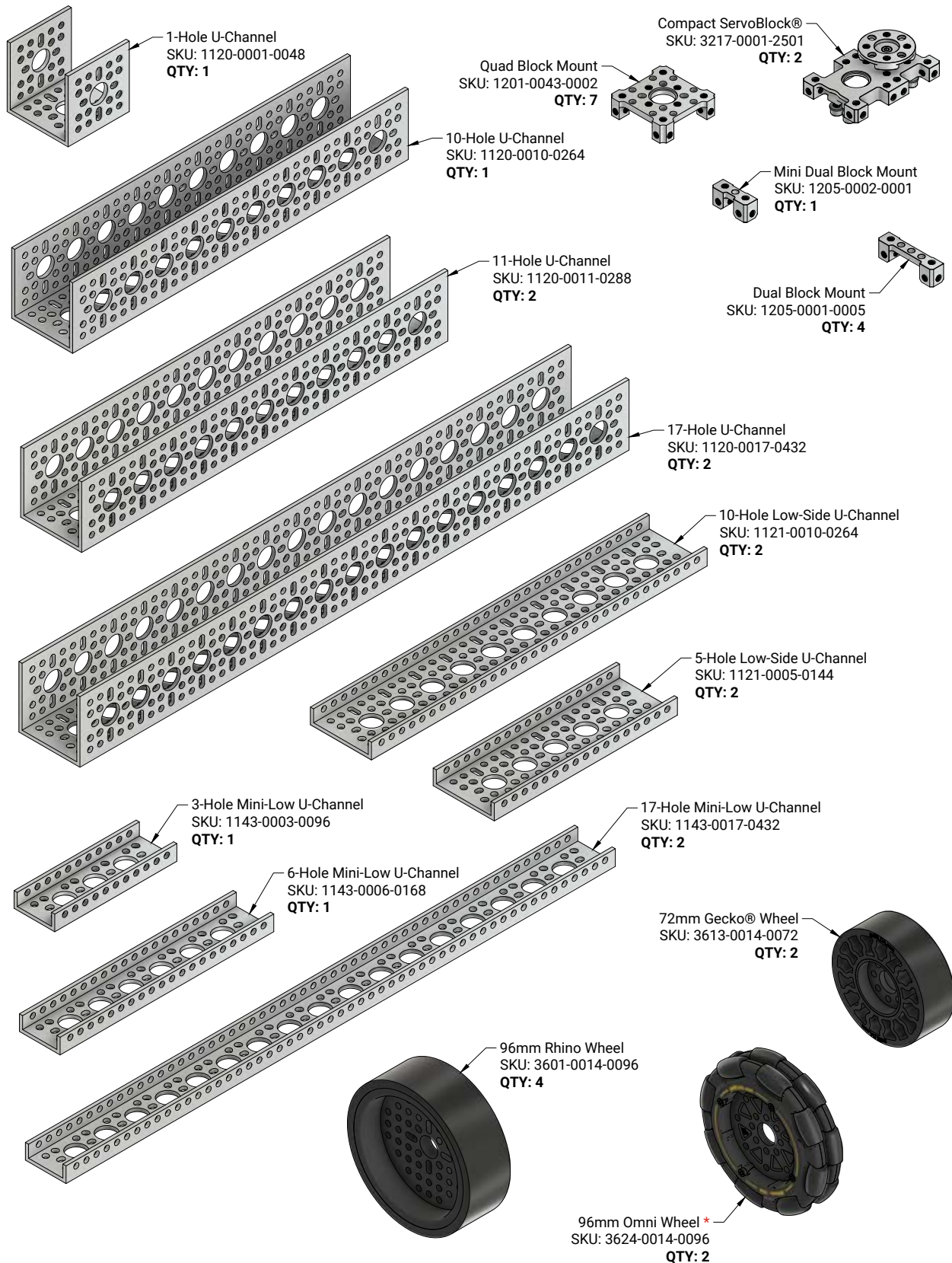




Assembly Instructions for
FTC Starter Bot (for INTO THE DEEPSM)
Built from the FTC Kit (SKU: 3200-4008-2425)

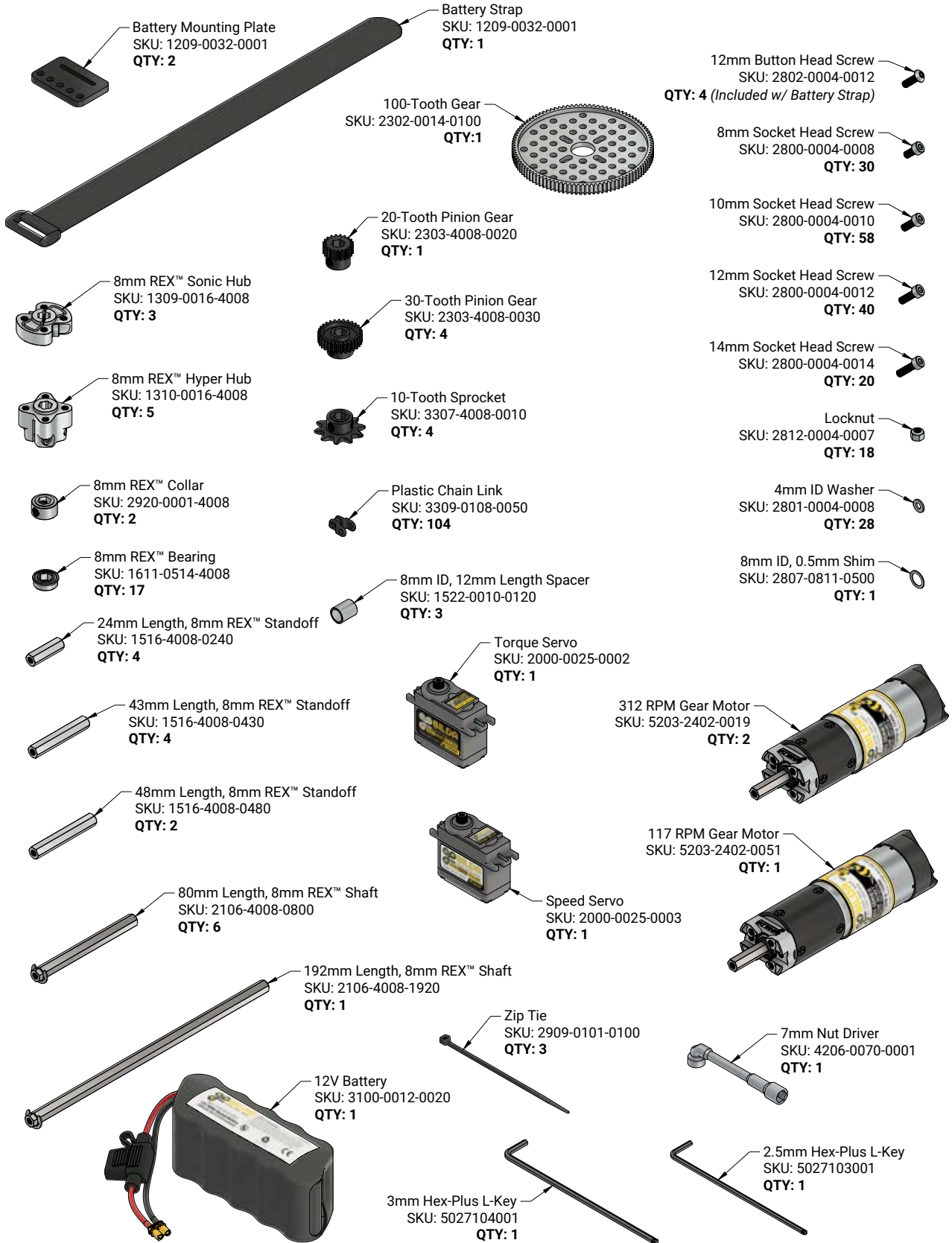


Kit Contents:



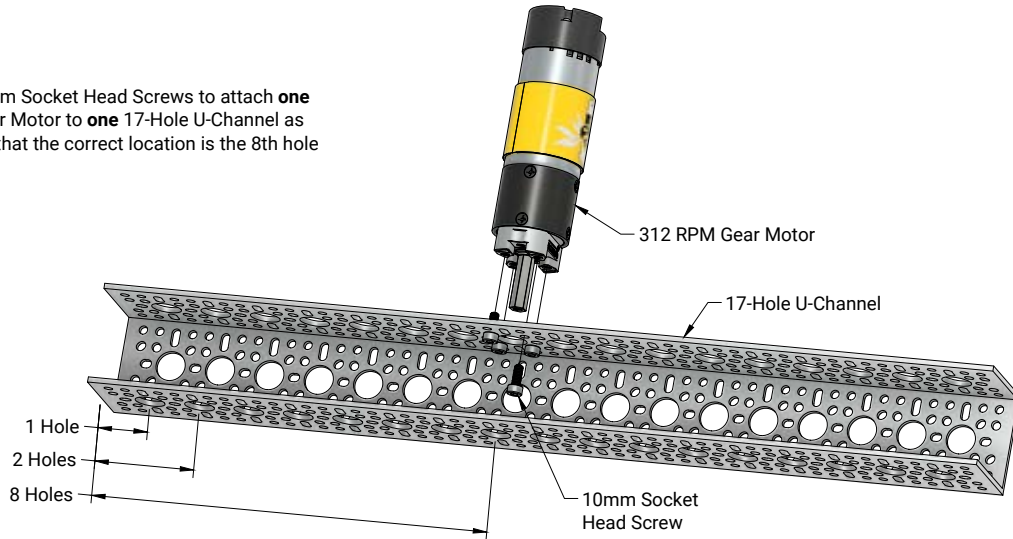
* Your kit may contain **four** 3604-0014-0096 96mm Omni Wheels instead of **two** 3624-0014-0096 Omni Wheels.
Take note of which SKU you have, as it affects **STEPS 6, 12, and 53.**

Kit Contents (Cont.)



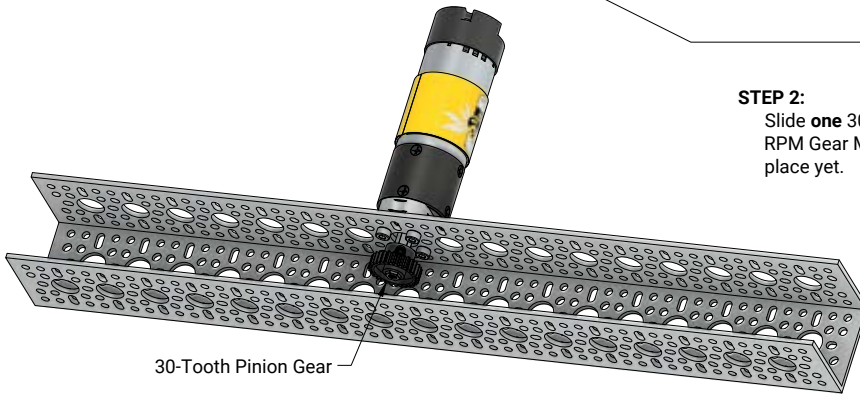
STEP 1:

Use **four** 10mm Socket Head Screws to attach **one** 312 RPM Gear Motor to **one** 17-Hole U-Channel as shown. Note that the correct location is the 8th hole from the left.



STEP 2:

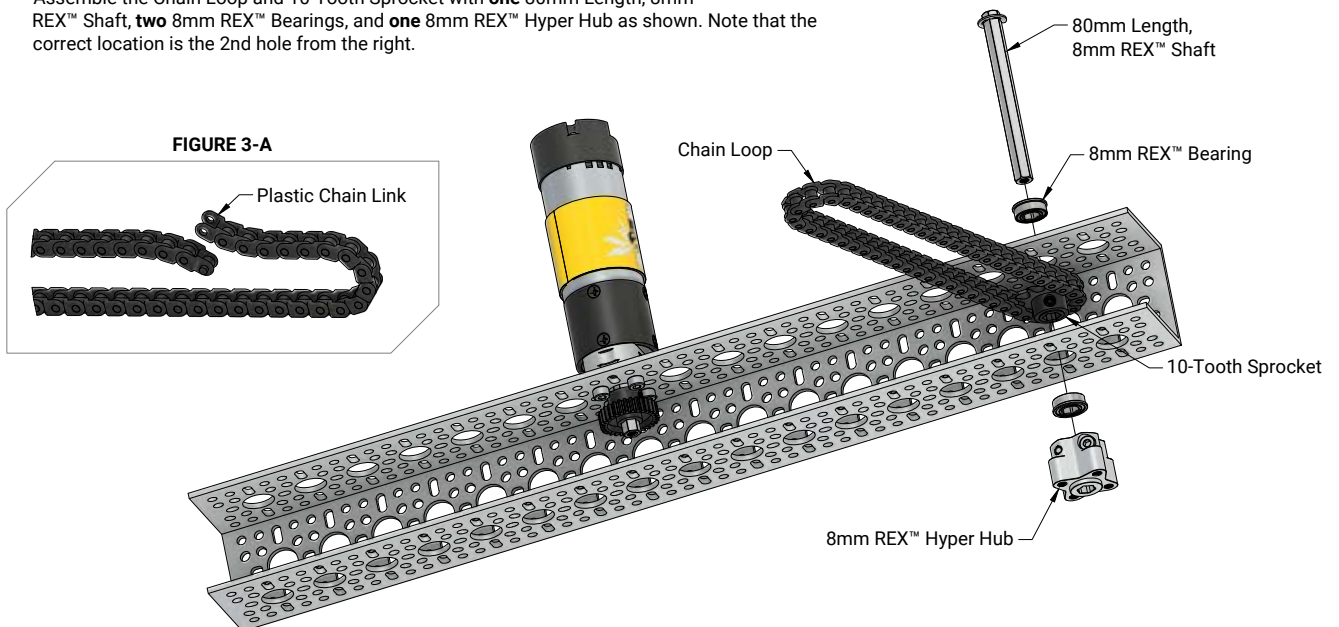
Slide **one** 30-Tooth Pinion Gear onto the 312 RPM Gear Motor as shown. Do not tighten it in place yet.



STEP 3:

Snap **52** Plastic Chain Links together to form one Chain Loop (**FIGURE 3-A**), then place onto **one** 10-Tooth Sprocket.

Assemble the Chain Loop and 10-Tooth Sprocket with **one** 80mm Length, 8mm REX™ Shaft, **two** 8mm REX™ Bearings, and **one** 8mm REX™ Hyper Hub as shown. Note that the correct location is the 2nd hole from the right.

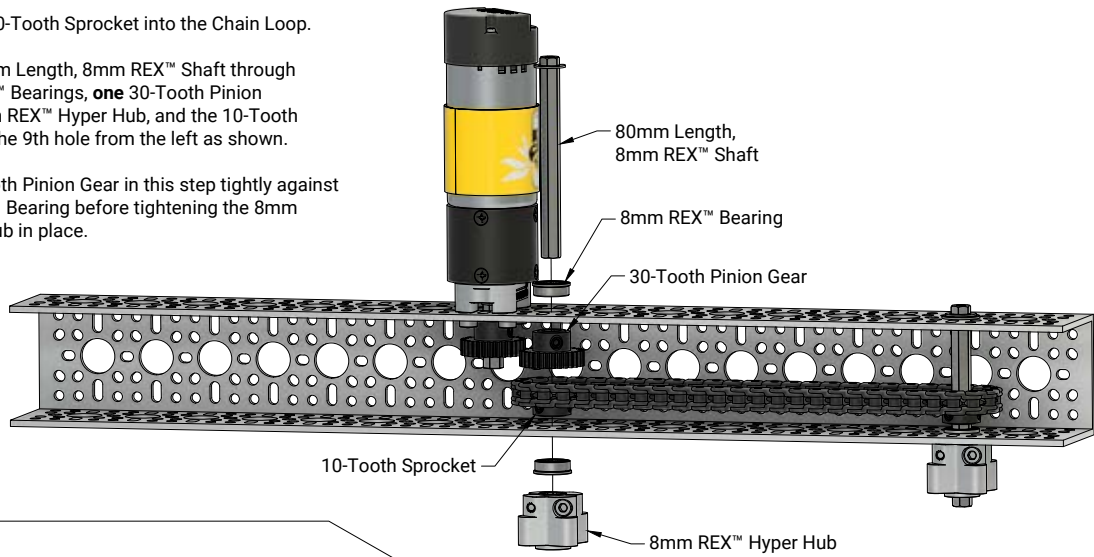


STEP 4:

Position **one** 10-Tooth Sprocket into the Chain Loop.

Slide **one** 80mm Length, 8mm REX™ Shaft through **two** 8mm REX™ Bearings, **one** 30-Tooth Pinion Gear, **one** 8mm REX™ Hyper Hub, and the 10-Tooth Sprocket into the 9th hole from the left as shown.

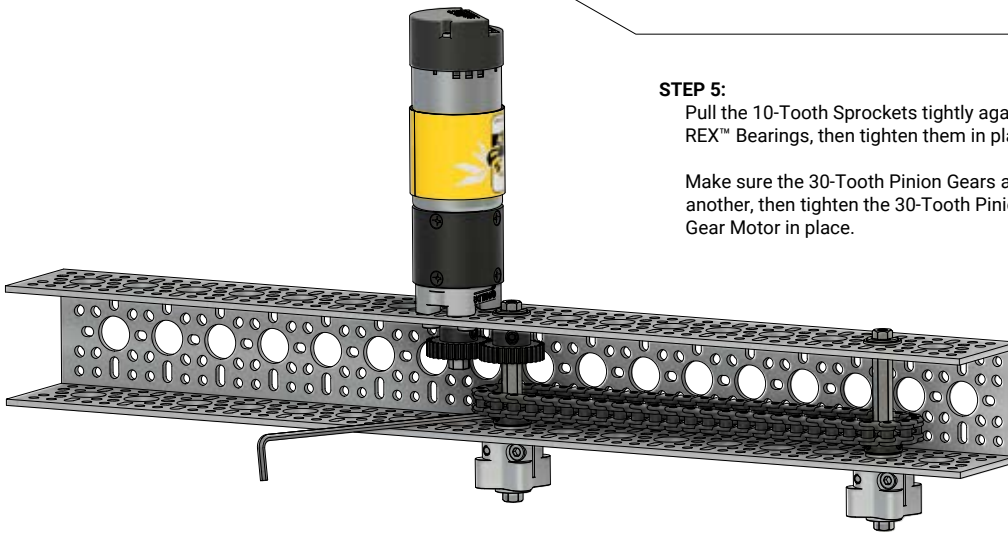
Pull the 30-Tooth Pinion Gear in this step tightly against the 8mm REX™ Bearing before tightening the 8mm REX™ Hyper Hub in place.



STEP 5:

Pull the 10-Tooth Sprockets tightly against the 8mm REX™ Bearings, then tighten them in place.

Make sure the 30-Tooth Pinion Gears are aligned with one another, then tighten the 30-Tooth Pinion Gear on the 312 RPM Gear Motor in place.



80mm Length, 8mm REX™ Shaft

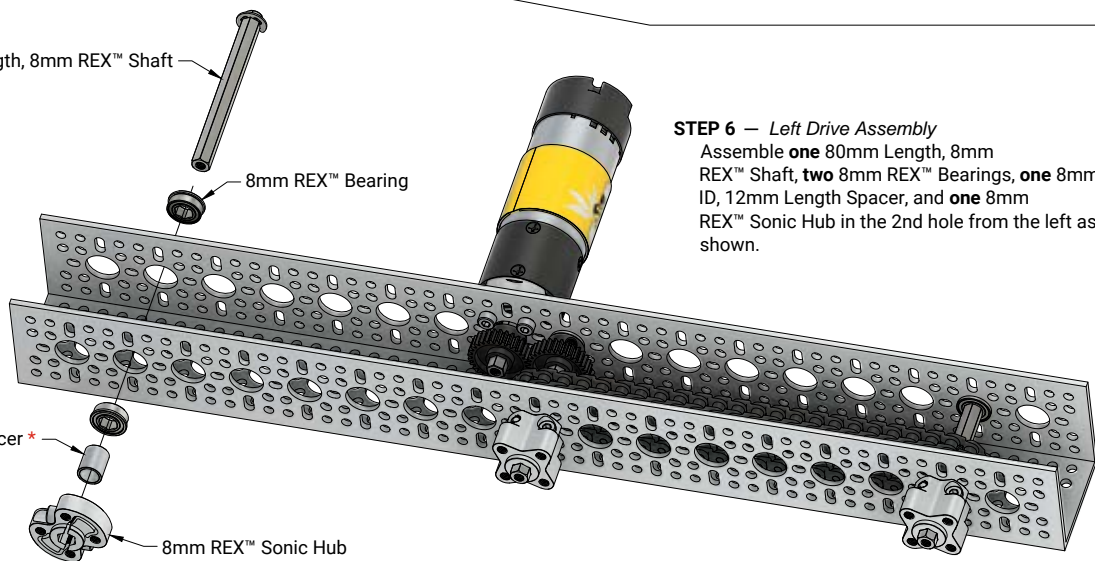
8mm REX™ Bearing

STEP 6 — Left Drive Assembly

Assemble **one** 80mm Length, 8mm REX™ Shaft, **two** 8mm REX™ Bearings, **one** 8mm ID, 12mm Length Spacer, and **one** 8mm REX™ Sonic Hub in the 2nd hole from the left as shown.

8mm ID, 12mm Length Spacer *

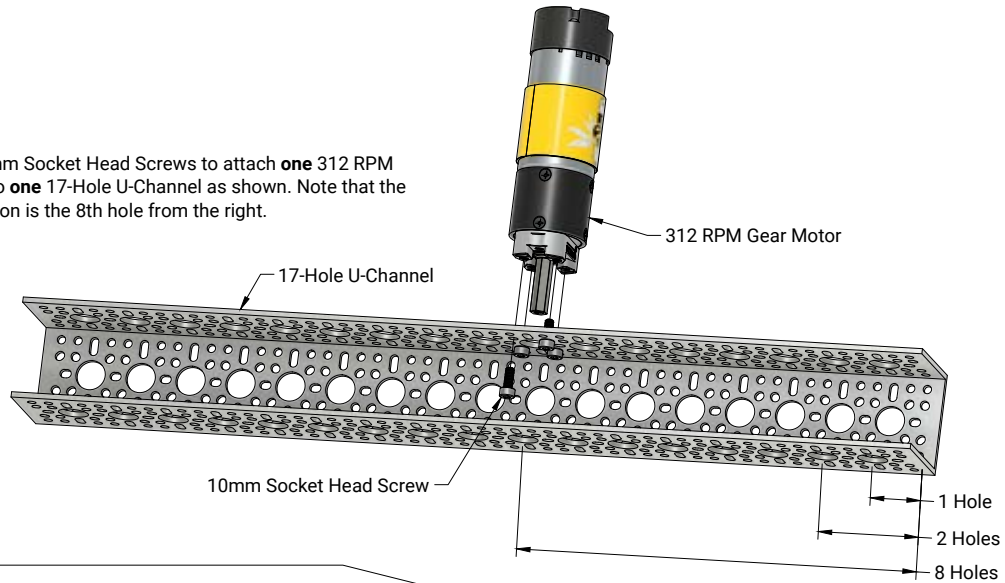
8mm REX™ Sonic Hub



* If your kit came with four 3604-0014-0096 96mm Omni Wheels, an 8mm ID, 0.5mm Shim will be used here instead of this 12mm Length Spacer.

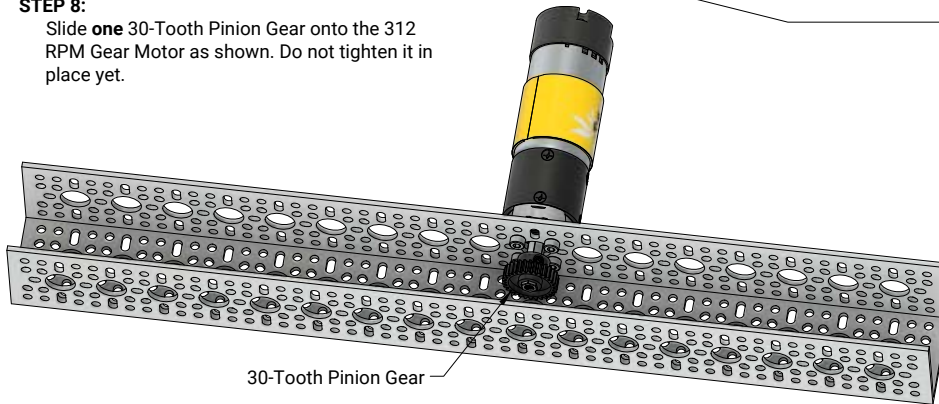
STEP 7:

Use **four** 10mm Socket Head Screws to attach **one** 312 RPM Gear Motor to **one** 17-Hole U-Channel as shown. Note that the correct location is the 8th hole from the right.



STEP 8:

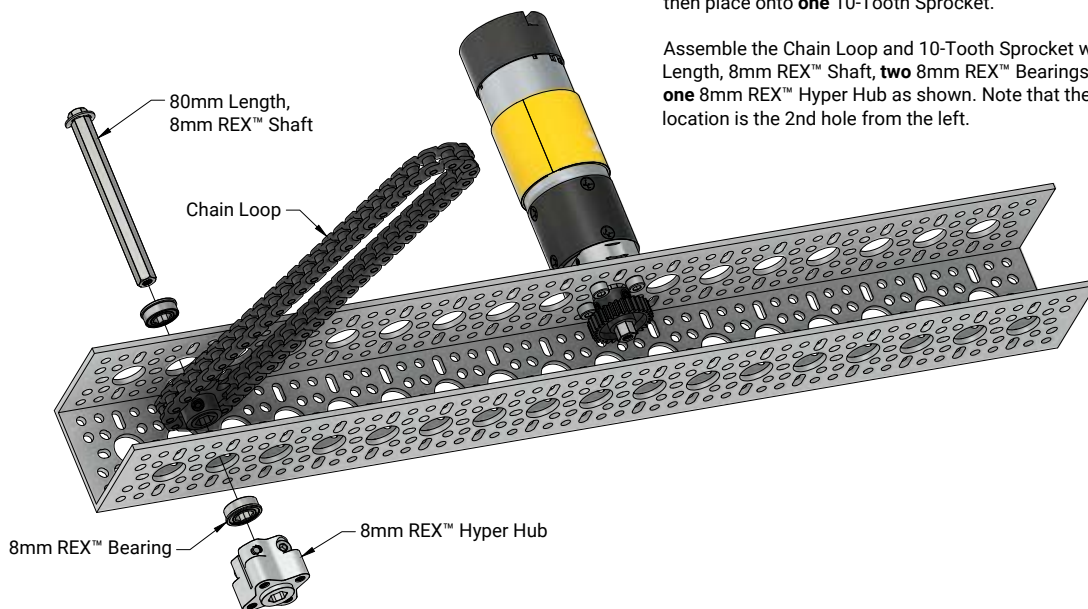
Slide **one** 30-Tooth Pinion Gear onto the 312 RPM Gear Motor as shown. Do not tighten it in place yet.

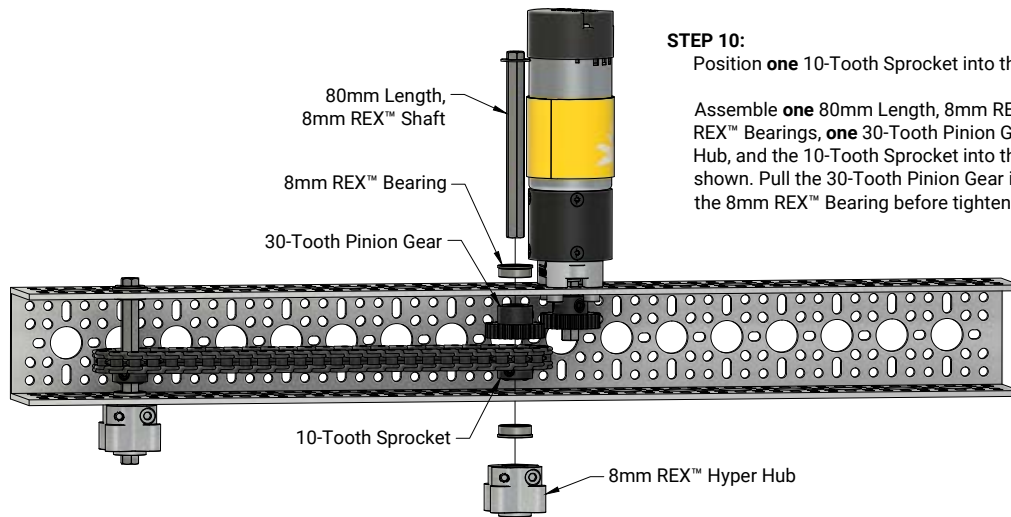


STEP 9:

Snap **52** Plastic Chain Links together to form one Chain Loop, then place onto **one** 10-Tooth Sprocket.

Assemble the Chain Loop and 10-Tooth Sprocket with **one** 80mm Length, 8mm REX™ Shaft, **two** 8mm REX™ Bearings, and **one** 8mm REX™ Hyper Hub as shown. Note that the correct location is the 2nd hole from the left.





STEP 10:

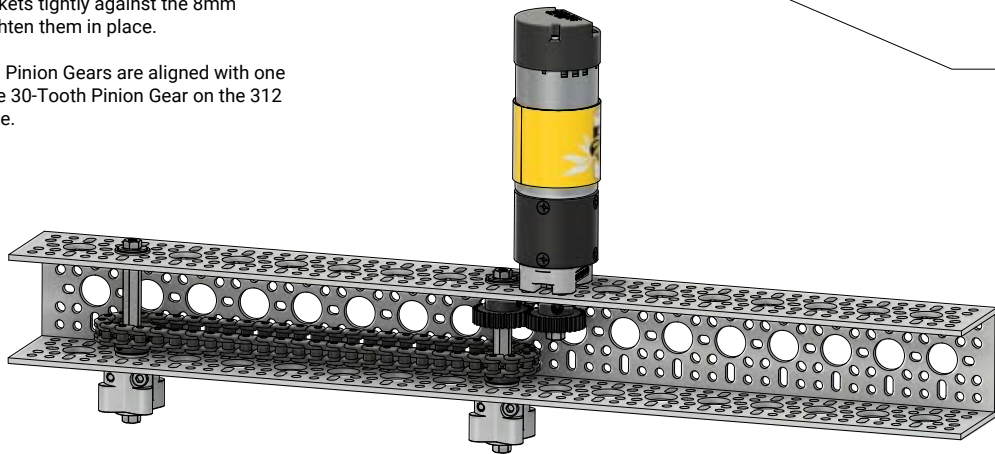
Position **one** 10-Tooth Sprocket into the Chain Loop.

Assemble **one** 80mm Length, 8mm REX™ Shaft through **two** 8mm REX™ Bearings, **one** 30-Tooth Pinion Gear, **one** 8mm REX™ Hyper Hub, and the 10-Tooth Sprocket into the 9th hole from the right as shown. Pull the 30-Tooth Pinion Gear in this step tightly against the 8mm REX™ Bearing before tightening in place.

STEP 11:

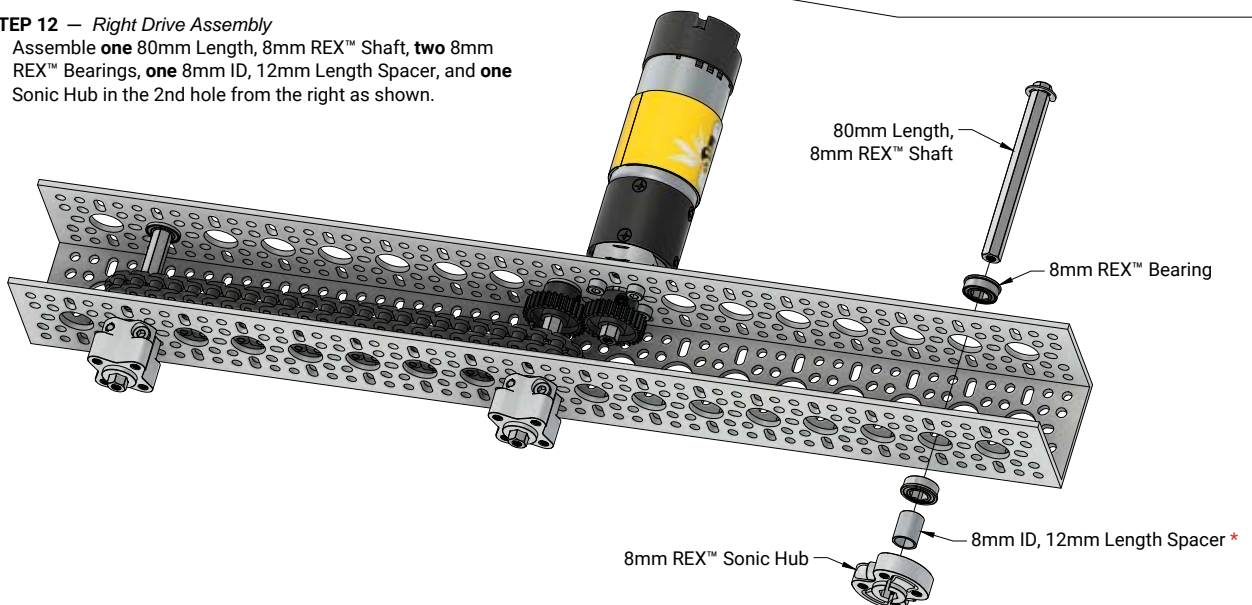
Pull the 10-Tooth Sprockets tightly against the 8mm REX™ Bearings, then tighten them in place.

Make sure the 30-Tooth Pinion Gears are aligned with one another, then tighten the 30-Tooth Pinion Gear on the 312 RPM Gear Motor in place.



STEP 12 — Right Drive Assembly

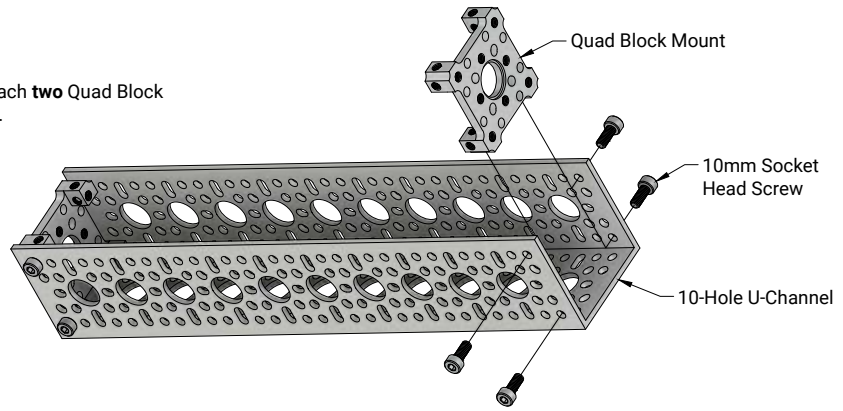
Assemble **one** 80mm Length, 8mm REX™ Shaft, **two** 8mm REX™ Bearings, **one** 8mm ID, 12mm Length Spacer, and **one** Sonic Hub in the 2nd hole from the right as shown.



* If your kit came with four 3604-0014-0096 96mm Omni Wheels, an 8mm ID, 0.5mm Shim will be used here instead of this 12mm Length Spacer.

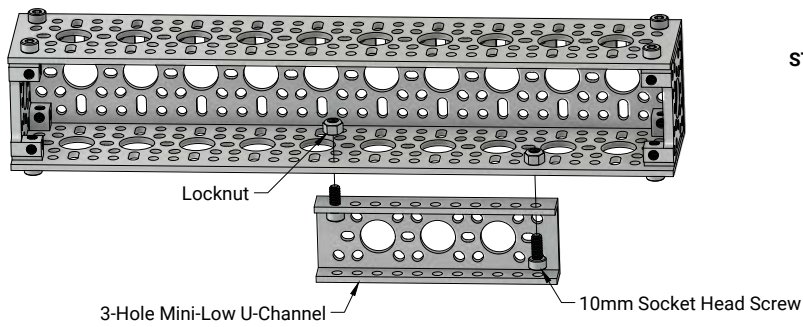
STEP 13:

Use **eight** 10mm Socket Head Screws to attach **two** Quad Block Mounts to **one** 10-Hole U-Channel as shown.



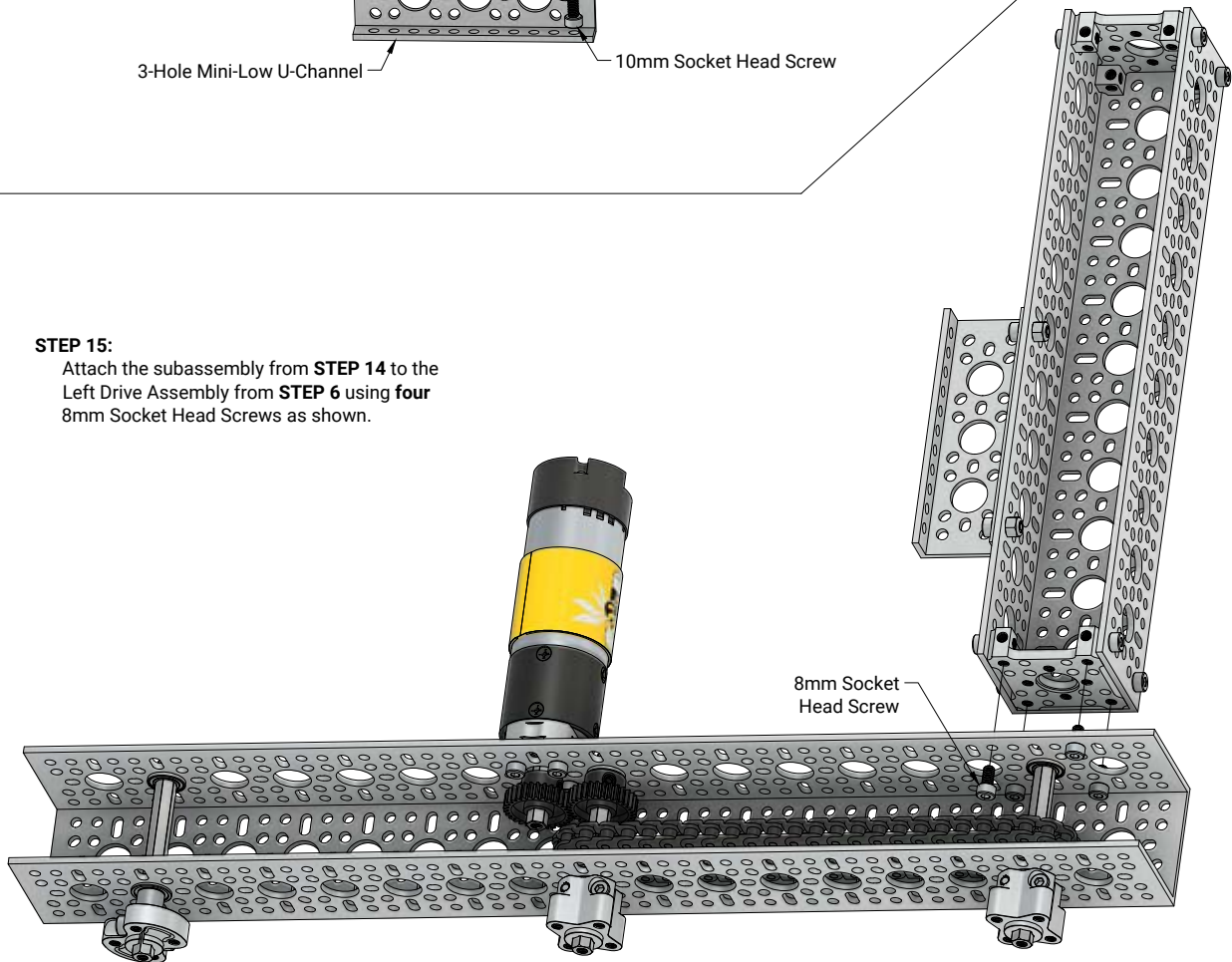
STEP 14:

Attach **one** 3-Hole Mini-Low U-Channel using **two** 10mm Socket Head Screws and **two** Locknuts as shown.



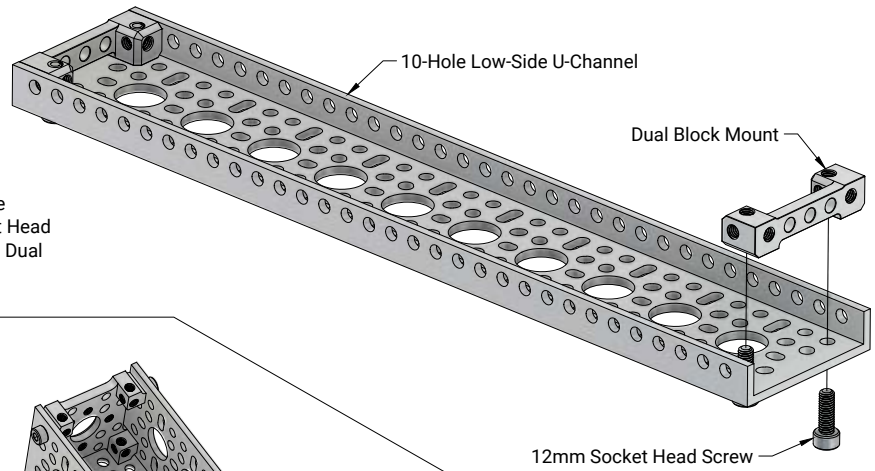
STEP 15:

Attach the subassembly from **STEP 14** to the Left Drive Assembly from **STEP 6** using **four** 8mm Socket Head Screws as shown.



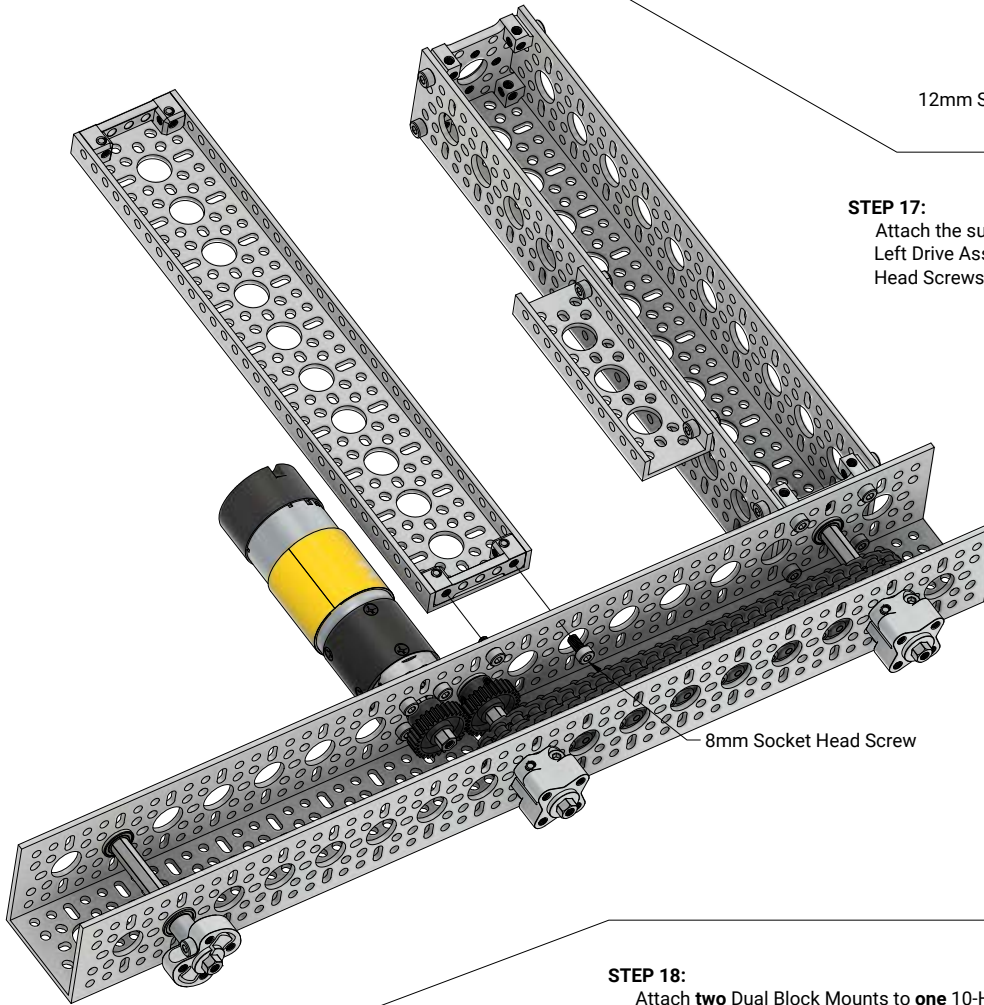
STEP 16:

Attach **two** Dual Block Mounts to **one** 10-Hole Low-Side U-Channel using **four** 12mm Socket Head Screws as shown. Note the orientation of the Dual Block Mounts.



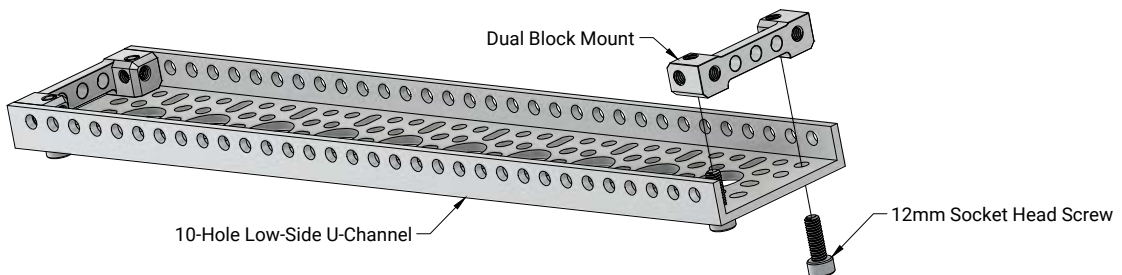
STEP 17:

Attach the subassembly from **STEP 16** to the Left Drive Assembly using **two** 8mm Socket Head Screws as shown.



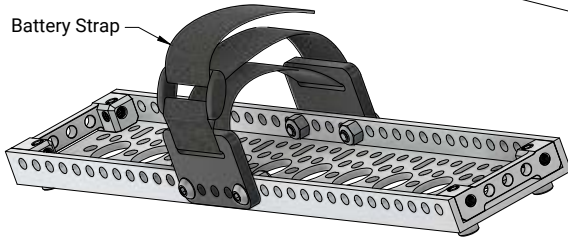
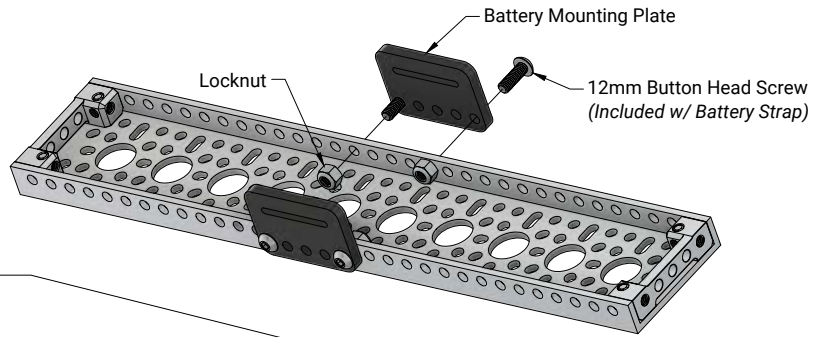
STEP 18:

Attach **two** Dual Block Mounts to **one** 10-Hole Low-Side U-Channel using **four** 12mm Socket Head Screws as shown. Note the orientation of the Dual Block Mounts.



STEP 19:

Use **four** 12mm Button Head Screws and **four** Locknuts to attach **two** Battery Mounting Plates as shown.

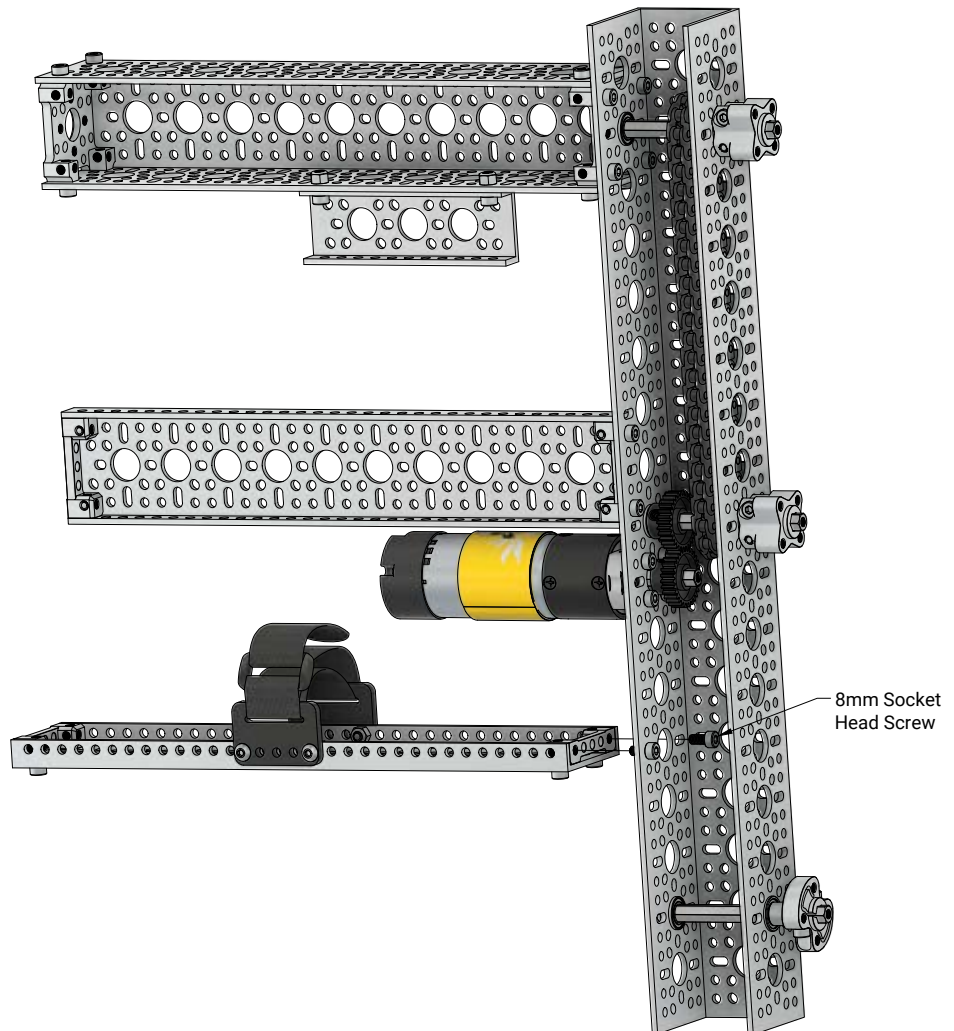


STEP 20:

Install the Battery Strap as shown.

STEP 21:

Attach the subassembly from **STEP 20** to the Left Drive Assembly using **two** 8mm Socket Head Screws as shown.



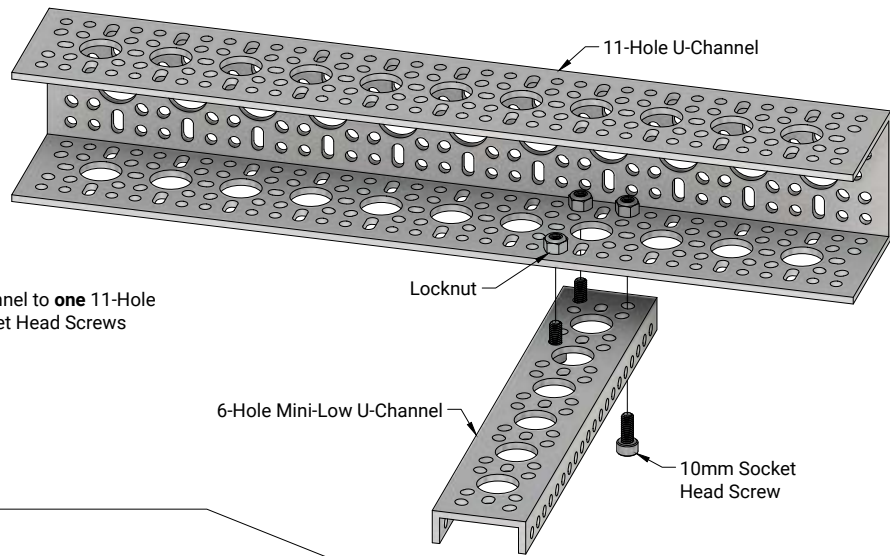
STEP 22 — Drive Train

Combine the Left Drive Assembly and the Right Drive Assembly from **STEP 12** using **eight 8mm Socket Head Screws** as shown.



STEP 23:

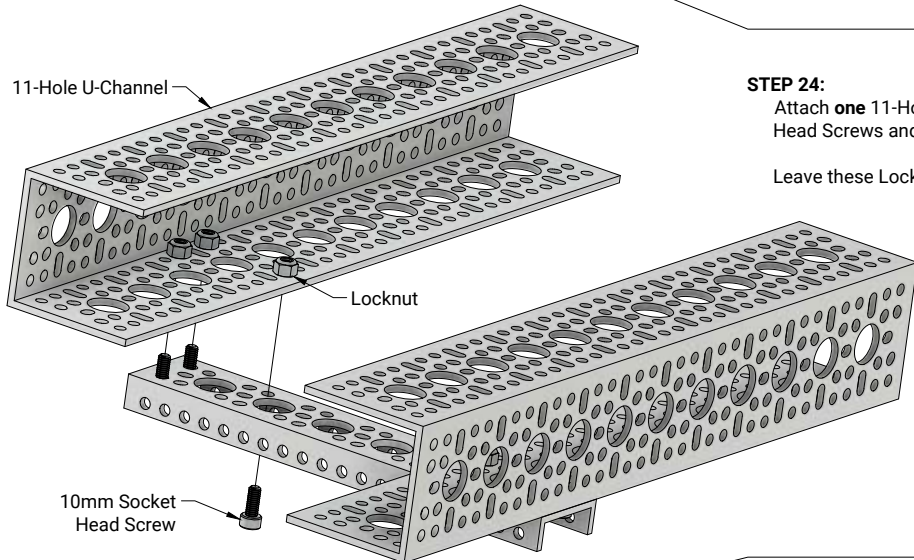
Attach **one** 6-Hole Mini-Low U-Channel to **one** 11-Hole U-Channel using **three** 10mm Socket Head Screws and **three** Locknuts as shown.



STEP 24:

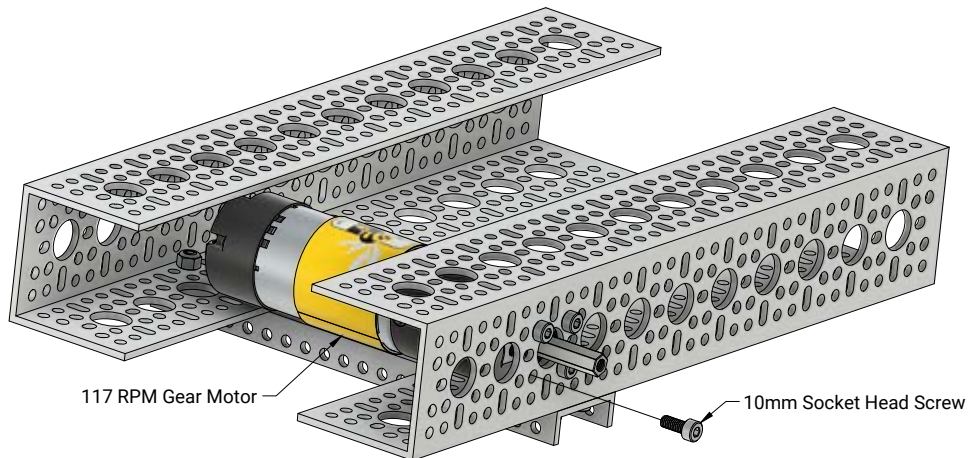
Attach **one** 11-Hole U-Channel using **three** 10mm Socket Head Screws and **three** Locknuts as shown.

Leave these Locknuts slightly loose for now.



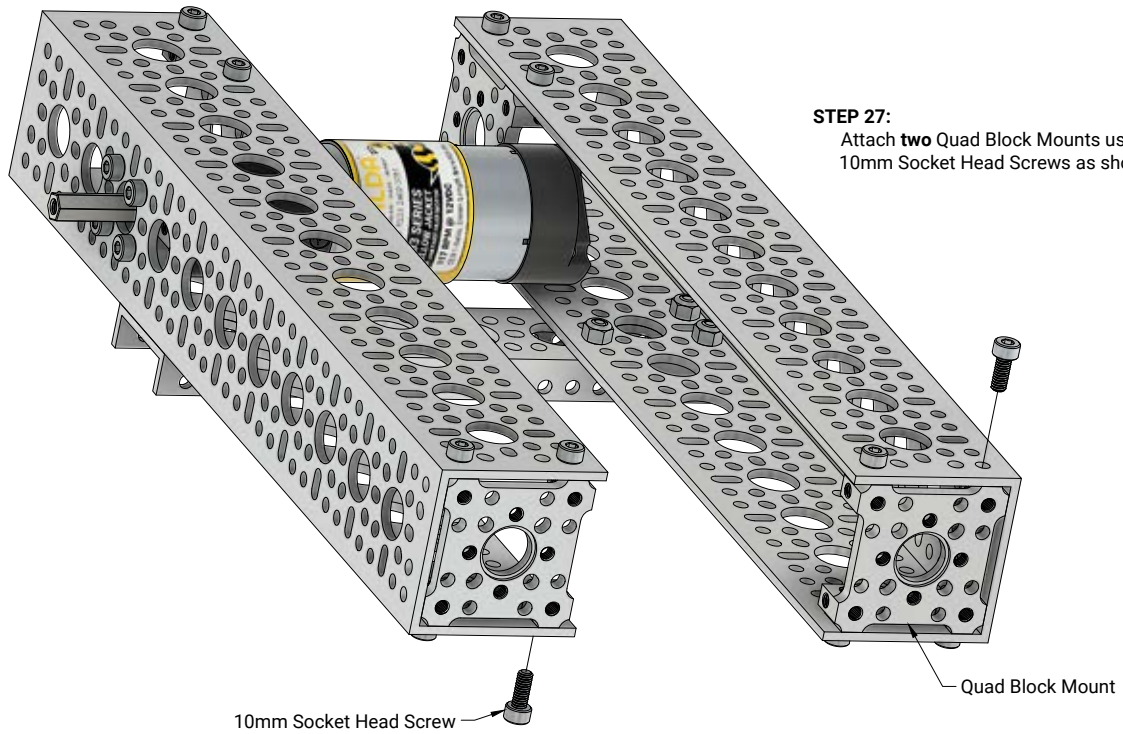
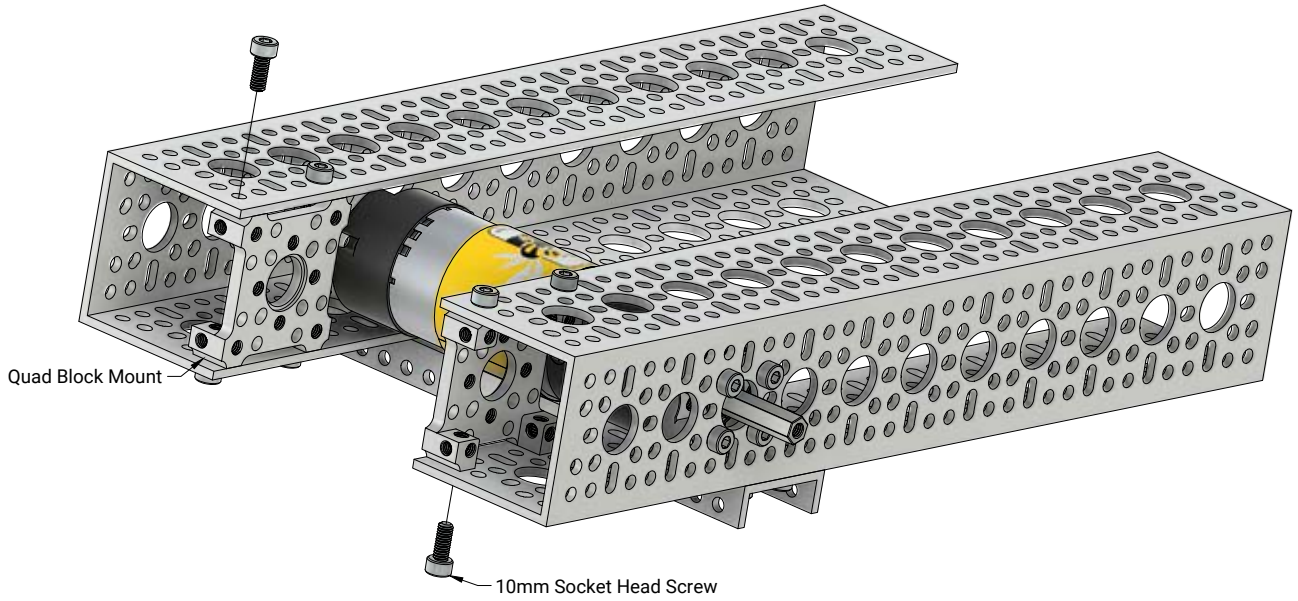
STEP 25:

Use **four** 10mm Socket Head Screws to attach **one** 117 RPM Gear Motor as shown.



STEP 26:

Use **eight** 10mm Socket Head Screws to attach **two** Quad Block Mounts as shown.



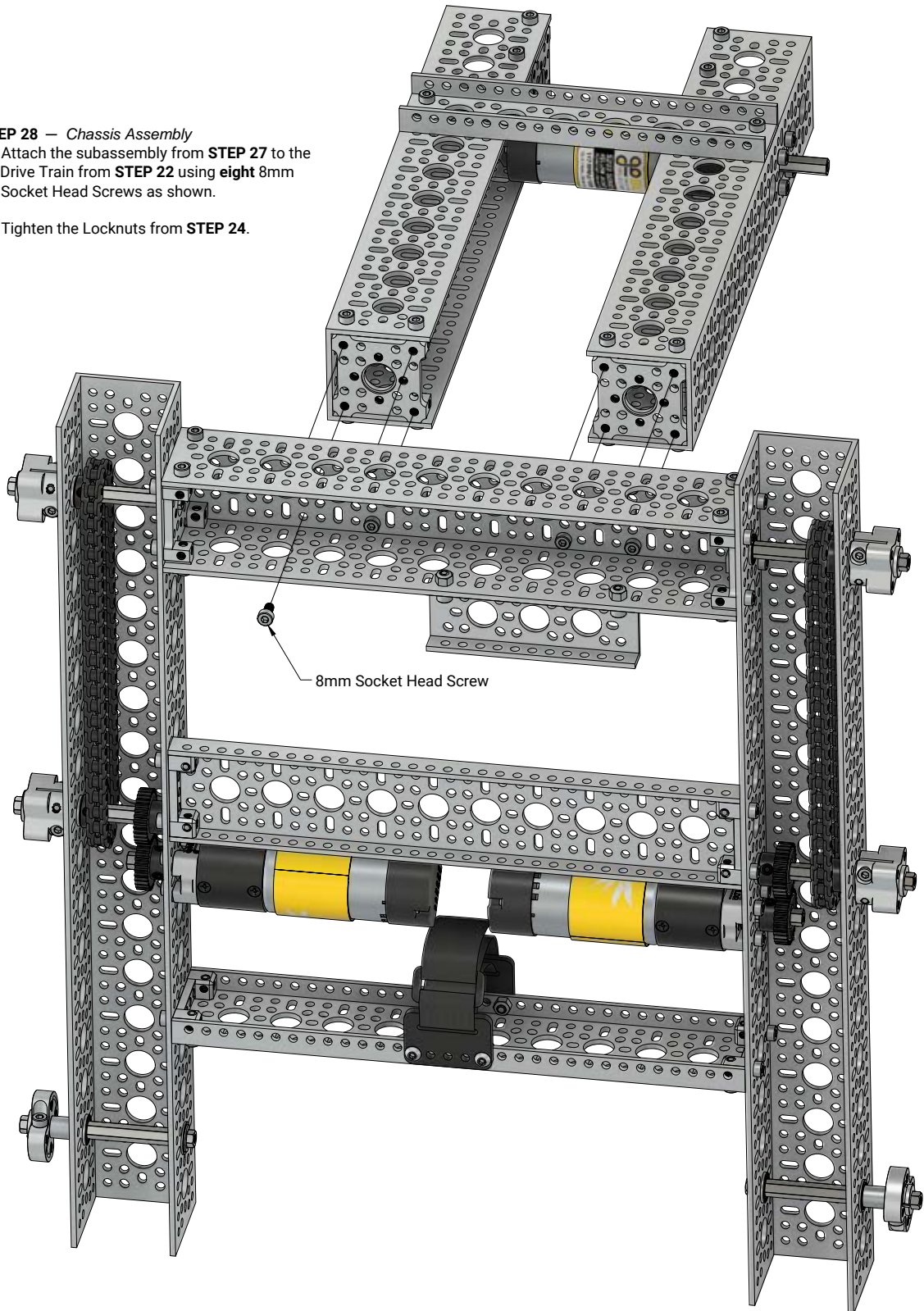
STEP 27:

Attach **two** Quad Block Mounts using **eight** 10mm Socket Head Screws as shown.

STEP 28 — Chassis Assembly

Attach the subassembly from **STEP 27** to the Drive Train from **STEP 22** using **eight** 8mm Socket Head Screws as shown.

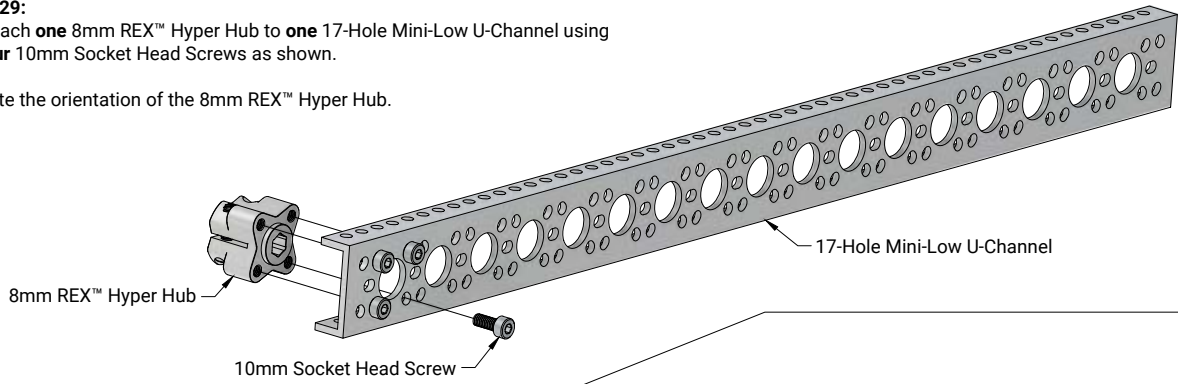
Tighten the Locknuts from **STEP 24**.



STEP 29:

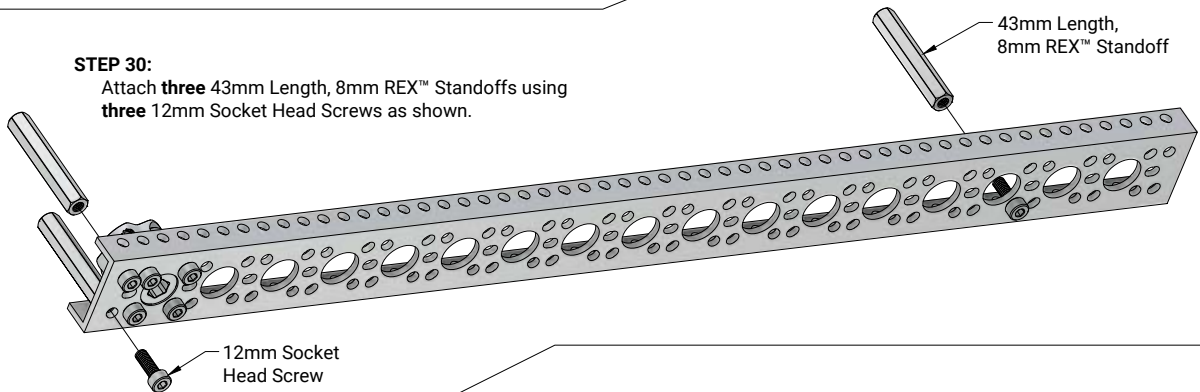
Attach **one** 8mm REX™ Hyper Hub to **one** 17-Hole Mini-Low U-Channel using **four** 10mm Socket Head Screws as shown.

Note the orientation of the 8mm REX™ Hyper Hub.



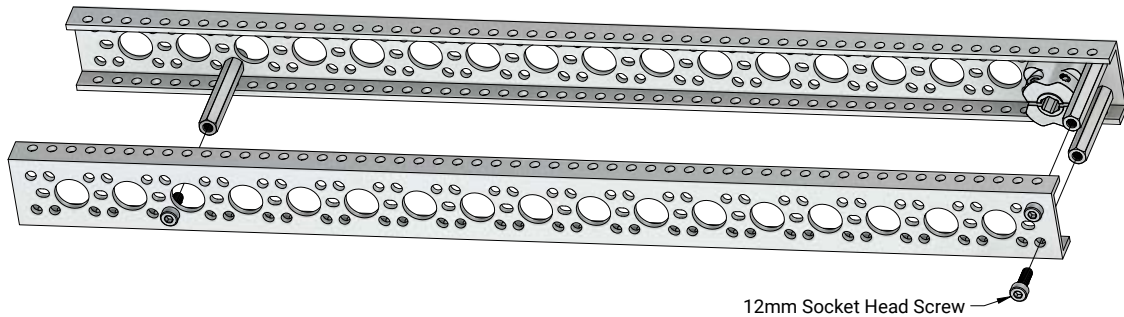
STEP 30:

Attach **three** 43mm Length, 8mm REX™ Standoffs using **three** 12mm Socket Head Screws as shown.



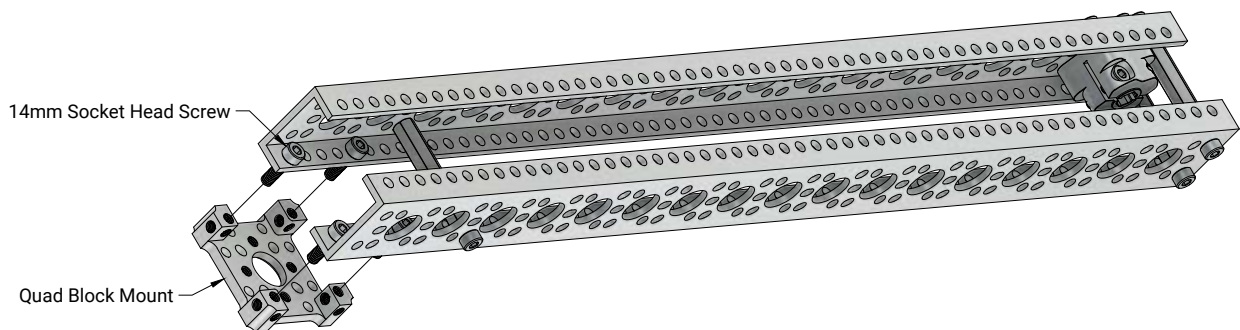
STEP 31:

Use **three** 12mm Socket Head Screws to attach **one** 17-Hole Mini-Low U-Channel as shown.



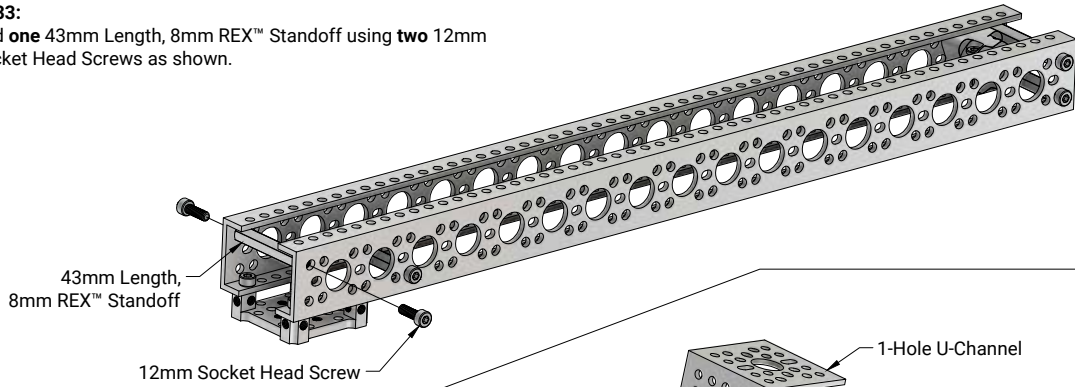
STEP 32:

Use **four** 14mm Socket Head Screws to attach **one** Quad Block Mount as shown.



STEP 33:

Add **one** 43mm Length, 8mm REX™ Standoff using **two** 12mm Socket Head Screws as shown.



STEP 34:

Mount **one** 1-Hole U-Channel using **four** 10mm Socket Head Screws and **four** Locknuts as shown.

Note the location (**FIGURE 34-A**).

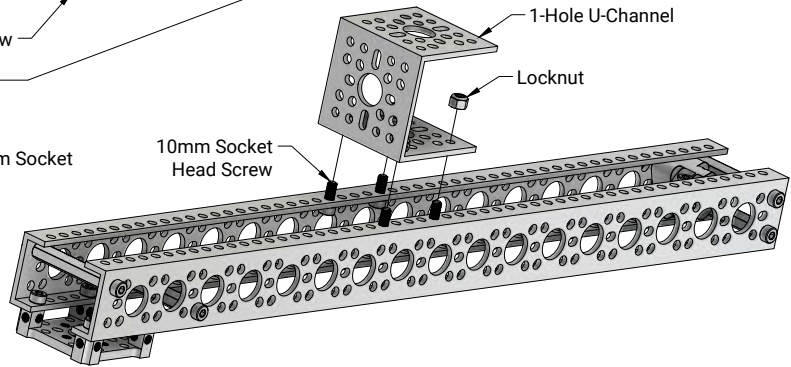
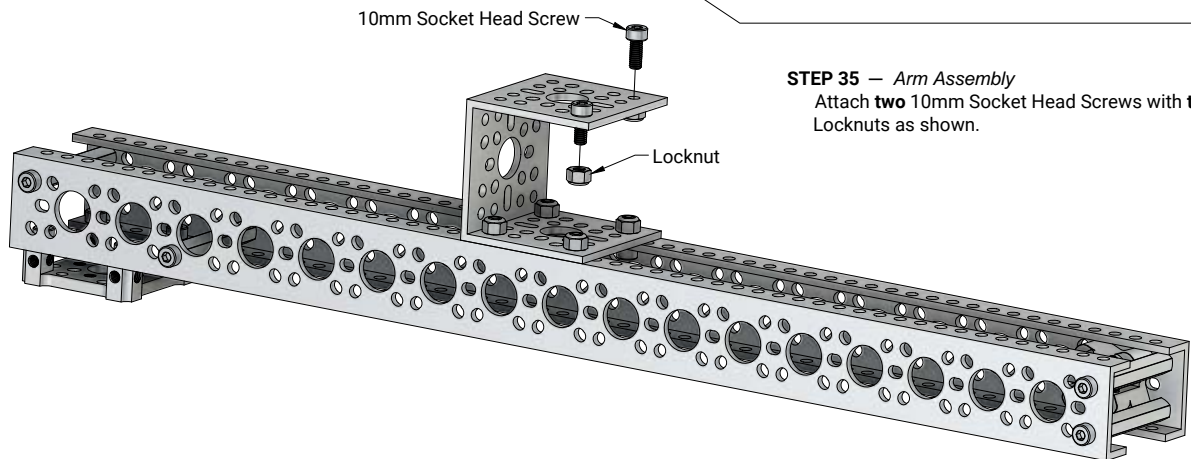
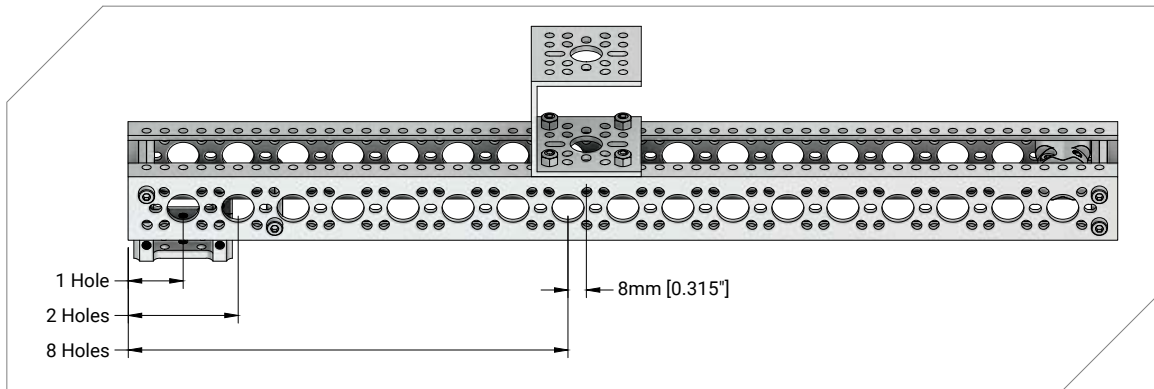


FIGURE 34-A



STEP 35 — Arm Assembly

Attach **two** 10mm Socket Head Screws with **two** Locknuts as shown.

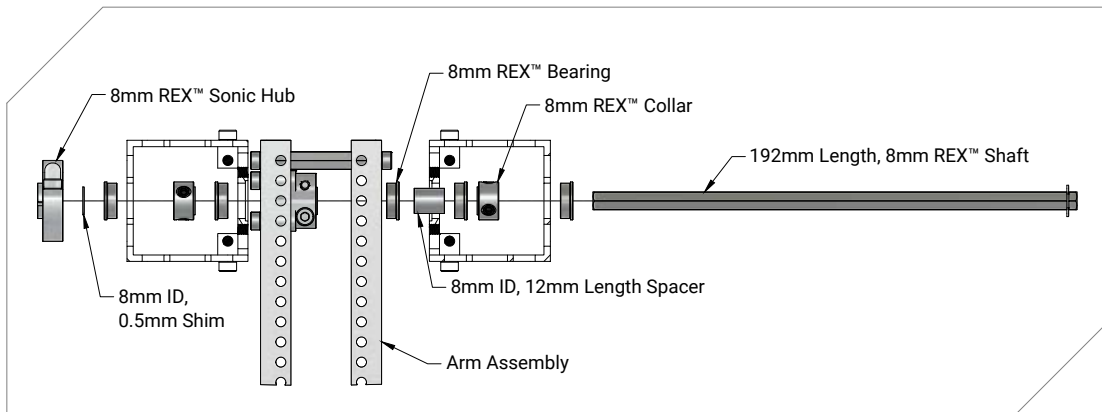
STEP 36:

Use **one** 192mm Length, 8mm REX™ Shaft, **five** 8mm REX™ Bearings, **two** 8mm REX™ Collars, **one** 8mm ID, 0.5mm Shim, **one** 8mm ID, 12mm Length Spacer, and **one** 8mm REX™ Sonic Hub to attach the Arm Assembly from **STEP 35** and the Chassis Assembly from **STEP 28**.

See the top-down view in **FIGURE 36-A** for component locations.



FIGURE 36-A



STEP 37:

Tighten the components from **STEP 36** as shown below.

FIGURE 37-A

Push the 192mm Length, 8mm REX™ Shaft tightly against its neighboring 8mm REX™ Bearing. Push the 8mm REX™ Sonic Hub tightly against its adjacent components, then tighten the 8mm REX™ Sonic Hub in place.

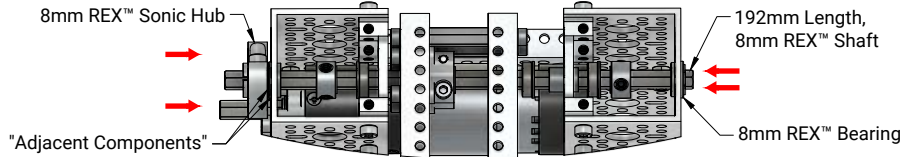


FIGURE 37-B

Push the 8mm REX™ Collar on the side without the 8mm REX™ Sonic Hub tightly against the 8mm REX™ Bearing, then tighten the 8mm REX™ Collar in place.

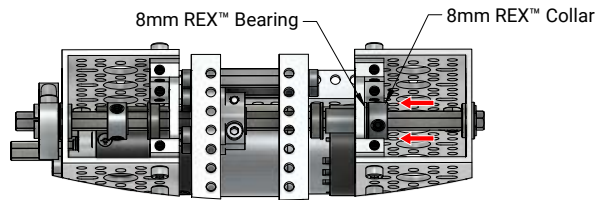


FIGURE 37-C

Push the Arm Assembly and adjacent components tightly against the 8mm REX™ Bearing as shown, then tighten the 8mm REX™ Hyper Hub in place.

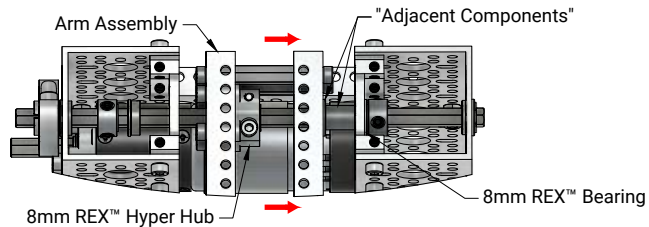
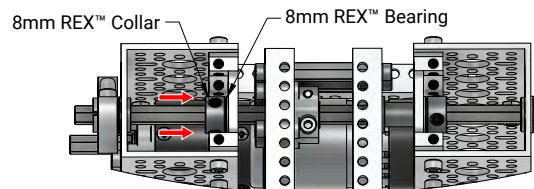


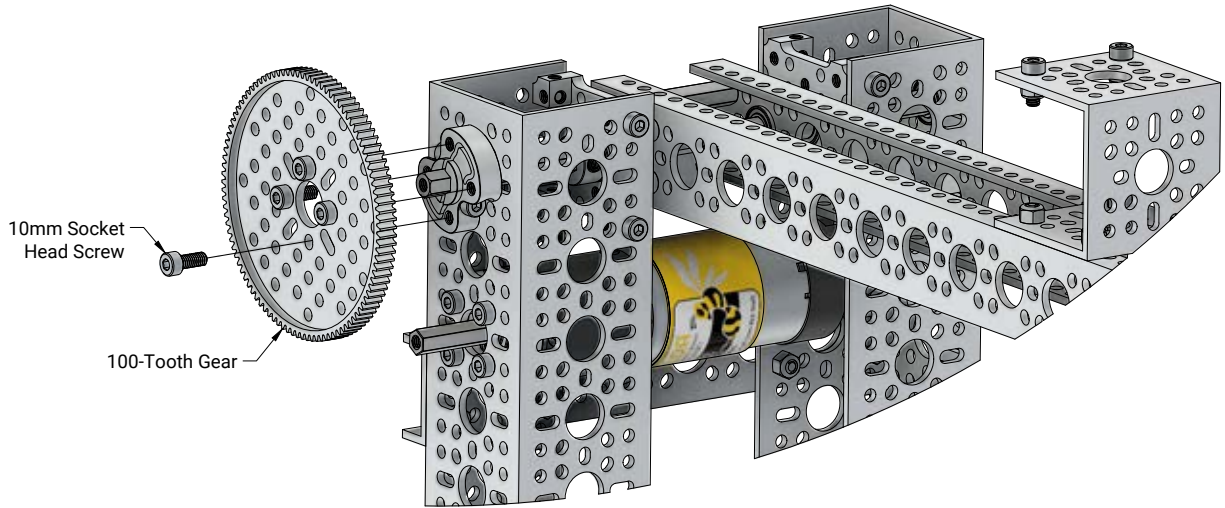
FIGURE 37-D

Push the 8mm REX™ Collar tightly against the 8mm REX™ Bearing, then tighten in place.



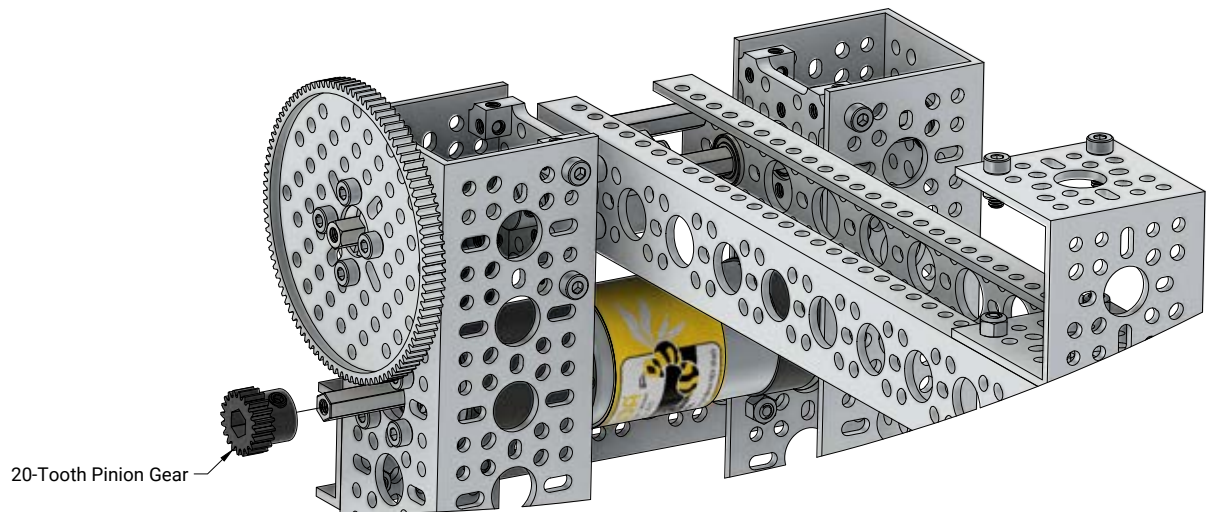
STEP 38:

Use **four** 10mm Socket Head Screws to mount **one** 100-Tooth Gear as shown.



STEP 39:

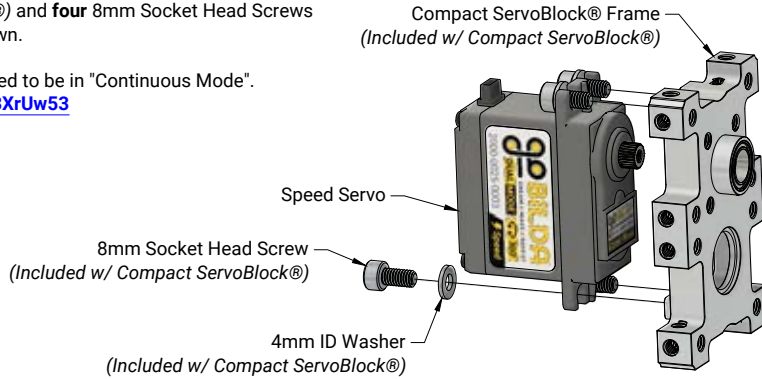
Slide **one** 20-Tooth Pinion Gear into place as shown. Align it with the 100-Tooth Gear, then tighten in place.



STEP 40:

Fasten **one** Speed Servo into **one** Compact ServoBlock® using **four** 4mm ID Washers (Included w/ Compact ServoBlock®) and **four** 8mm Socket Head Screws (Included w/ Compact ServoBlock®) as shown.

This Speed Servo will need to be programmed to be in "Continuous Mode". See our documentation here: <https://bit.ly/3XrUw53>



STEP 41:

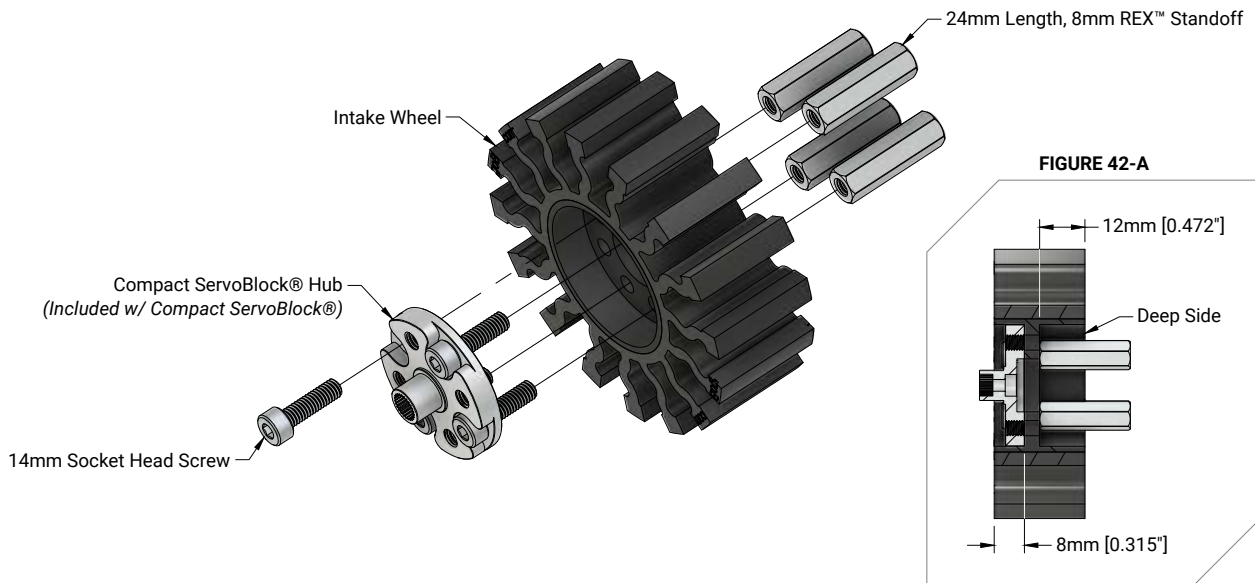
Use scissors to cut out the rubber tread between the "spokes" **two** 72mm Gecko® Wheels as shown to create two "Intake Wheels".

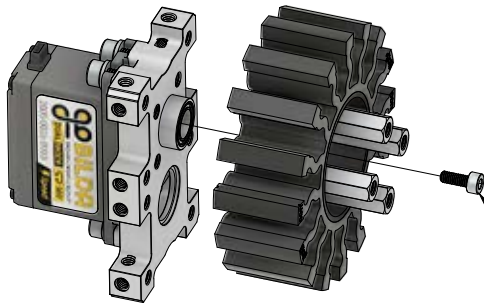


STEP 42:

Mount **one** Intake Wheel to **one** Compact ServoBlock® Hub (Included w/ Compact ServoBlock®) using **four** 14mm Socket Head Screws and **four** 24mm Length, 8mm REX™ Standoffs as shown. Make sure the 24mm Length, 8mm REX™ Standoffs are tightly secured before proceeding.

The 24mm Length, 8mm REX™ Standoffs should be nested into the "deep side" of the Intake Wheel (FIGURE 42-A).



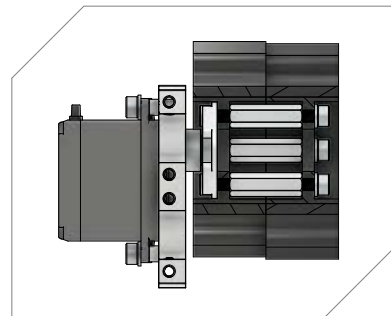


STEP 43:

Combine the subassemblies from **STEP 40** and **STEP 42** using **one** M3 Socket Head Screw (Included w/ Compact ServoBlock®) as shown.

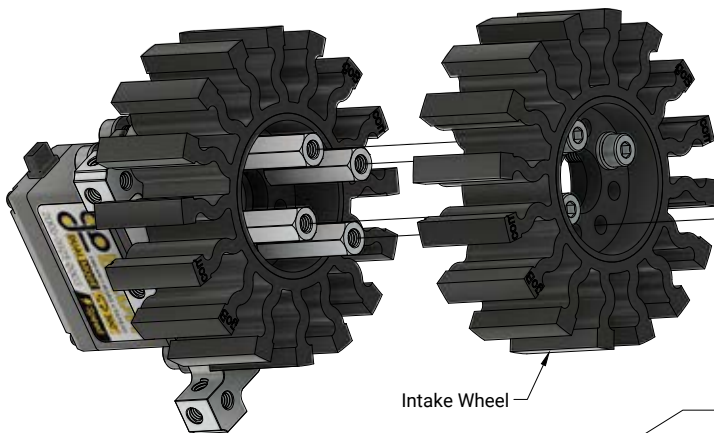
M3 Socket Head Screw
(Included w/ Compact ServoBlock®)

FIGURE 44-A



STEP 44:

Mount **one** Intake Wheel using **four** 4mm ID Washers and **four** 12mm Socket Head Screws as shown. The 24mm Length, 8mm REX™ Standoffs should be nested into the deep side of the Intake Wheel. There will be no gap between the Intake Wheels if assembled correctly (**FIGURE 44-A**).



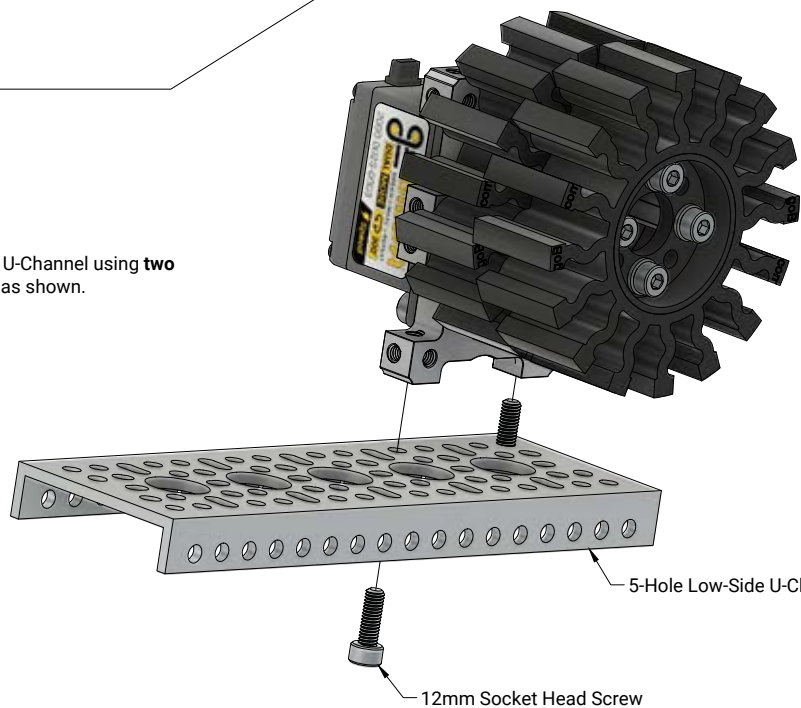
Intake Wheel

12mm Socket Head Screw

4mm ID Washer

STEP 45:

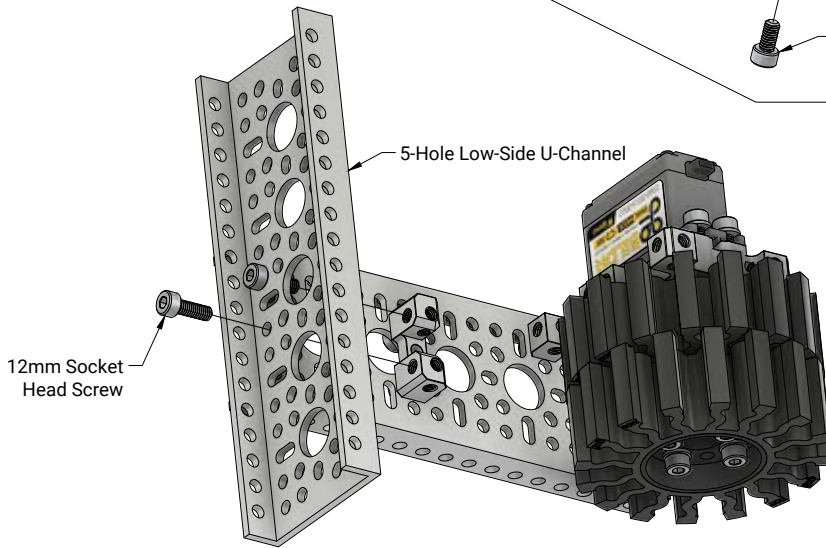
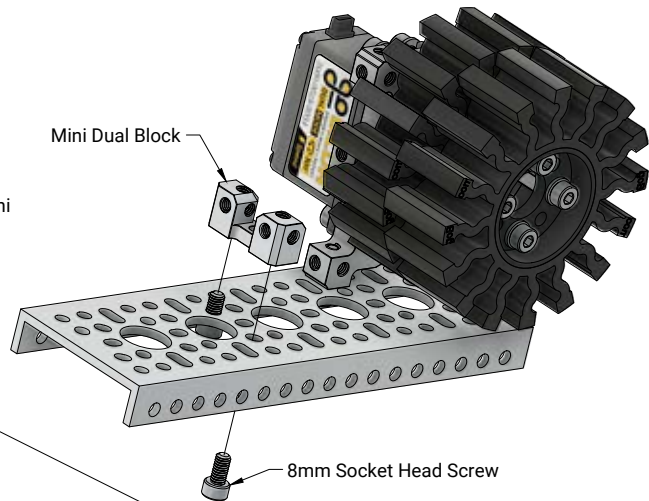
Attach **one** 5-Hole Low-Side U-Channel using **two** 12mm Socket Head Screws as shown.



5-Hole Low-Side U-Channel

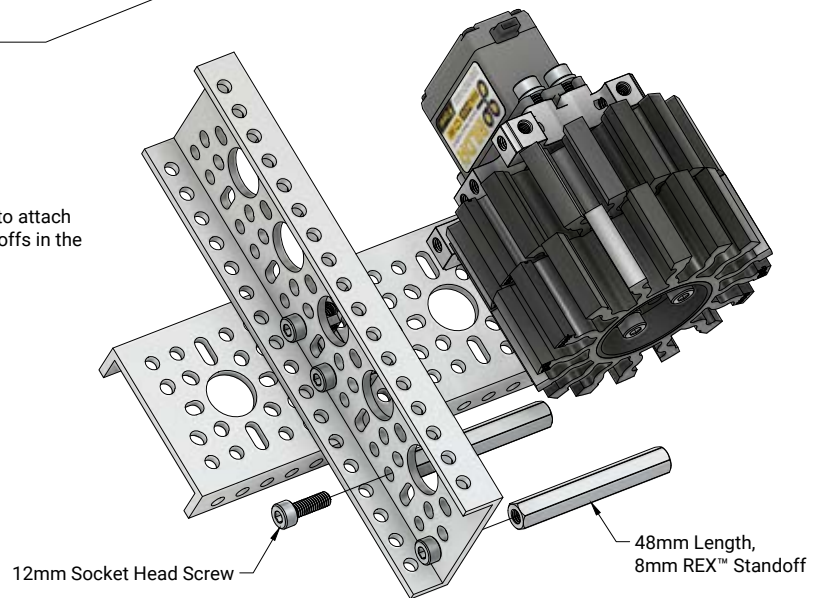
12mm Socket Head Screw

STEP 46:
Use **two** 8mm Socket Head Screws to attach **one** Mini Dual Block Mount as shown. Note the location and orientation.



STEP 47:
Mount **one** 5-Hole Low-Side U-Channel using **two** 12mm Socket Head Screws as shown.

STEP 48:
Use **two** 12mm Socket Head Screws to attach **two** 48mm Length, 8mm REX™ Standoffs in the locations shown.



STEP 49:

Use your servo controller to rotate **one** Torque Servo to the center of its rotation (**FIGURE 49-A**). Install the Torque Servo in **one** Compact ServoBlock® as shown. The slotted holes should be aligned vertically and horizontally as shown in **FIGURE 49-A**.

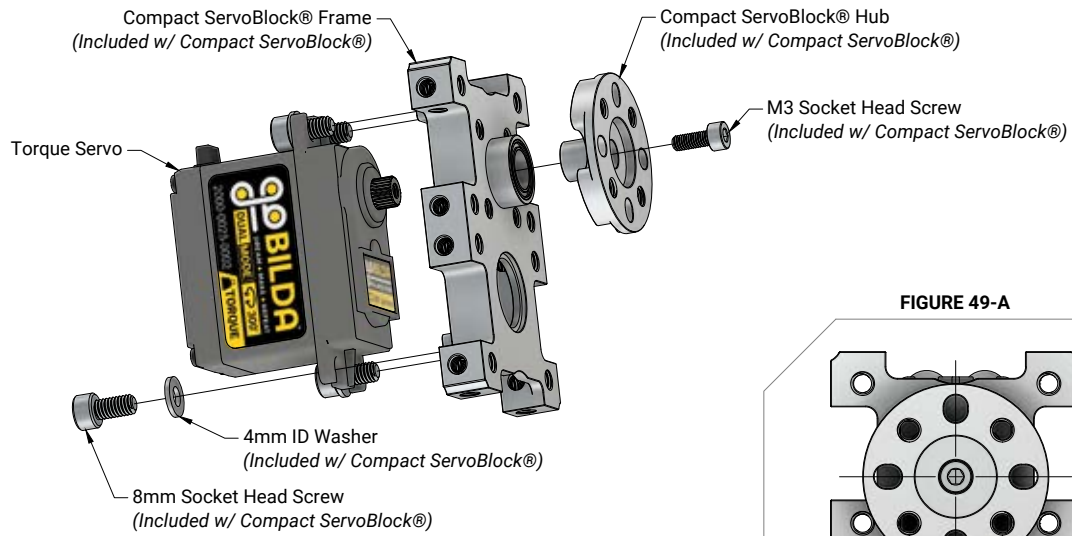
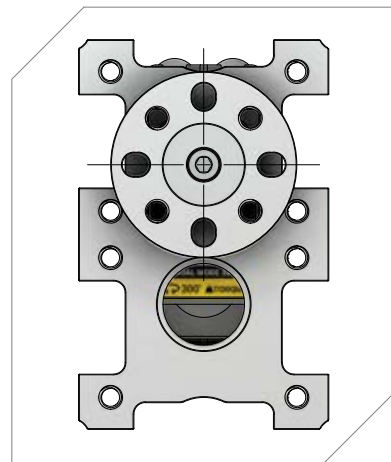
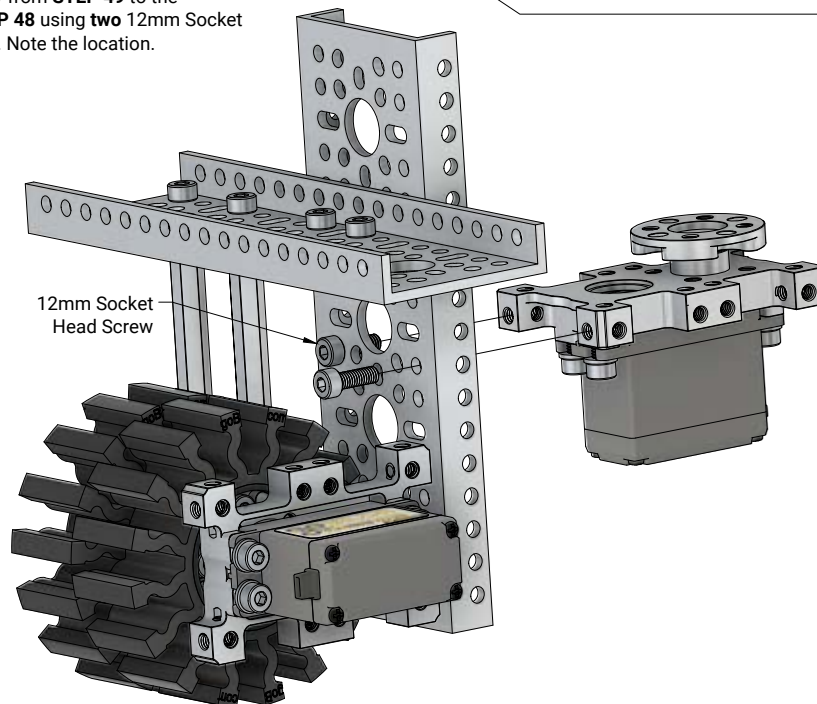


FIGURE 49-A



STEP 50 — Intake Assembly

Mount the subassembly from **STEP 49** to the subassembly from **STEP 48** using **two** 12mm Socket Head Screws as shown. Note the location.



STEP 51:

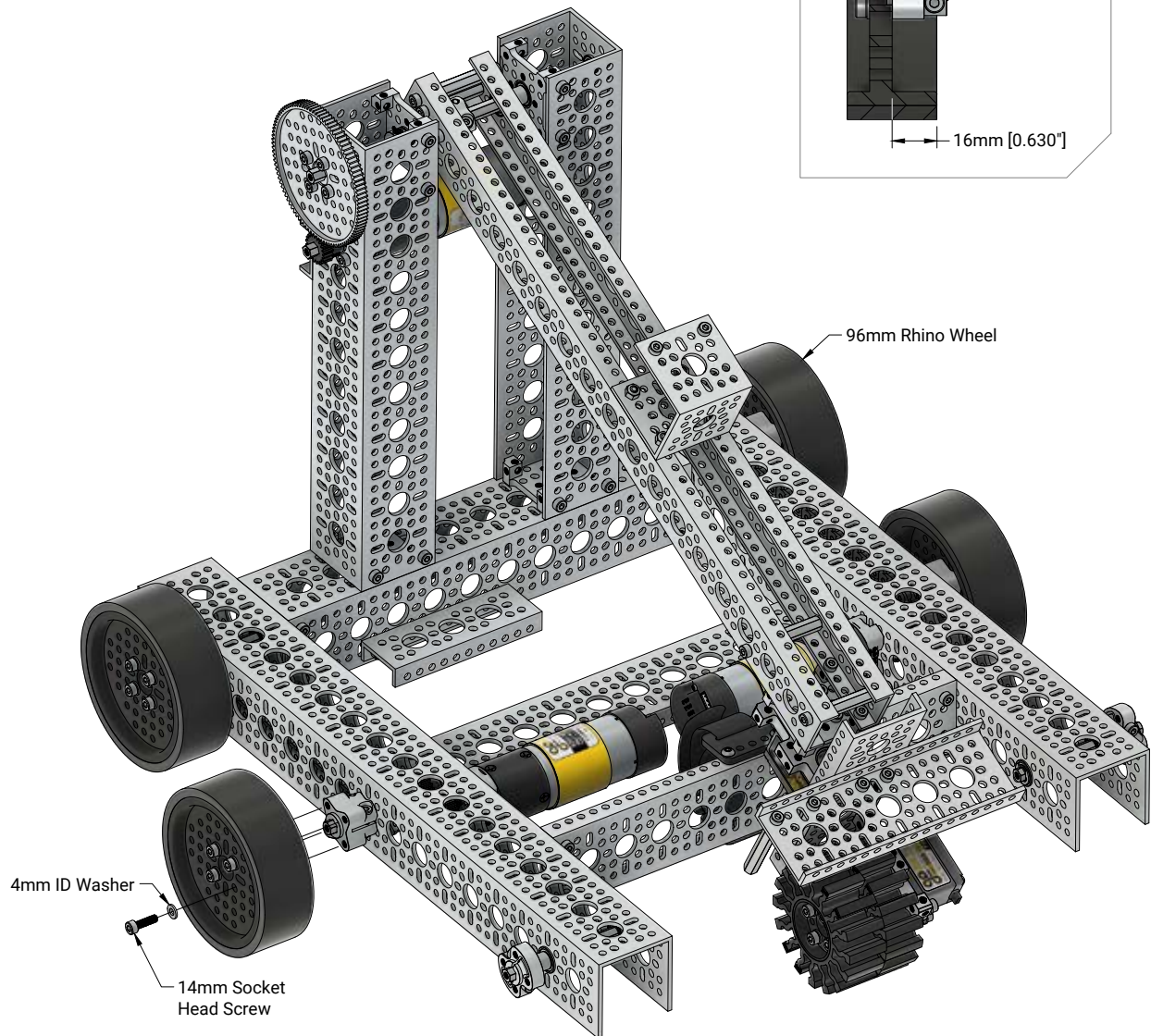
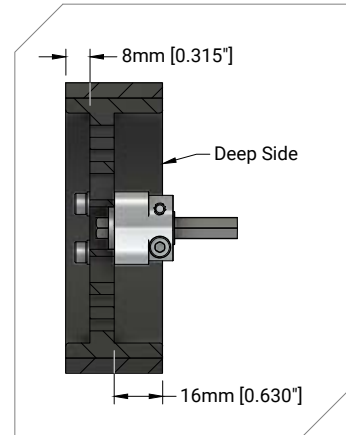
Use **four** 8mm Socket Head Screws to attach the Intake Assembly from **STEP 50** to the Arm Assembly as shown. Make sure the 8mm Socket Head Screws go through the slotted holes in the Quad Block Mount.



STEP 52:

Attach **four** 96mm Rhino Wheels using **sixteen** 4mm ID Washers and **sixteen** 14mm Socket Head Screws as shown. The 8mm Rex™ Hyper Hub should be recessed into the "Deep Side" of each 96mm Rhino Wheel (**FIGURE 52-A**).

FIGURE 52-A

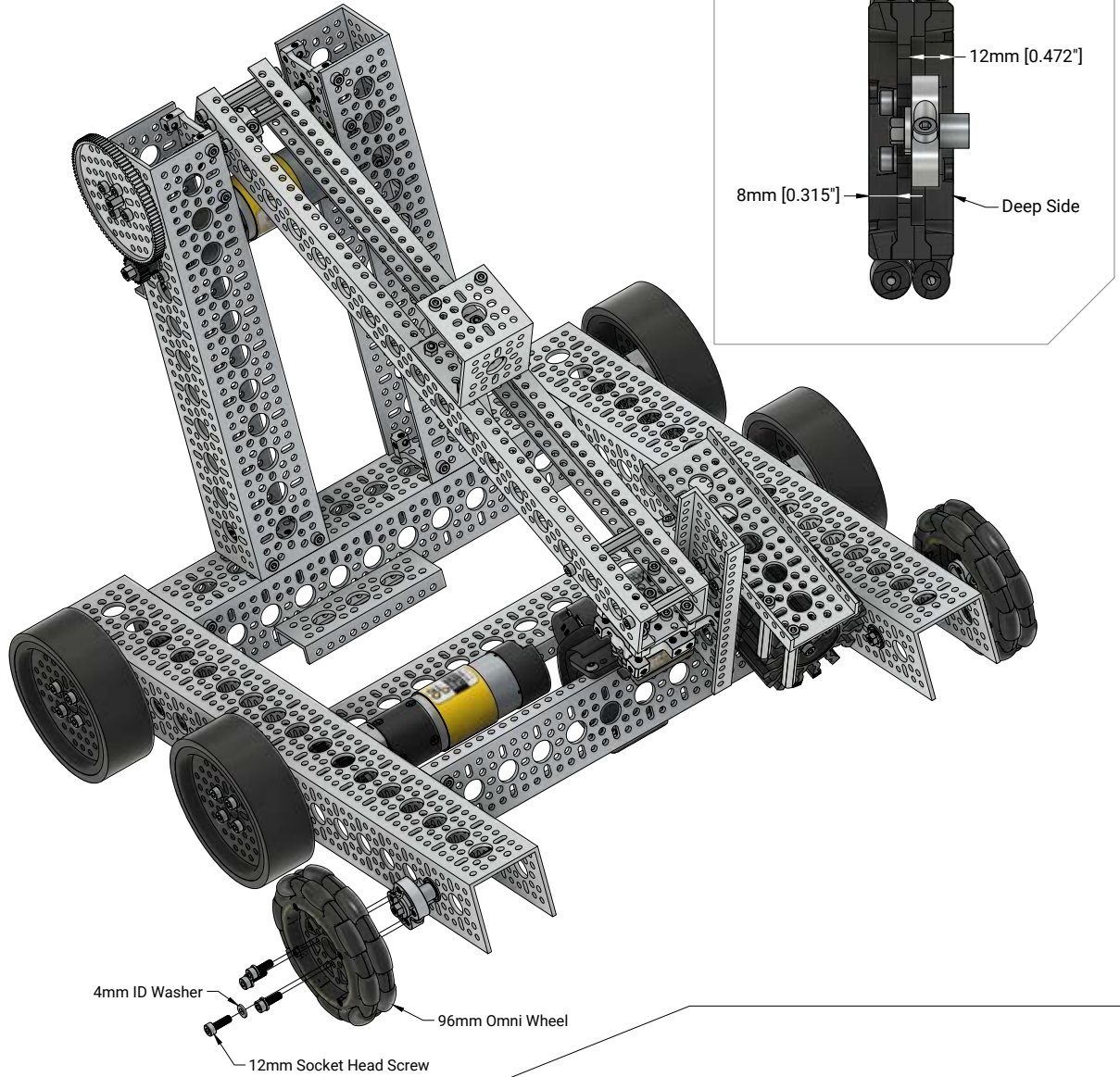


NOTE: If your kit came with **two** 3624-0014-0096 Omni Wheels, follow **STEP 53A**. If your kit came with **four** 3604-0014-0096 96mm Omni Wheels, follow **STEP 53B**

STEP 53A:

Use **eight** 12mm Socket Head Screws and **eight** 4mm ID Washers to attach **two** 96mm Omni Wheels as shown. The 8mm REX™ Sonic Hub should be recessed into the "Deep Side" of each 96mm Omni Wheel (**FIGURE 53-A**).

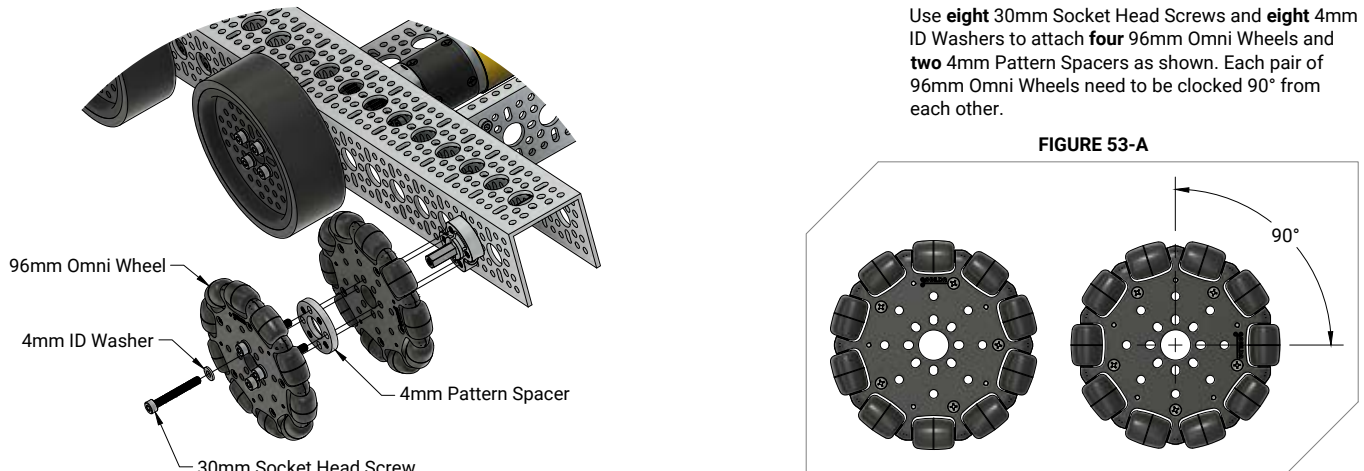
FIGURE 53-A



STEP 53B:

Use **eight** 30mm Socket Head Screws and **eight** 4mm ID Washers to attach **four** 96mm Omni Wheels and **two** 4mm Pattern Spacers as shown. Each pair of 96mm Omni Wheels need to be clocked 90° from each other.

FIGURE 53-A



STEP 54:

Use **three** Zip Ties to fasten your REV Control Hub as shown.
Secure **one** 12V Battery using the Battery Strap as shown.



Great Job!

You've completed the assembly! You're almost there—next up is wiring and programming your robot. Remember, this is just the beginning of what you can accomplish. Stay curious, and enjoy the journey ahead!

