SWERVE DRIVE
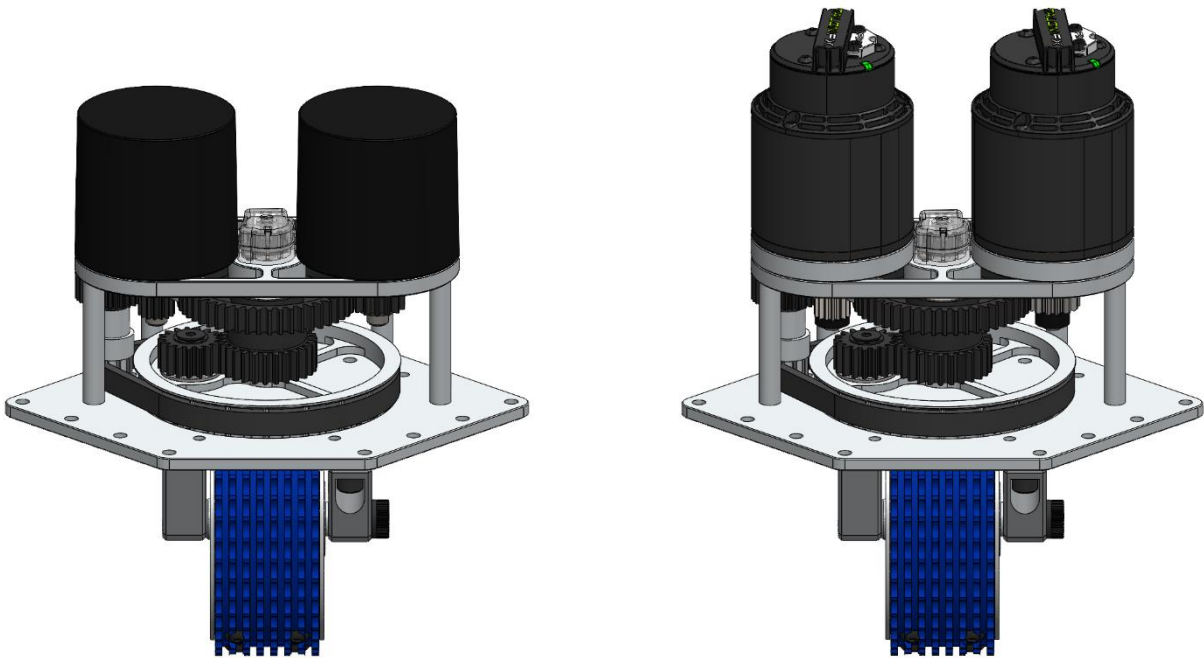## SPECIALTIES

MK4 Module
Assembly Guide

Recommendations:

Use Loctite 242/243 Retaining Compound on all bolts, excluding those used to mount an encoder

Purchase motor spacers if unable to cut shafts

Lubricate all gears with grease

Step 1: Encoder Mounting

Begin by mounting housing base with both #3 – 48 screws included with the encoder (without retaining compound) before inserting encoder circuit board (attaching data cable if using SRX Mag Encoder or soldering on CAN wires if using CANcoder). Place housing cap and follow CTR Electronics 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.
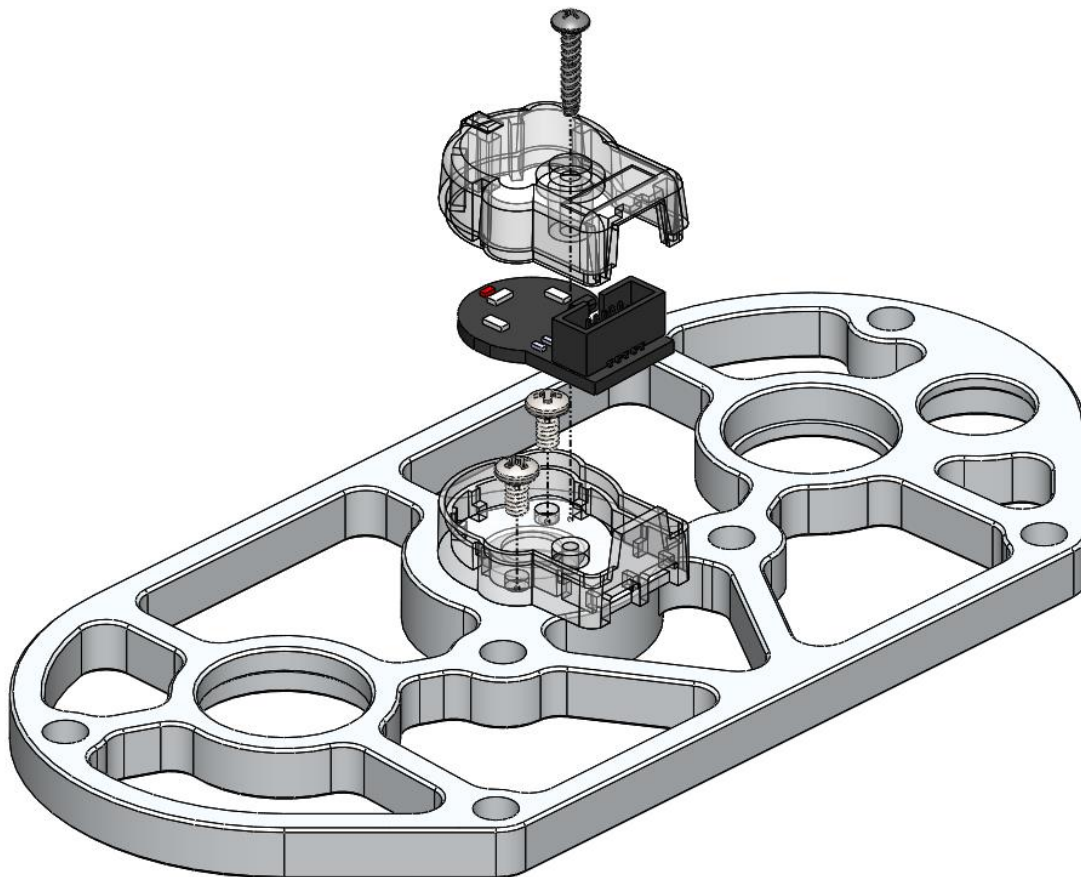
Step 2: Motor Configurations

For usage with Falcon 500 Motors, it is recommended that provided acetal spacers and retention screws are used with spline shafts. For usage with REV NEO Brushless Motors it is recommended that the REV press fit process is used for the steering pinion and provided aluminum spacers and retaining rings are used for the drive pinion. Without the usage of motor spacers, it is recommended that roughly .25" be cut from Falcon 500 and NEO Brushless Motor shafts. Drive Pinions below are for L2 Gearing Modules.

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

Steering Motor: .125" and .0625" spacers after 14t 32DP pinion

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

Falcon 500 w/ Motor Spacers:

Steering Motor: .25" and .0625" spacers before 14t pinion, .125" after

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

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

Steering Motor: Press fit

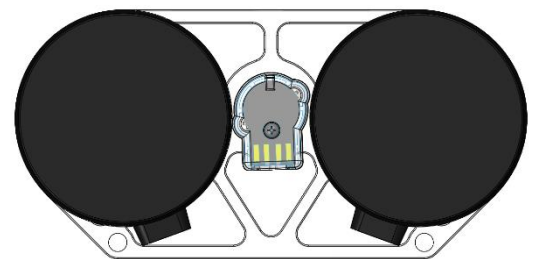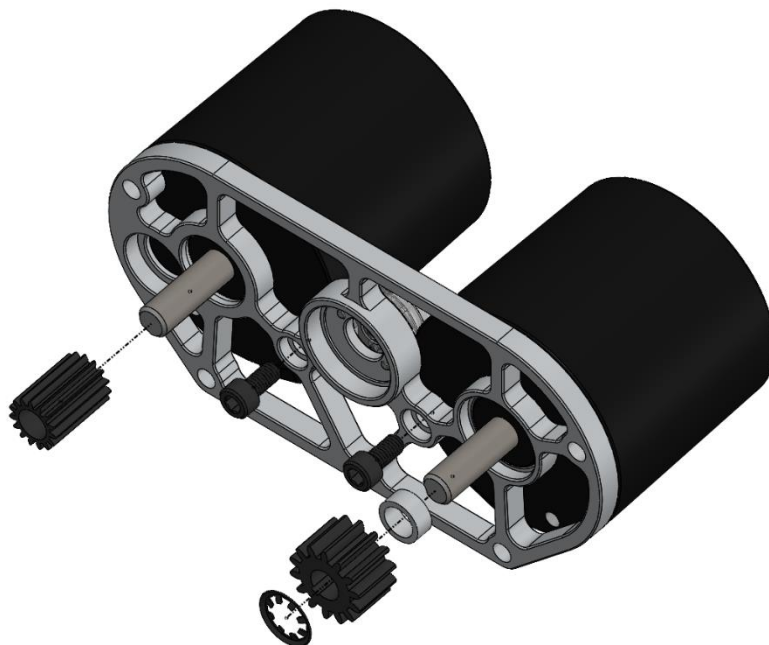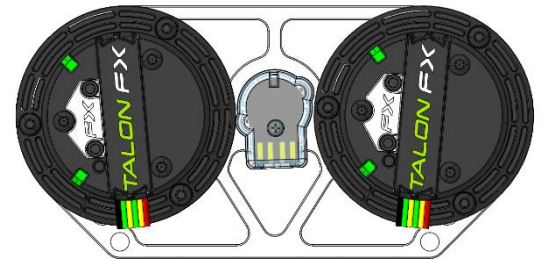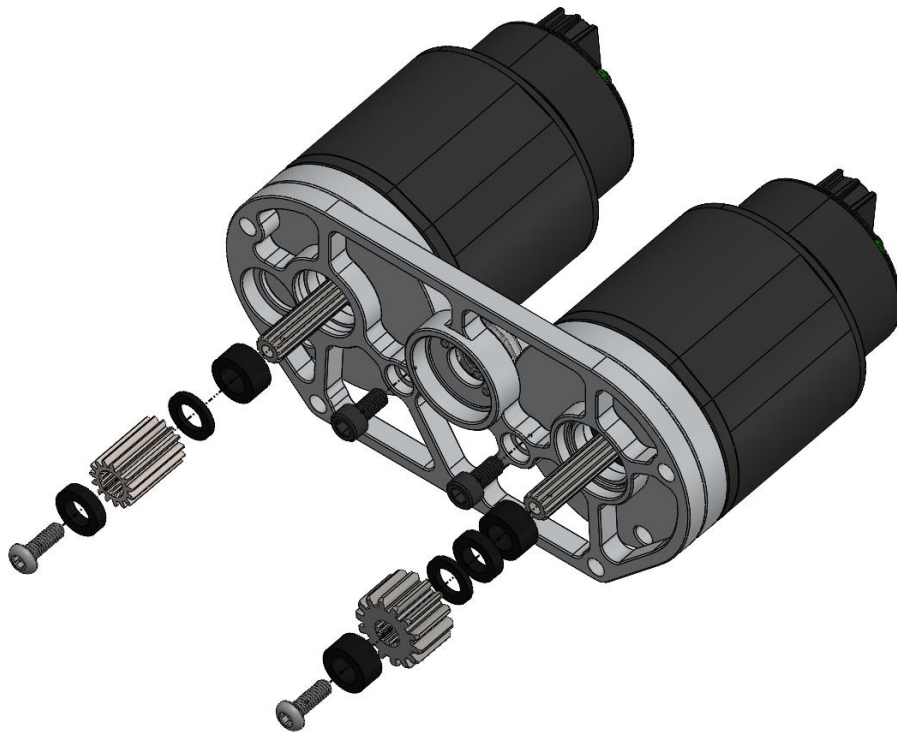**Drive Motor:** .1875" spacer before pinion, retaining ring after

NEO Brushless Motor w/ Motor Spacers:

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

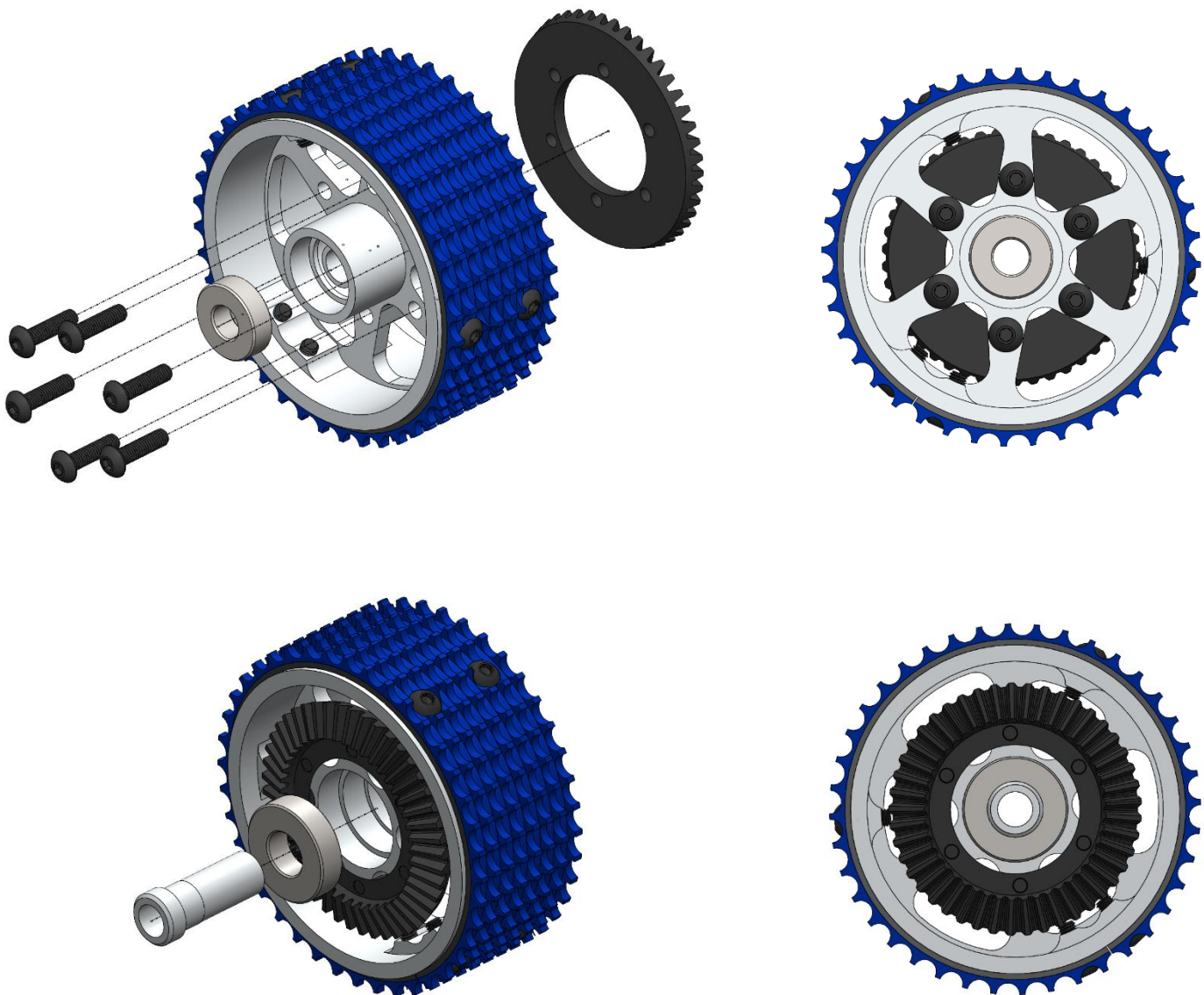**Drive Motor:** .3125" and .1875" spacer before pinion, retaining ring after

Step 2: Motor Configurations Cont.

Step 3: Wheel Assembly

The MK4 Module uses the 4"D X 1.5"W Billet Wheel from SDS. Tread comes pre-installed. Mount 45t Bevel Gear with 6 #10-32 X .75 Button Head Screws. Insert .5" ID Bearing and Wheel Spacer on 45t Bevel Side, insert .375" ID Bearing on opposite side.
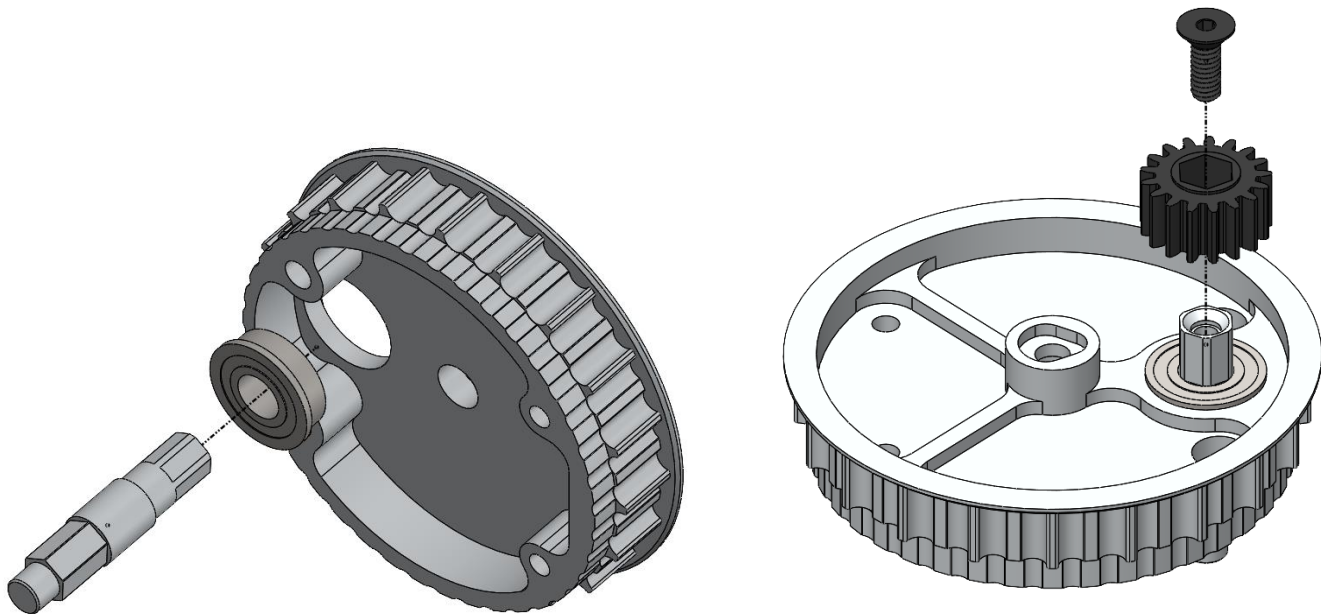
Step 4: Bearing Mounting

Secure with 5 #10-32 X .25 Button Head Screws.

Step 5: Intermediate Shaft Assembly

Insert .375" Flanged ThunderHex Bearing and secure steering shaft and second stage driven gear with #12-24 X .625" Flat Head Screw.
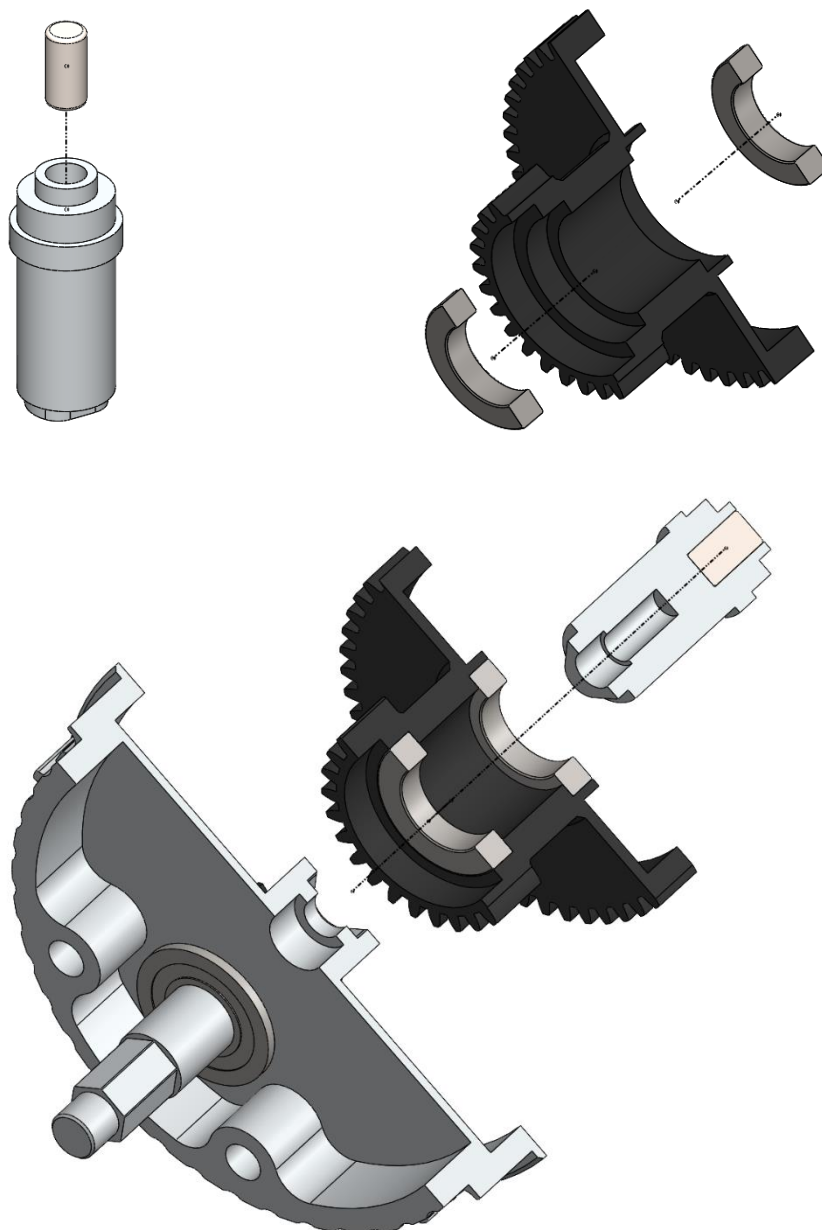
Step 6: Center Column Assembly

Insert encoder magnet and retain with ample LOCTITE Retaining Compound, Superglue, or Cyanoacrylate. LOCTITE 609 is recommended. Insert two 6802 Bearings into Double Gear and capture with central shaft and .25"-20 X .625" Socket Head Cap Screw.
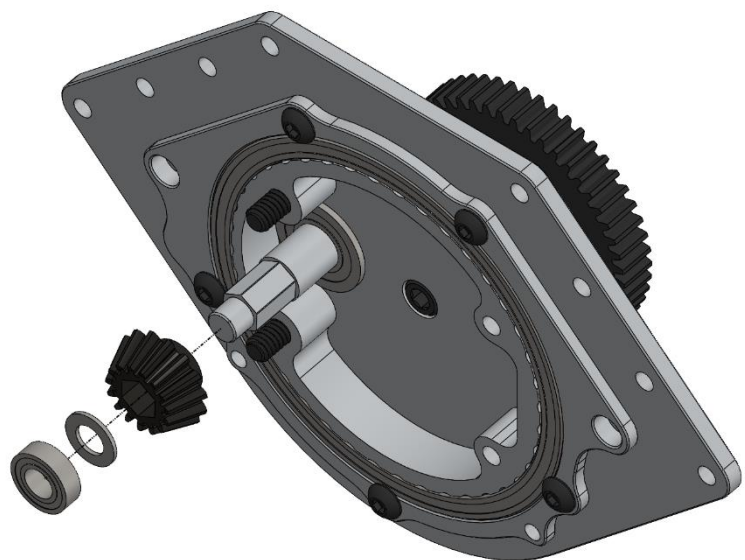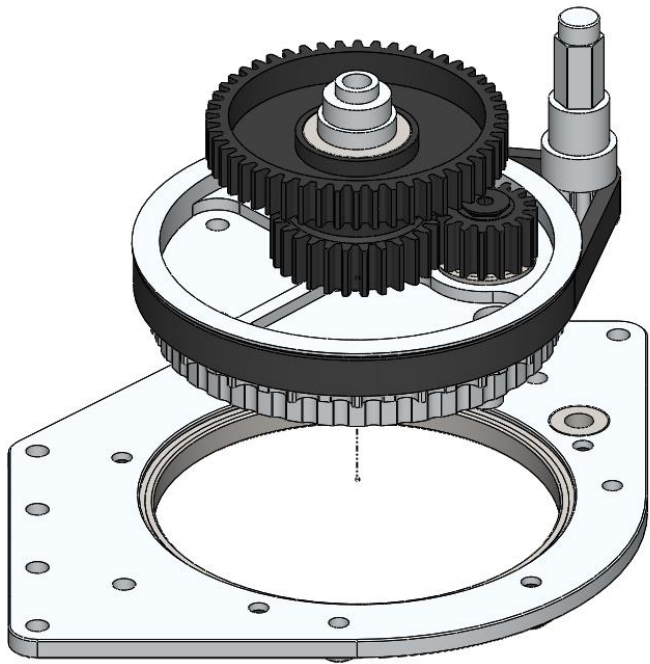
Step 7: Pulley Mounting

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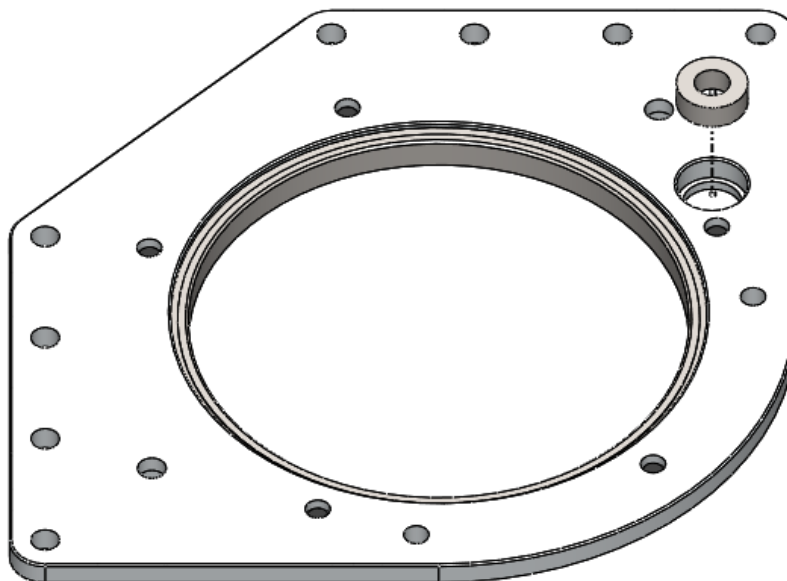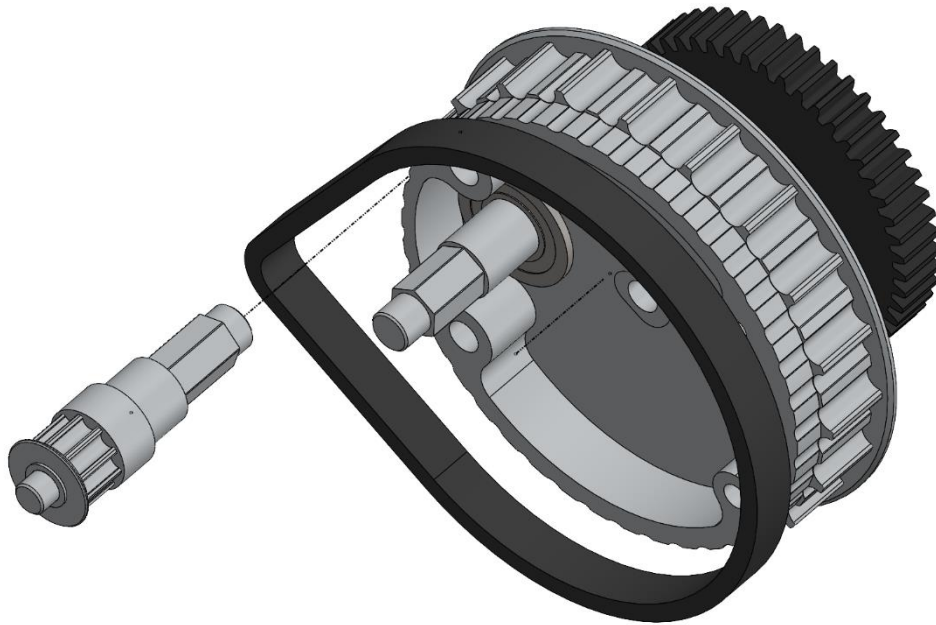
Step 7: Pulley Mounting (Cont.)

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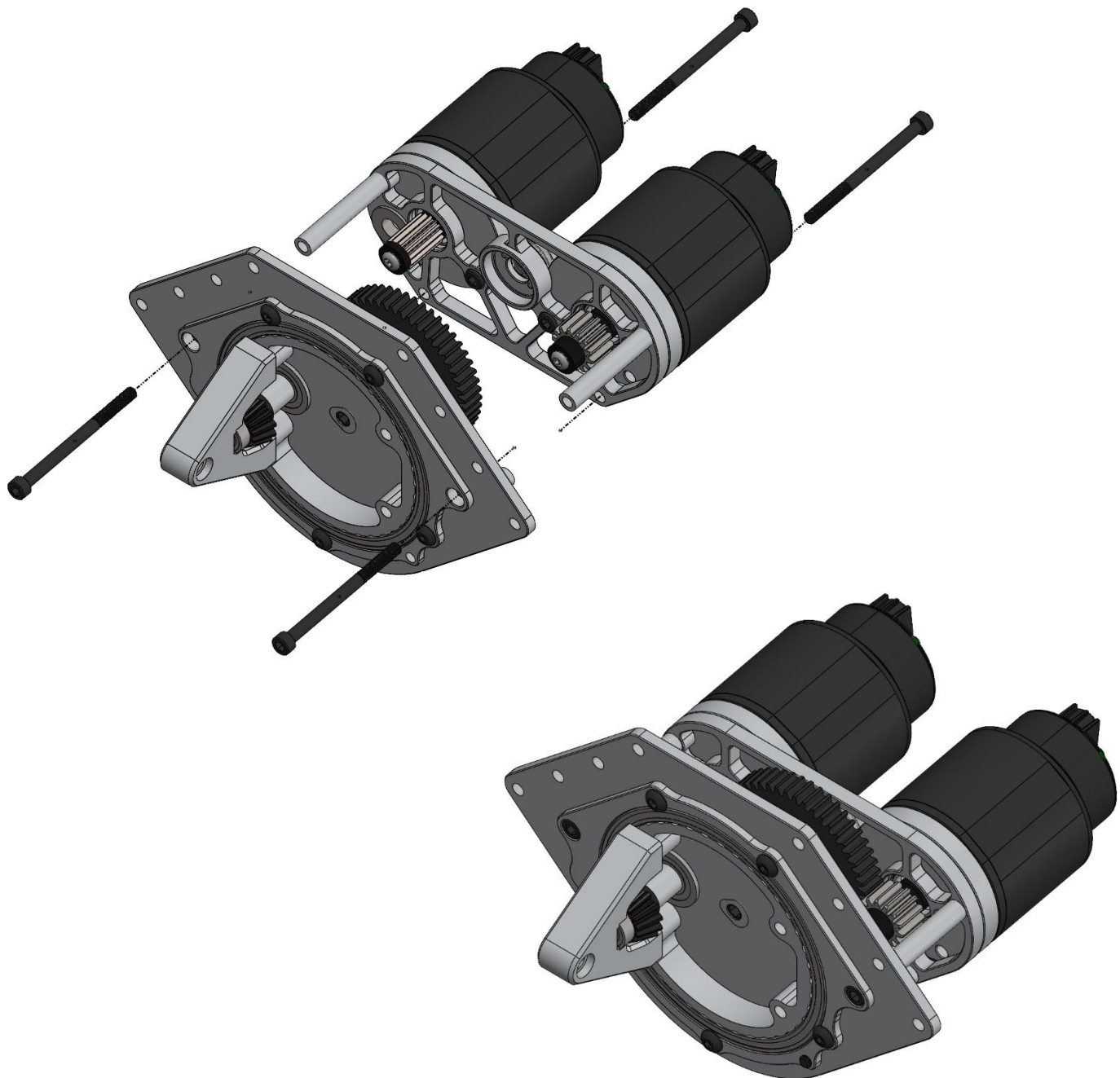
Step 8: Wheel and Motor Mount Prep

Attach Wheel Mount B with two .25"-20 X .625 Socket Head Cap Screws. Place 6802 Bearing, 32DP 15t Gear, and F689 Bearing on respective shafts.
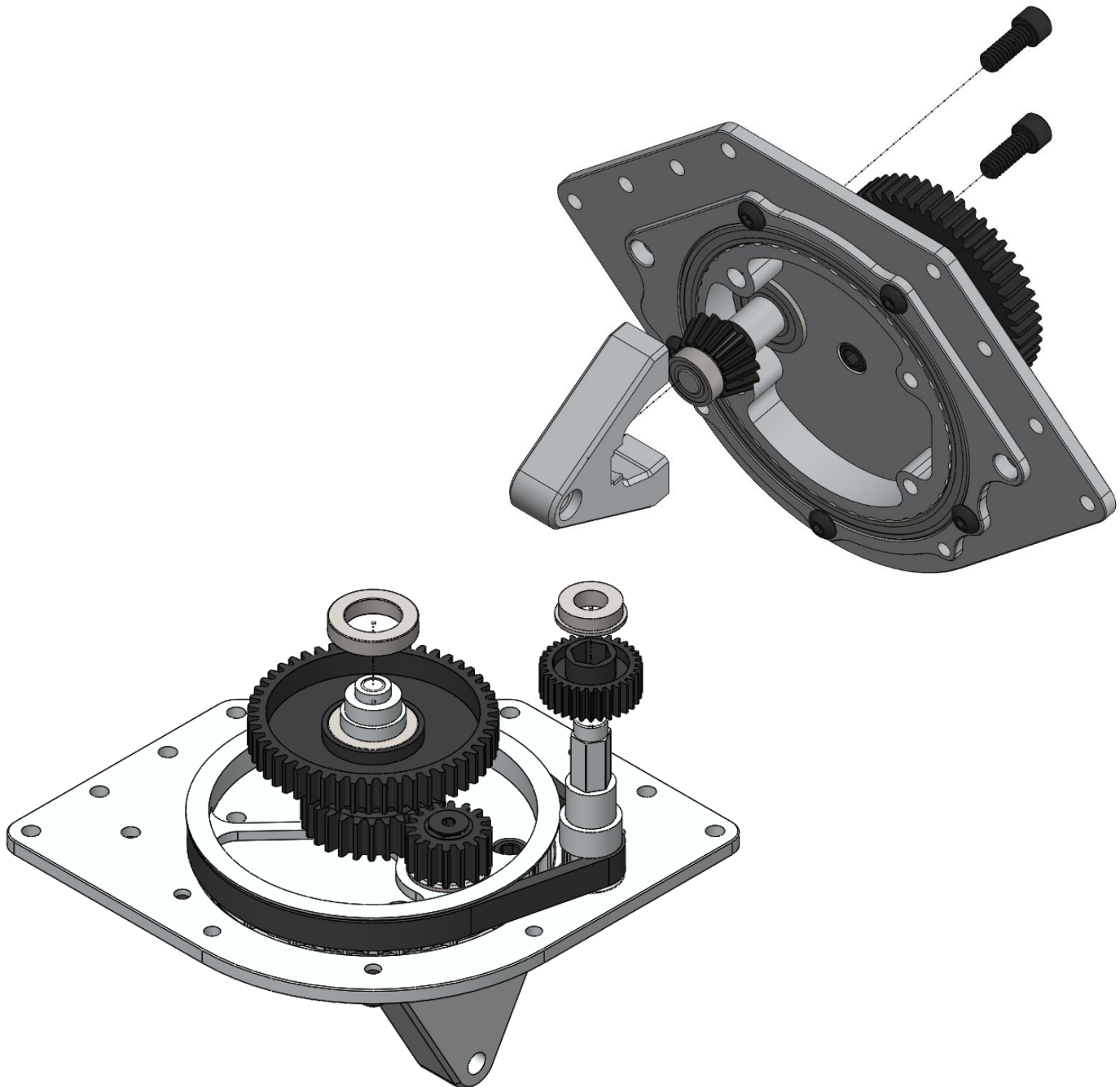
Step 9: Motor Plate Mounting

Secure four #10 X 1.875" spacers with four #10-32 X 2.5" Socket Head Cap Screws, ensuring proper alignment of all necessary mating surfaces and bearings.
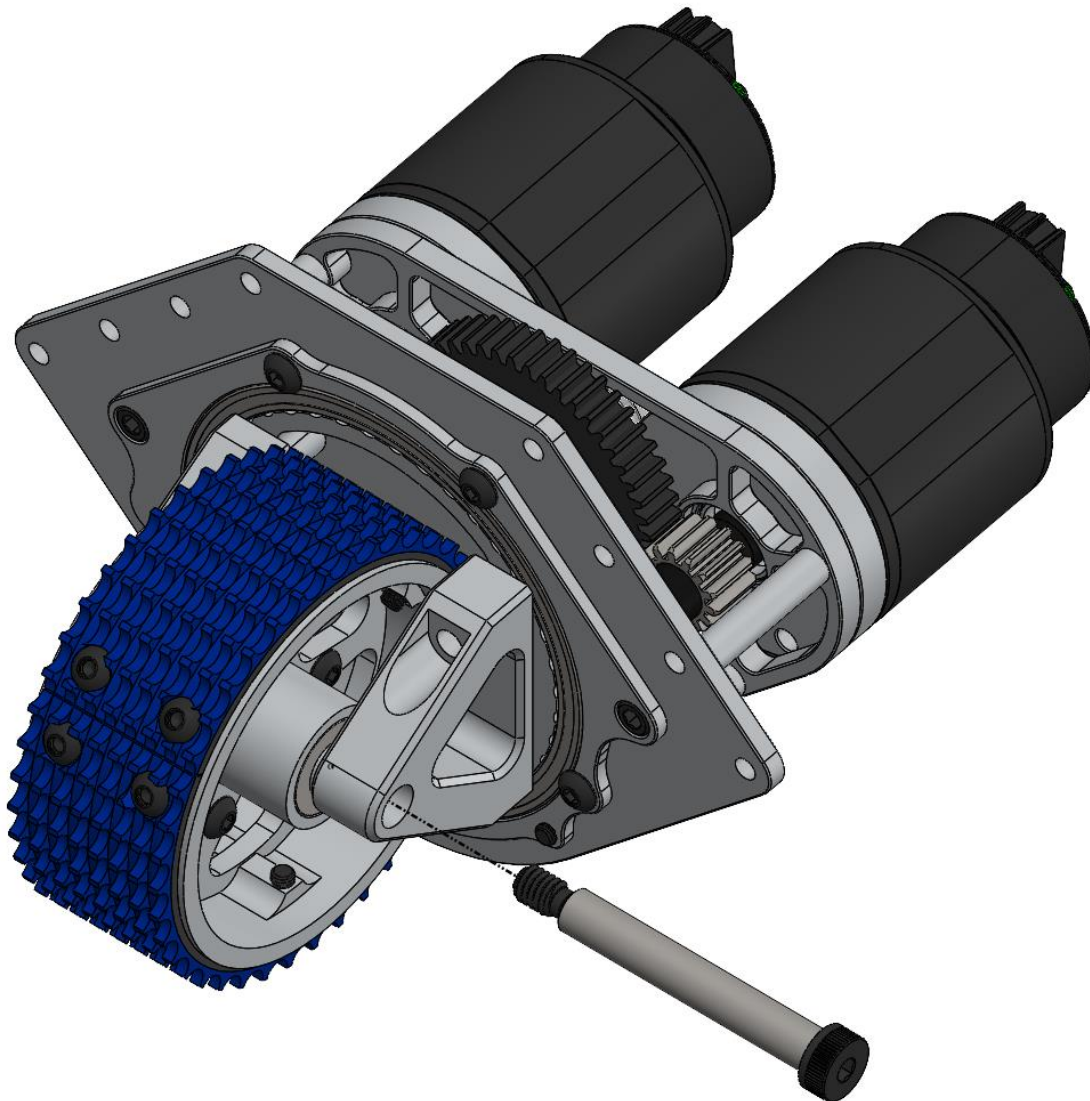
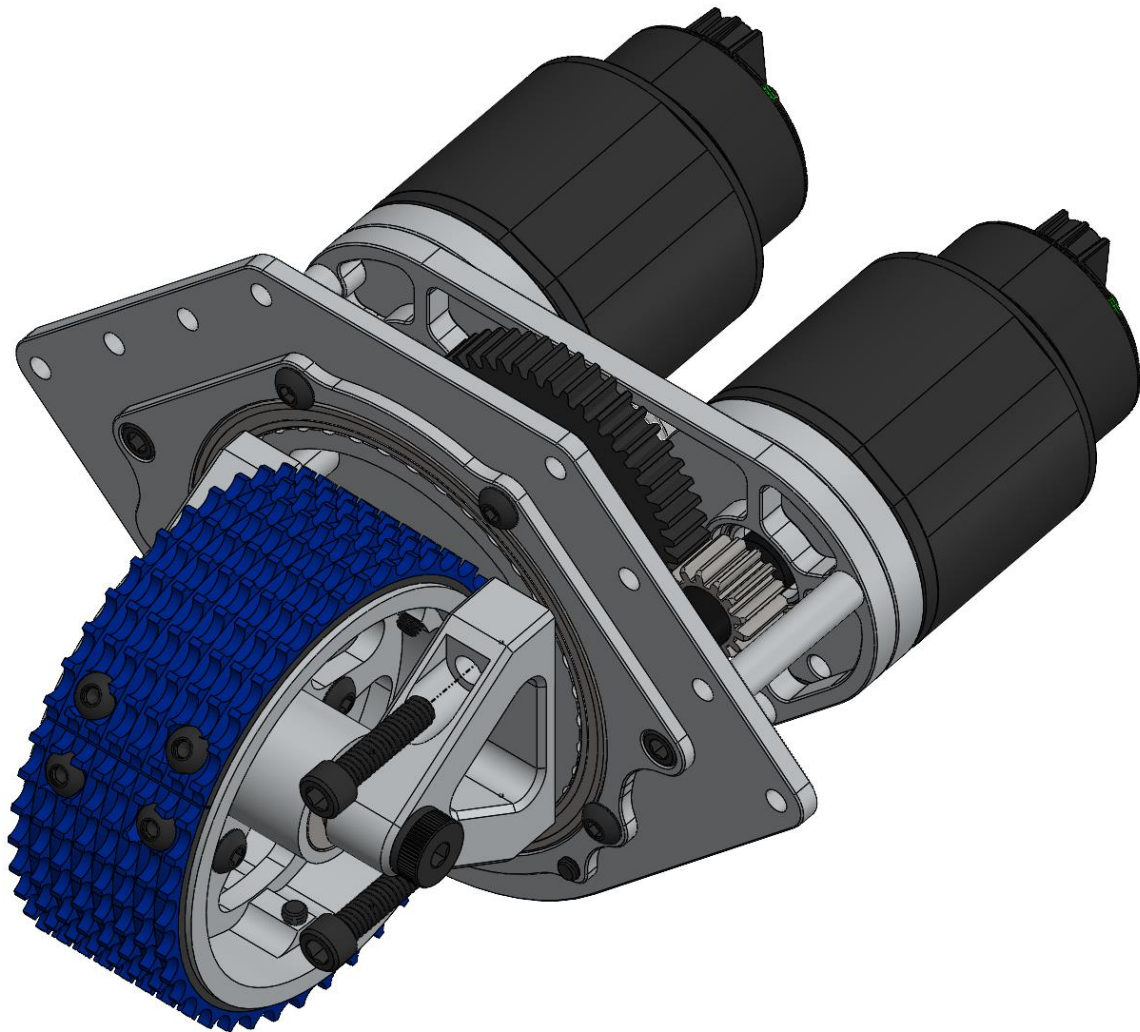# Step 10: Attach Wheel

Mount with .375" X 2.5" shoulder bolt

Step 11: Wheel Mount Assembly

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

Assembly Complete

Lubricate gears with grease before usage.