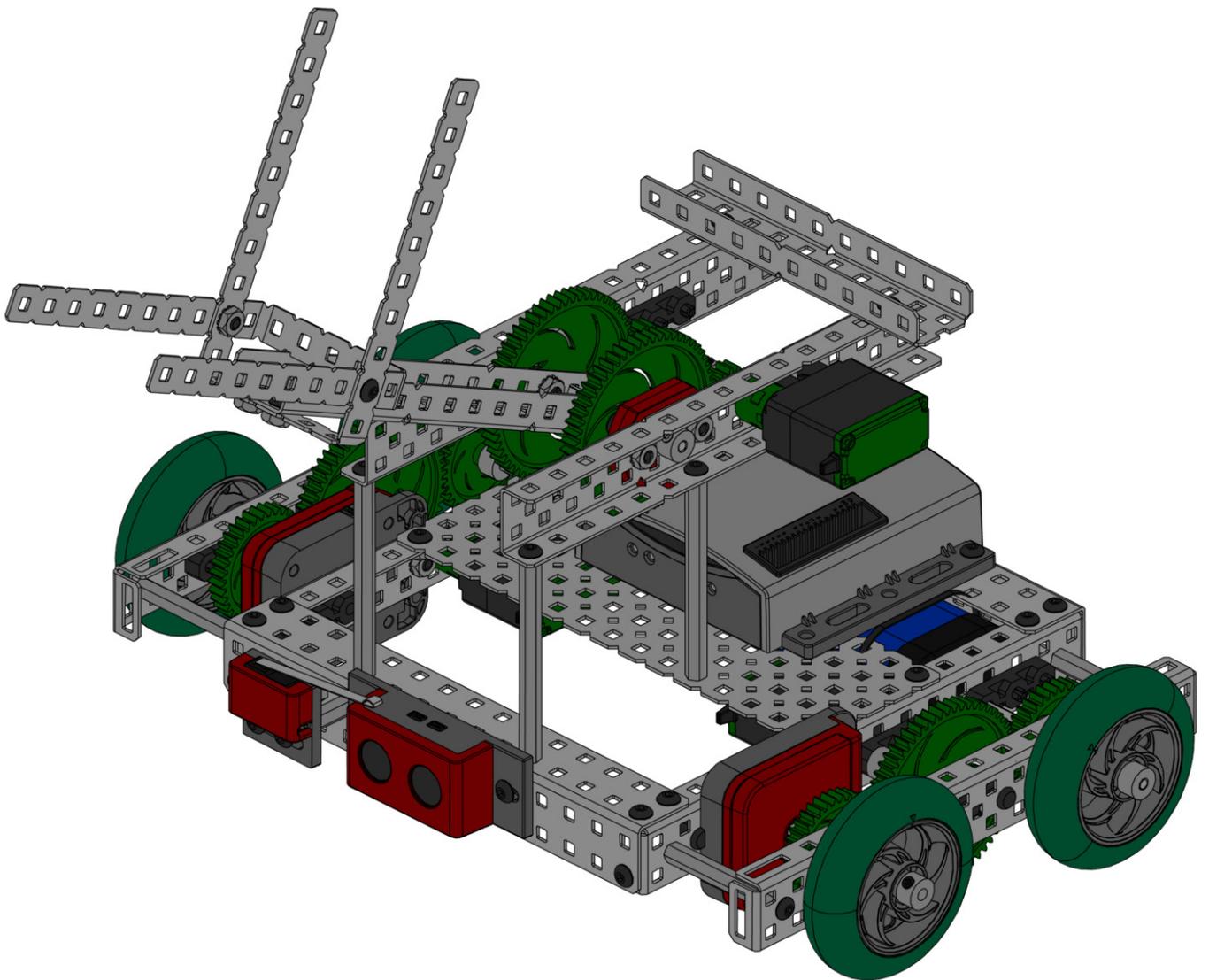


RECBOT BUILDING INSTRUCTIONS

RECBOT BUILDING INSTRUCTIONS



USING THE VEX PIC

RECBOT BUILDING INSTRUCTIONS

1 Collect parts and tools from the lists below:

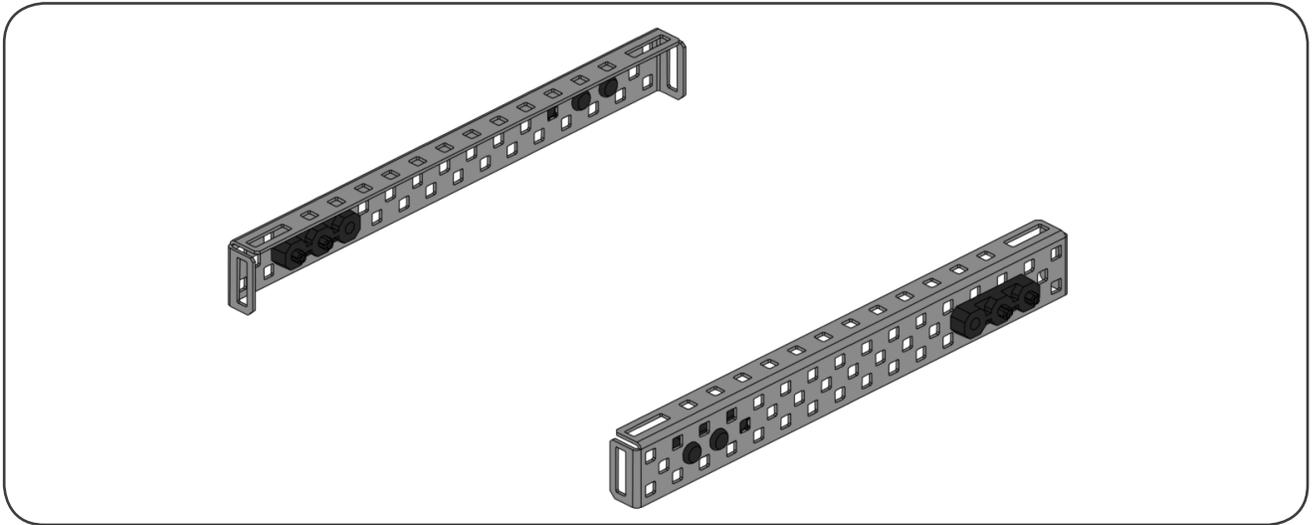
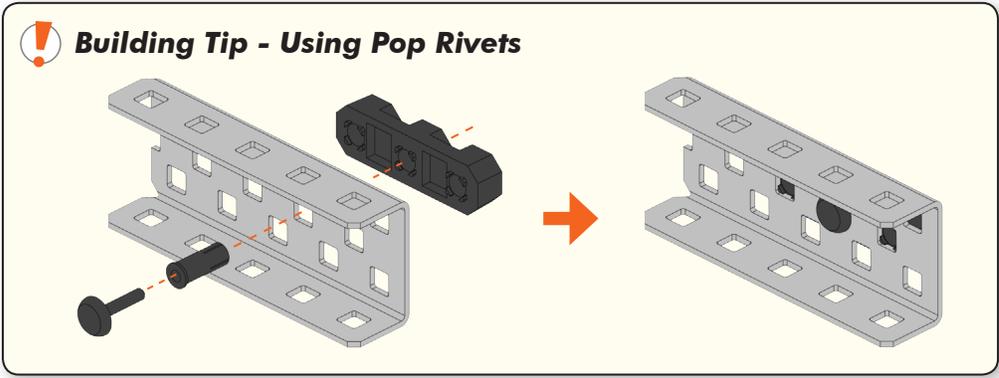
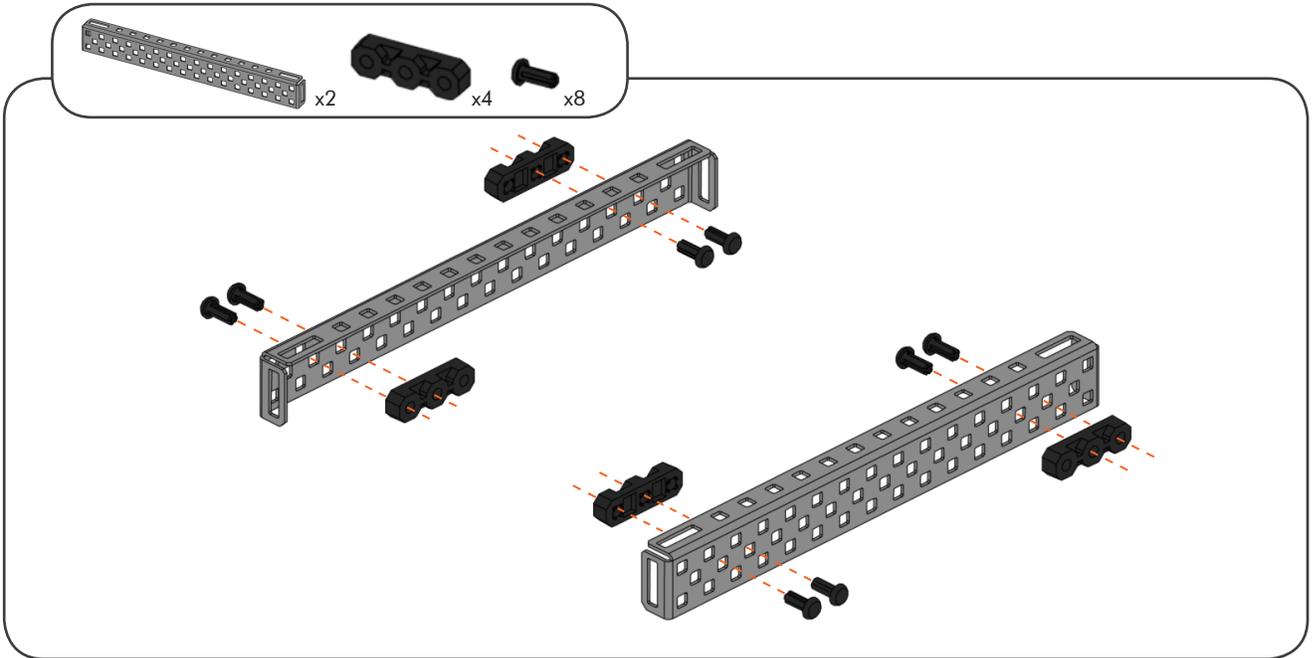
Materials	Quantity
Screw, 8-32 x 1/4" Long	42
Screw, 8-32 x 1/2" Long	6
Screw, 8-32 x 3/8" Long	9
Motor Screw, Long [1/2"]	6
Nut, 8-32 Keps	37
Shaft, 3" long	6
Shaft, 2" long	2
Shaft Collar	17
4.6mm Plastic Spacer	10
Bearing, Flat	15
Bearing Pop Rivets	24
Standoff, 3" Long	4
Standoff, 2" Long	4
Standoff, 1" Long	2
Gear, 12 tooth	2
Gear, 36 tooth	4
Gear, 60 tooth	4
Chassis Rail, 16 hole	4
Chassis Bumper, 15 hole	2
C-Channel, 1x2x1x15 hole	2
C-Channel, 1x2x1x25 hole	1
Plate, 5 x 15 hole	1
Bar, 25 hole	2
Small Low Friction VEX Wheel	4
VEX Microcontroller*	1
VEX Motor w/ Clutch	3
7.2V Robot Battery*	1
Optical Shaft Encoder*	2
Limit Switch*	1
Ultrasonic Rangefinder*	1
Potentiometer*	1
RF Receiver Module*	1
Receiver Antenna Sleeve*	1
Receiver Antenna Sleeve Holder*	1

Tools	Quantity
Zip Tie, 4" Long	4
Allen Wrench 3/32"	1
Allen Wrench 5/64"	1
Open End Wrench 1/4"	1
Pliers*	1
Hacksaw*	1

* Not included in Protobot Robot Kit

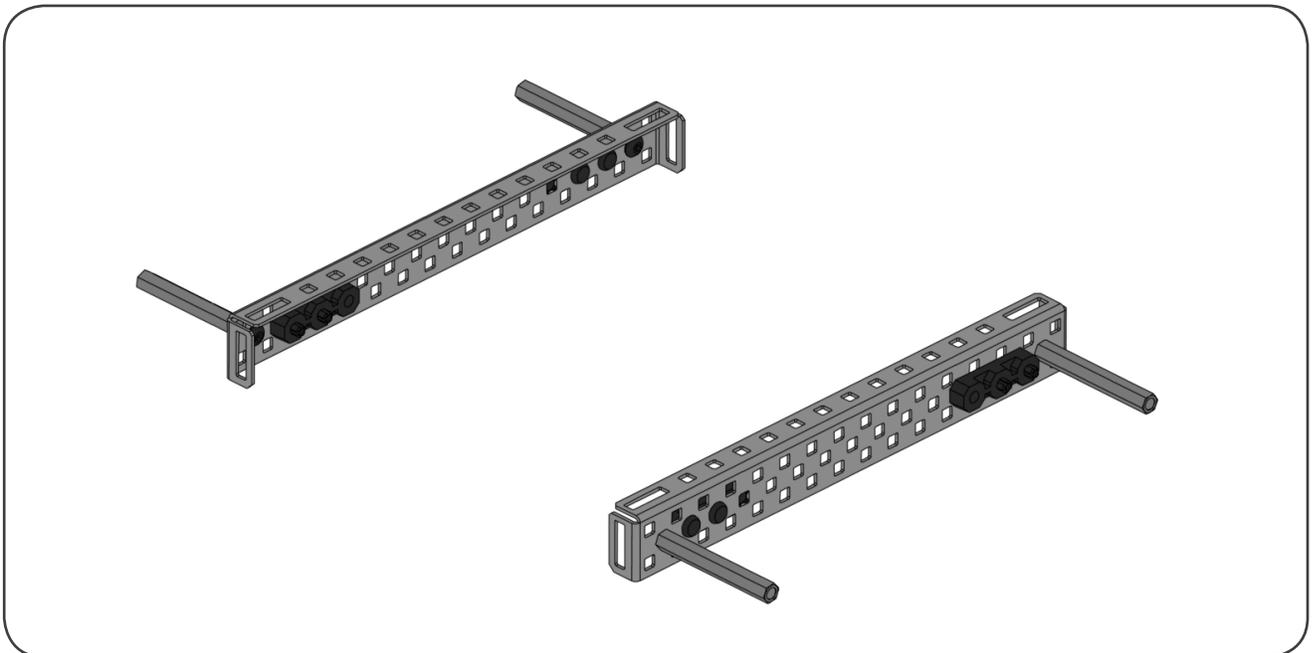
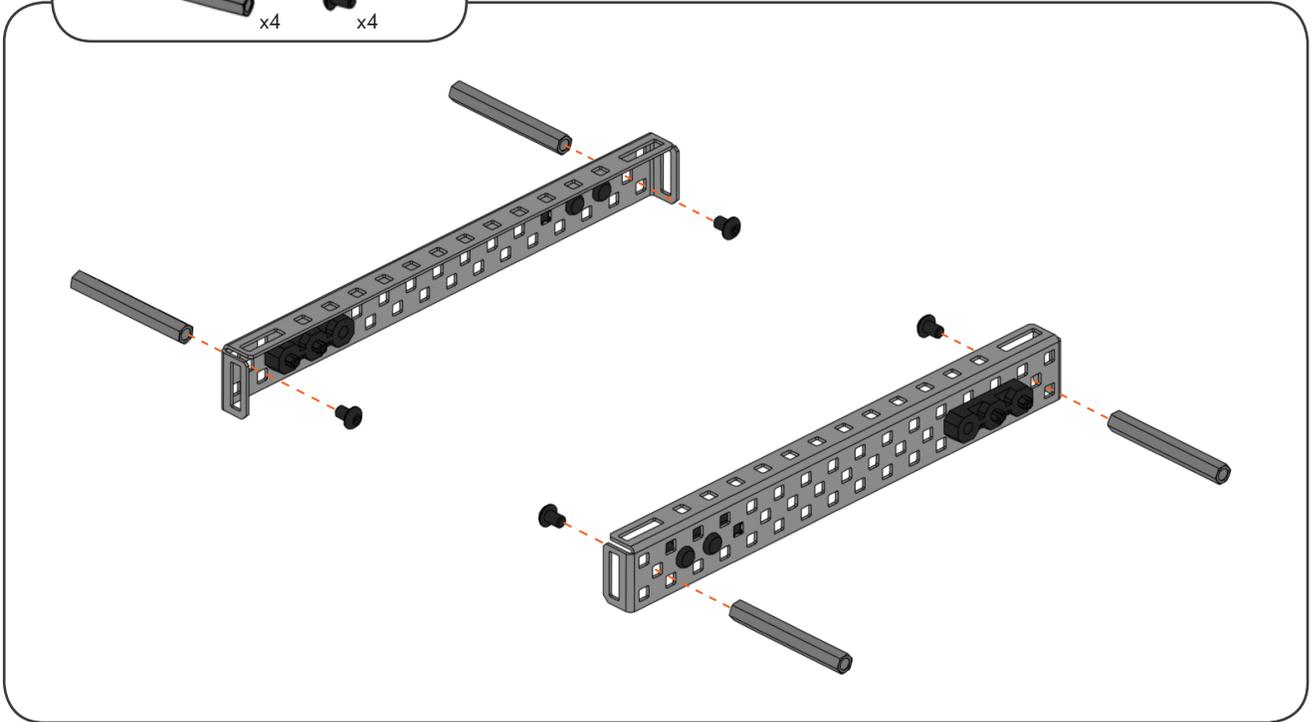
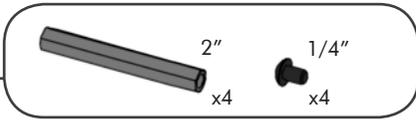
RECBOT BUILDING INSTRUCTIONS

2 Chassis Construction



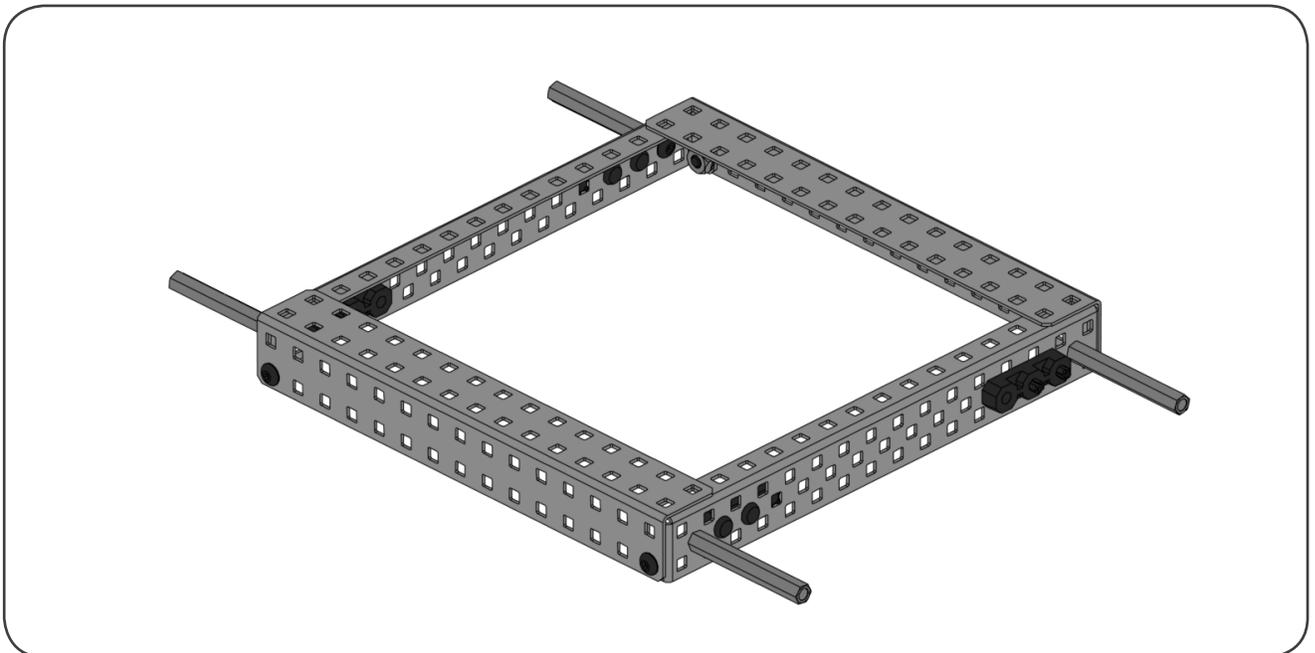
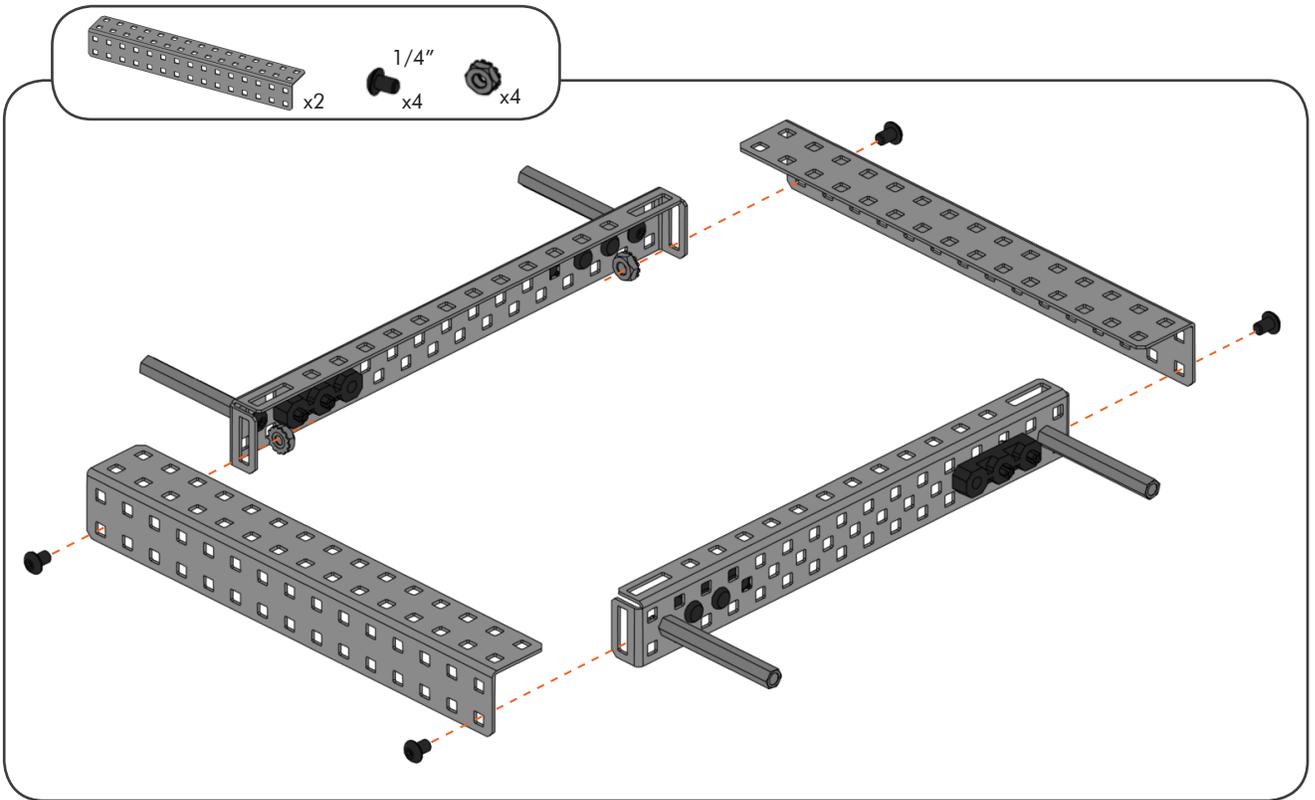
RECBOT BUILDING INSTRUCTIONS

2 Chassis Construction *(continued)*



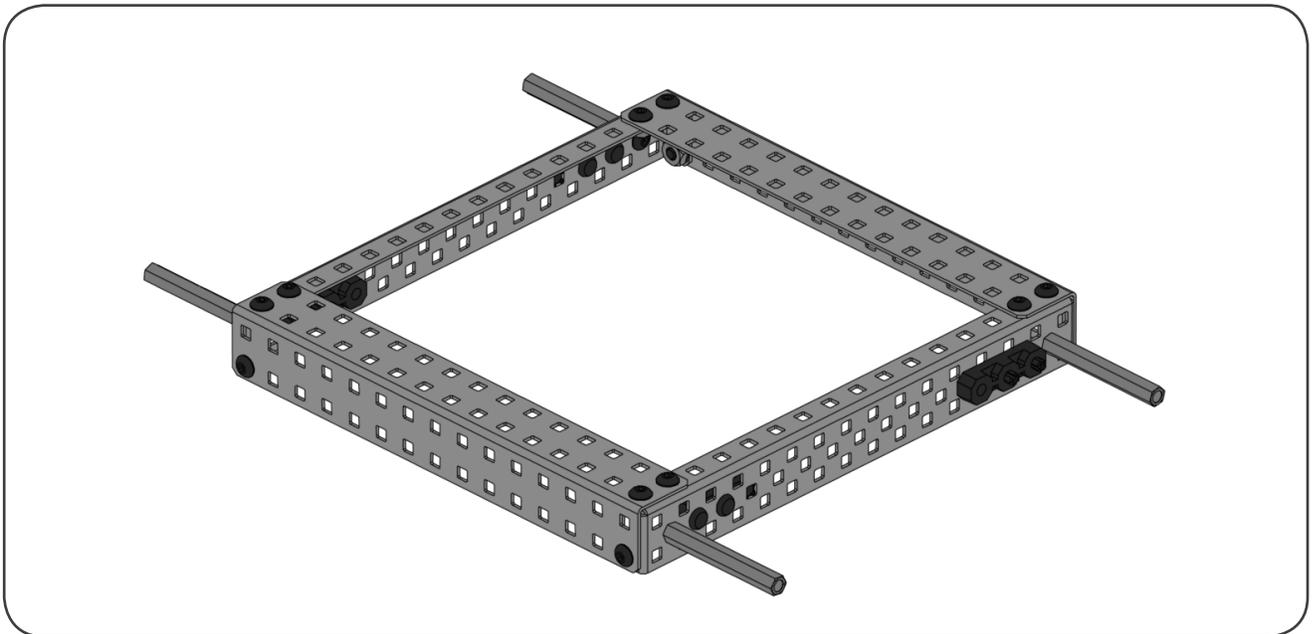
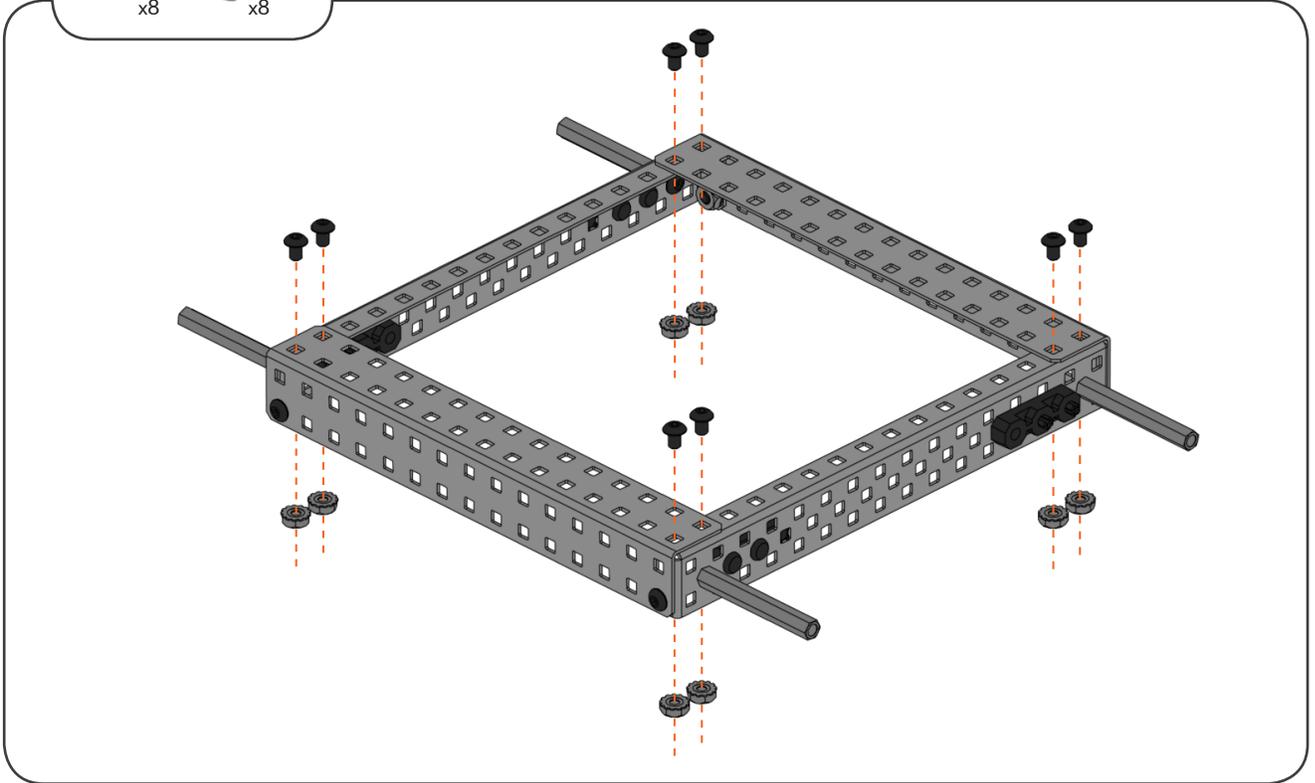
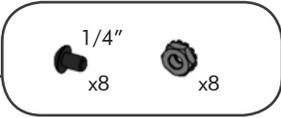
RECBOT BUILDING INSTRUCTIONS

2 Chassis Construction *(continued)*



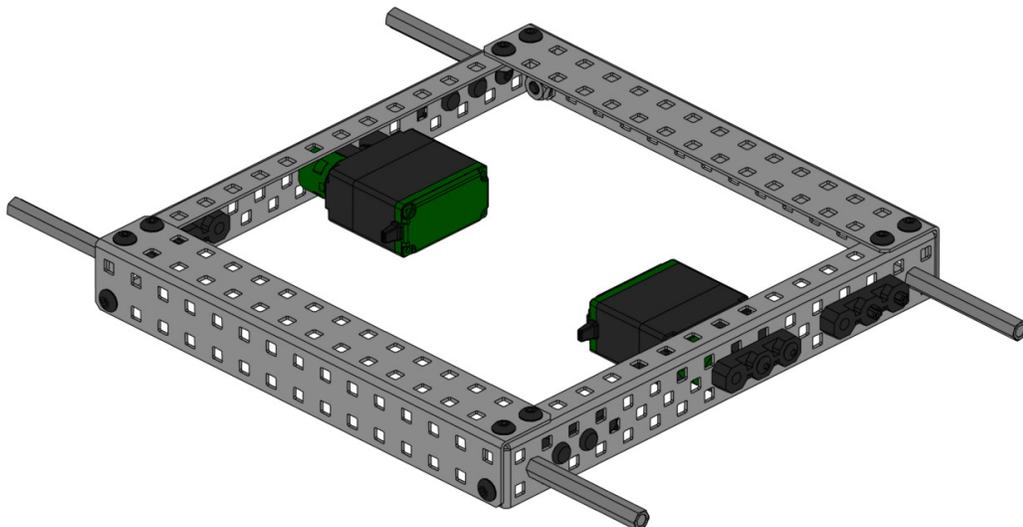
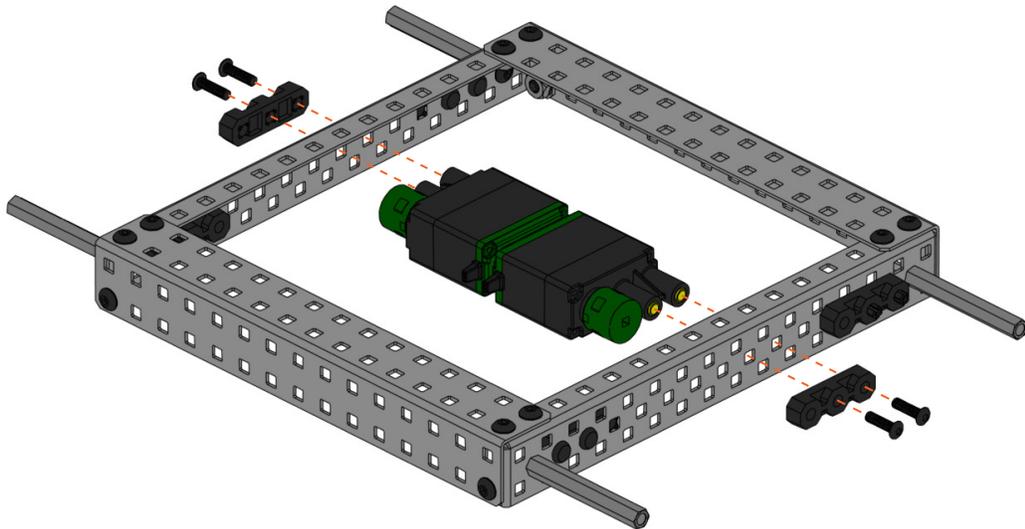
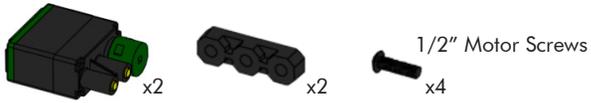
RECBOT BUILDING INSTRUCTIONS

2 Chassis Construction *(continued)*



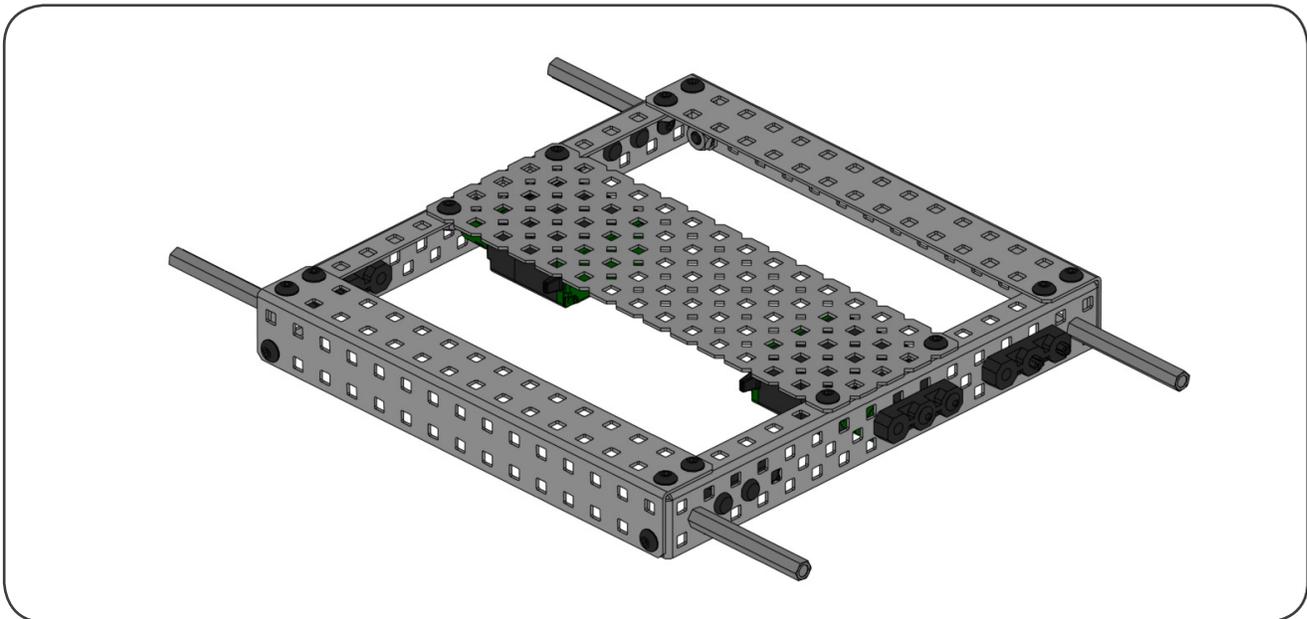
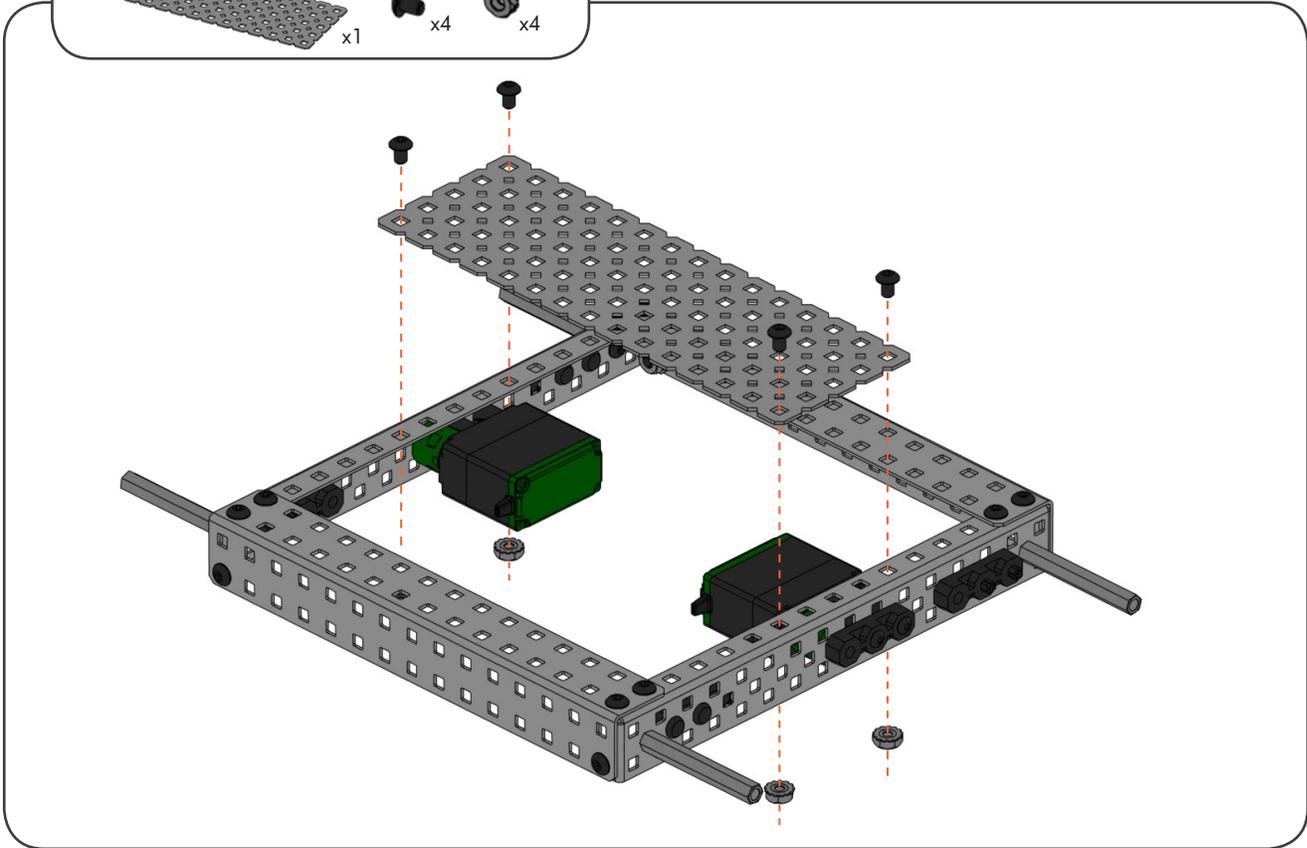
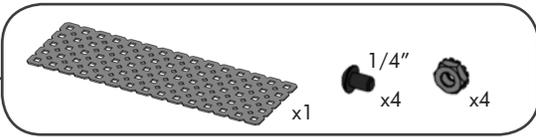
RECBOT BUILDING INSTRUCTIONS

3 Drivetrain Assembly



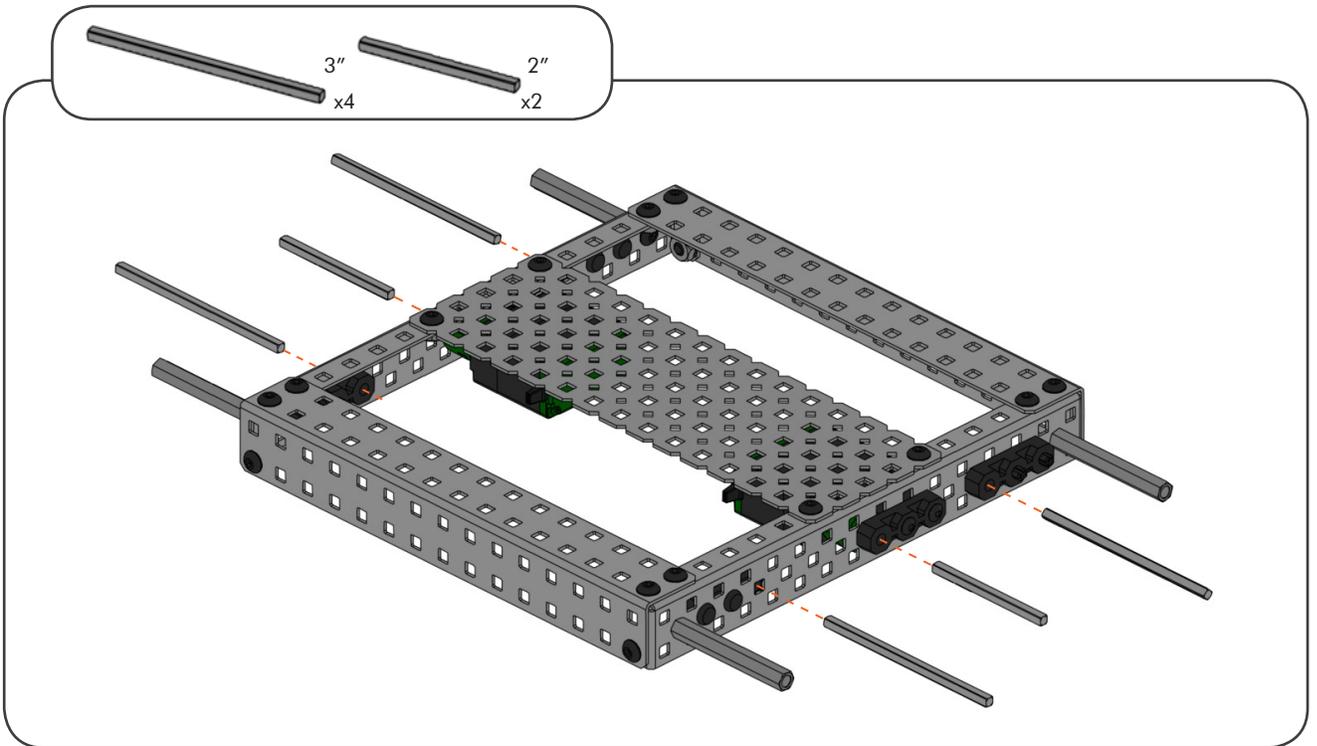
RECBOT BUILDING INSTRUCTIONS

3 Drivetrain Assembly *(continued)*



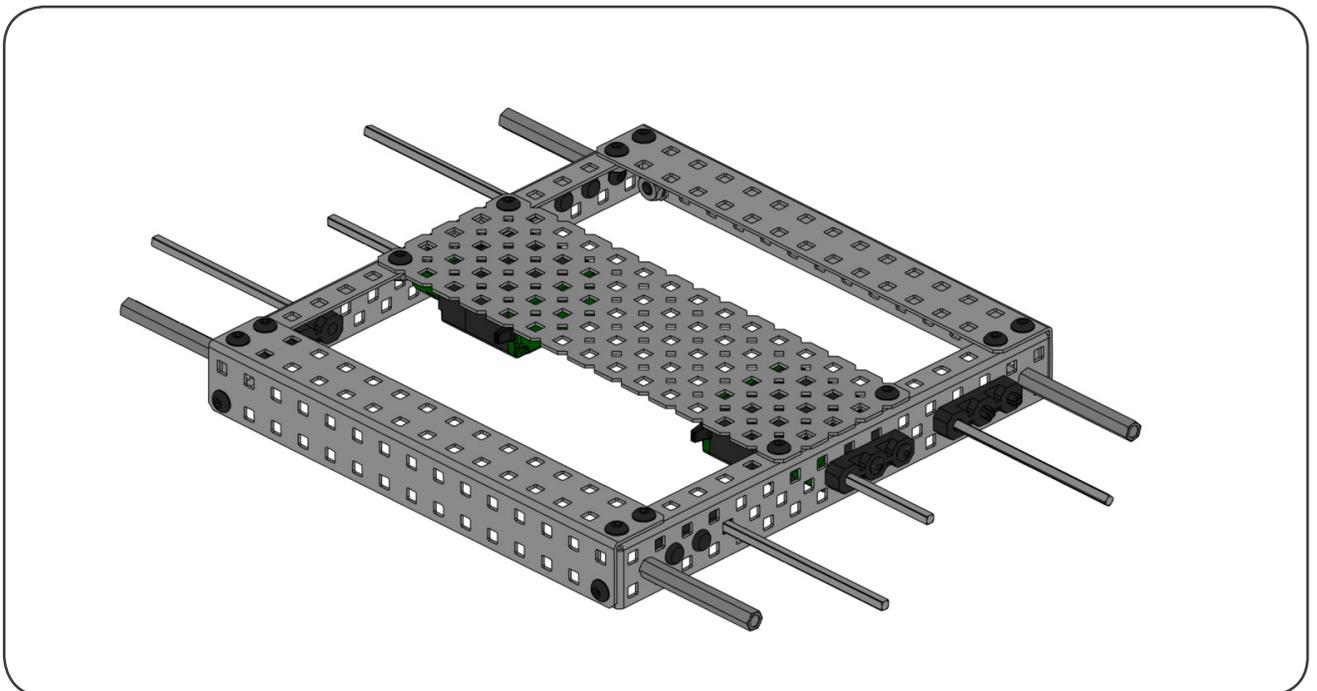
RECBOT BUILDING INSTRUCTIONS

3 Drivetrain Assembly *(continued)*



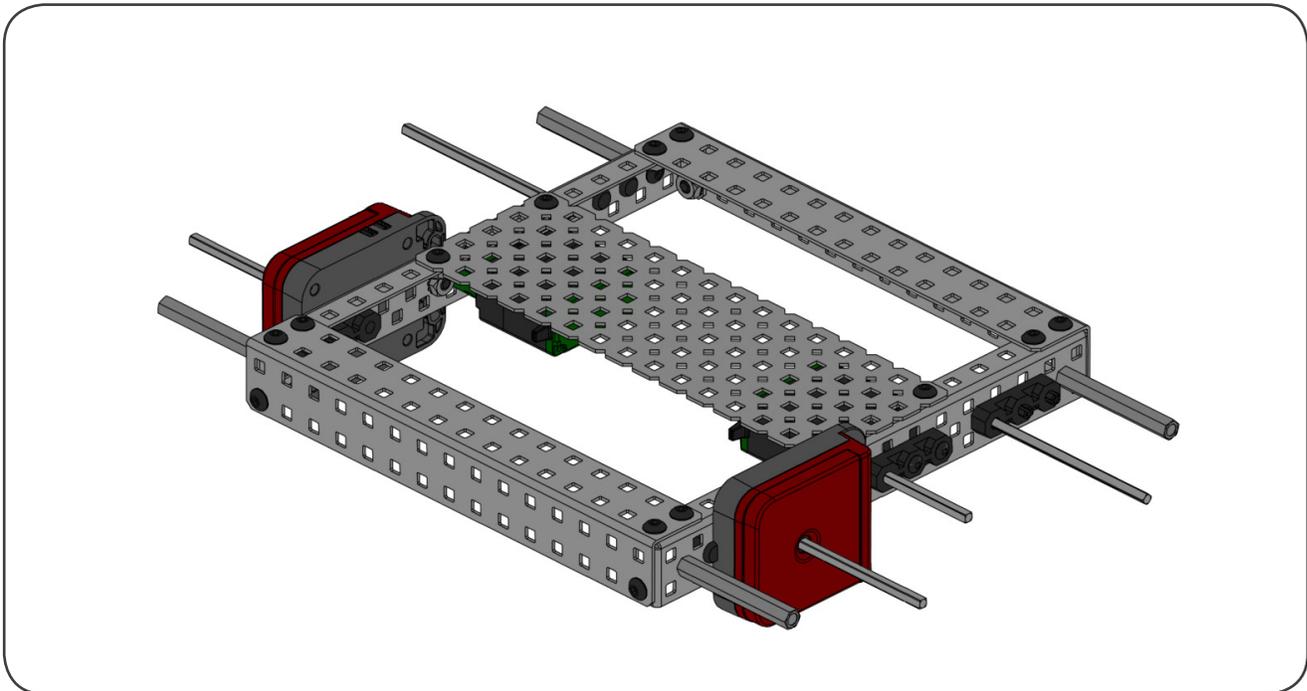
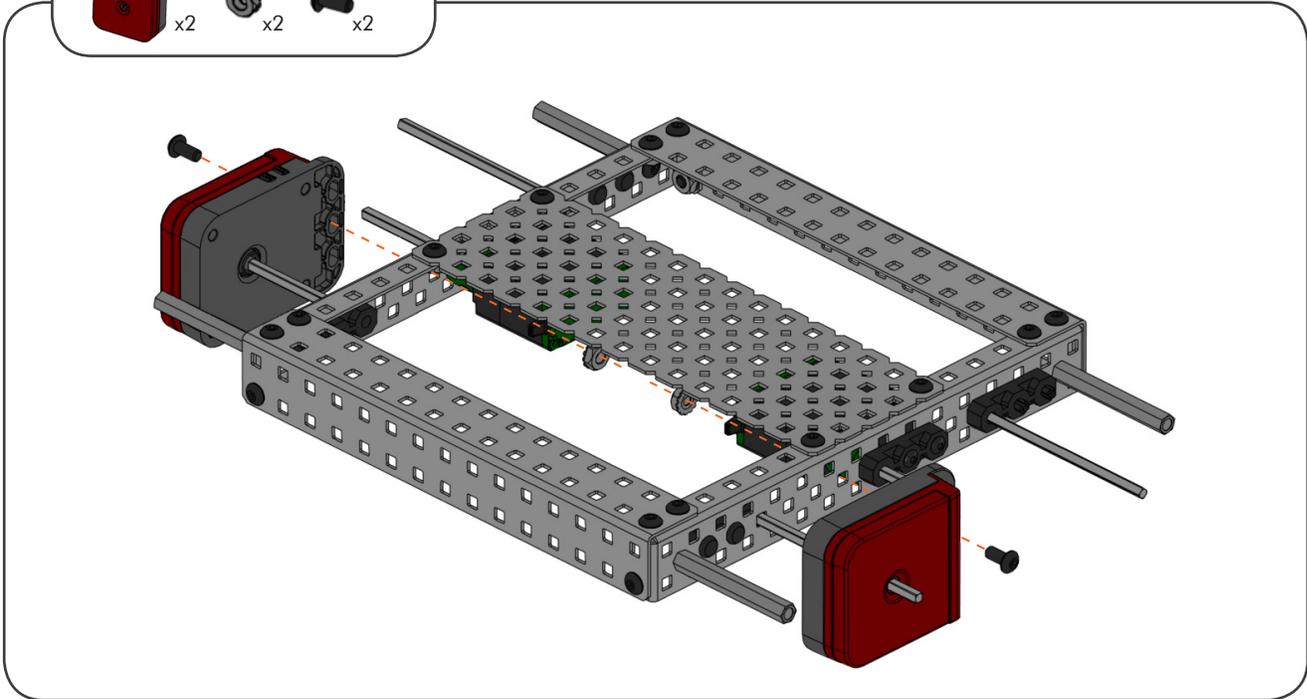
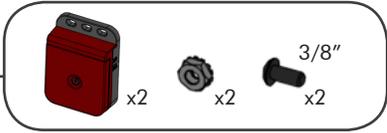
Building Tip - Shaft Length

The shafts depicted above are the minimum usable lengths. Longer shafts, if available, can be used to provide some additional support in the drivetrain.



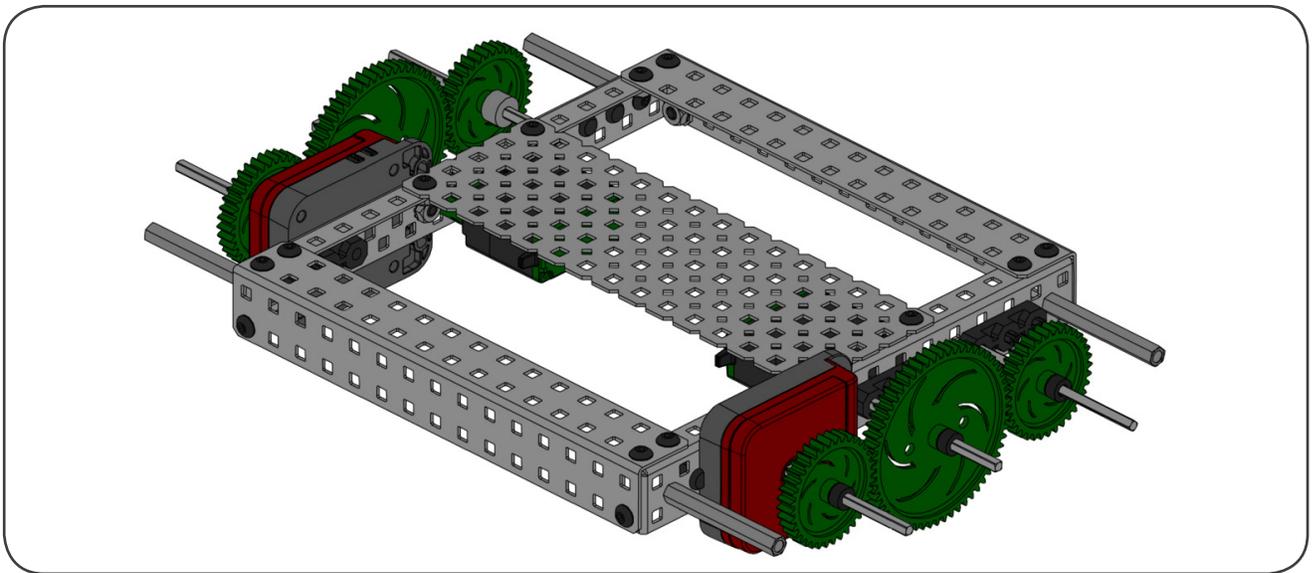
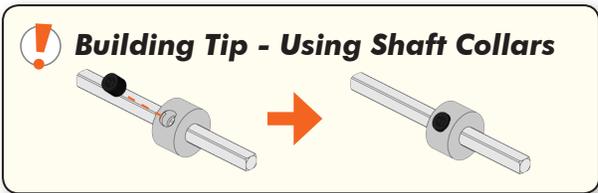
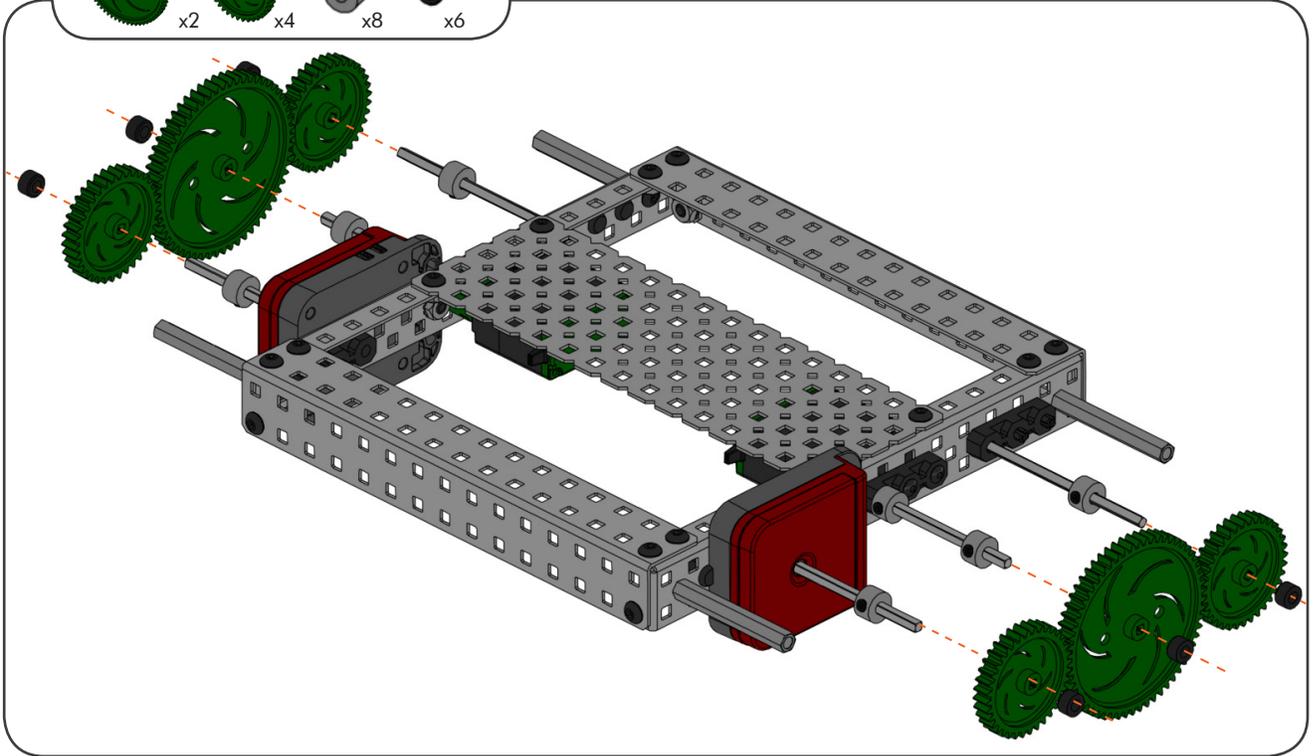
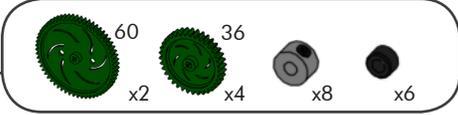
RECBOT BUILDING INSTRUCTIONS

3 Drivetrain Assembly *(continued)*



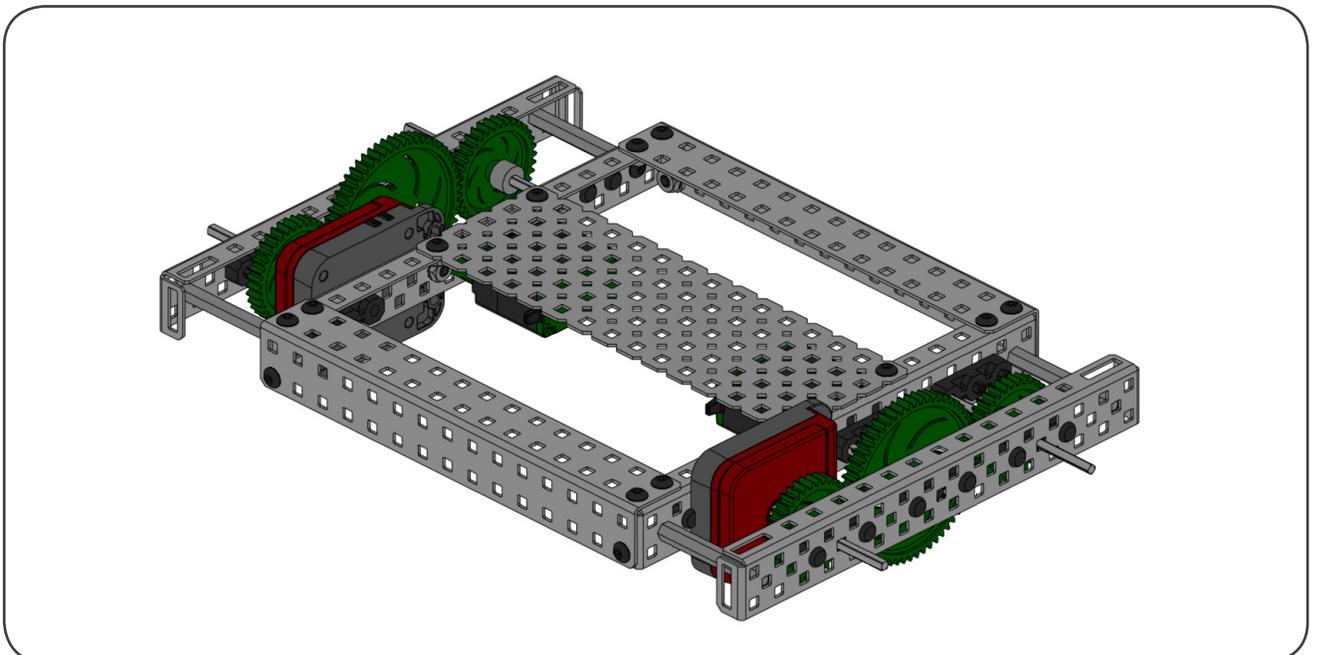
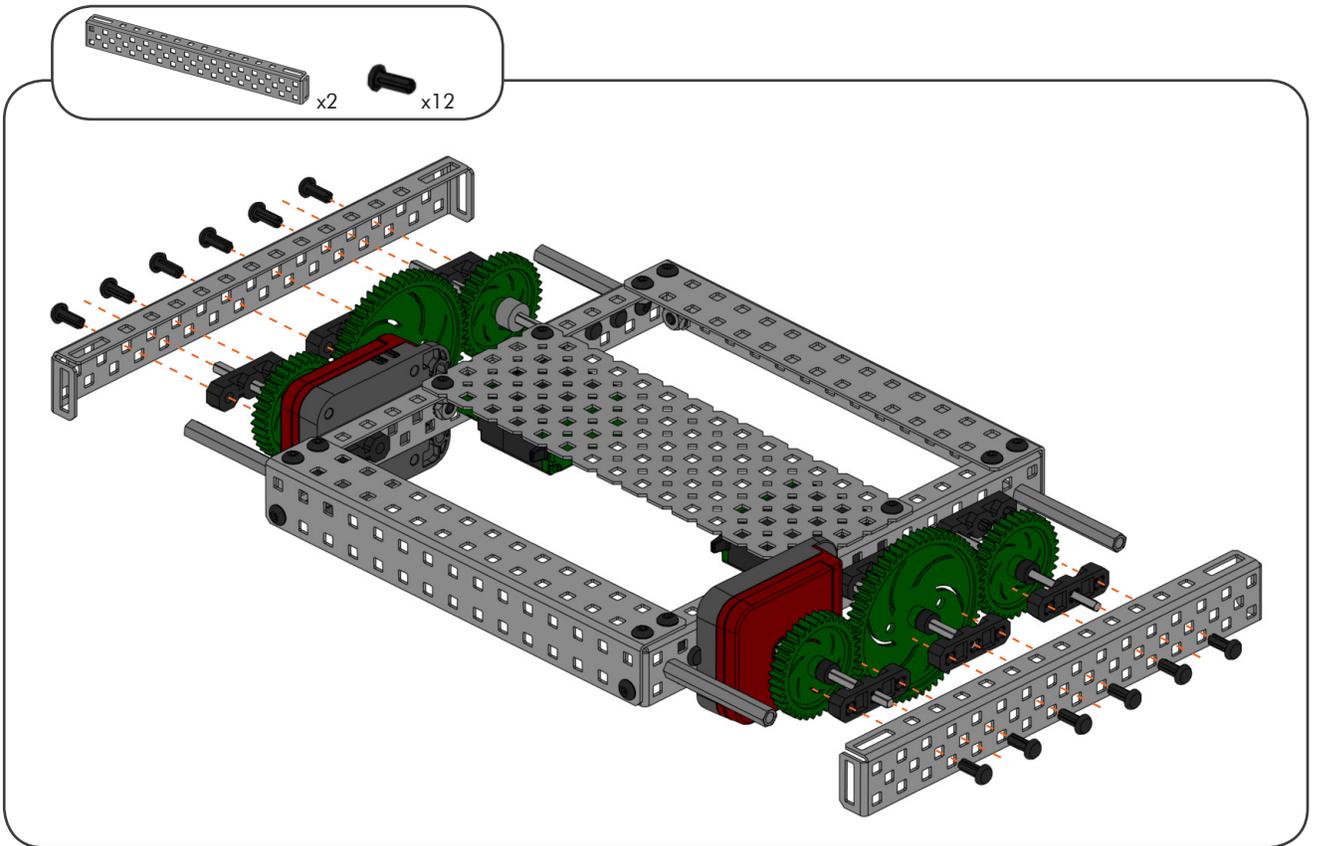
RECBOT BUILDING INSTRUCTIONS

3 Drivetrain Assembly *(continued)*



RECBOT BUILDING INSTRUCTIONS

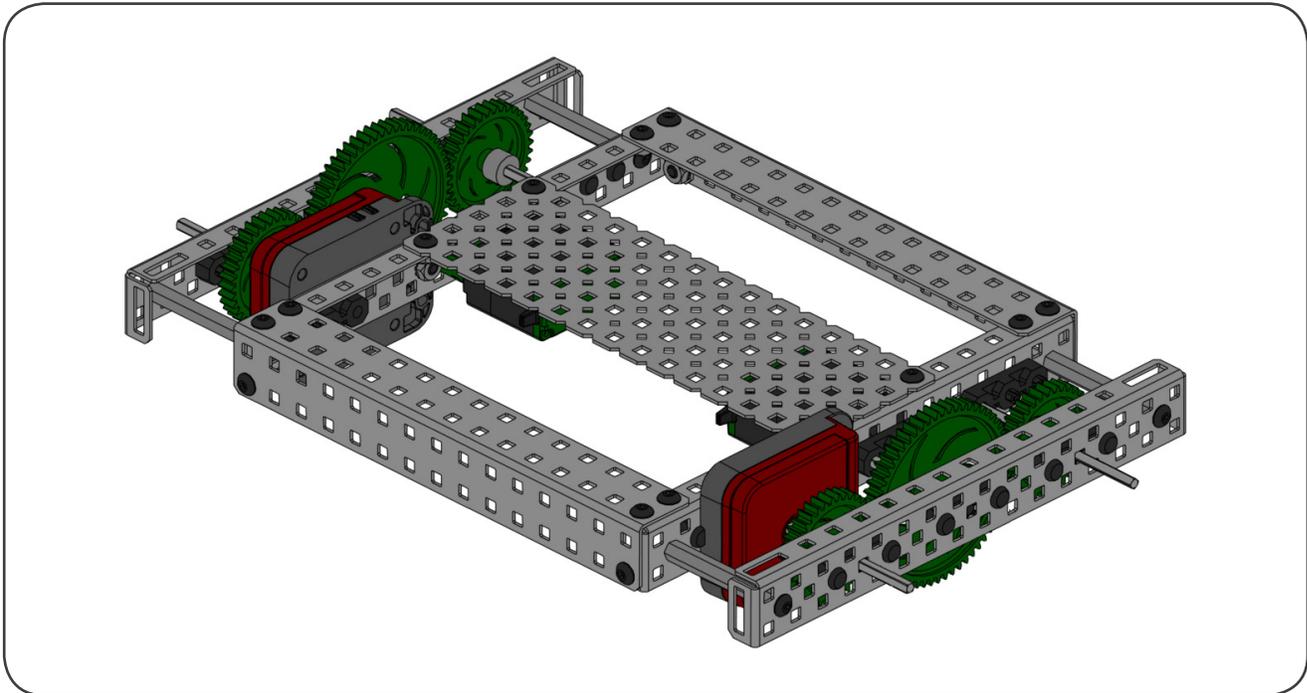
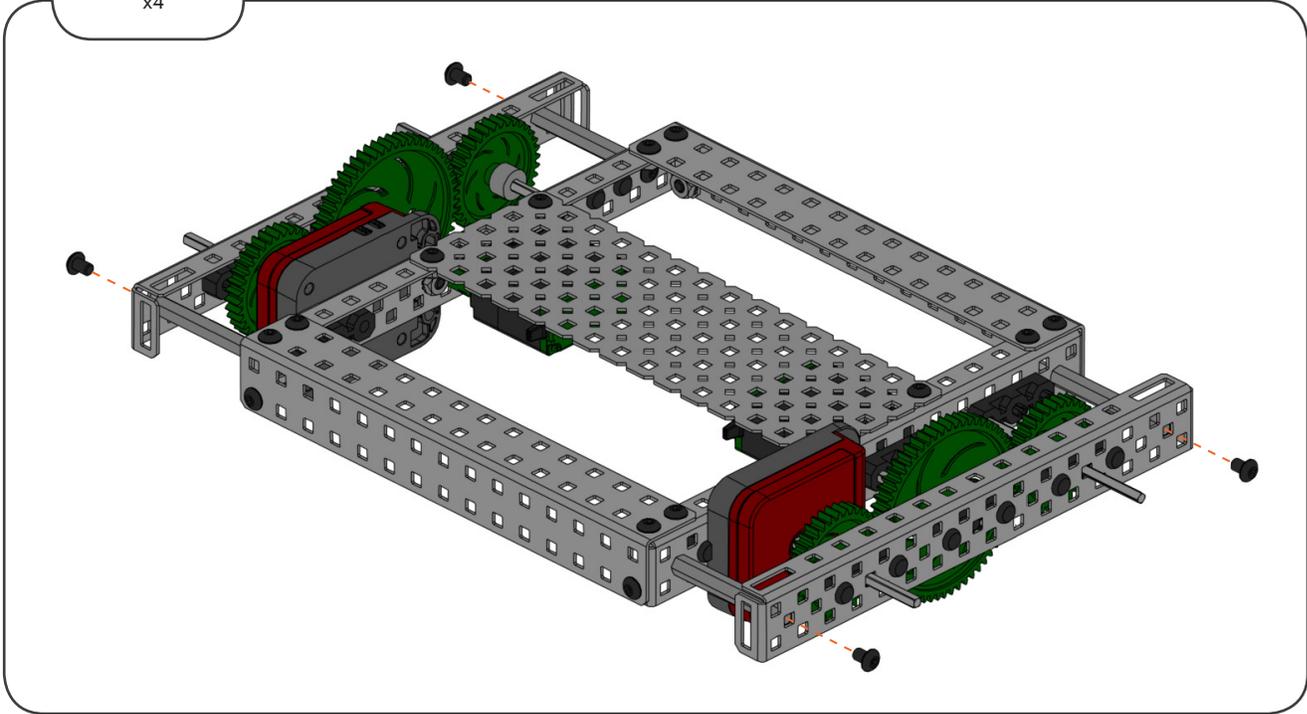
3 Drivetrain Assembly (continued)



RECBOT BUILDING INSTRUCTIONS

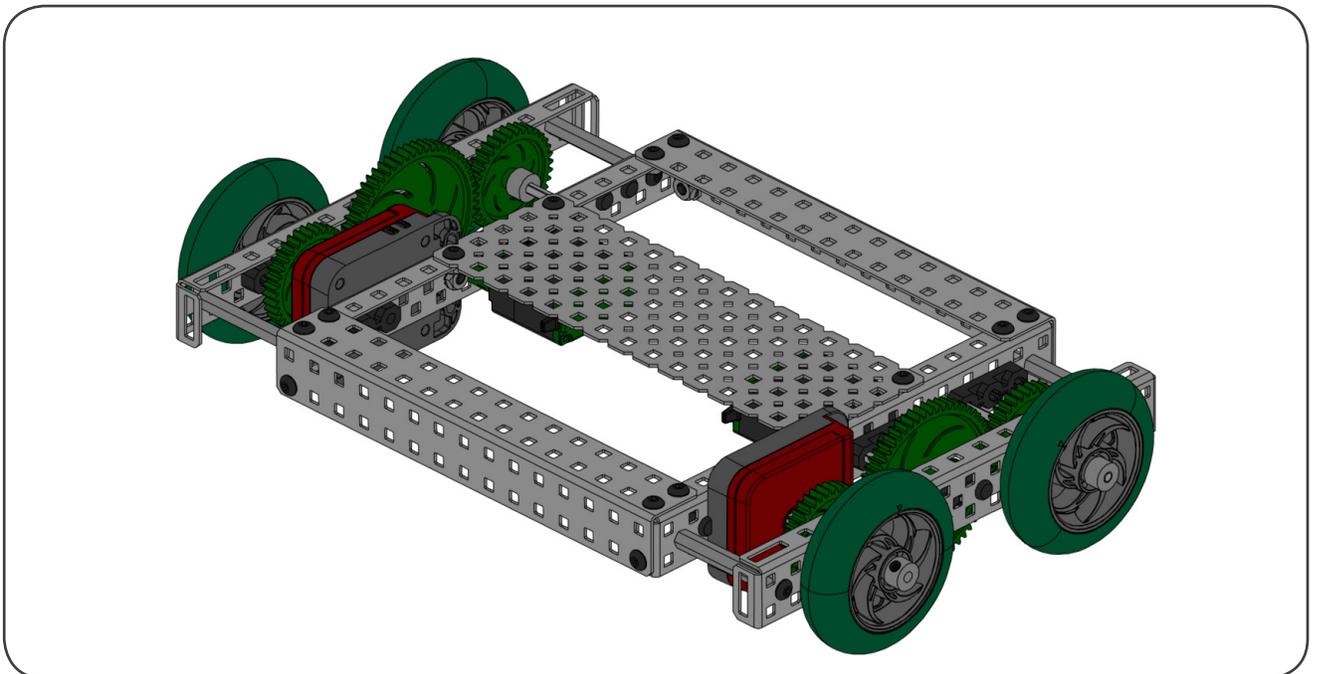
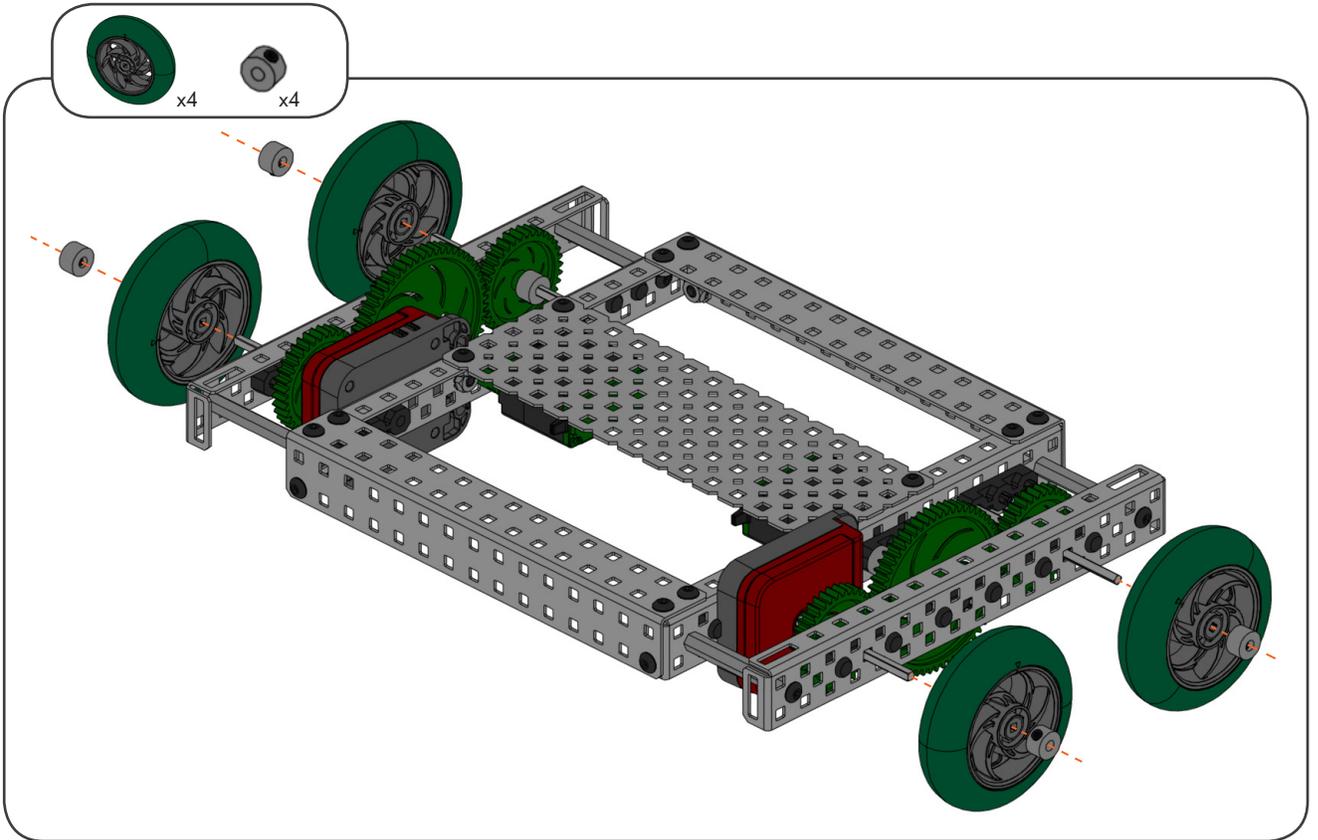
3 Drivetrain Assembly *(continued)*

1/4"
x4



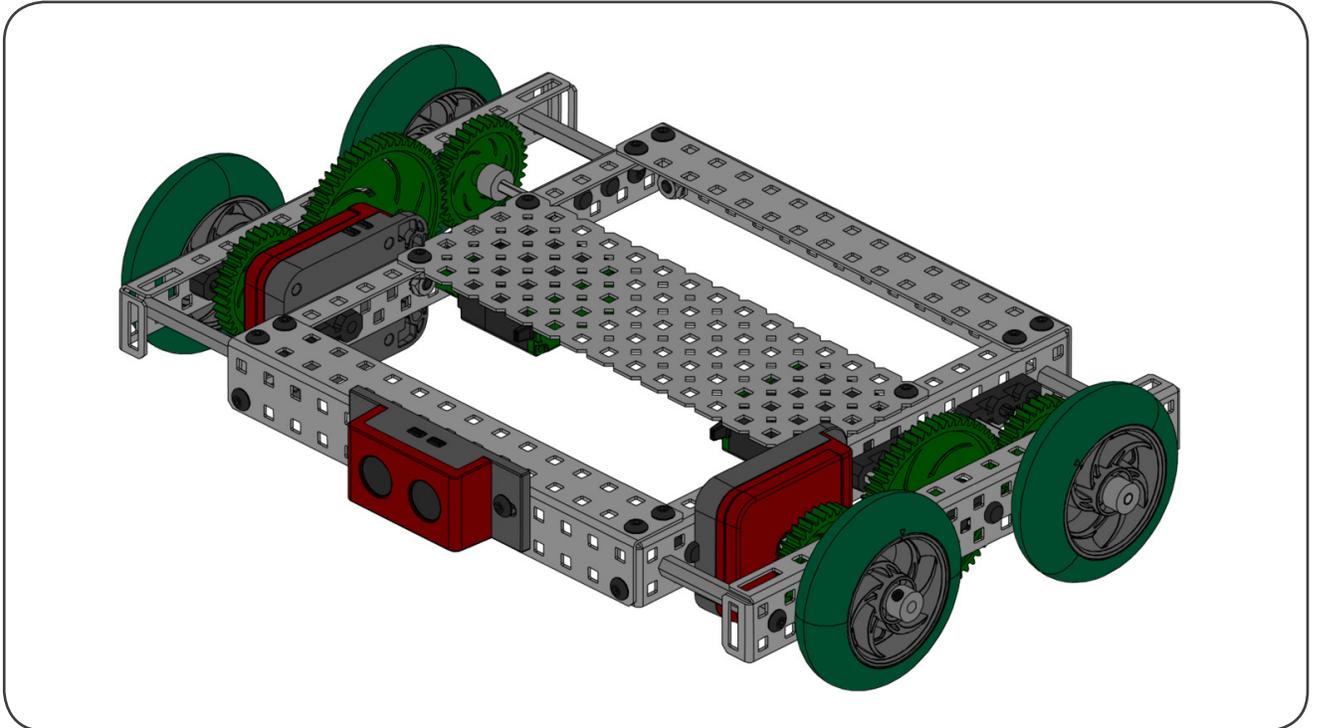
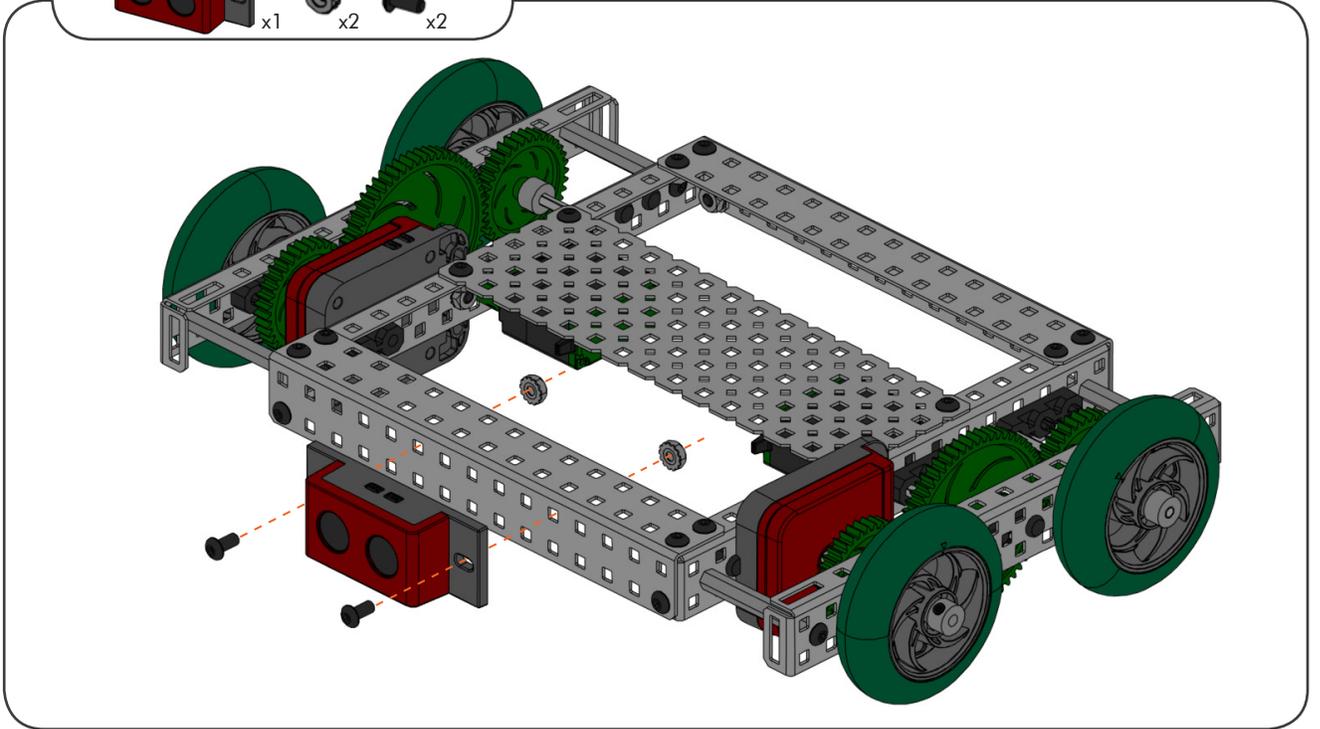
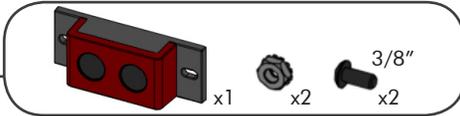
RECBOT BUILDING INSTRUCTIONS

3 Drivetrain Assembly *(continued)*



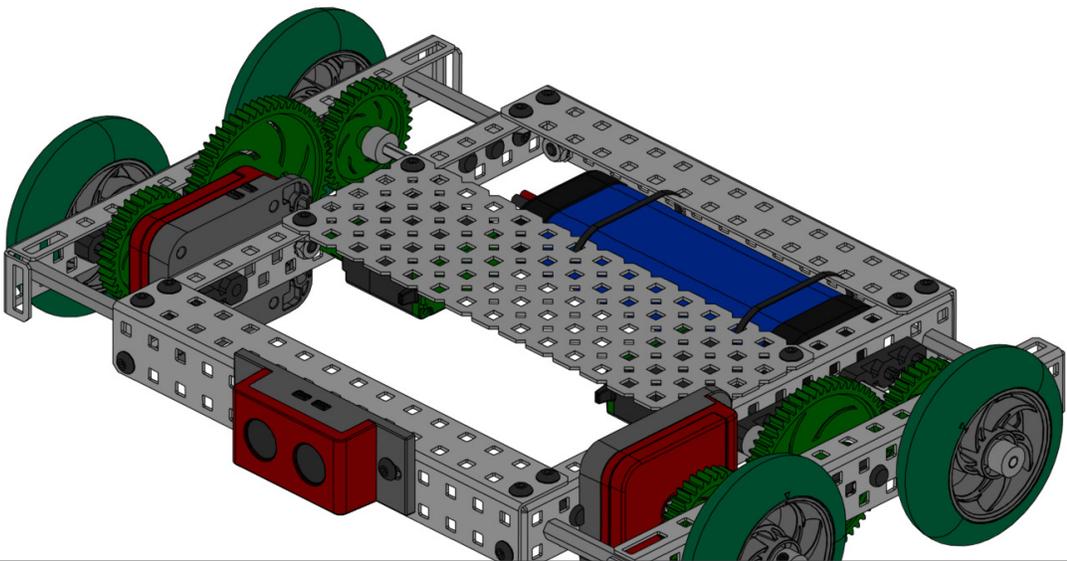
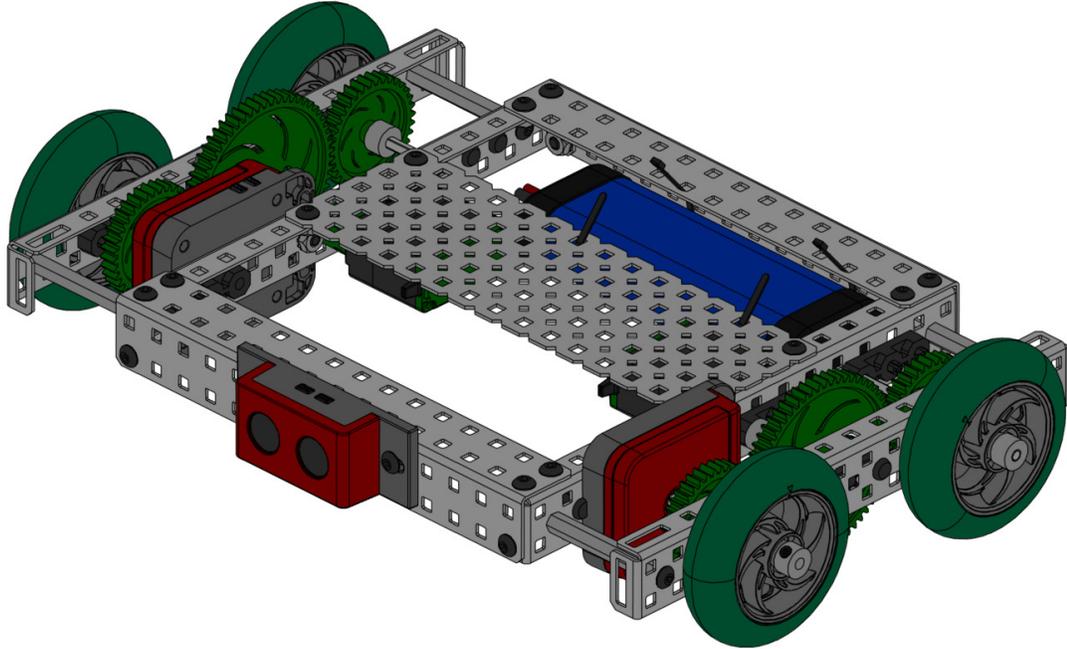
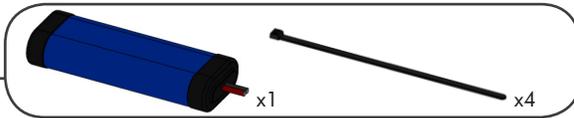
RECBOT BUILDING INSTRUCTIONS

4 Attaching the Ultrasonic Rangefinder



RECBOT BUILDING INSTRUCTIONS

5 Attaching the Battery

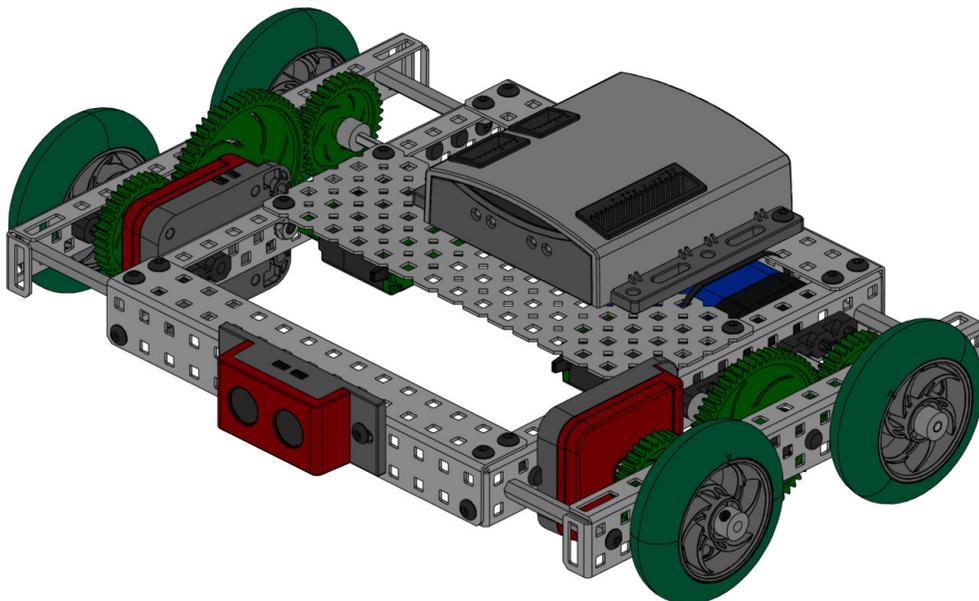
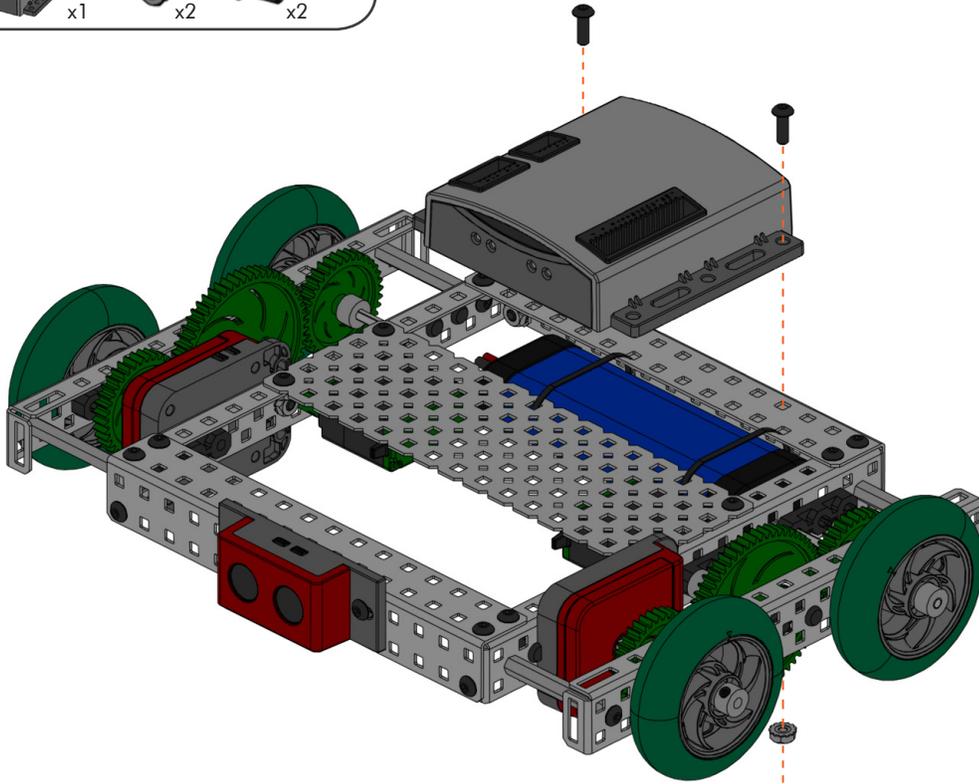


Building Tip - Using Wire Ties

Multiple wire ties can be connected end-to-end to create a longer strand. Also, keeping the wire ties slightly loose around the battery will enable you to remove it for charging, but still hold it in place while the robot is moving.

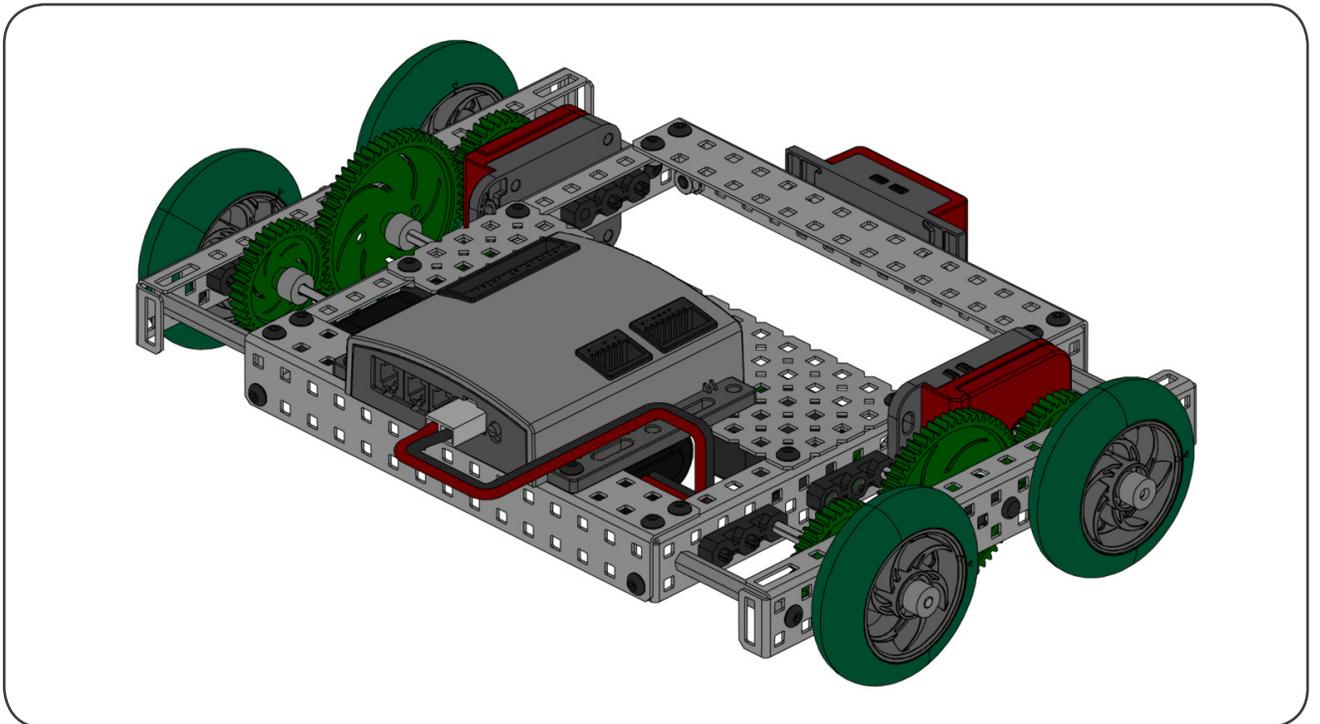
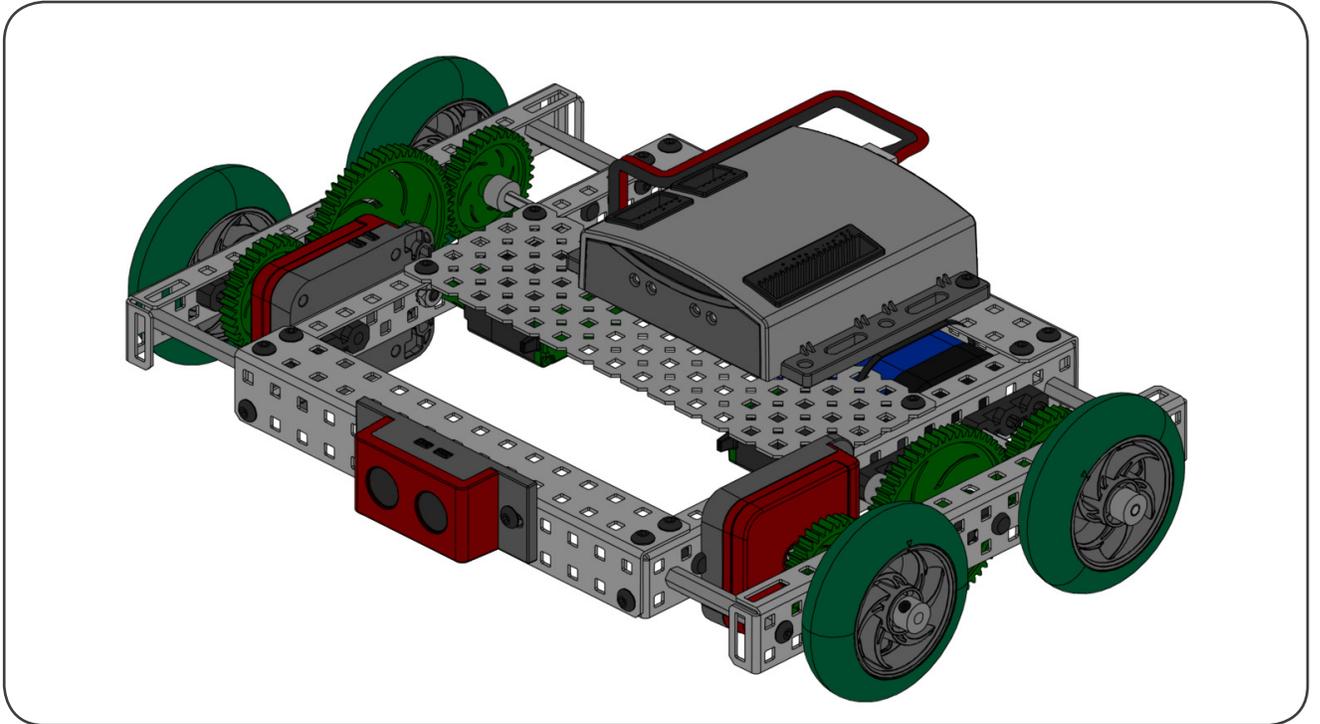
RECOT BUILDING INSTRUCTIONS

6 Attaching the VEX Microcontroller



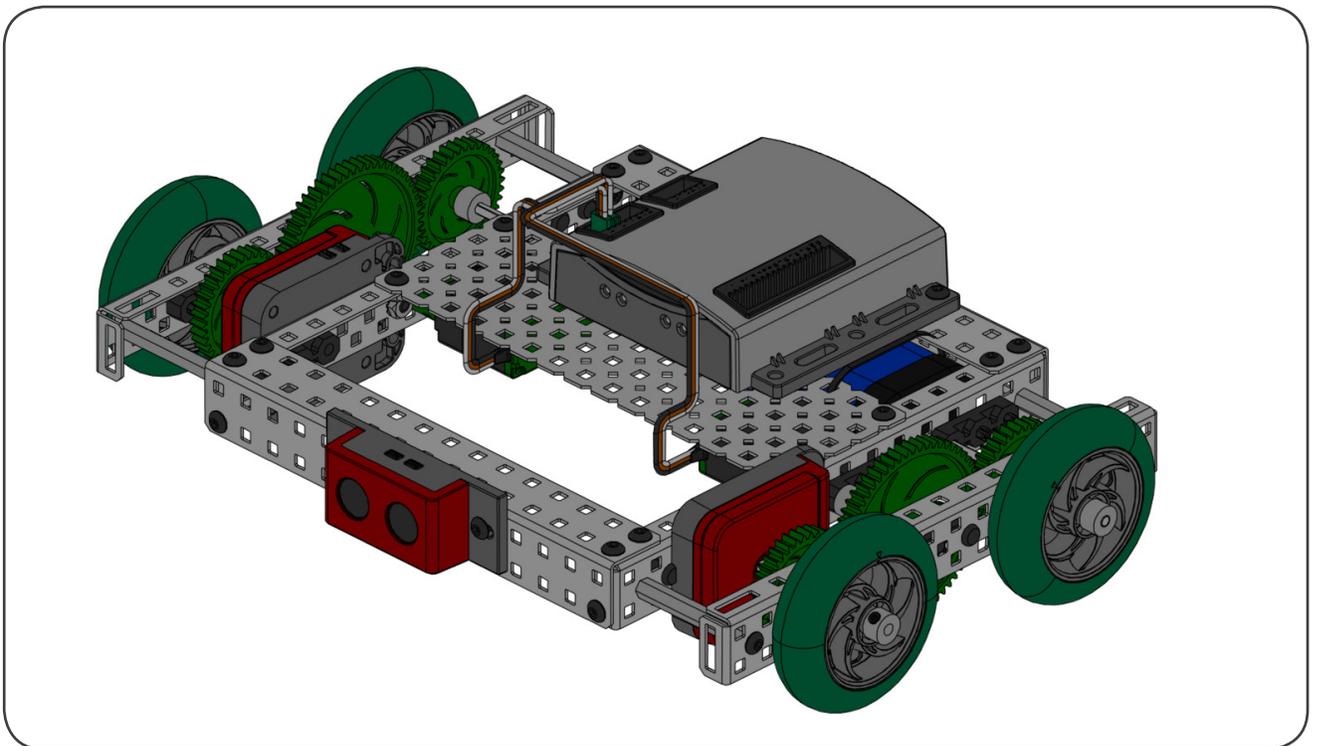
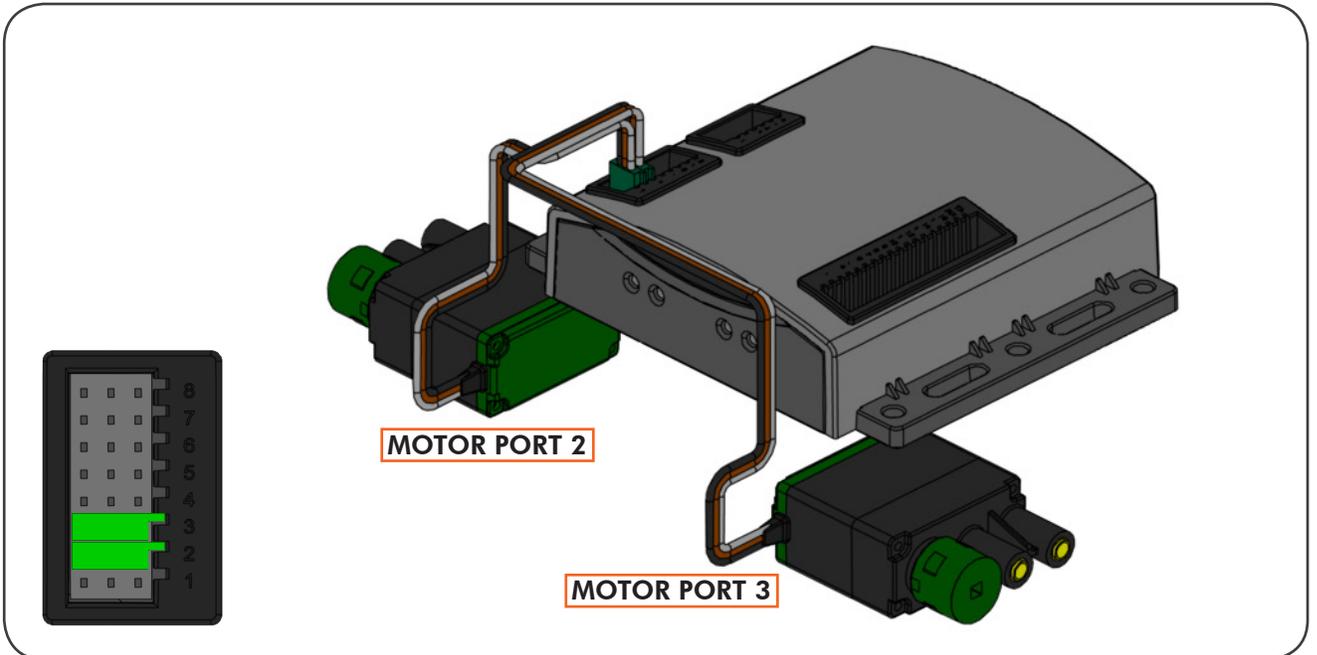
RECBOT BUILDING INSTRUCTIONS

7 Wiring the Battery



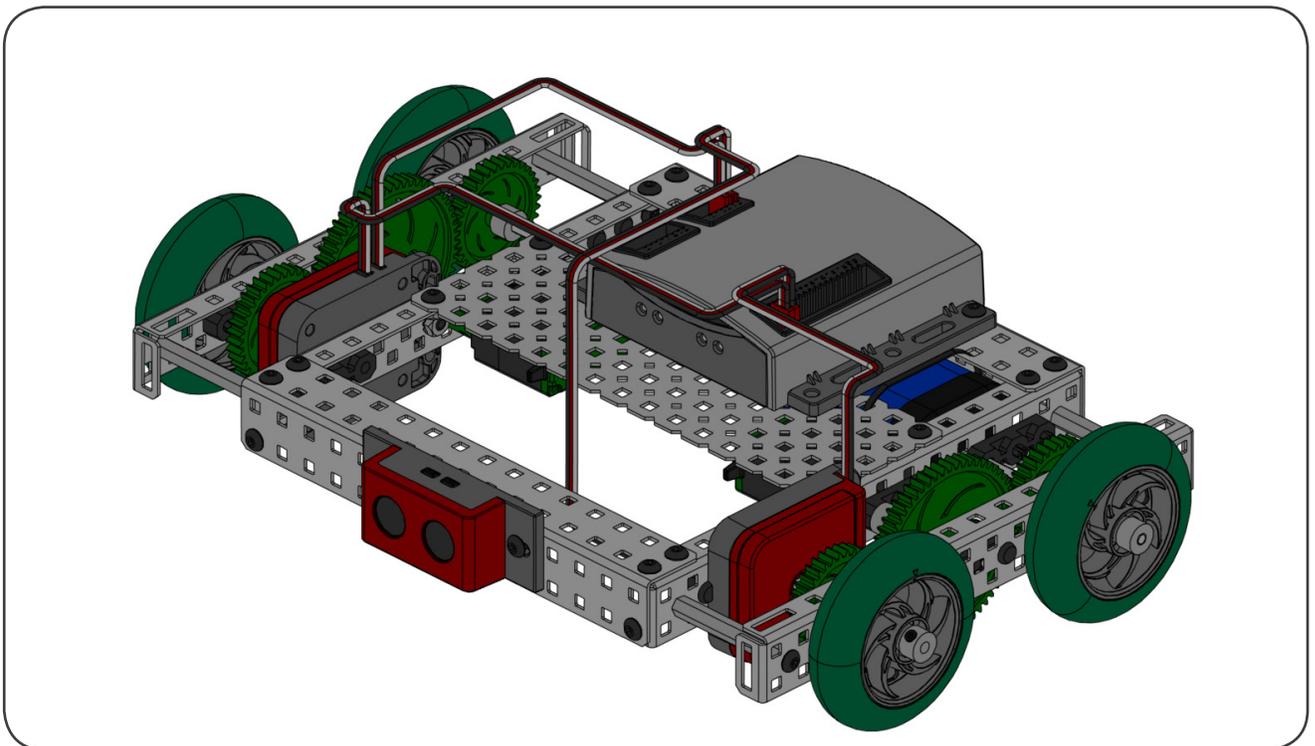
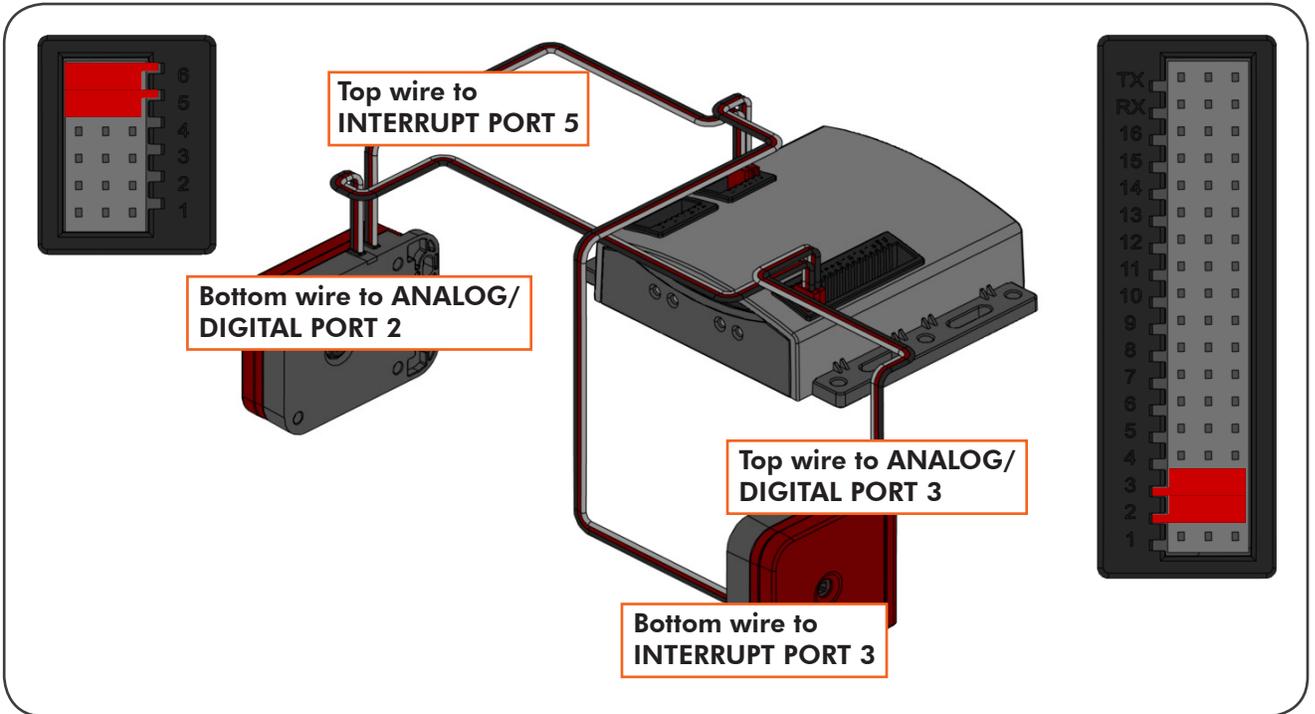
RECBOT BUILDING INSTRUCTIONS

8 Wiring the Motors



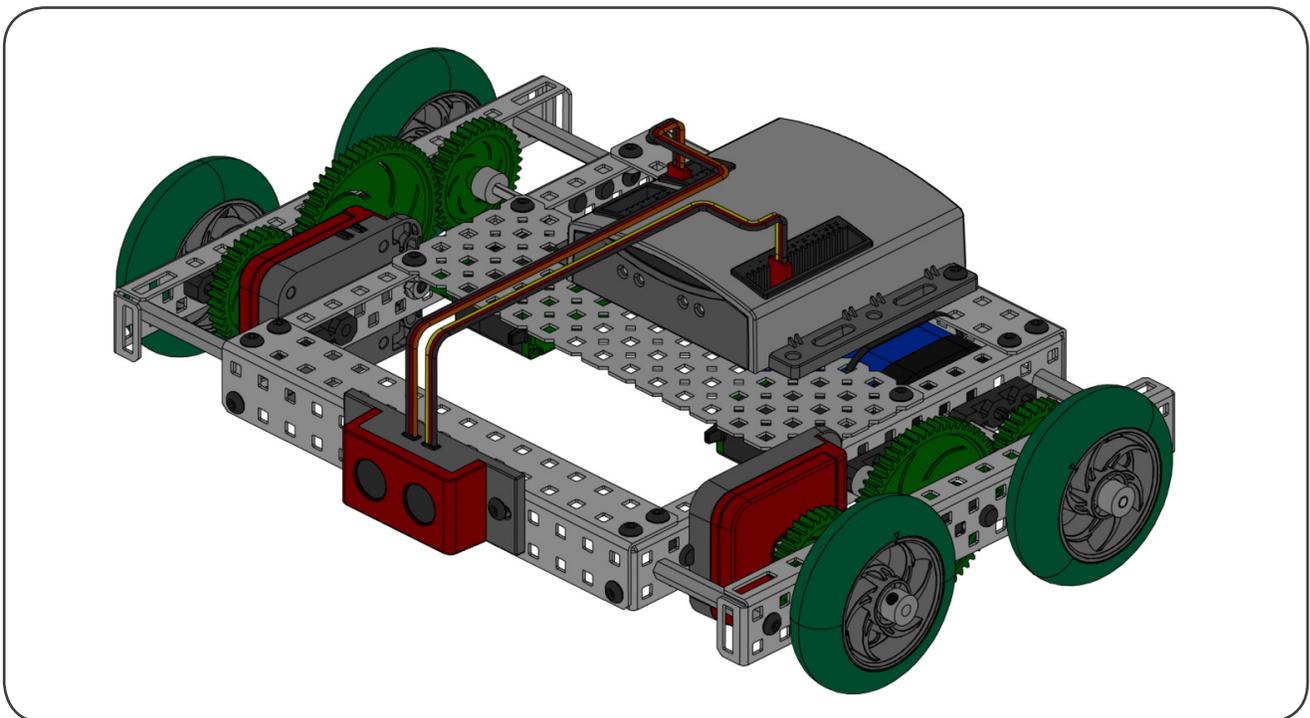
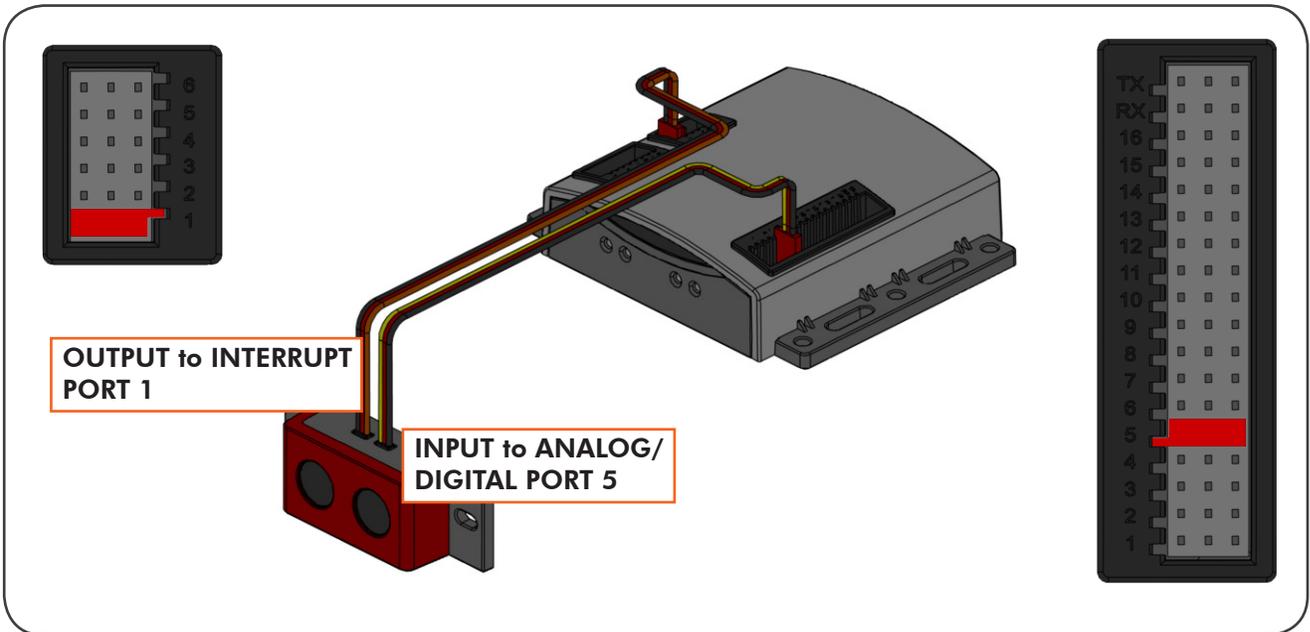
RECBOT BUILDING INSTRUCTIONS

9 Wiring the Encoders



RECBOT BUILDING INSTRUCTIONS

10 Wiring the Ultrasonic Rangefinder

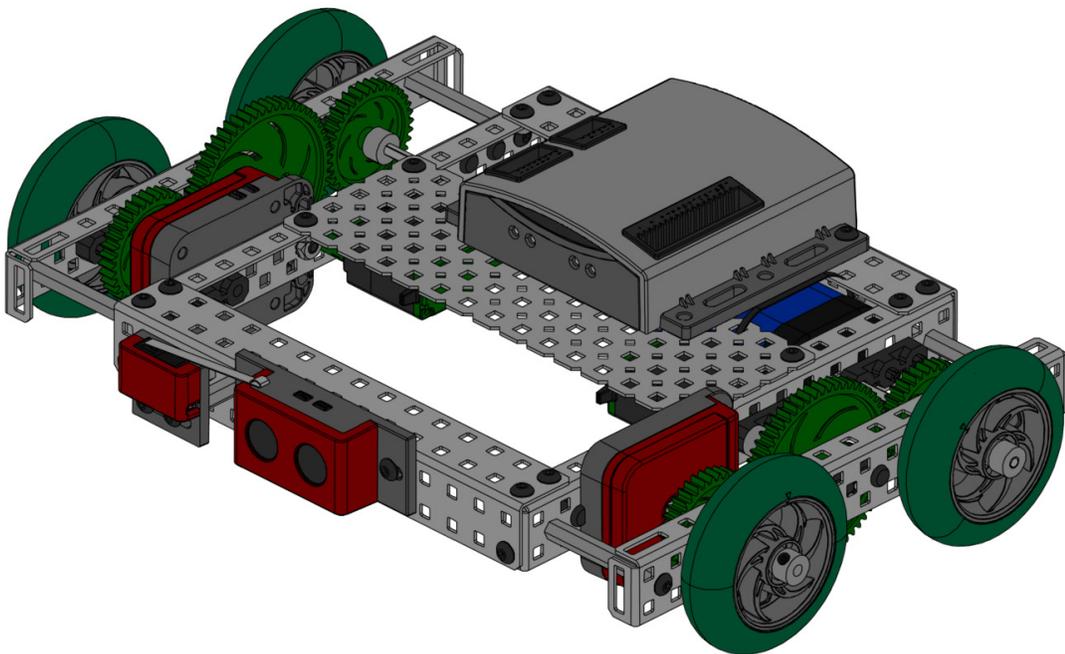
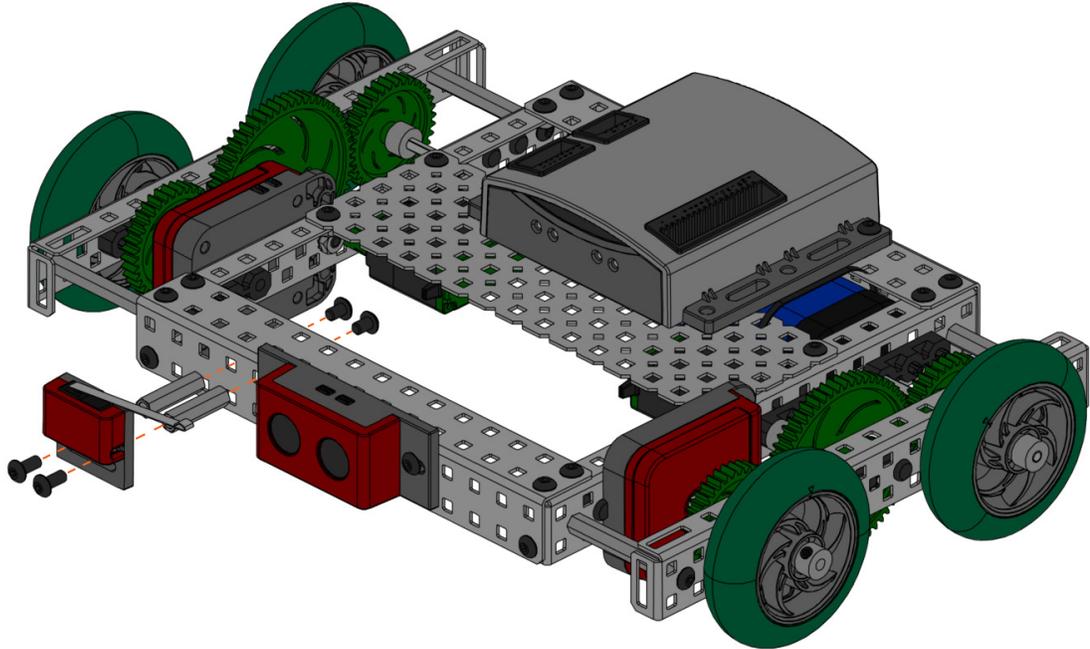
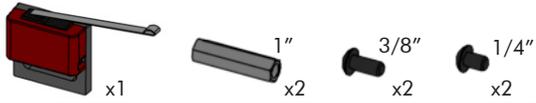


Information - Building Part I Complete

The robot is equipped to perform autonomous tasks based on timing, Encoder rotations, and Ultrasonic Rangefinder feedback. It's recommended that you wire tie any loose wires on your robot, keeping them clear of the drivetrain. Continue on through the remaining instructions to add a Limit Switch, robotic arm, and Potentiometer.

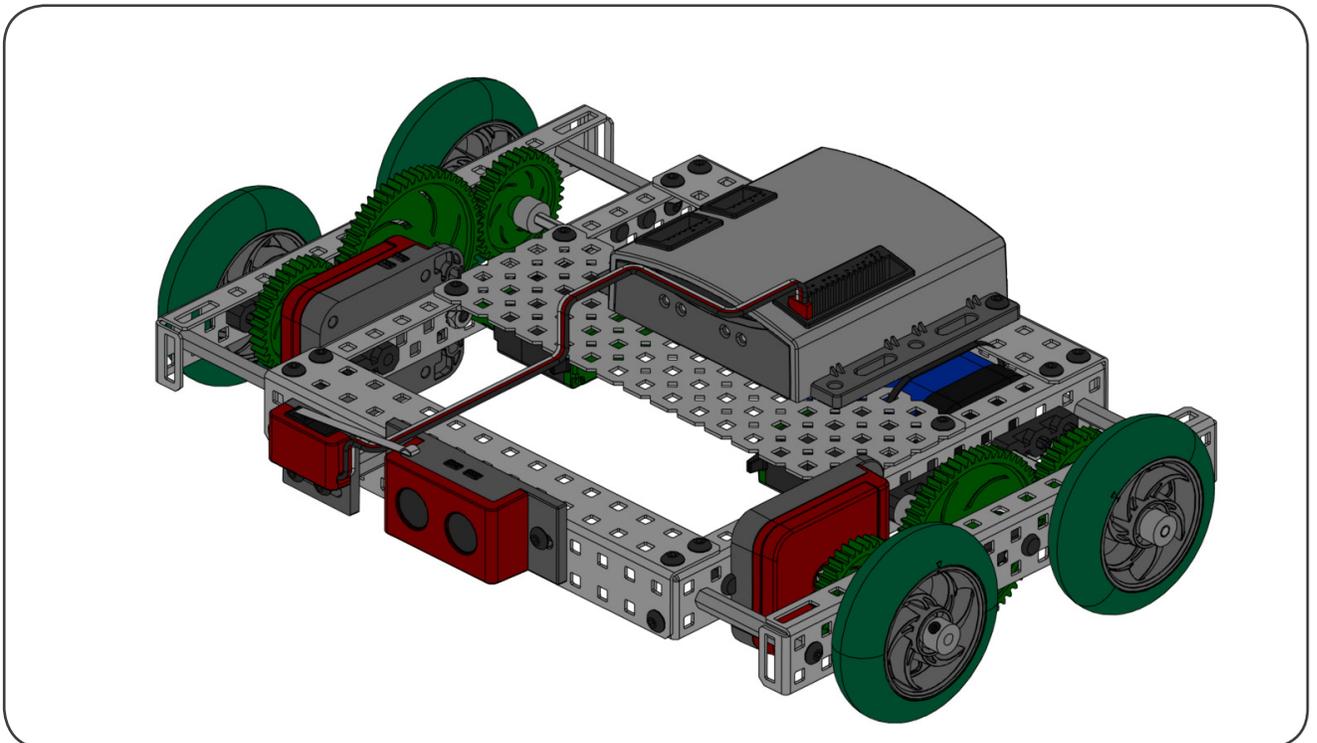
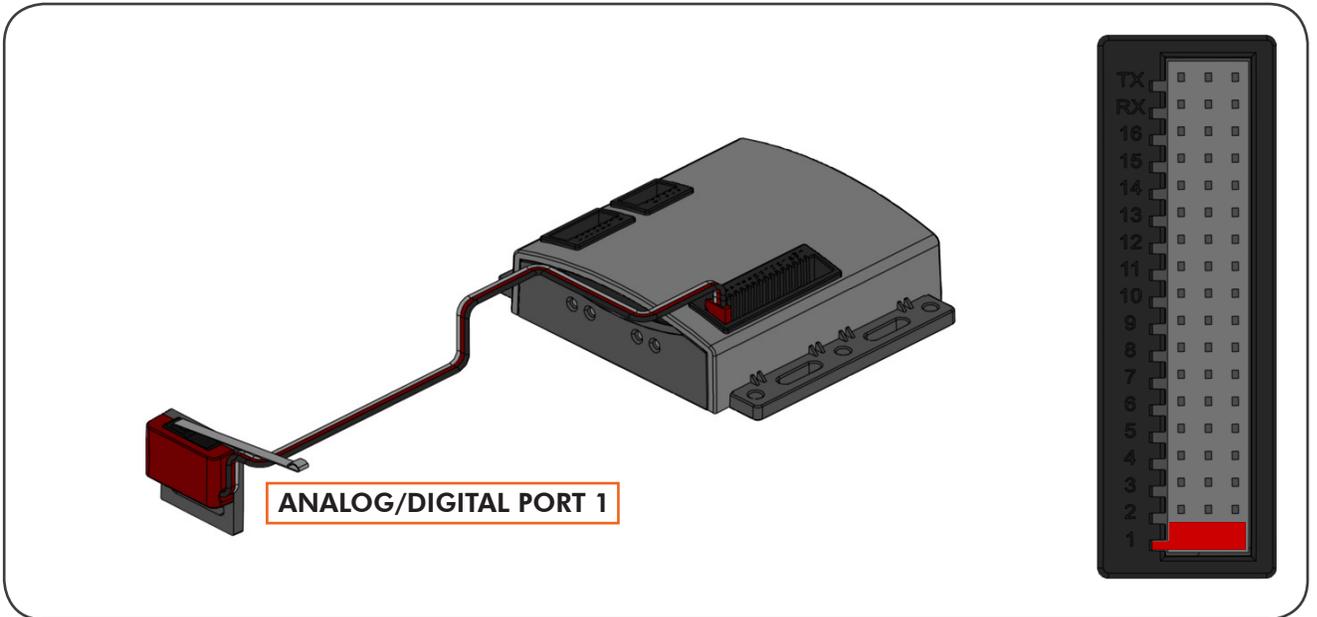
RECBOT BUILDING INSTRUCTIONS

11 Attaching the Limit Switch



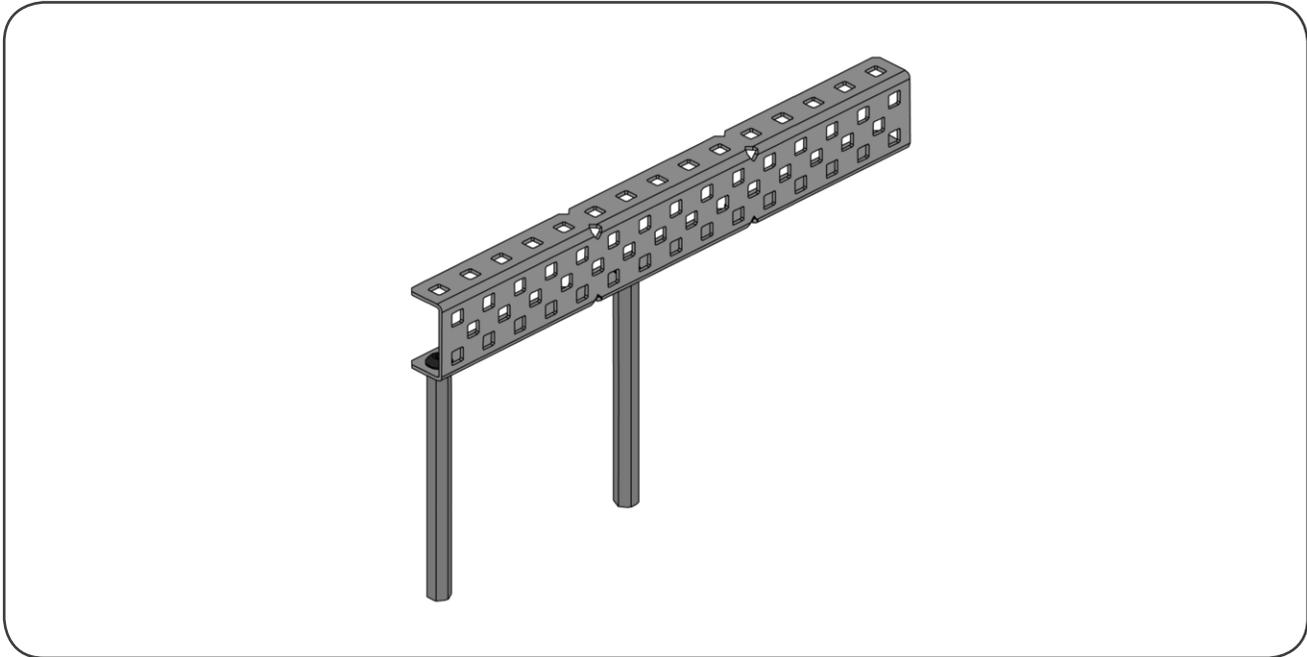
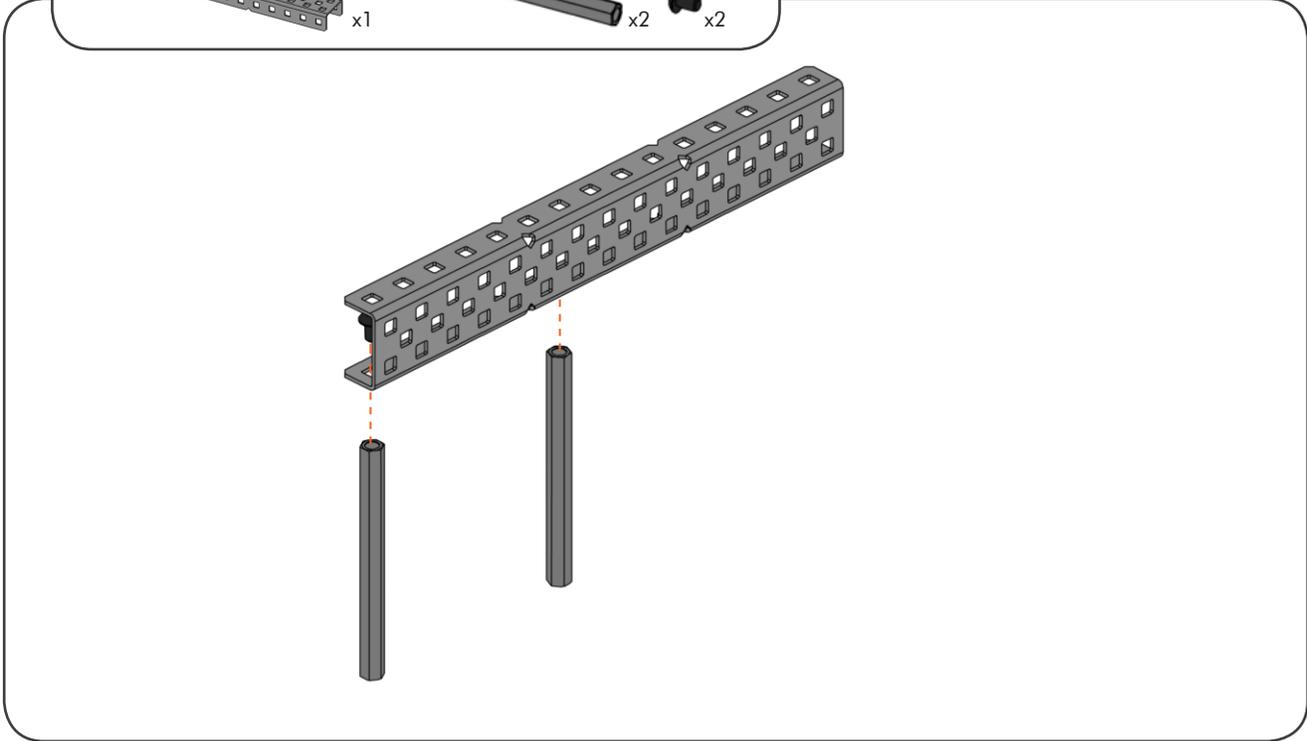
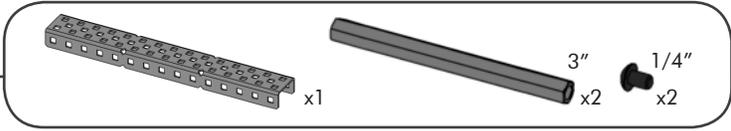
RECBOT BUILDING INSTRUCTIONS

12 Wiring the Limit Switch



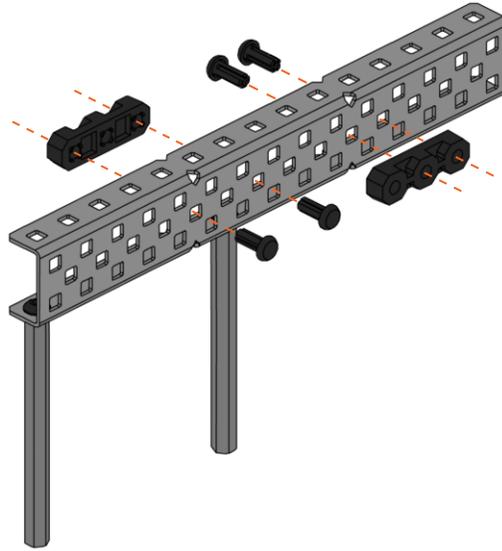
RECBOT BUILDING INSTRUCTIONS

13 Arm Construction



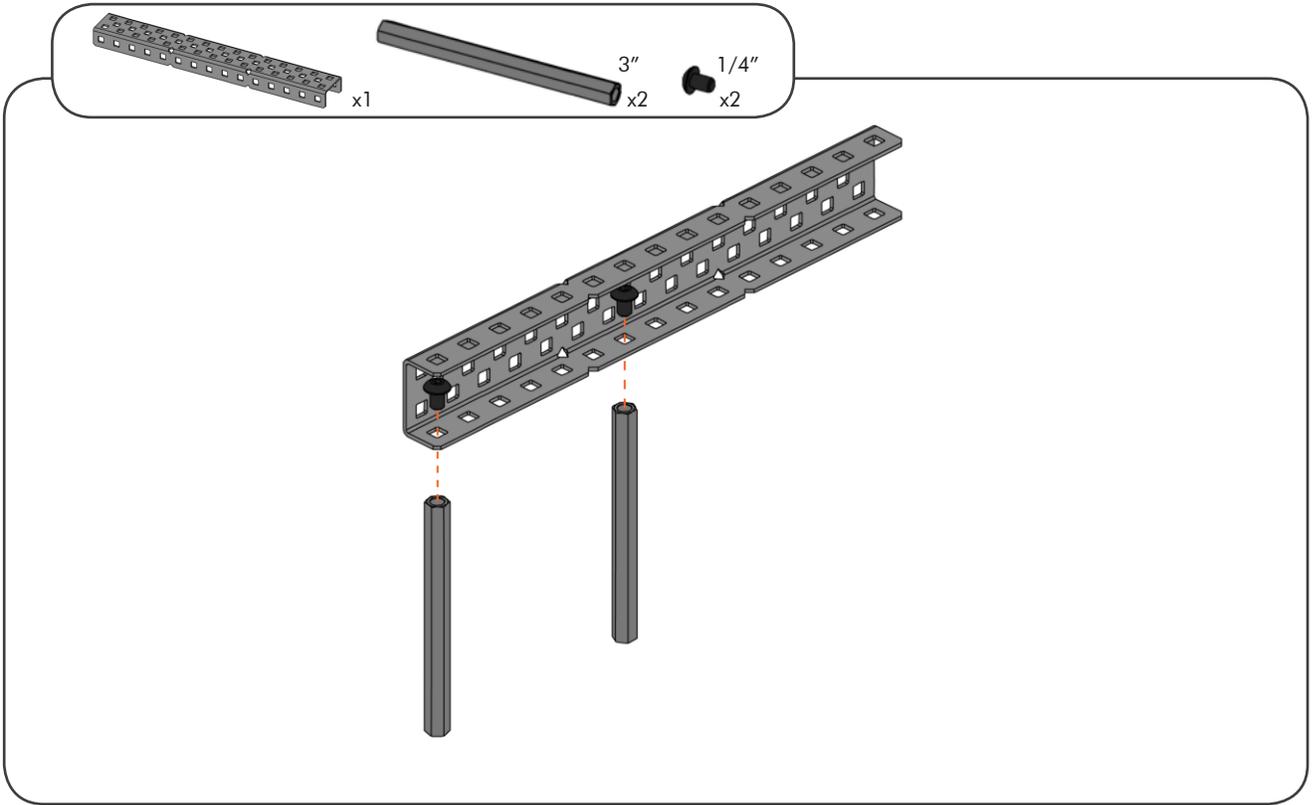
RECBOT BUILDING INSTRUCTIONS

13 Arm Construction (continued)



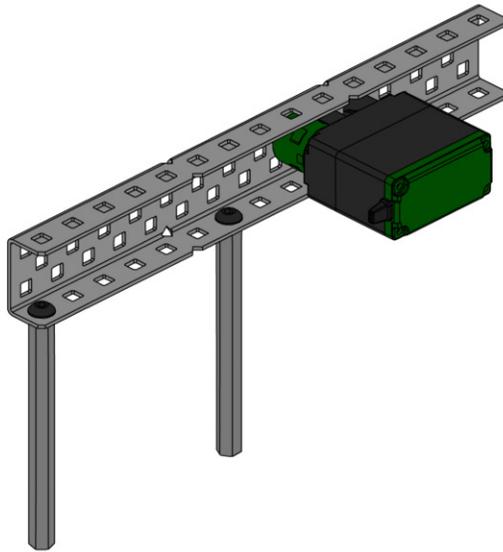
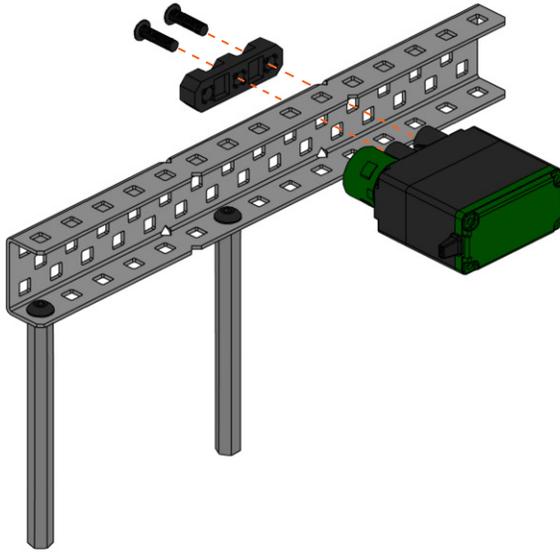
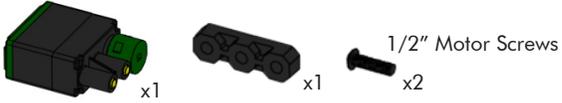
RECBOT BUILDING INSTRUCTIONS

13 Arm Construction *(continued)*

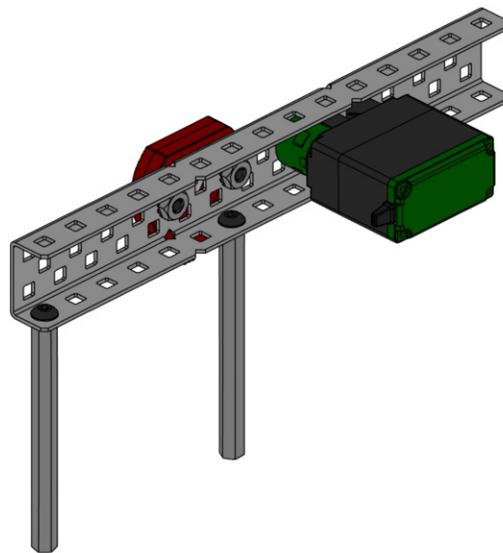
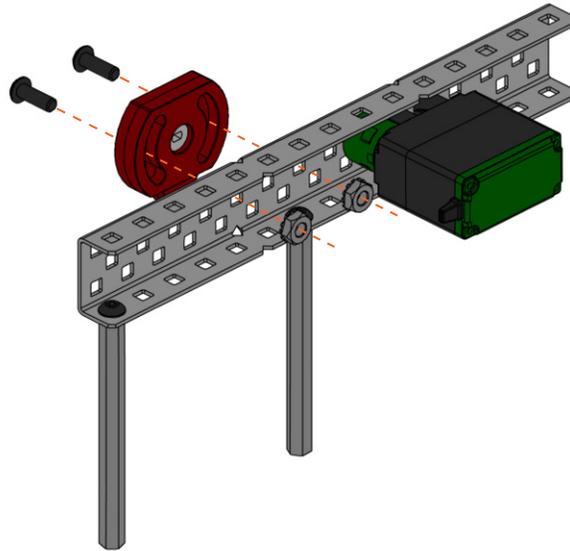


RECBOT BUILDING INSTRUCTIONS

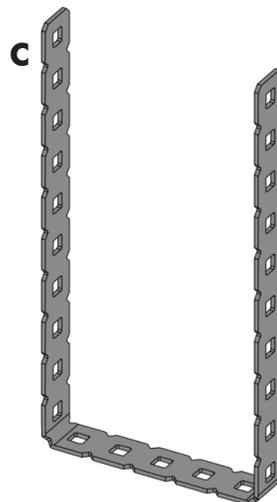
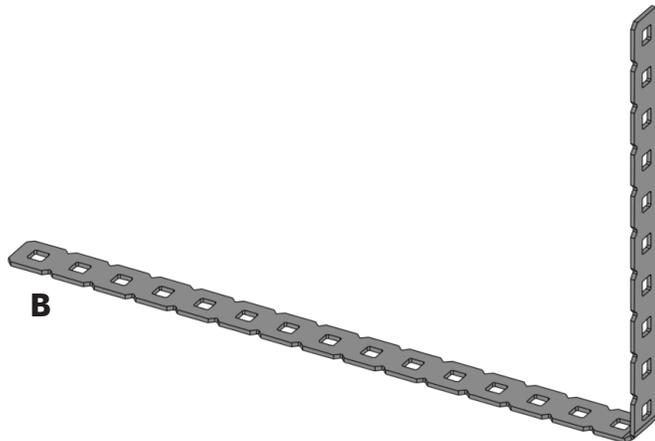
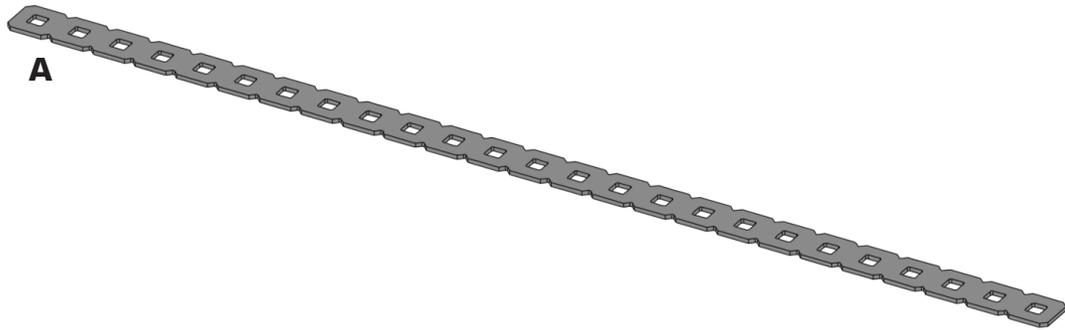
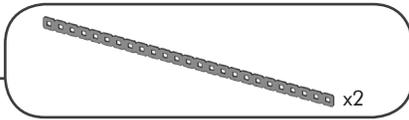
13 Arm Construction *(continued)*



RECBOT BUILDING INSTRUCTIONS

13 Arm Construction *(continued)*

RECBOT BUILDING INSTRUCTIONS

13 Arm Construction *(continued)***x 2**

RECBOT BUILDING INSTRUCTIONS

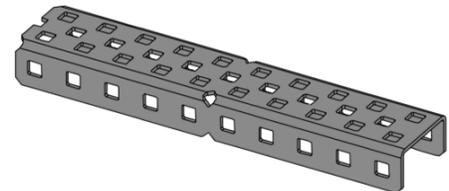
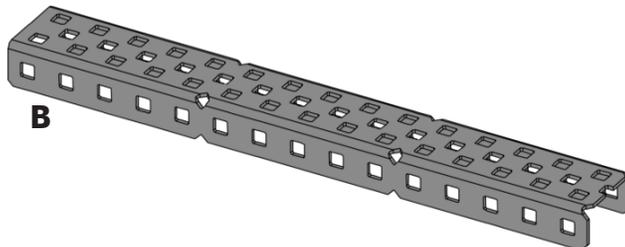
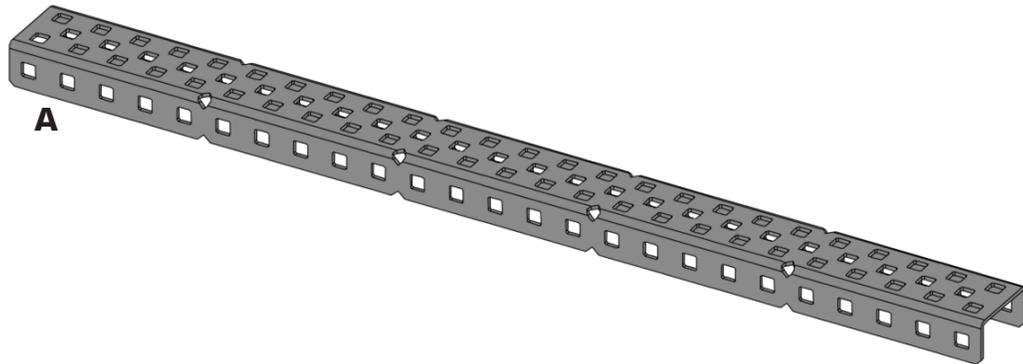
13 Arm Construction *(continued)*



CAUTION - Cutting Tools

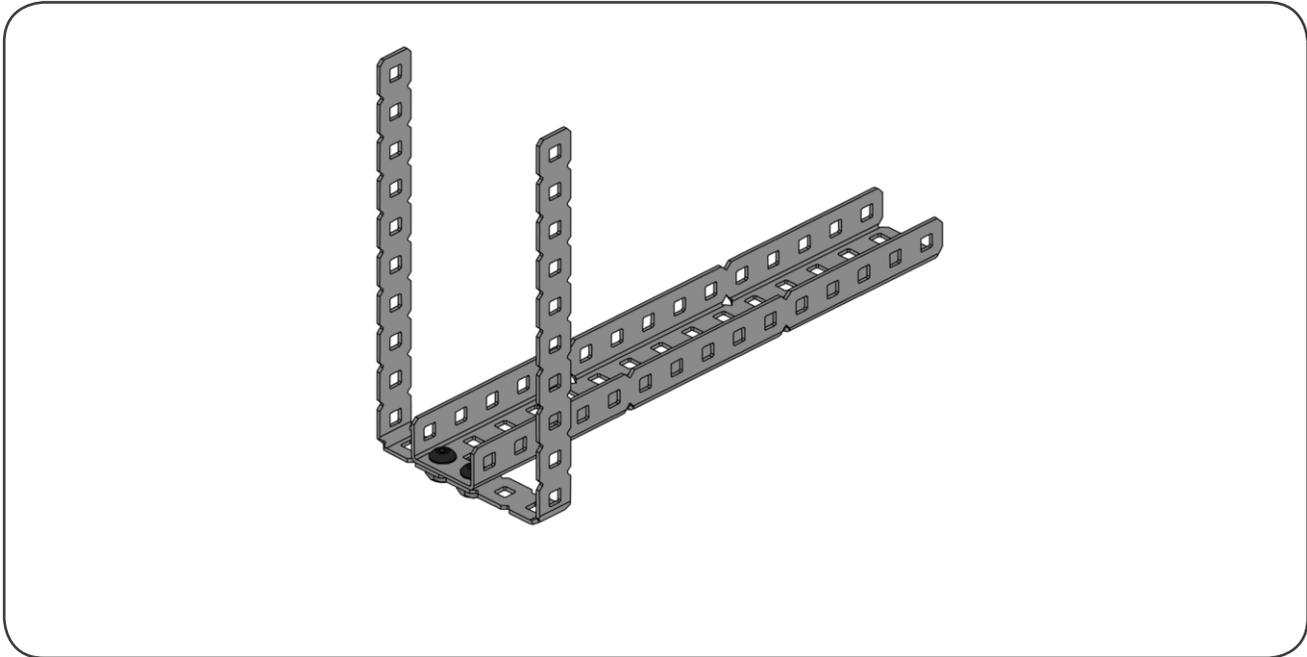
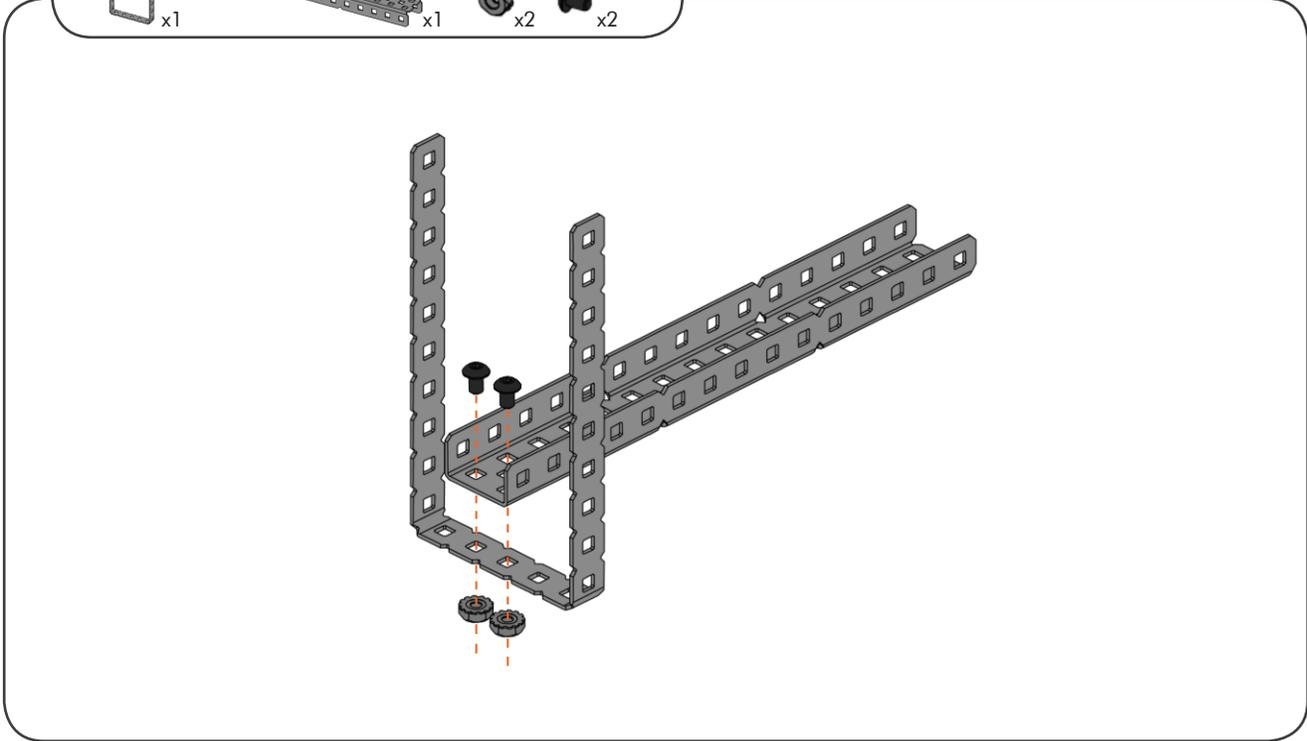
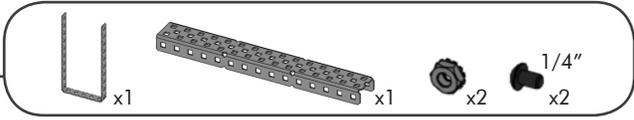
The following step involves cutting tools and permanent alterations to the materials in the VEX Kit. Make sure you have permission before continuing.

ALL APPLICABLE SAFETY PROCEDURES MUST BE OBSERVED WHILE PERFORMING THIS STEP. IF YOU ARE UNSURE ABOUT HOW TO USE THE TOOLS OR PERFORM THIS PROCEDURE SAFELY, DO NOT ATTEMPT THIS STEP ALONE. SEEK QUALIFIED ASSISTANCE BEFORE PROCEEDING.



RECBOT BUILDING INSTRUCTIONS

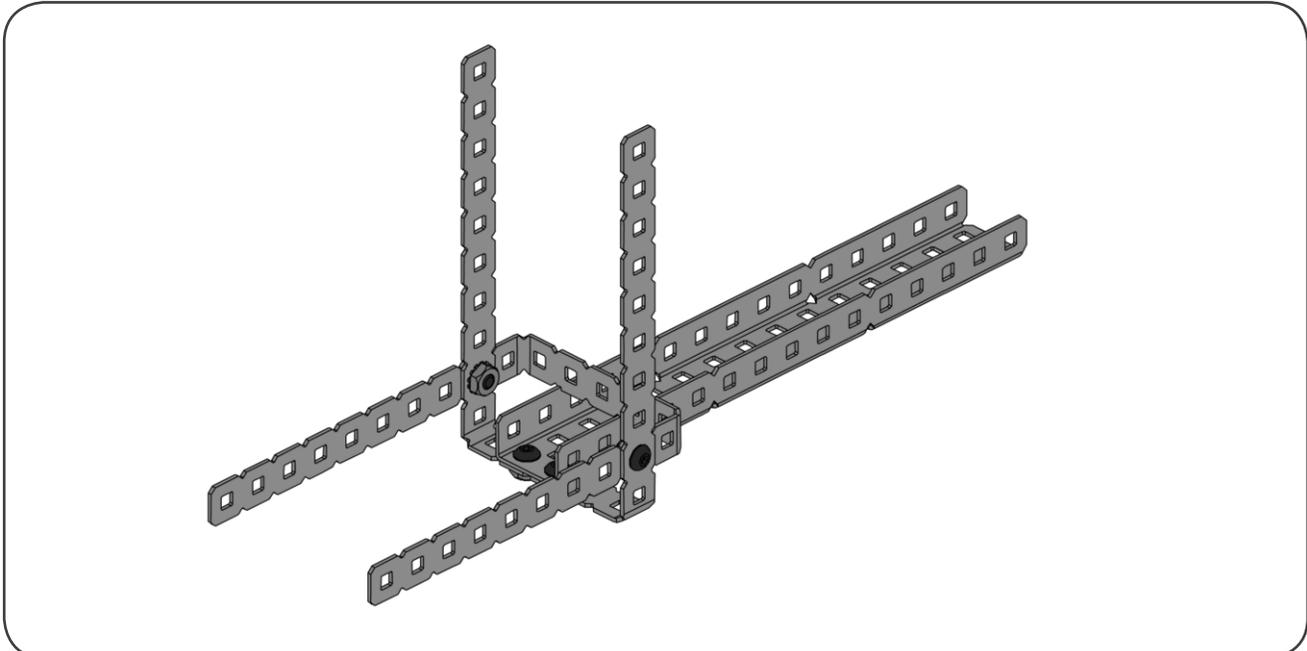
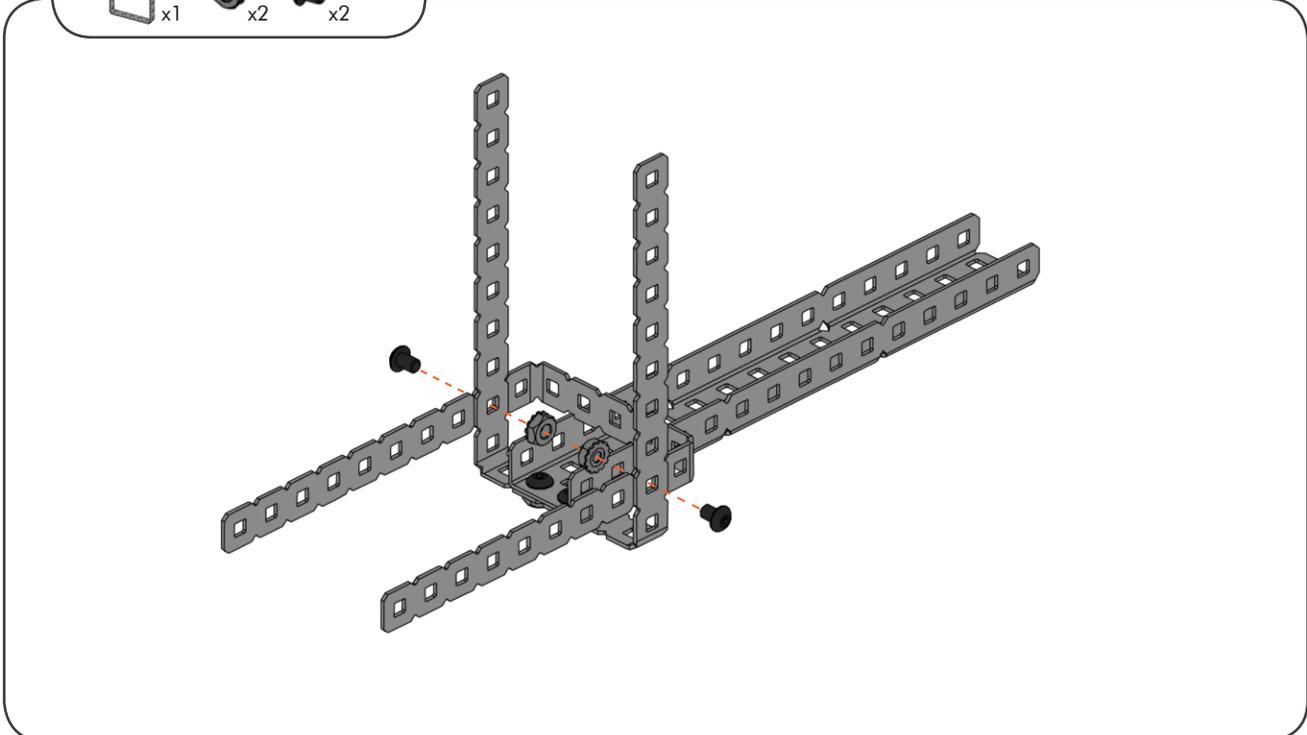
13 Arm Construction *(continued)*



RECBOT BUILDING INSTRUCTIONS

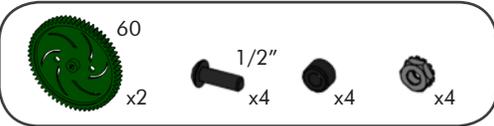
13 Arm Construction *(continued)*

x1 x2 1/4" x2

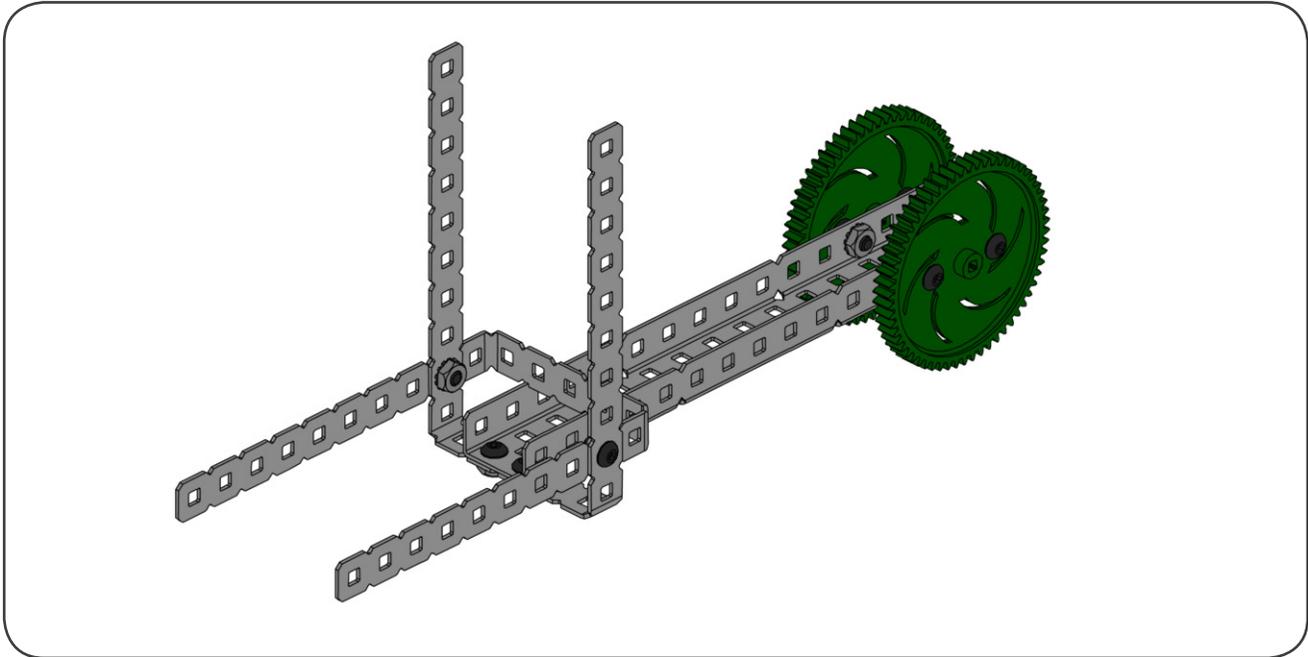
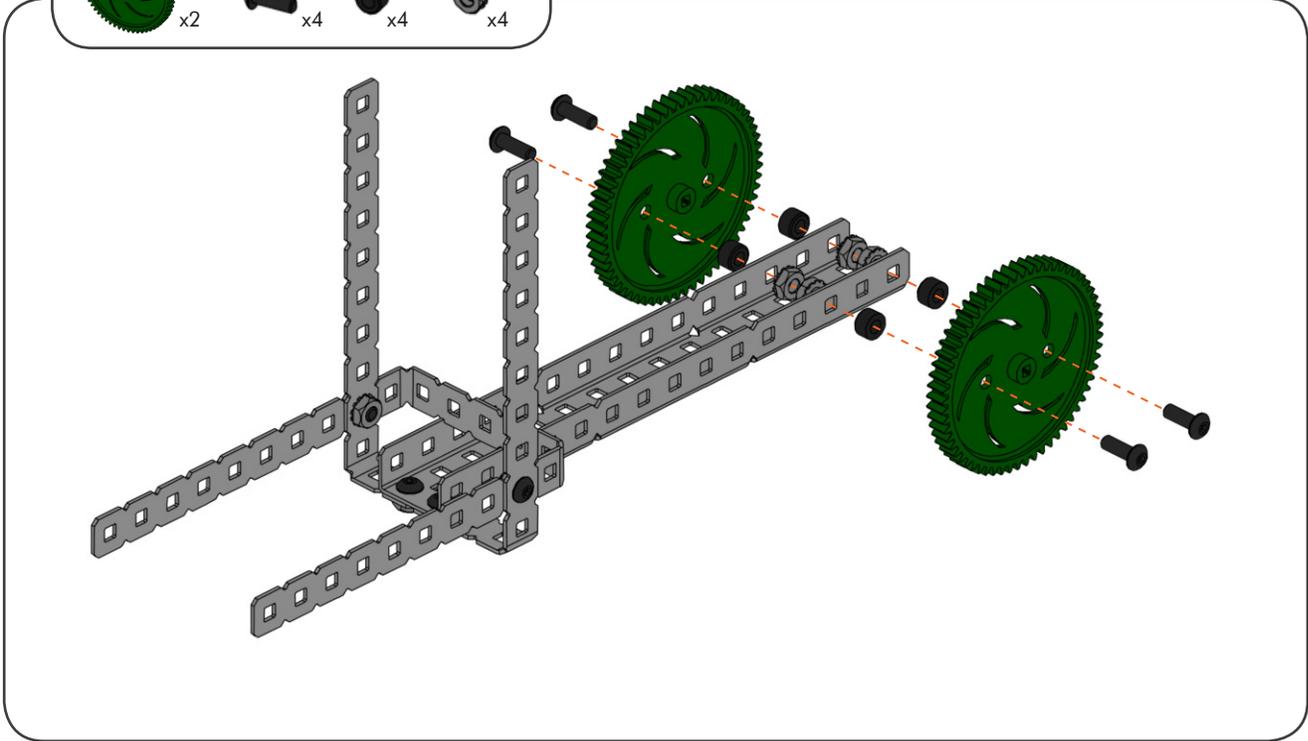


RECBOT BUILDING INSTRUCTIONS

13 Arm Construction *(continued)*

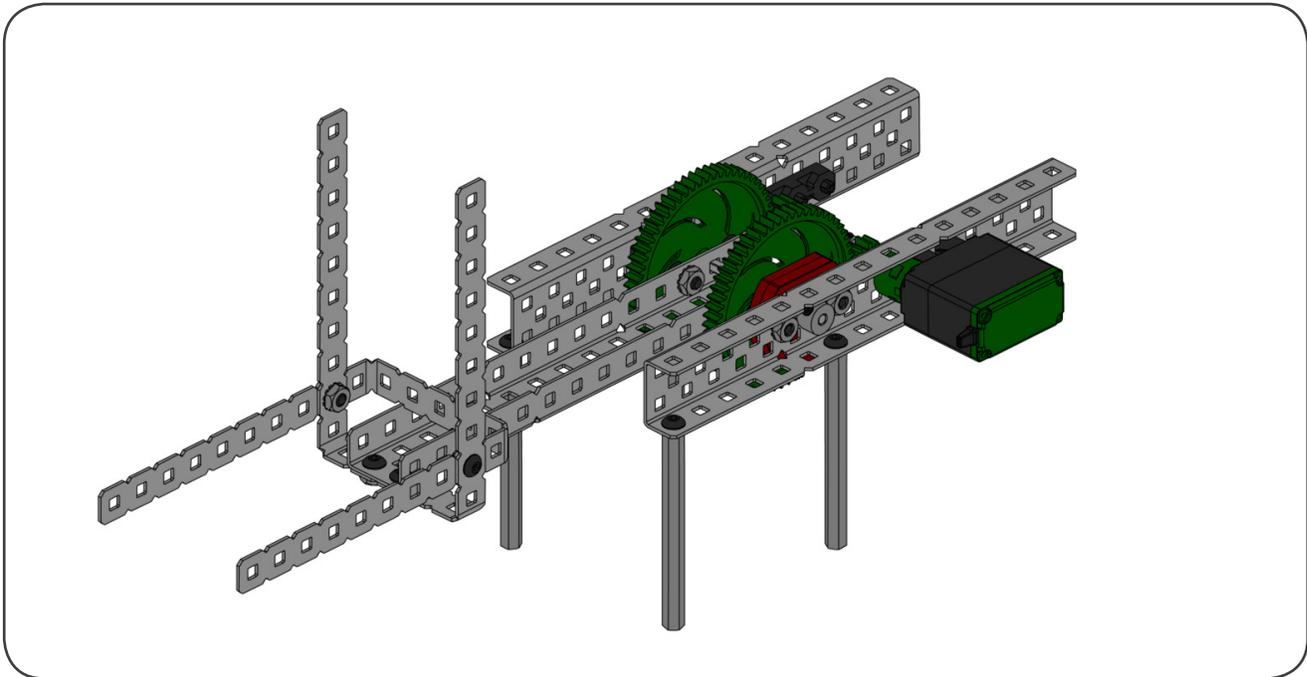
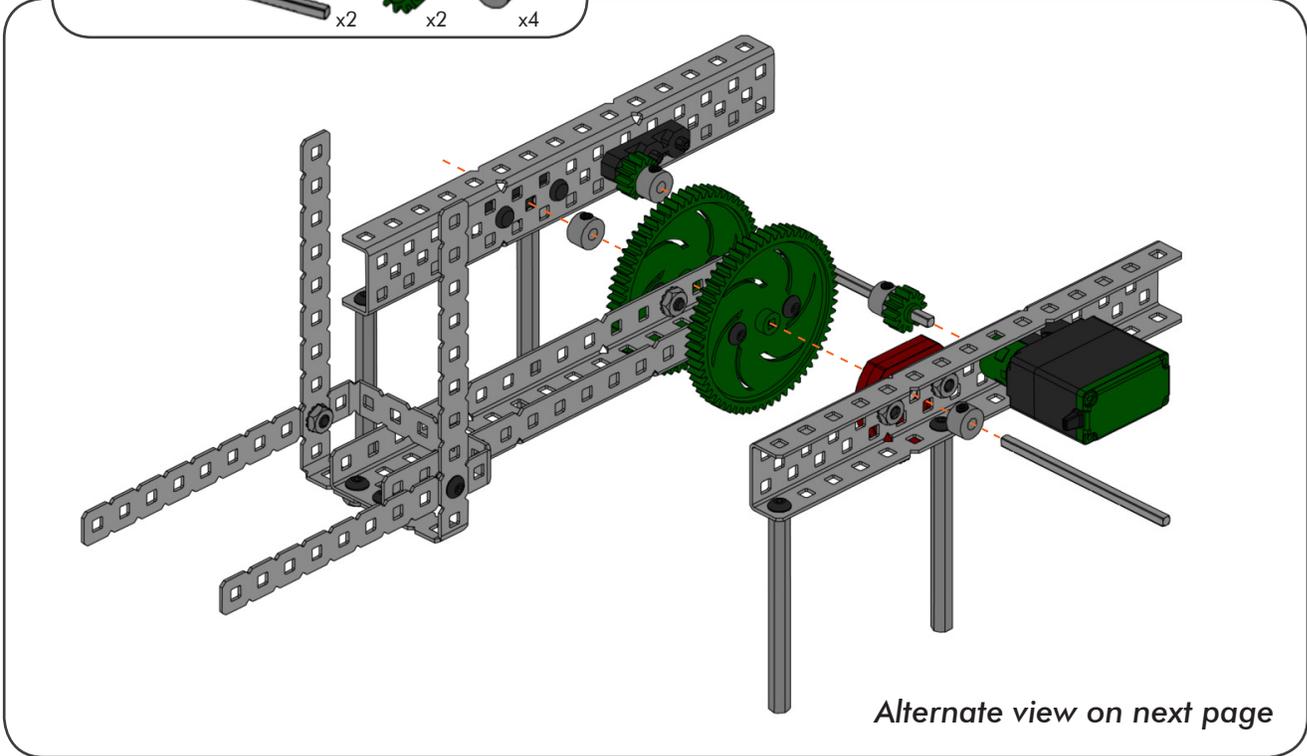
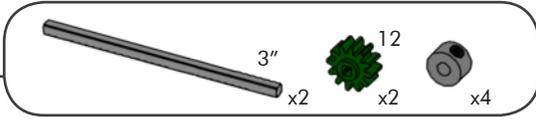


 60 x2 1/2" x4 x4 x4



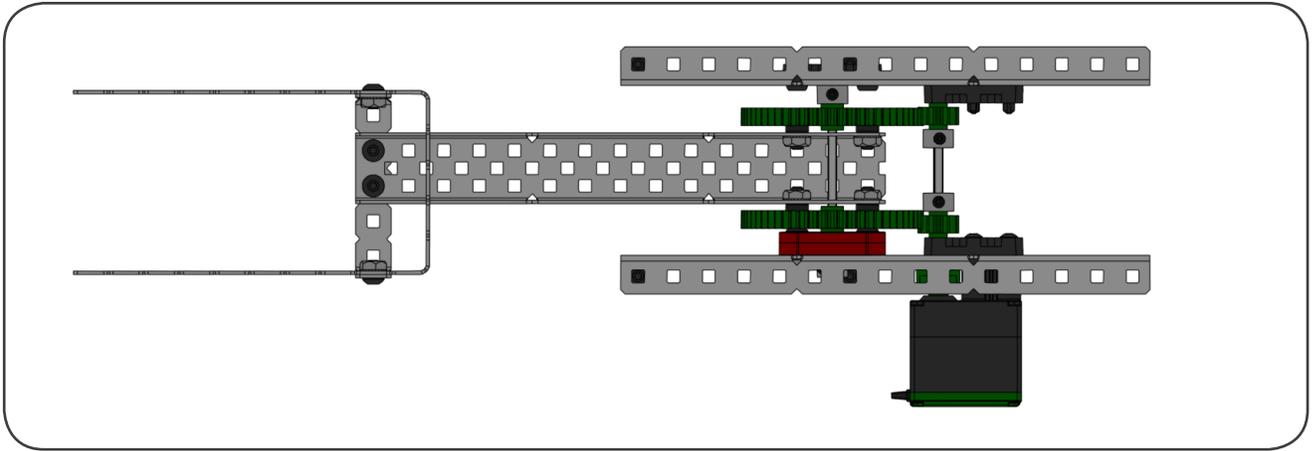
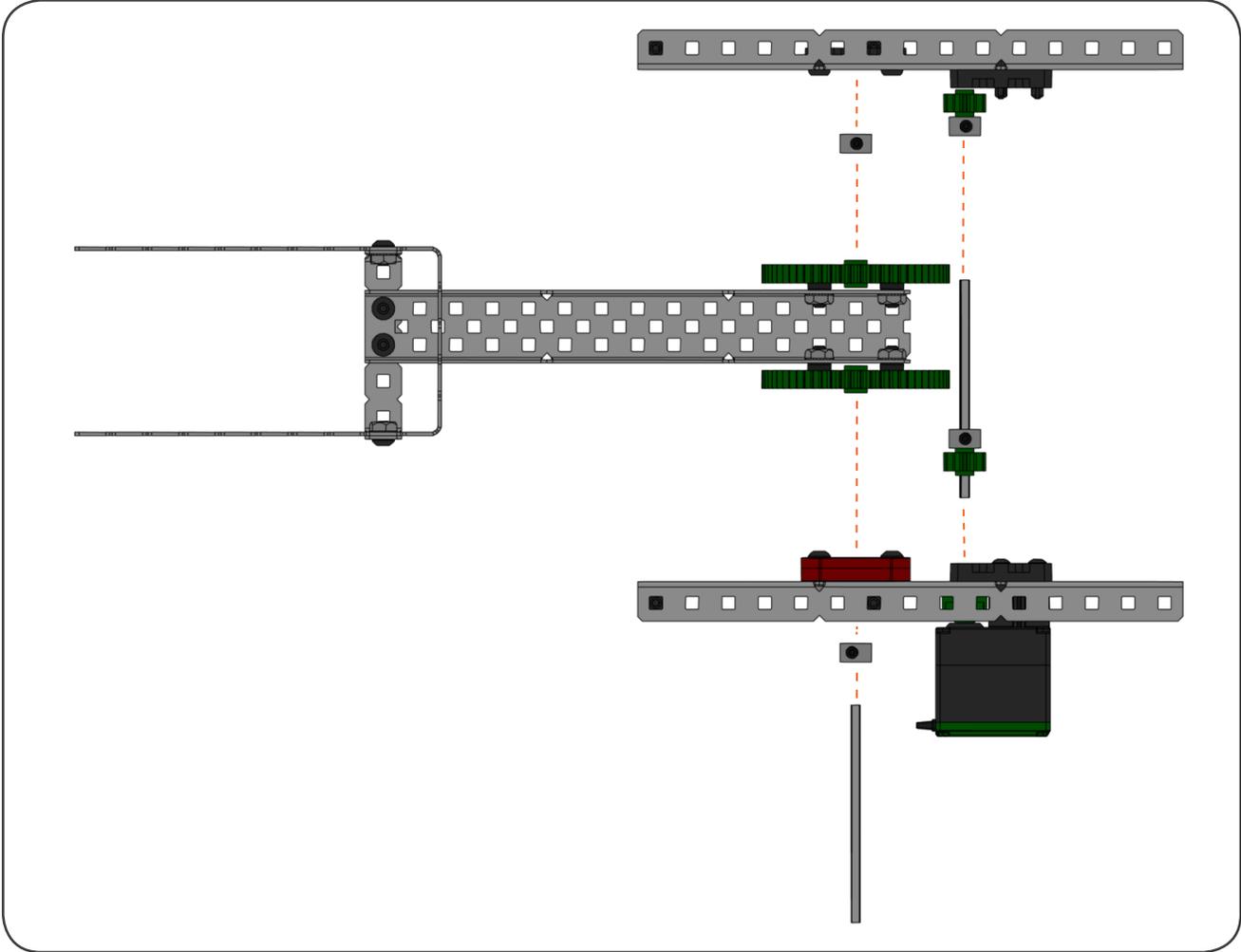
RECBOT BUILDING INSTRUCTIONS

13 Arm Construction *(continued)*

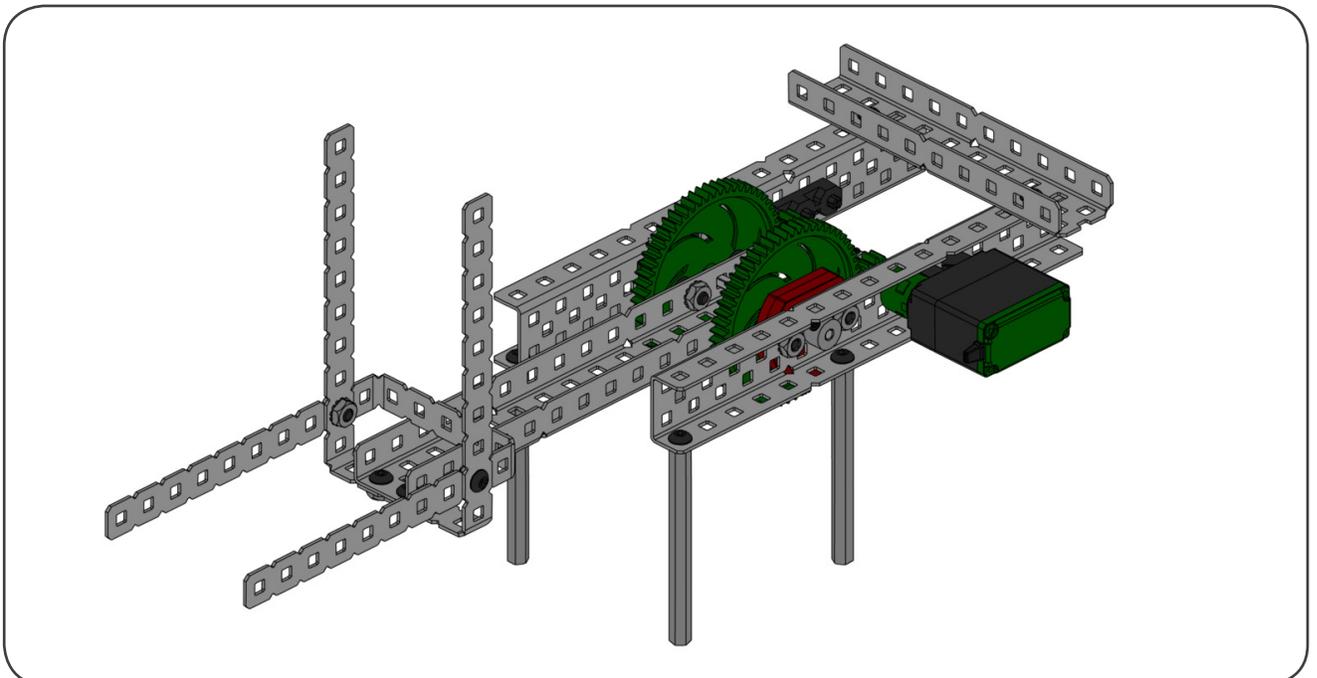
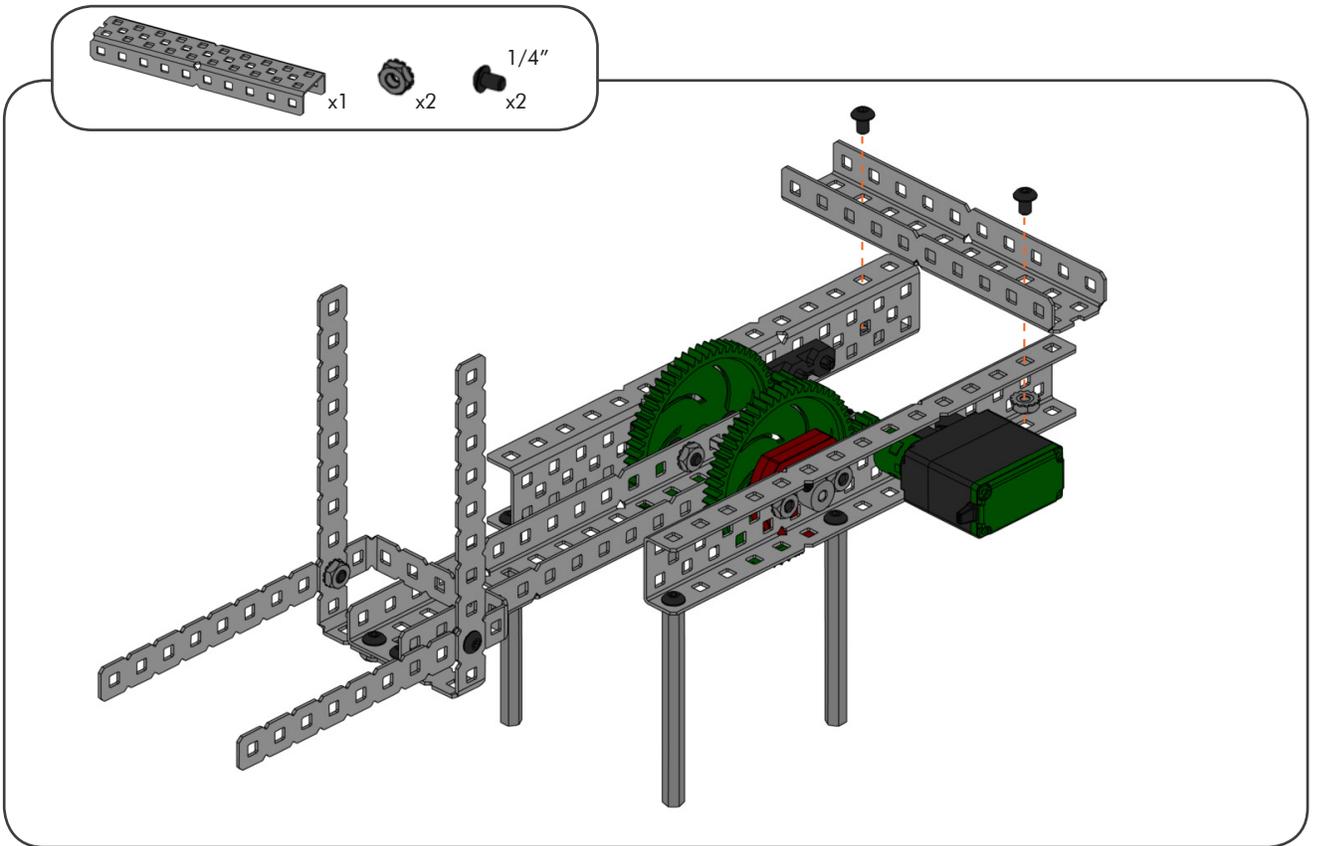


RECBOT BUILDING INSTRUCTIONS

13 Arm Construction (continued)



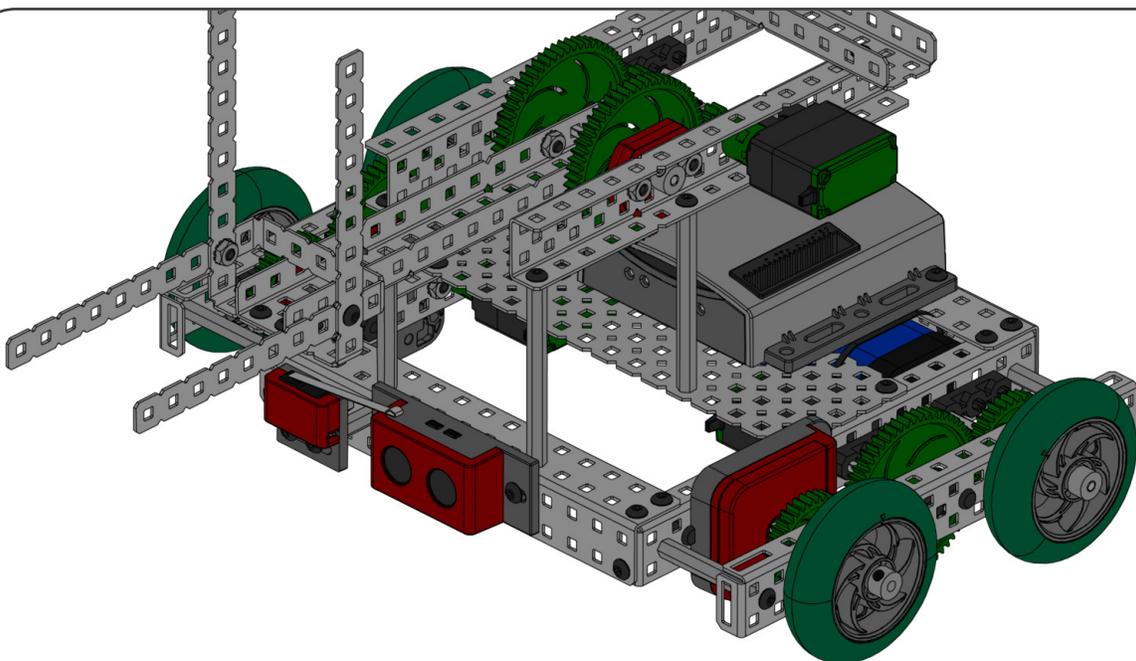
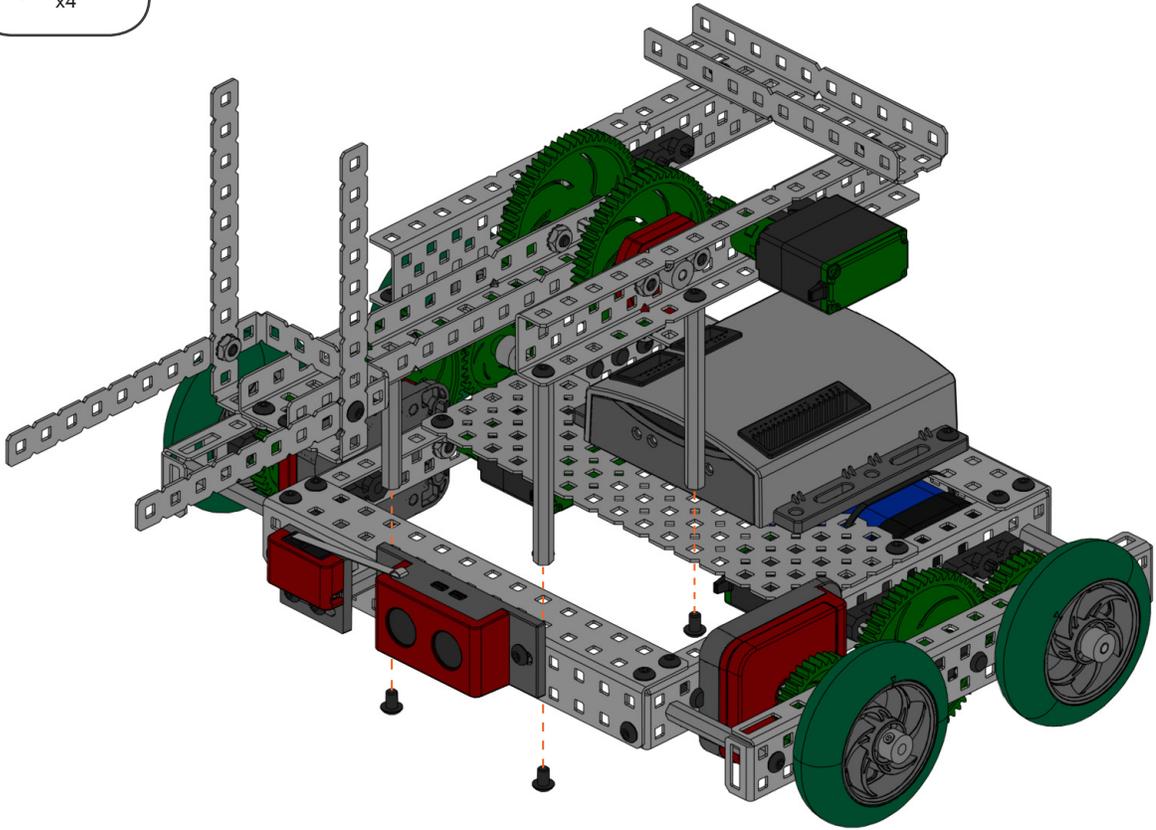
RECBOT BUILDING INSTRUCTIONS

13 Arm Construction *(continued)*

RECBOT BUILDING INSTRUCTIONS

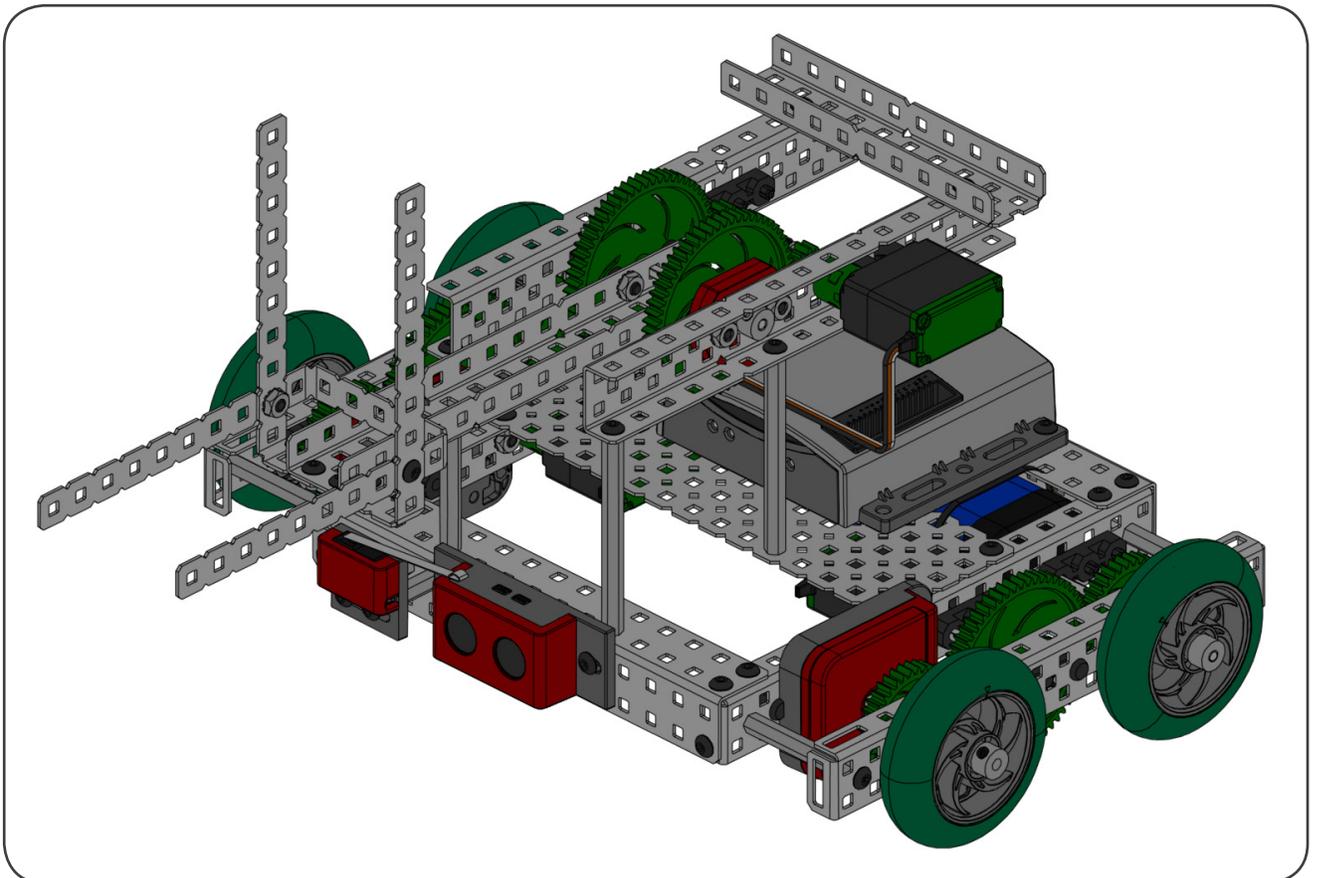
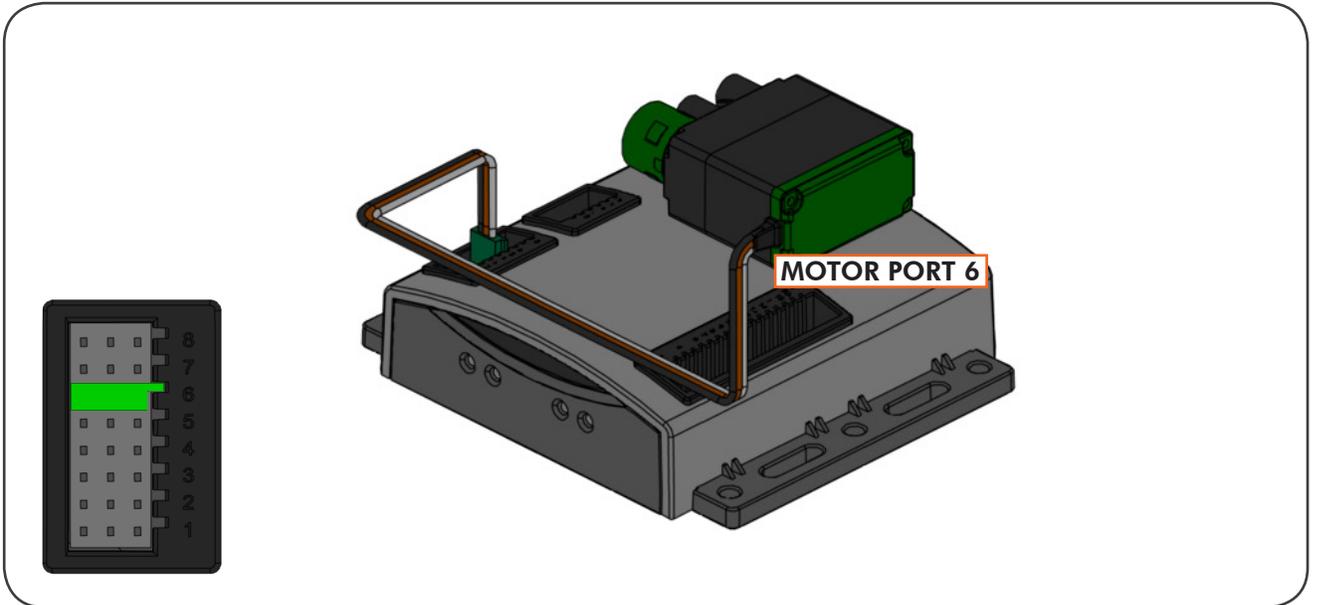
13 Arm Construction (continued)

1/4"
x4



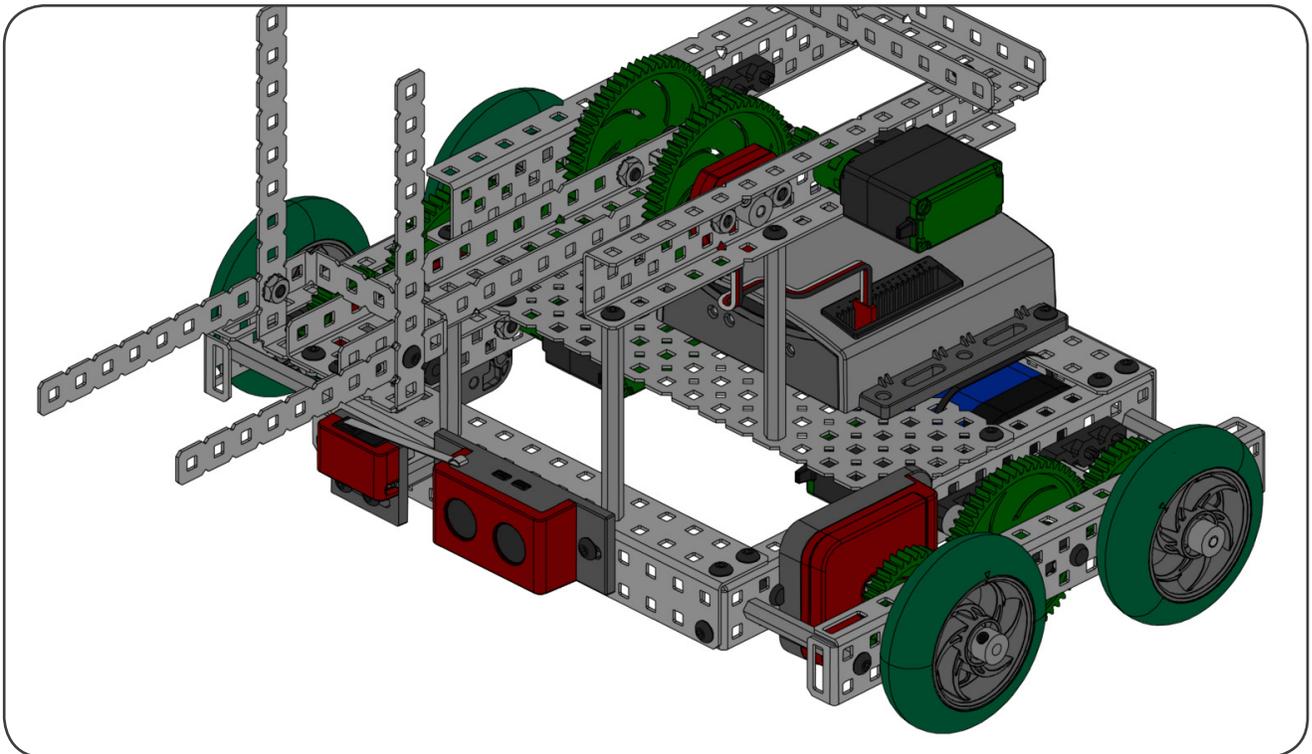
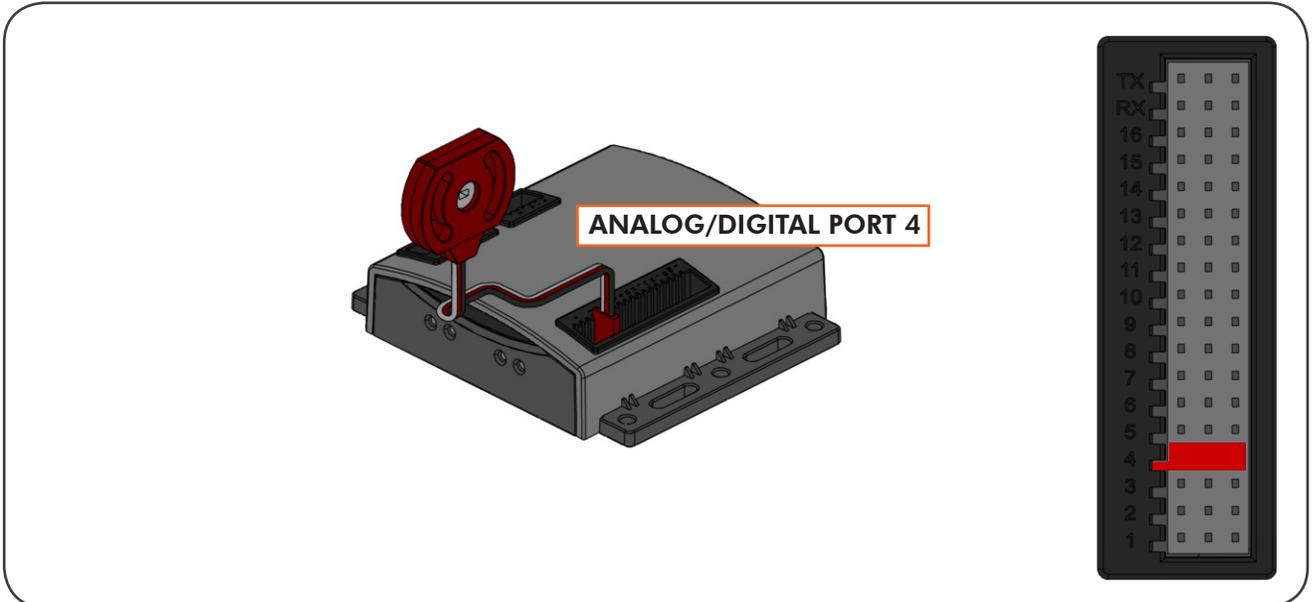
RECBOT BUILDING INSTRUCTIONS

14 Wiring the Arm Motor



RECBOT BUILDING INSTRUCTIONS

15 Wiring the Potentiometer

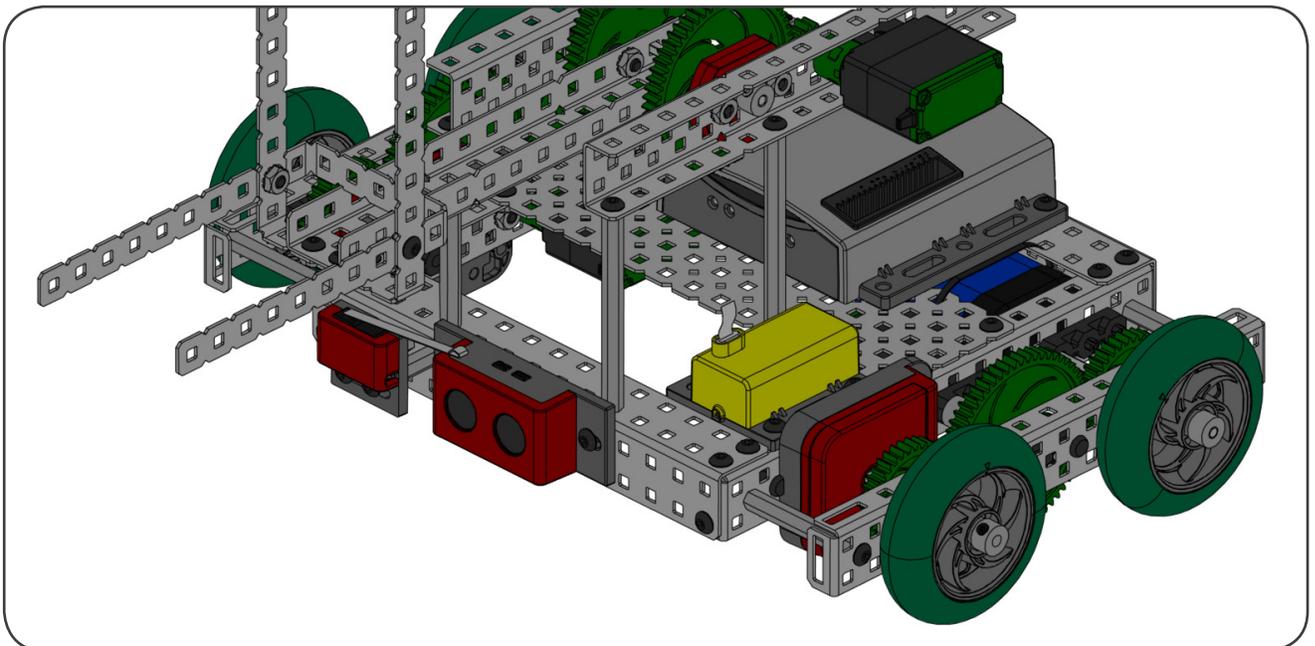
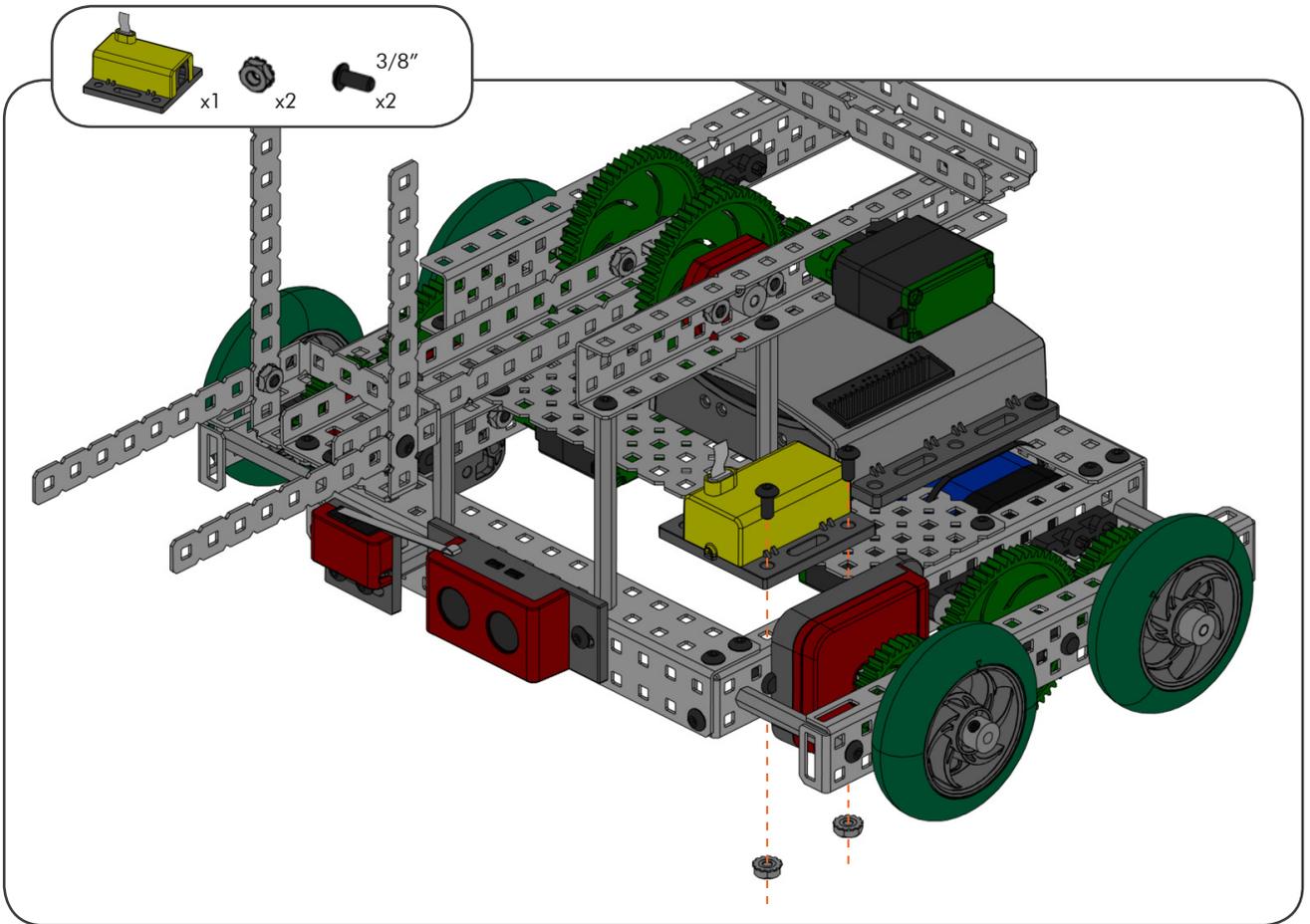


Information - Building Part 2 Complete

The robot is equipped to perform autonomous tasks that incorporate the arm. Continue on through the optional instructions to add the Receiver if you want enable remote control of the robot using the Radio Control Transmitter.

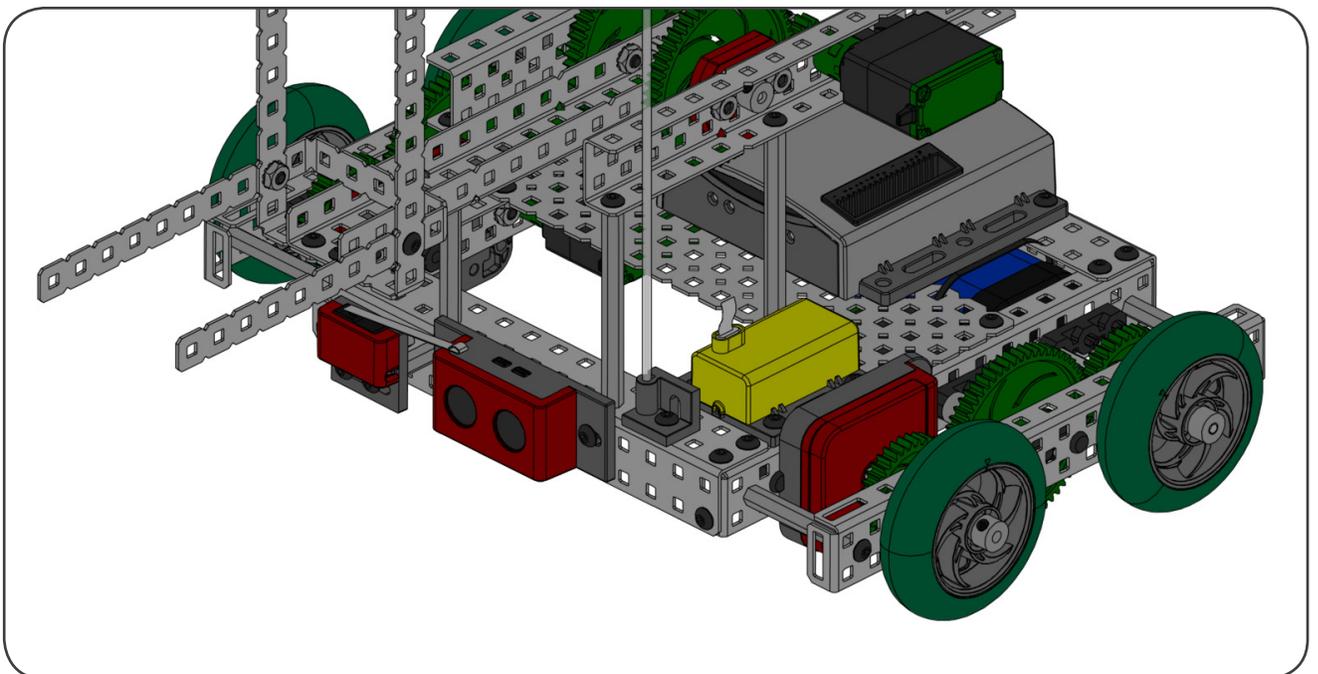
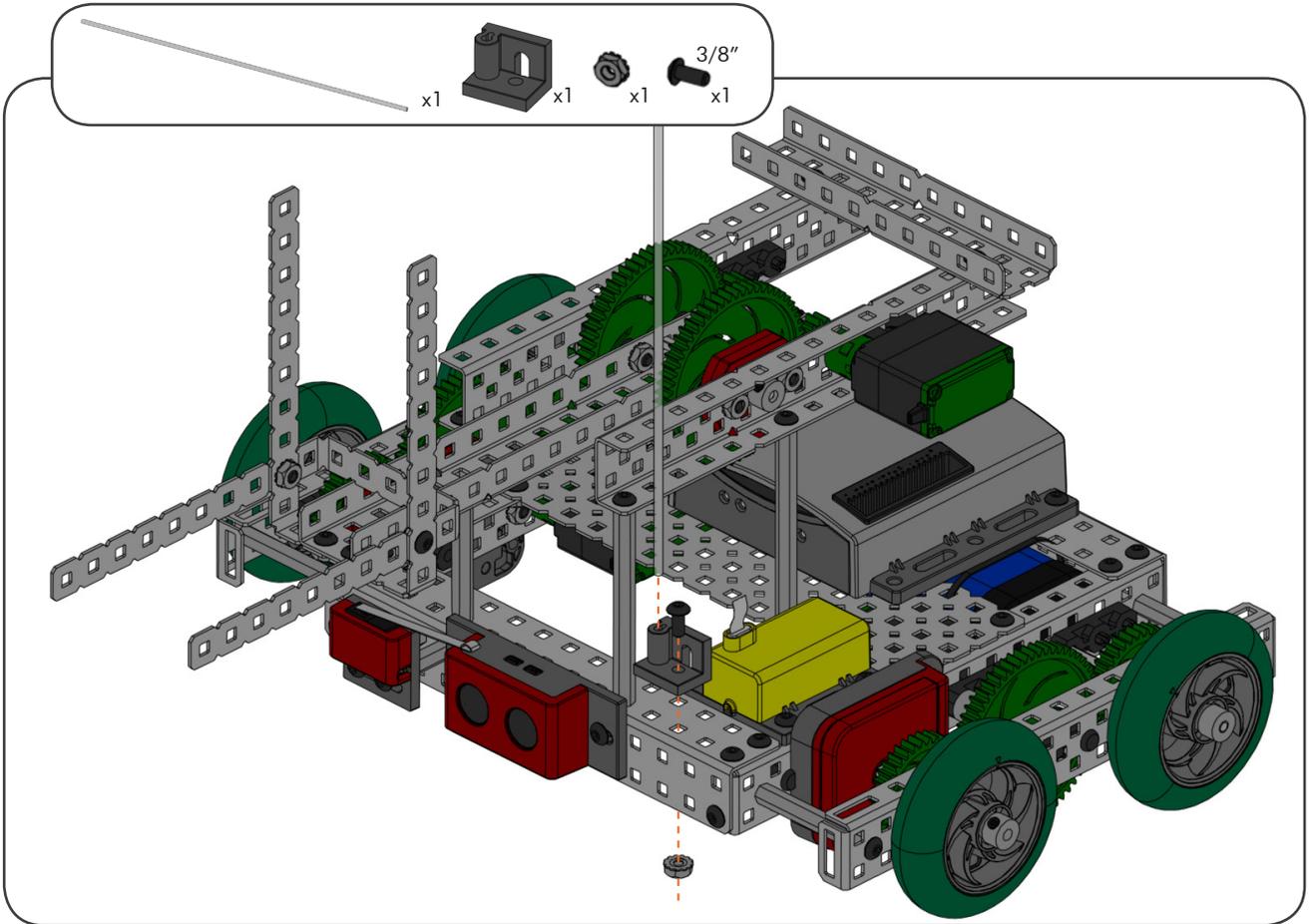
RECBOT BUILDING INSTRUCTIONS

16 (Optional) Attaching the Receiver



RECBOT BUILDING INSTRUCTIONS

16 (Optional) Attaching the Receiver



RECOT BUILDING INSTRUCTIONS

17 (Optional) Wiring the Receiver

