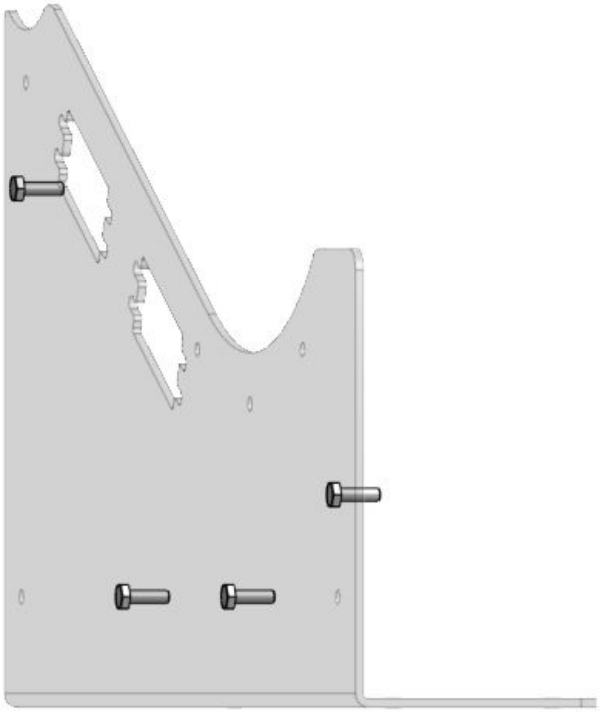
REV Robotics Brushless Motor Accessory Pack

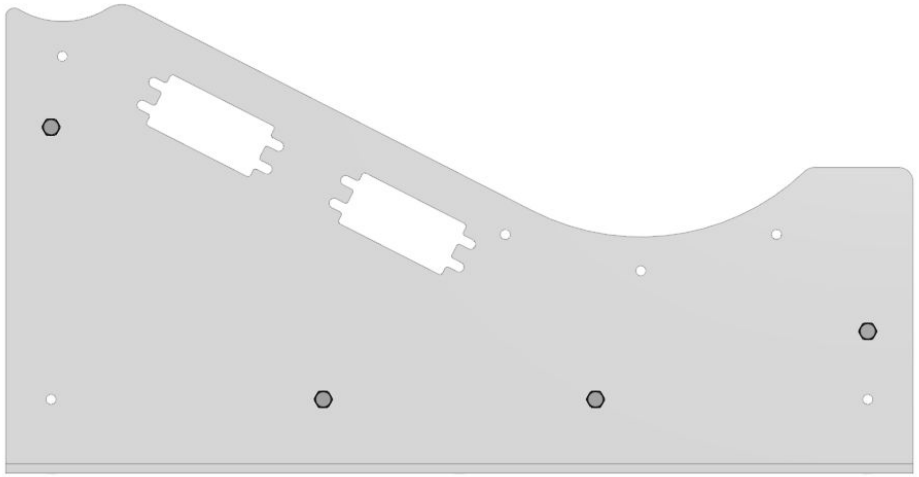
Bill of Materials					
PART NUMBER	**DESCRIPTION**	**QTY.**	**PART NUMBER**	**DESCRIPTION**	**QTY.**
REV-95-3318-P11	Wheel Cover	1	REV-41-1123	M3 Hex Cap Screw - 10mm	60
REV-95-3318-P14	Swivel Camera Mount	1	REV-41-1715	M3 Hex Cap Screw - 25mm	6
REV-95-3318-P15	Power Supply (20A, MeanWell Style, NEMA 5-15P)	1	REV-95-3318-P17	1/4"-20 Hex Head Bolt - 3/8" thread length	1
REV-41-1267	Grip Wheel - 90mm	1	REV-95-3323	REV Foam Ball - 6 cm - Orange	2
REV-95-3313	K24 SOM Development Board Structure Pack	1	REV-95-3321	REV Foam Ball - 6 cm - Blue	2
REV-95-3314	K24 SOM Development Board Electronics Pack	1	REV-95-3318-P08	Side Plate - Clear Polycarbonate	2
REV-95-3318-P19	Rubber Stick On Feet	6	REV-95-3318-P09	Ramp Plate Right - Bent Sheet Metal	1
REV-95-3314-P01	Phase Wire Pigtail - MR60	1	REV-95-3318-P10	Ramp Plate Left - Bent Sheet Metal	1
REV-95-3314-P02	6 pin JST to SOM Sensors	1	REV-95-3318-A01	Arm Assembly	1
REV-95-3314-P03	Power Supply Main Cable	1	REV-95-3318-P12	Arm - Machined	1
REV-95-3314-P04	Power Supply Cable Pigtail (to SOM)	1	REV-95-3318-P13	M3x16mm Black Oxide Socket Cap Screw	1
REV-95-3314-P05	3 Position Lever Nut Connector	1	REV-21-3322	NEO 550 Motor with Pinion	1
REV-11-1277	6 Pin Joiner Board	1	REV-21-1651	NEO 550 Brushless Motor	1
REV-95-3315	K24 SOM Development Board Tool Pack	1	REV-41-1608	NEO 550 Pinion	1
REV-95-3315-P01	5.5mm Stamped Wrench	1	REV-95-3318-P16	UltraPlanetary Kit (Modified)	1
REV-95-3315-P02	Allen Wrench Pack	1	REV-41-1601	UltraPlanetary Cartridge - 3:1	1
REV-41-1119	5.5mm Nut Driver	1	REV-41-1602	UltraPlanetary Cartridge - 4:1	1
REV-95-3316	K24 SOM Develelopment Board Hardware Pack	1	REV-41-1603	UltraPlanetary Cartridge - 5:1	1
REV-41-1349	5mm Hex Shaft - 135mm	1	REV-41-1607	UltraPlanetary 550 Motor Plate	1
REV-41-1683	5mm Hex Bearing Block	1	REV-41-1615	UltraPlanetary Output Cartridge V2	1
REV-41-1719	Locking Motion Hub	1	REV-41-1609	UltraPlanetary Hardware Pack	1
REV-41-1491	M3 Standoff - 30mm	20			

1



Insert four (4) M3 x 10mm Hex Cap Screws into the Ramp Plate as shown. Orient the screws so that the threaded ends are on the same side as the flange.

Note: The two Ramp Plates in this kit are mirrored. To identify the Ramp Plate used in this step, lay both flat on a table with the rectangular flange facing up. The "ramp" of the Ramp Plate needed here will slope down to the **left**.



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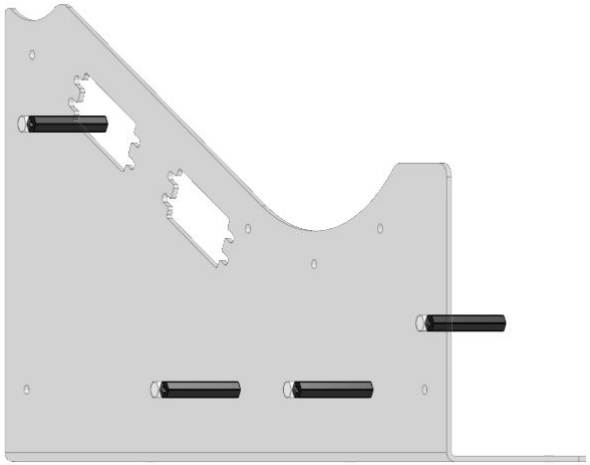
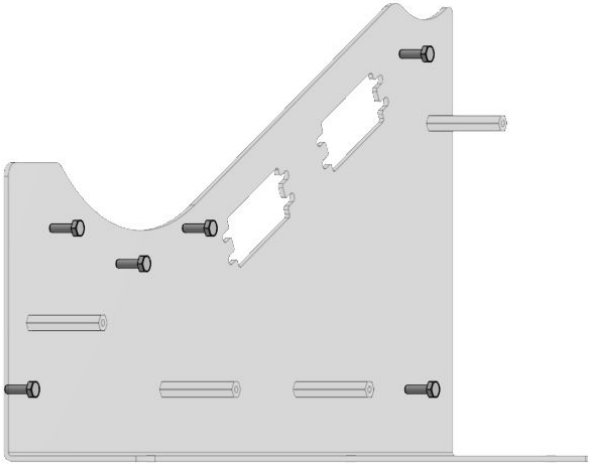


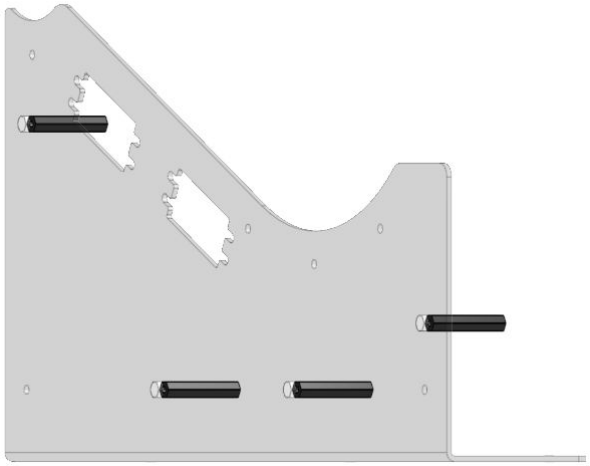
Install four (4) M3 x 30mm standoffs to the screws from Step 1. Standoffs should be tightened just past hand-tight.

3

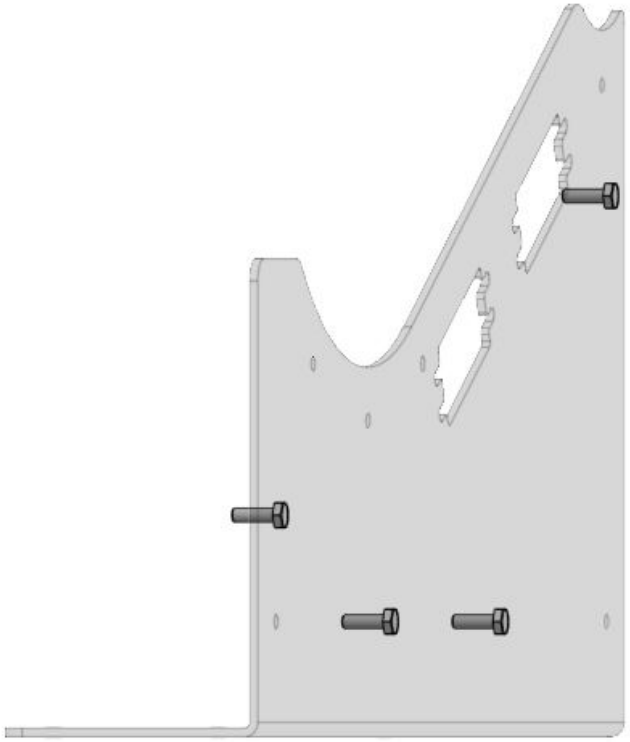


Insert six (6) M3 x 10mm Hex Cap Screws into the Ramp Plate as shown. Orient the screws so that the threaded ends are opposite of the flange.

4

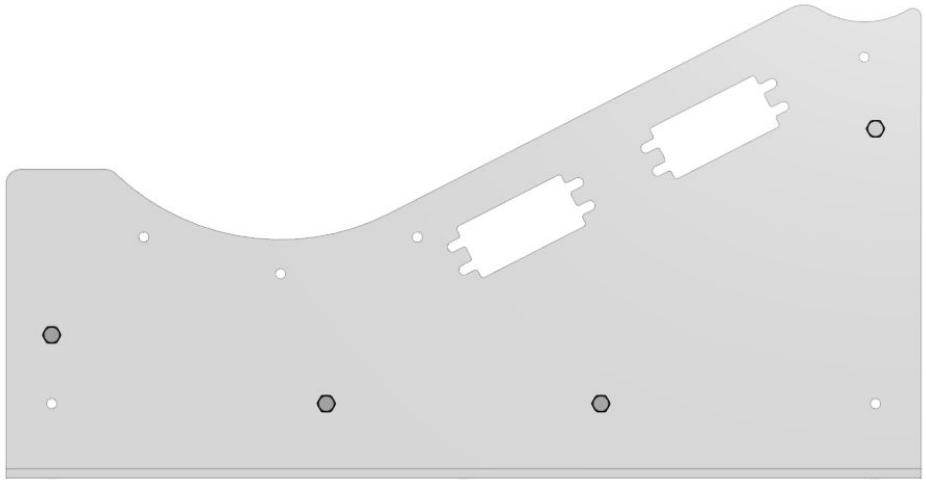


Install six (6) M3 x 30mm standoffs to the screws from Step 3. Standoffs should be tightened just past hand-tight.

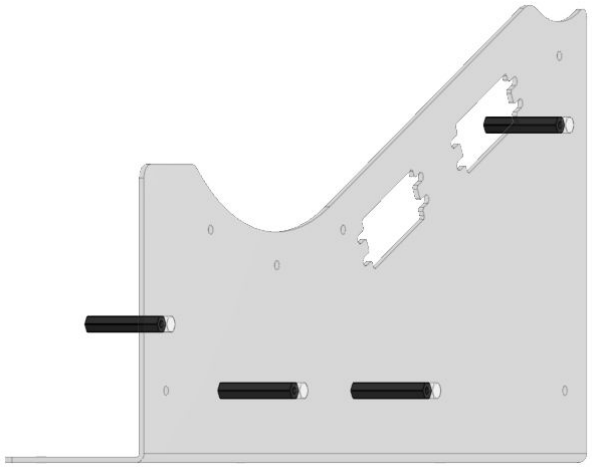


Insert four (4) M3 x 10mm Hex Cap Screws into the Ramp Plate as shown. Orient the screws so that the threaded ends are on the same side as the flange.

Note: The two Ramp Plates in this kit are mirrored. To identify the Ramp Plate used in this step, lay both flat on a table with the rectangular flange facing up. The "ramp" of the Ramp Plate needed here will slope down to the **right**.

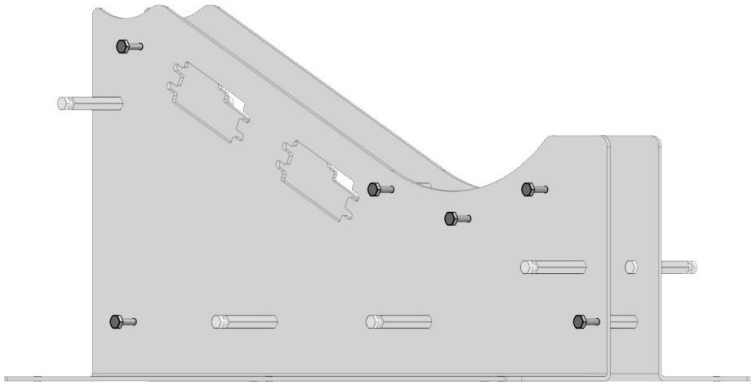


6



Install four (4) M3 x 30mm standoffs to the screws from Step 1. Standoffs should be tightened just past hand-tight.

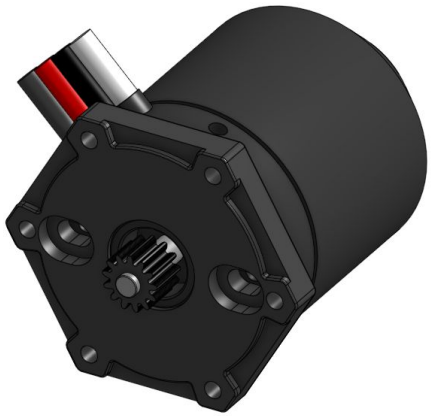
7



Insert six (6) M3 x 10mm Hex Cap Screws into the Ramp Plate as shown. Orient the screws so that the threaded ends are opposite of the flange.

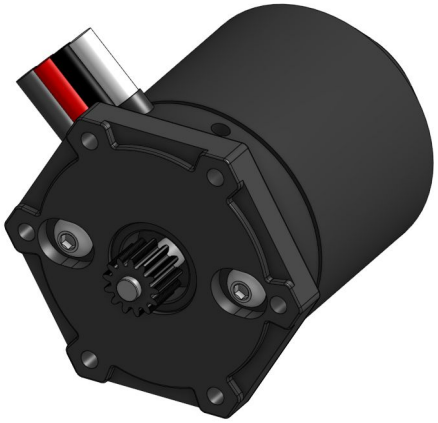
Note: Set this aside for a later step.

8



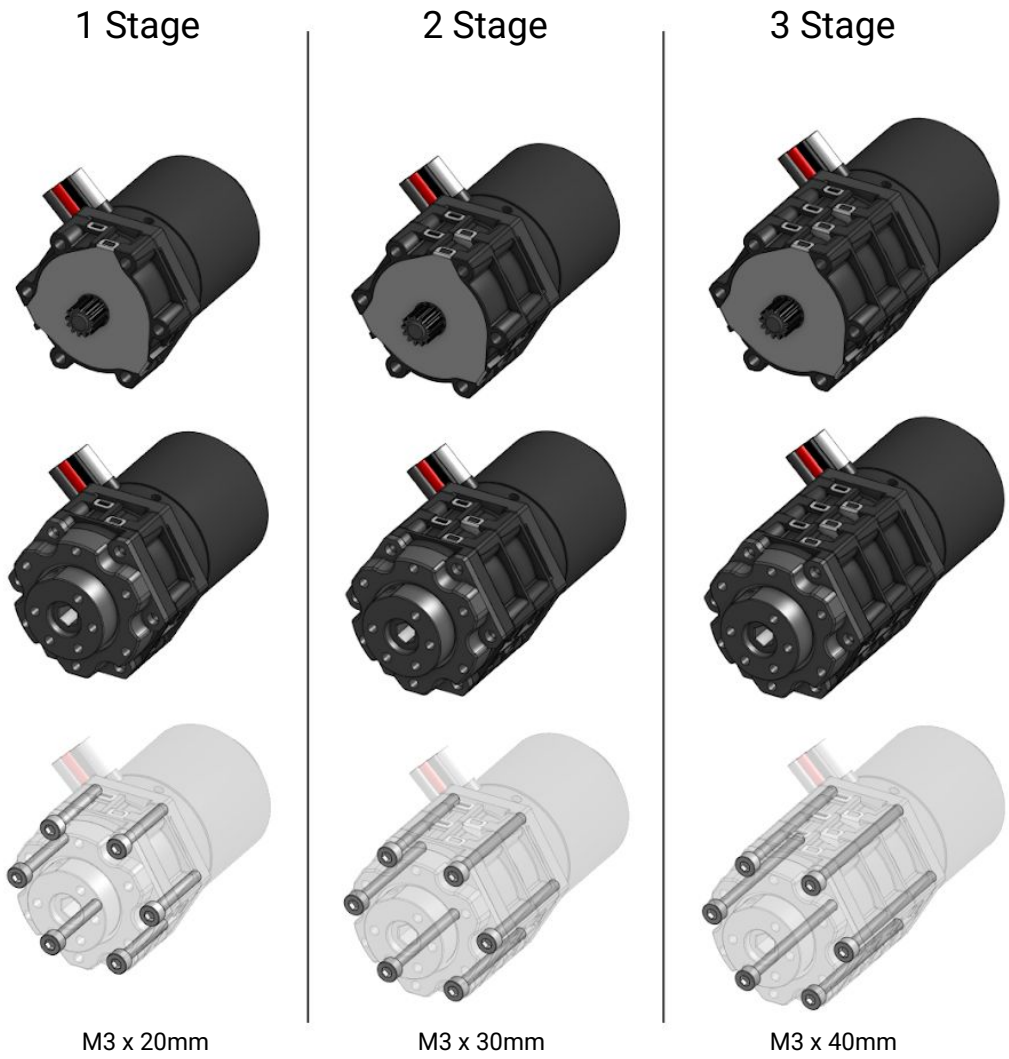
Press the flat side of the UltraPlanetary Mounting Plate against the face of the NEO 550.

9



Secure the UltraPlanetary Mounting Plate to the NEO 550 using two (2) M3 x 8mm Button Head Screws.

10



Decide the gear ratio you are going to use. You can create a Single Stage, Two Stage, or Three Stage Gearbox.

a) Place the selected amount of Gear Cartridge(s) onto the input pinion. Placing a finger on the output of the Cartridge helps with placement.

b) Place the Output Cartridge onto the output of the Gear Cartridge.

c) Insert the corresponding length six (6) M3 Socket Head Screws into the outer recessed ring of the UltraPlanetary Gearbox's Output. Then, evenly tighten them in a star pattern until hand-tight. Take care not to over-tighten the gearbox housing screws. Hand tight is enough to keep the gearbox assembled.

Note: The rest of these instructions will be depicting a Single Stage Gearbox but the steps will be the same regardless of your choice in this step.

11

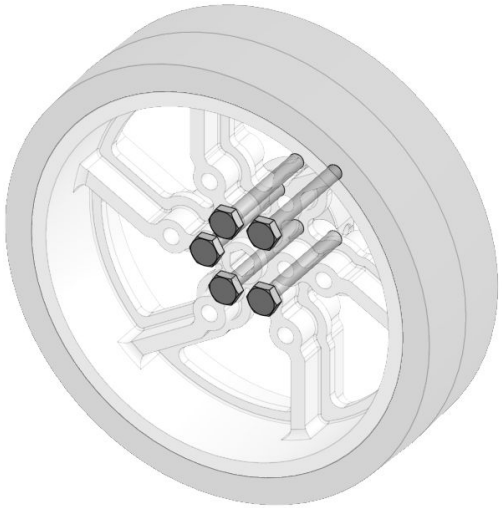
Insert the 135mm long 5mm Hex Shaft into the UltraPlantetary Gearbox's Output.

12

Insert the set screw into the output stage and tighten it to secure the 5mm Hex Shaft.

Note: Set this aside for a later step.

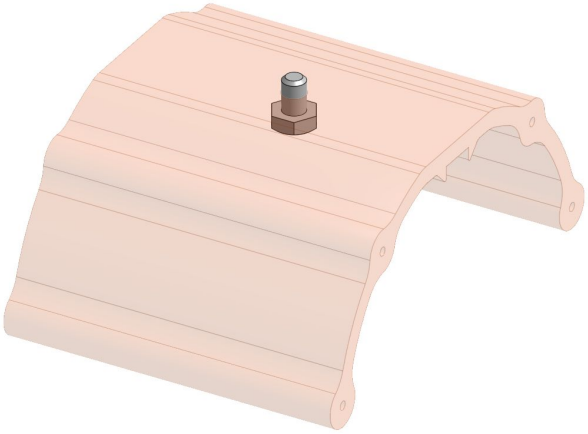
13



Install install a Locking Motion Hub onto a 90mm Grip Wheel with five (5) M3 x 25mm Hex Cap screws.

Note: Set this aside for a later step.

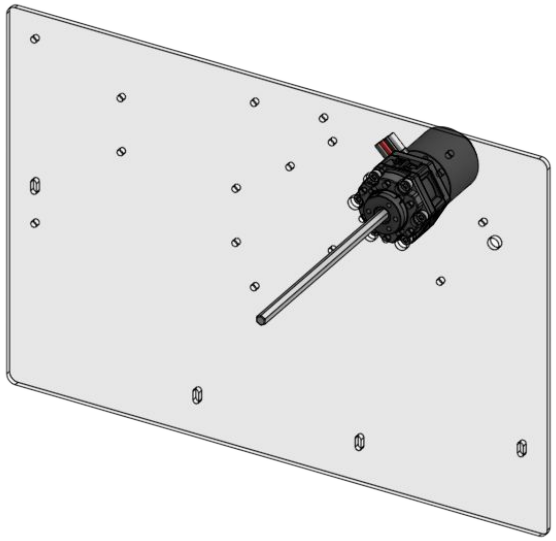
14

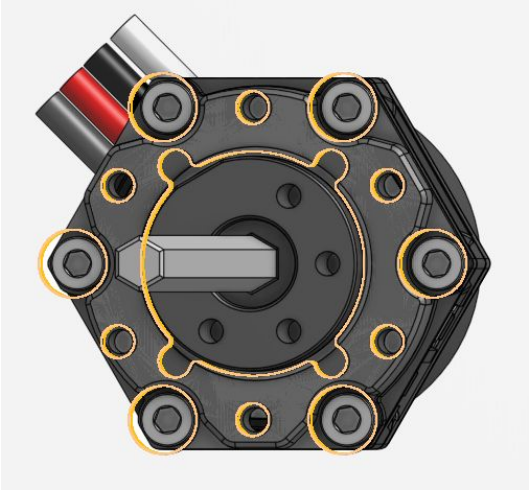


Insert the Camera Mount bolt through the Wheel Cover aligning the bolt head with the grooves in the Wheel Cover. Then screw the Camera Mount onto the bolt.

Note: Set this aside for a later step.

15

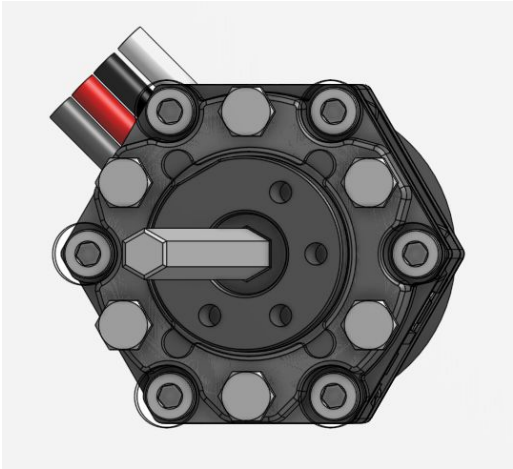




Insert the UltraPlanetary Gearbox and Hex Shaft through a Polycarbonate Side Plate. Align the mounting holes on the UltraPlanetary Gearbox with the holes in the Side Plate as shown.

Note: The two Polycarbonate Side Plates are identical. You can use either plate for this step.

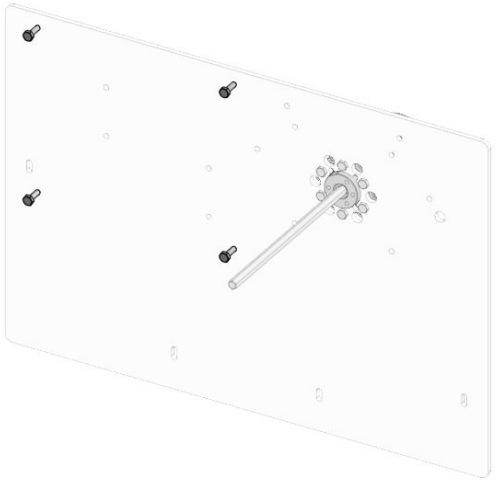
16



Secure the UltraPlanetary Gearbox to the Side Plate with six (6) M3 x 10mm Hex Cap screws.

Note: **DO NOT** use threadlocker on these screws or any screws that are near the Polycarbonate Side Plates.

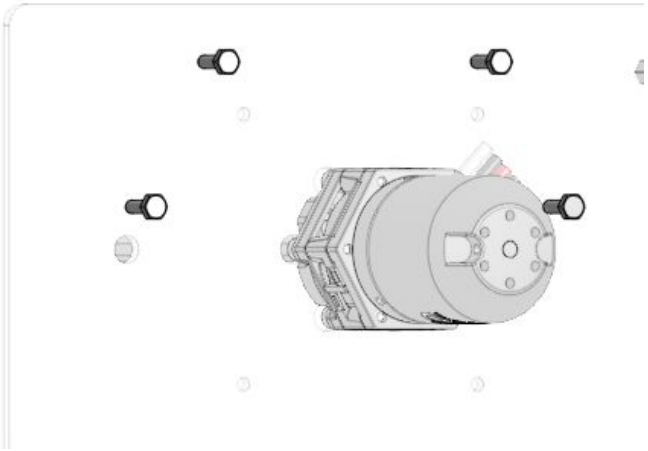
17



Insert four (4) M3 x 10mm Hex Cap Screws into the Side Plate as shown.

Note: **DO NOT** use threadlocker on these screws or any screws that are near the Polycarbonate Side Plates.

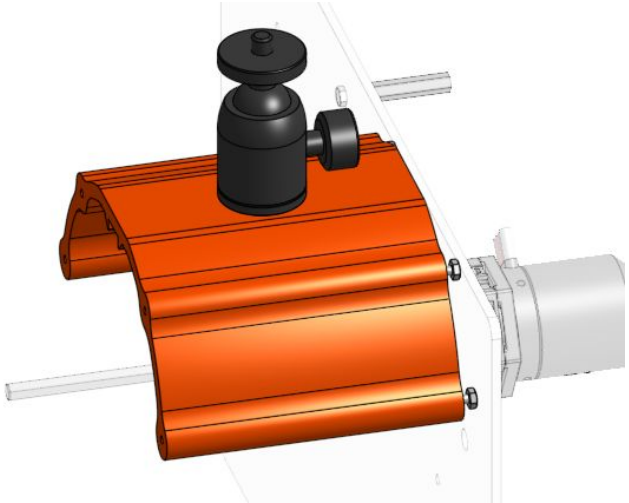
18



Insert four (4) M3 x 10mm Hex Cap Screws into the Side Plate as shown.

Note: **DO NOT** use threadlocker on these screws or any screws that are near the Polycarbonate Side Plates.

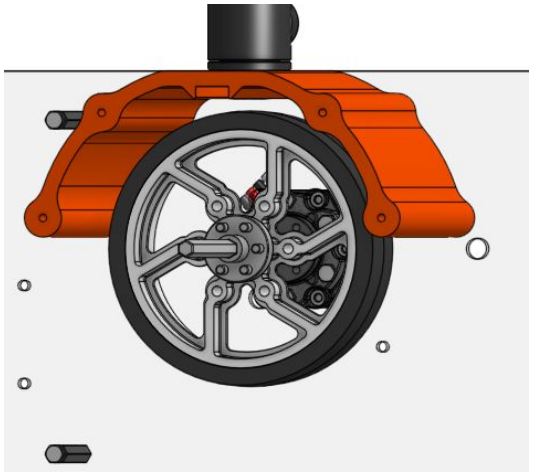
19



Install the Wheel Cover to the screws from Step 5. These screws should be tightened just past hand-tight.

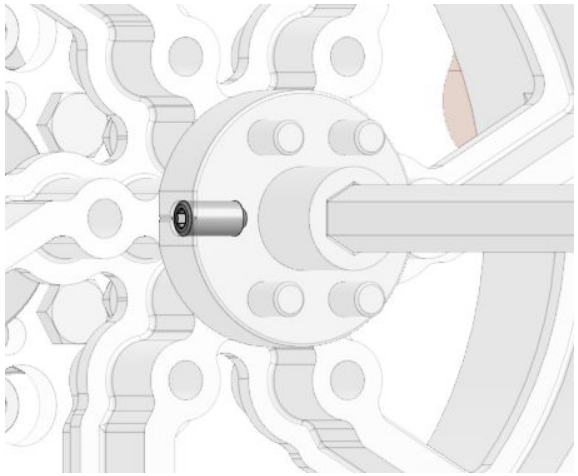
Note: **DO NOT** use threadlocker on these screws or any screws that are near the Polycarbonate Side Plates.

20



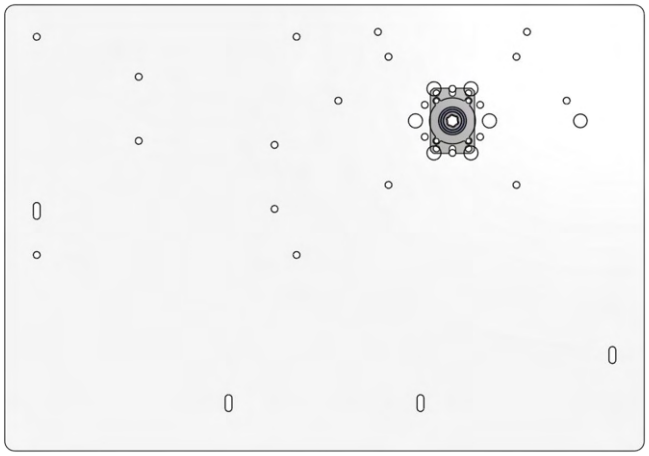
Install the 90mm Grip Wheel onto the 5mm Hex Shaft as shown. Center the wheel with the Wheel Cover.

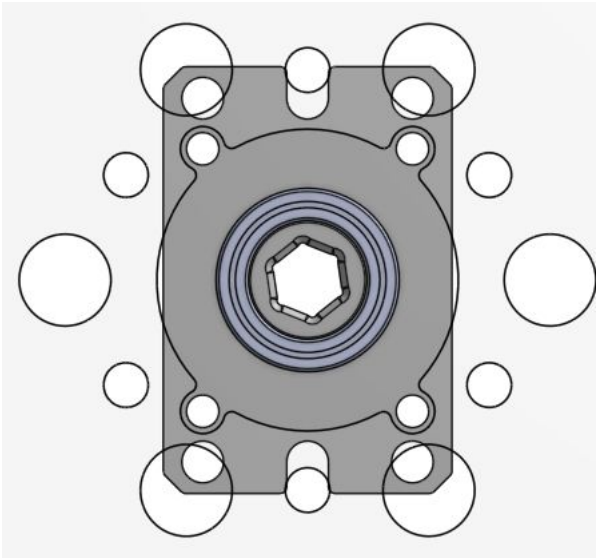
21



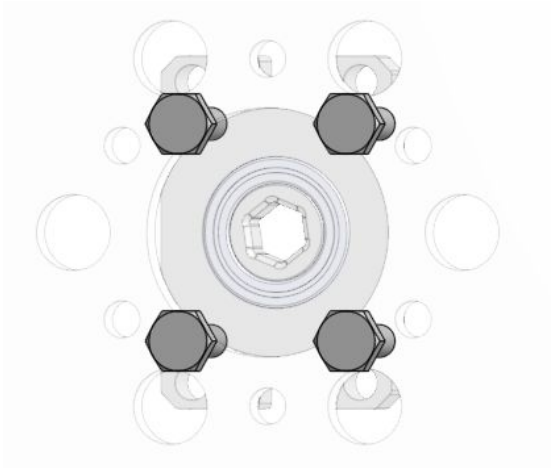
Insert the set screw into the Locking Motion Hub and tighten it to secure the Wheel onto 5mm Hex Shaft.

22





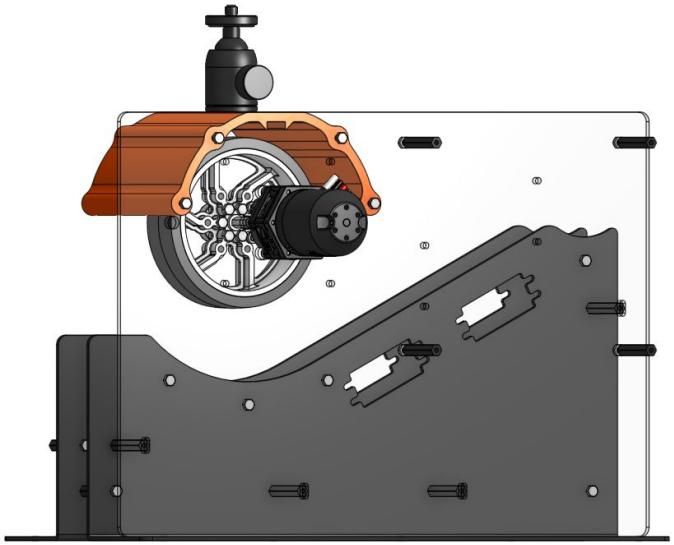
Align the mounting holes on the 5mm Hex Bearing Block with the mounting holes in the Polycarbonate Side Plate as shown.

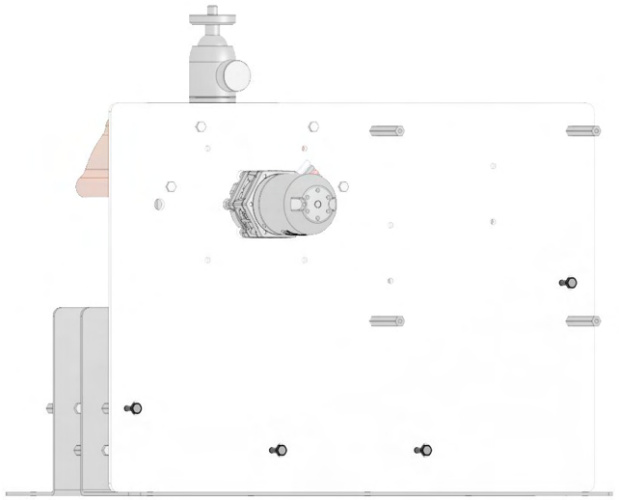


Secure the 5mm Hex Bearing Block with four (4) M3 x 10mm Hex Cap Screws.

Note: **DO NOT** use threadlocker on these screws or any screws that are near the Polycarbonate Side Plates.

24

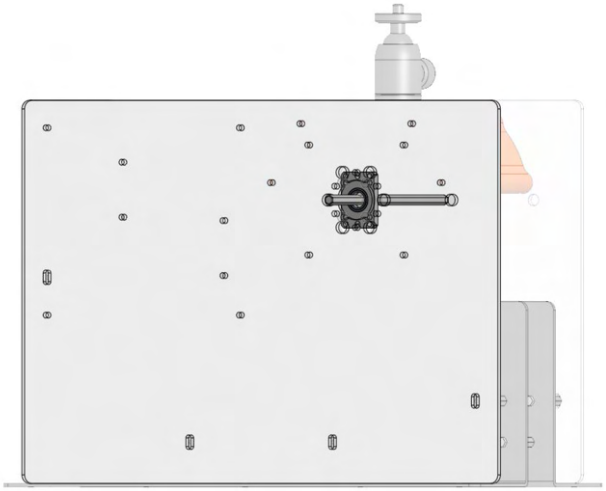




Align the First Side Plate with the Standoffs from Ramp Plate Assembly step 2 on the right Ramp Plate. Secure the Polycarbonate Side Plate with four (4) M3 x 10mm Hex Cap Screws.

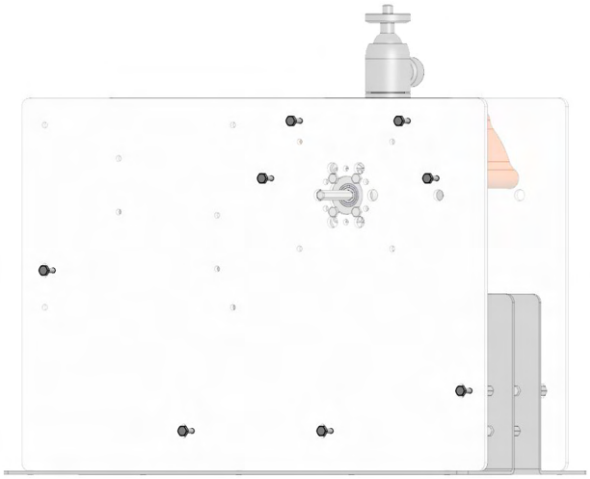
Note: **DO NOT** use threadlocker on these screws or any screws that are near the Polycarbonate Side Plates.

25



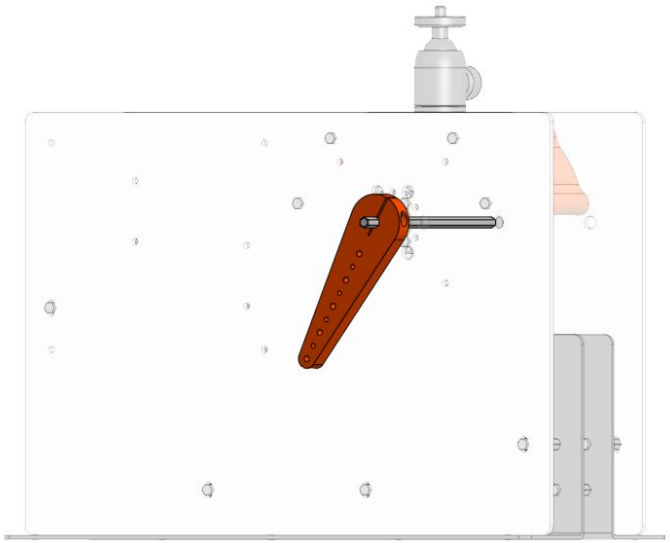
Align the Second Side Plate with the Standoffs and Wheel Cover as shown.

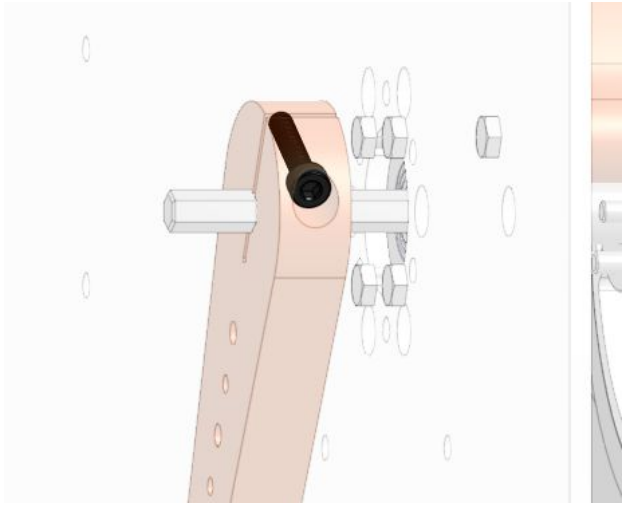
26



Secure the Polycarbonate Side Plate with eight (8) M3 x 10mm Hex Cap Screws.

Note: **DO NOT** use threadlocker on these screws or any screws that are near the Polycarbonate Side Plates.



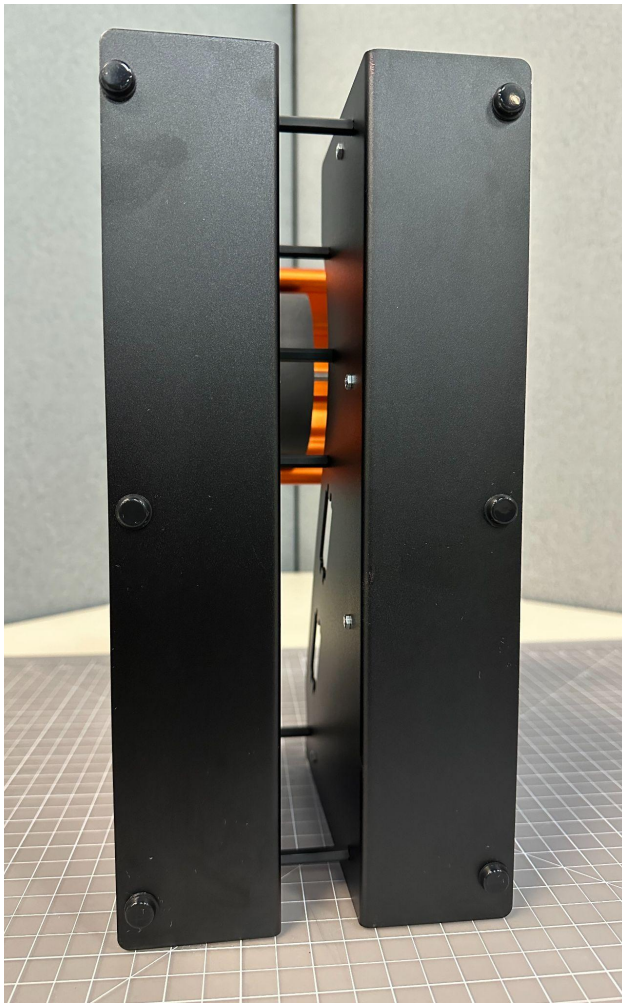


Optional Step

Slide the Arm Assembly onto the 5mm Hex Shaft. Tighten the M3 x 16mm Socket Head Screw included in the Arm Assembly to secure the Arm.

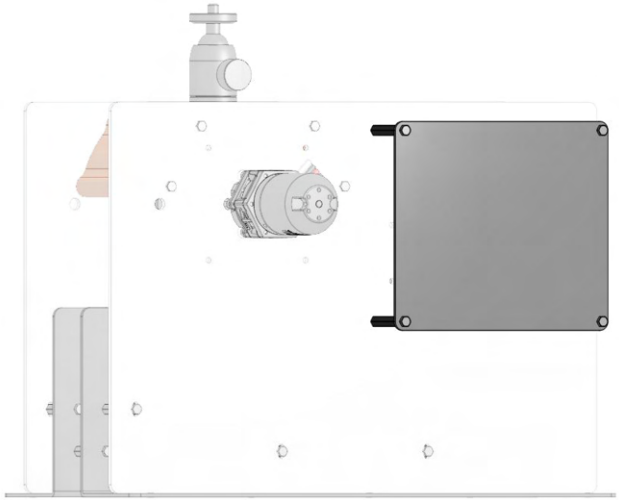
Note: **DO NOT** operate the motor with the Arm installed.

28



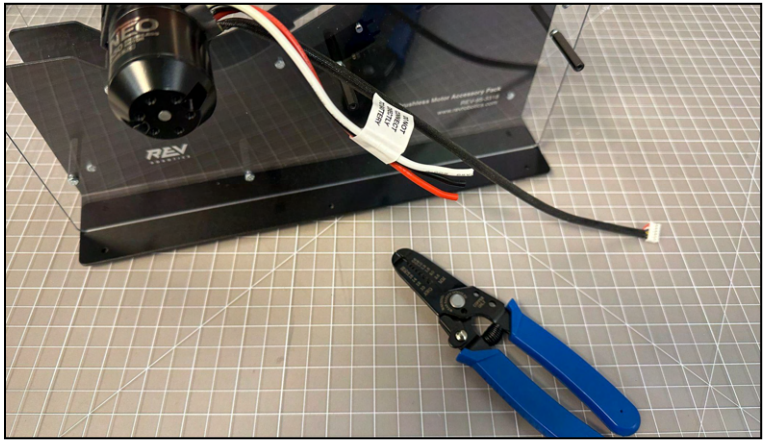
Press the 6 foot pads onto the marked locations on the bottom of your two Ramp Plates.

29



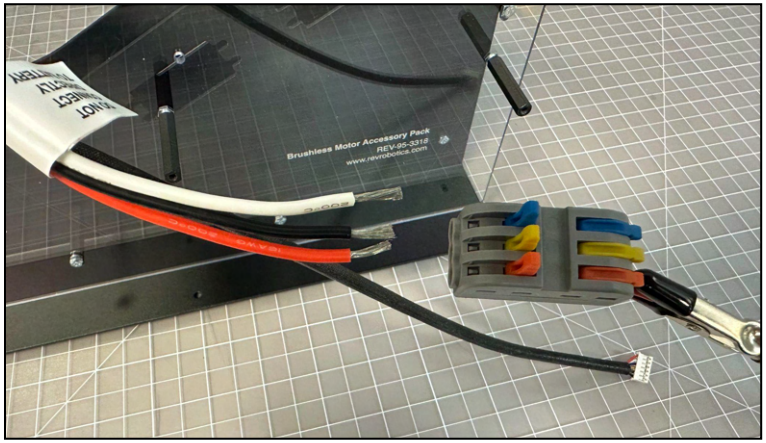
Secure the K24 SOM Development Board(Not Included) with four (4) M3 x 10mm Hex Cap Screws

30



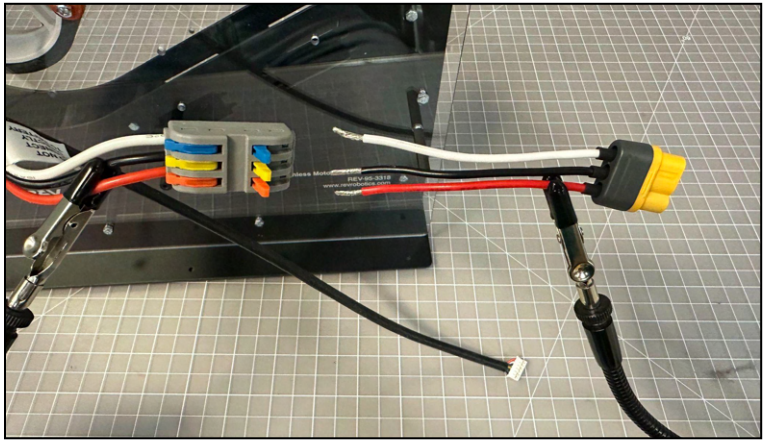
Strip the 16AWG wires of the NEO 550 to expose 10mm of wire.

31



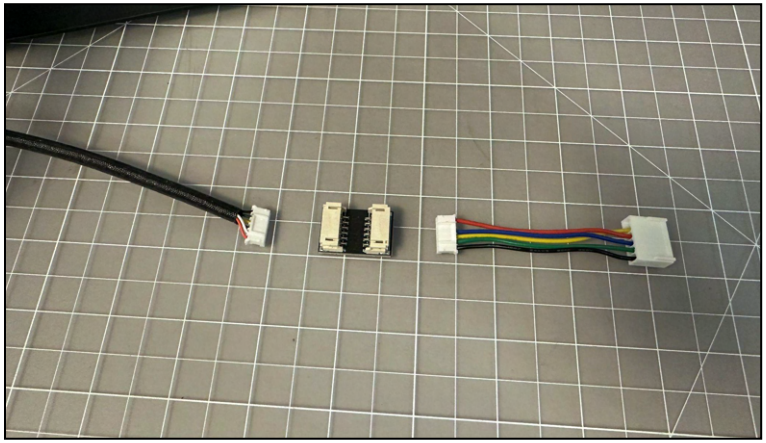
Flip open all three latches on one side of the wire connector. Insert the stripped wires from the NEO until you feel the ends of the wires contact the end of the connector then close the latch. There should be no exposed wire.

32



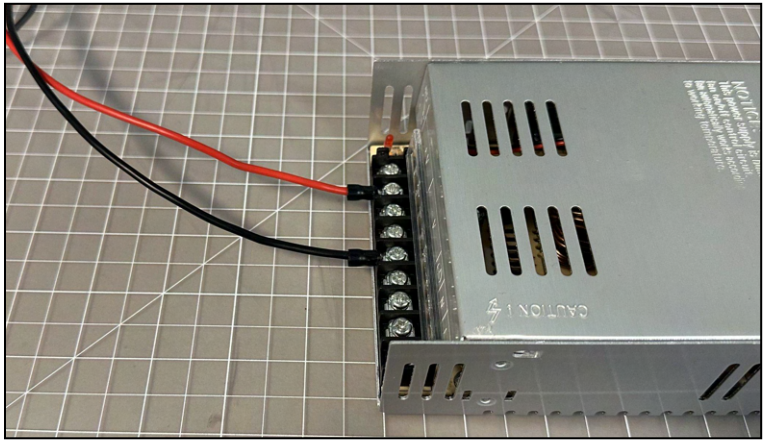
Flip open all three latches on the opposite side of the wire connector than the NEO 550. Insert the stripped wires of Phase Wire Pigtail - MR60 until you feel the ends of the wires contact the end of the connector then close the latch. There should be no exposed wire.

33



Connect the sensor wire of the NEO 550 to the to the 6 Pin Joiner Board and the 6 pin JST to SOM Sensor cable to the other end of the Joiner Board.

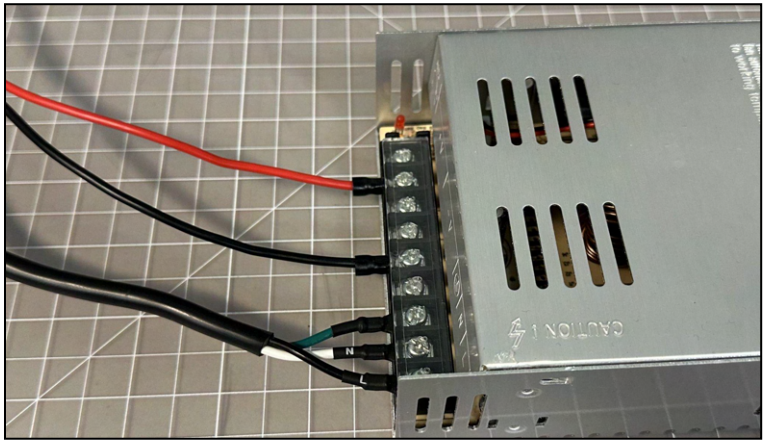
34



The clear plastic cover over the Power Supply's terminals is marked with numbers for each terminal. With a flat head screwdriver loosen the 2 and 5 terminals. The Power Supply Cable Pigtail (to SOM) has two wires, the Black Ground wire and the Red Positive wire. Insert the Ground fork (Black) into the 5 terminal and tighten the screw. Insert the Positive fork (Red) into the 2 terminal and tighten the screw.

Note: The wire forks should be underneath the metal squares on the power terminals and not just the screws. See photo for example.

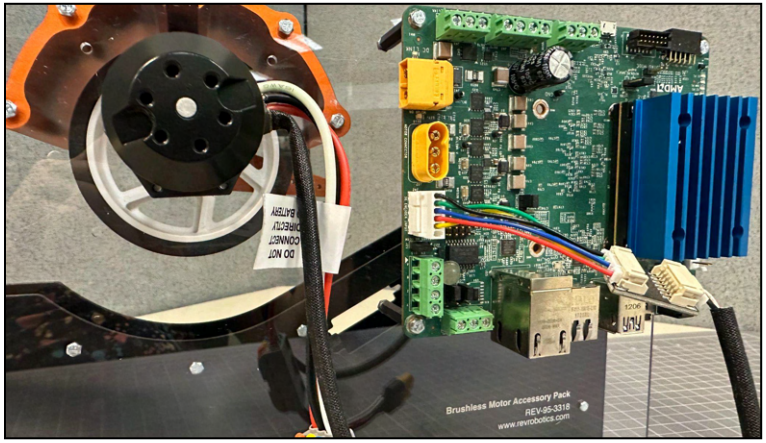
35



With a flat head screwdriver loosen the 7, 8, and 9 terminals. The Power Supply Main Cable has three wires, the Green Ground wire, the White Neutral wire, and the Black Live wire. Insert the Ground fork (Green) into the 7 terminal and tighten the screw. Insert the Neutral fork (White) into the 8 terminal and tighten the screw. Insert the Live fork (Black) into the 9 terminal and tighten the screw.

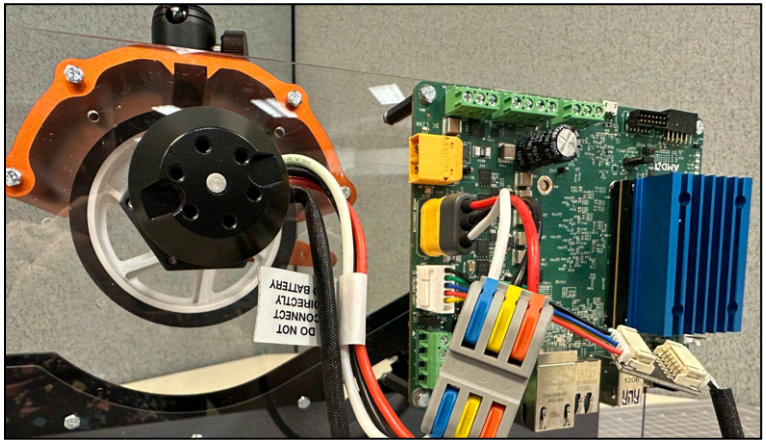
Note: The wire forks should be underneath the metal squares on the power terminals and not just the screws. See photo for example.

36



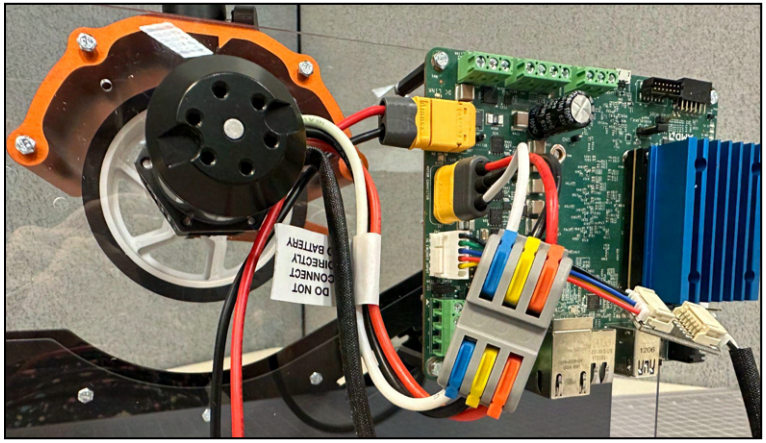
Connect the NEO 550's Sensor cable to the K24 SOM Development Board.

37



Connect the NEO 550's Power cable to the K24 SOM Development Board.

38



Connect the Main Power Supply to the K24 SOM Development Board.

You are ready to start testing with your K24 SOM Development Board and REV Robotics Brushless Motor Accessory Pack.