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Appendix D

Mobile Robotics

SECONDARY

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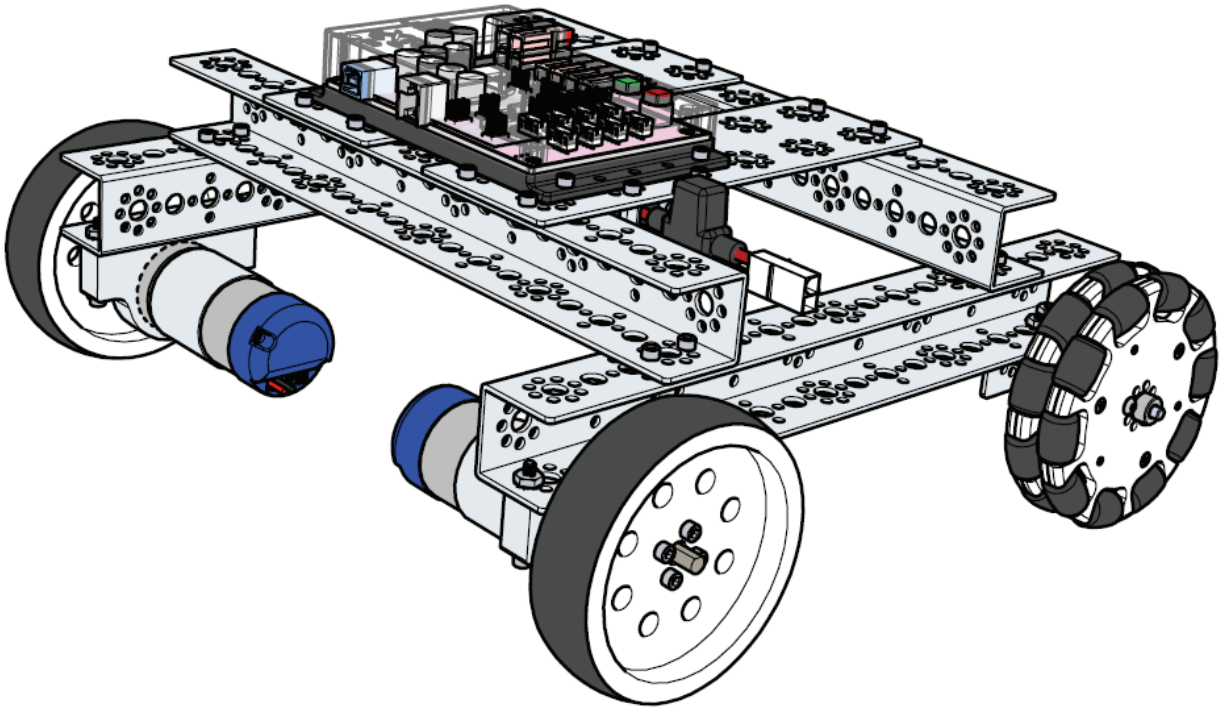
Regina2025

Appendix D: Approved Autonomous Challenge Chassis Optional pre-build

Overall:



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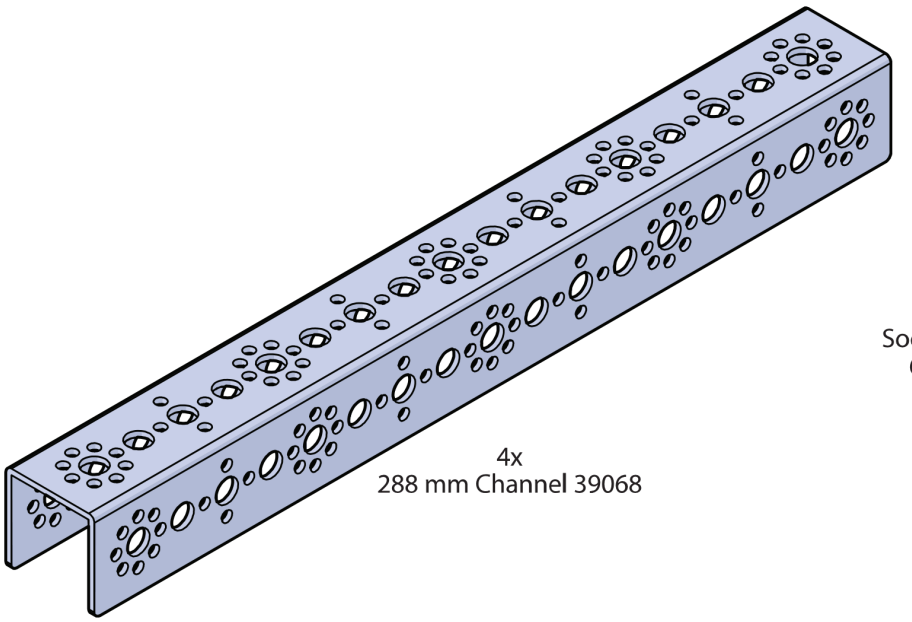
Instructions for Building:

Step 1

Parts Needed



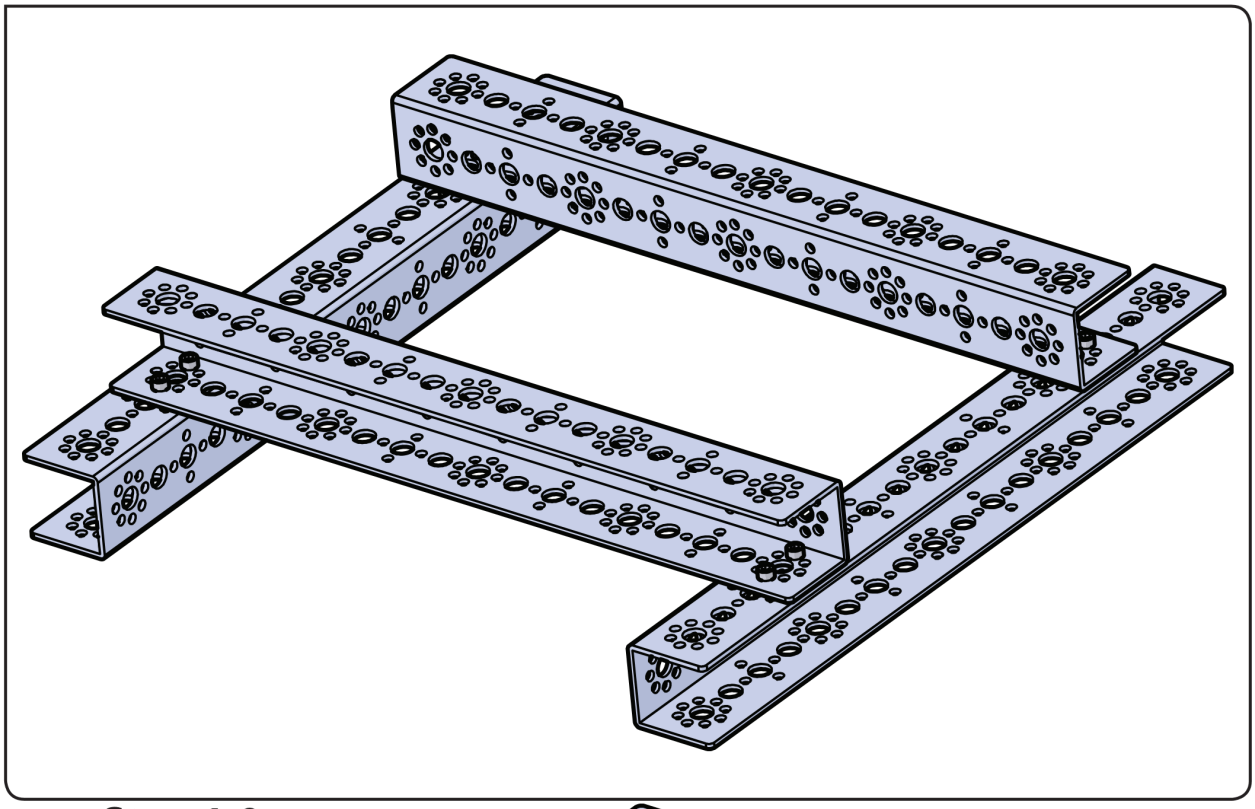
4x
288 mm Channel 39068

8x
Socket Head Cap Screw
6-32 x 5/16" 39098

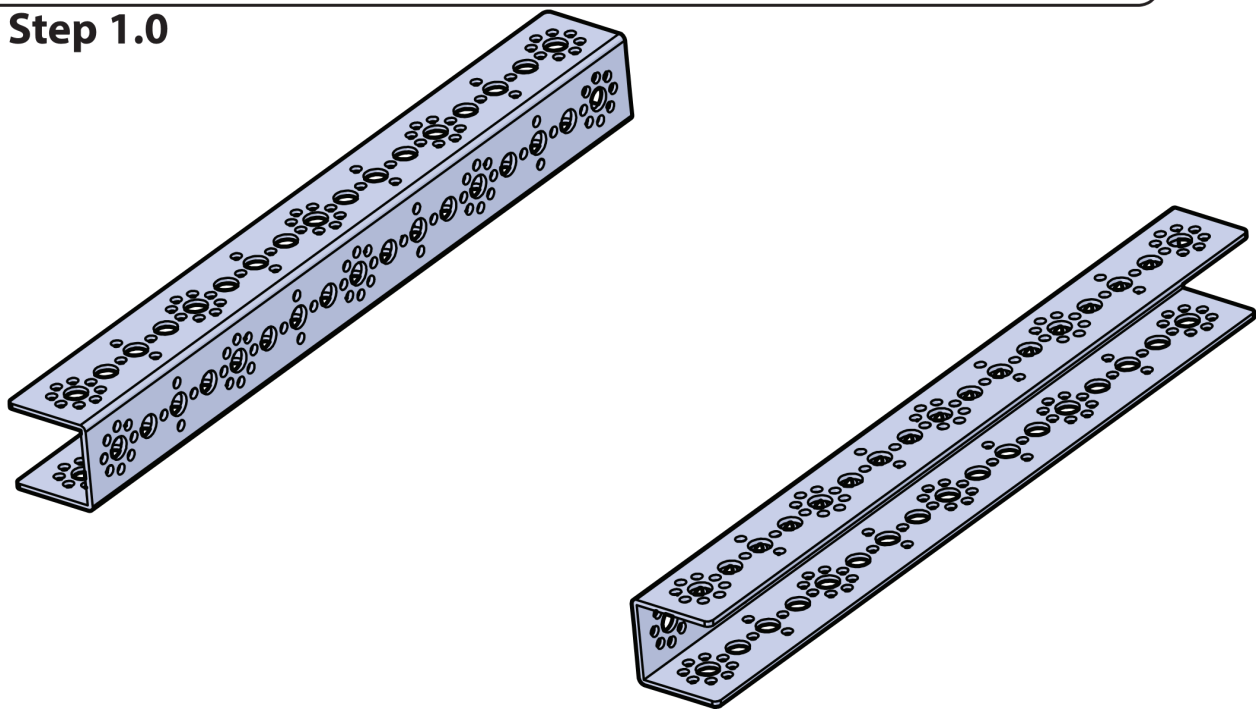
8x
Kep Nut 39094

Tip: See page 36 for help with identifying channel elements. Remember, channels are identified by length.

Partial assembly should look like this.



Step 1.0



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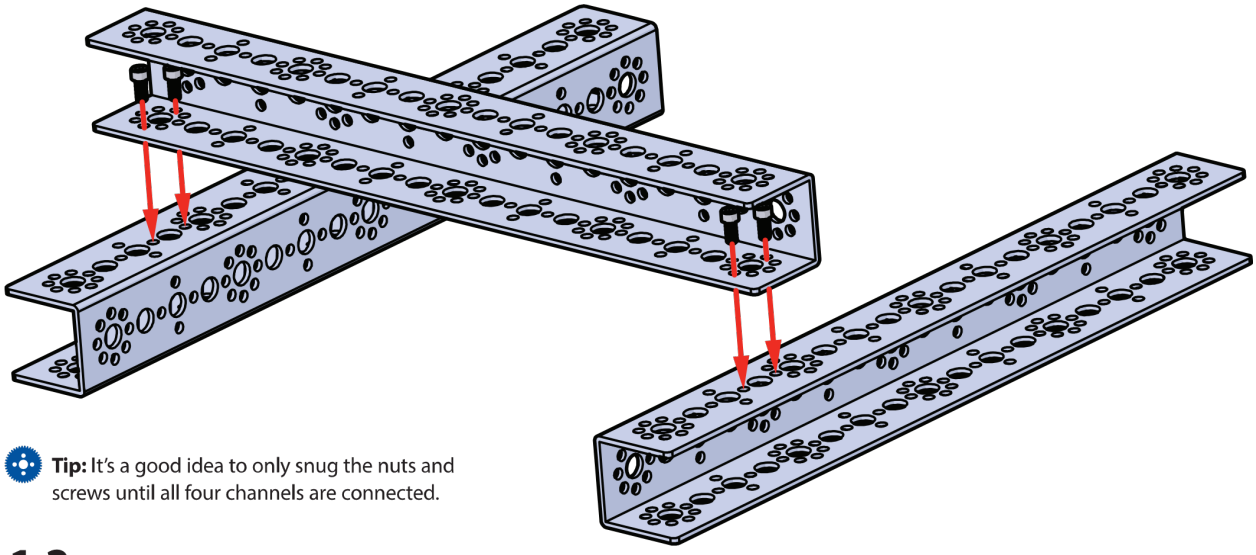
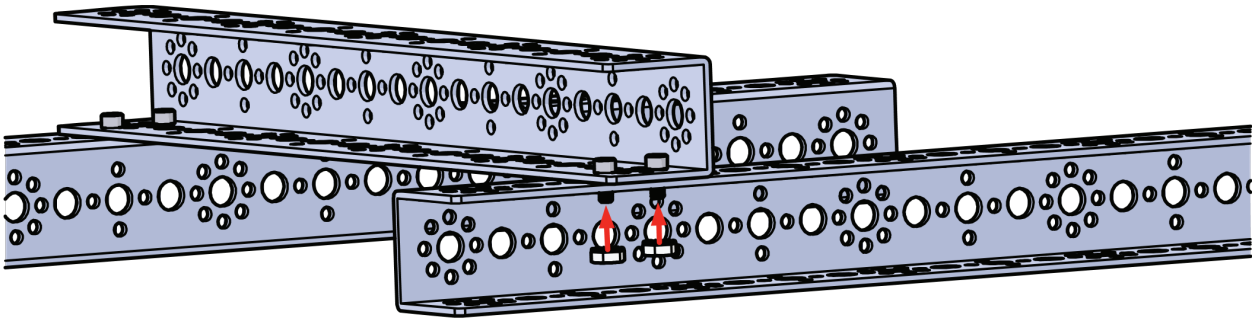
Step 1.1



Tip: It's a good idea to only snug the nuts and screws until all four channels are connected.

Step 1.2



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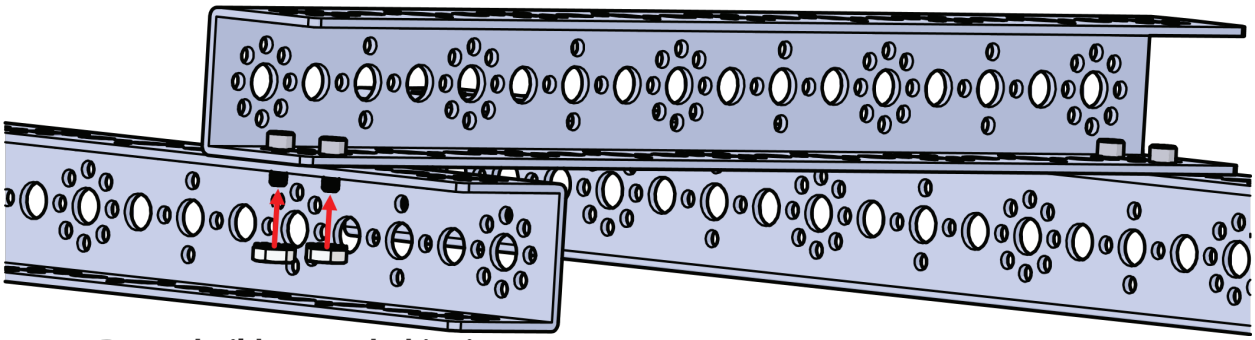
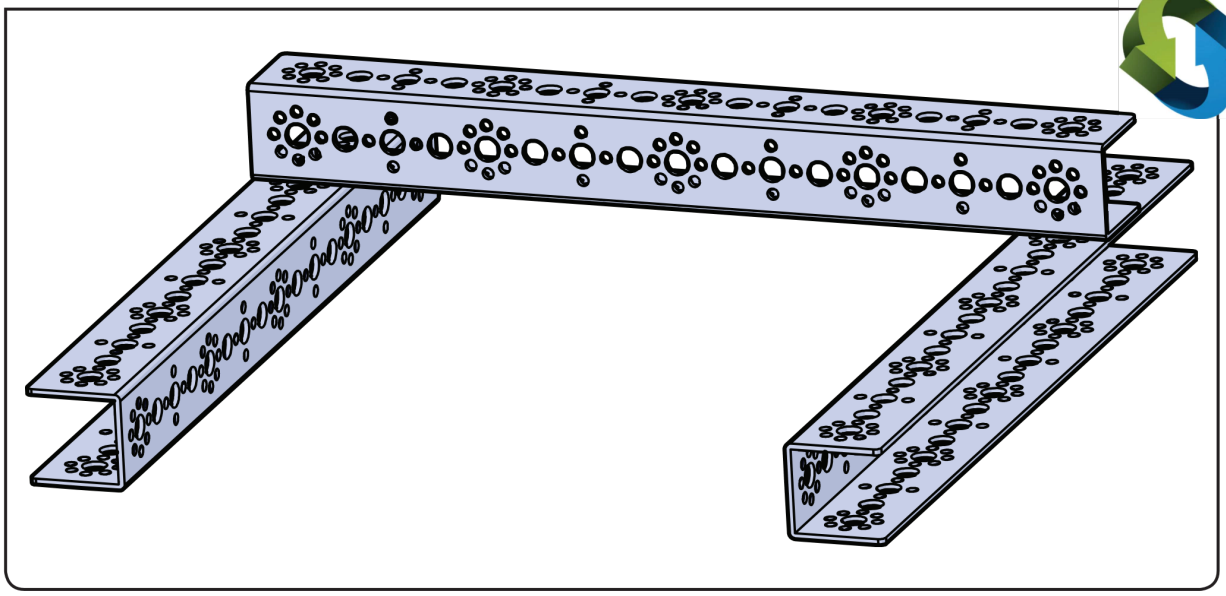
Step 1.3



Rotate build to match this view.



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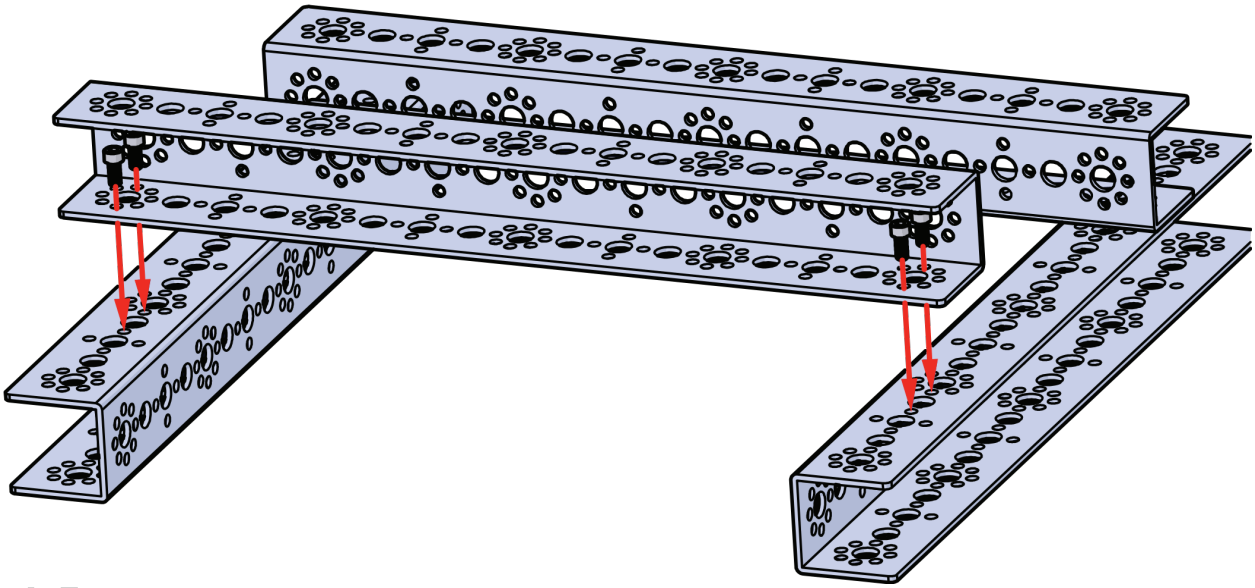
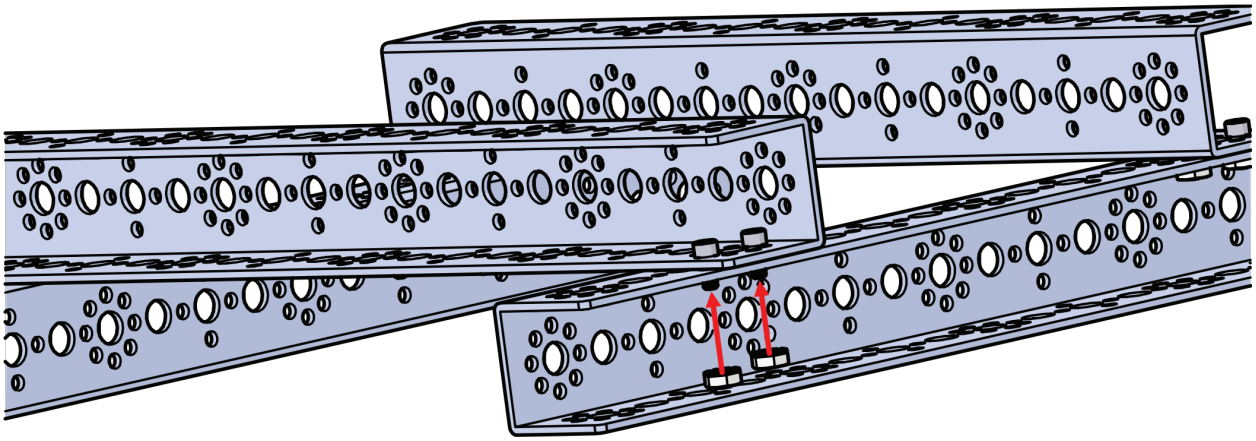
Step 1.4



Step 1.5



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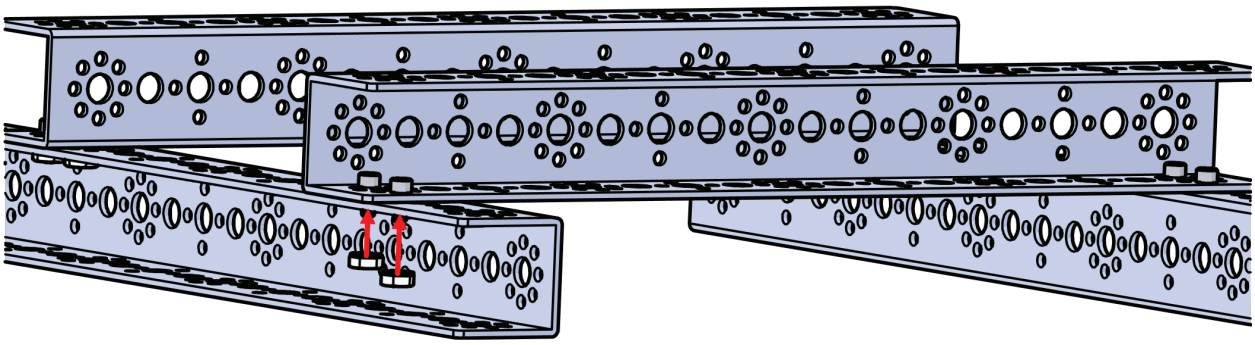
Step 1.6



Tip: After all four channels are connected and the square frame is created, don't forget to go back and tighten all the screws and nuts.

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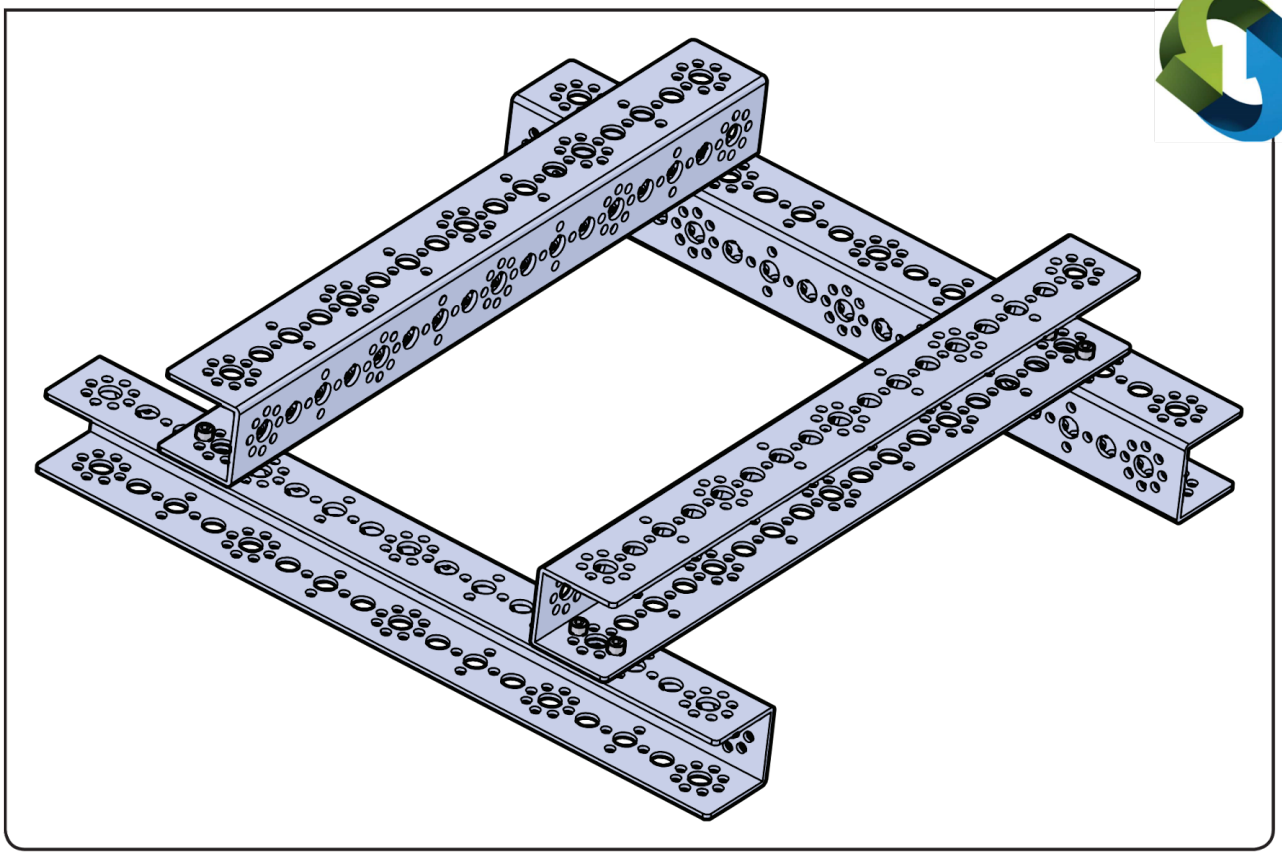
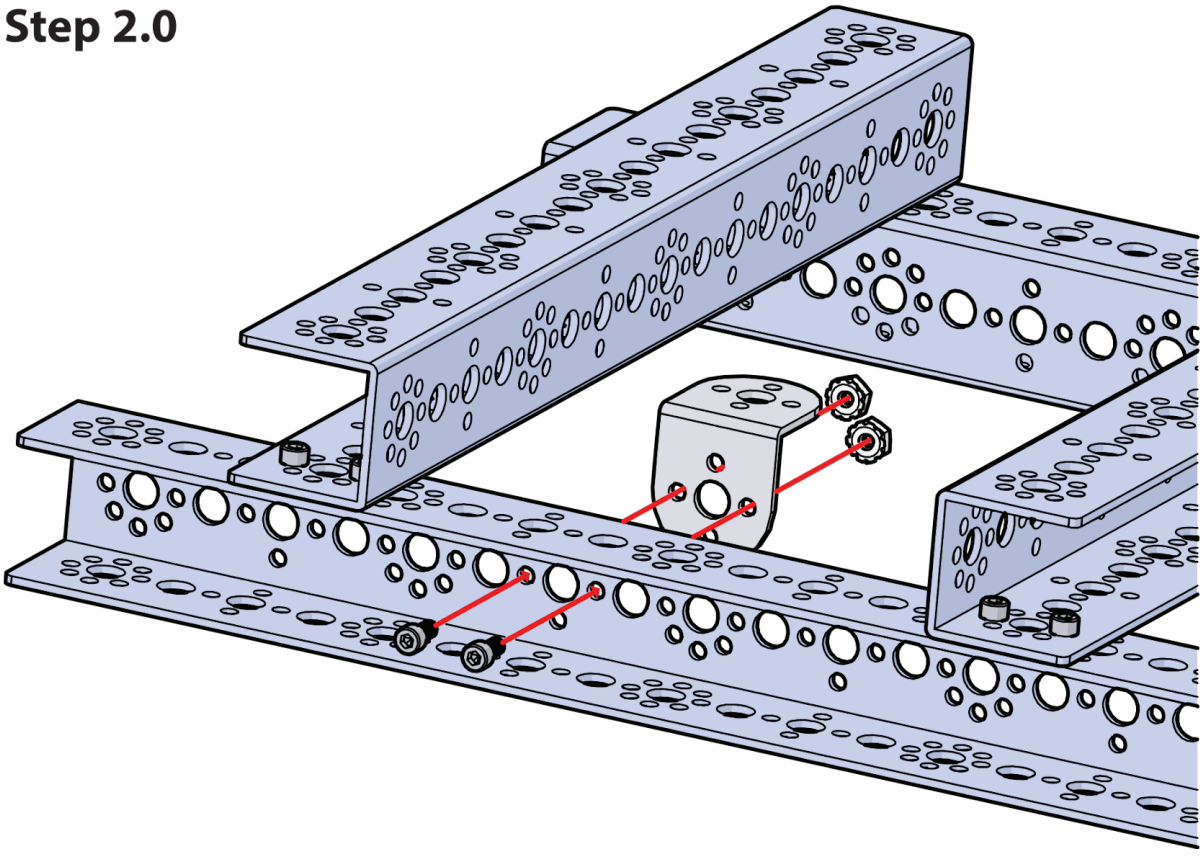
Rotate build to match this view.



Step 2.0



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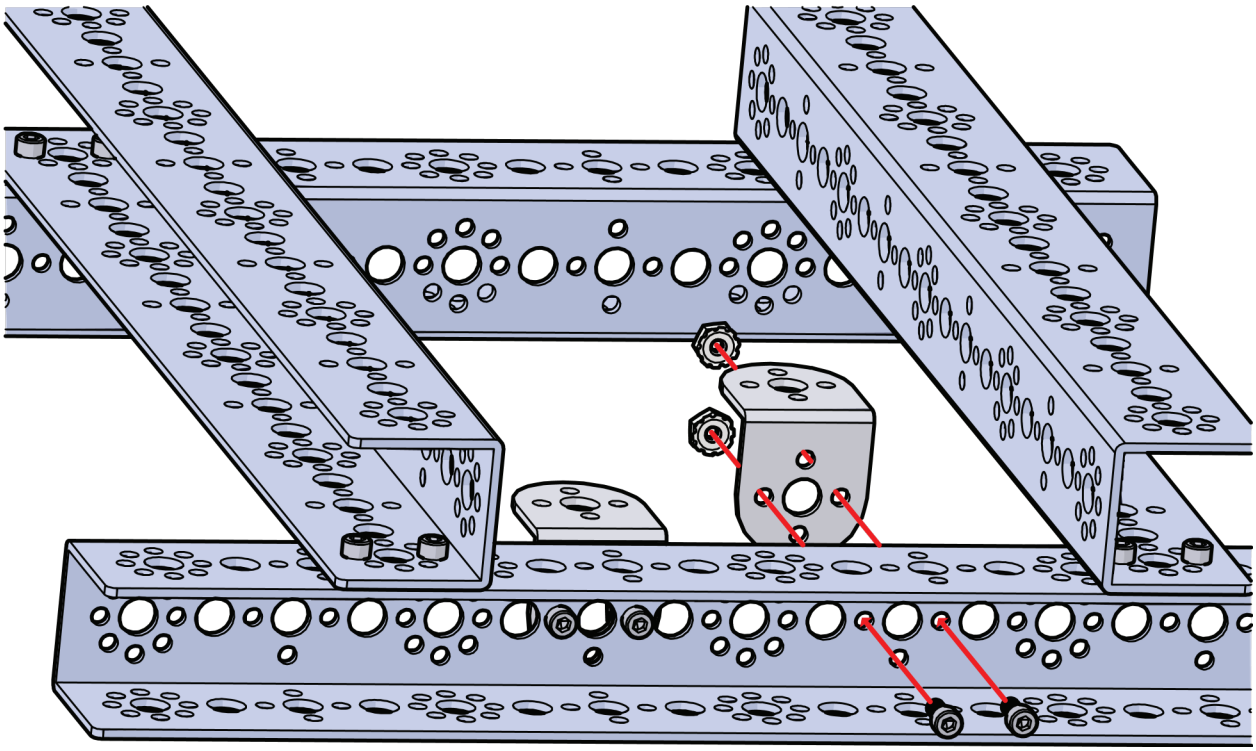
p 2.1



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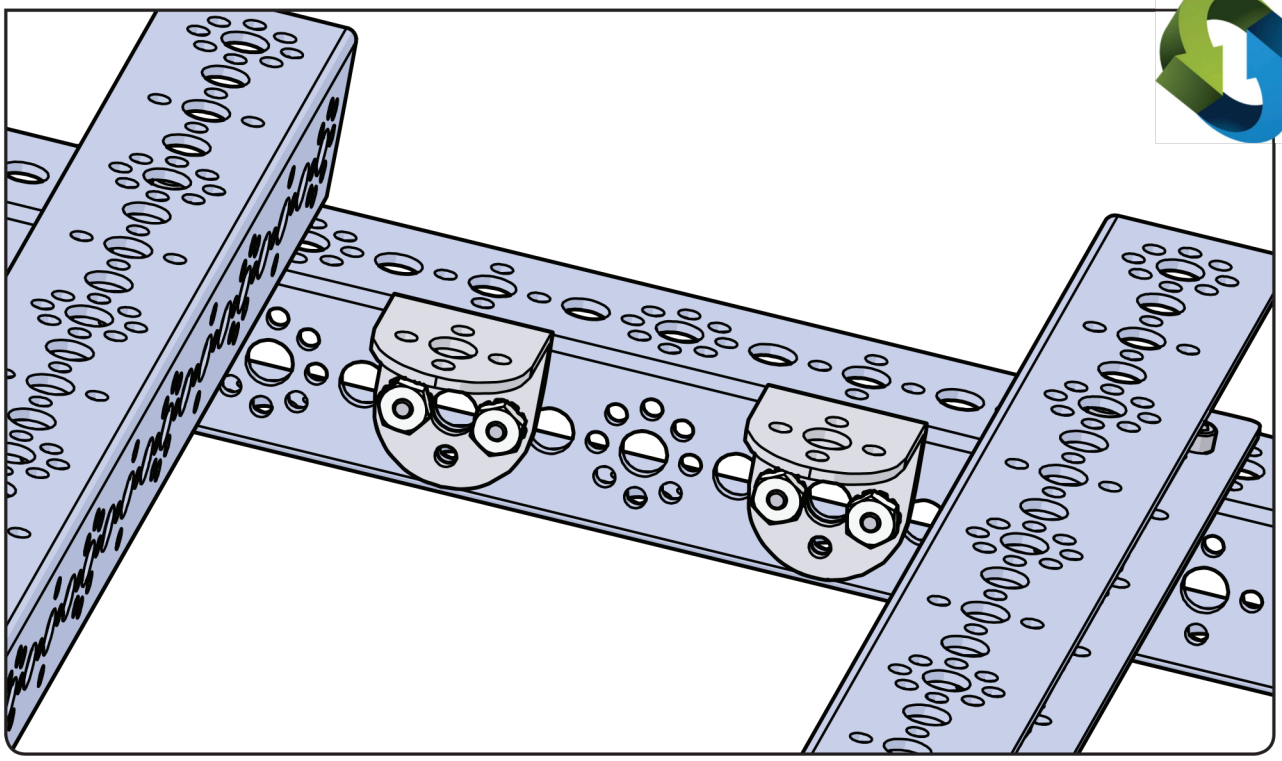
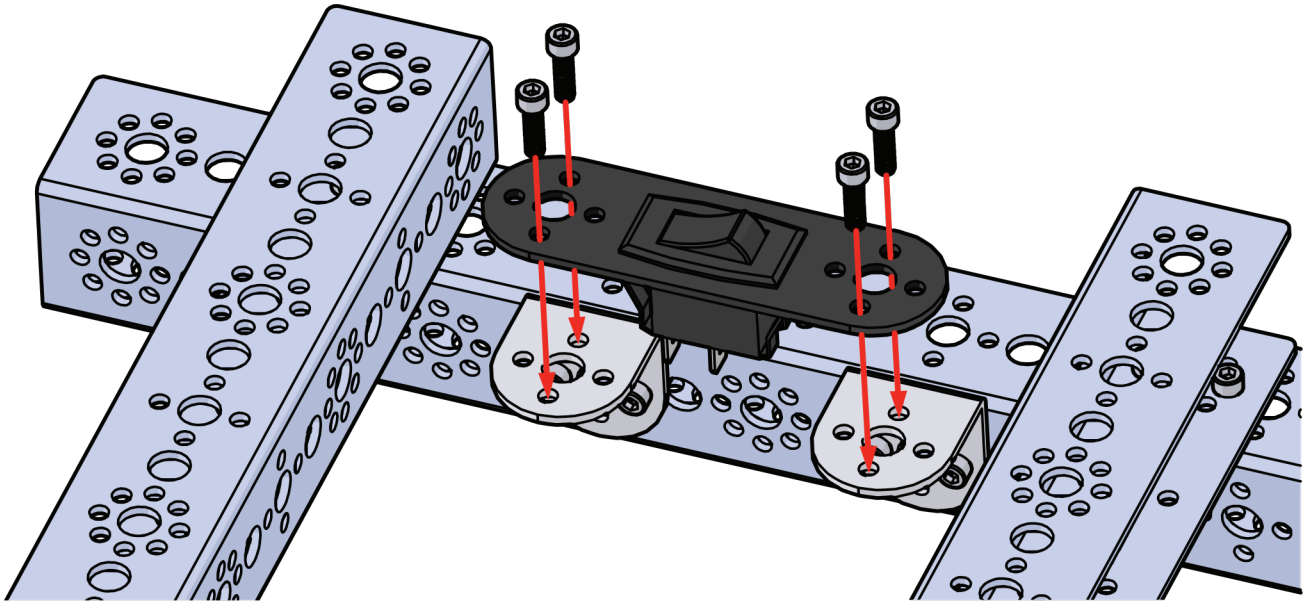
Rotate build to match this view.

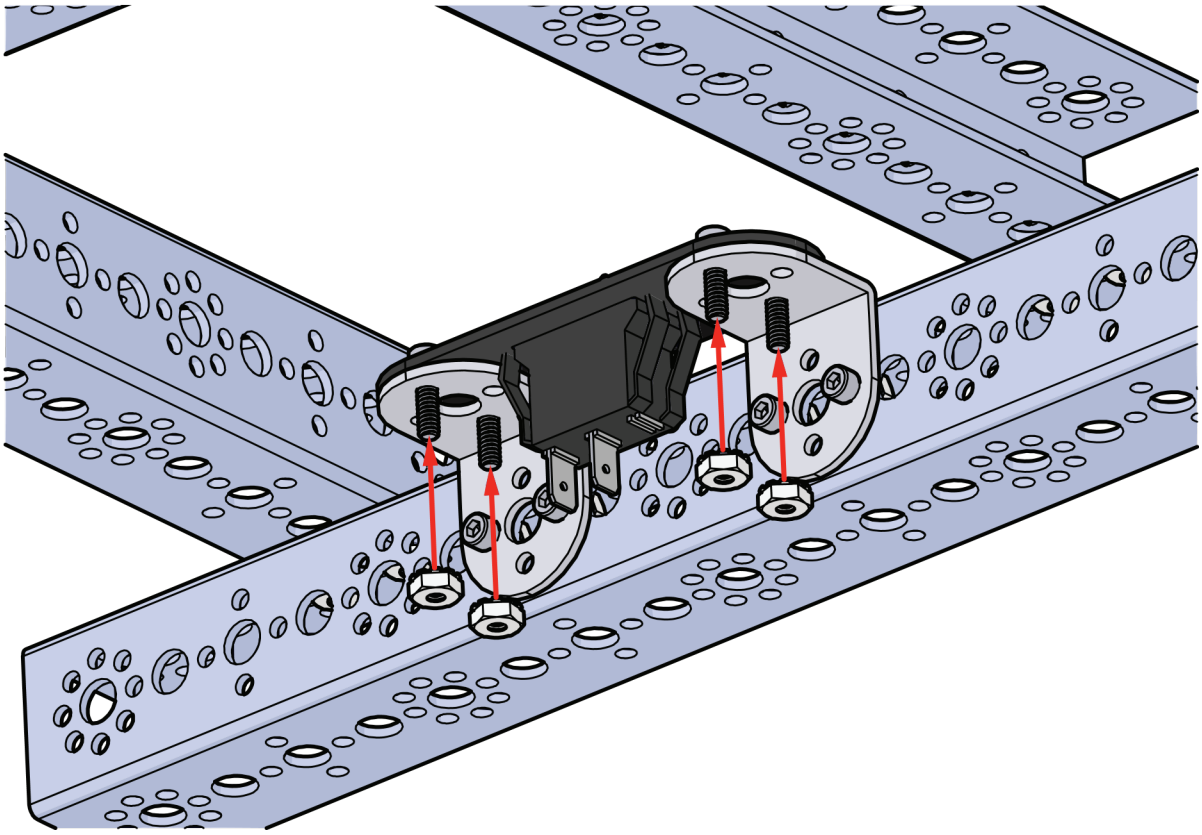


Tip: This step uses Socket Head Cap Screws (39097).



Tip: It does not matter in which direction the on/off power switch is mounted in the plate. It is strictly a matter of personal preference.

Step 2.3



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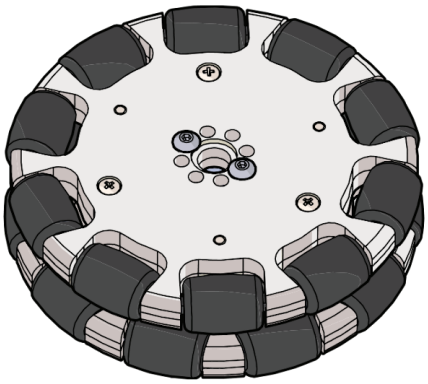
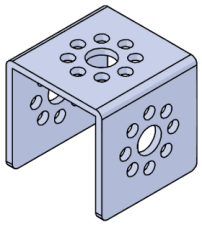
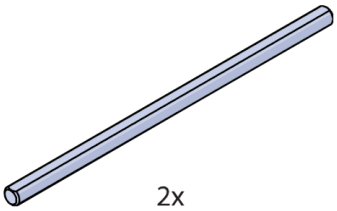
Parts Needed



2x
4" Omni Wheel Pack/Assembly
36466



2x
32 mm Channel
39065



2x
100 mm Axle
39088

4x
Axle Set Collar
39092

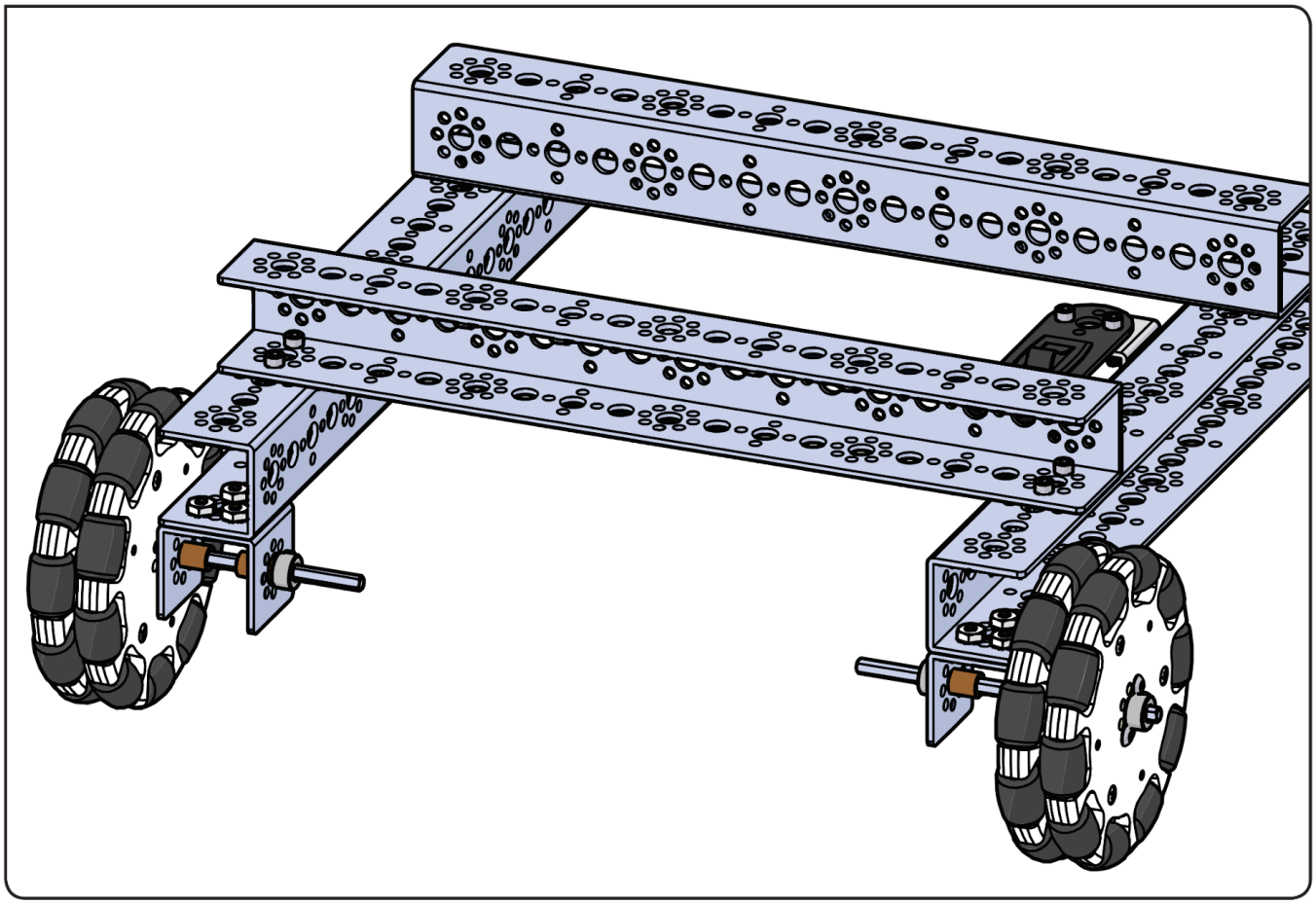
4x
Bronze Bushing 39091

6x
Socket Head Cap Screw
6-32 x 5/16" 39098

6x
Kep Nut 39094

2x
Axle Spacer 1/8" 39100

Partial assembly should look like this.



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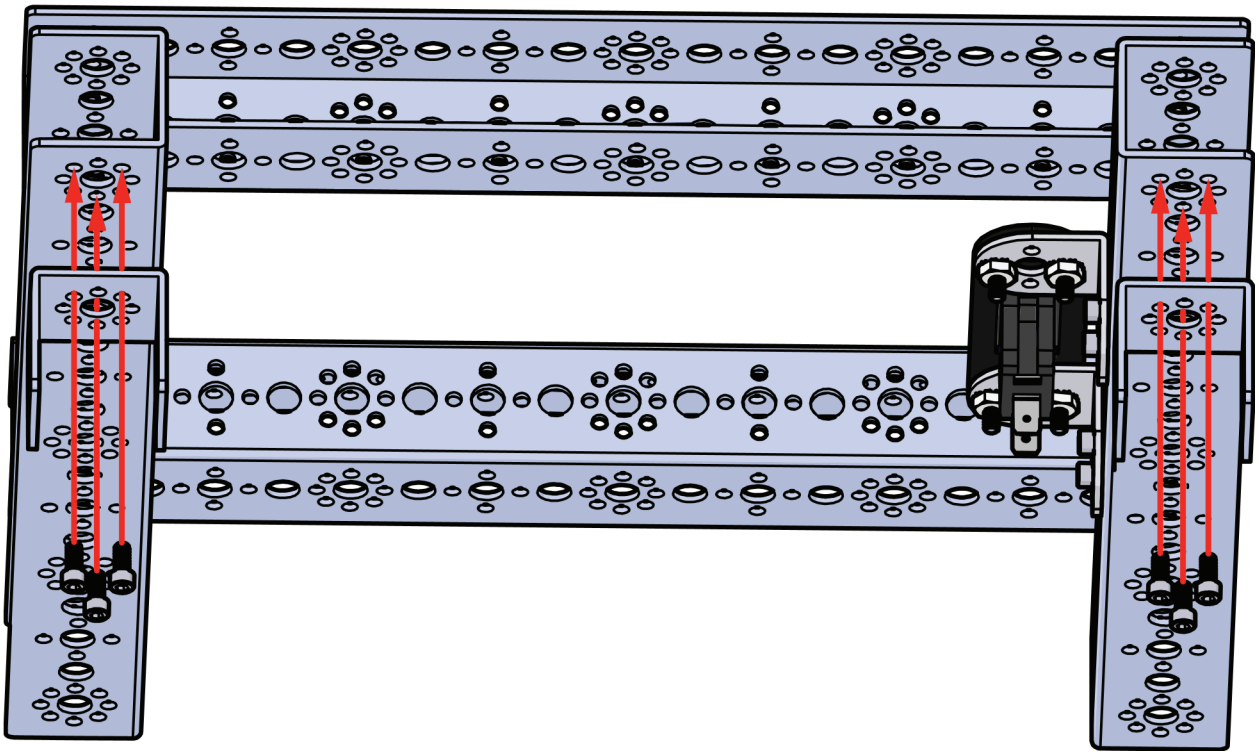
0



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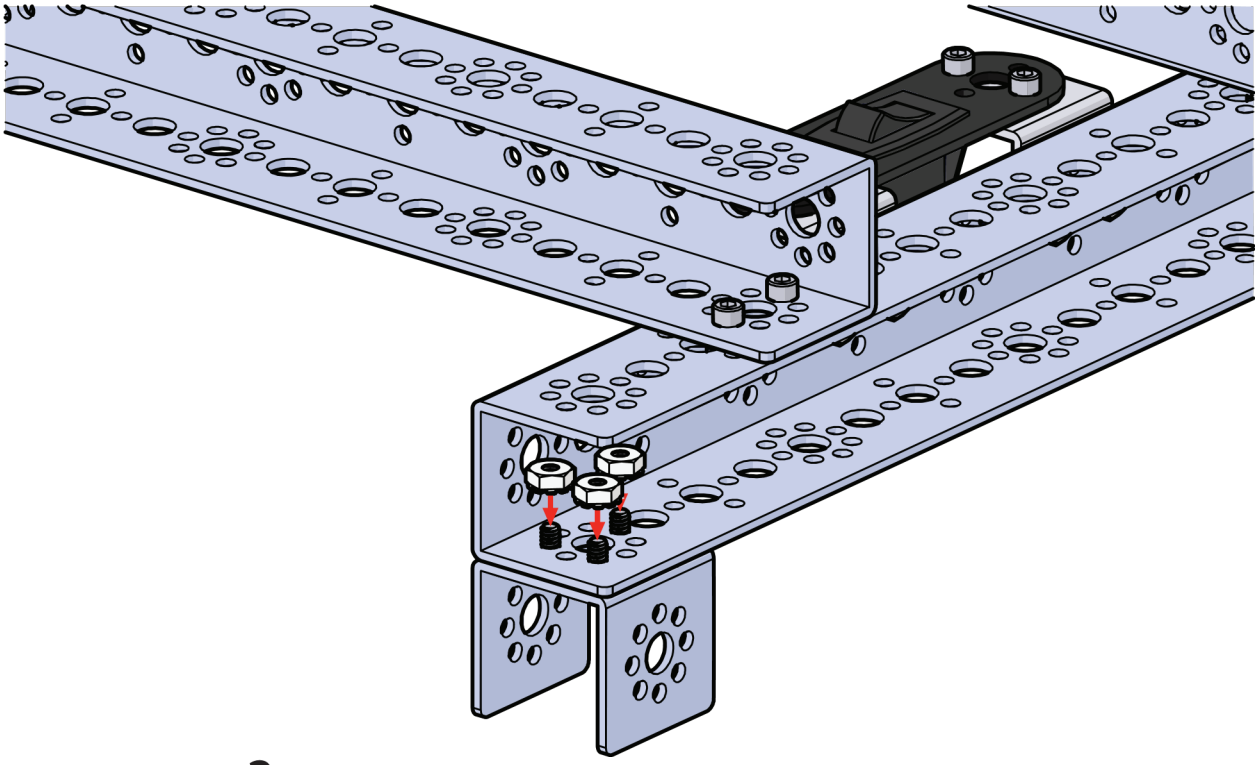
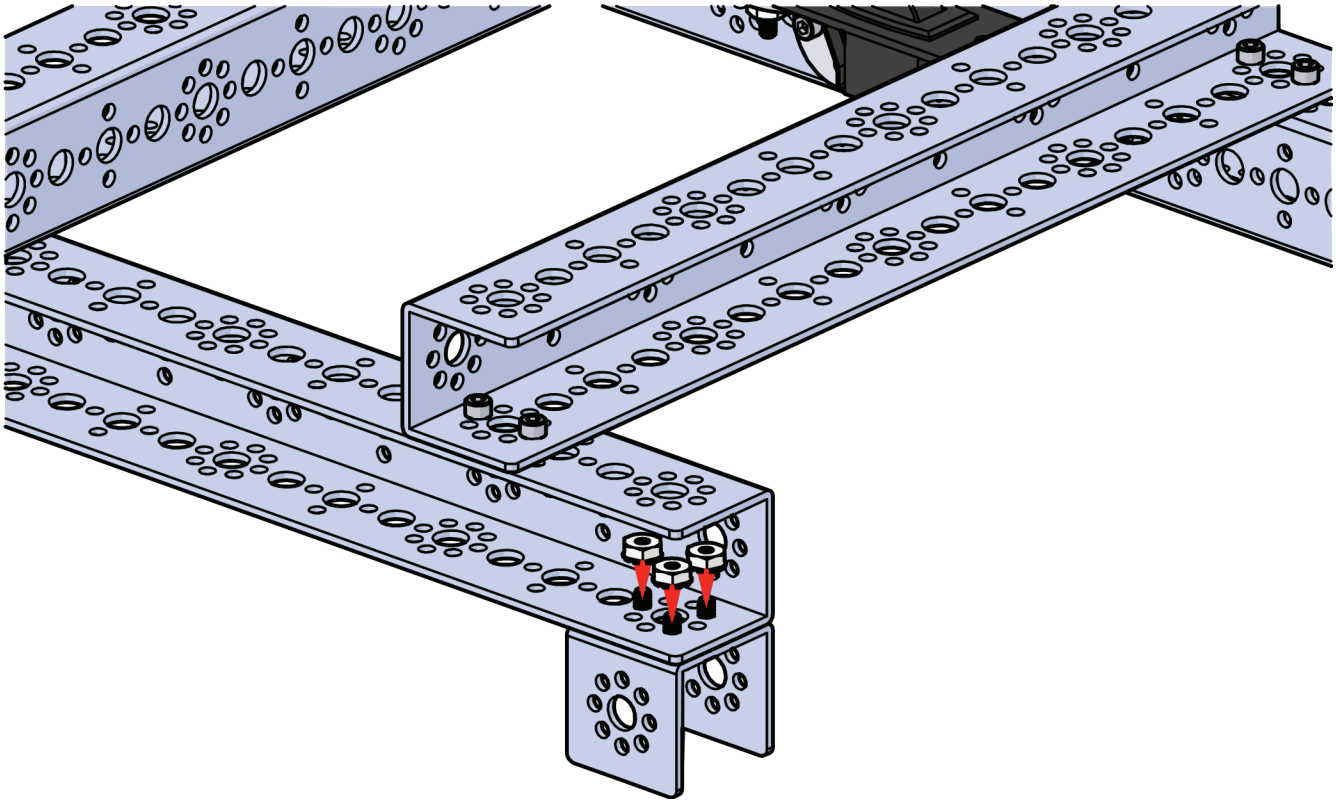
Step 3.1



p .2



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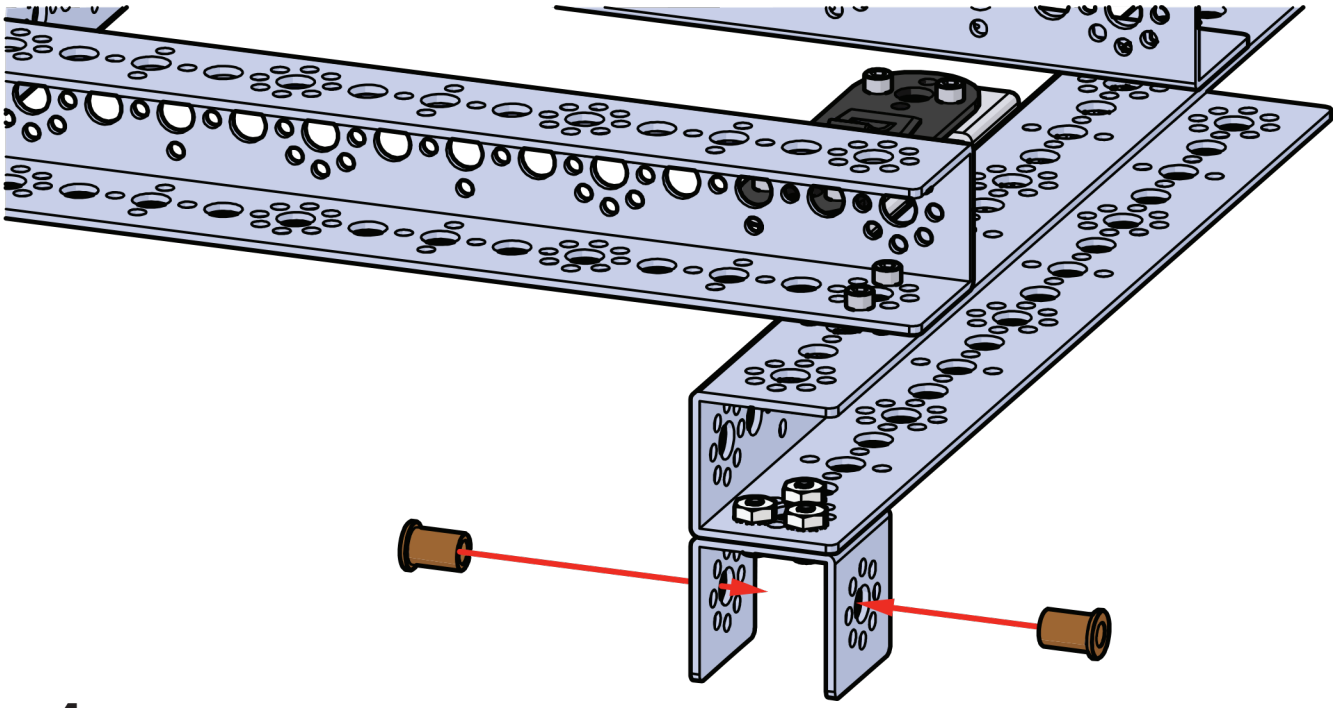
Step 3.3



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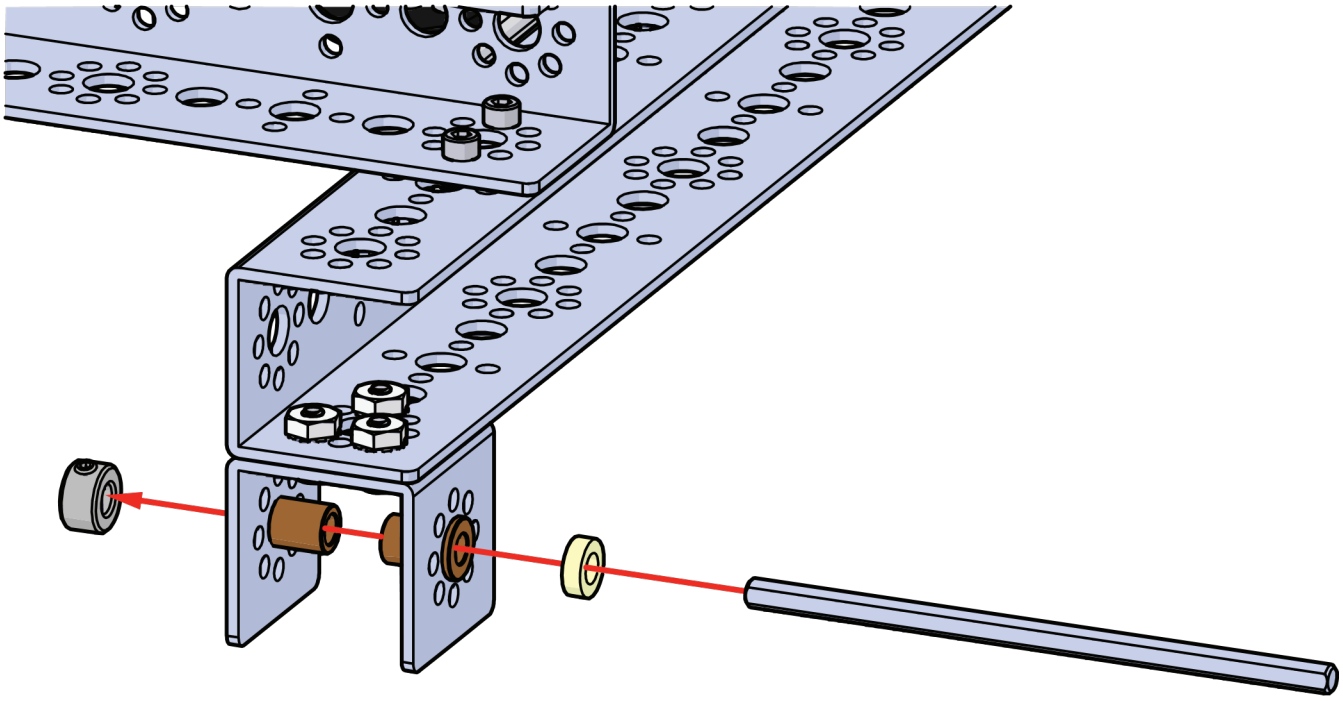

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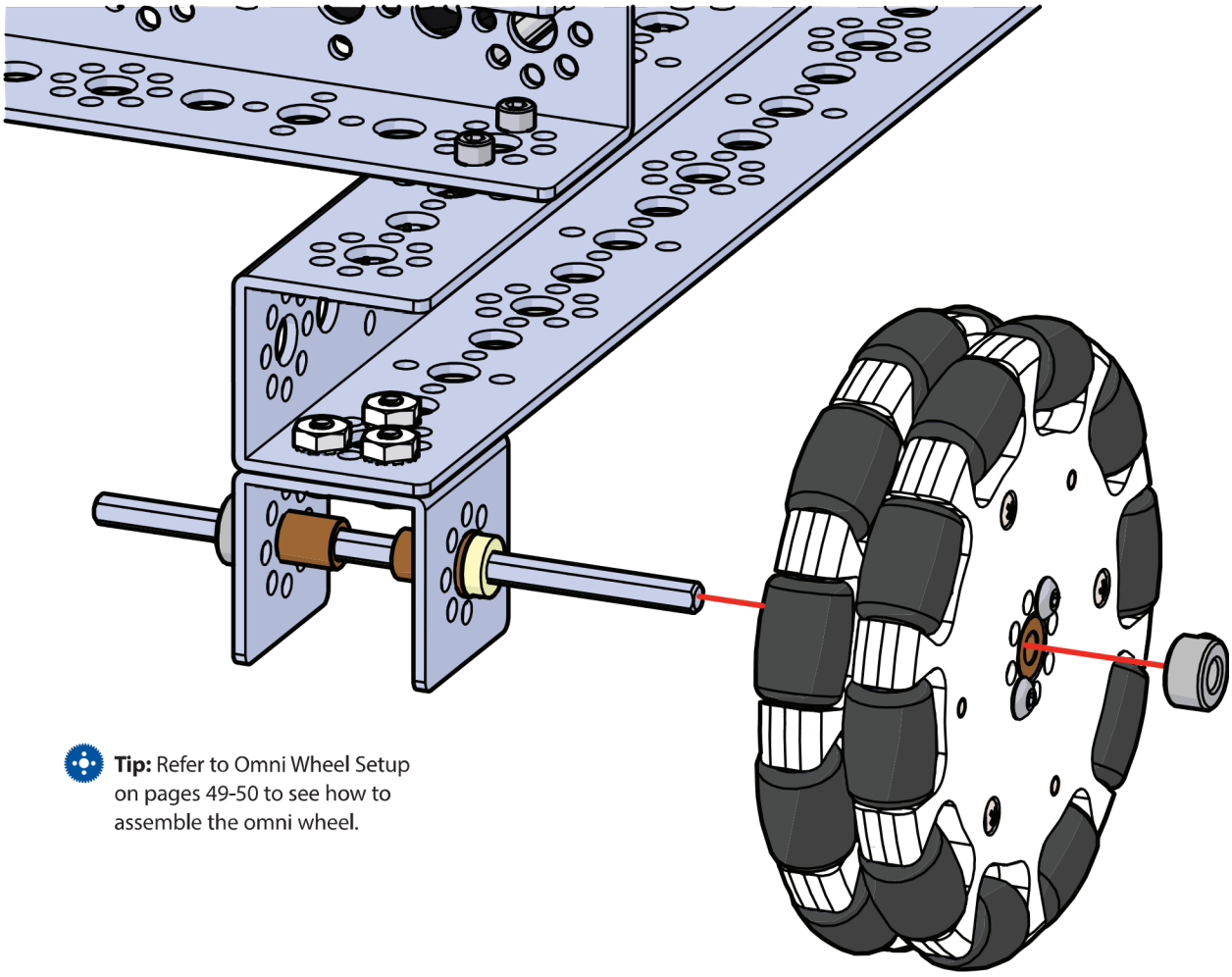
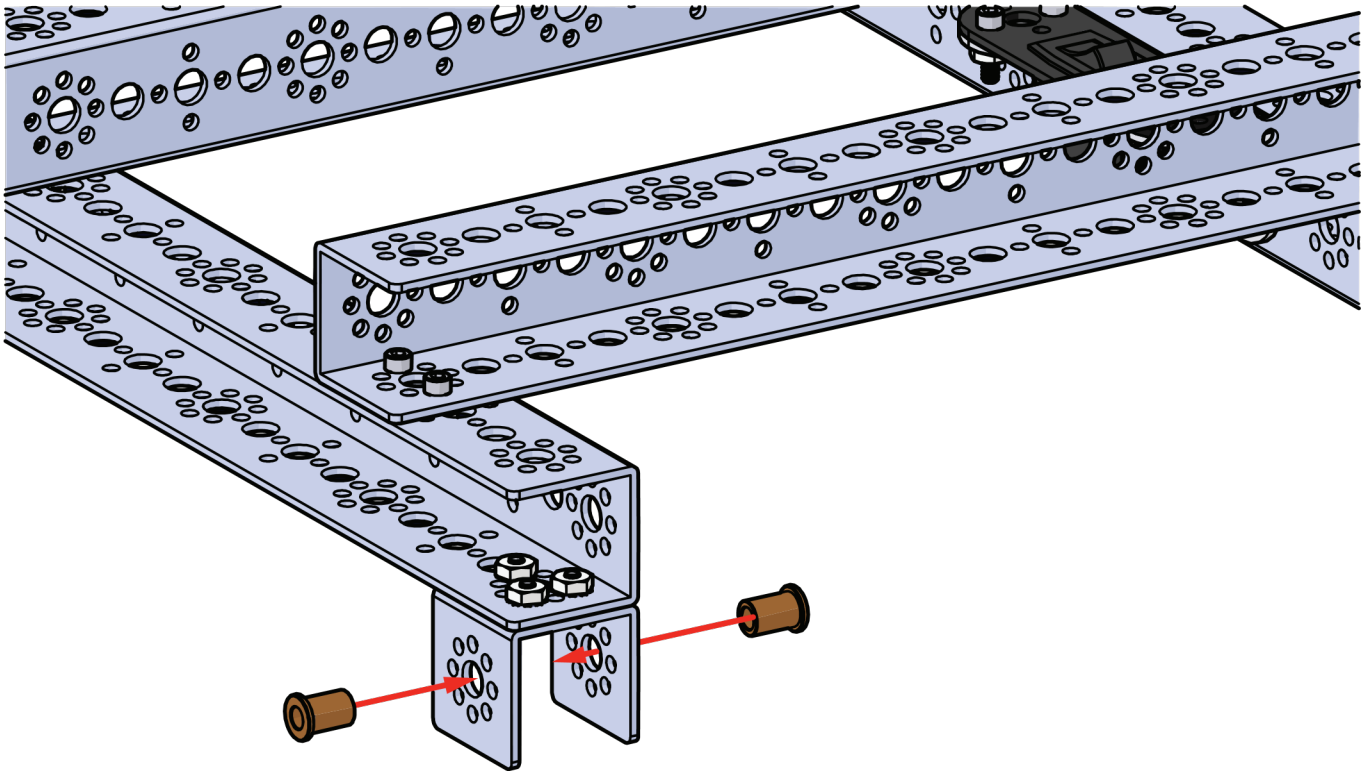
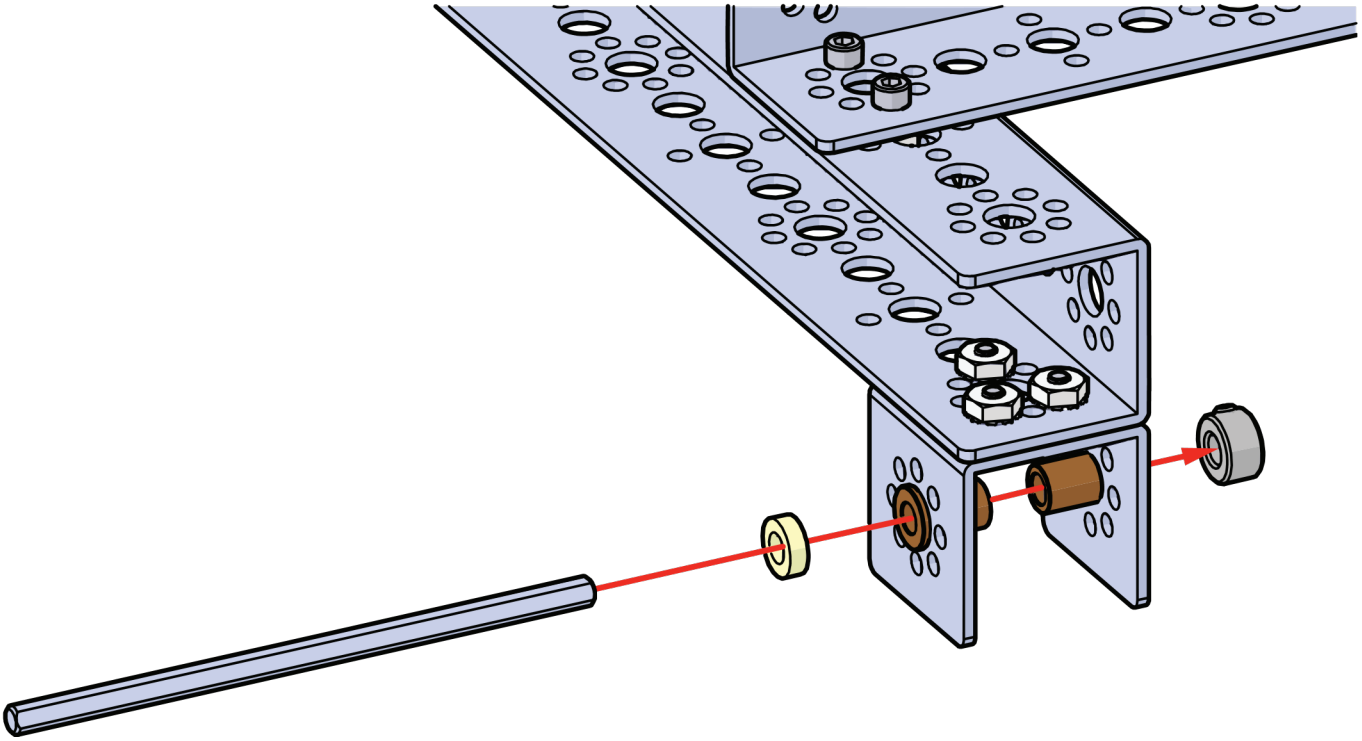
Step 3.5

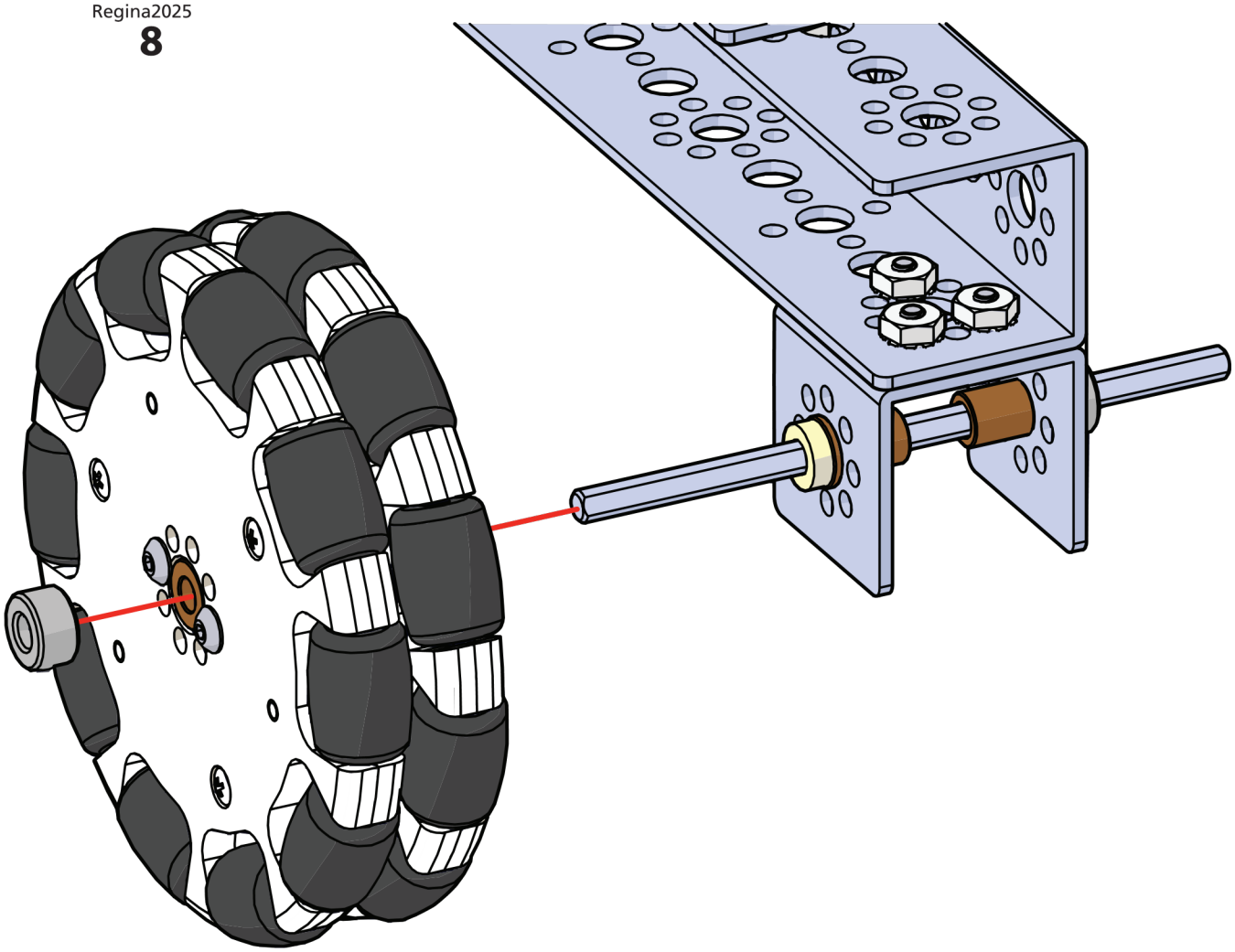


Tip: Refer to Omni Wheel Setup on pages 49-50 to see how to assemble the omni wheel.

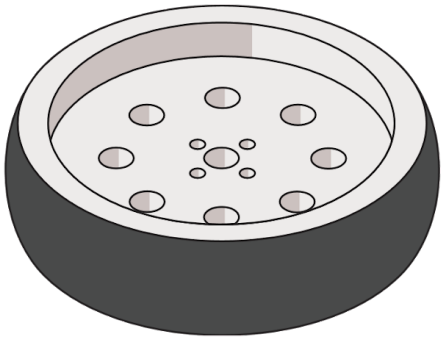


Step 3.7

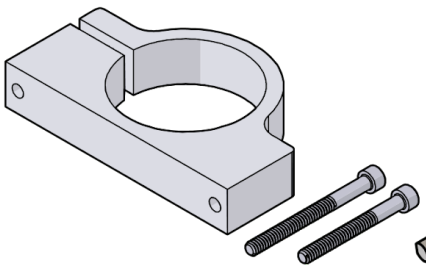




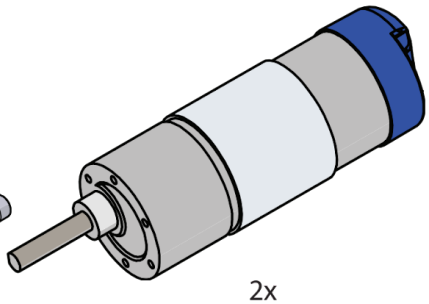
Parts Needed



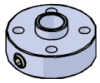
2x
4" Wheel 39055



2x
Motor Mount 39089



2x
TorqueNADO Motor 44260

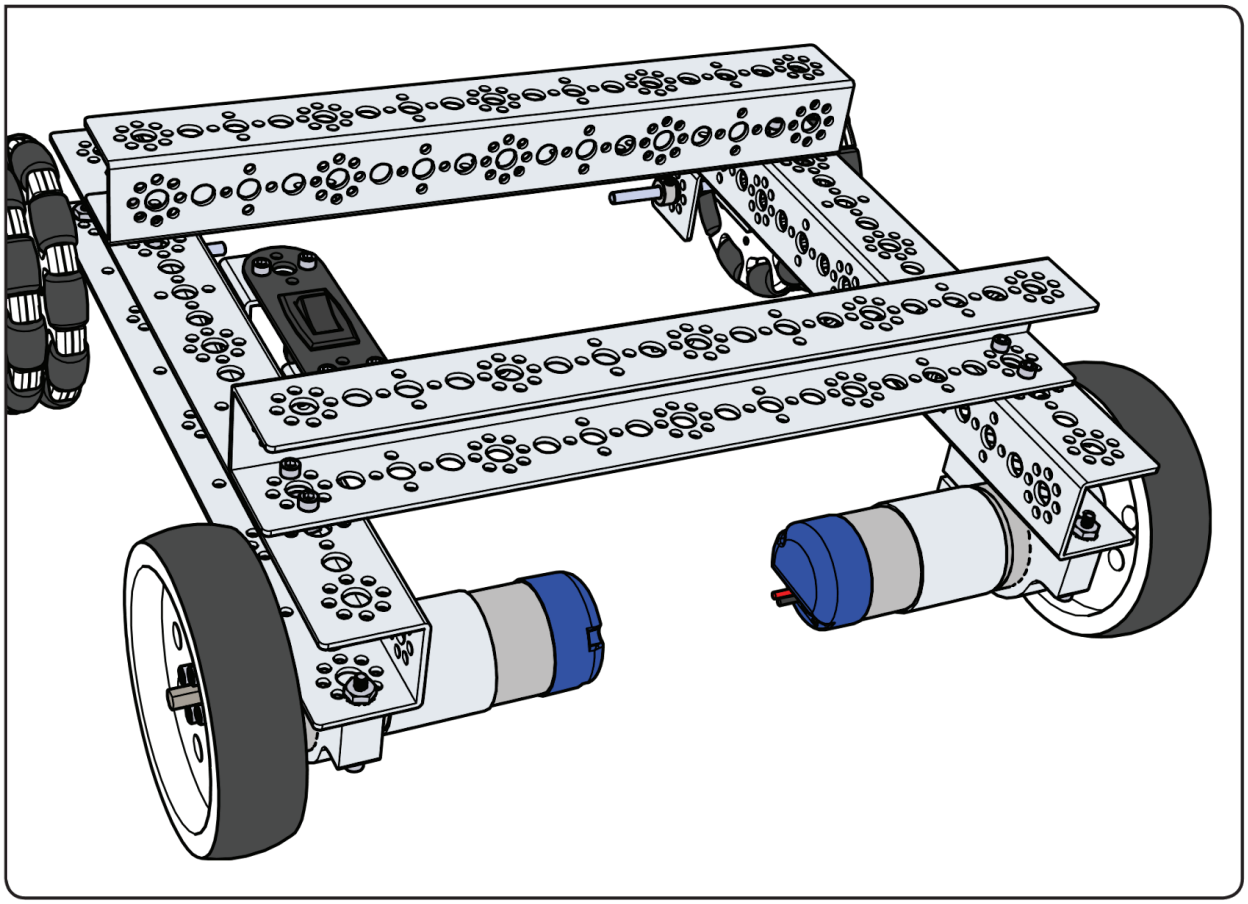


2x
Motor Shaft Hub 39079

8x
Socket Head Cap Screw
6-32 x 1/2" 39097

4x
Kep Nut 39094

Finished assembly should look like this.



Tip: See the setup tips on page 48 for help distinguishing between the motor shaft hub and axle hub.

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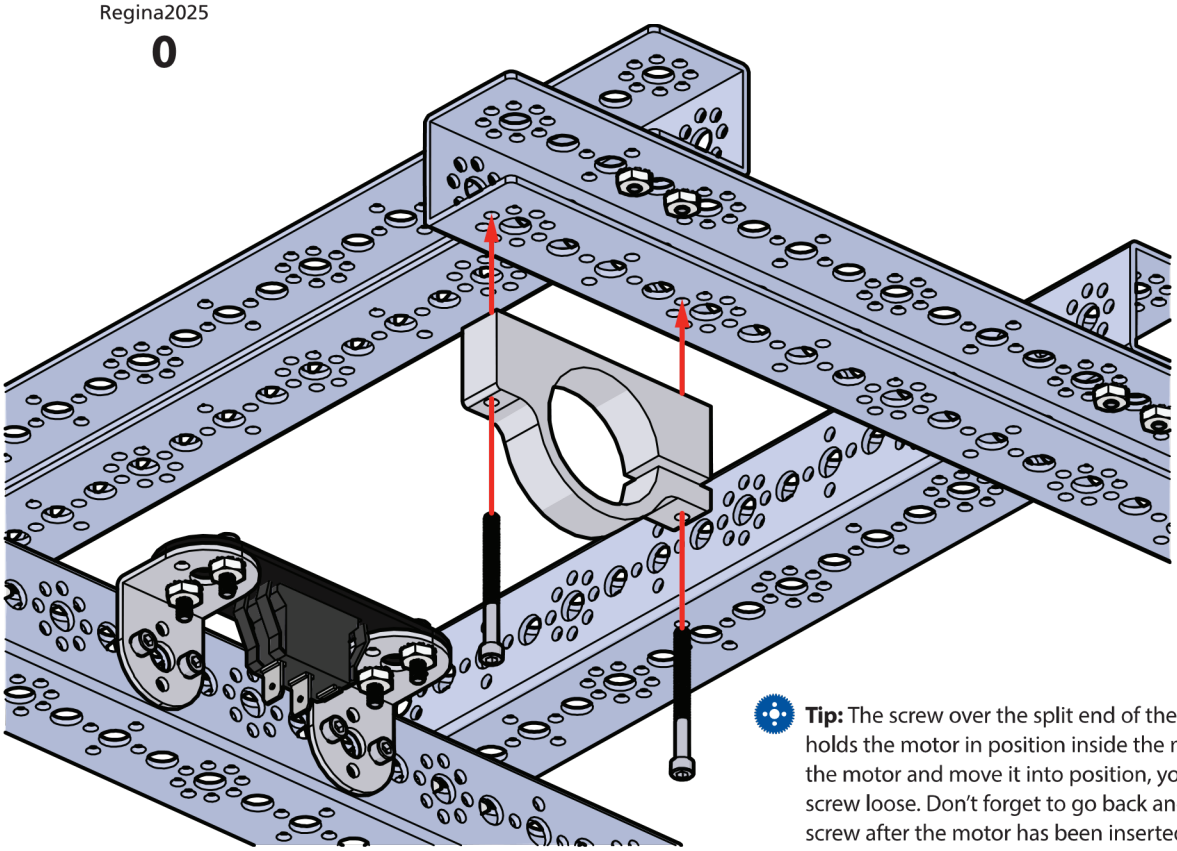
0



Tip: The screw over the split end of the motor mount holds the motor in position inside the mount. To insert the motor and move it into position, you must keep the screw loose. Don't forget to go back and tighten this screw after the motor has been inserted and moved into the desired position.

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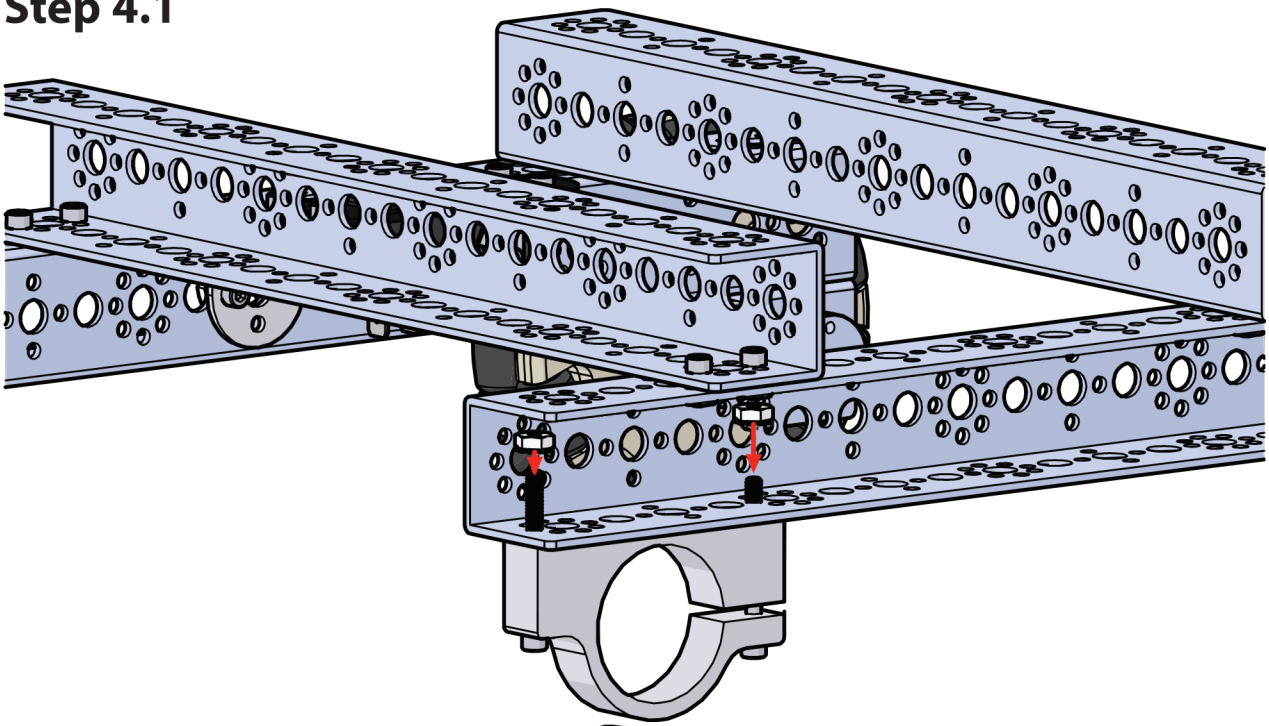
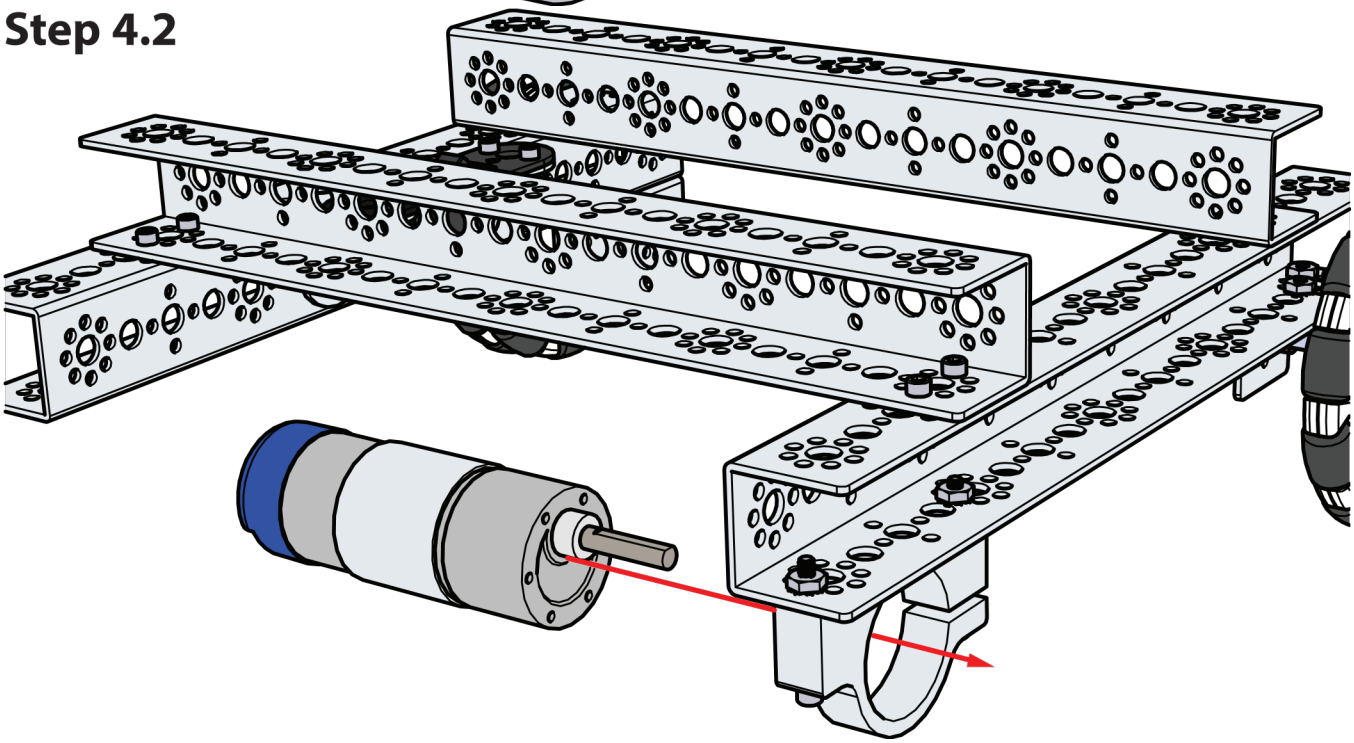
Step 4.1



Step 4.2



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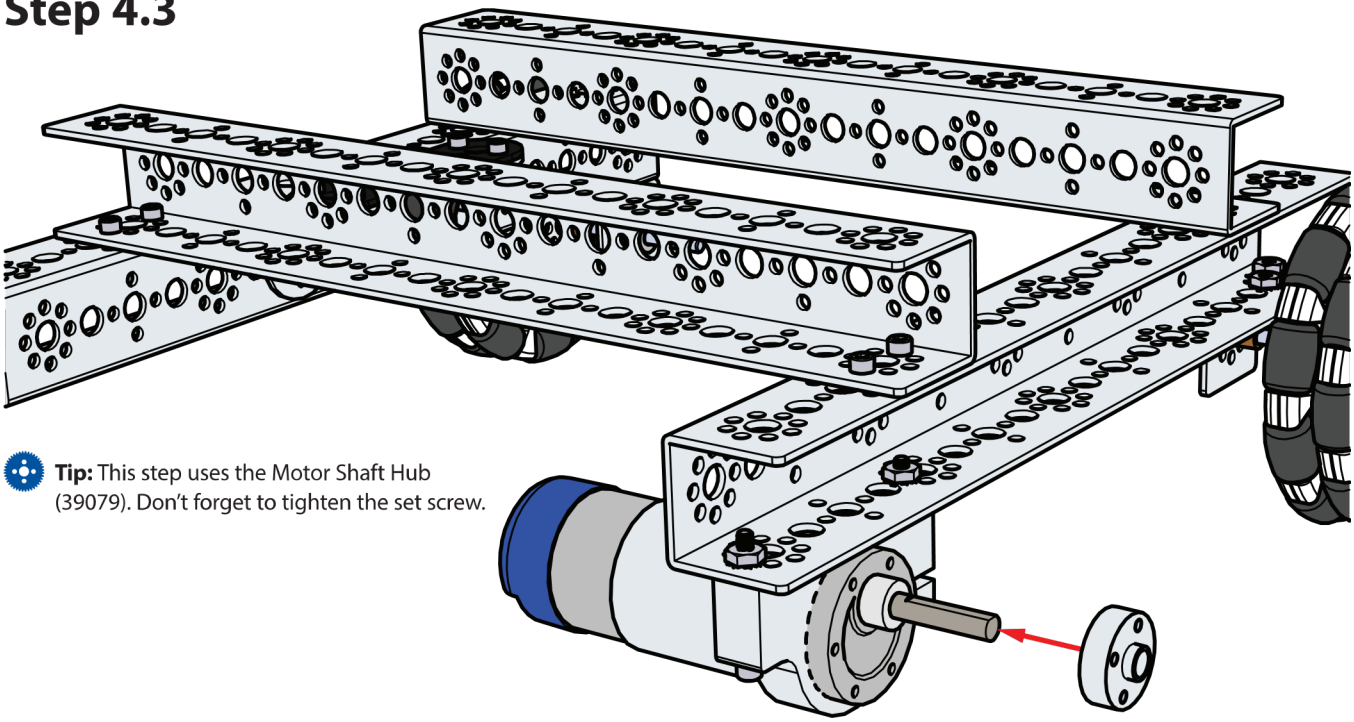
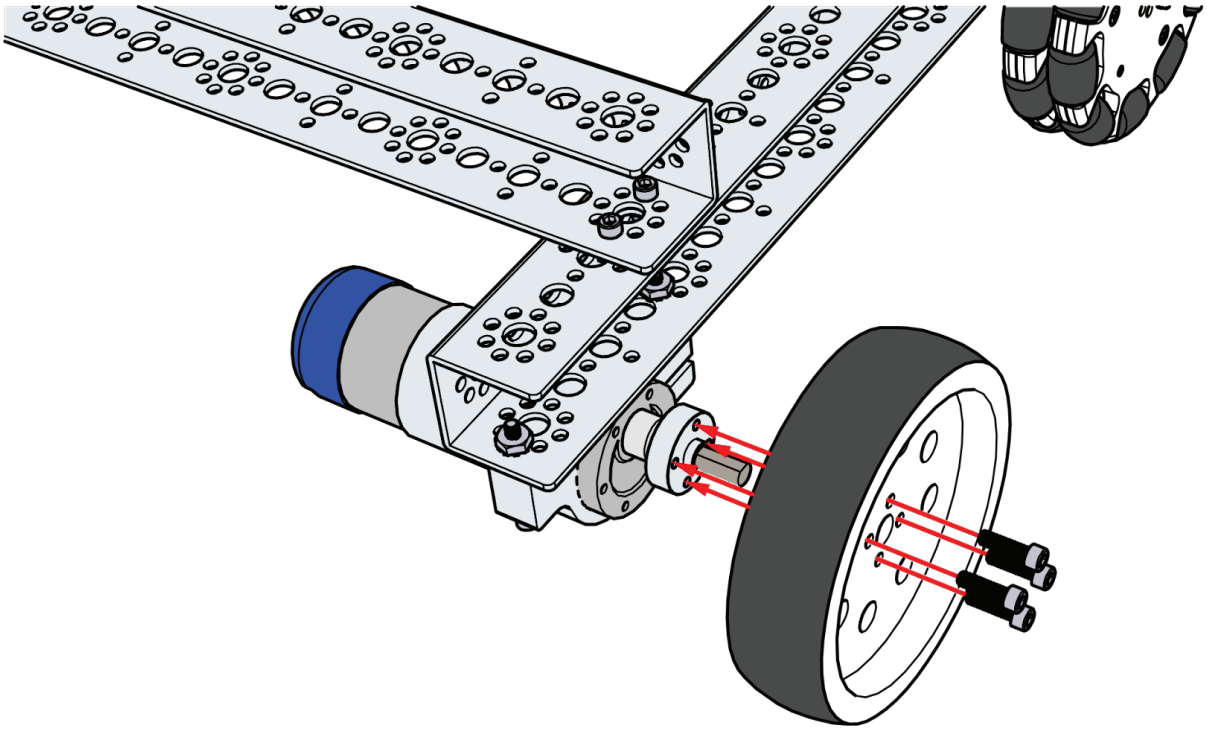
Step 4.3



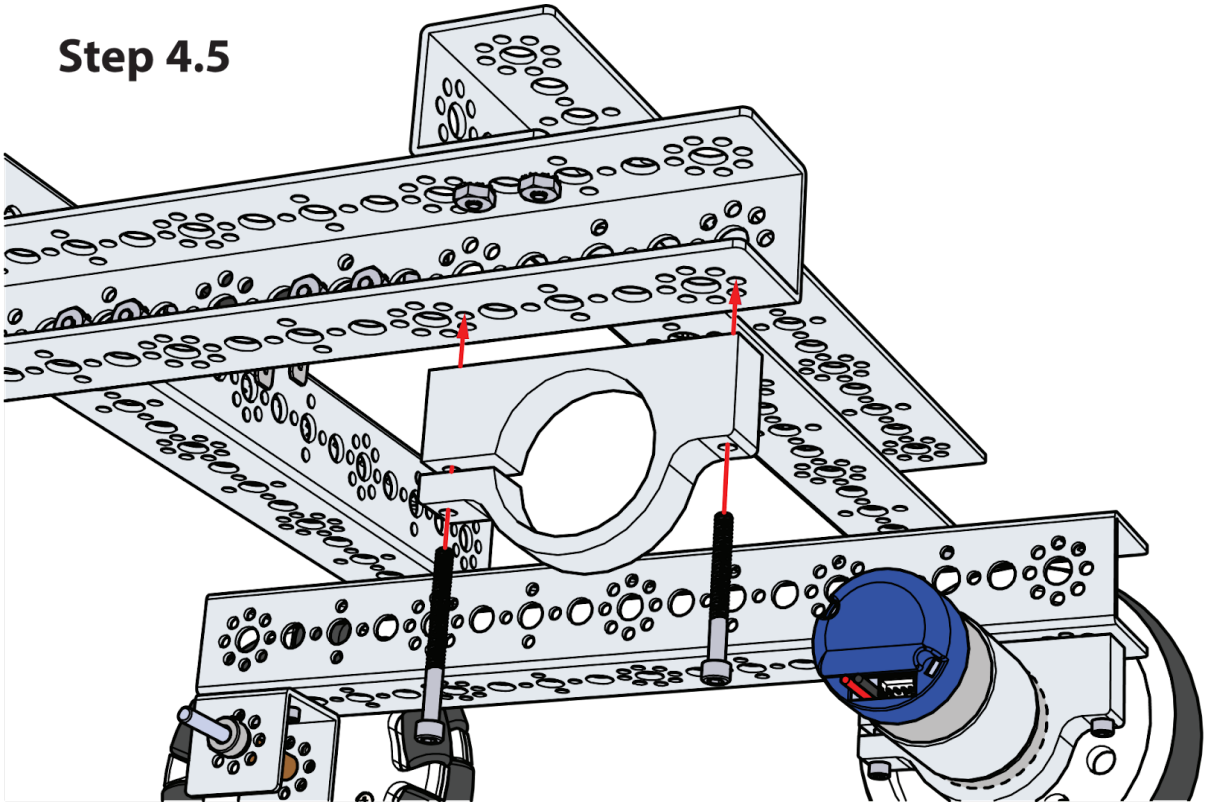
Tip: This step uses the Motor Shaft Hub (39079). Don't forget to tighten the set screw.

4



Tip: The screw over the split end of the motor mount holds the motor in position inside the mount. To insert the motor and move it into position, you must keep the screw loose. Don't forget to go back and tighten this screw after the motor has been inserted and moved into the desired position.

Step 4.5



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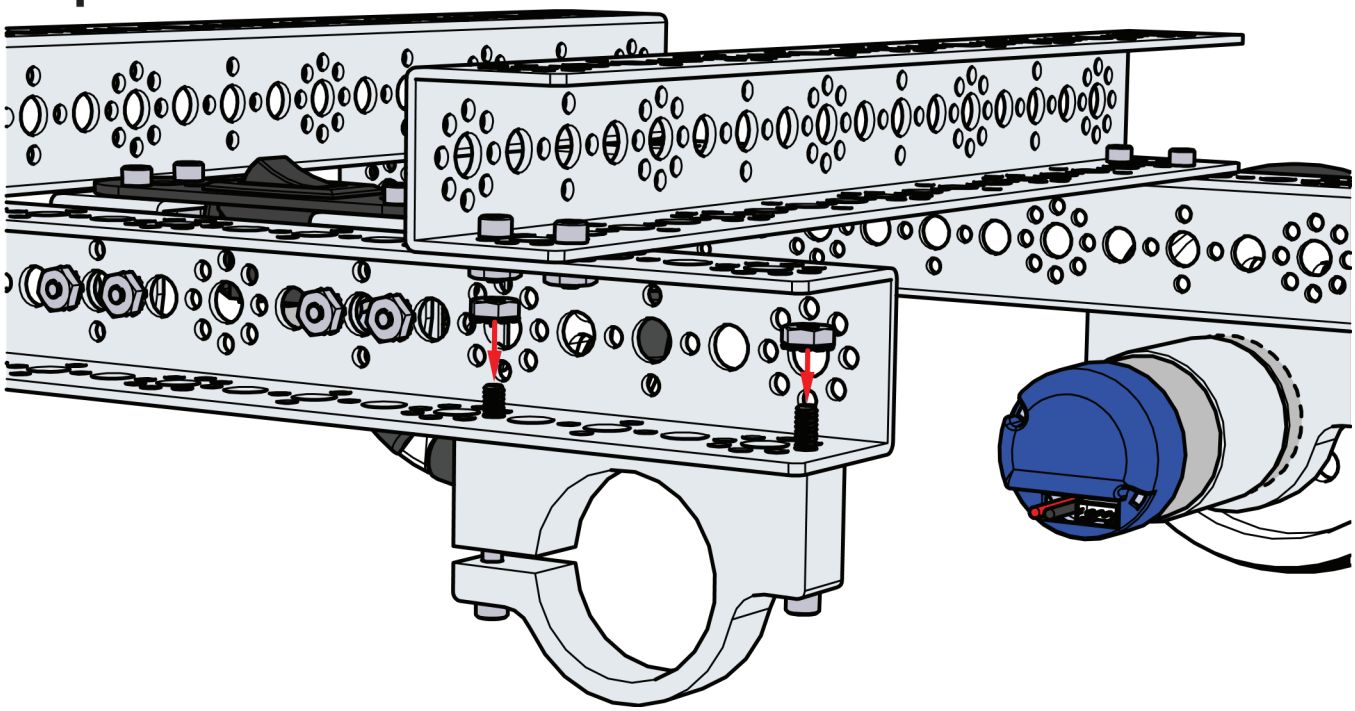
p 4.6



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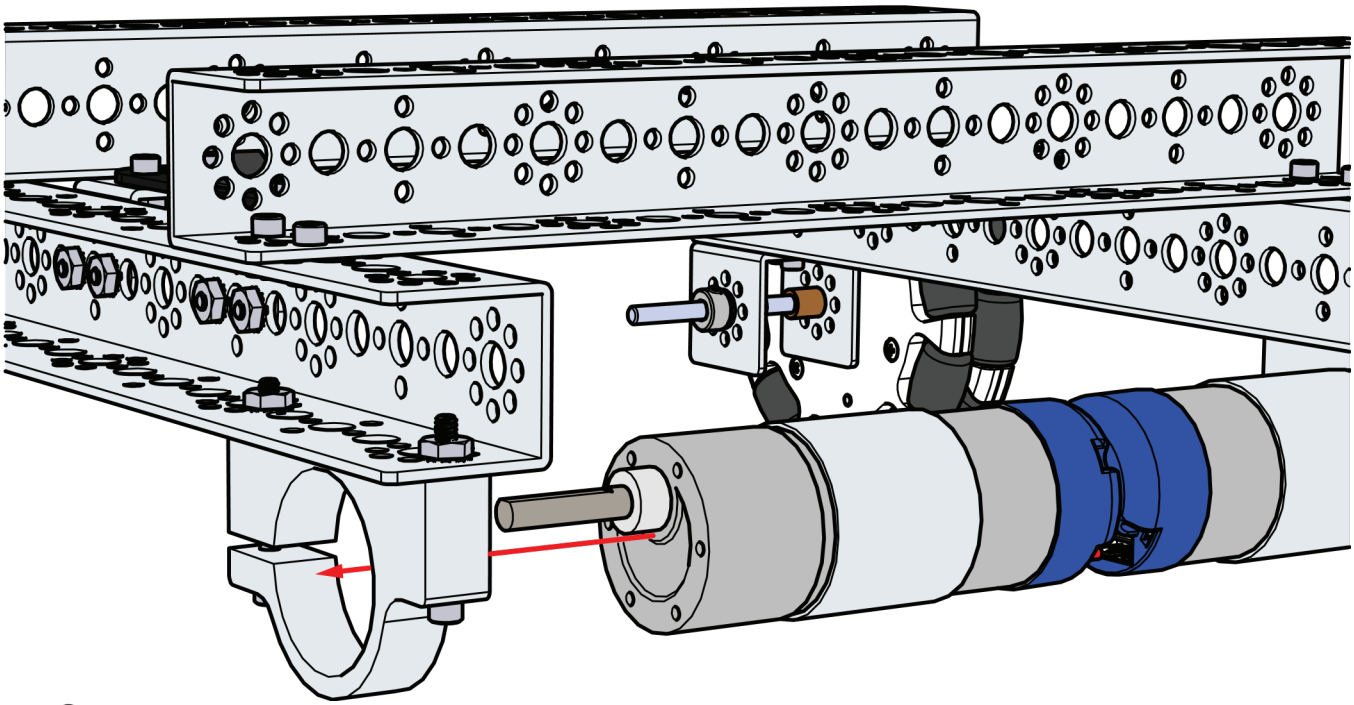
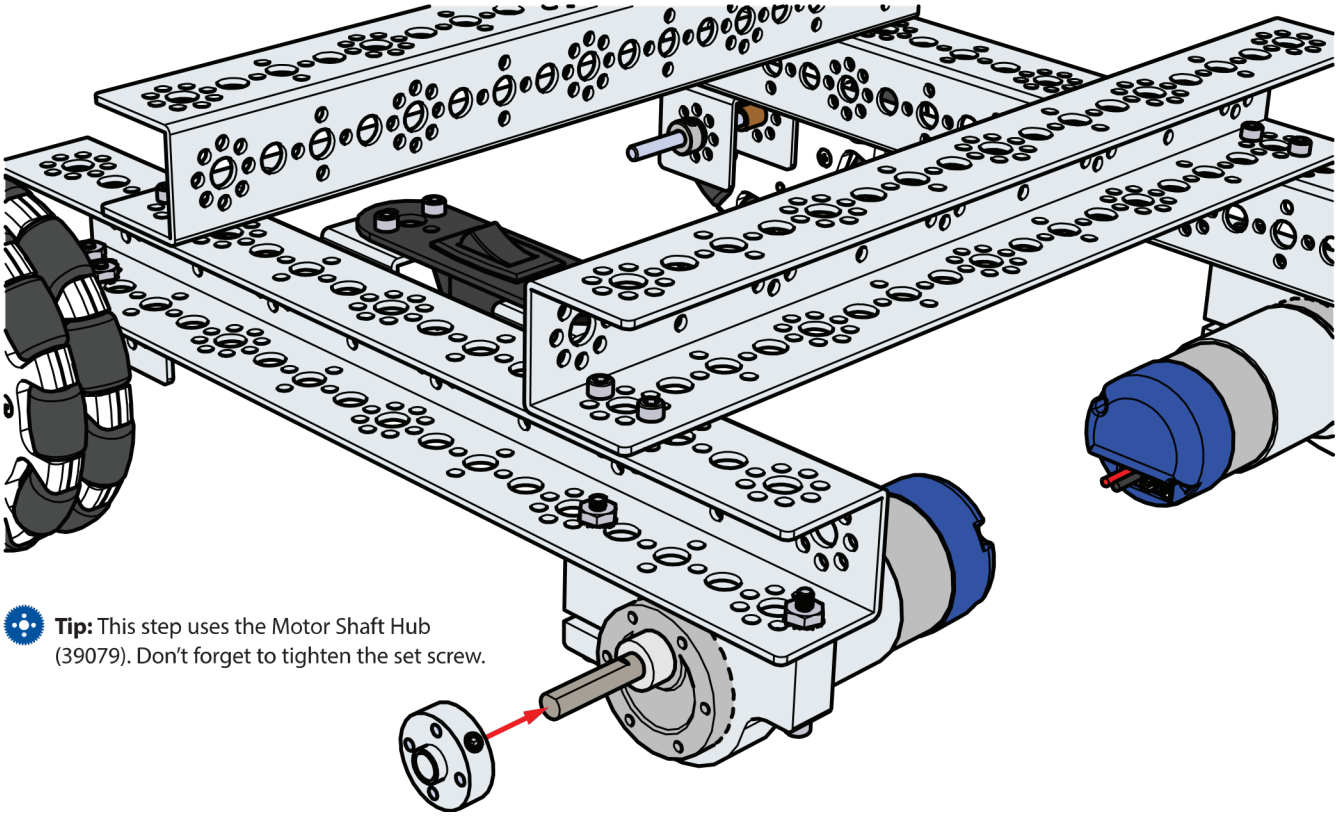
Step 4.7



8



Tip: This step uses the Motor Shaft Hub (39079). Don't forget to tighten the set screw.

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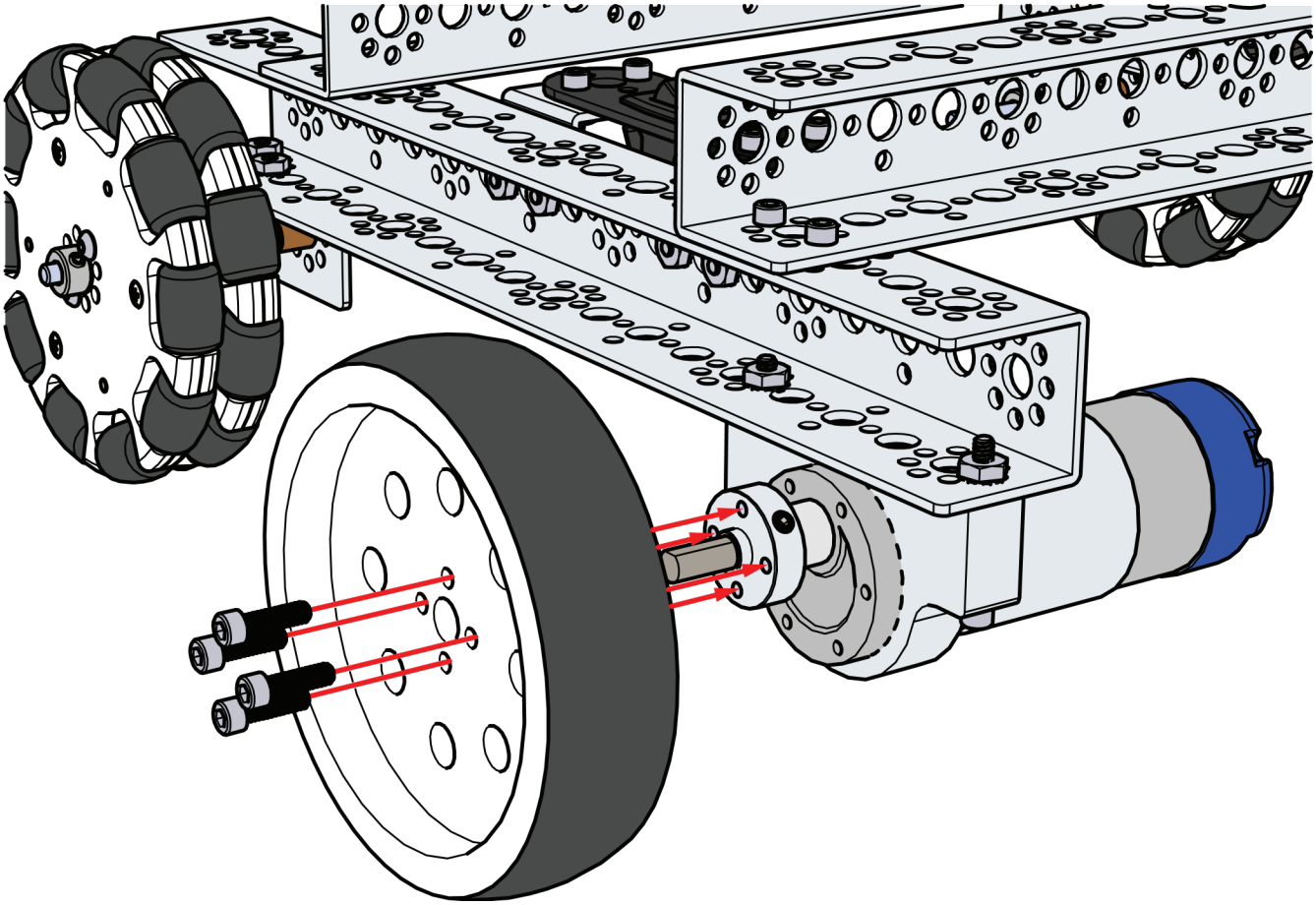
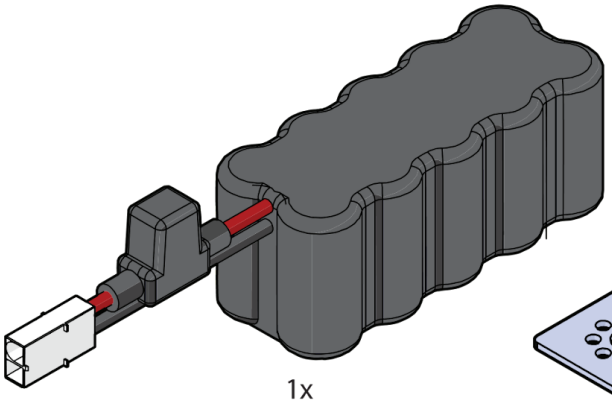
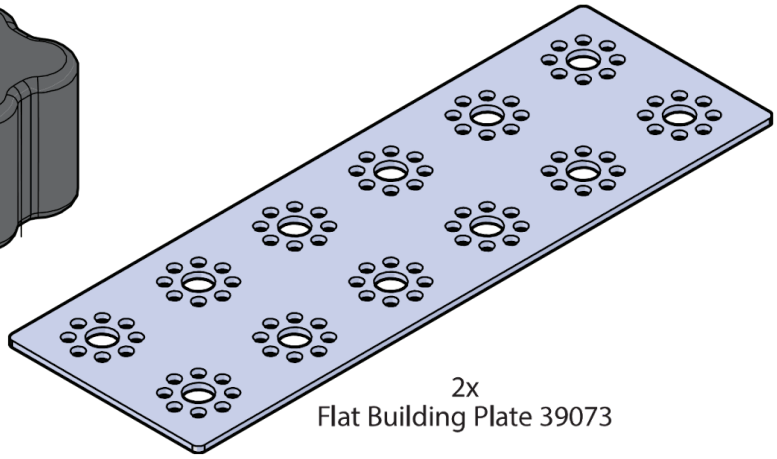
Step 4.9



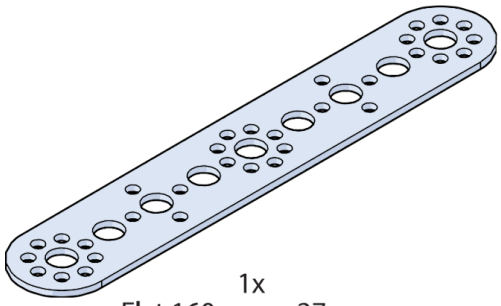
Parts Needed



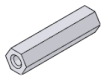
1x
12-volt 3,000 mAh Battery 39057



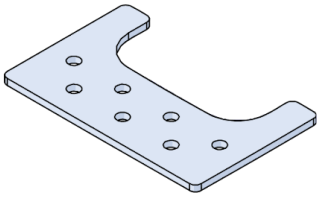
2x
Flat Building Plate 39073



1x
Flat 160 mm x 27 mm
39272



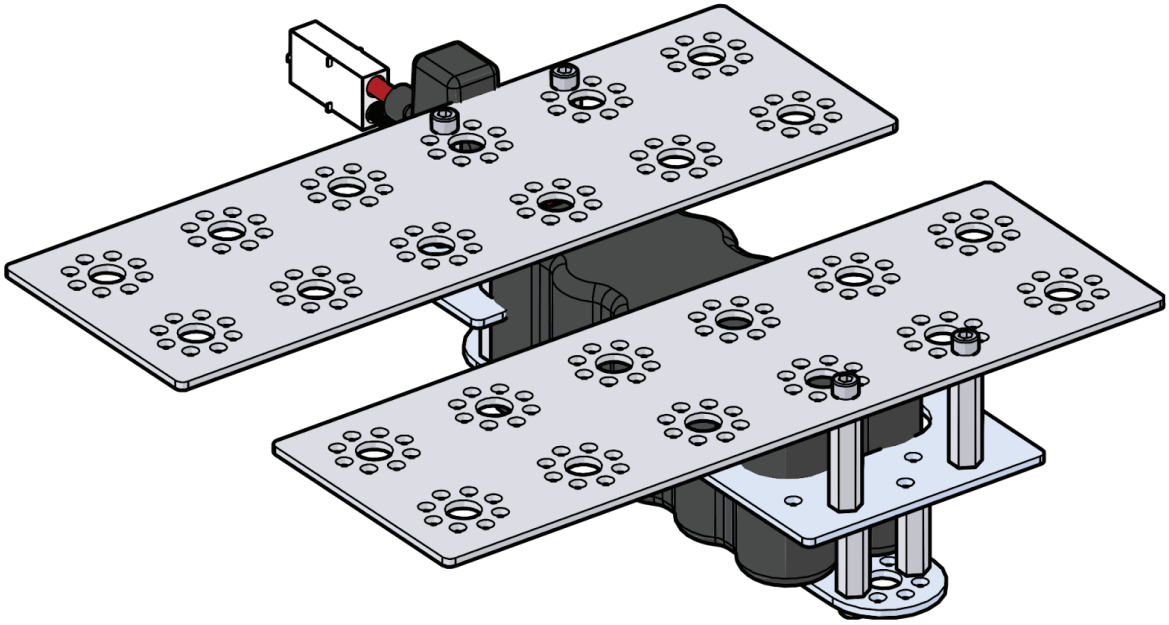
8x
Stand-Off Post 6-32 x 1"
39102



2x
Battery Clip 38009

16x
Socket Head Cap Screw
6-32 x 5/16" 39098

Finished assembly should look like this.



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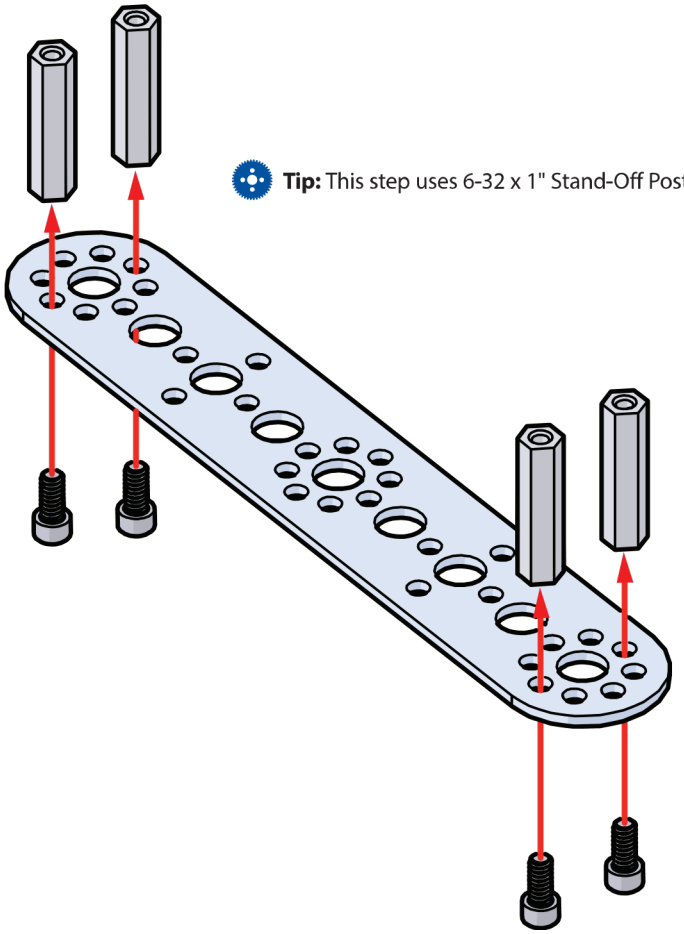
5 0



Tip: This step uses 6-32 x 1" Stand-Off Posts (39102).

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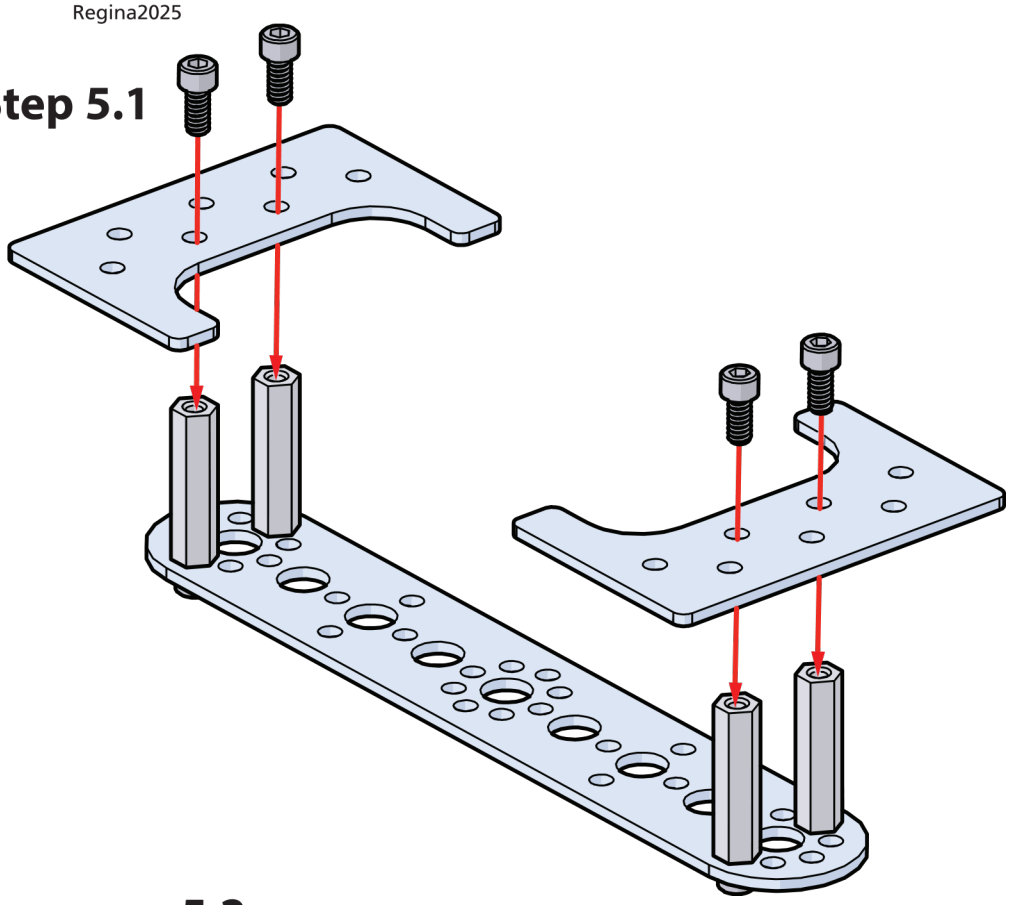
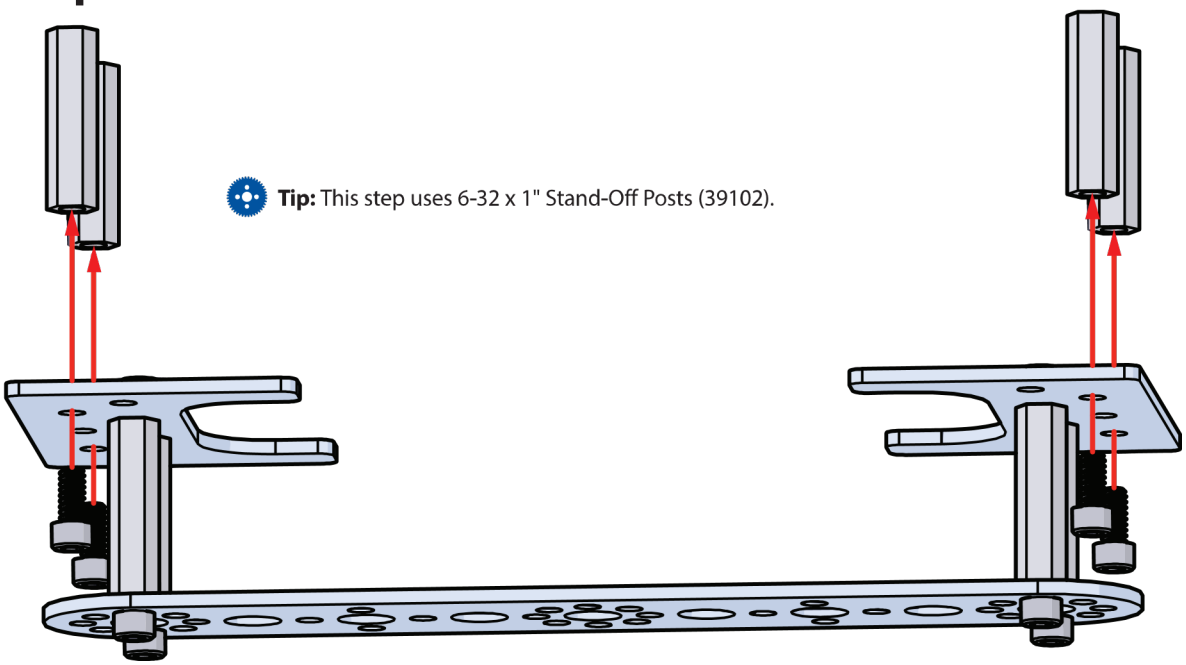
Step 5.1



p 5.2



Tip: This step uses 6-32 x 1" Stand-Off Posts (39102).

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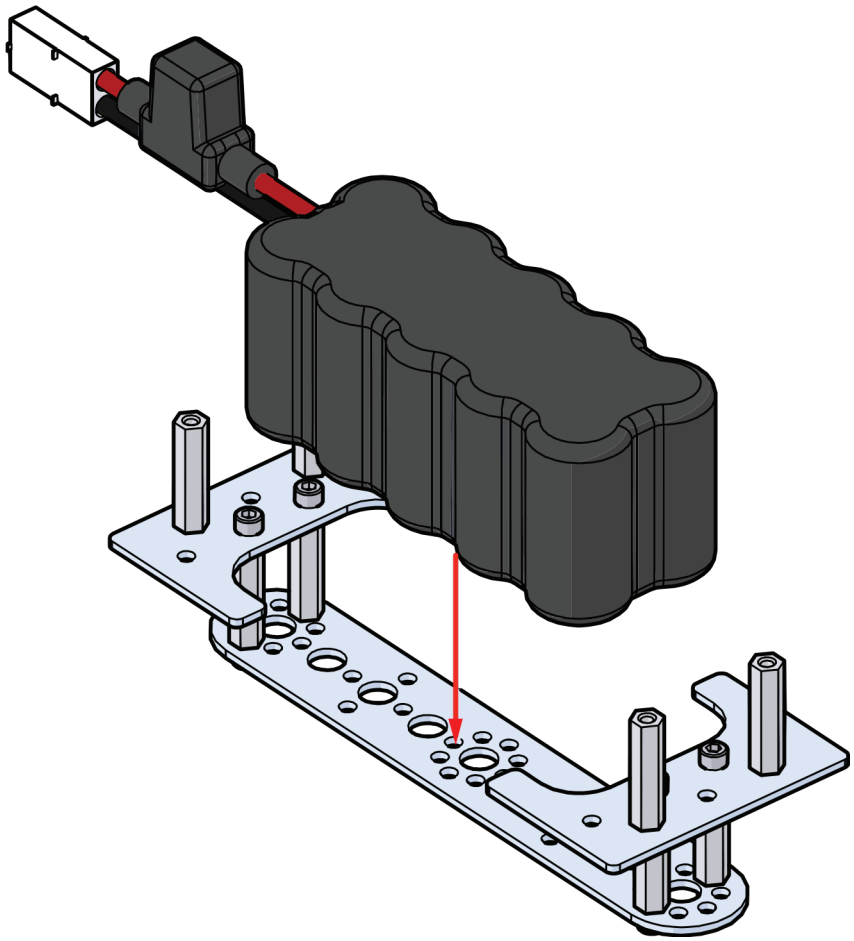
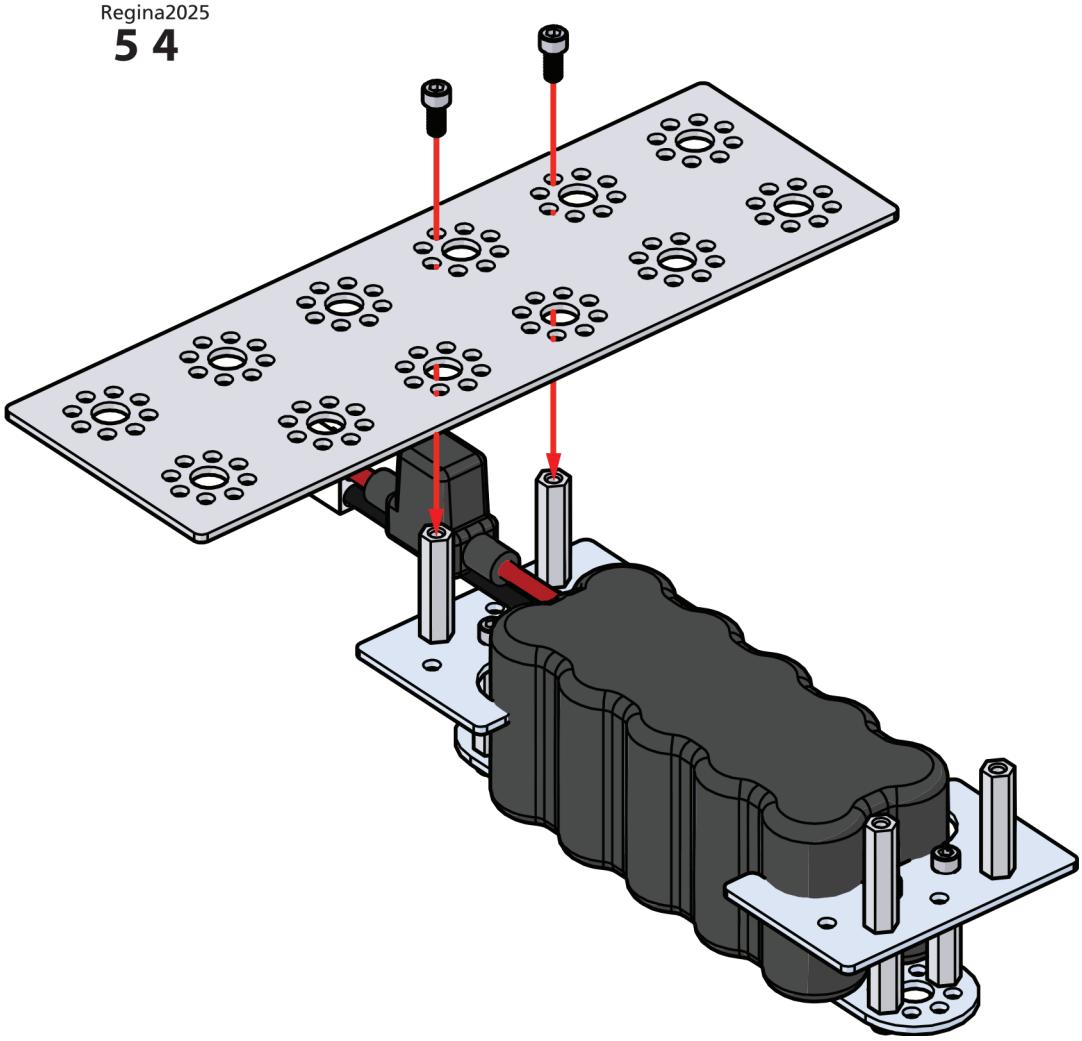
Step 5.3





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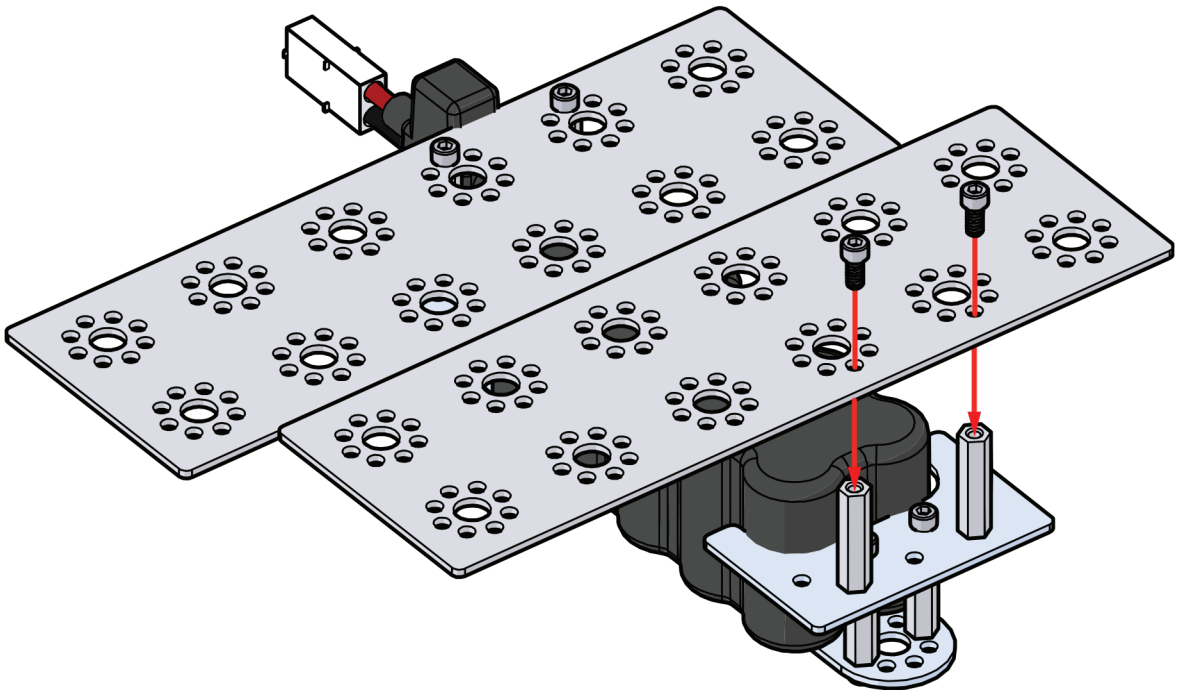
Step 5.5

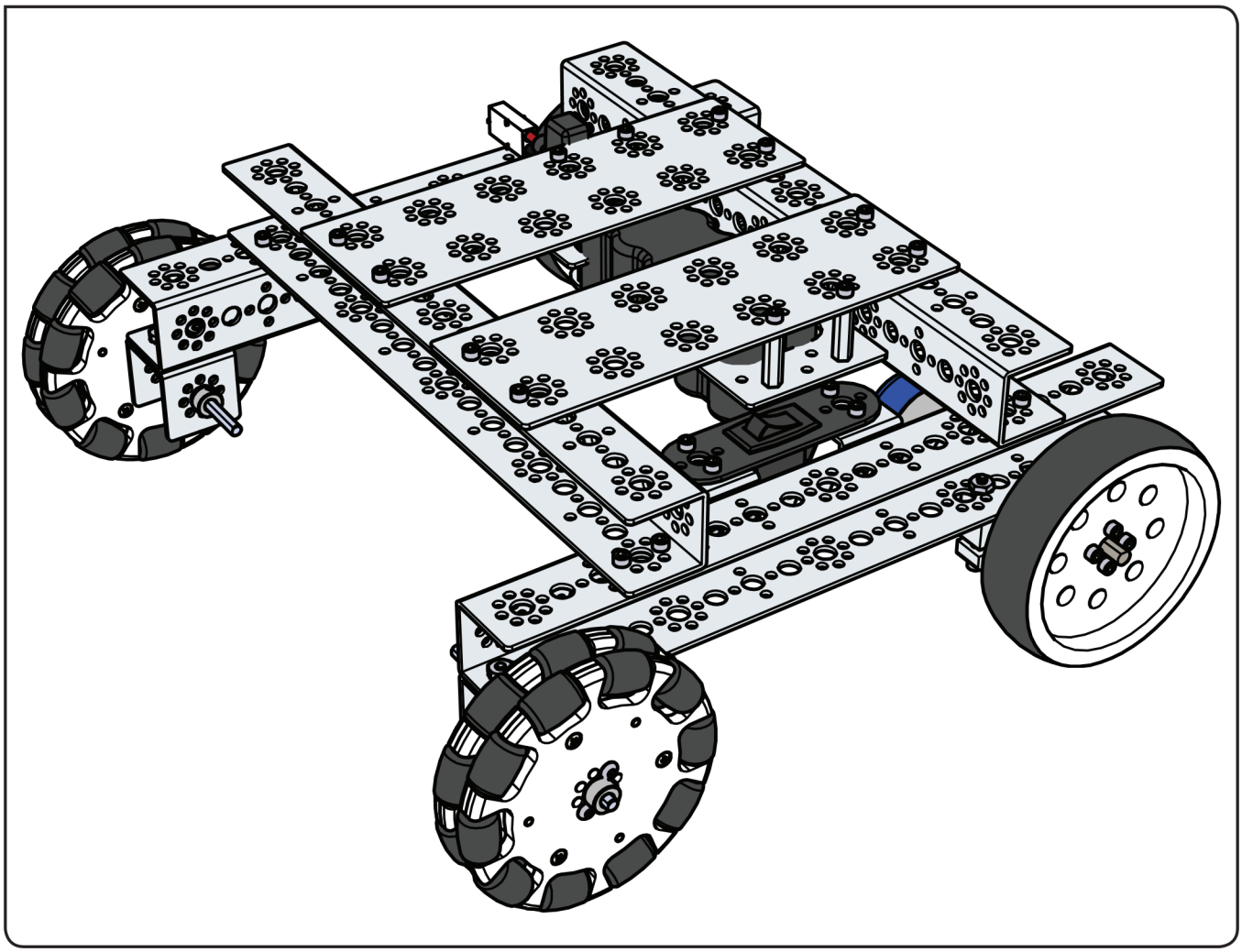


Parts Needed

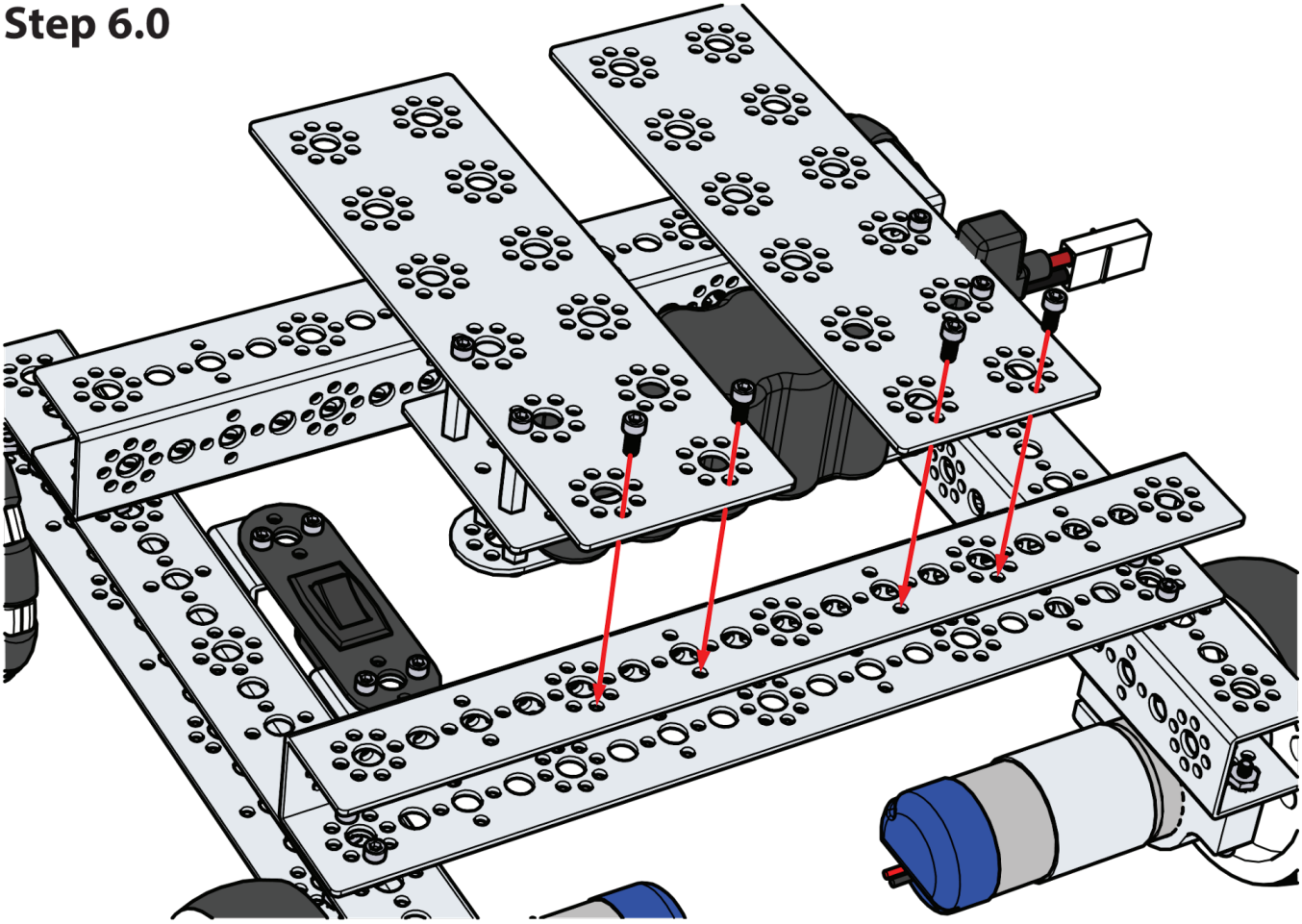
8x
Socket Head Cap Screw
6-32 x 5/16" 39098

8x
Kep Nut 39094

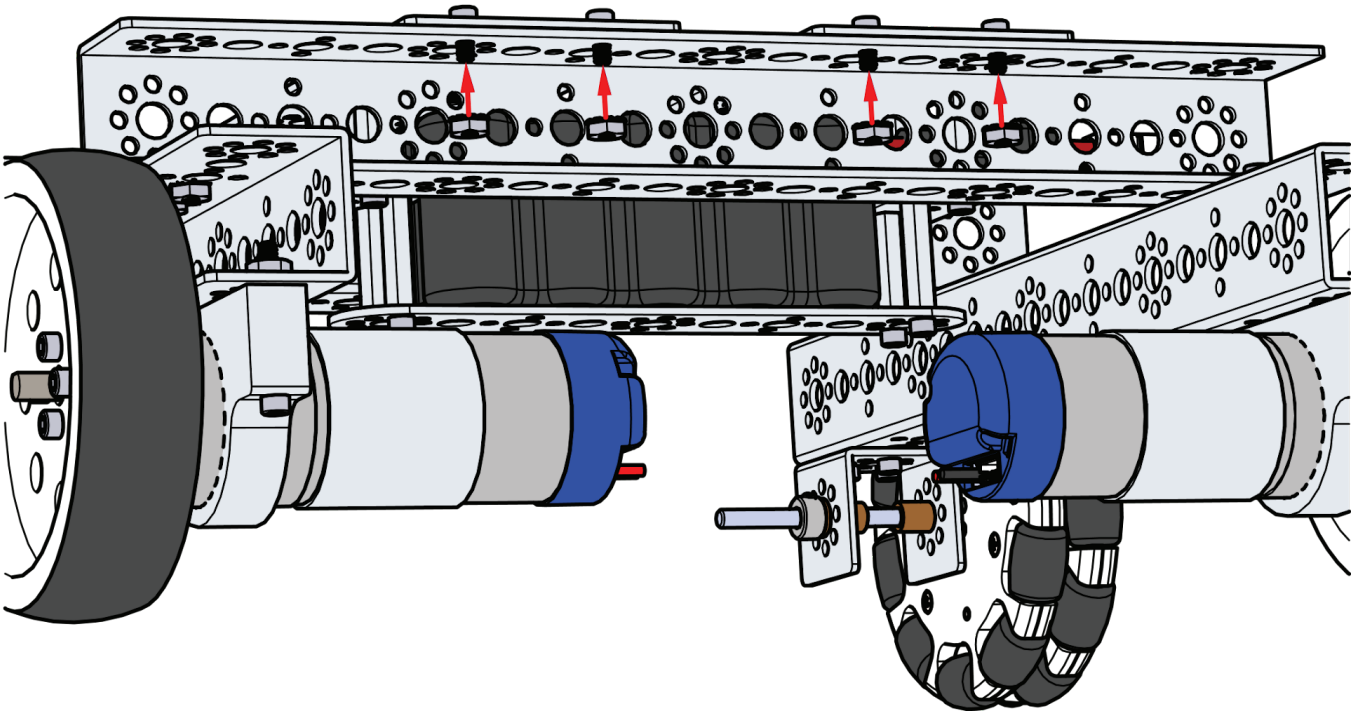
Finished assembly should look like this.



Step 6.0



Step 6.1



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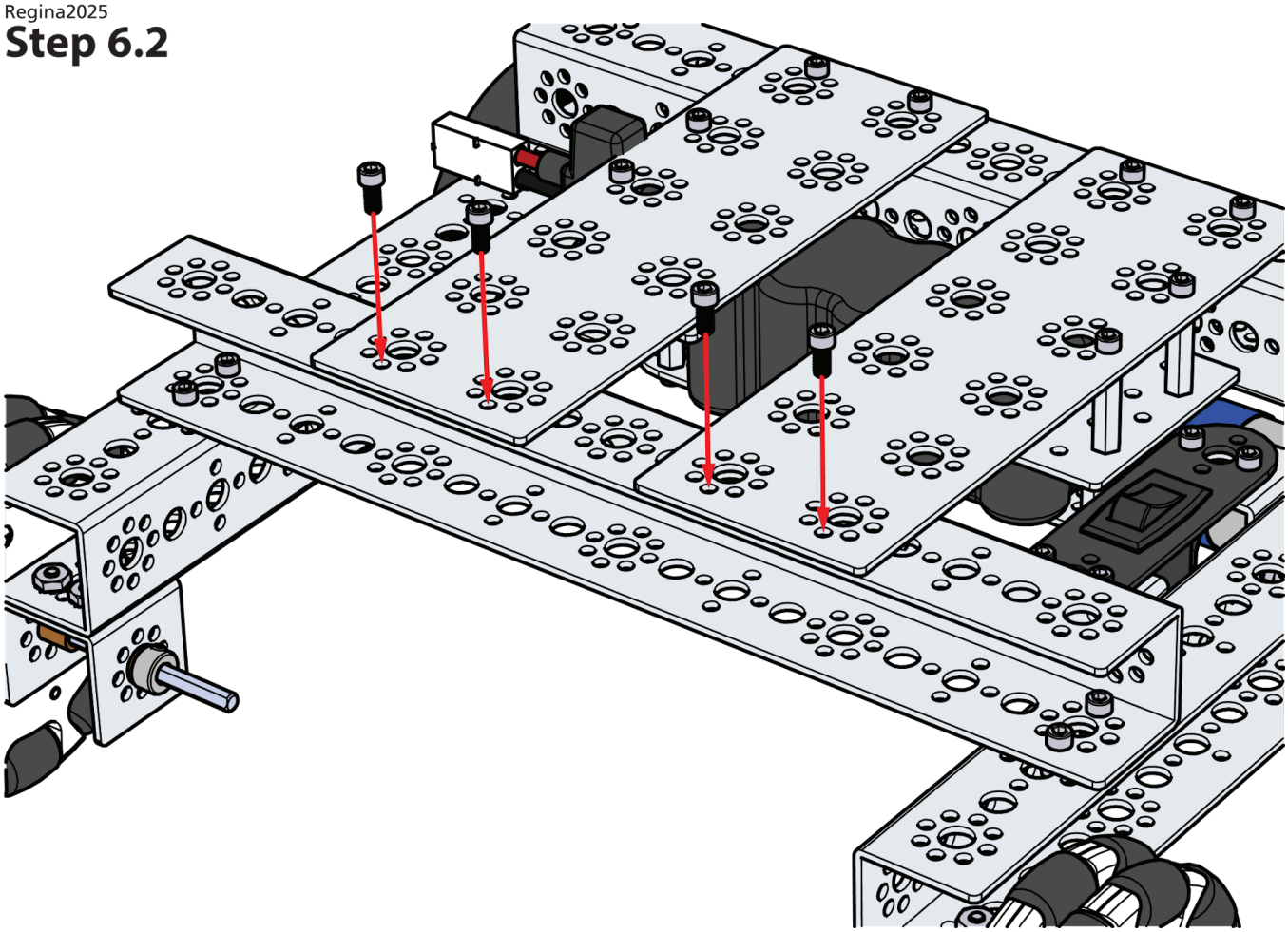
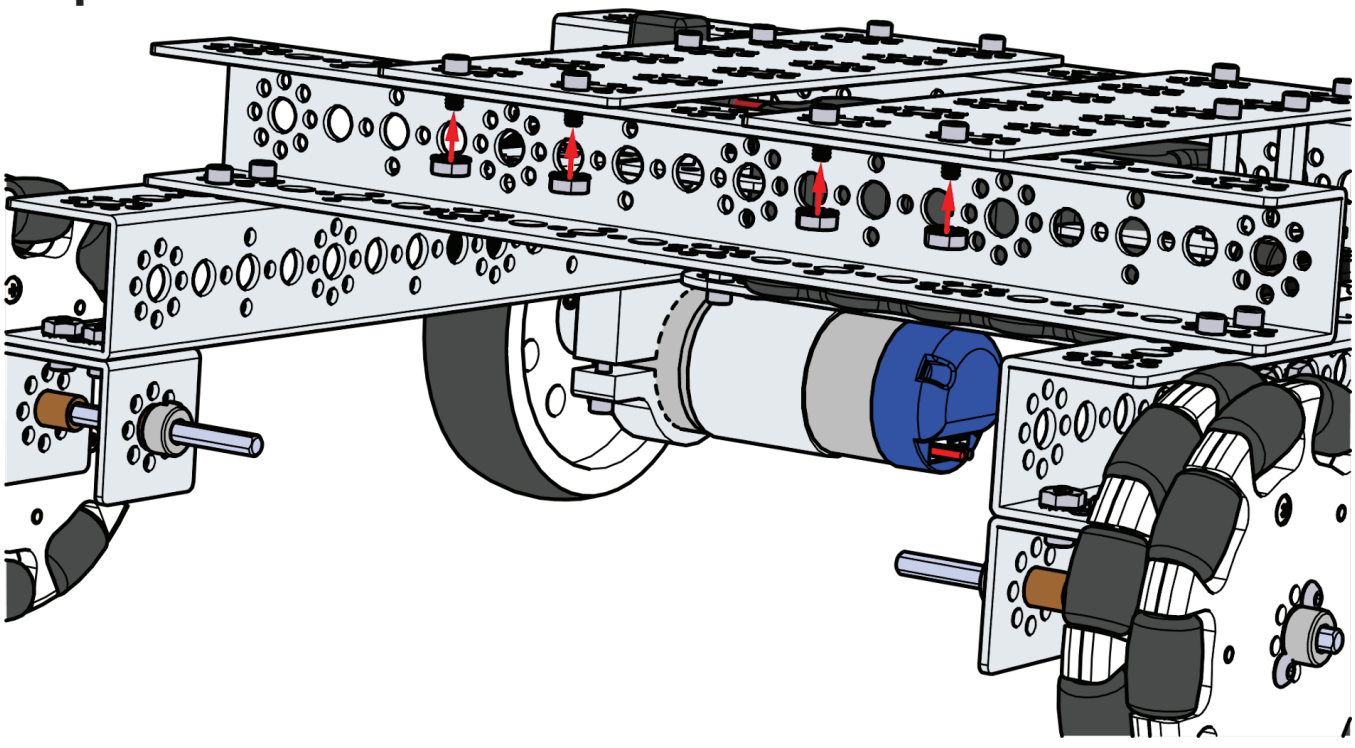
Step 6.2



Step 6.3



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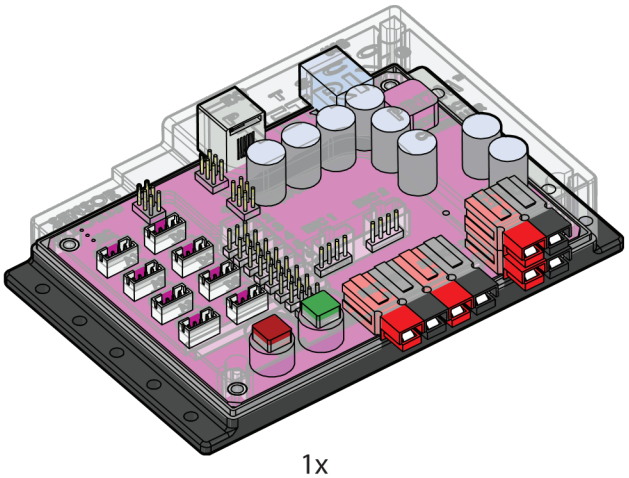
Step 7

Parts Needed



1x
PRIZM Robotics Controller
43000

4x
Socket Head Cap Screw
6-32 x 1/2" 39097

4x
Kep Nut 39094

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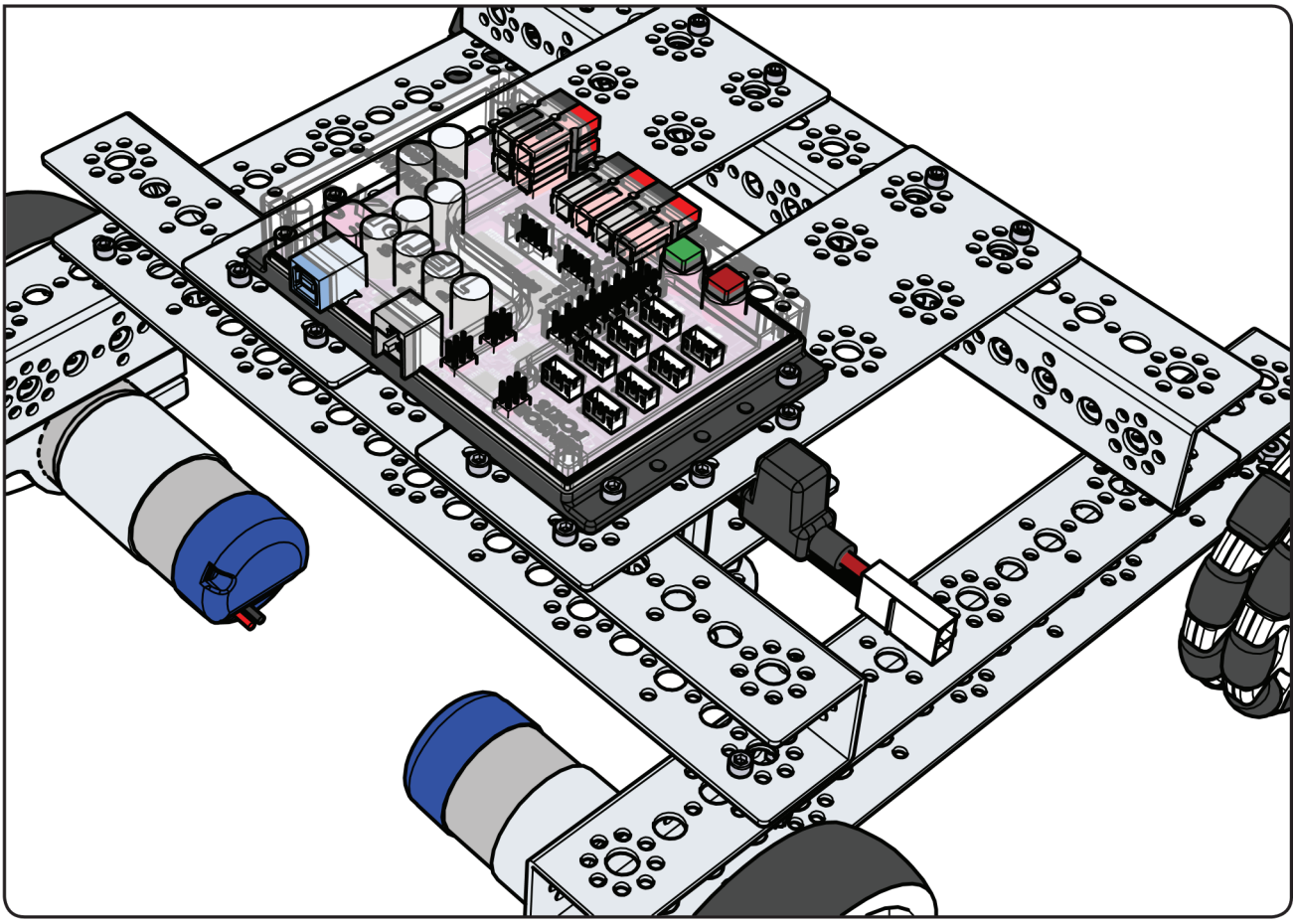
Finished assembly should look like this.



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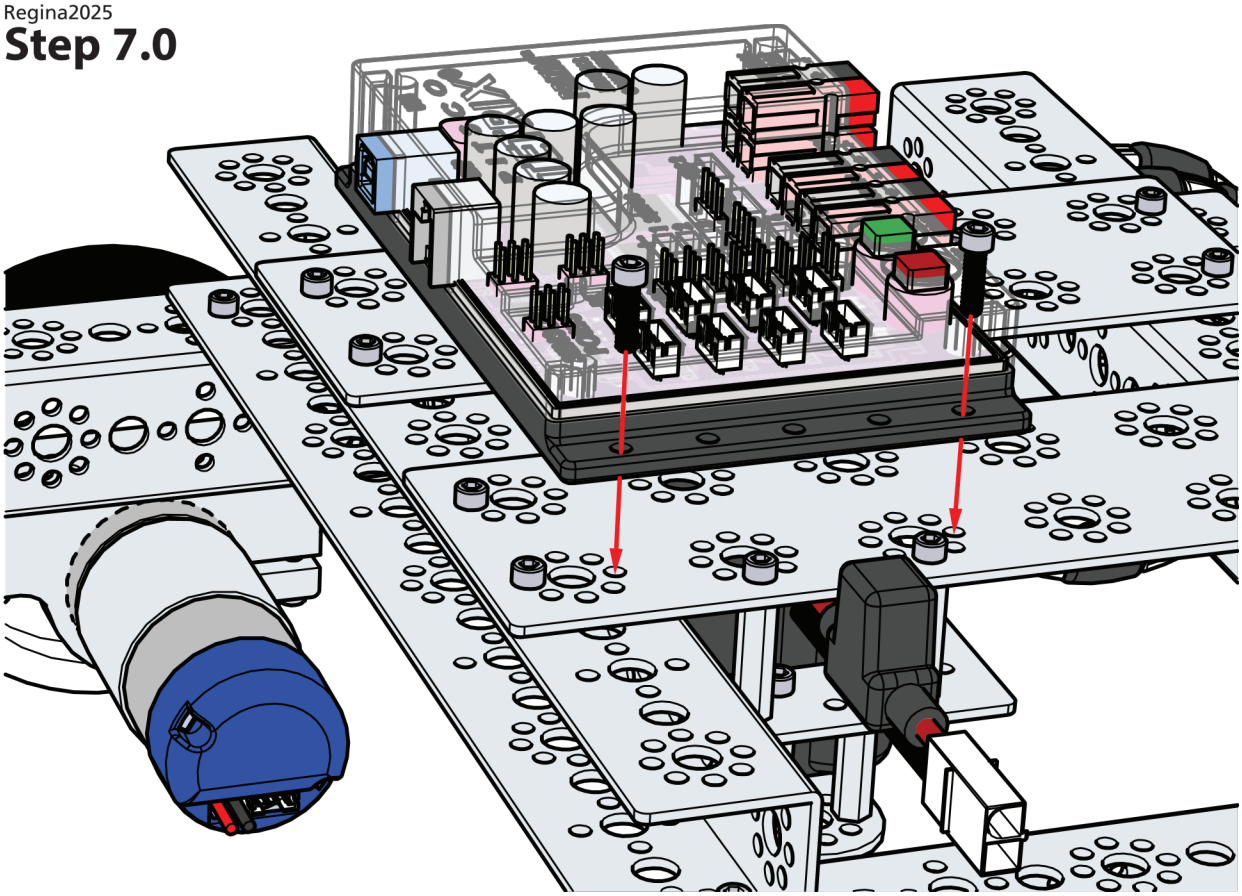
Step 7.0



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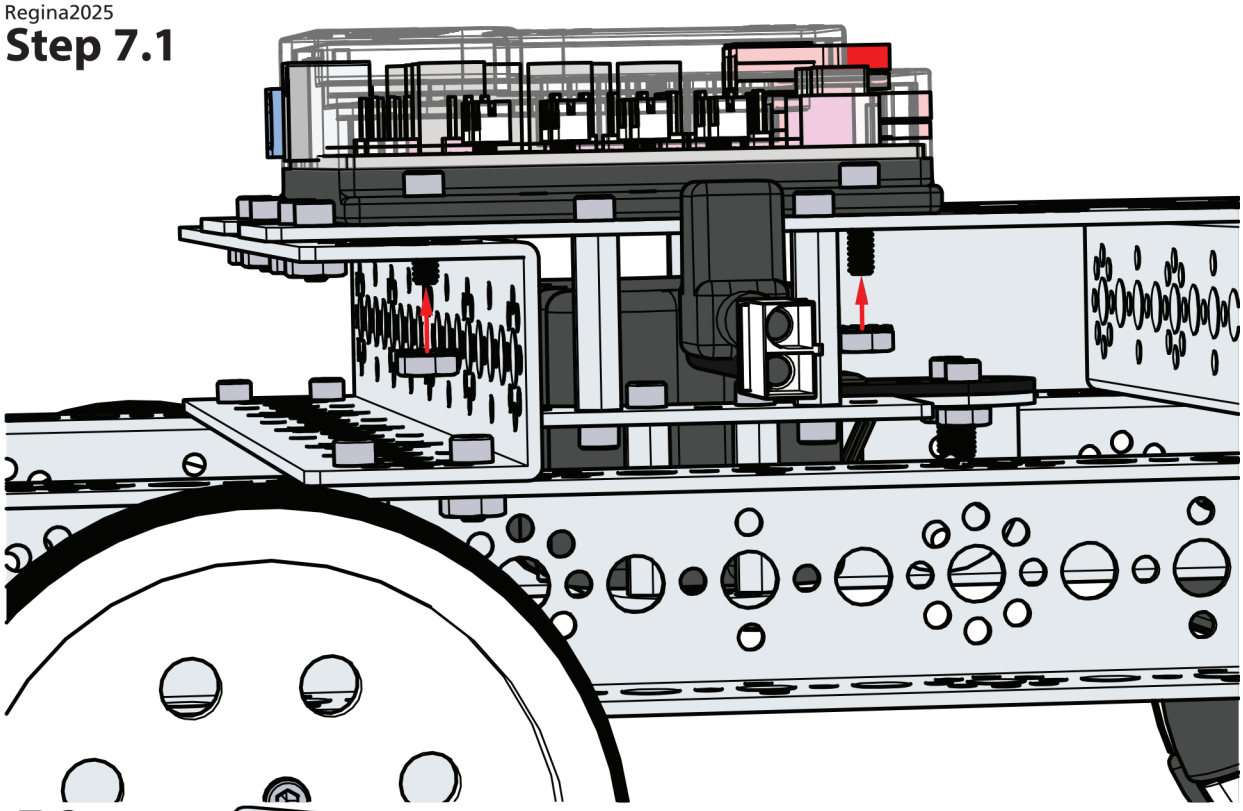
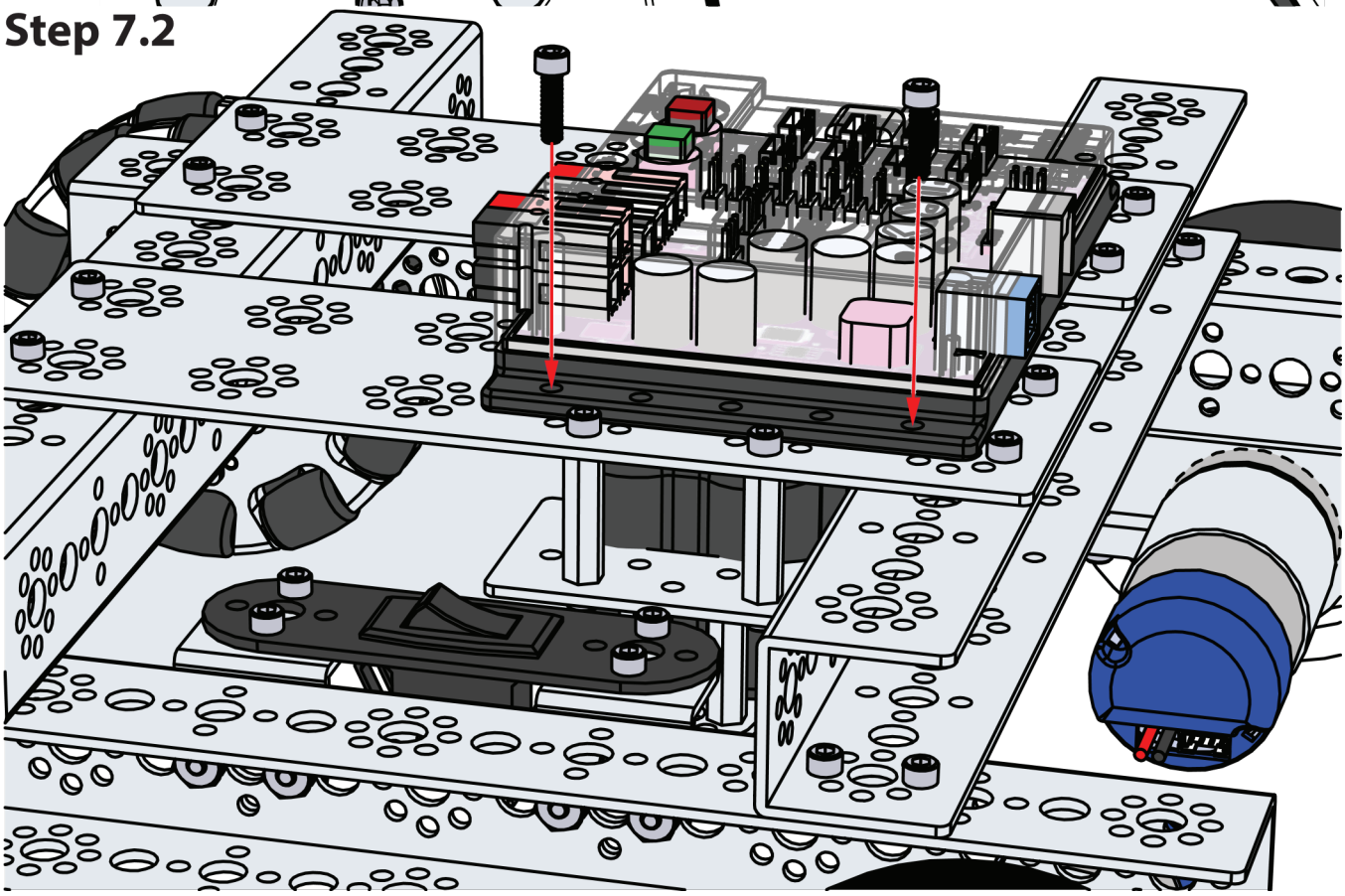
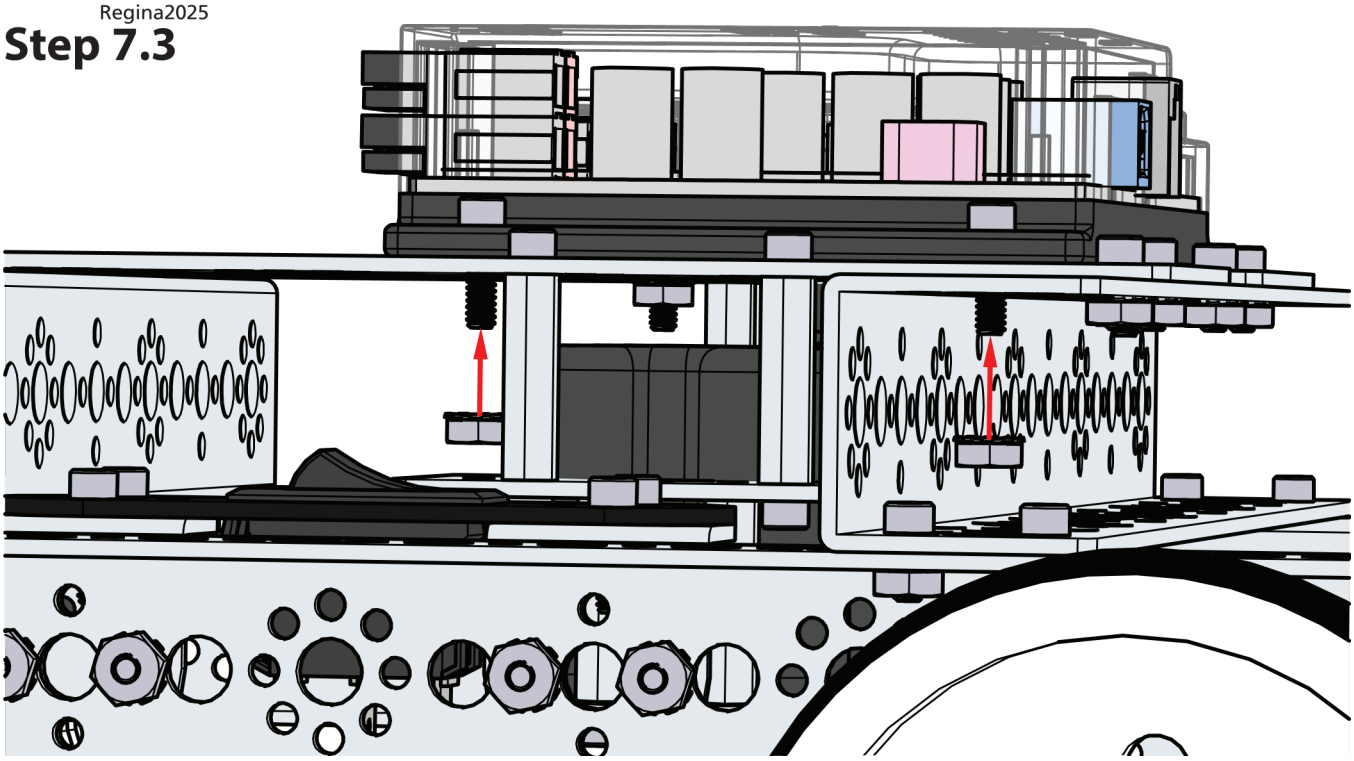
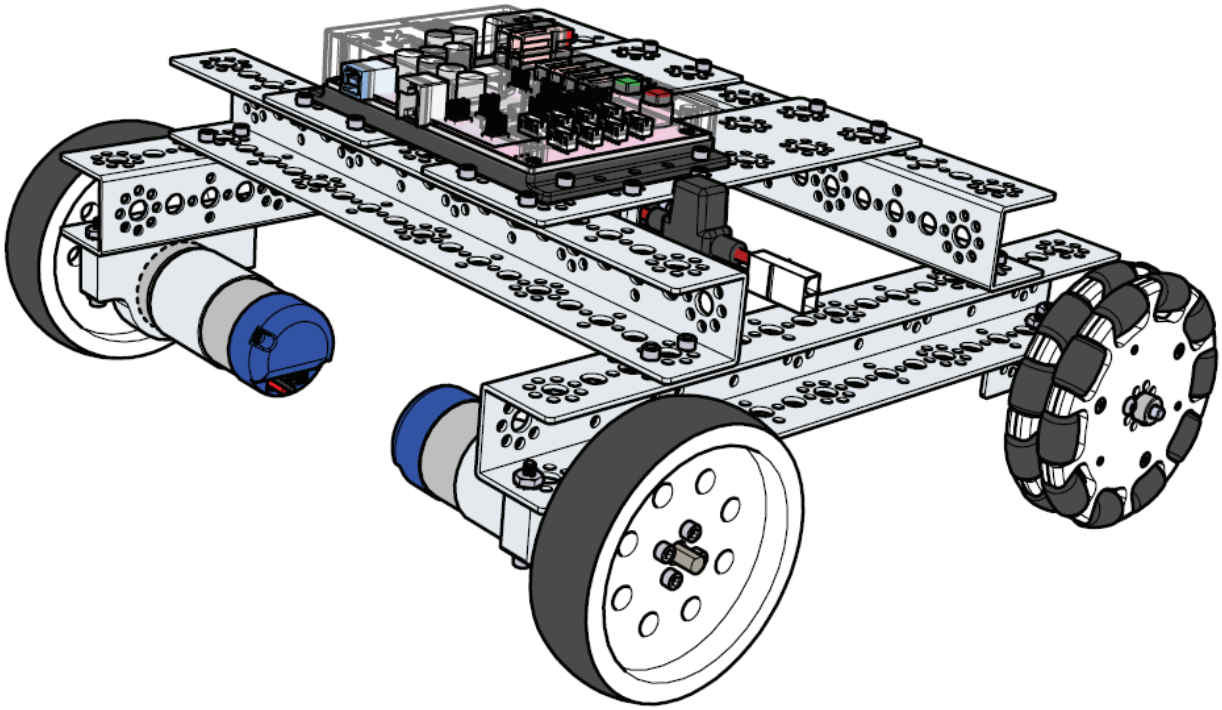
Step 7.1



Step 7.2



Step 7.3



Final result: