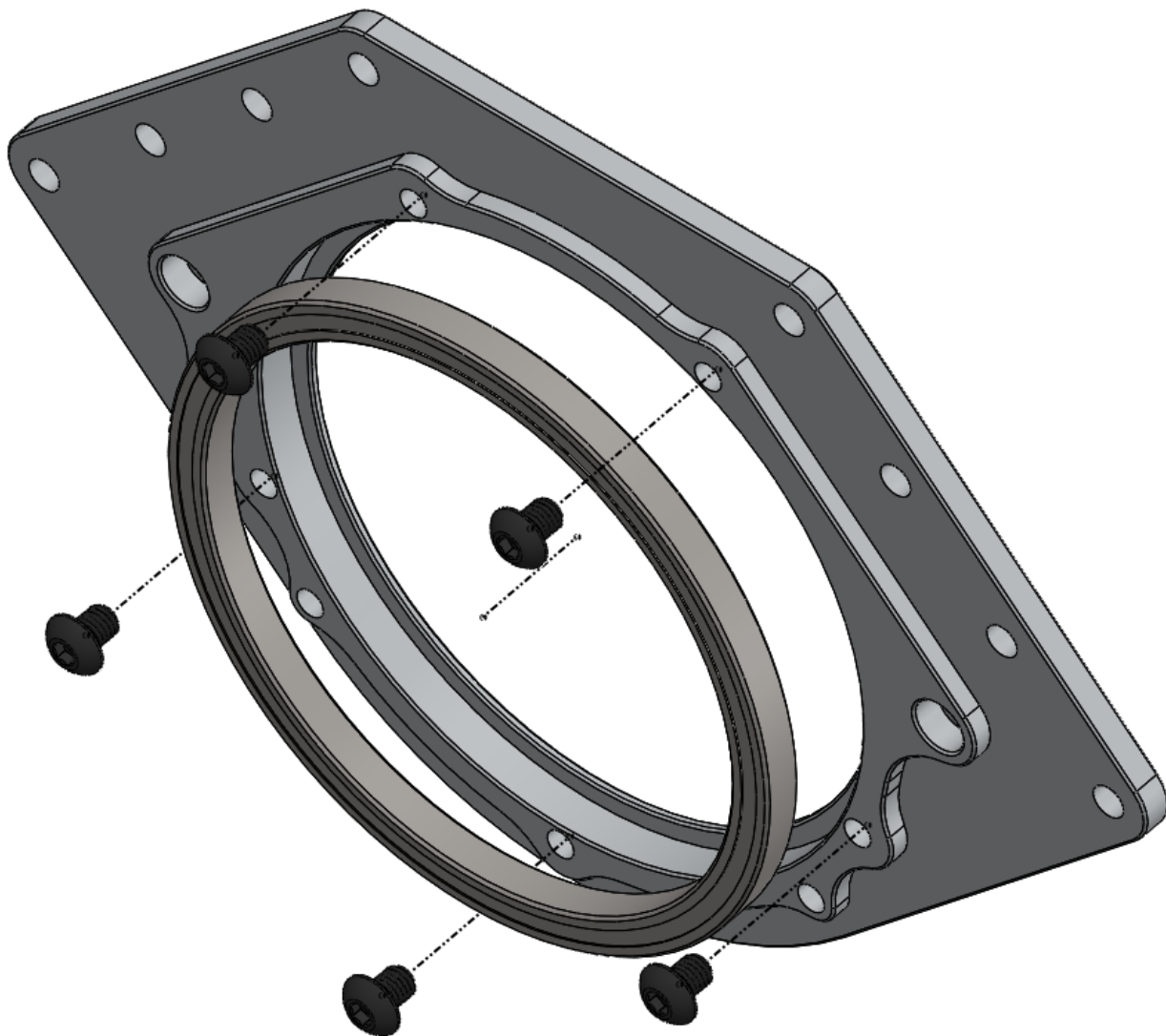
Step 3: Wheel Configurations (Cont.)
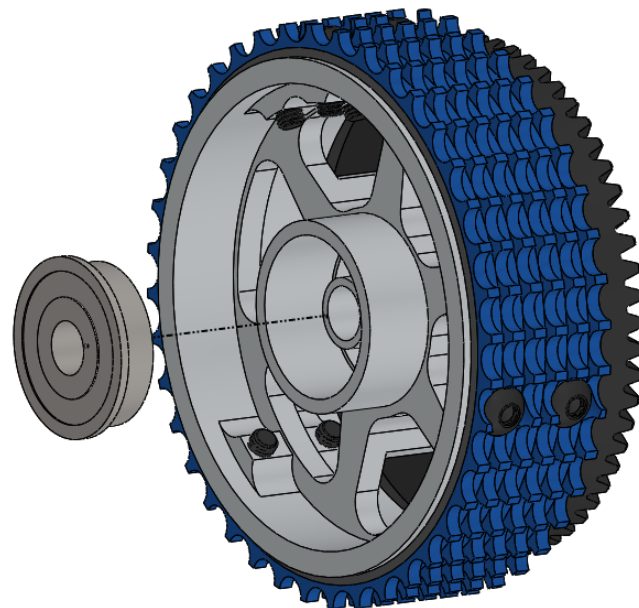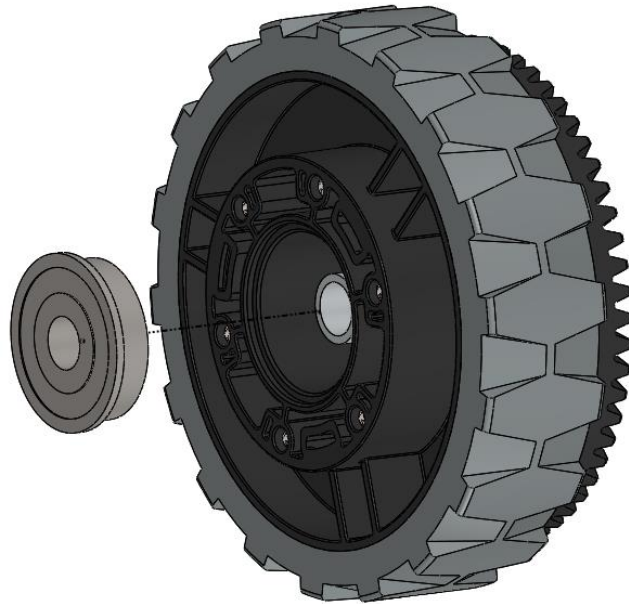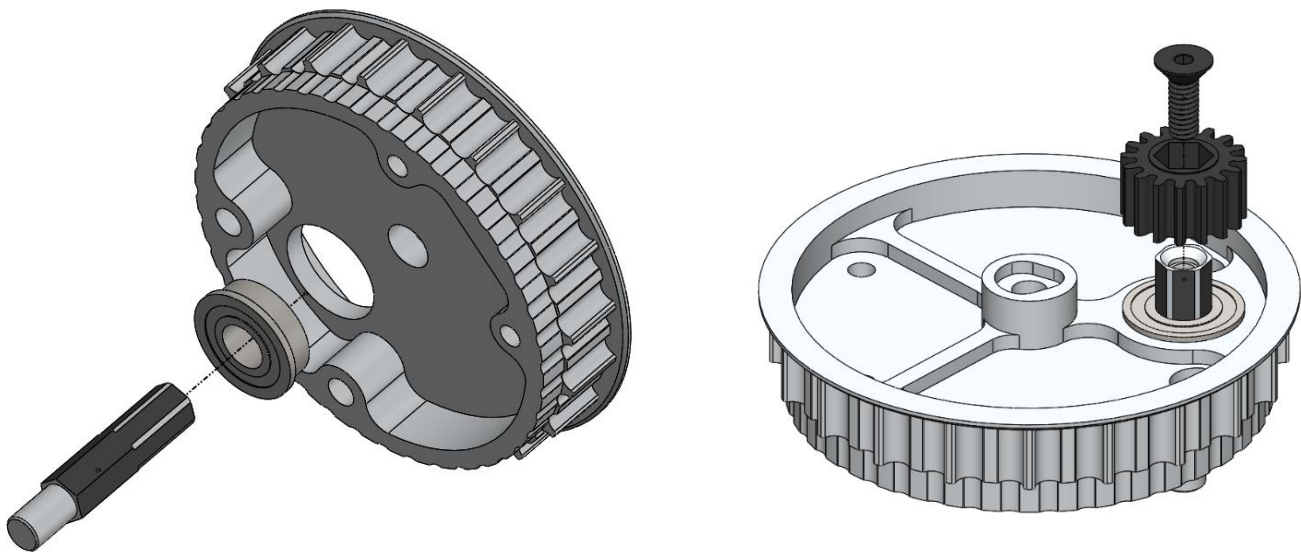
Step 4: Bearing Mounting

Secure the 4" OD X-Contact bearing with five #10-32 X .25 Button Head Screws.

# Step 5: Intermediate Shaft Assembly

Insert .375" Flanged ThunderHex bearing and secure shaft and 20DP 16t .375 Hex Bore Gear with #12-24 X .625" Flat Head Screw.

Step 6: Center Column Assembly

Insert encoder magnet and retain with retaining compound or cyanoacrylate glue. Insert two 6802ZZ bearings into Double Gear and capture with Center Column and .25"-20 X .625" Socket Head Cap Screw, ensuring locating features are properly aligned.
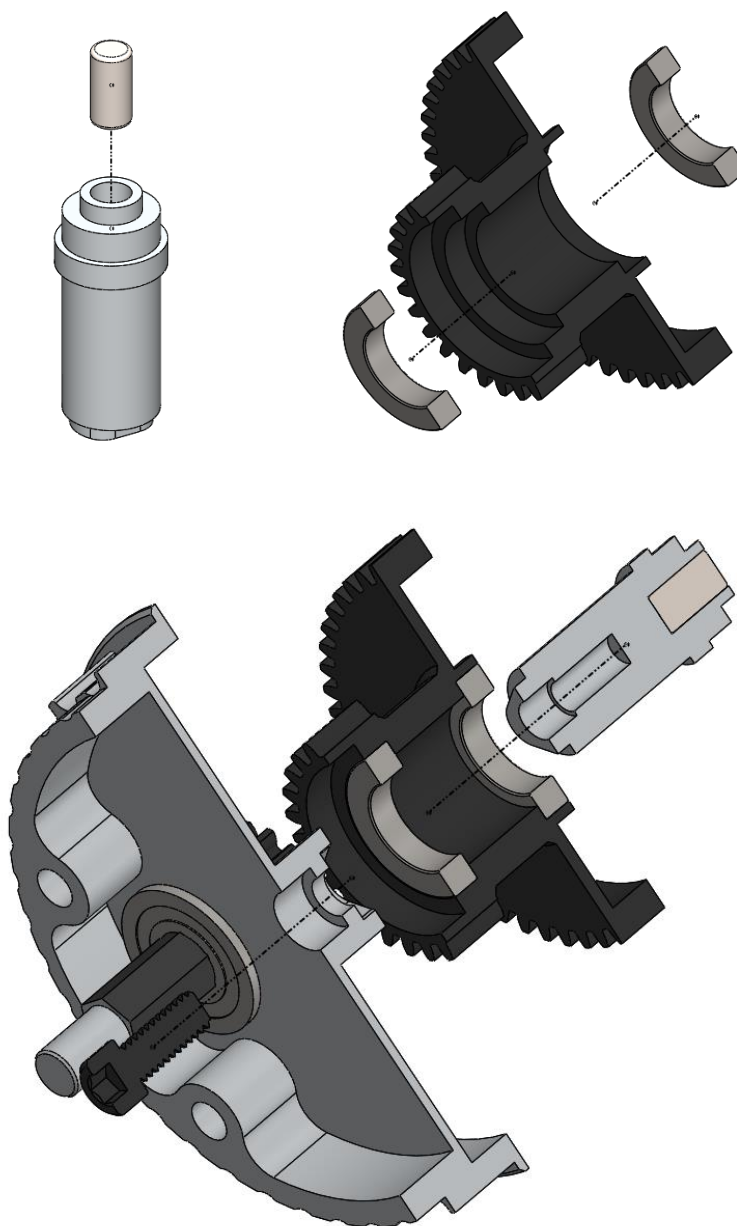
Step 7: Pulley Mounting

Capture Steering Shaft and Base Pulley with 320-5M-9 Belt. Insert R188ZZ bearing into Main Plate before continuing with assembly.
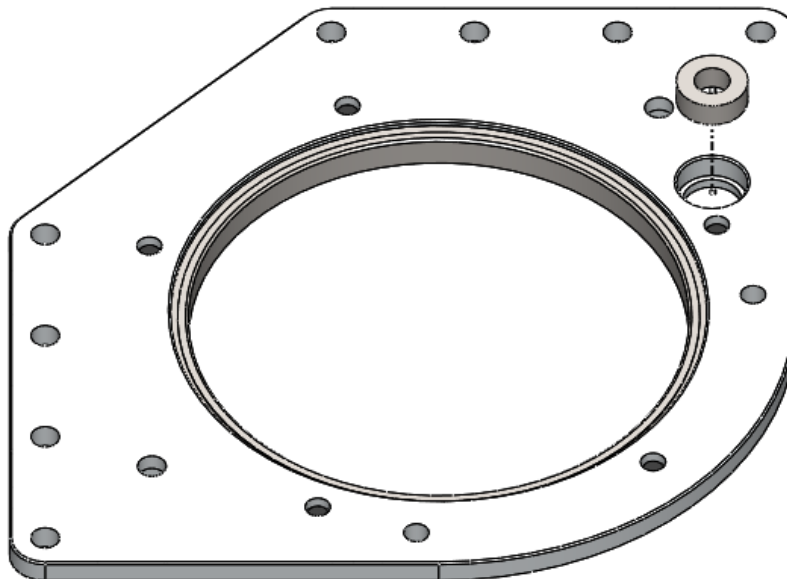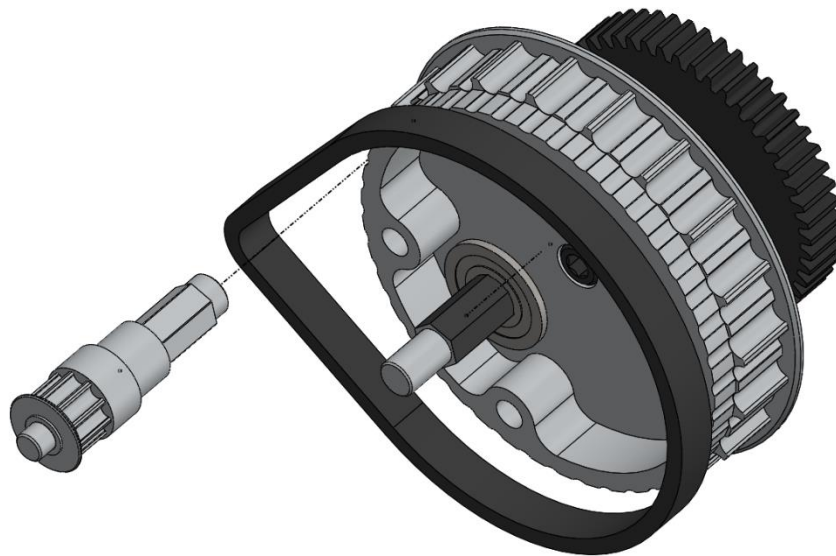
Step 7: Pulley Mounting (Cont.)

Insert Base Pulley Assembly, aligning Base Pulley with X-Contact bearing and Steering Shaft with R188ZZ bearing. Insert 15t Bevel Gear onto intermediate shaft, followed by .5mm Shim and two 688ZZ bearings.
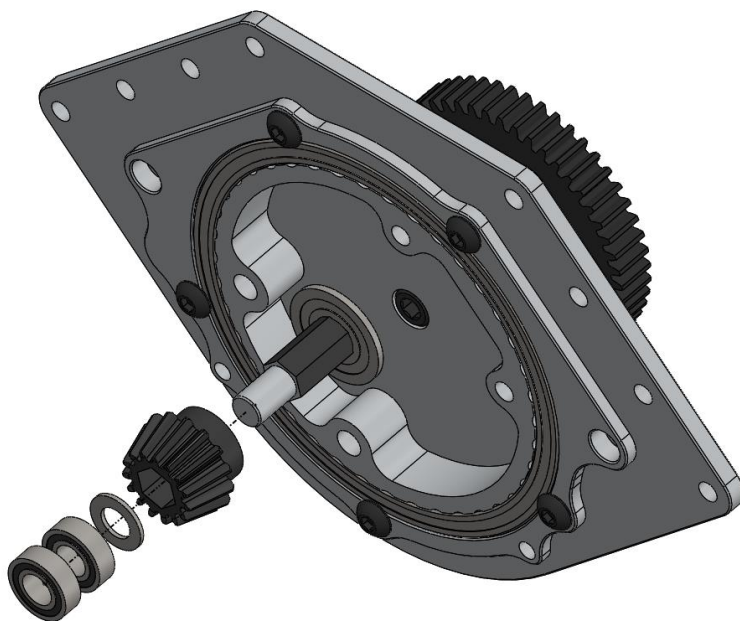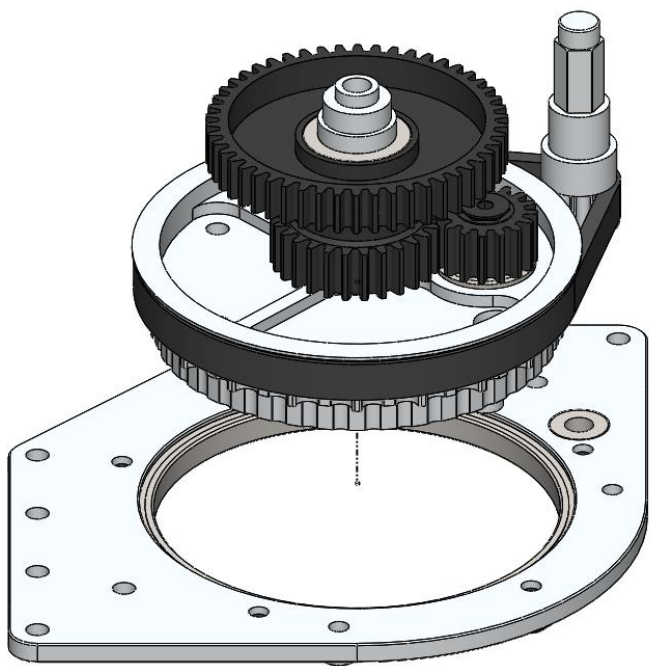
Step 8: Wheel and Motor Mount Prep

Attach Wheel Mount B with two .25"-20 X .625 Socket Head Cap Screws. Place 32DP 15t Gear and F689ZZ bearing on Steering Shaft and 6802ZZ bearing on Center Column.
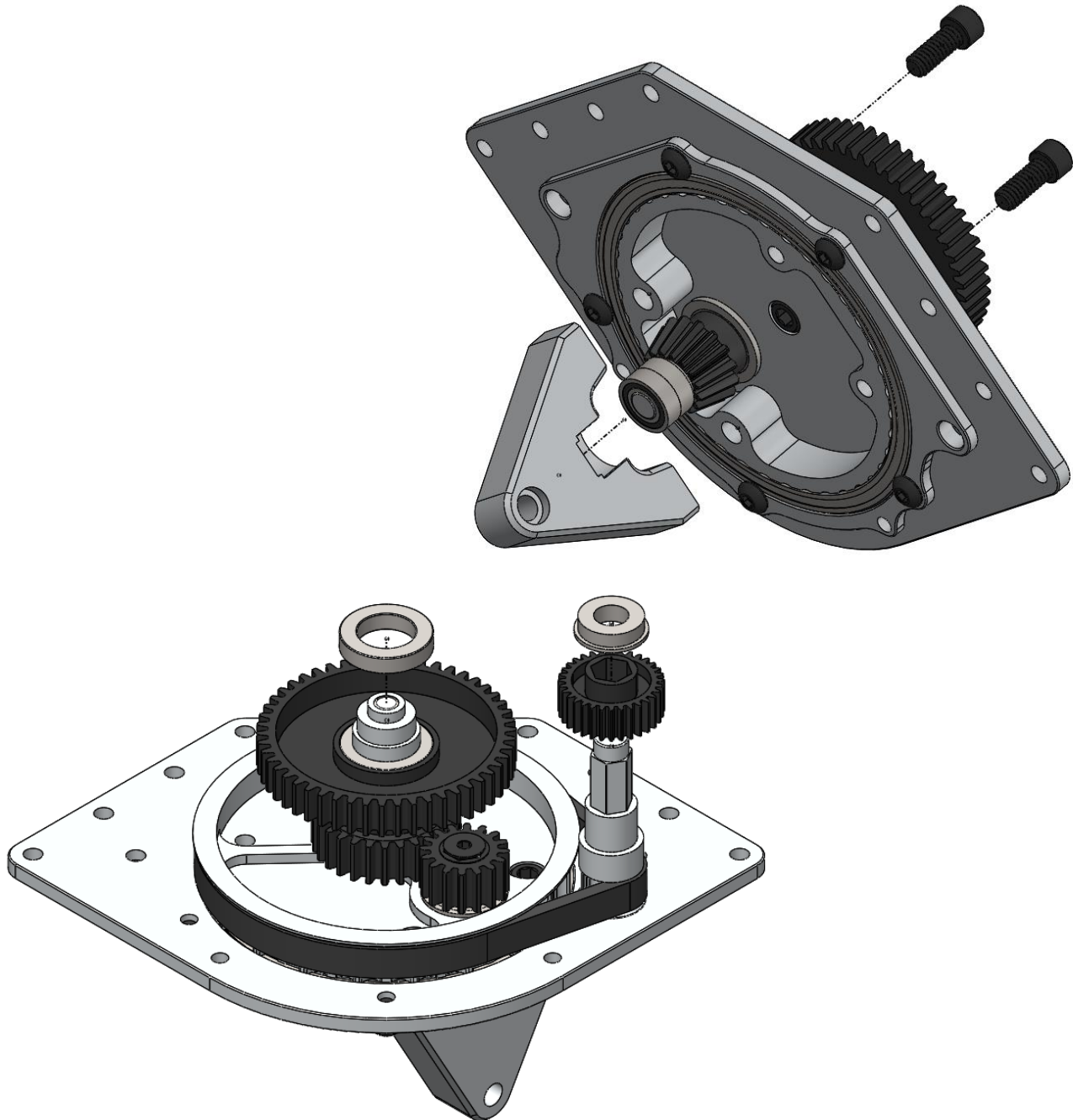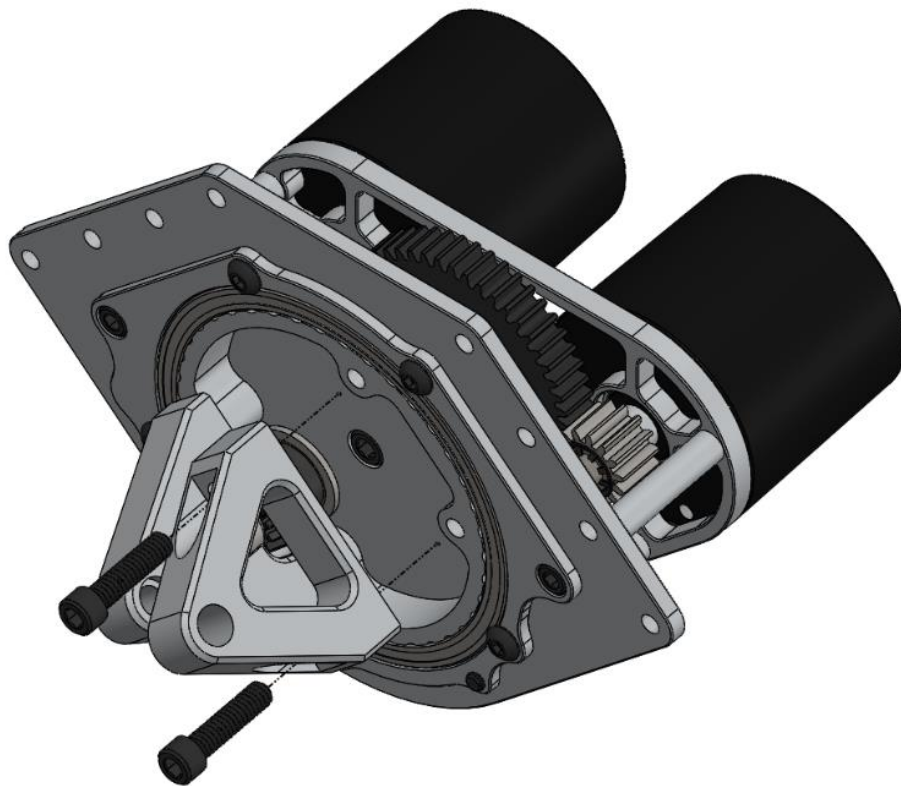
Step 9: Motor Plate Mounting

Assemble the upper and lower halves of the module ensuring proper alignment of all necessary mating surfaces and bearings. Secure with four #10 X .1875 spacers and four #10-32 X 2.5" Socket Head Cap Screws.
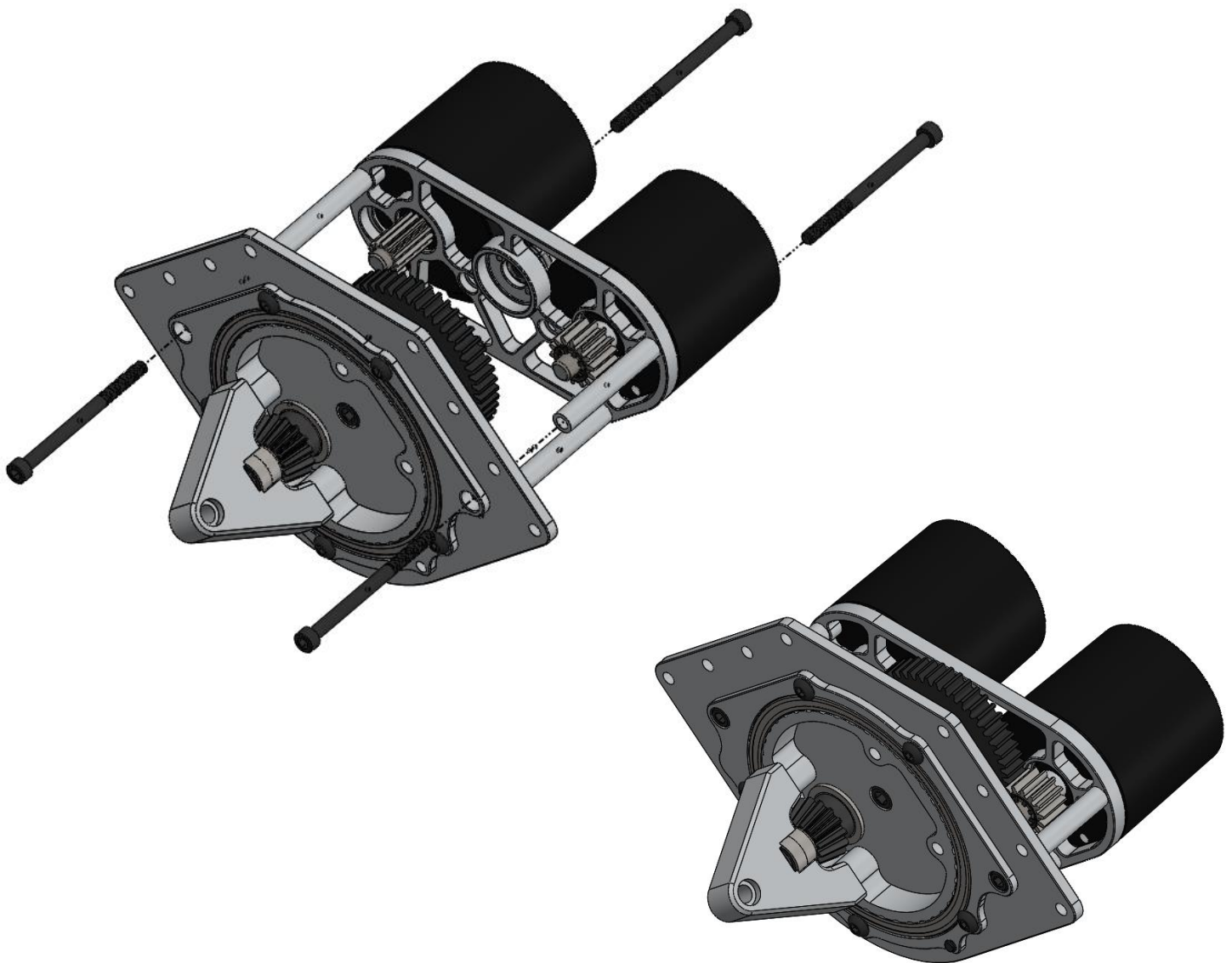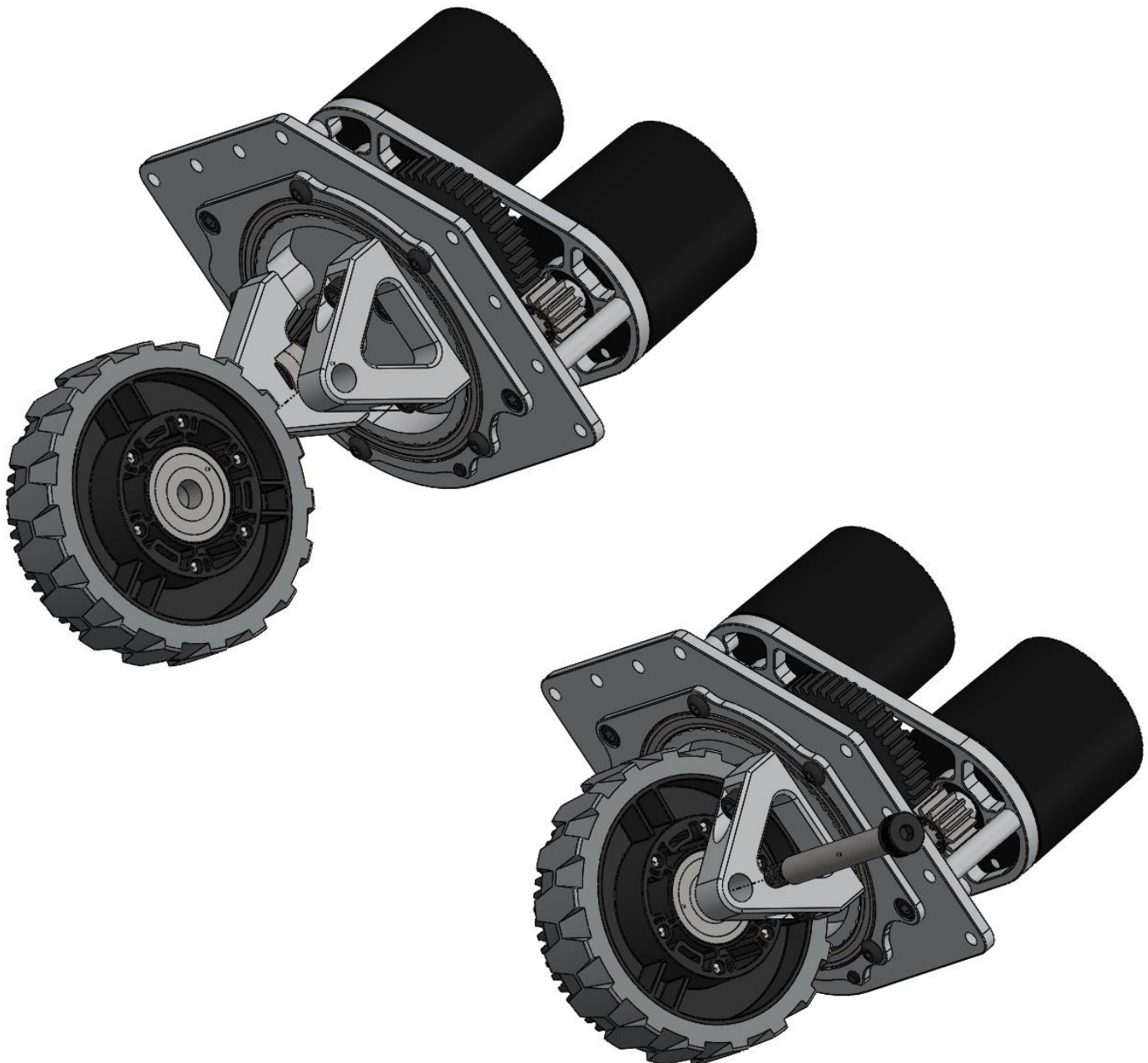
Step 10: Wheel Mount Assembly

Secure Wheel Mount A with two .25"-20 X 1" Socket Head Cap Screws.

Step 11: Attach Wheel

Insert wheel with bevel gears meshing. Secure with .375" X 2.5" shoulder bolt.

Assembly Complete

Grease gears before use.