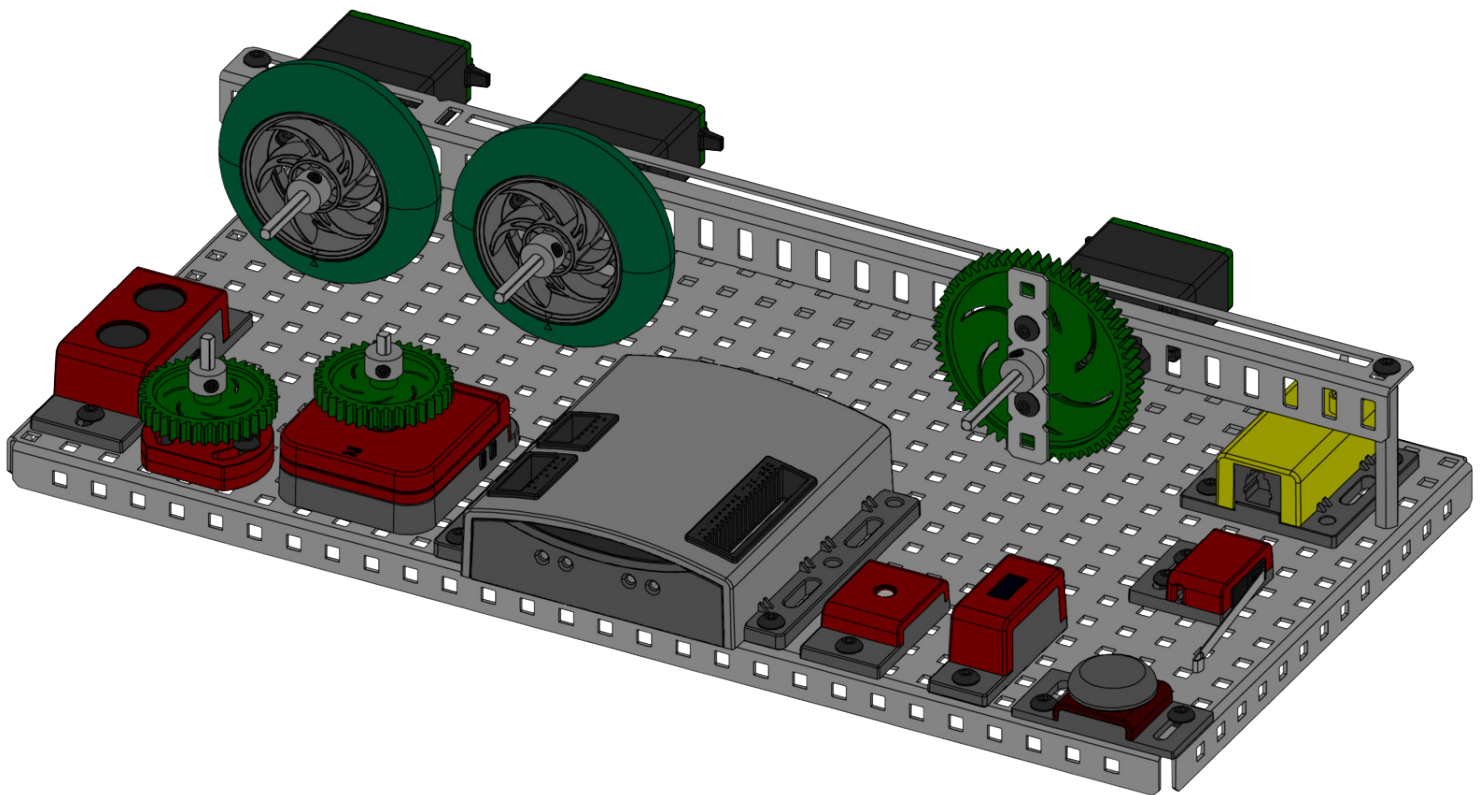


PIC TESTBED BUILDING INSTRUCTIONS

PIC TESTBED BUILDING INSTRUCTIONS



PIC TESTBED BUILDING INSTRUCTIONS

1 Collect parts and tools from the lists below:

Materials	Quantity
Screw, 8-32 x 1/4" Long	4
Screw, 8-32 x 1/2" Long	4
Screw, 8-32 x 3/8" Long	14
Motor Screw, Long [1/2"]	4
Nut, 8-32 Keps	18
Shaft, 3" long	3
Shaft, 2" long	2
Shaft Collar	6
Shaft Spacer Thin (4.6mm)	4
Shaft Spacer Thick (8mm)†	2
Bearing Flat	3
Standoff, 2" Long	2
Gear, 60 tooth	1
Gear, 36 tooth	2
Base Plate, 30x15 hole*	4
Slotted Angle, 30 hole*	2
Bar, 25 hole	1
Small Low Friction VEX Wheel	2
VEX PIC Microcontroller*	1
RF Receiver, 75MHz	1
VEX Motor	2
VEX Servo*	1
Optical Shaft Encoder*	1
Ultrasonic Rangefinder*	1
Potentiometer*	1
Bumper Switch*	1
Limit Switch*	1
Analog Accelerometer*	1
Light Sensor*	1
Line Tracker*	1
LED Indicator*	1

Tools	Quantity
Allen Wrench 3/32"	1
Allen Wrench 5/64"	1
Open End Wrench 1/4"	1
Hacksaw*	1

* Not included in Protobot Robot Kit

† The Protobot Robot Kit contains too few

PIC TESTBED BUILDING INSTRUCTIONS

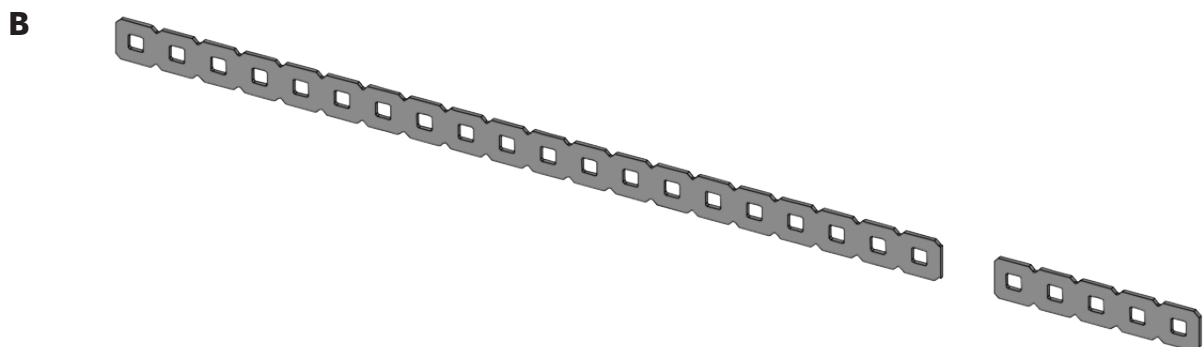
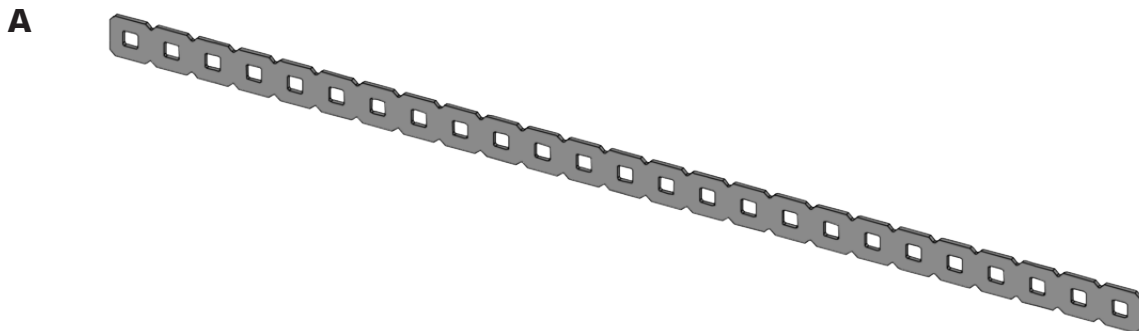
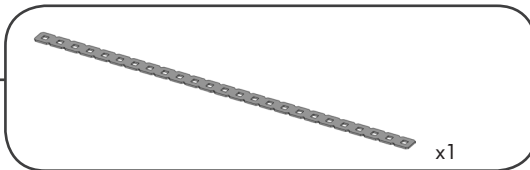
2 Modifications



CAUTION - Cutting VEX Metal

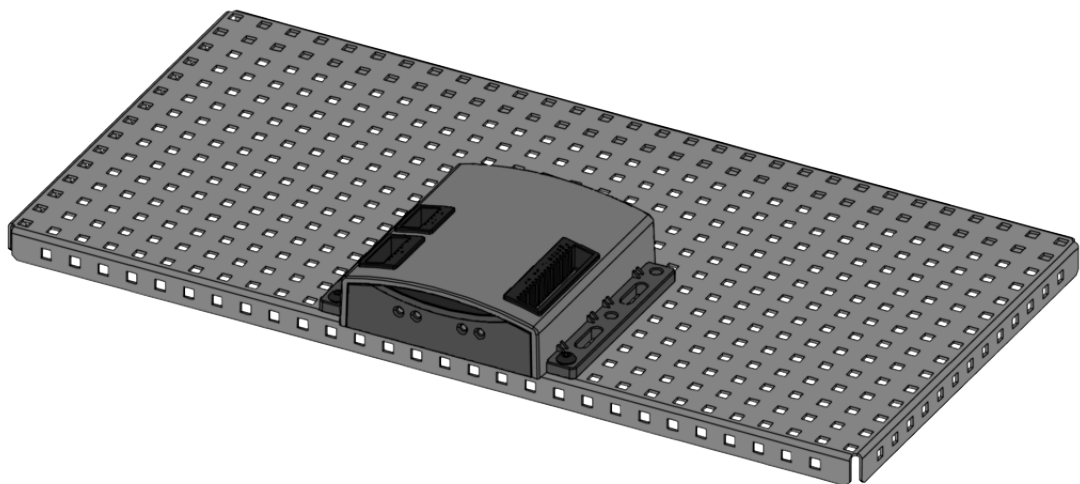
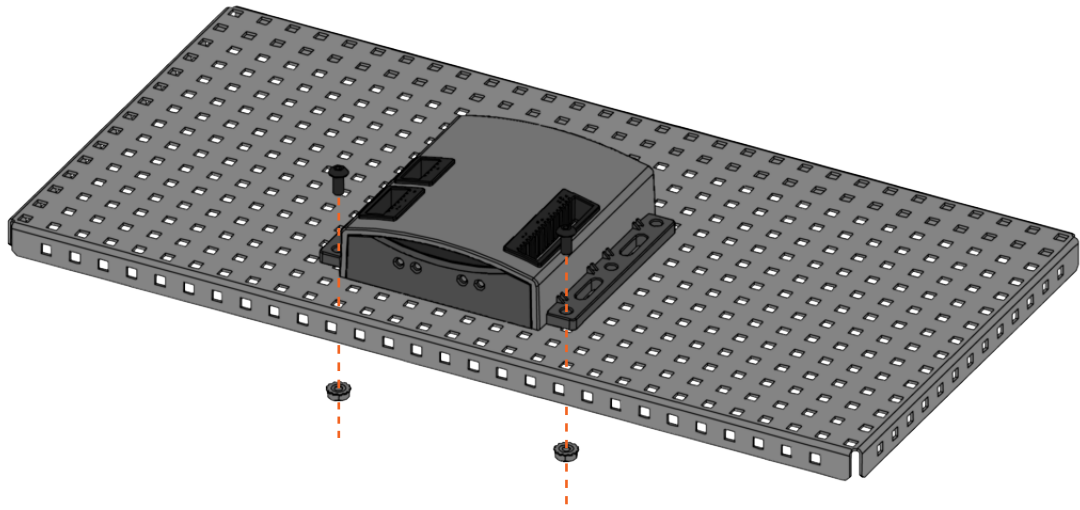
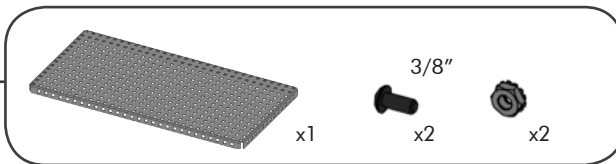
The following step involves permanent alterations to the materials in the VEX Kit. Make sure you have permission before continuing.

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.



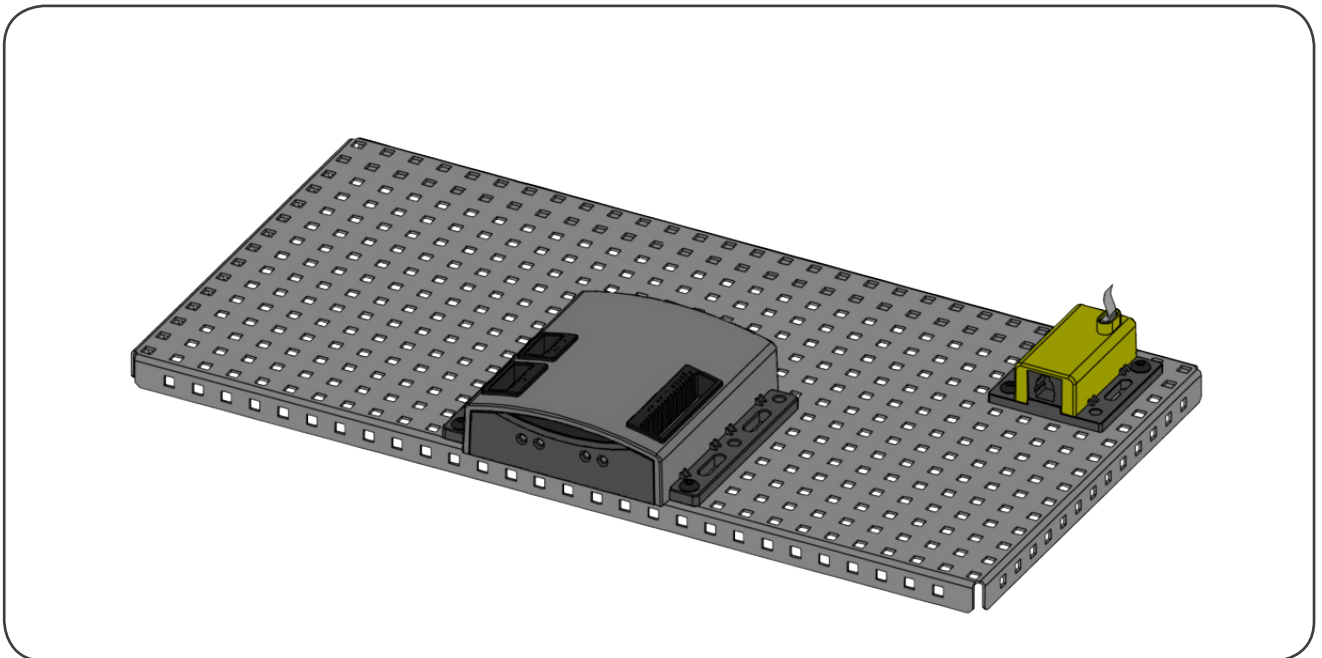
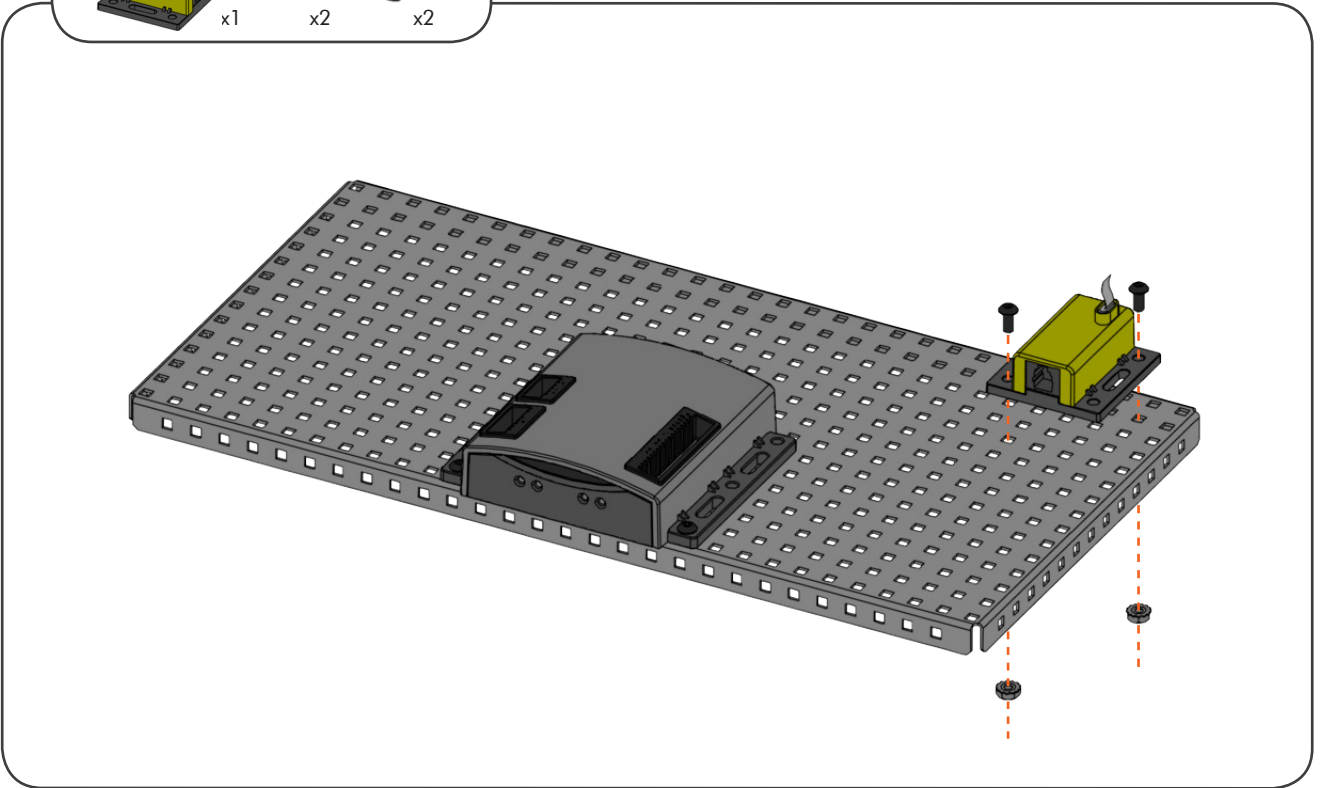
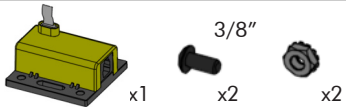
PIC TESTBED BUILDING INSTRUCTIONS

3 Attaching the VEX PIC Microcontroller



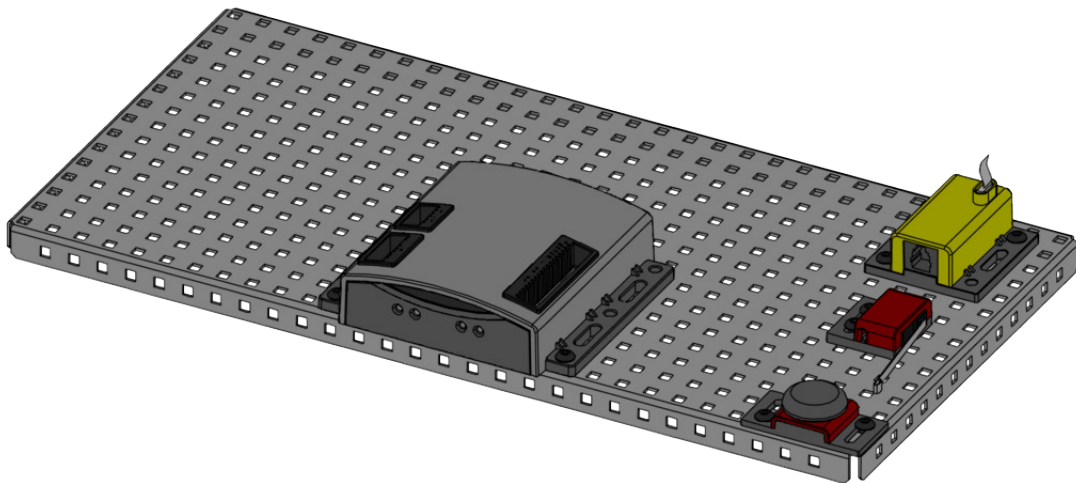
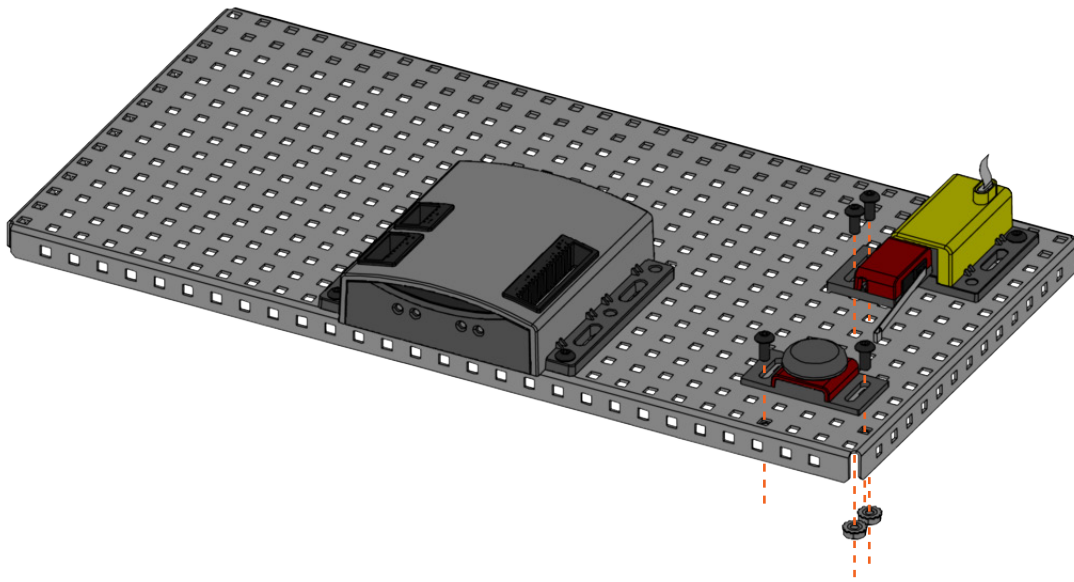
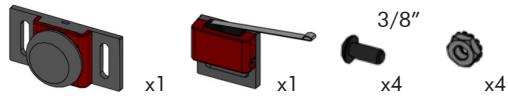
PIC TESTBED BUILDING INSTRUCTIONS

4 Attaching the RF Receiver



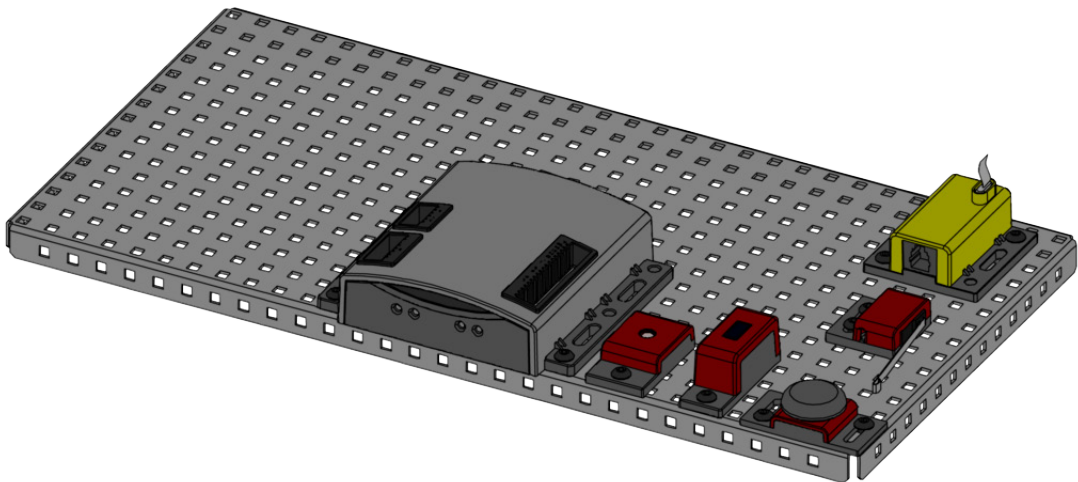
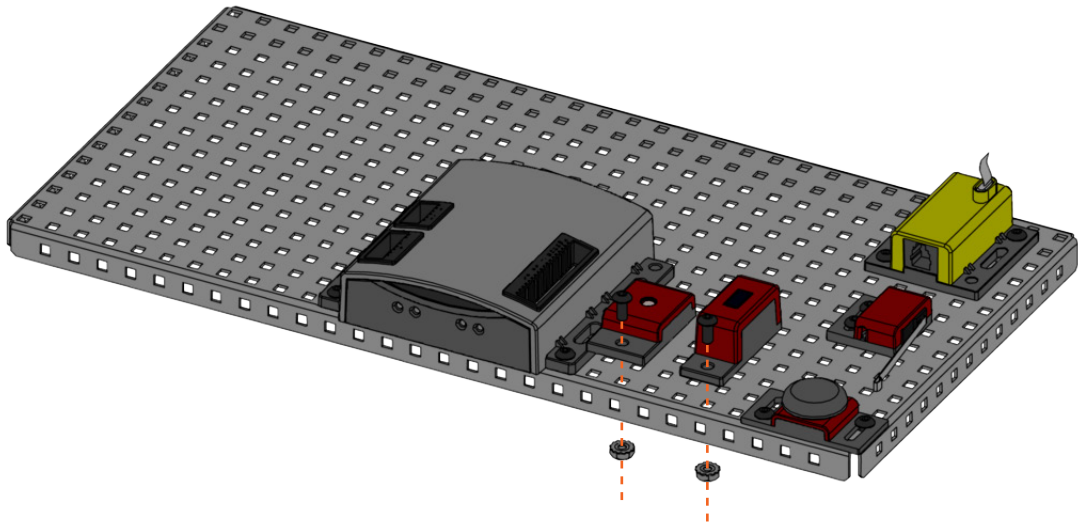
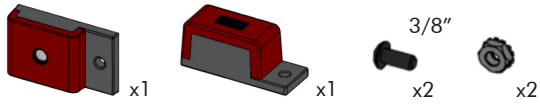
PIC TESTBED BUILDING INSTRUCTIONS

5 Attaching the Limit Switch and Bumper Switch



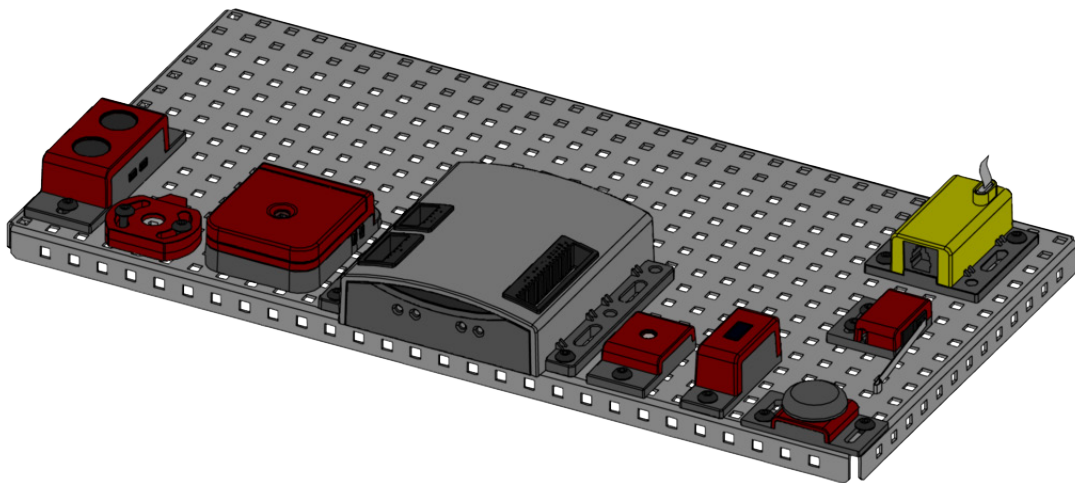
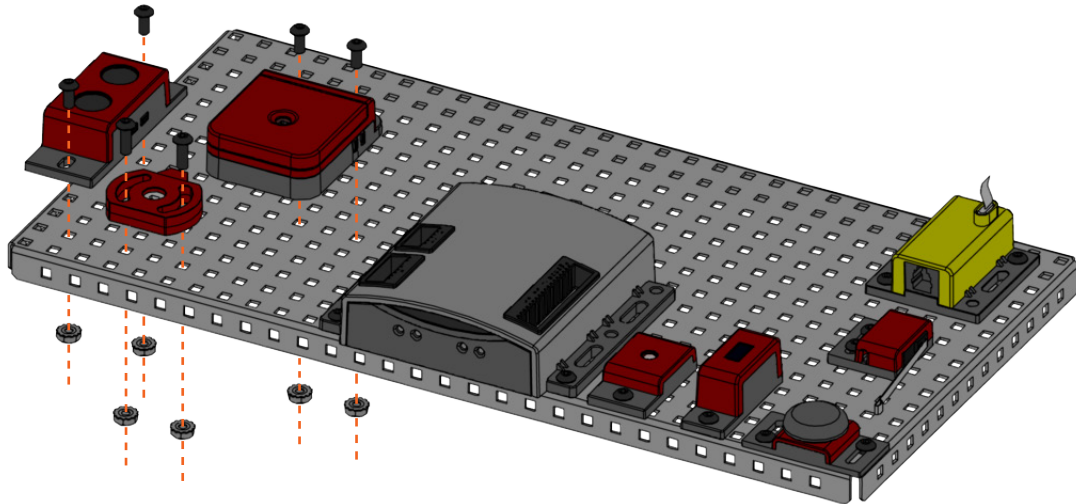
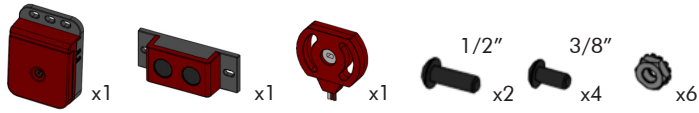
PIC TESTBED BUILDING INSTRUCTIONS

6 Attaching the Line Tracker and Light Sensor



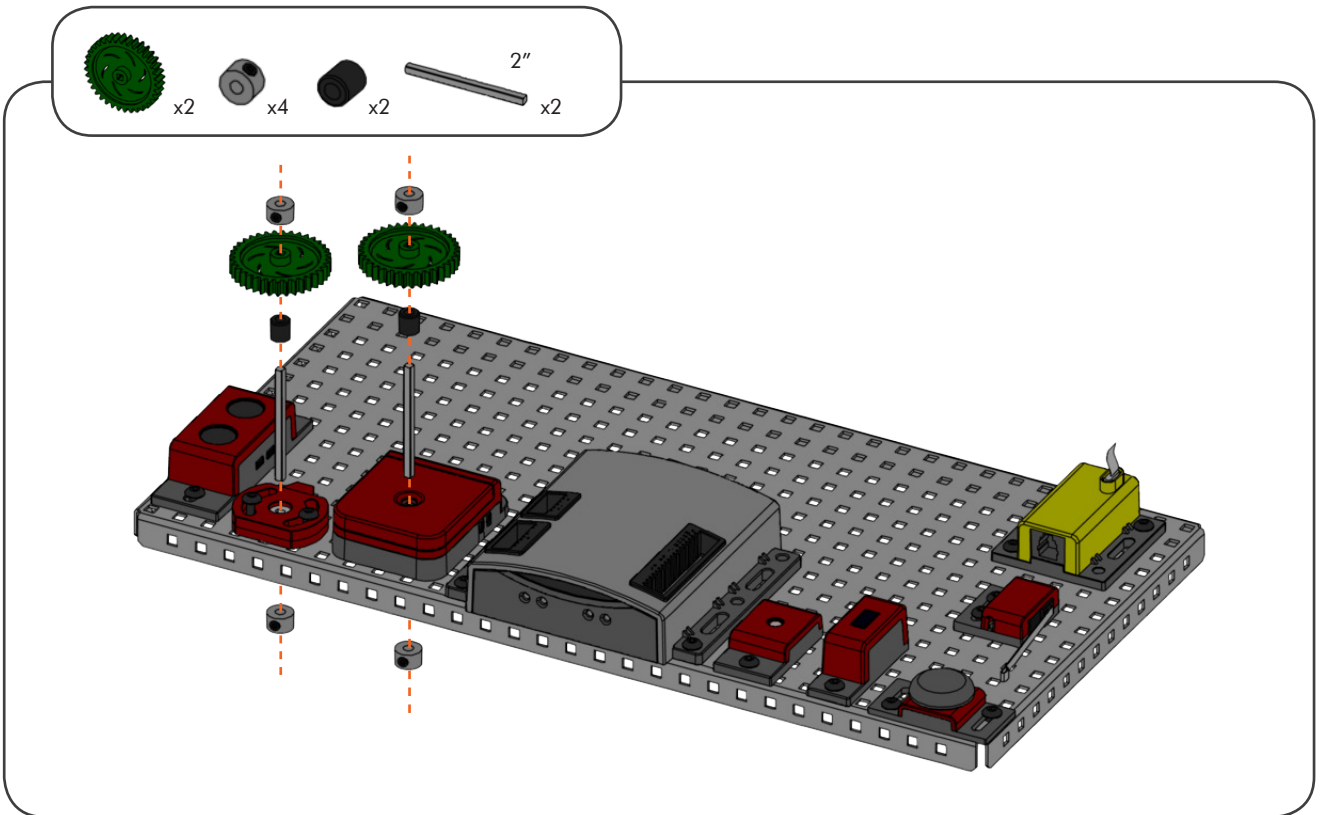
PIC TESTBED BUILDING INSTRUCTIONS

7 Attaching the Optical Shaft Encoder, Ultrasonic Rangefinder and Potentiometer

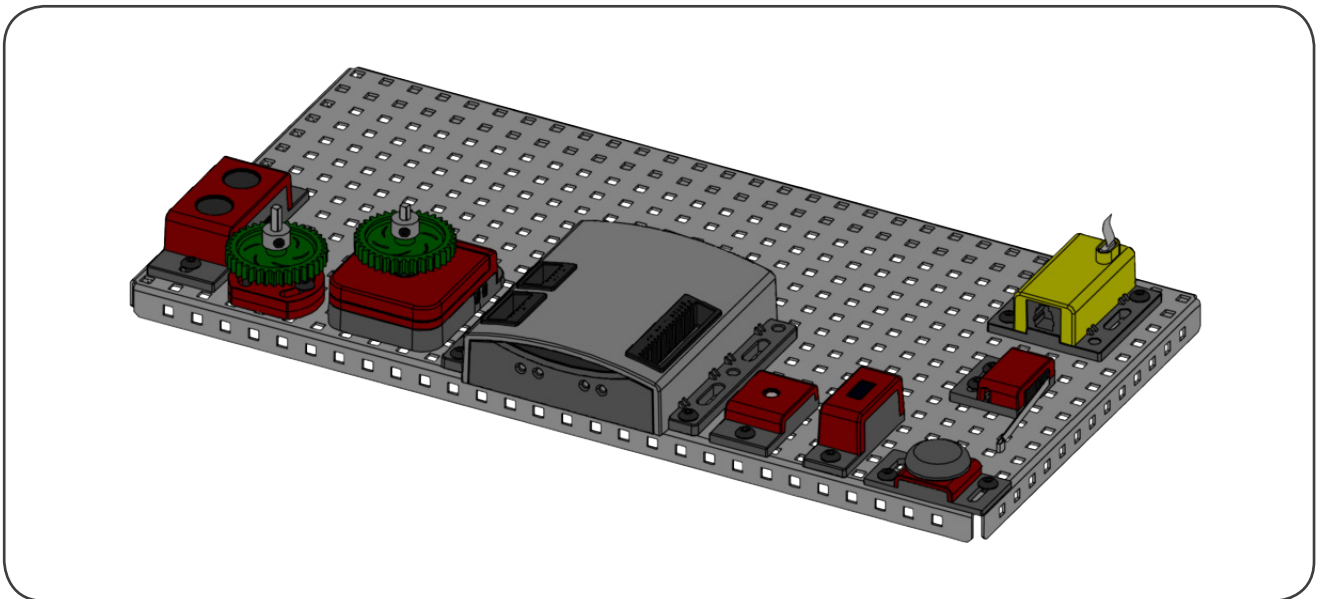


PIC TESTBED BUILDING INSTRUCTIONS

7 Attaching the Optical Shaft Encoder and Potentiometer (continued)

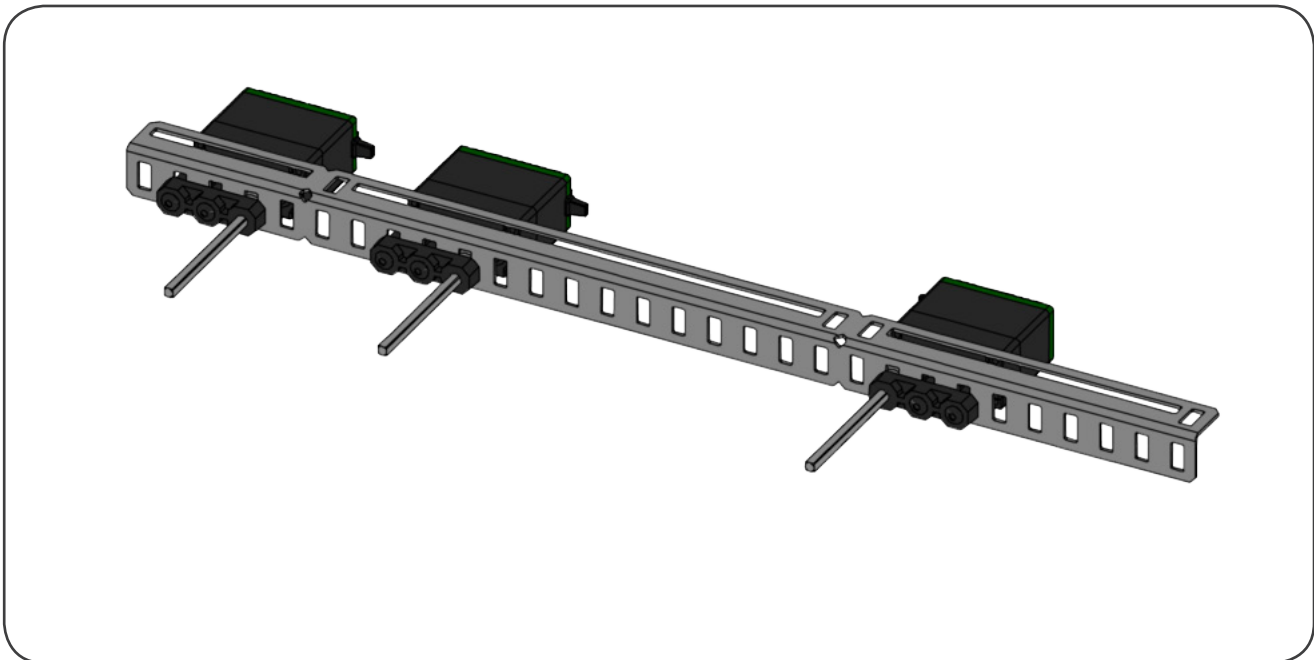
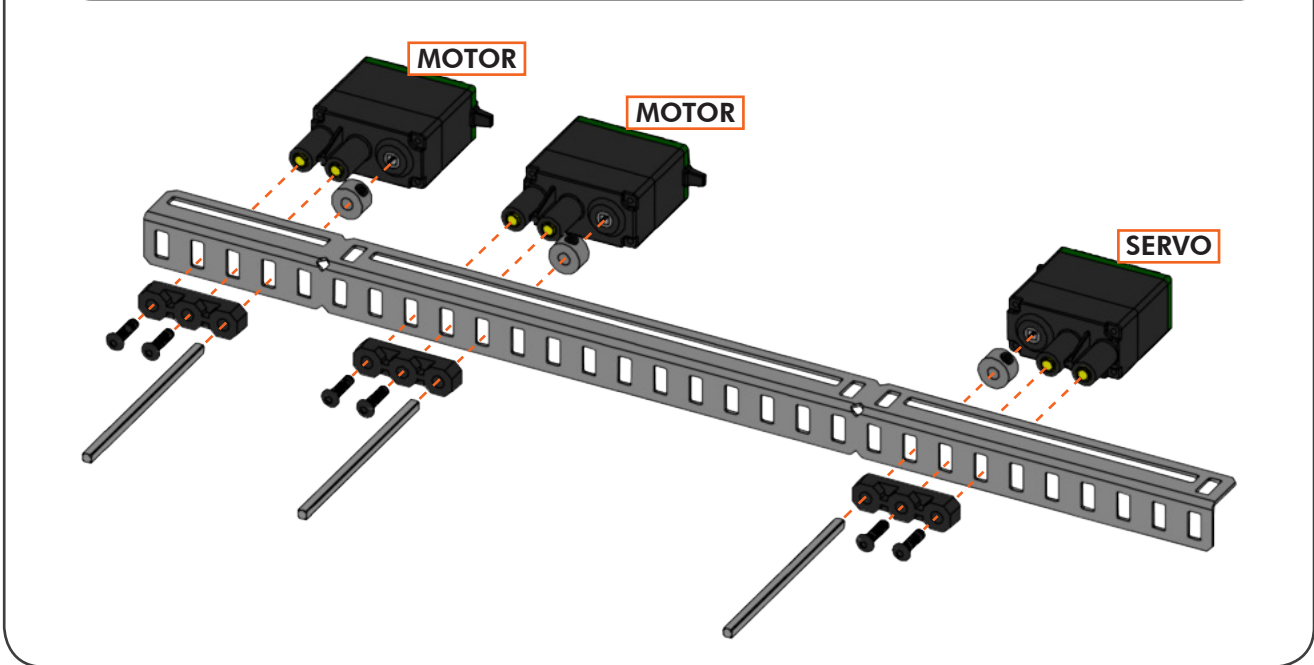
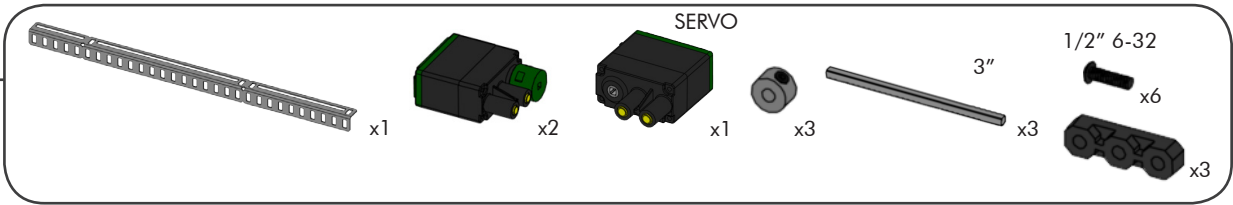


! Building Tip - Using Shaft Collars



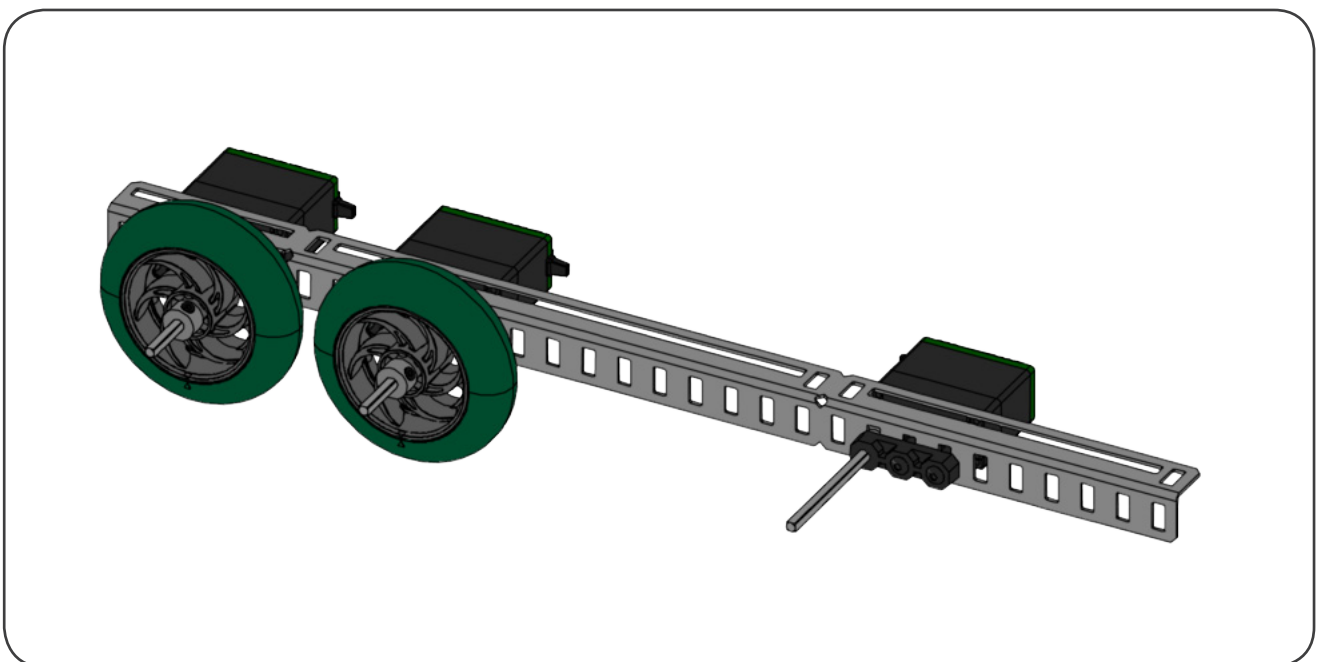
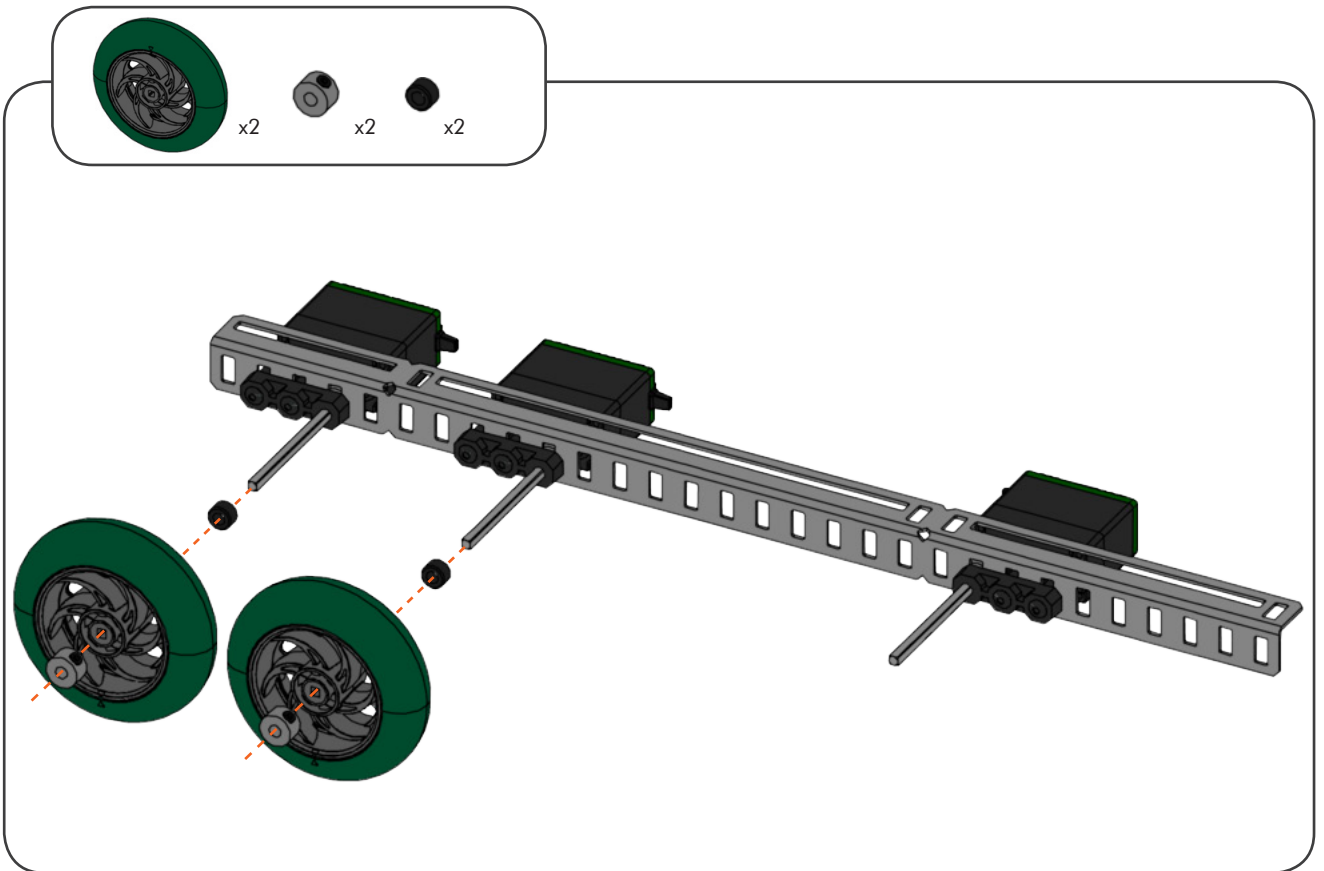
PIC TESTBED BUILDING INSTRUCTIONS

8 Motor Mount Construction



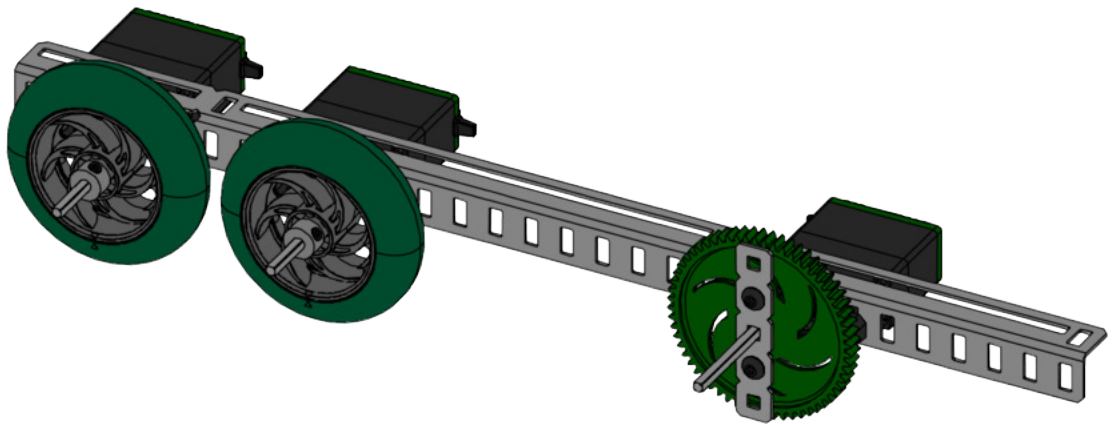
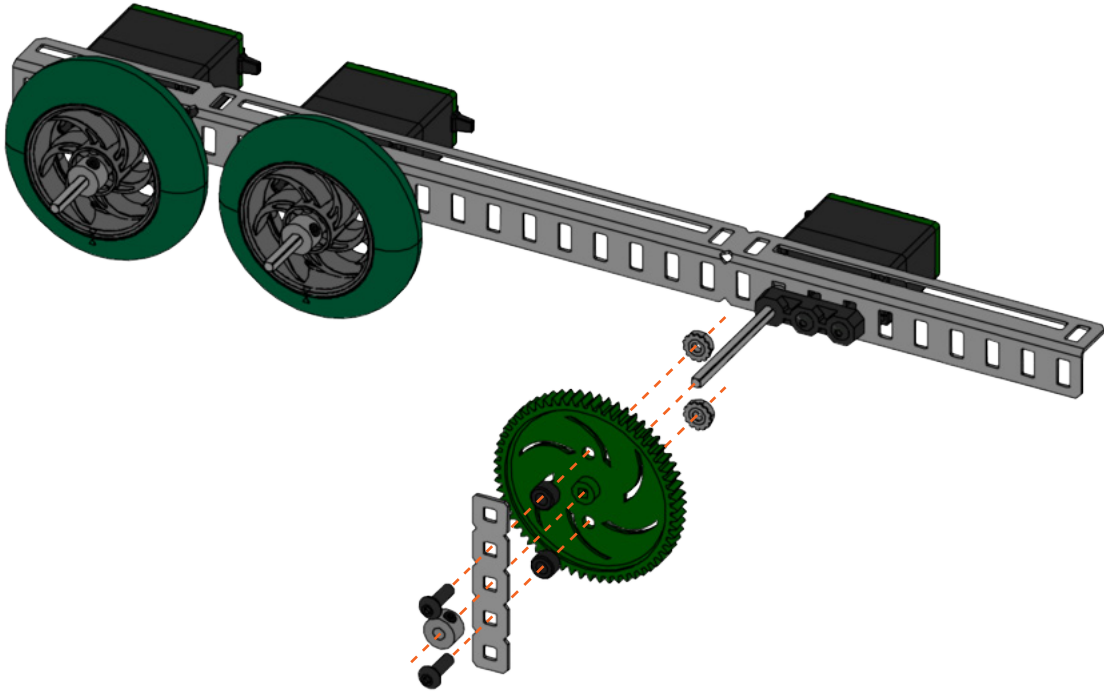
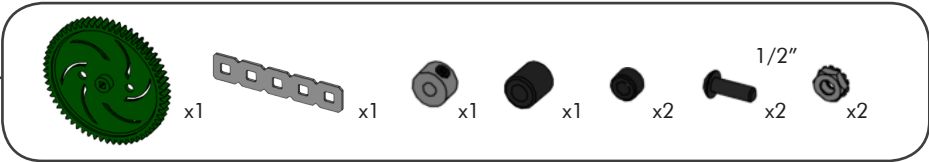
PIC TESTBED BUILDING INSTRUCTIONS

8 Motor Mount Construction *(continued)*



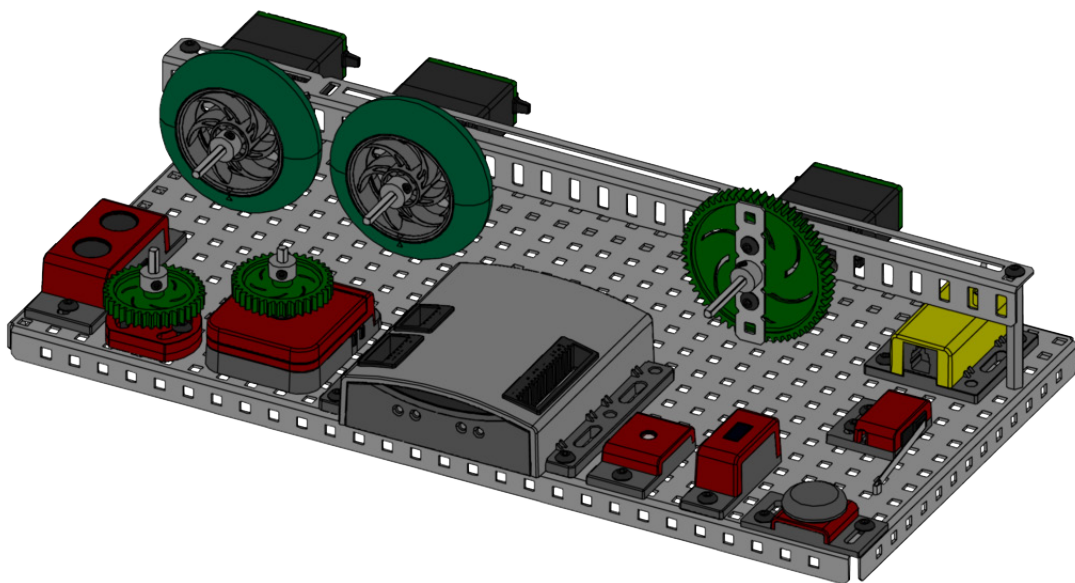
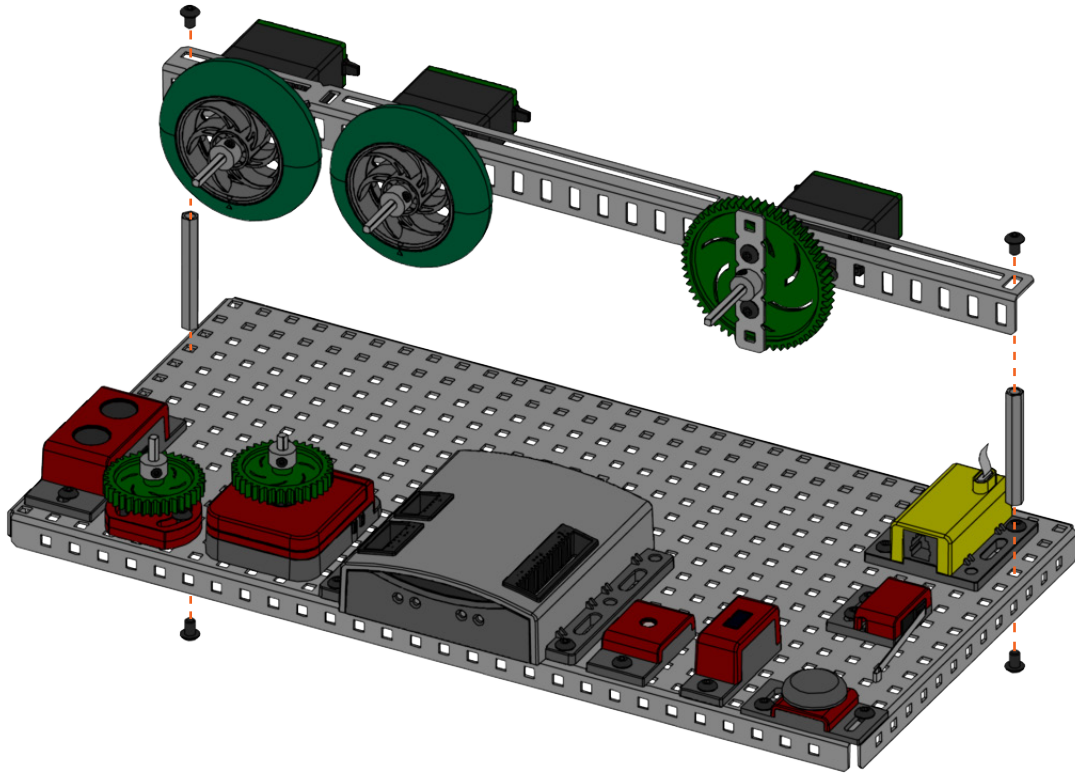
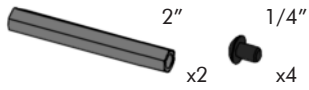
PIC TESTBED BUILDING INSTRUCTIONS

8 Motor Mount Construction *(continued)*



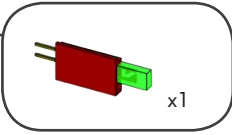
PIC TESTBED BUILDING INSTRUCTIONS

9 Attaching the Motor Mount

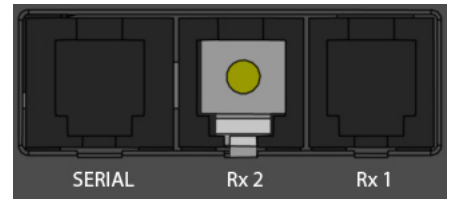
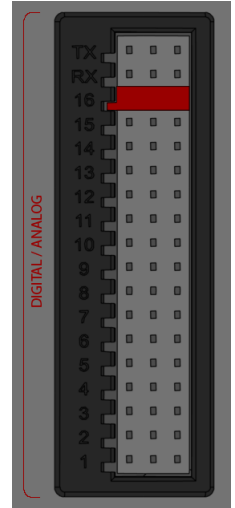
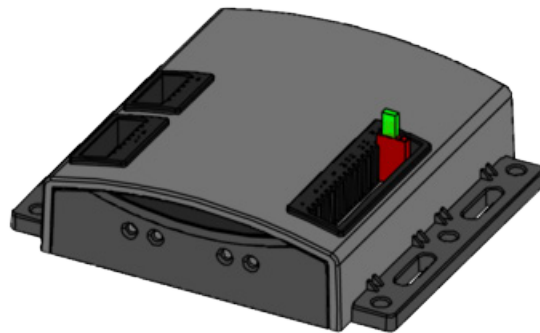


PIC TESTBED BUILDING INSTRUCTIONS

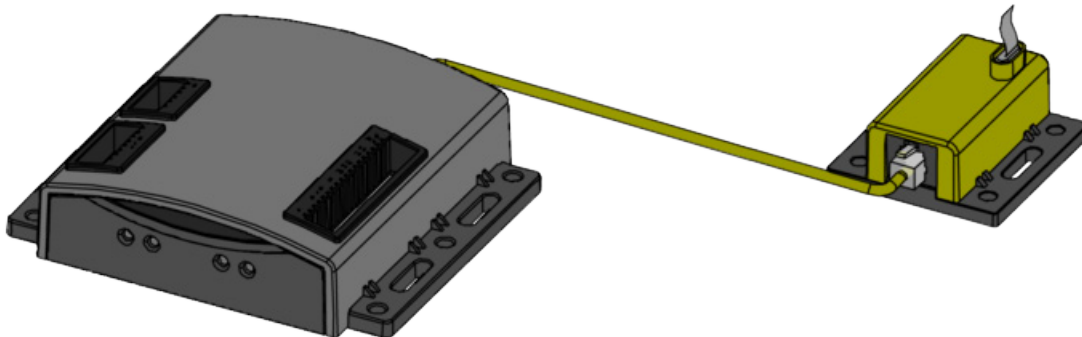
10 Attaching the LED Indicator and Wiring the RF Receiver



ANALOG/DIGITAL PORT 16

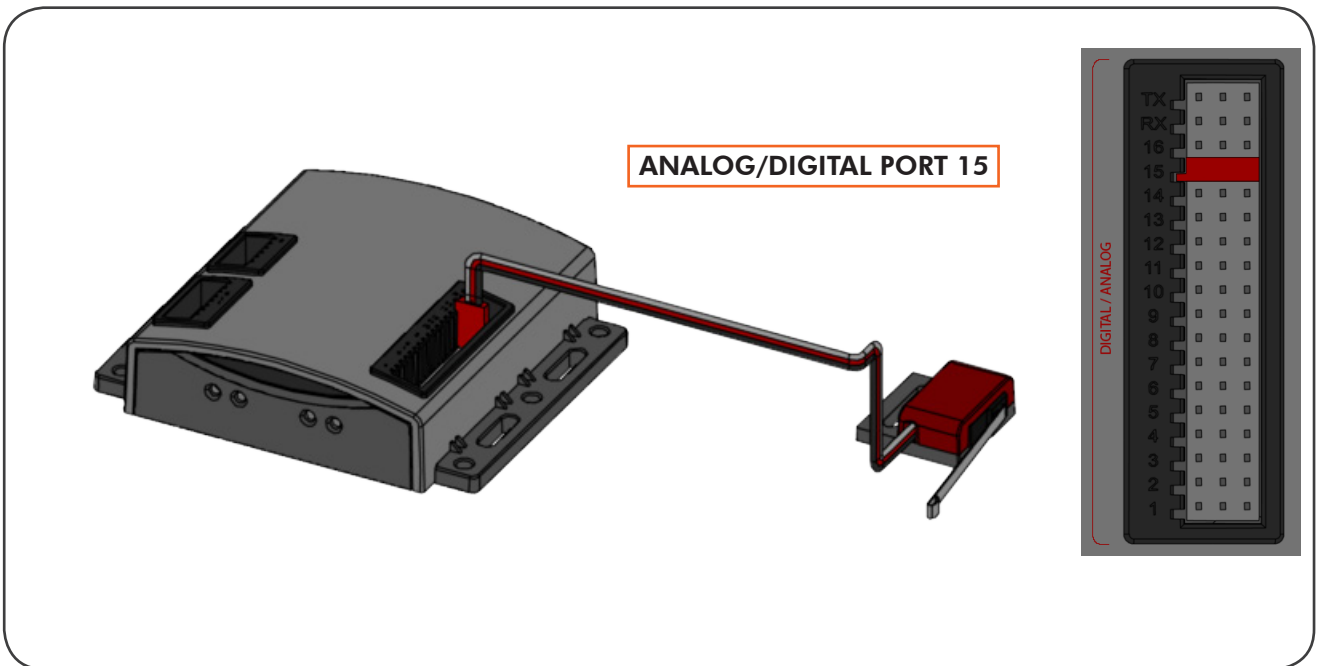
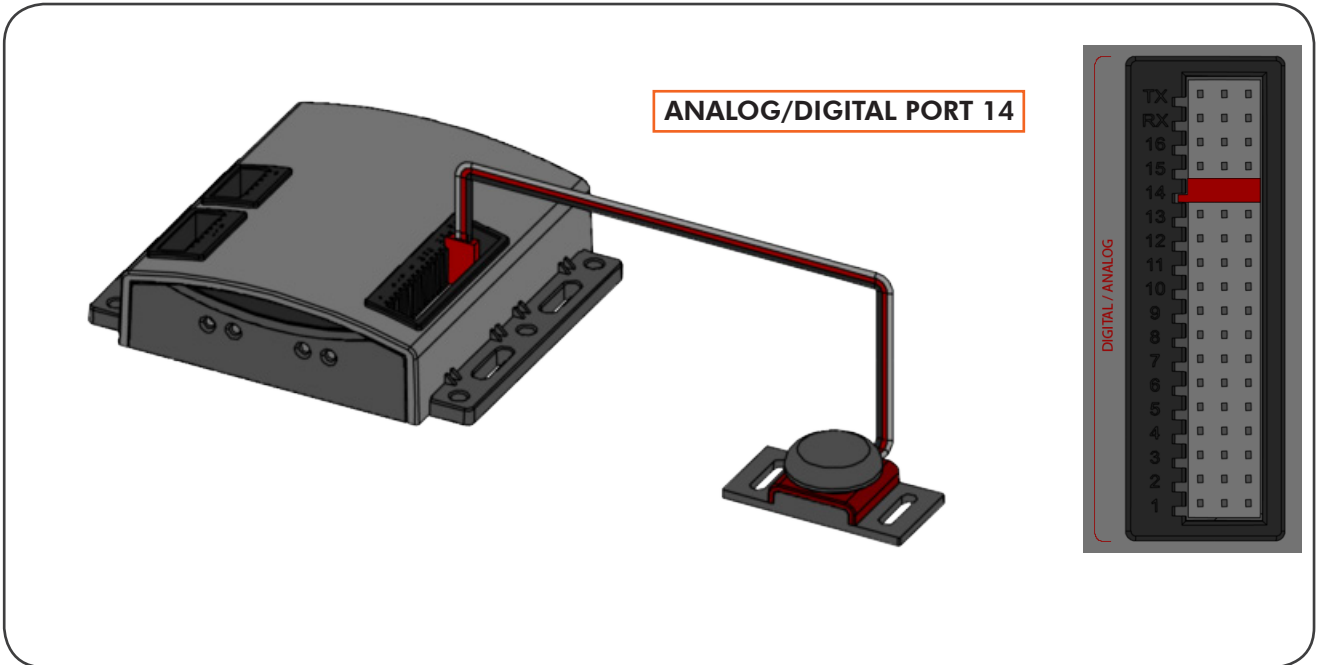


RX PORT 2



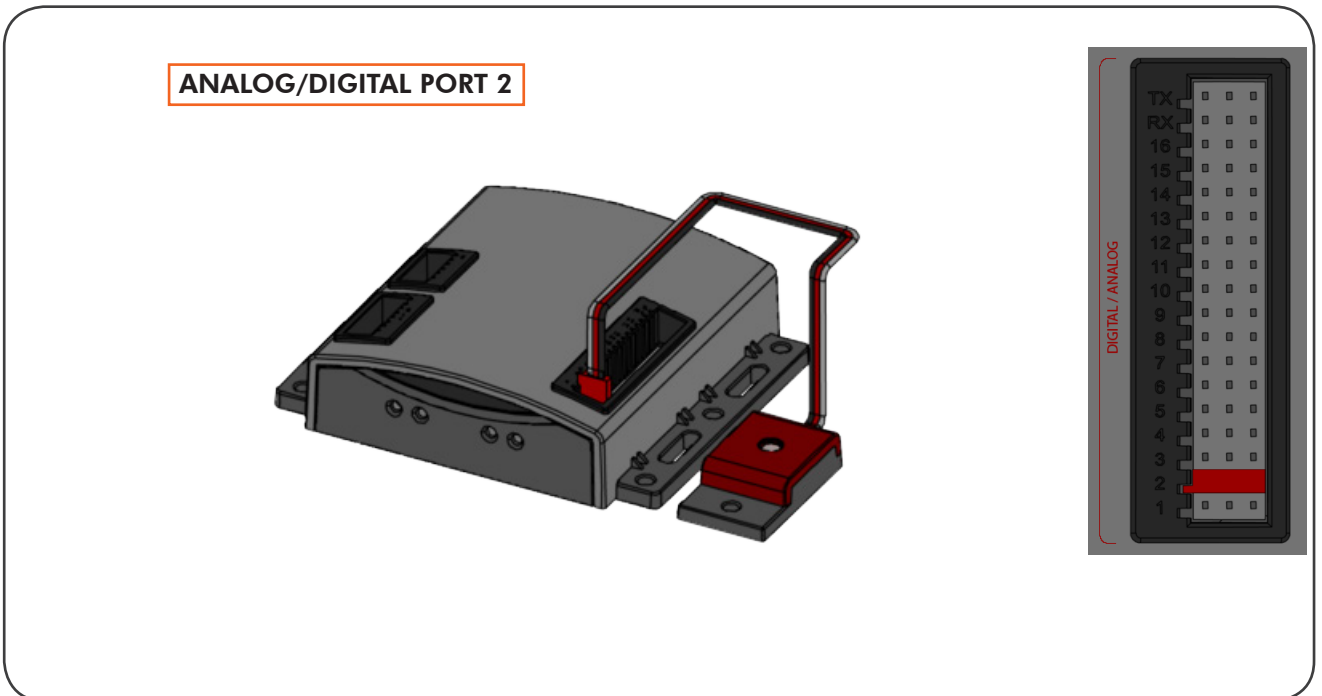
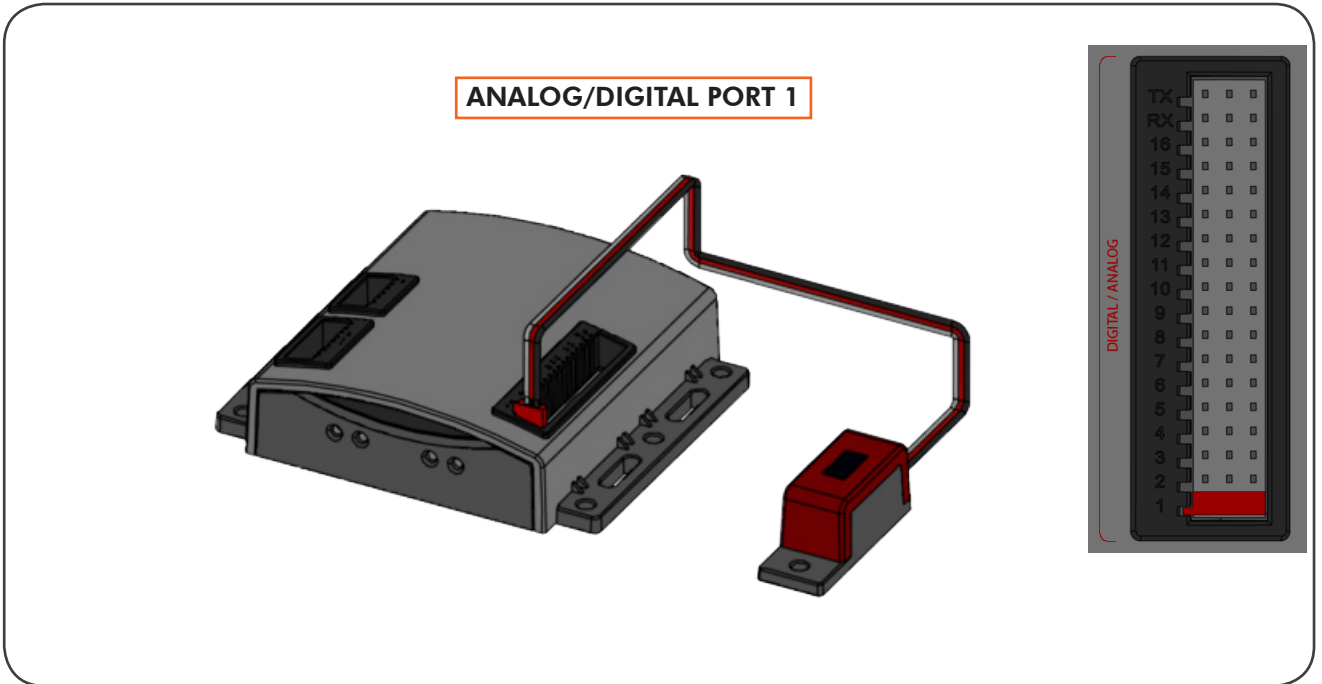
PIC TESTBED BUILDING INSTRUCTIONS

11 Wiring the Bumper Switch and Limit Switch



PIC TESTBED BUILDING INSTRUCTIONS

12 Wiring the Line Tracker and Light Sensor

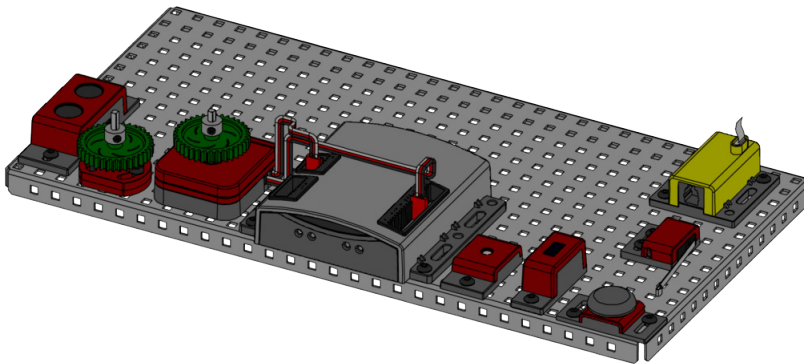
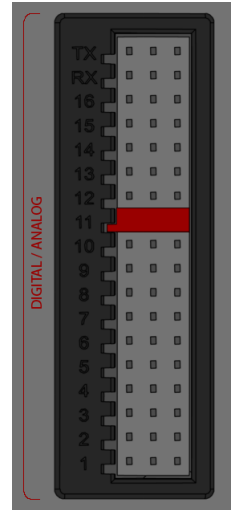
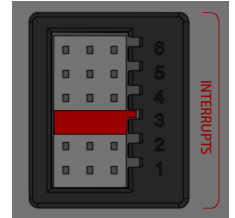
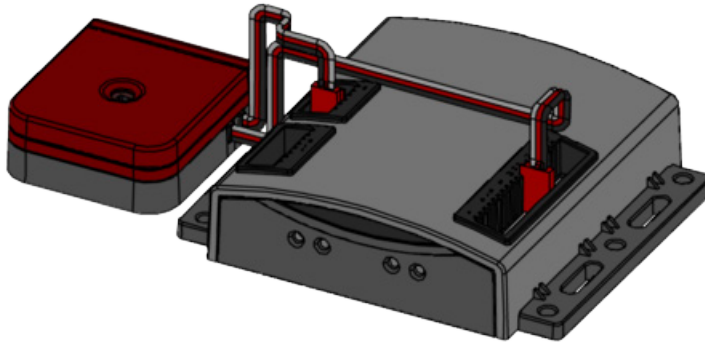


PIC TESTBED BUILDING INSTRUCTIONS

16 Wiring the Encoders

Top wire to
INTERRUPT PORT 3

Bottom wire to
ANALOG/DIGITAL PORT 11



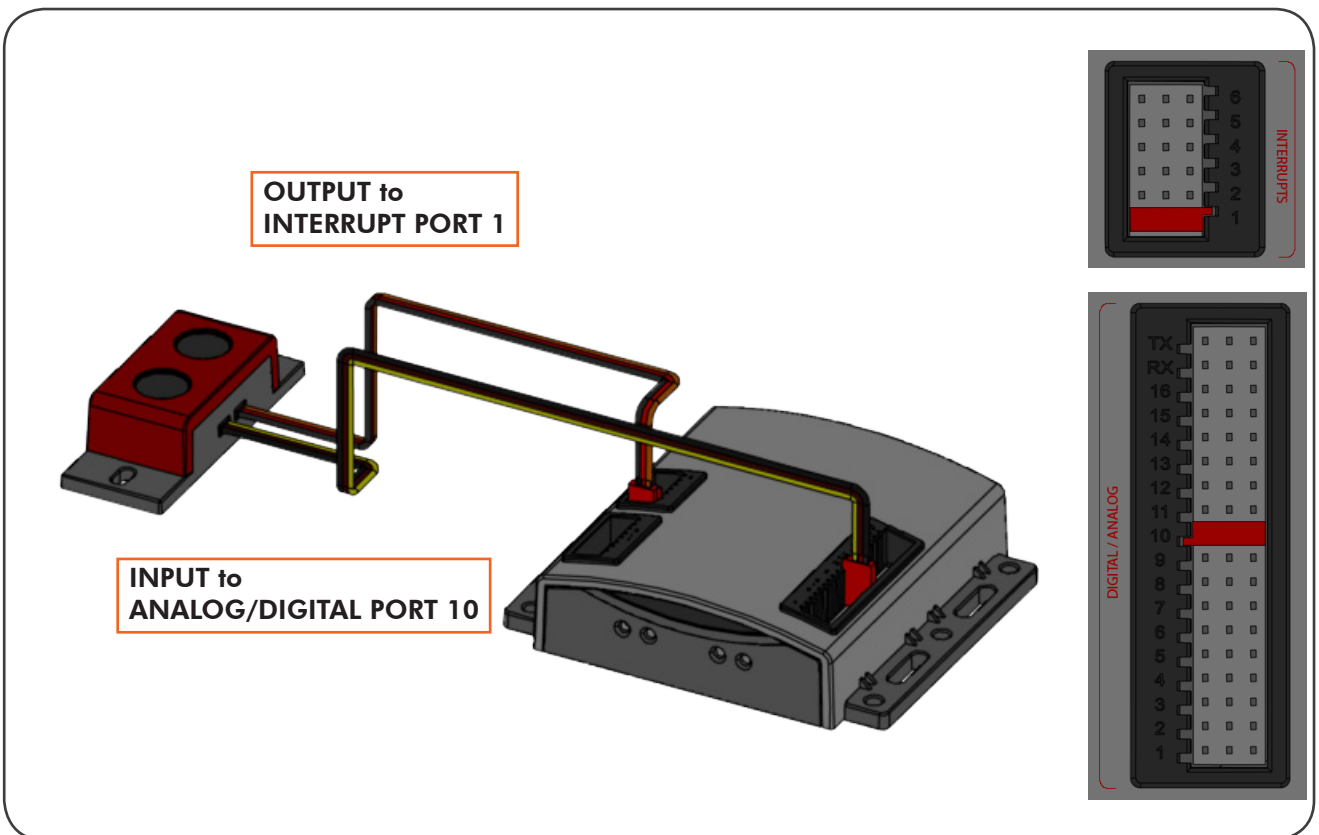
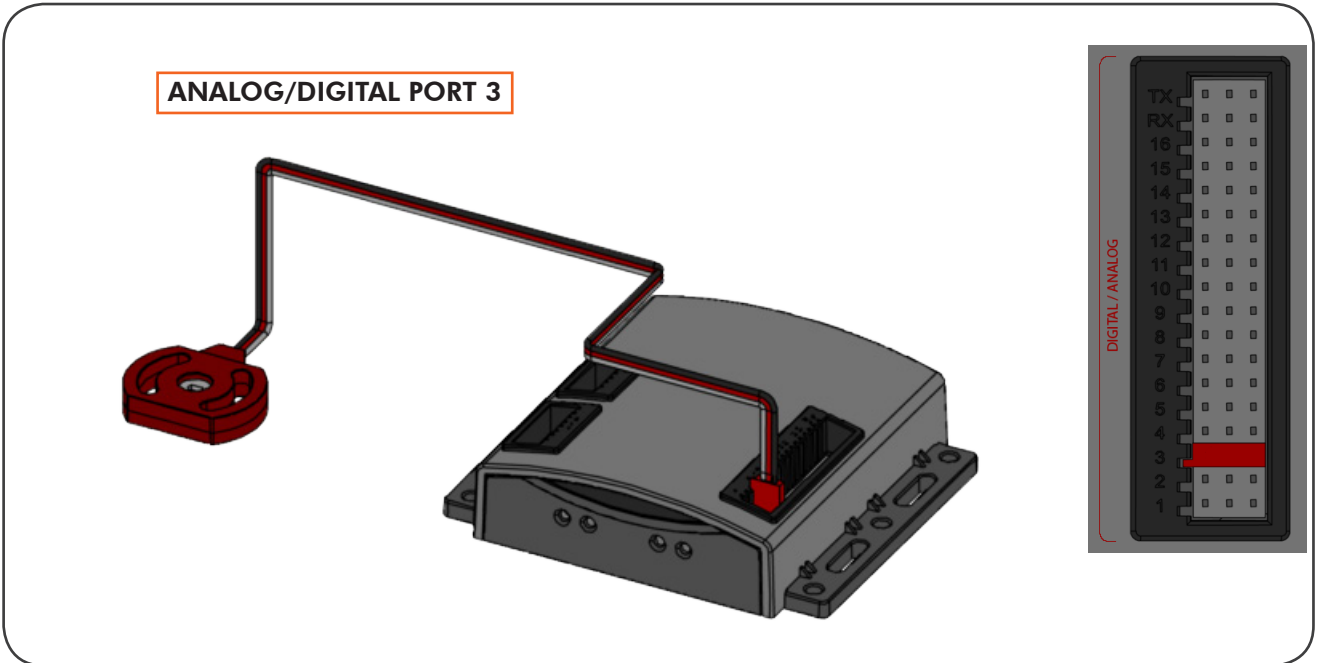
Building Tip:
Encoder Wires

In the step above, the top encoder wire is the wire closer to the mounting holes.



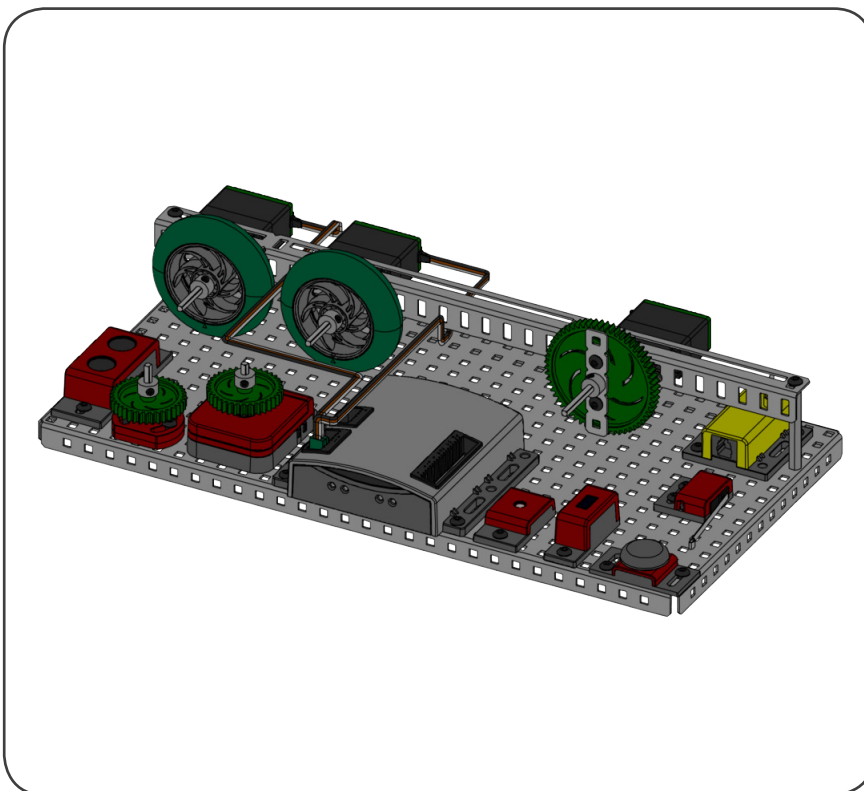
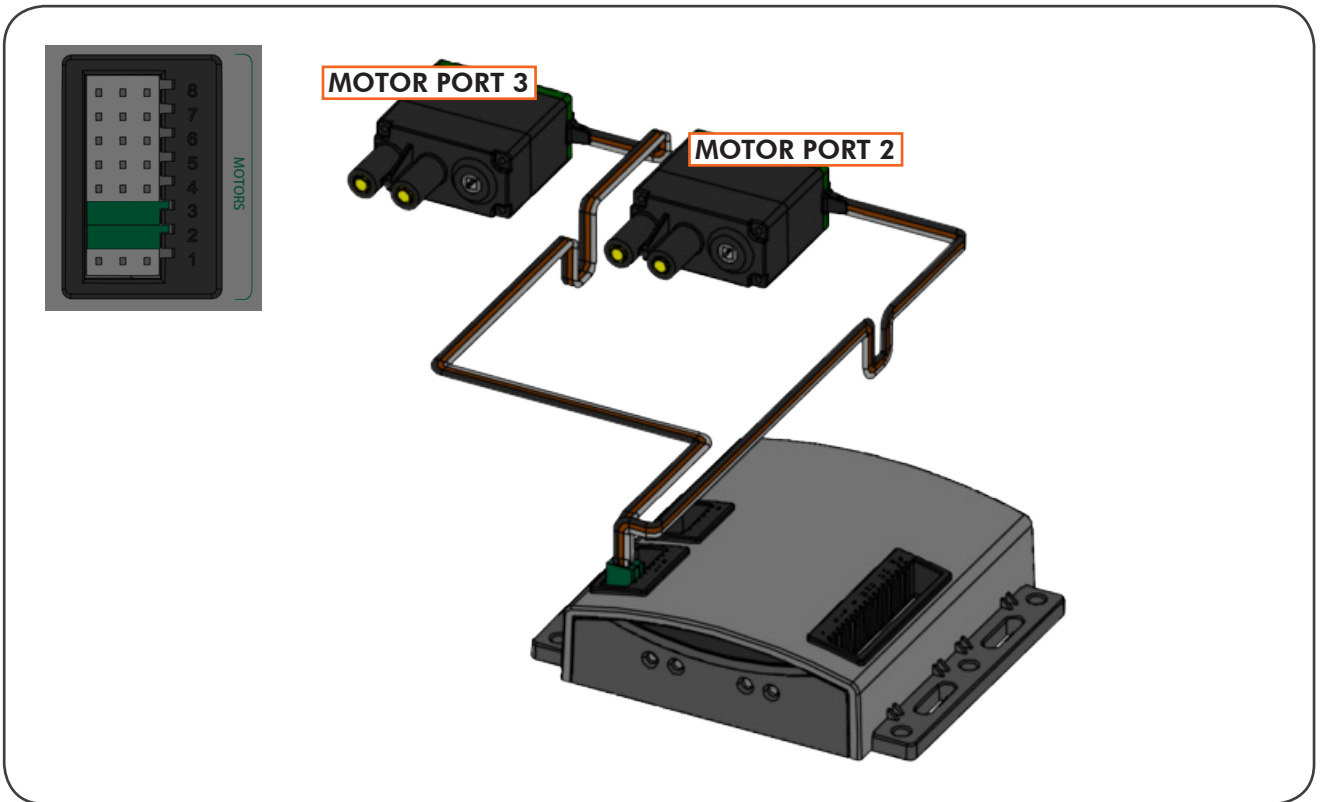
PIC TESTBED BUILDING INSTRUCTIONS

13 Wiring the Potentiometer and Ultrasonic Rangefinder



PIC TESTBED BUILDING INSTRUCTIONS

19 Wiring the Motors



Building Tip: 2-Wire Motors

If you are using the 2-wire VEX motors, you will need to plug your motors into MOTOR Ports 1 & 10, or use the VEX Motor Controller 29's to adapt the 2-wire motors to the 3-wire MOTOR Ports (2 - 9).



PIC TESTBED BUILDING INSTRUCTIONS

20 Wiring the Servo

