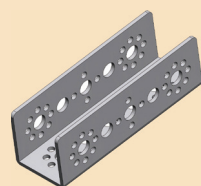


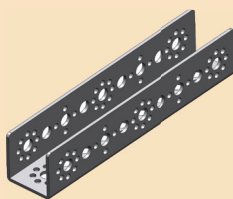
Arm and Gripper Building Guide

Step 1

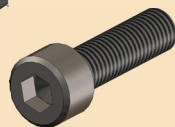
Parts Needed



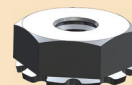
1x 96 mm Channel



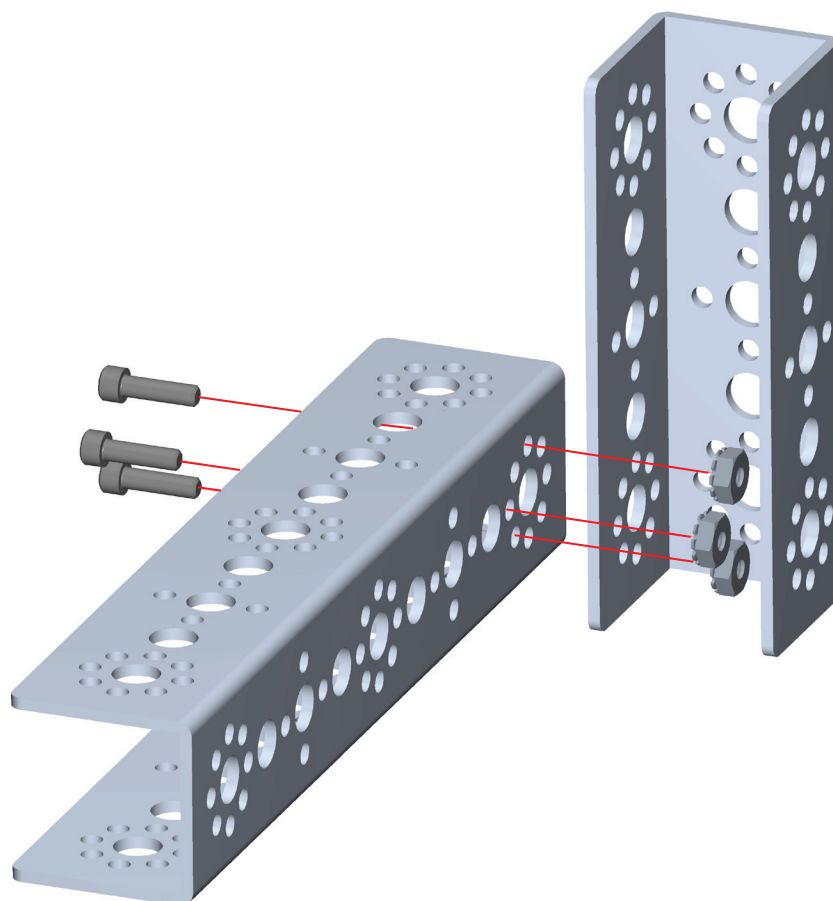
1x 160 mm Channel



3x 1/2" SHCS



3x Kep Nut



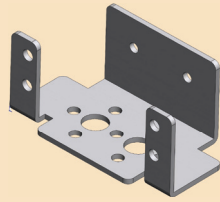
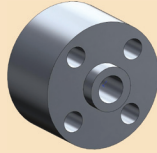
Tips

- Make sure all the internal screws are very secure, as they will be hard to retighten later.
- The 7/64", 5/64" and 3/32" hex keys will be needed to build this model.
- Use the 7/64" hex key for these screws throughout the model.
- Ensure that the teeth of the nut face the head of the screw.

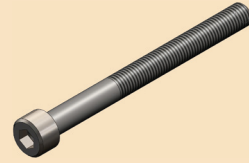
Arm and Gripper Building Guide

Step 2

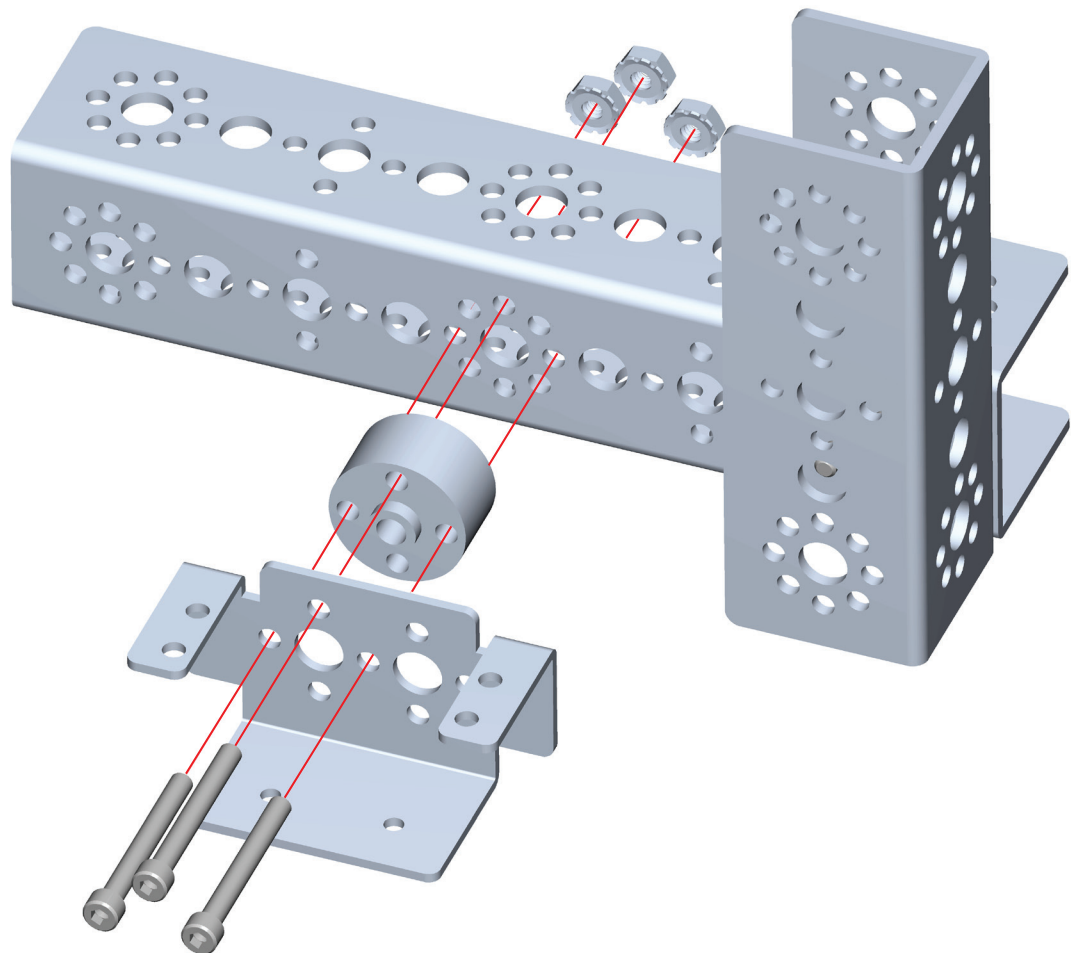
Parts Needed

1x Single-Servo Motor
Bracket1x Gear Hub
Spacer

3x Kep Nut



3x 1.5" SHCS



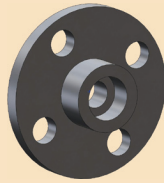
Tips

- Ensure that all screws are tightly secured at this point, as they will not be easily accessible later.
- Reminder: Ensure that the teeth of the nut face the head of the screw.

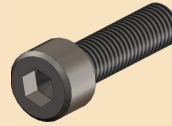
Arm and Gripper Building Guide

Step 3

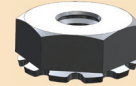
Parts Needed

1x 40-Tooth
Gear

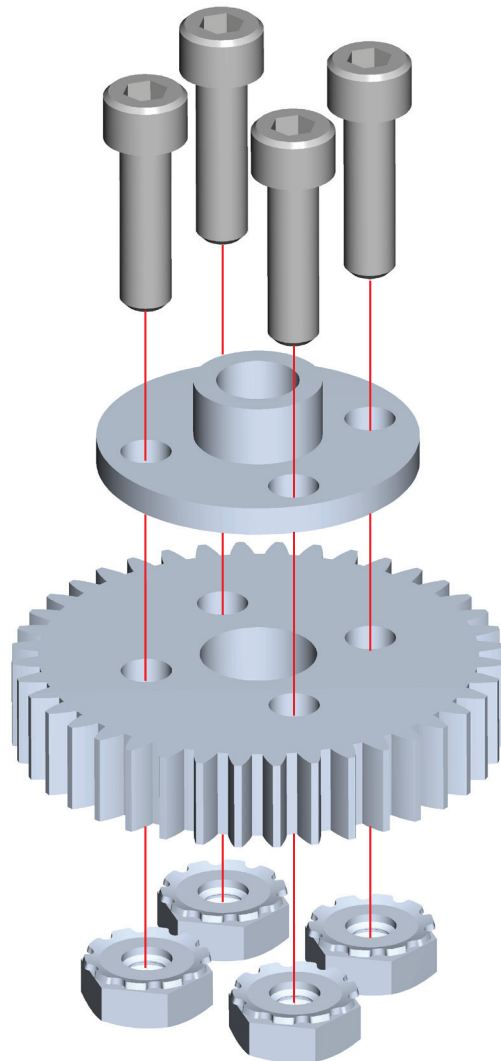
1x Servo Horn



4x 1/2" SHCS



4x Kep Nut



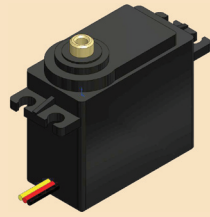
Tip

- Ensure that the teeth of the nuts are facing the gear.

Arm and Gripper Building Guide

Step 4

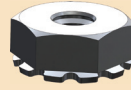
Parts Needed



1x 180° Servo Motor



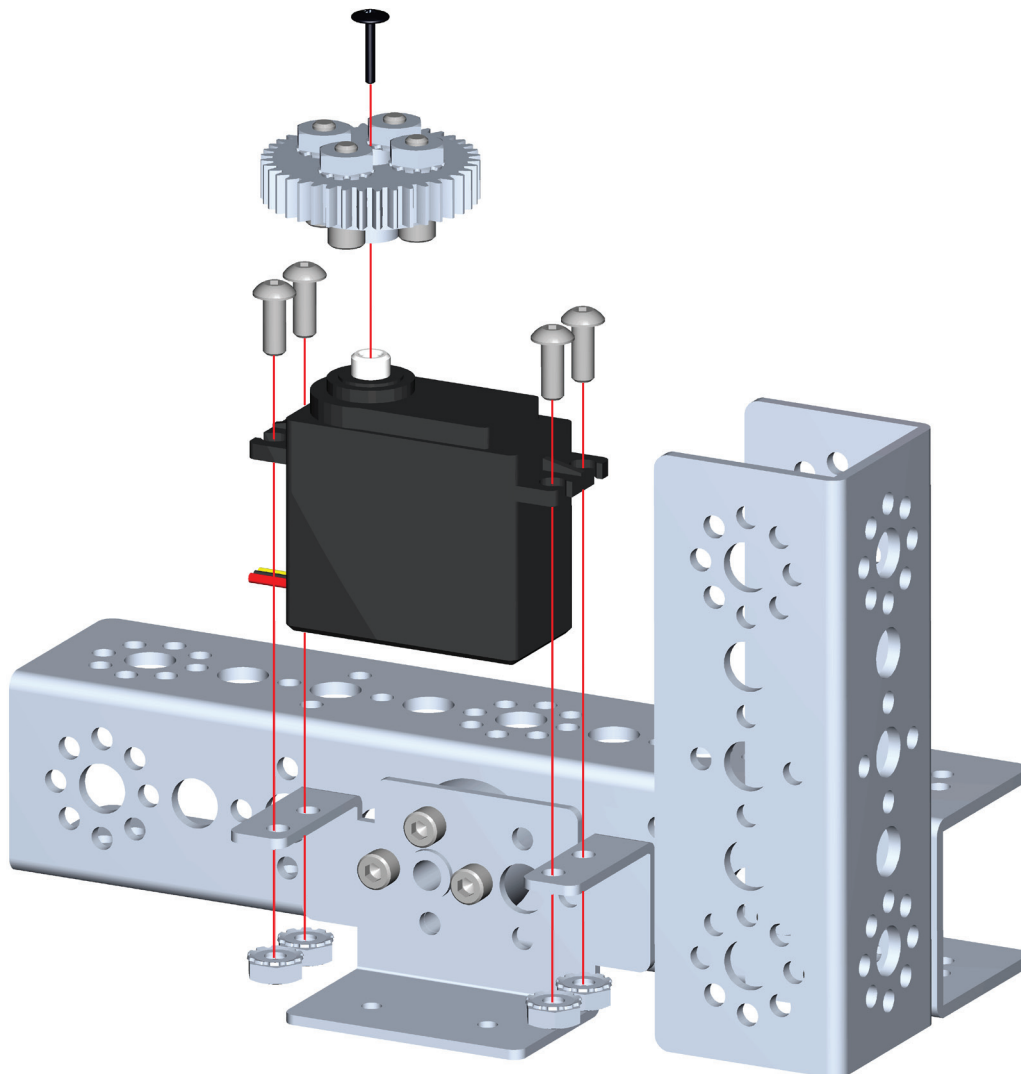
4x 3/8" BHCS



4x Kep Nut



1x Servo Screw



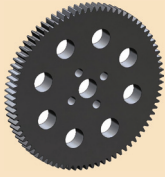
Tips

- Use the Phillips head on the 4-in-1 screwdriver to tighten the servo screw. This will keep the servo horn attached to the servo motor.
- Use the 5/64" hex key for the BHCS.

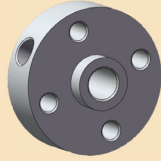
Arm and Gripper Building Guide

Step 5

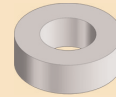
Parts Needed

1x 80-Tooth
Gear

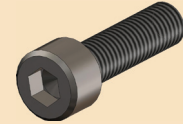
1x 100 mm Axle



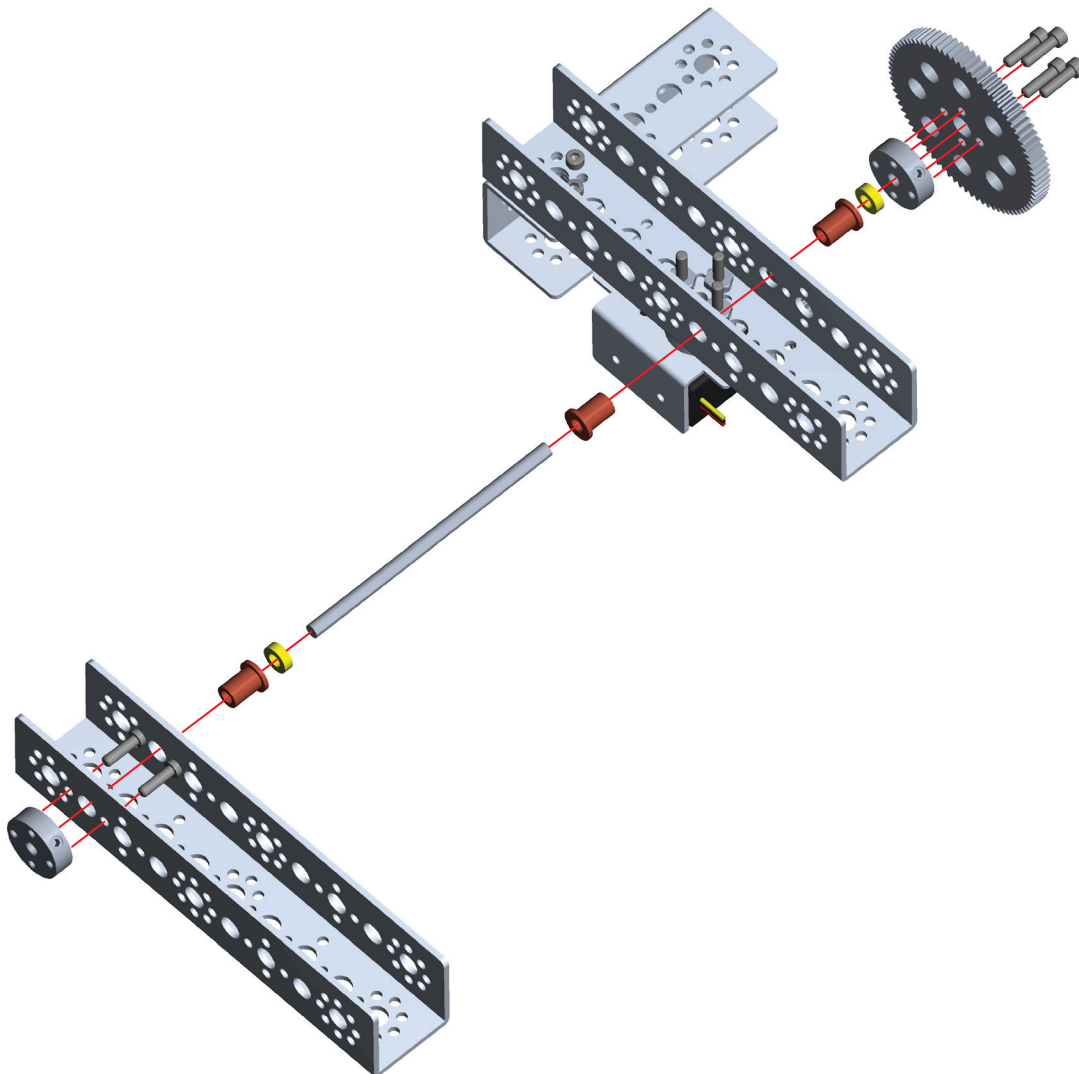
2x Axle Hub

3x Bronze
Bushing

2x 1/8" Axle Spacer



6x 1/2" SHCS



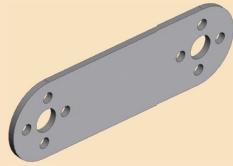
Tip

- The 3/32" hex key is used on the axle hubs.

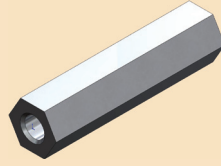
Arm and Gripper Building Guide

Step 6

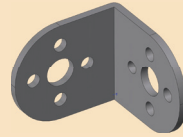
Parts Needed



2x Flat Bracket



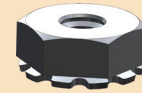
2x 1" Stand-Off Post



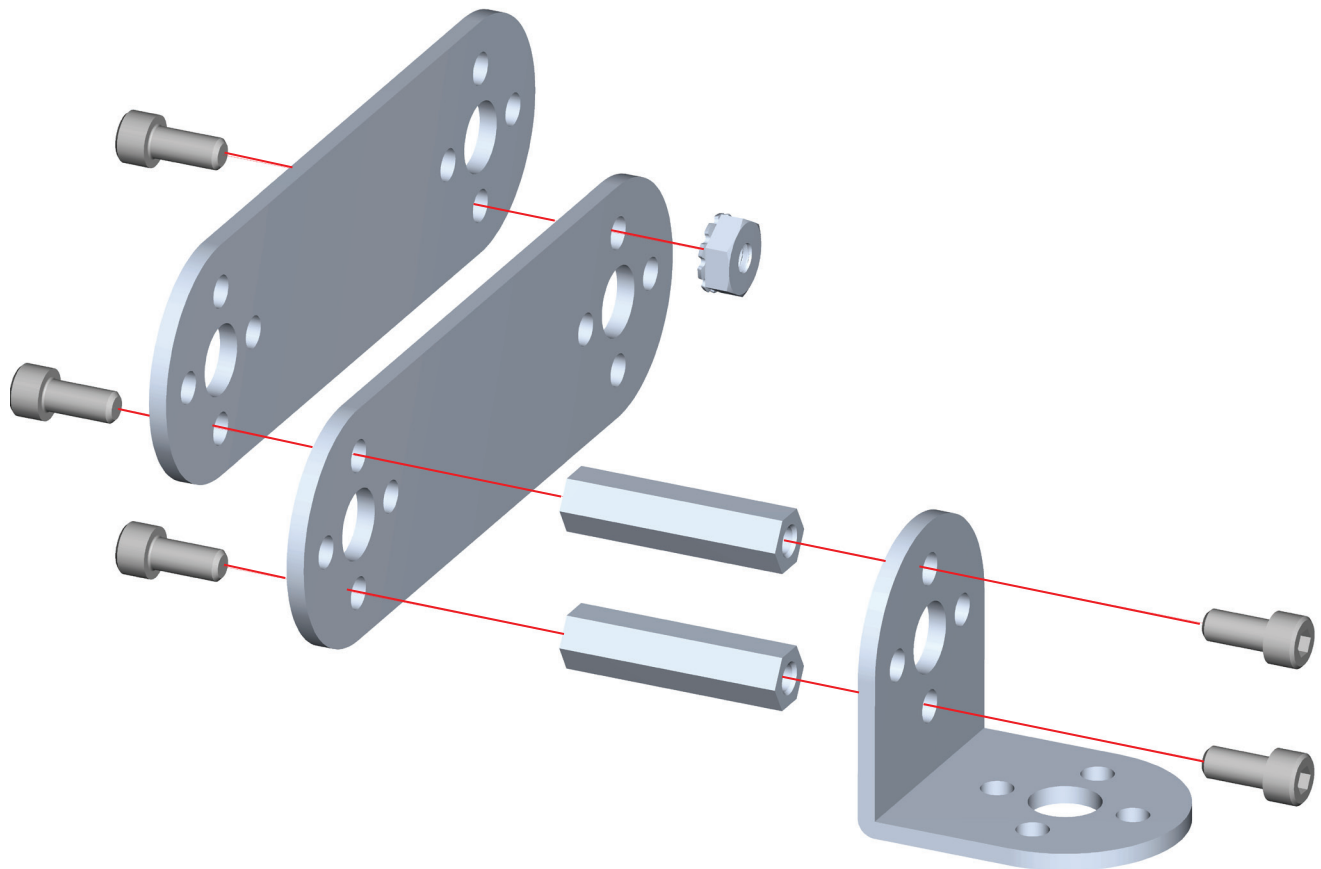
1x L Bracket



5x 5/16" SHCS



1x Kep Nut



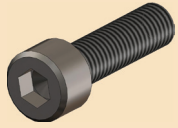
Tip

- Reminder: Ensure that the teeth of the nut face the head of the screw.

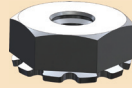
Arm and Gripper Building Guide

Step 7

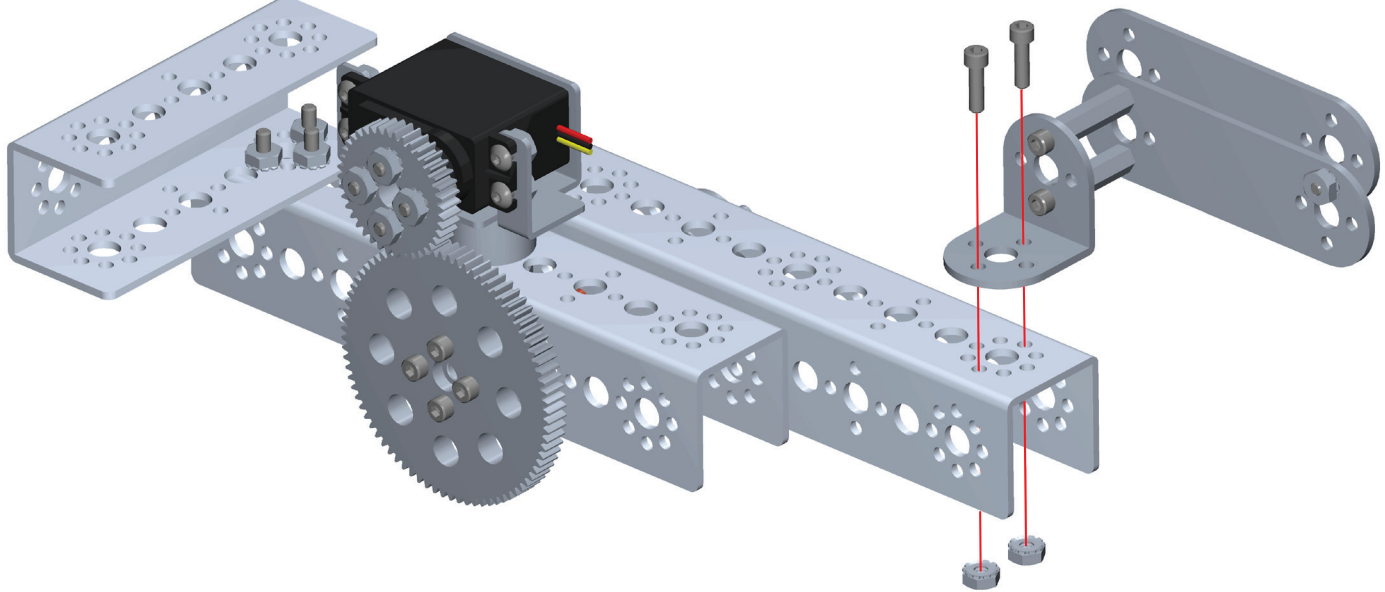
Parts Needed



2x 1/2" SHCS



2x Kep Nut



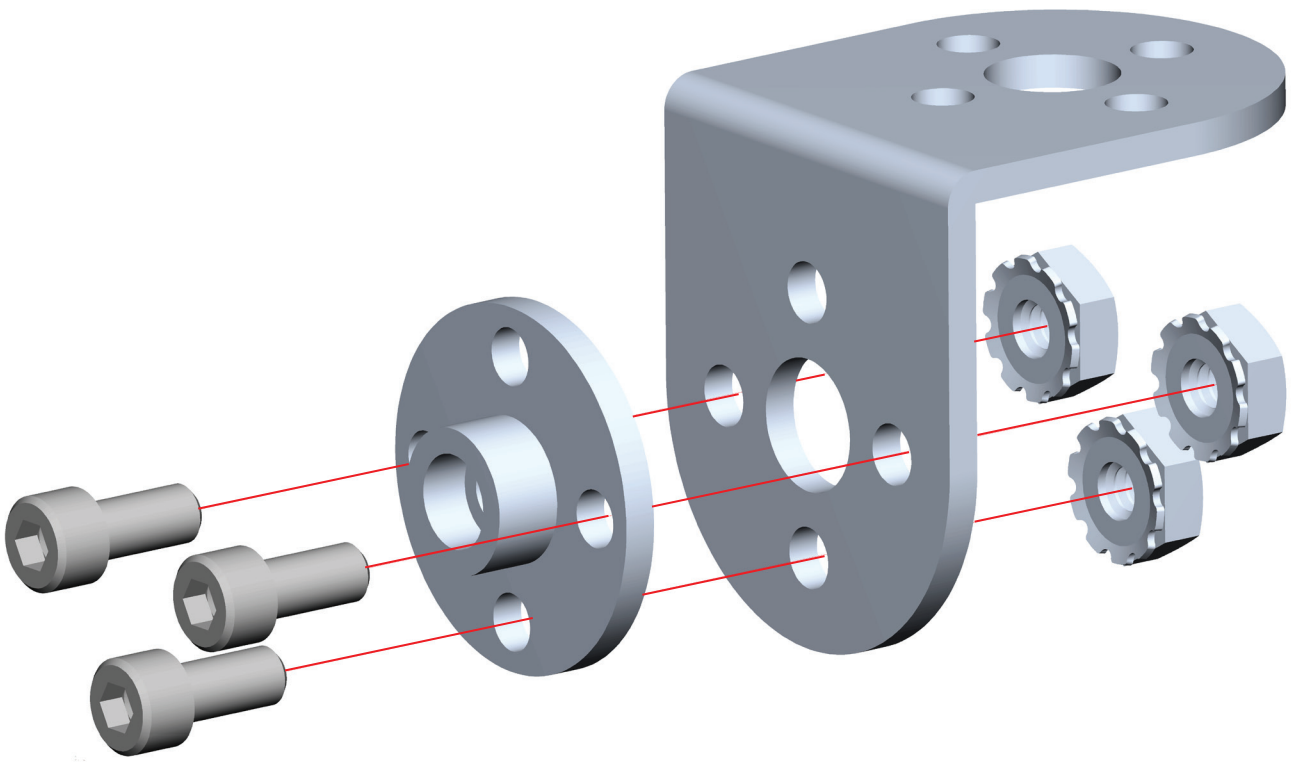
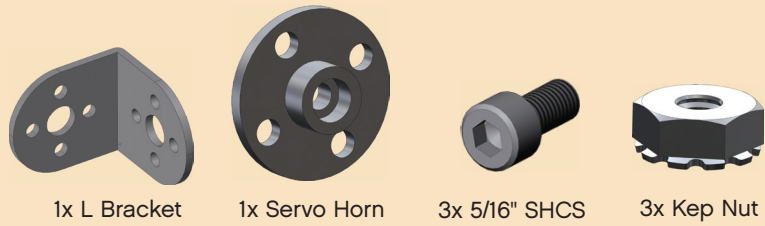
Tip

- Reminder: Ensure that the teeth of the nut face the head of the screw.

Arm and Gripper Building Guide

Step 8

Parts Needed

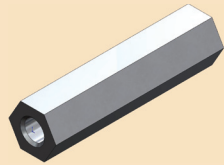
**Tip**

- Reminder: Ensure that the teeth of the nut face the head of the screw.

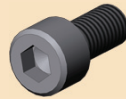
Arm and Gripper Building Guide

Step 9

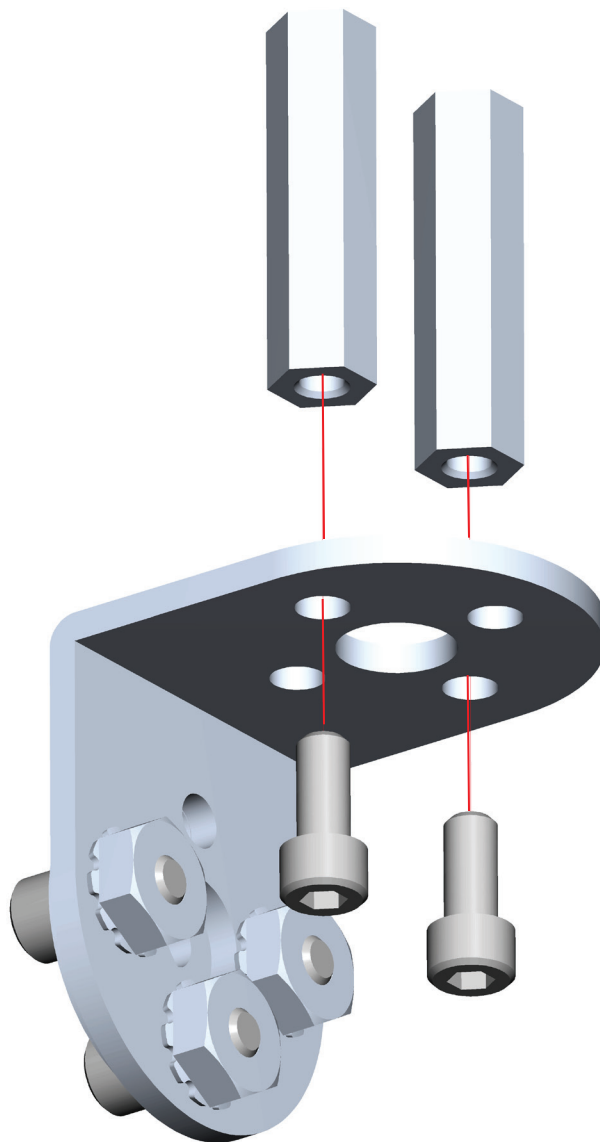
Parts Needed



2x 1" Stand-Off Post



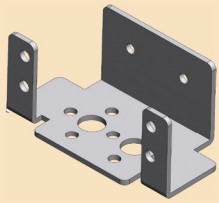
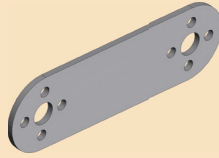
2x 5/16" SHCS



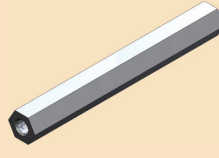
Arm and Gripper Building Guide

Step 10

Parts Needed

1x Single-Servo Motor
Bracket

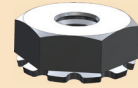
1x Flat Bracket



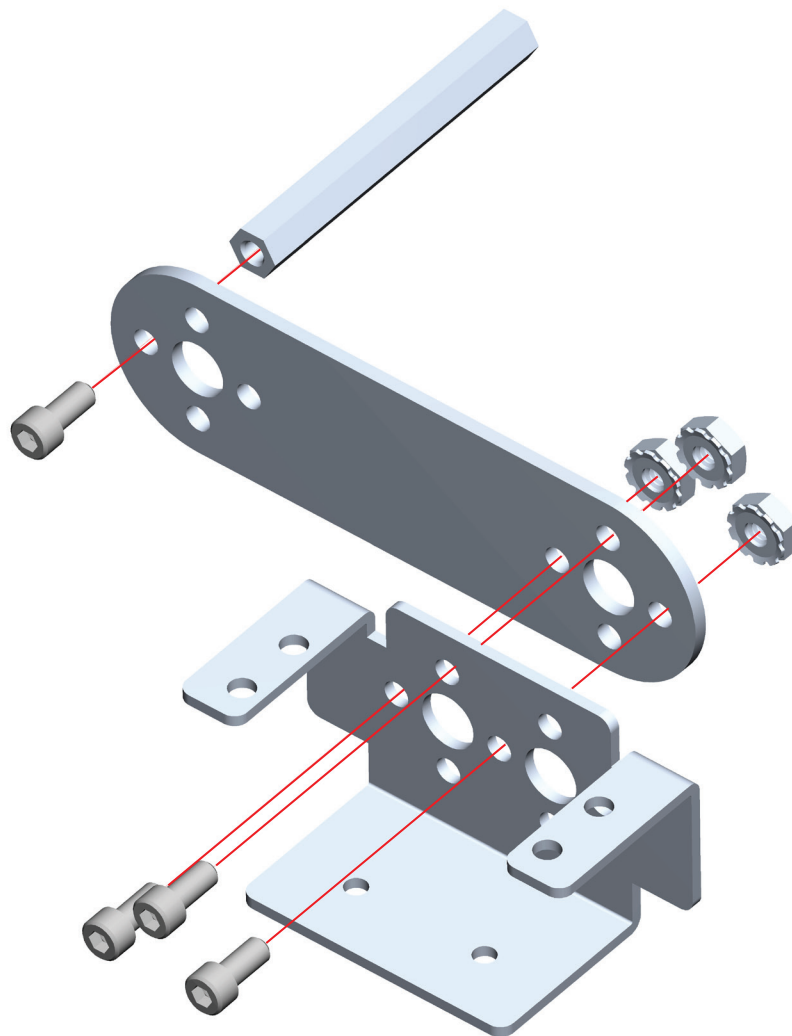
1x 2" Stand-Off Post



4x 5/16" SHCS



3x Kep Nut



Tip

- Reminder: Ensure that the teeth of the nut face the head of the screw.

Arm and Gripper Building Guide

Step 11

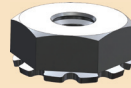
Parts Needed



1x 180° Servo Motor



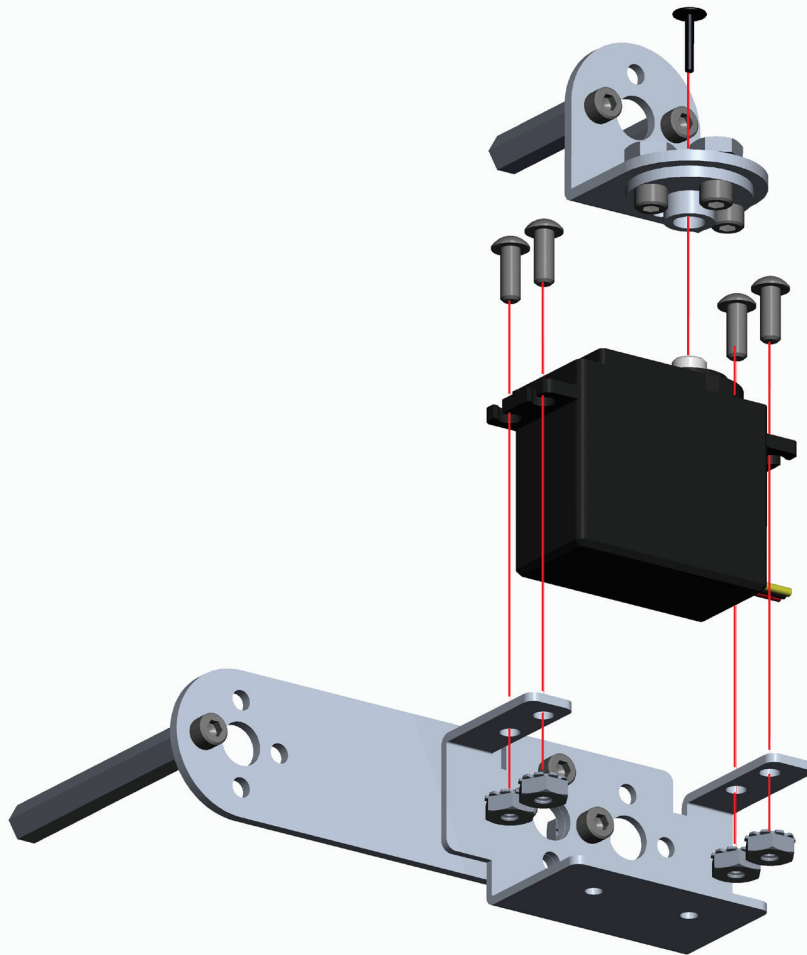
4x 3/8" BHCS



4x Kep Nut



1x Servo Screw



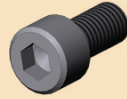
Tip

- Use the Phillips head on the 4-in-1 screwdriver to tighten the servo screw. This will keep the servo horn attached to the servo motor.

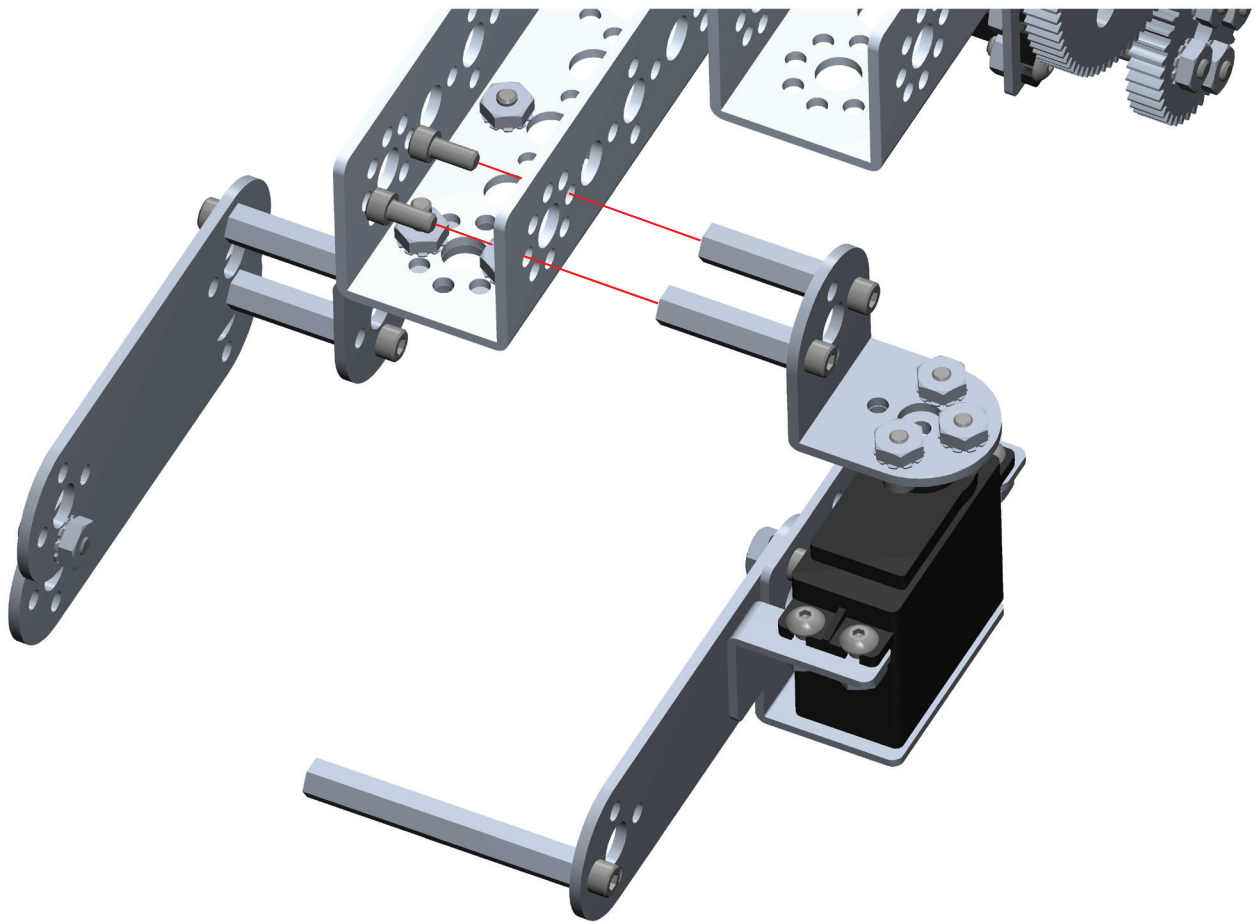
Arm and Gripper Building Guide

Step 12

Parts Needed



2x 5/16" SHCS

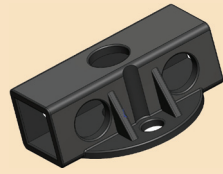
**Tip**

- To keep the arm oriented properly, tighten the screws bit by bit, alternating between them.

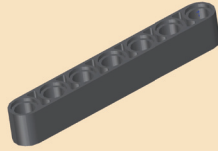
Arm and Gripper Building Guide

Step 13

Parts Needed



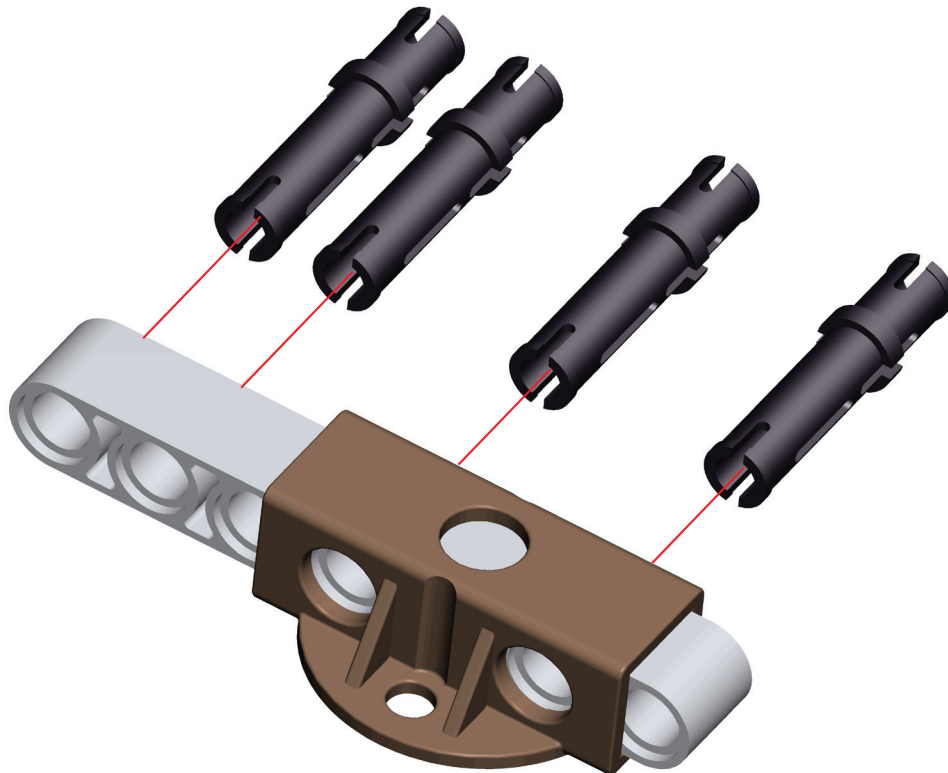
1x TETRIX® Hard Point Connector



1x 7-Module Beam



4x 3-Module Connector Peg with Friction



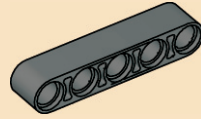
Arm and Gripper Building Guide

Step 14

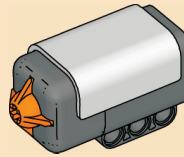
Parts Needed



2x 3-Module Connector Peg with Friction



2x 5-Module Beam



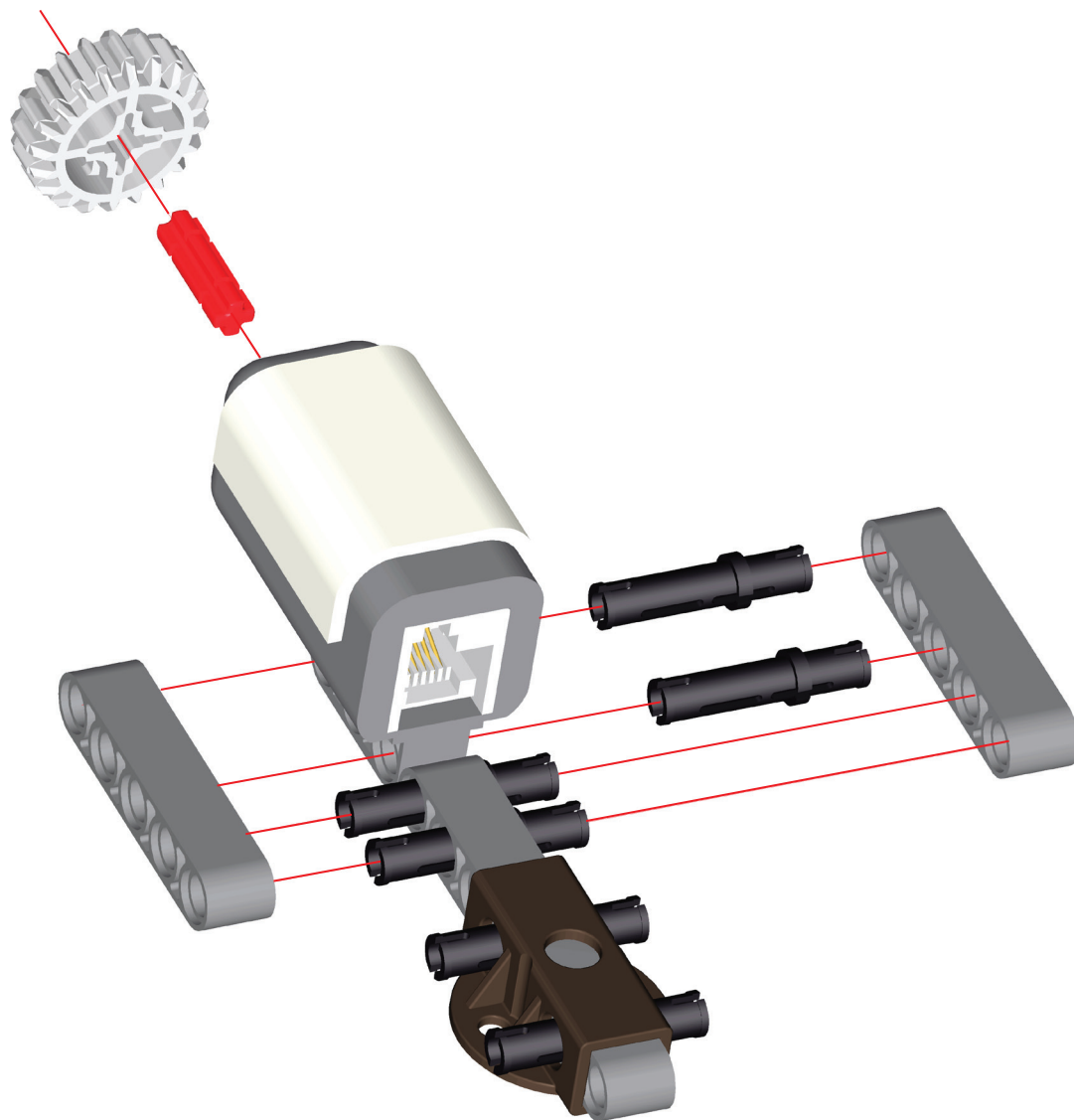
1x NXT Touch Sensor



1x 20-Tooth Gear



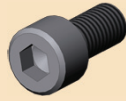
1x 2-Module Axle



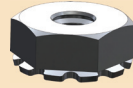
Arm and Gripper Building Guide

Step 15

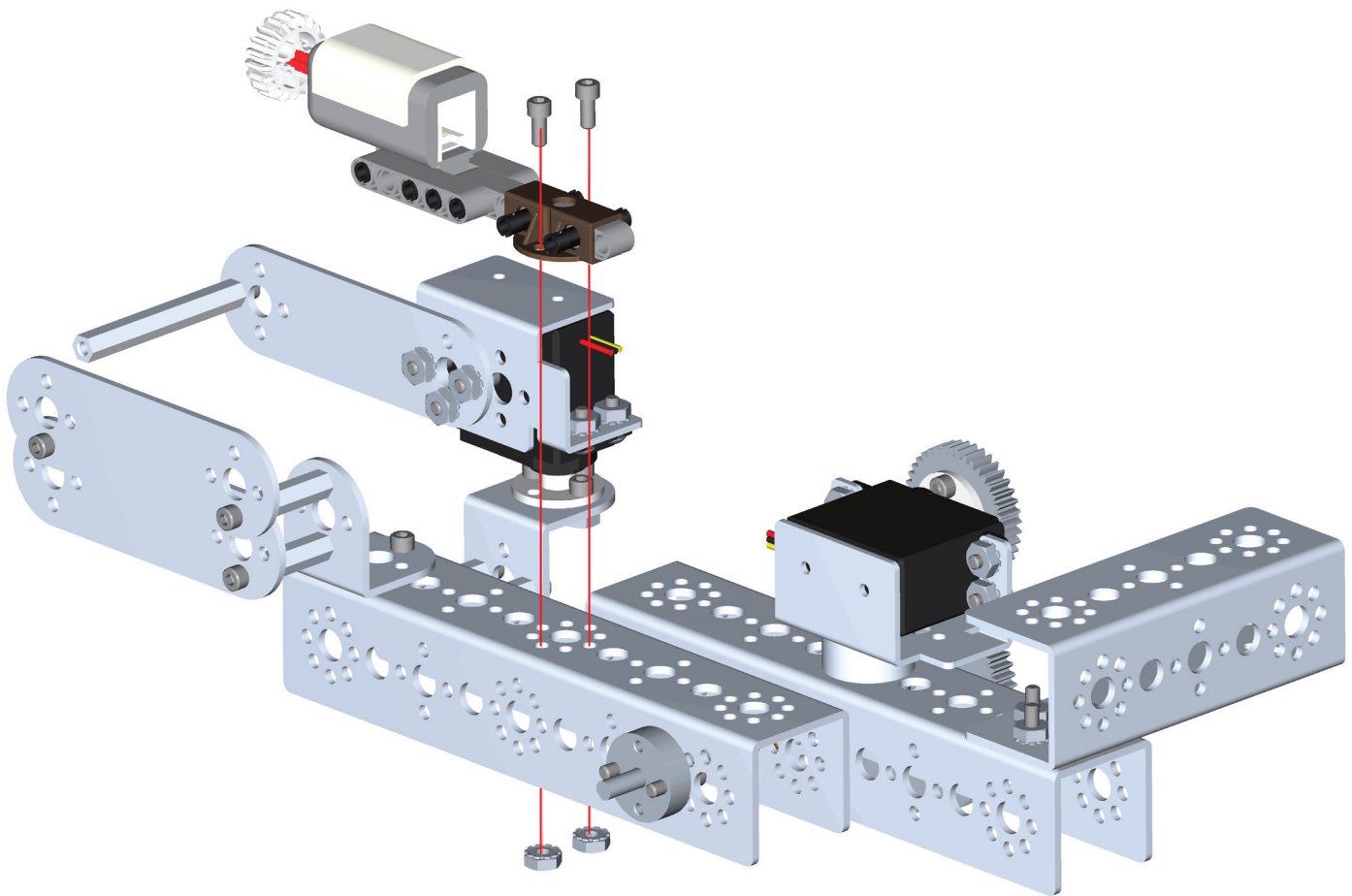
Parts Needed



2x 5/16" SHCS



2x Kep Nut



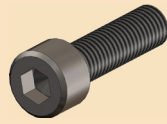
Tip

- Turn the screws only until the hard point connector is securely attached to the TETRIX® channel.

Arm and Gripper Building Guide

Step 16

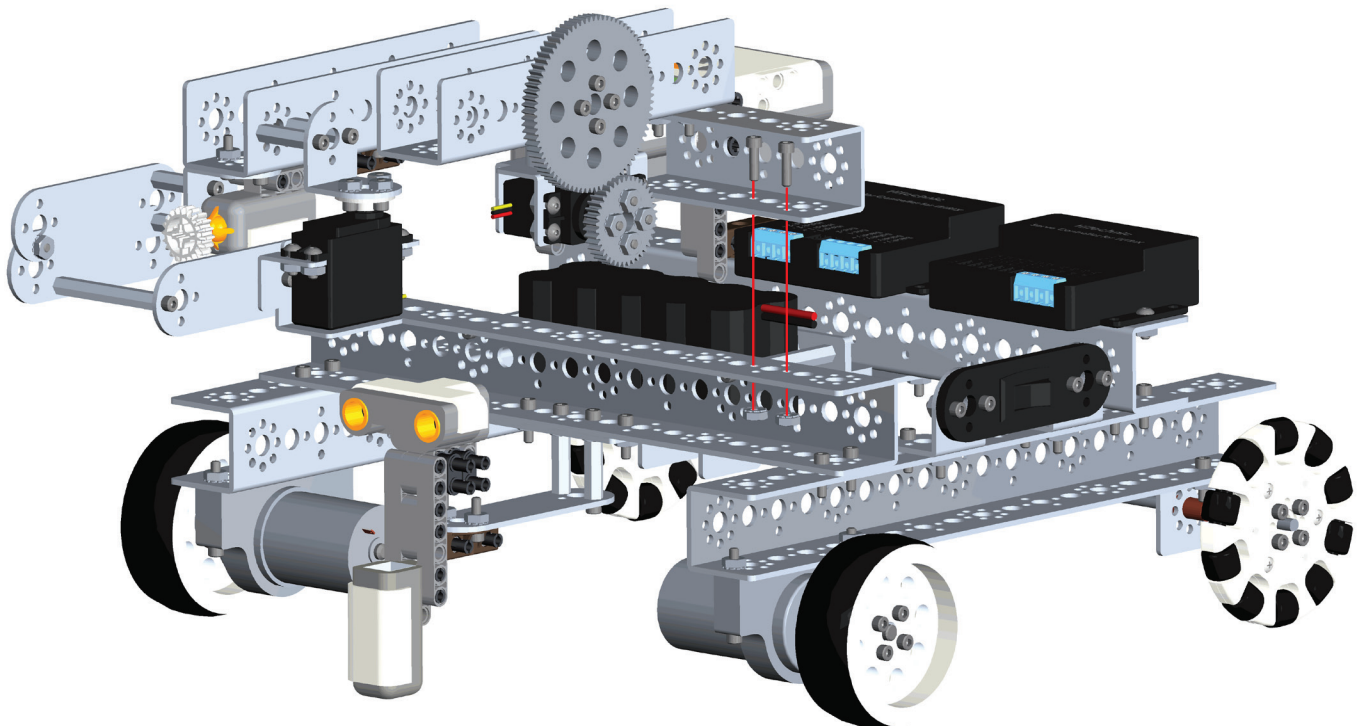
Parts Needed



2x 1/2" SHCS

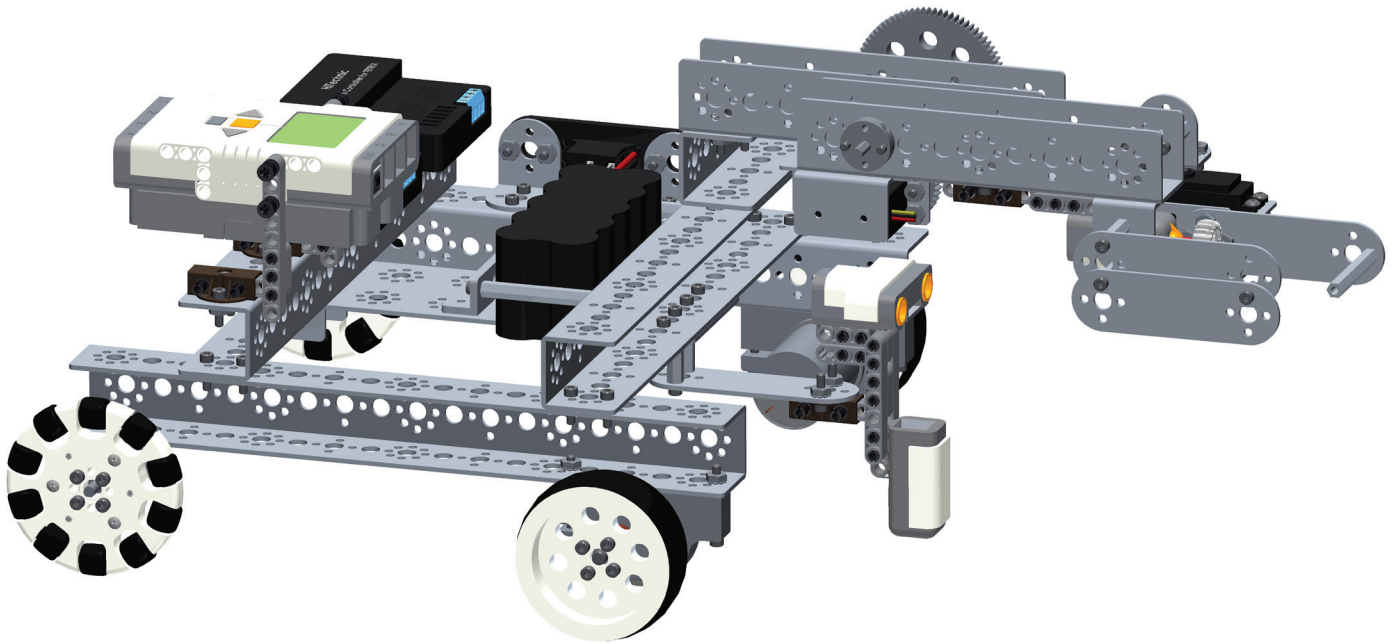


2x Kev Nut



Arm and Gripper Building Guide

Final View



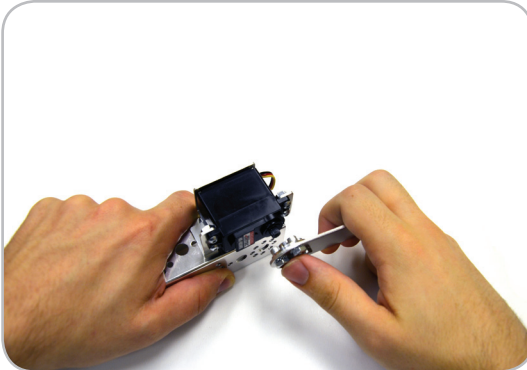
Arm and Gripper Building Guide

Servo Horn Adjustment

Note: Whenever a servo motor is used to attach an extension, care must be taken to properly adjust the servo motor position so that the desired range of motion is achieved. The best way to adjust the servo position is to unscrew the servo horn and use it, and the extension that has been built onto it, like a wrench.

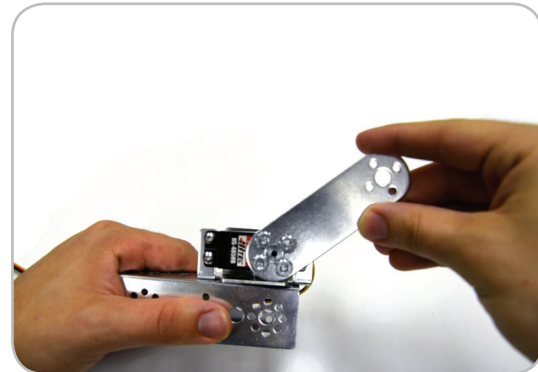
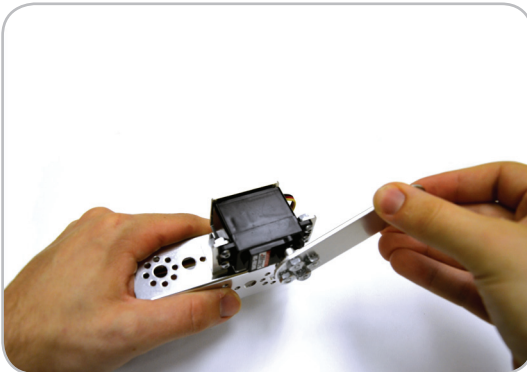
Step 1 Starting Point:

Attach the servo horn to adjust the servo position.



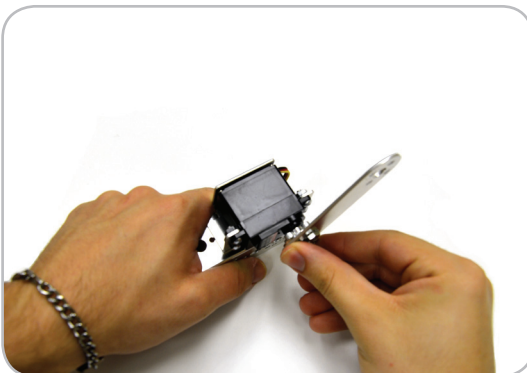
Step 2 Rotate:

Rotate the servo so that it has been positioned at the end of its range of motion.



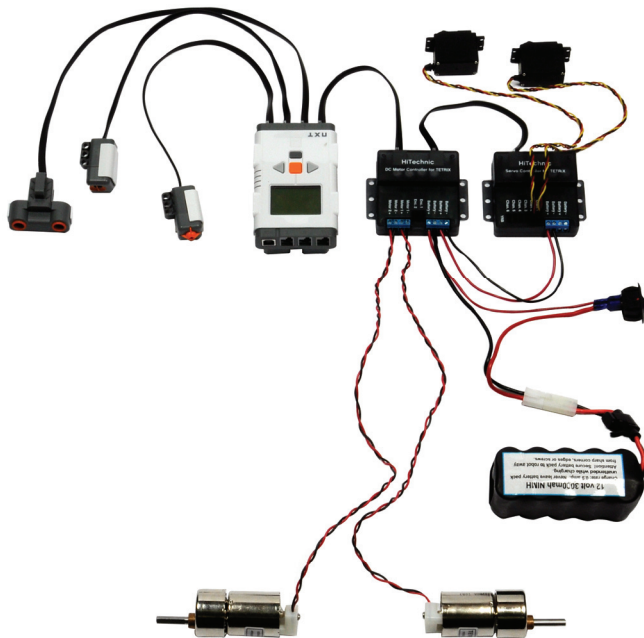
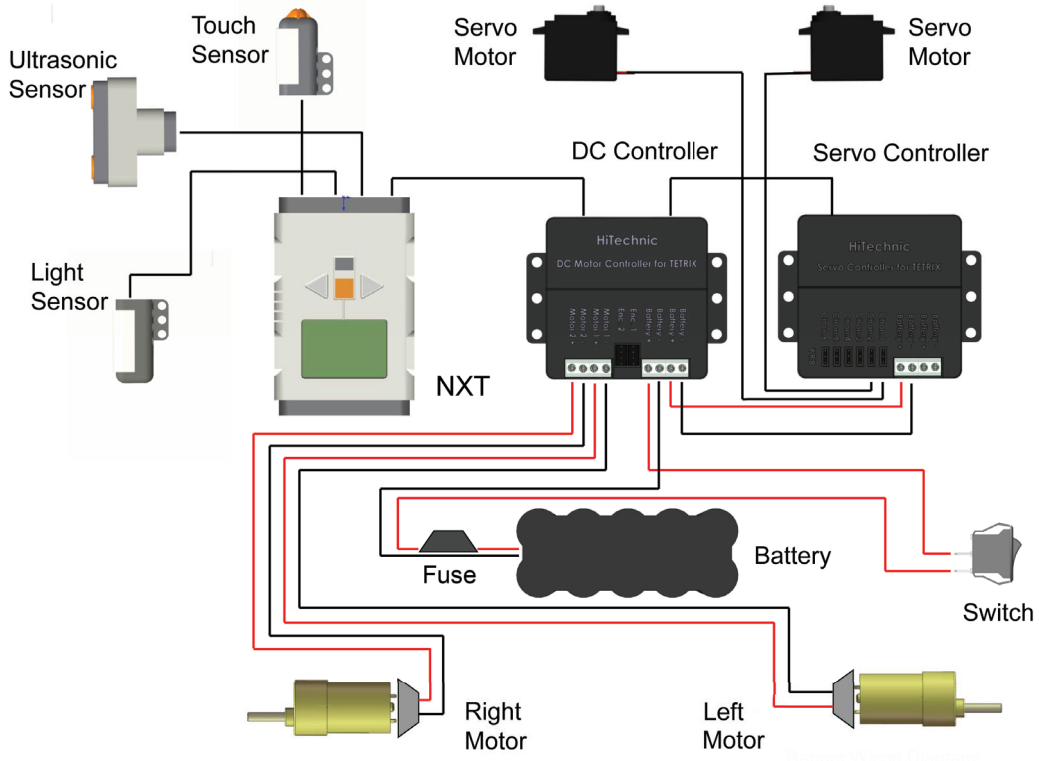
Step 3 Final Positioning:

Reattach the servo horn with the extension piece in the appropriate position for that servo location.




Arm and Gripper Building Guide

Wiring Diagram



Tips

- Tighten the screws on the HiTechnic controller after the wires have been inserted.

 Complete all wiring before attaching the battery.