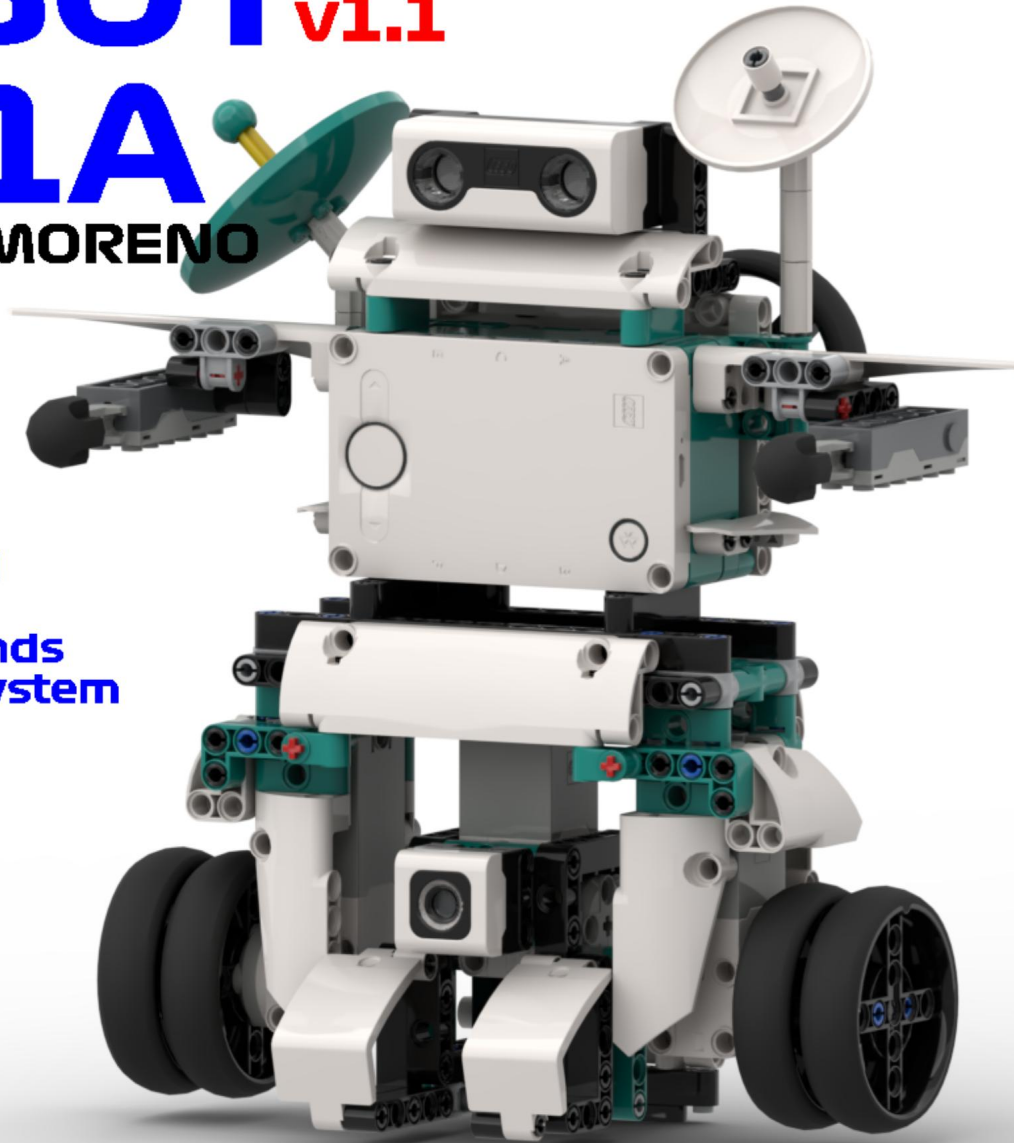


Building Instructions

ROBOT ^{v1.1} XR-1A

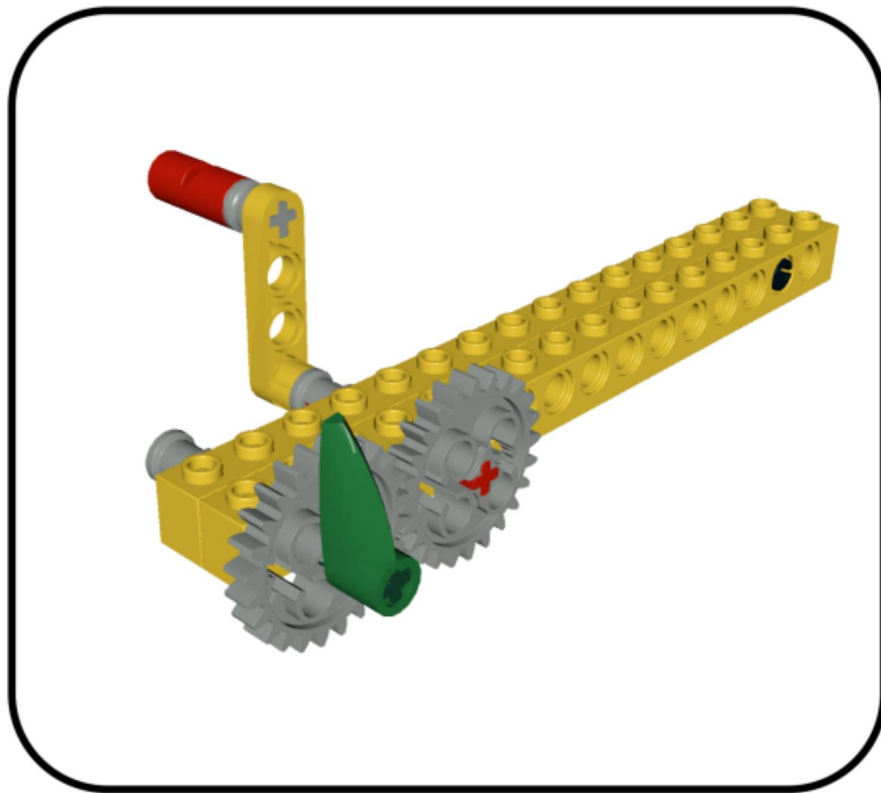
by JORGE MORENO

Self-Balanced
Safe Stop
Color commands
Dart launch system
Python Code



3D Model Interactive eBook

LEGO® Engineering FUNDAMENTALS



Jorge Moreno Barrios

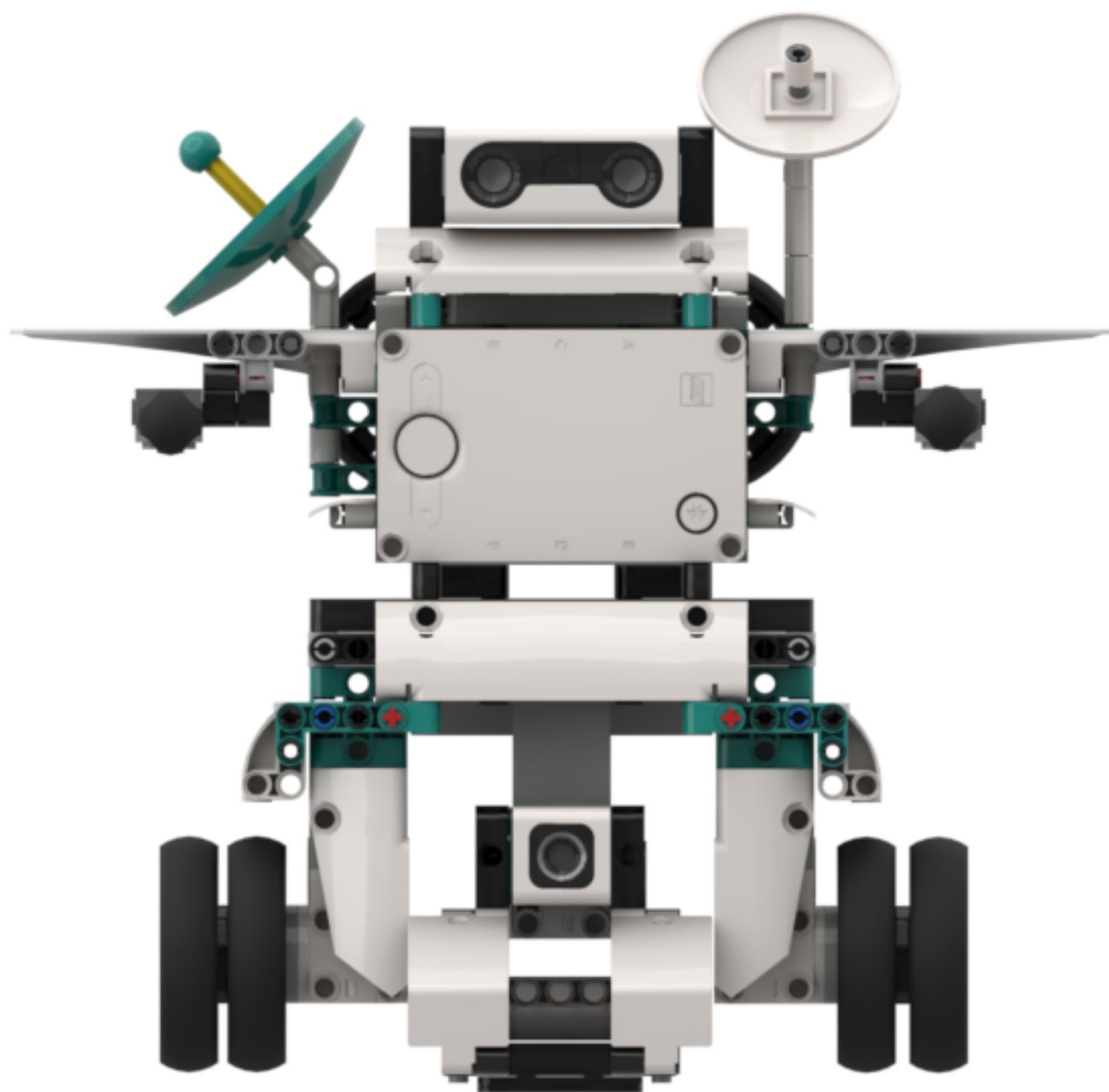
This is a 3D Model Interactive eBook about LEGO Engineering Fundamentals. The book is divided into five main chapters. Chapter one covers LEGO Bricks alignment and LEGO units. Chapter two is a 3D catalog of LEGO Technic Parts. Chapter three covers the six classic simple machines: Lever, Wheel & Axle, Pulley, Inclined Plane, Wedge, and Screw. Chapter four covers basic mechanisms: Gear, Chain, Cam, Pawl & Ratched, Junctions, and Linkages. Chapter five cover basic structures.

Most of the book contains animated 3D models with technical information that appears when you rotate the model.

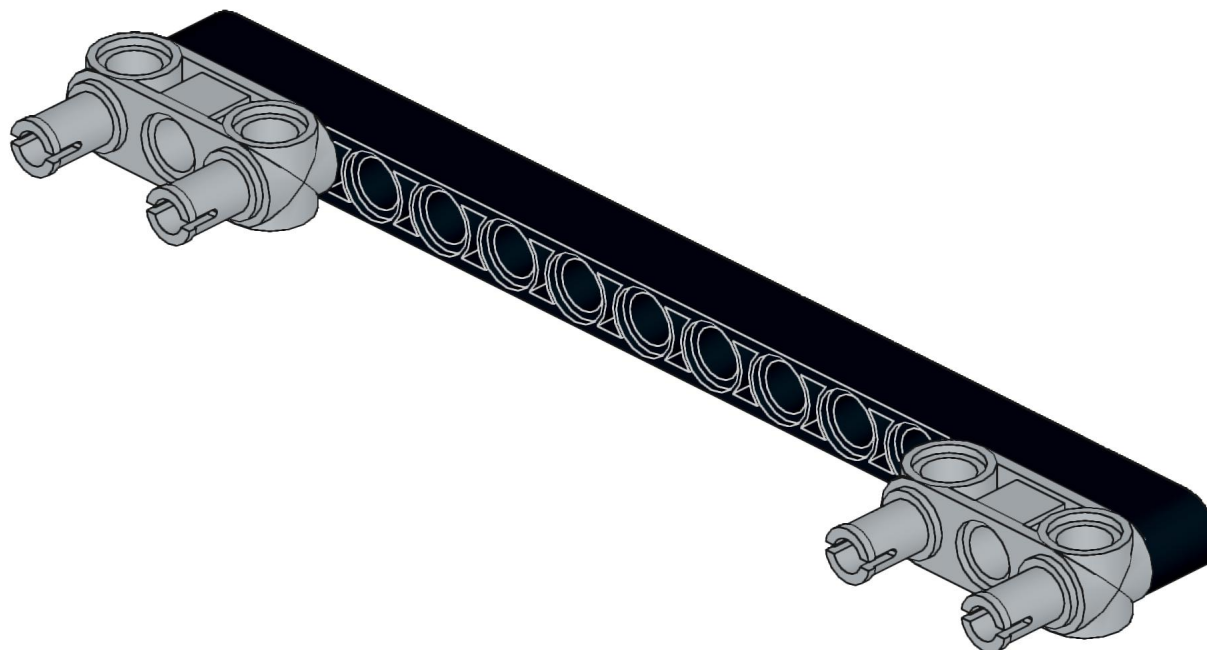
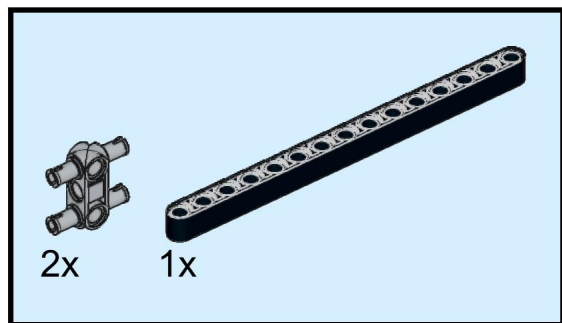


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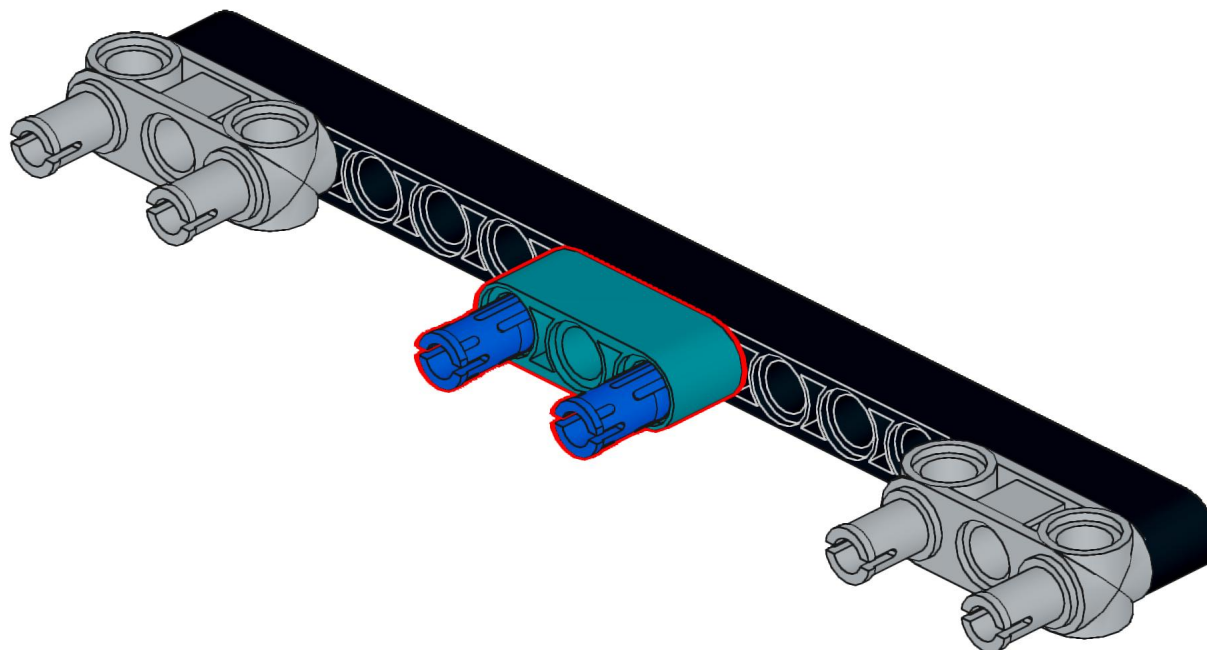
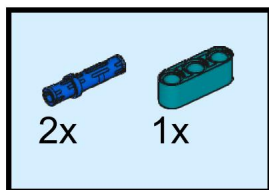




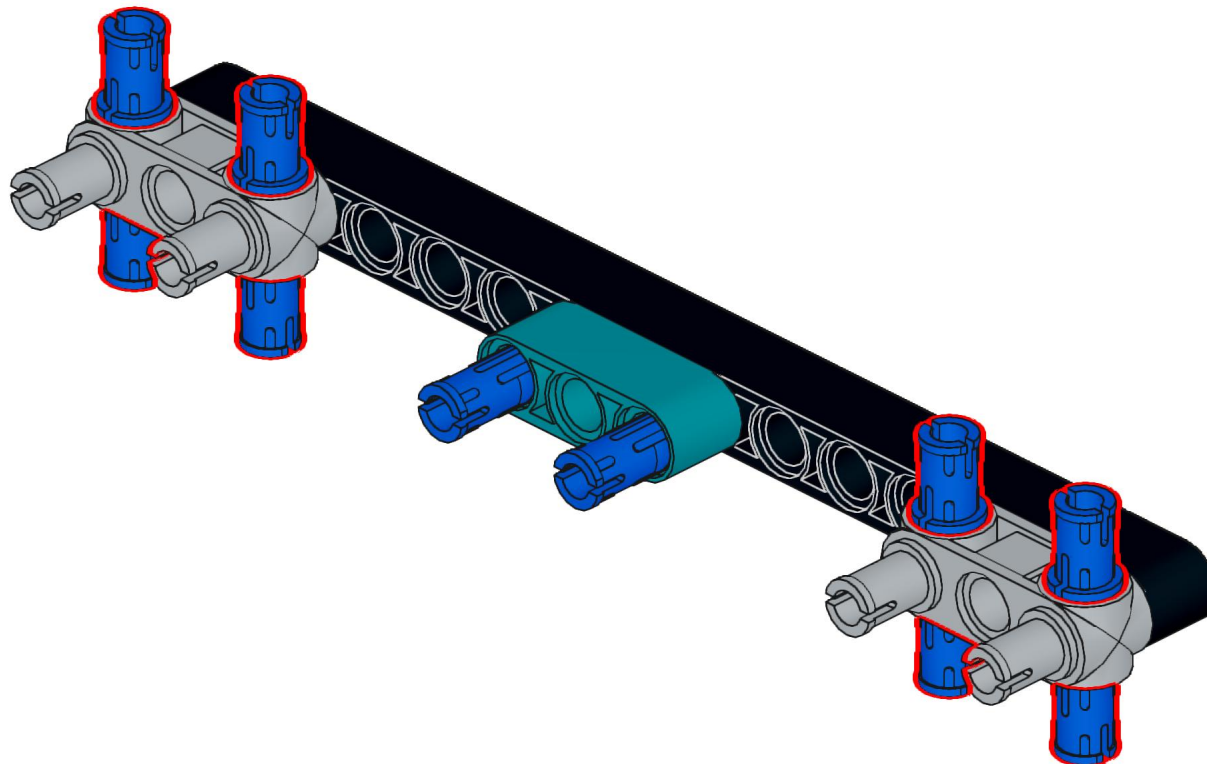
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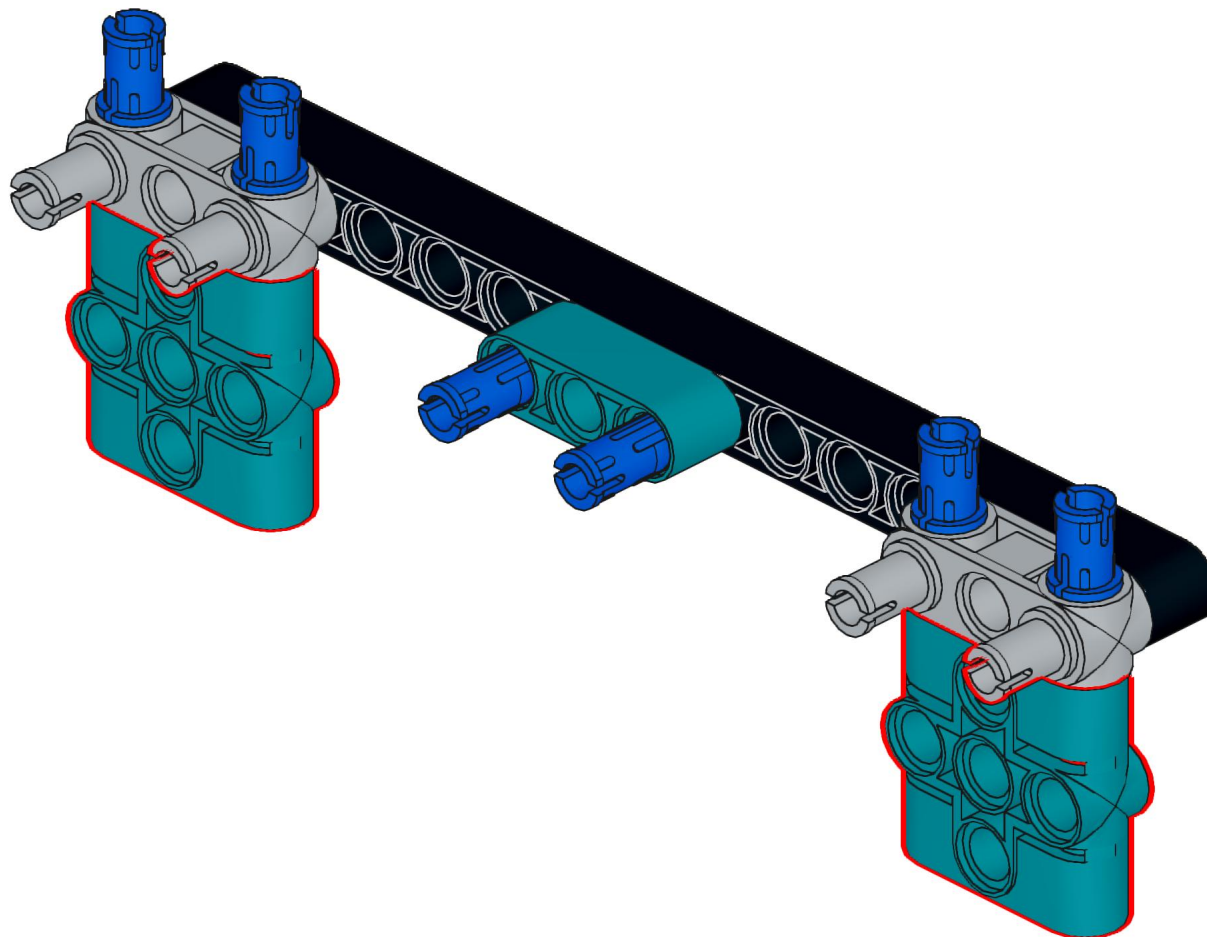
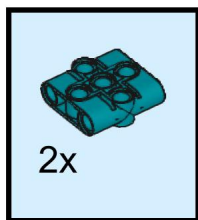
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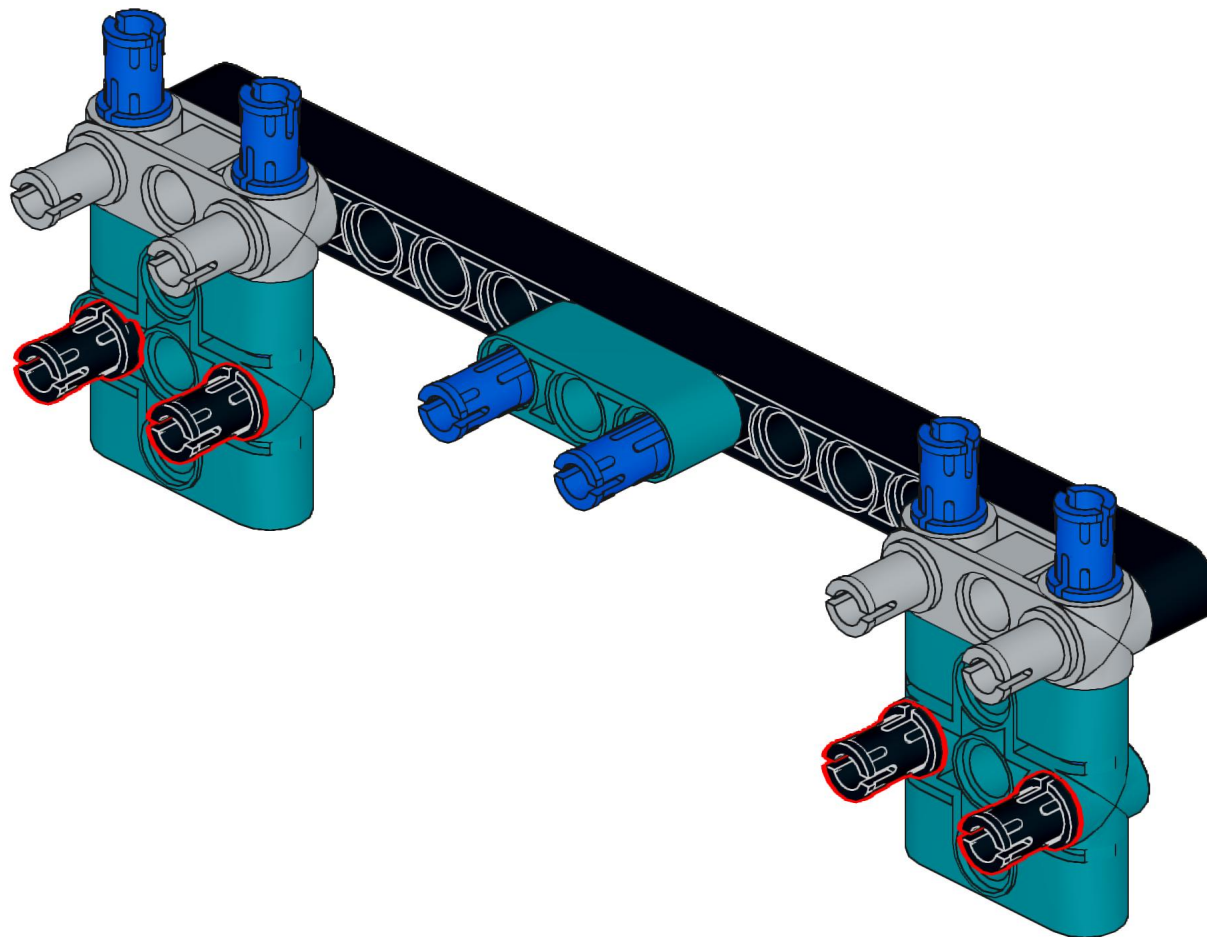
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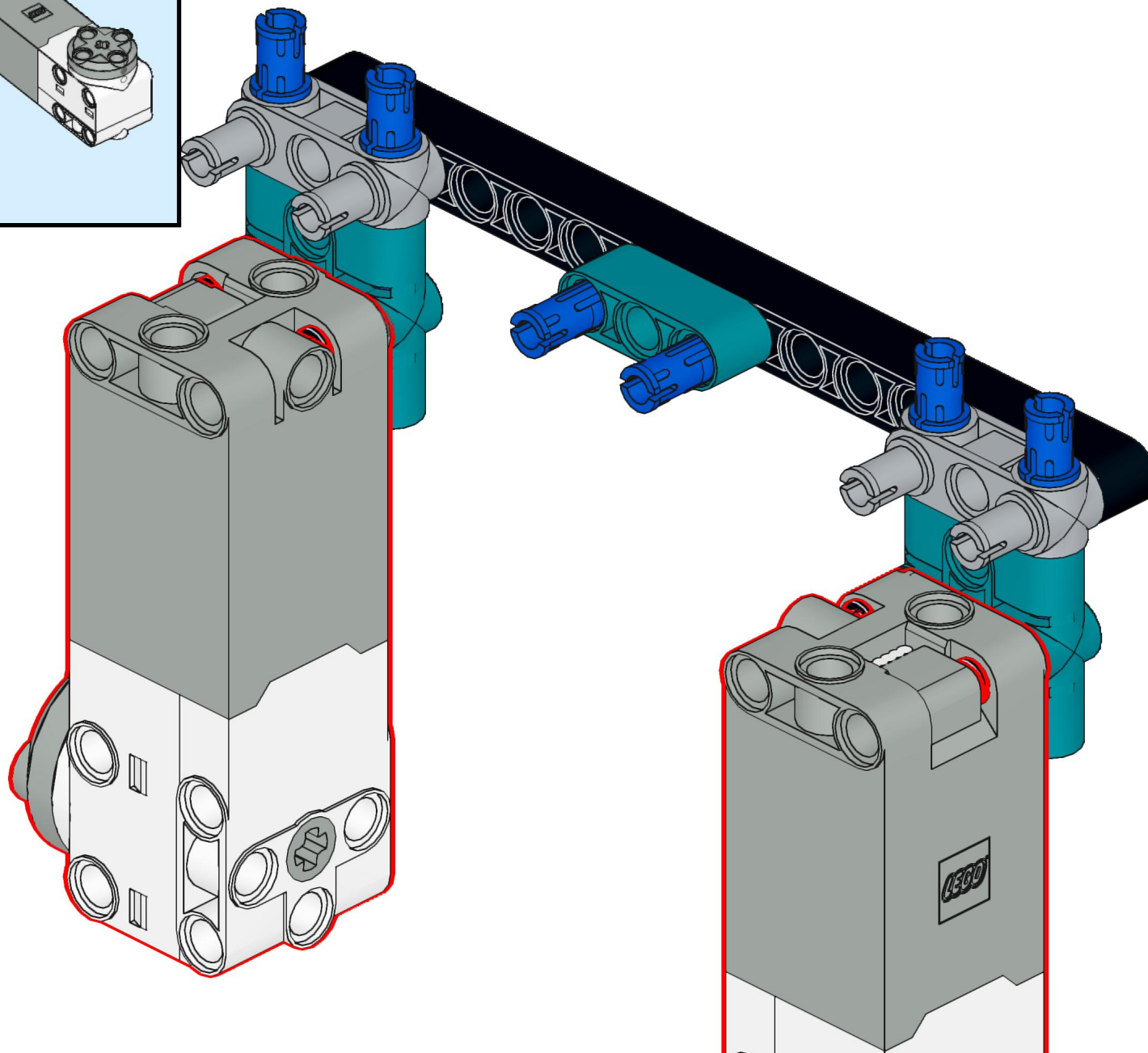
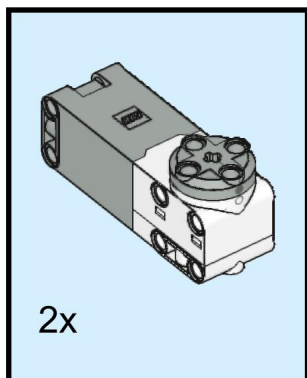
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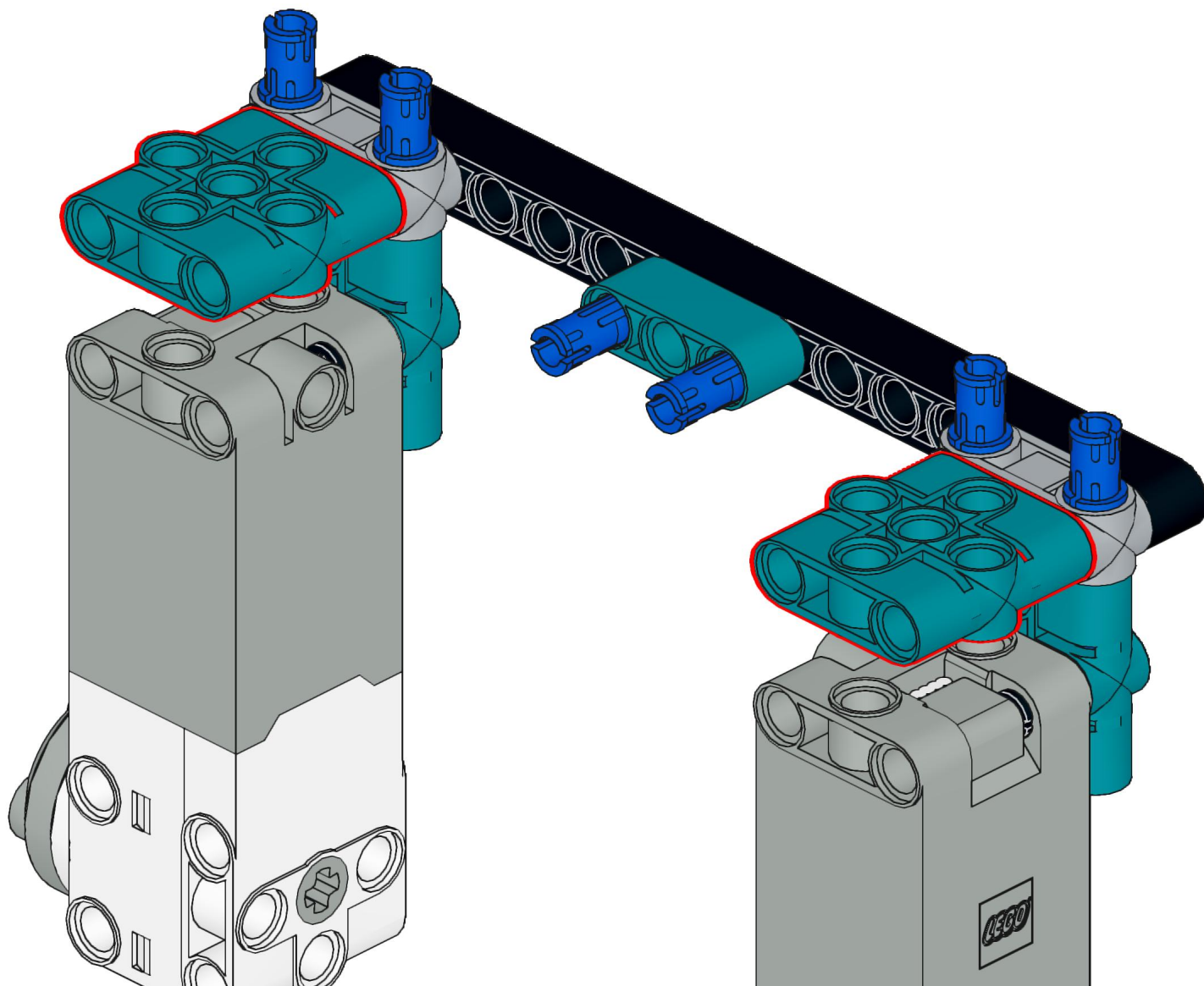
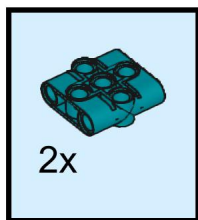
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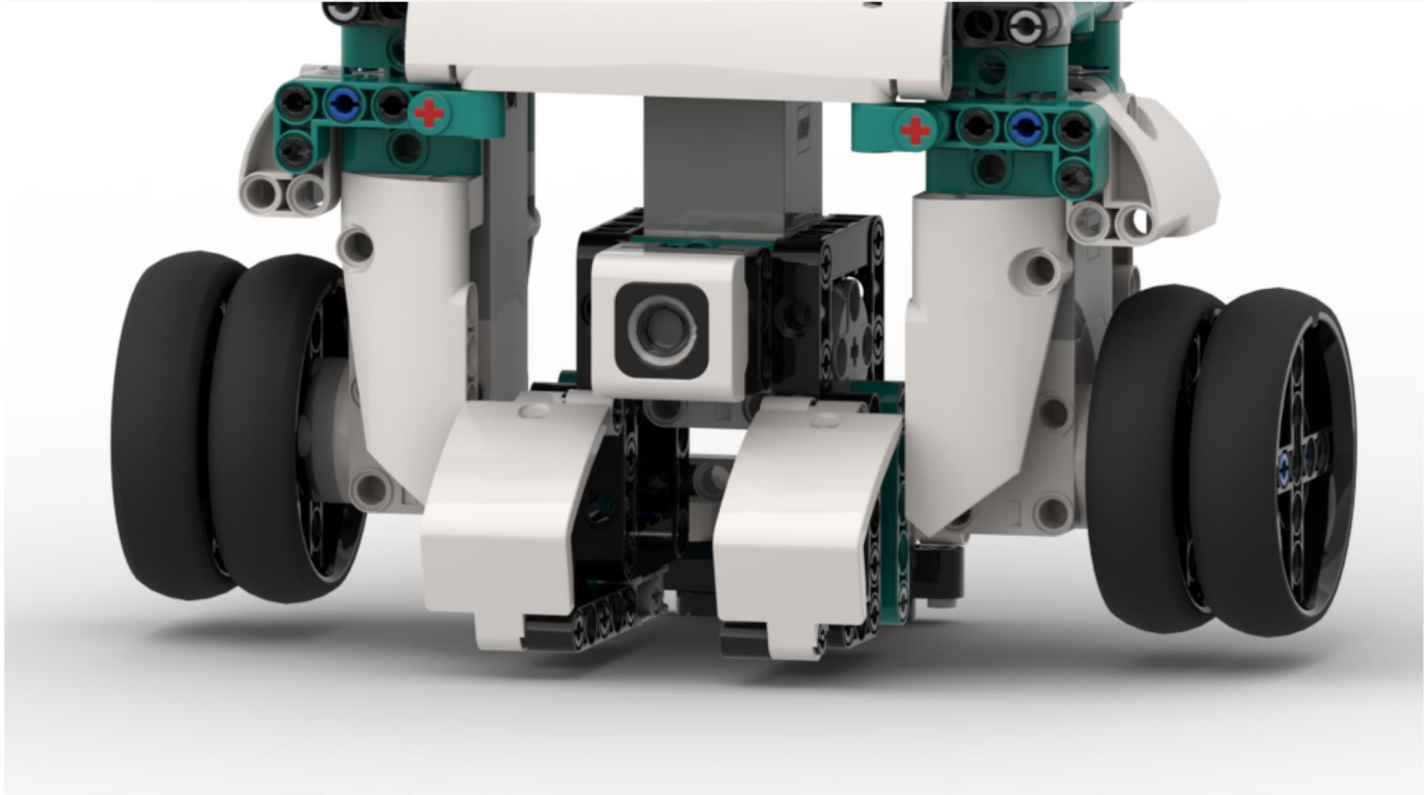
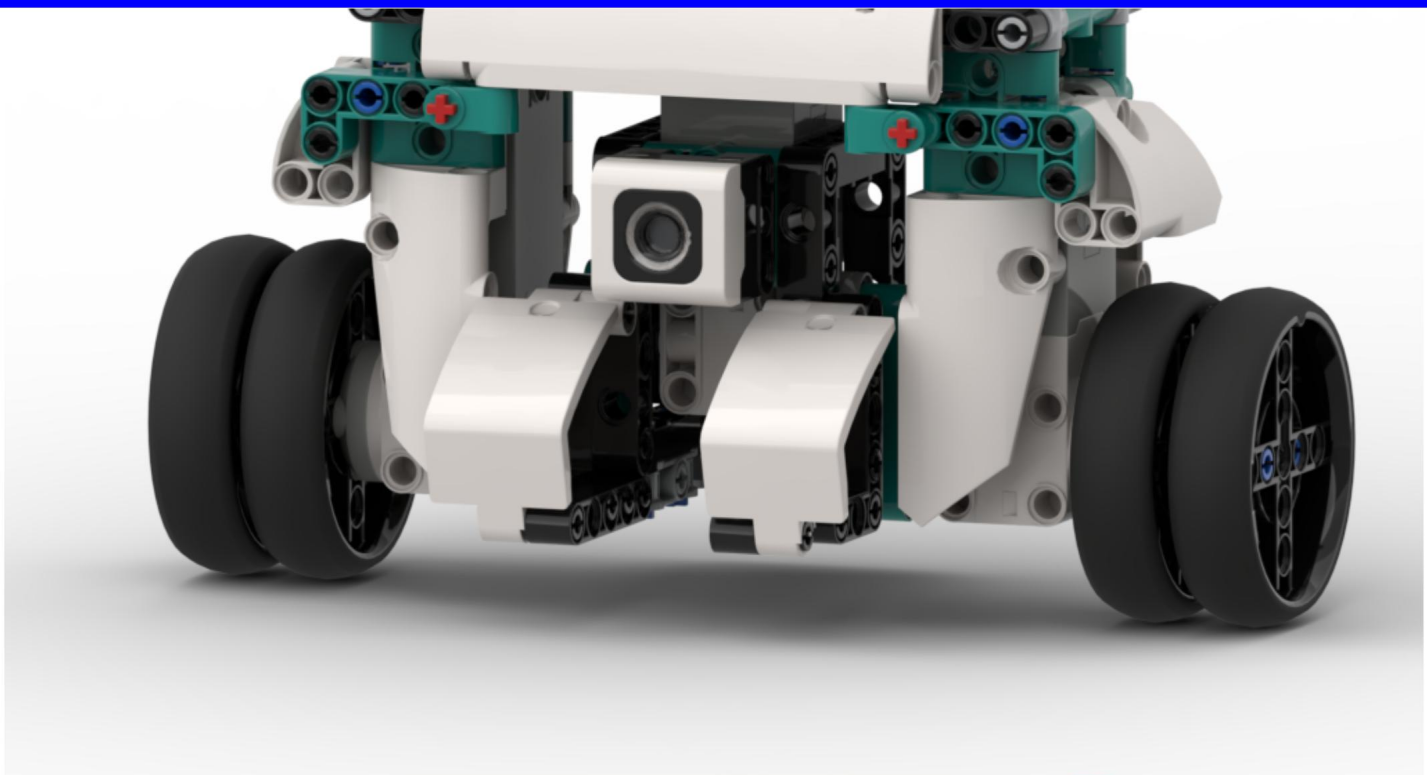


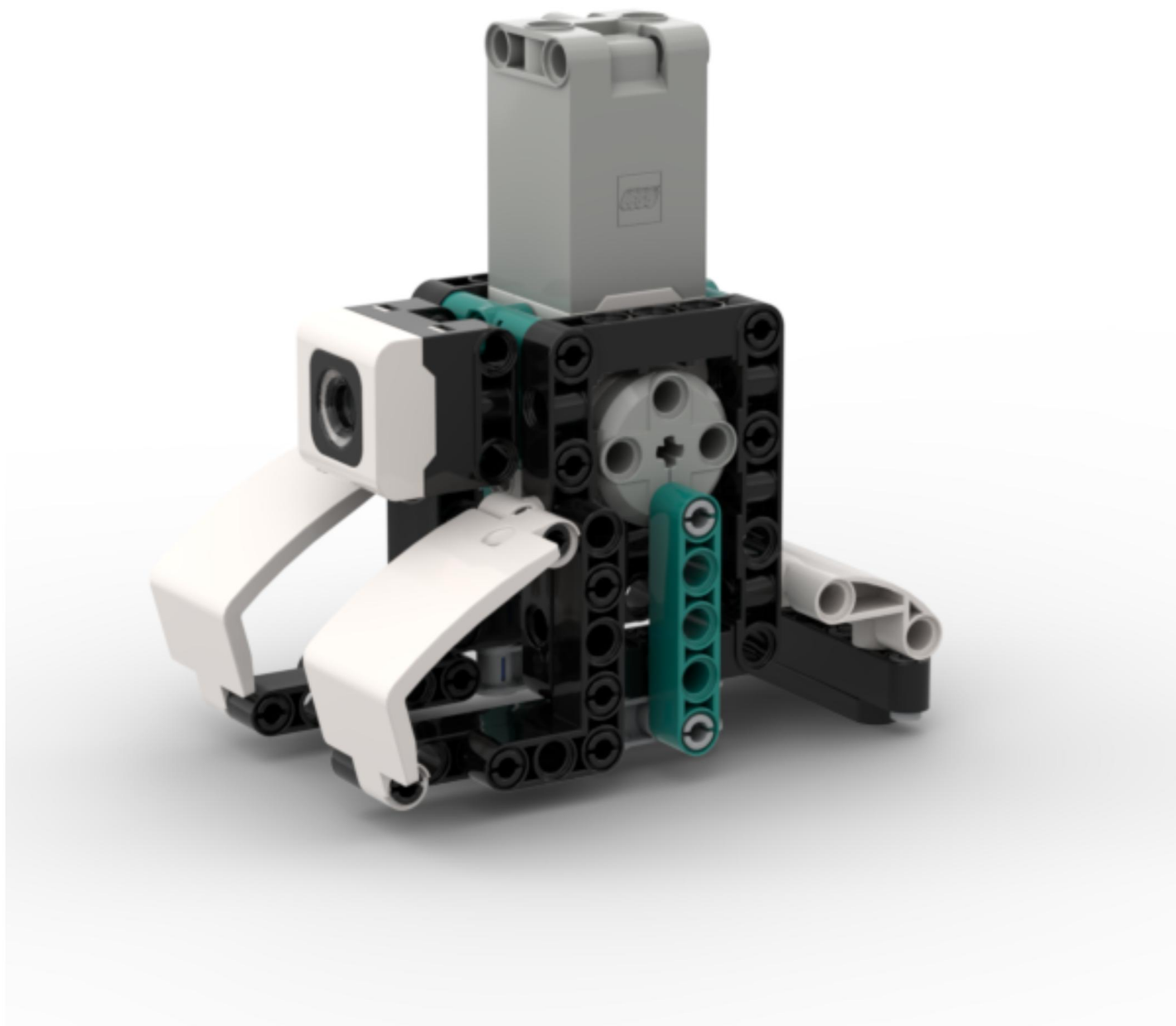
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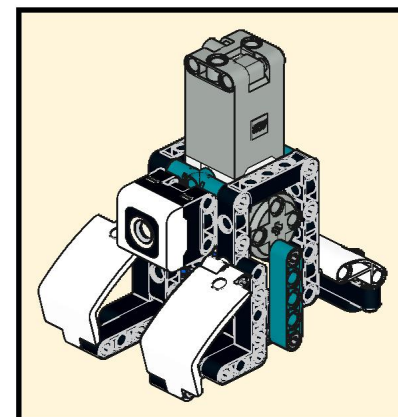
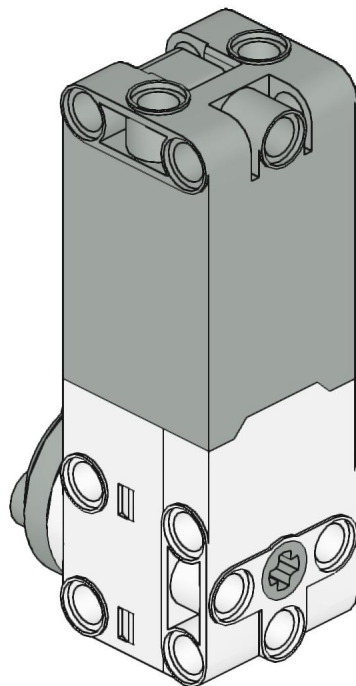
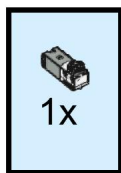
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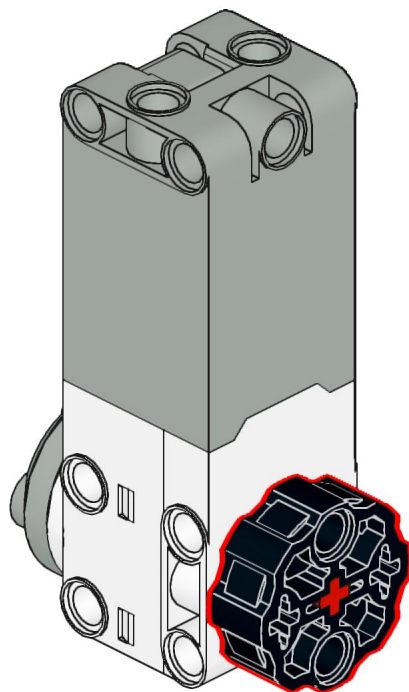
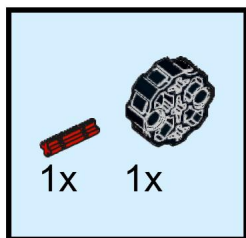




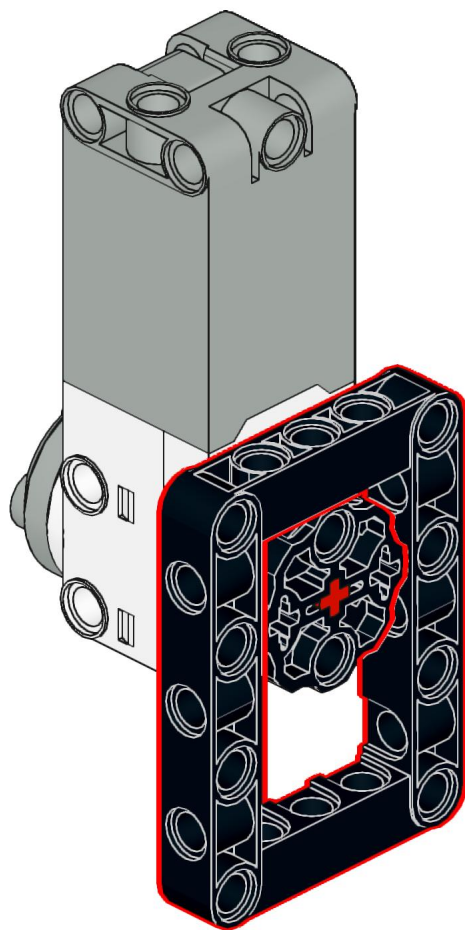
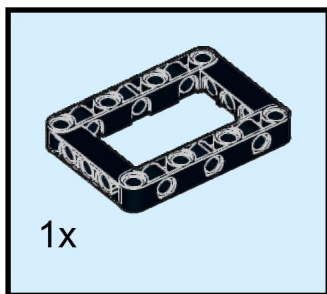
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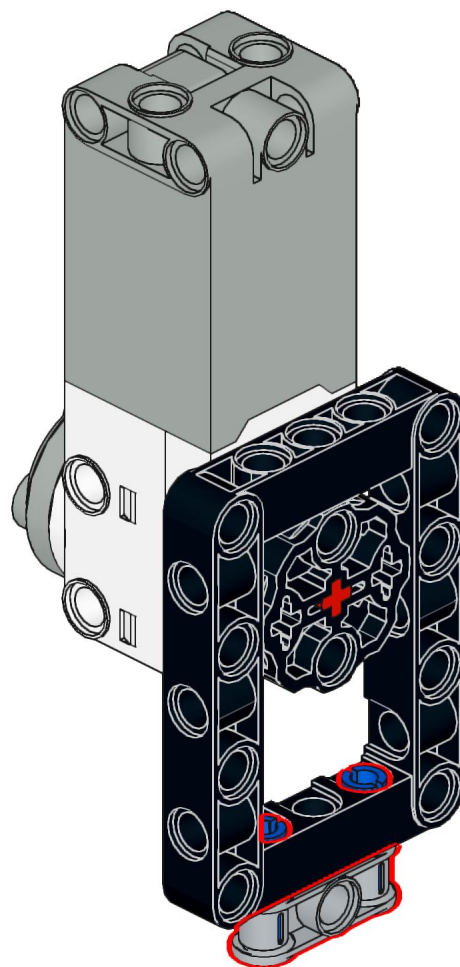
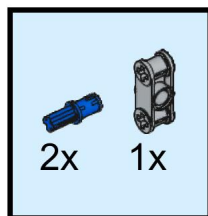
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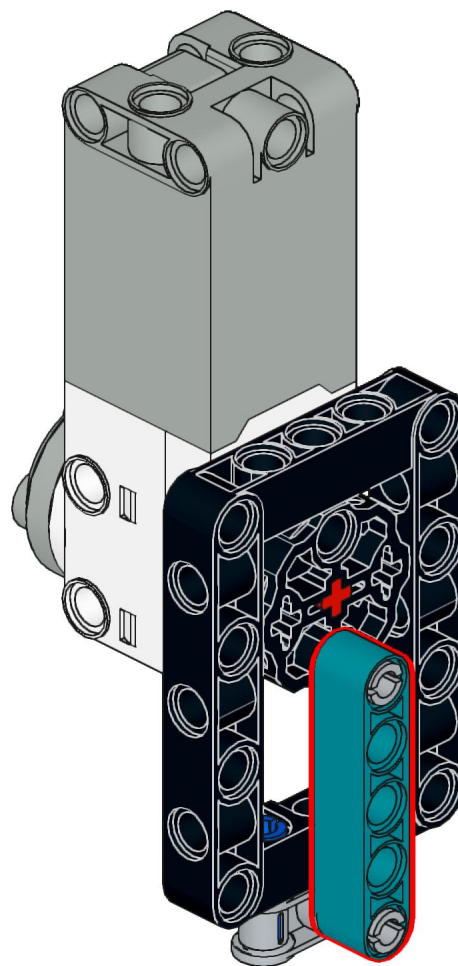
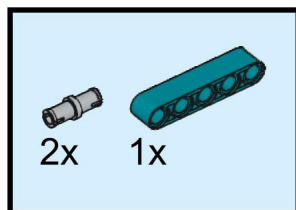
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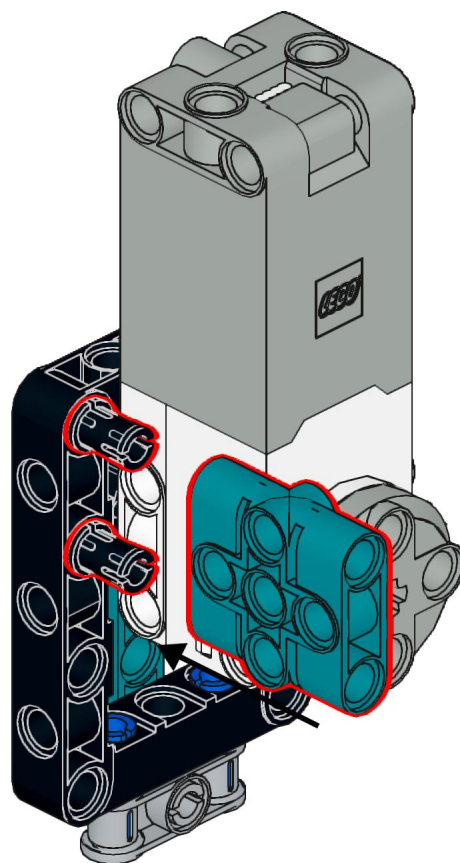
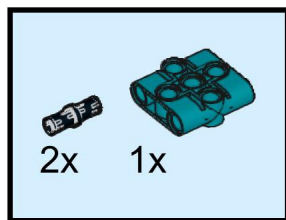
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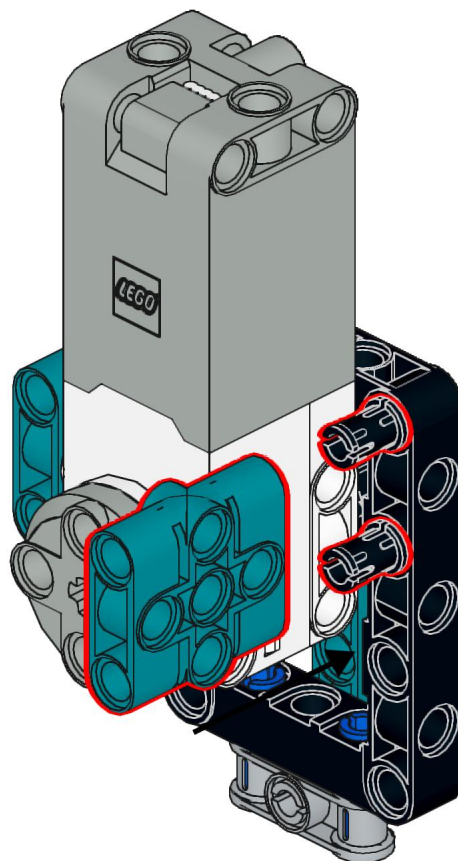
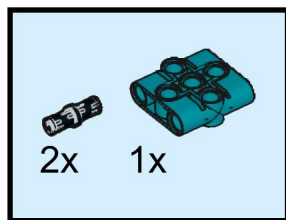
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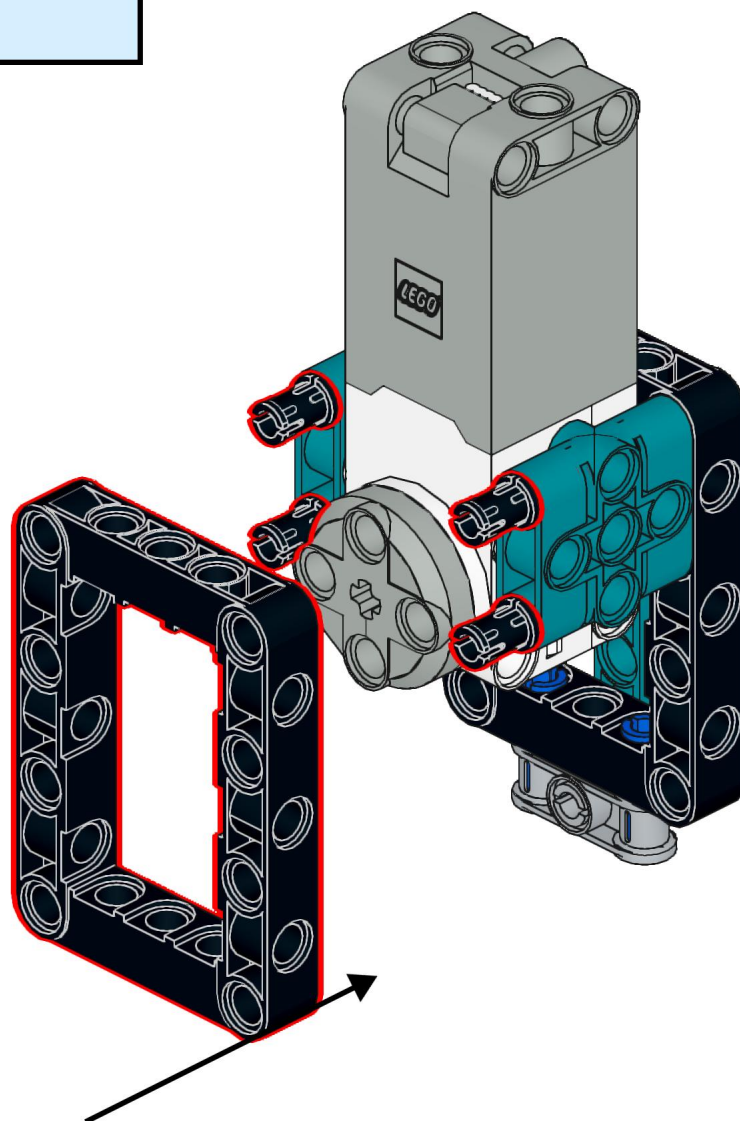
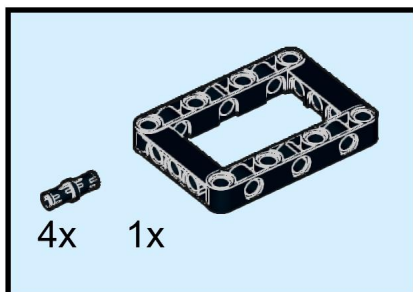
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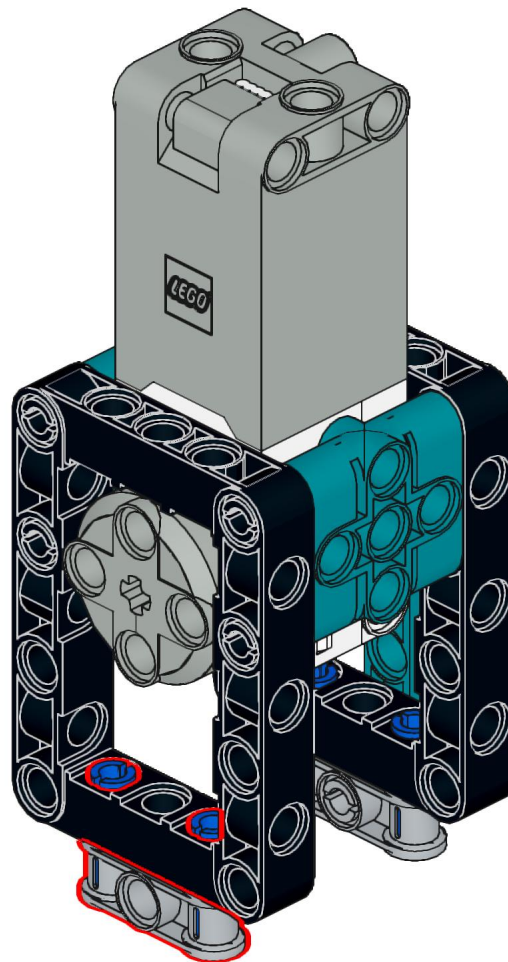
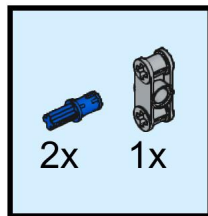
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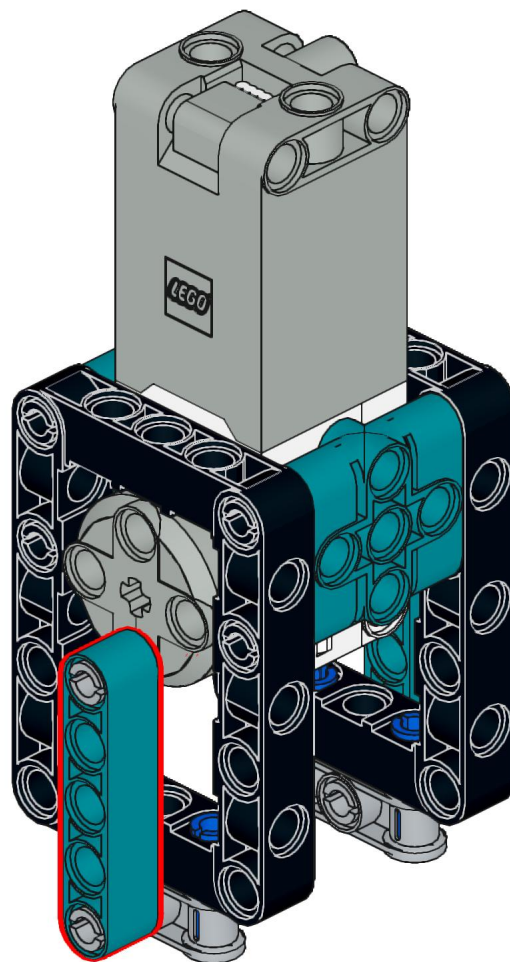
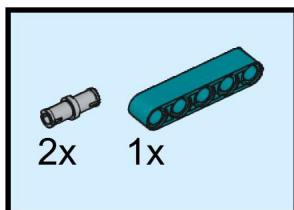
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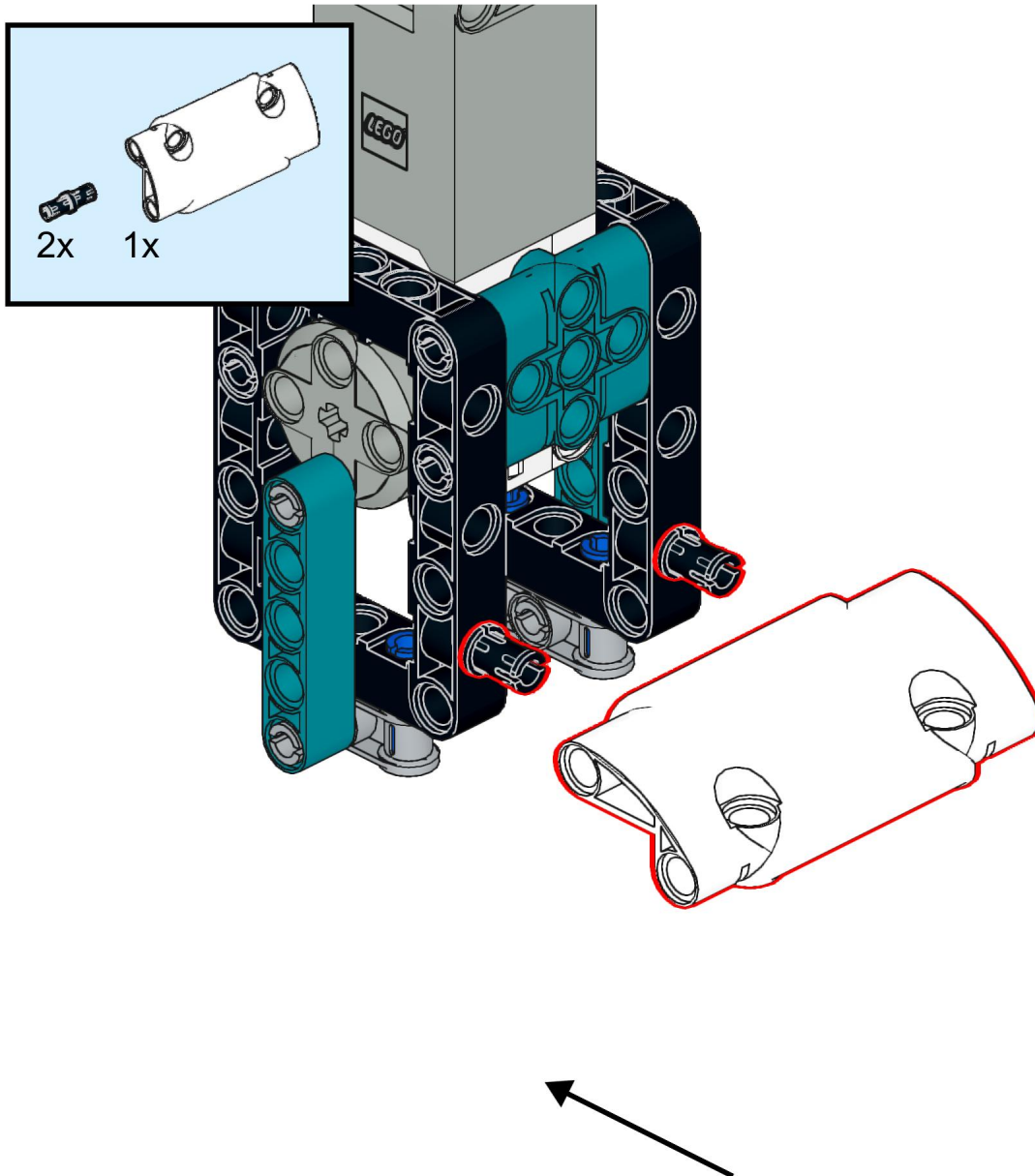
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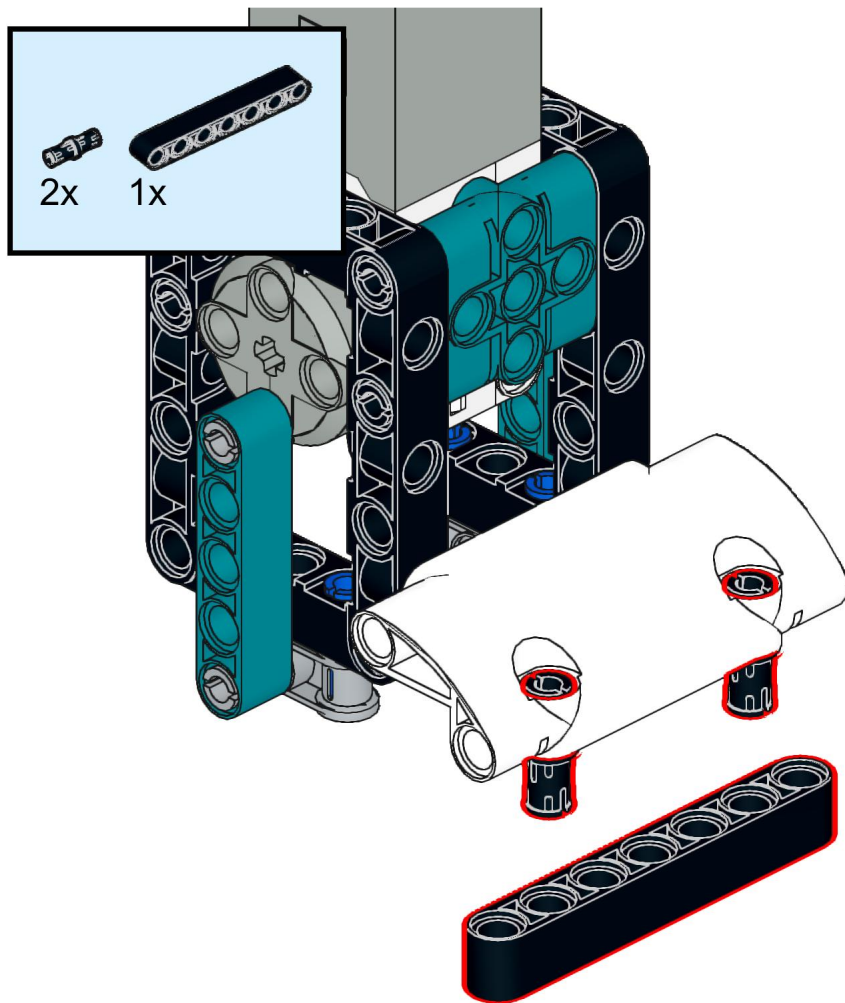
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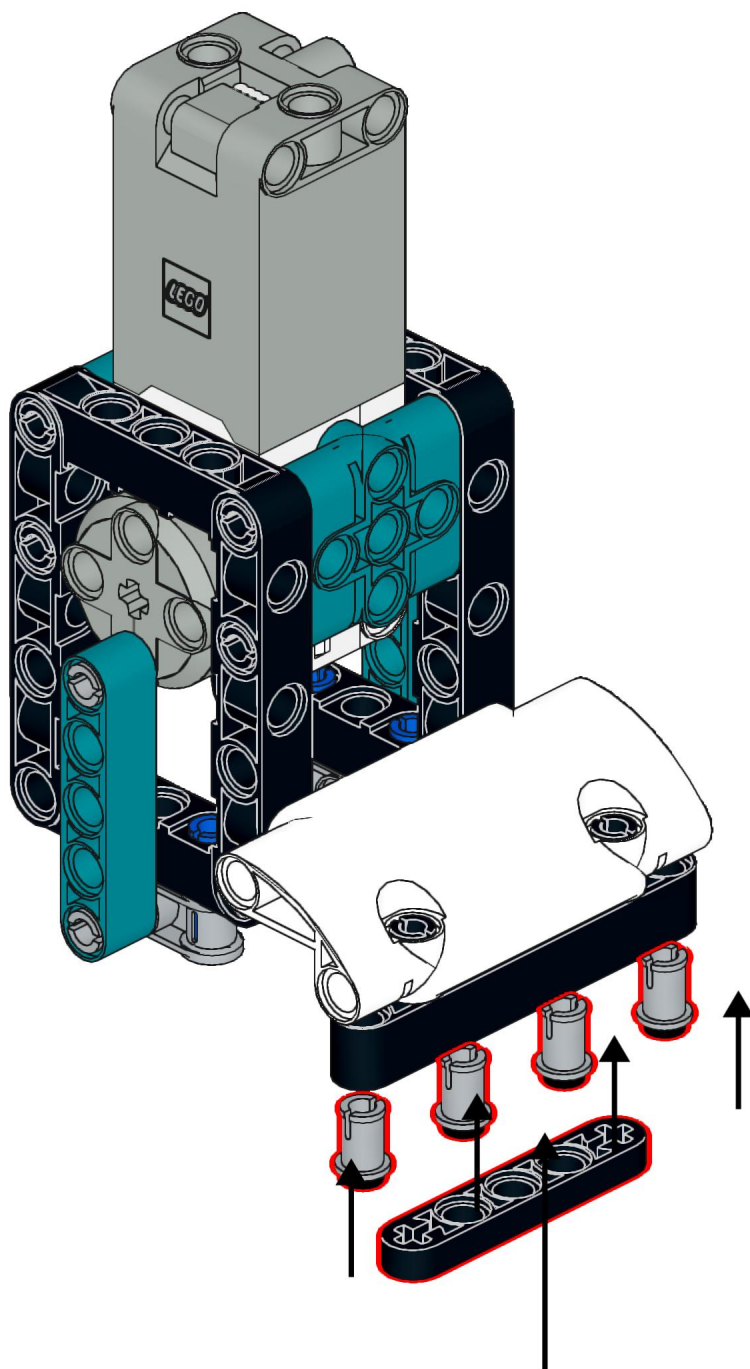
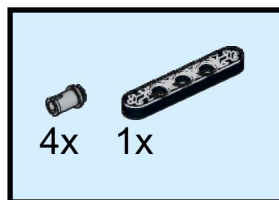
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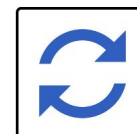
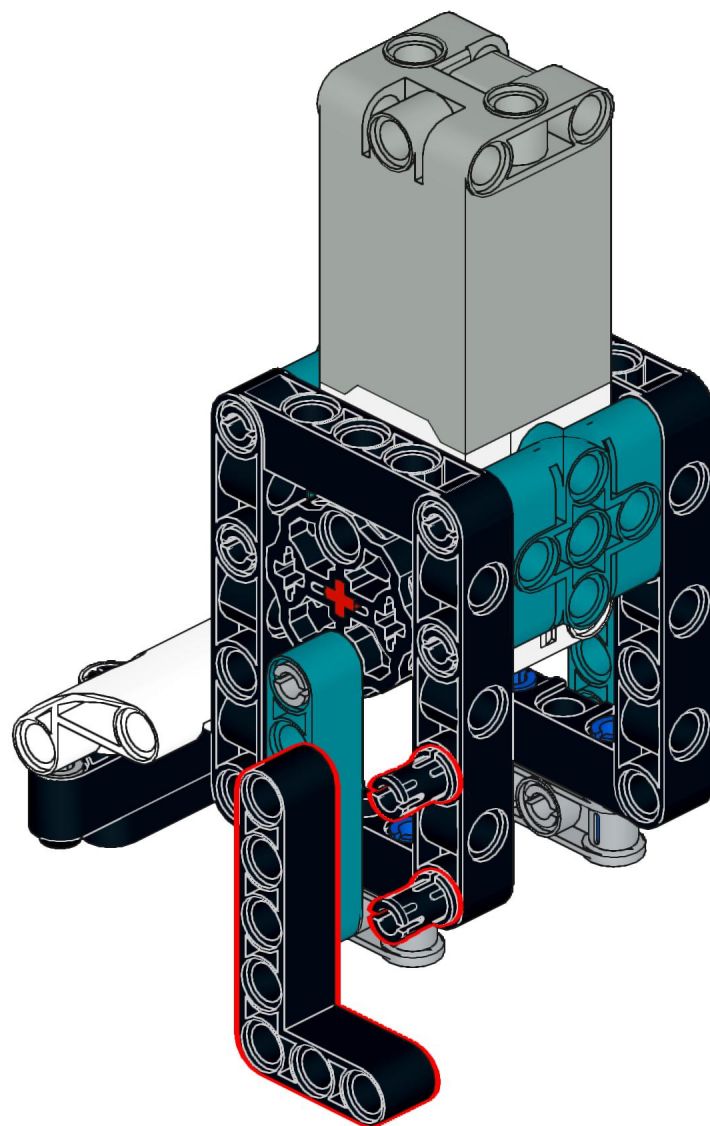
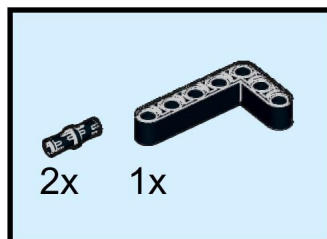
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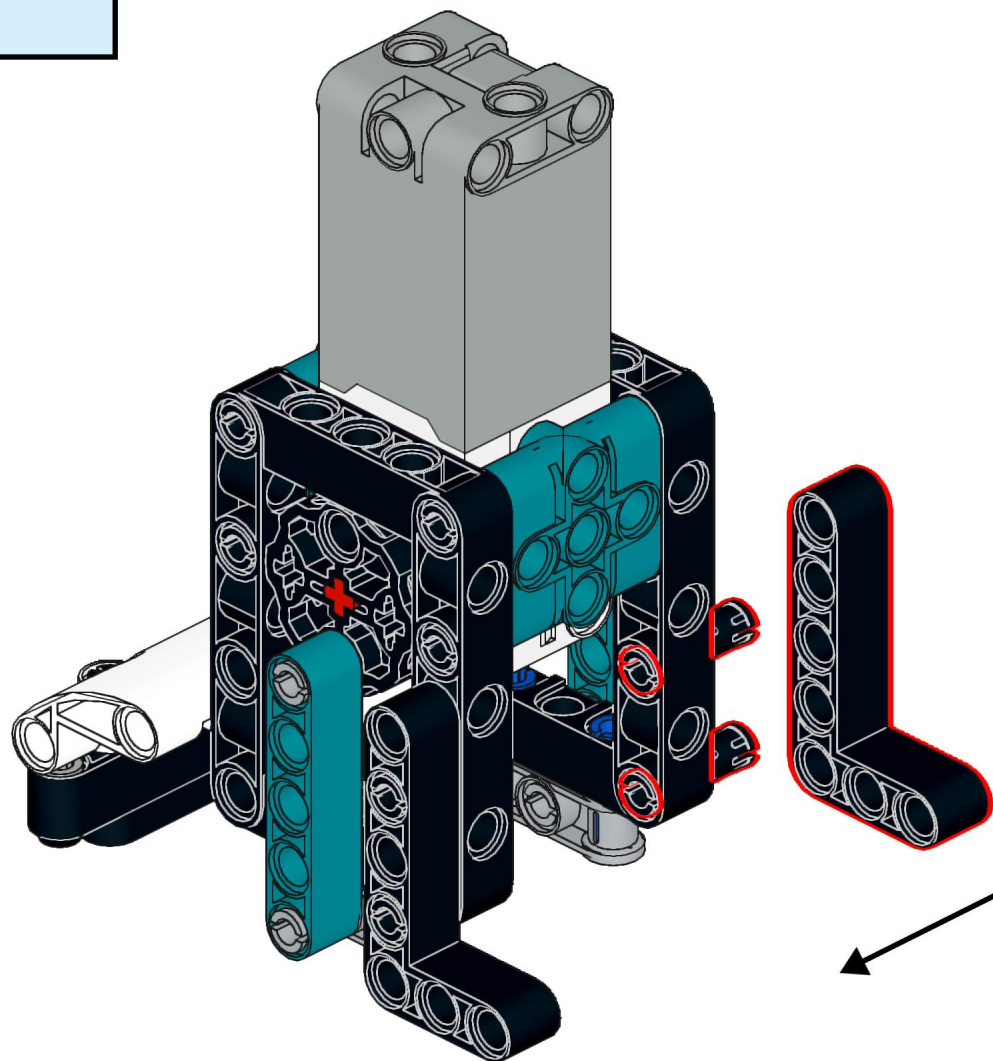
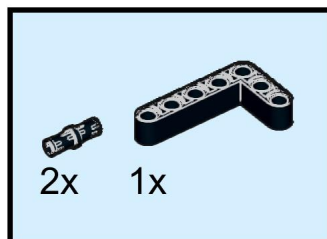
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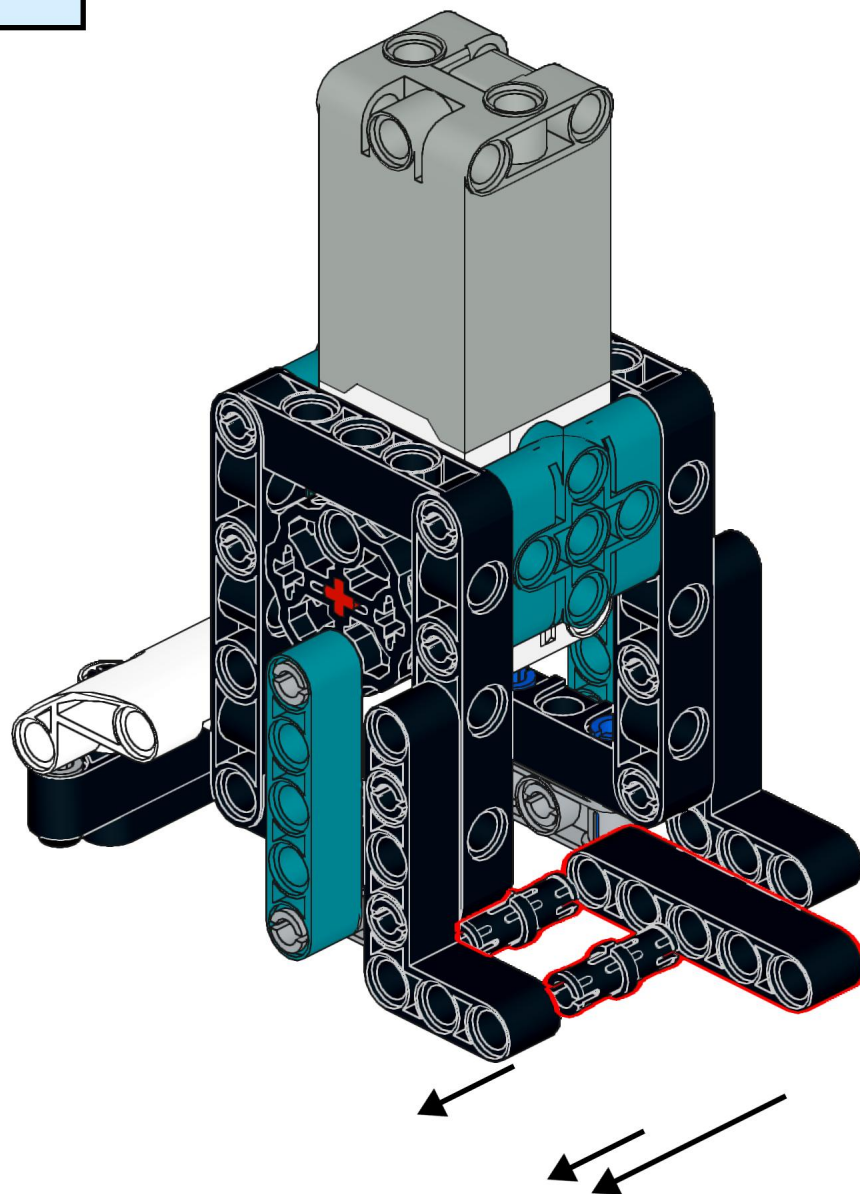
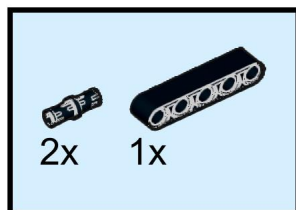
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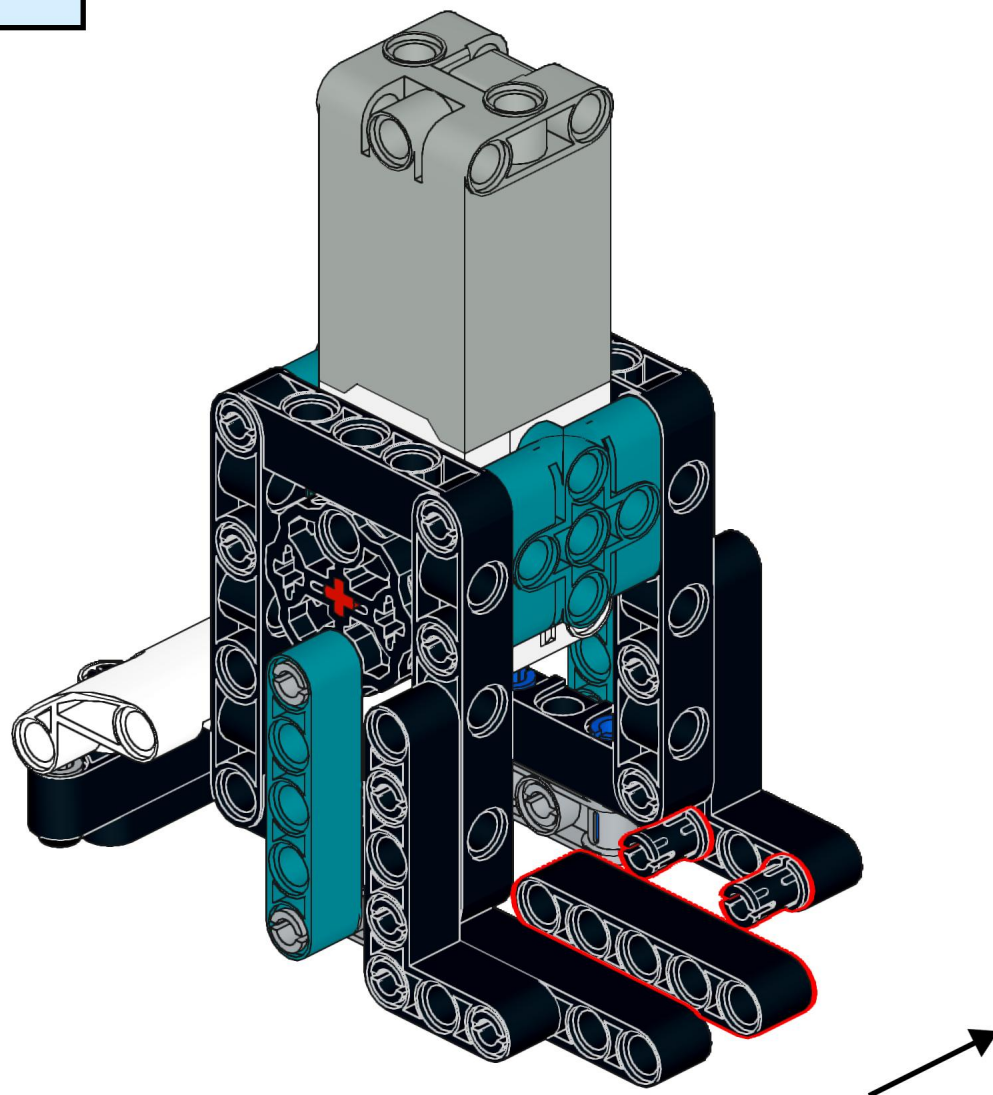
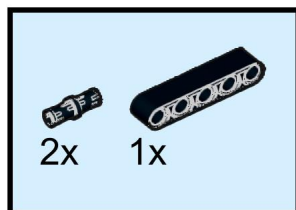
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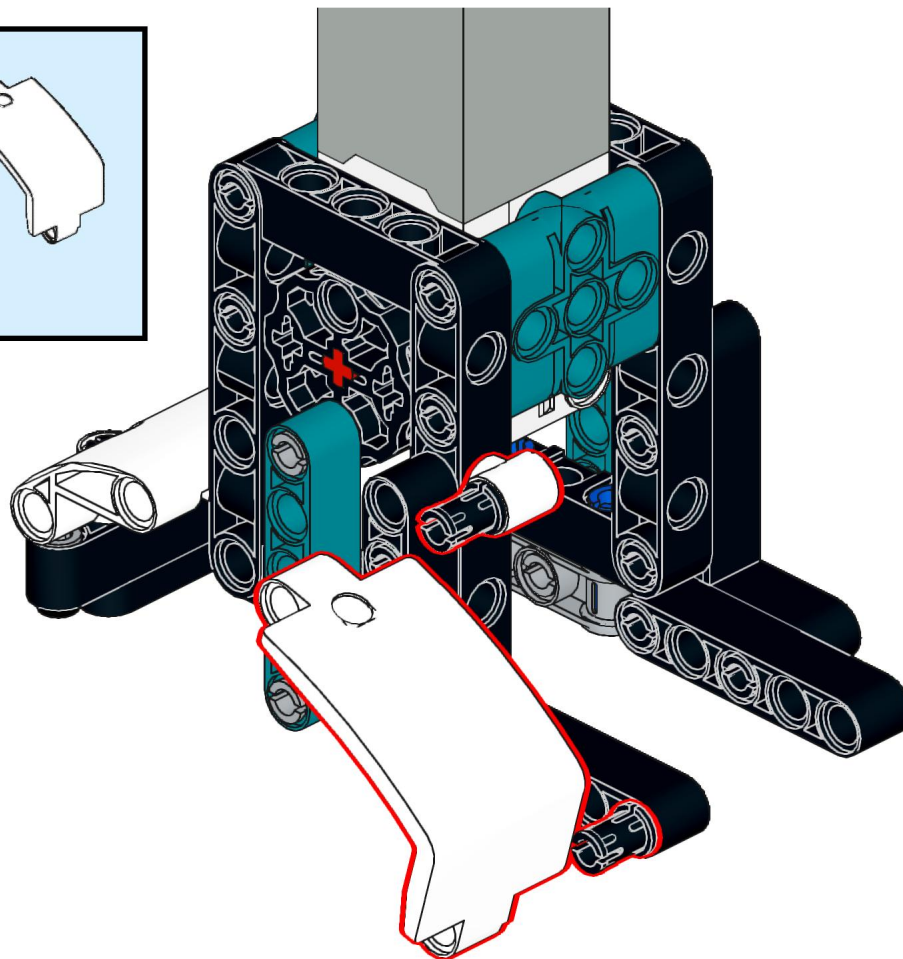
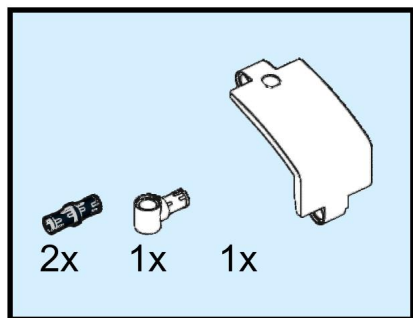
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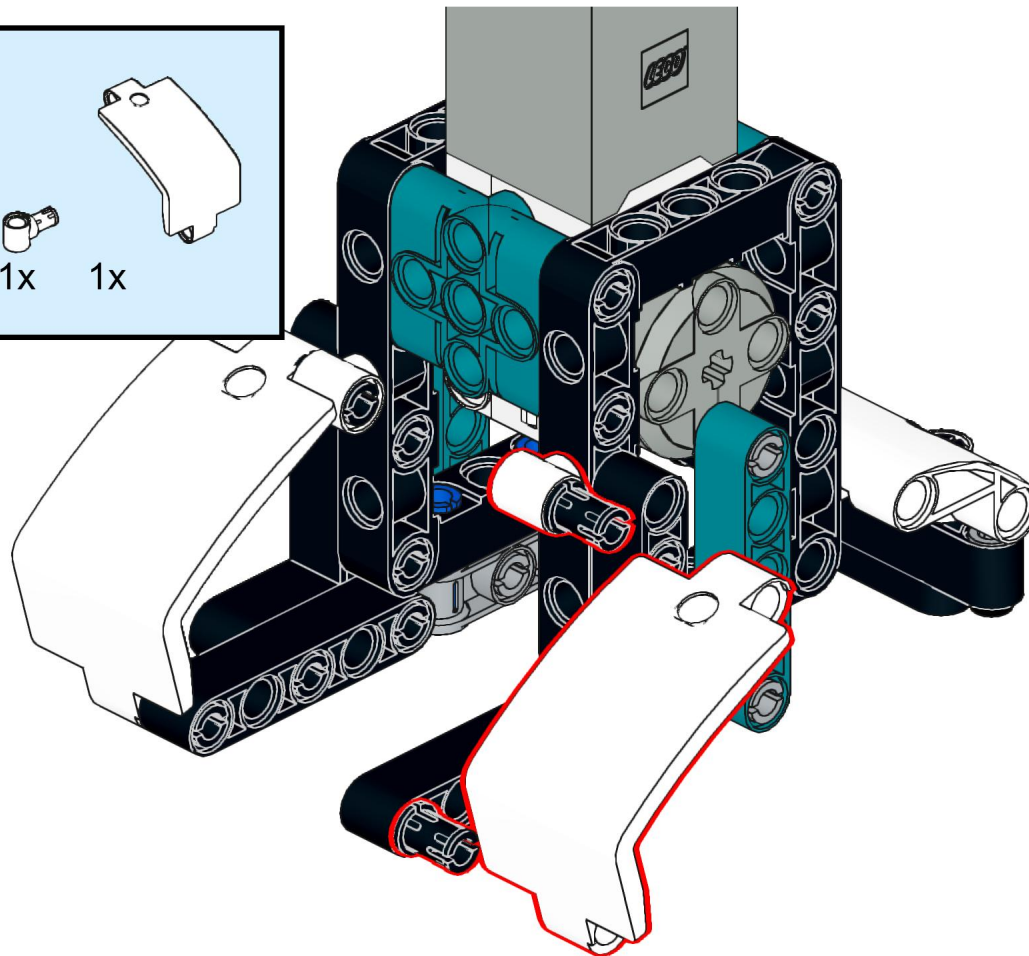
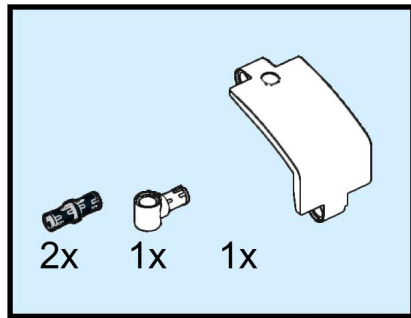
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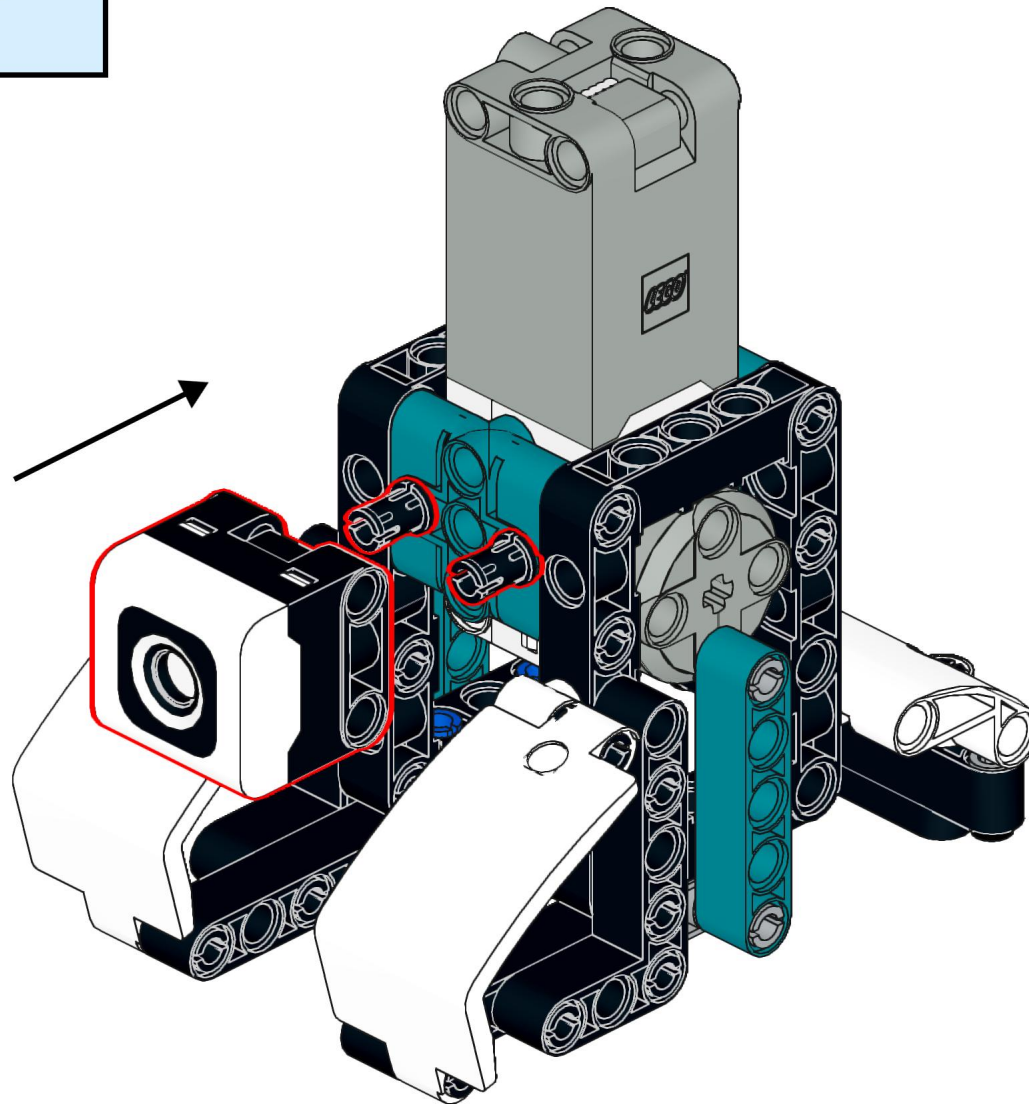
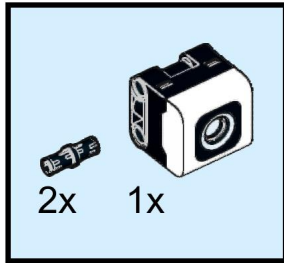
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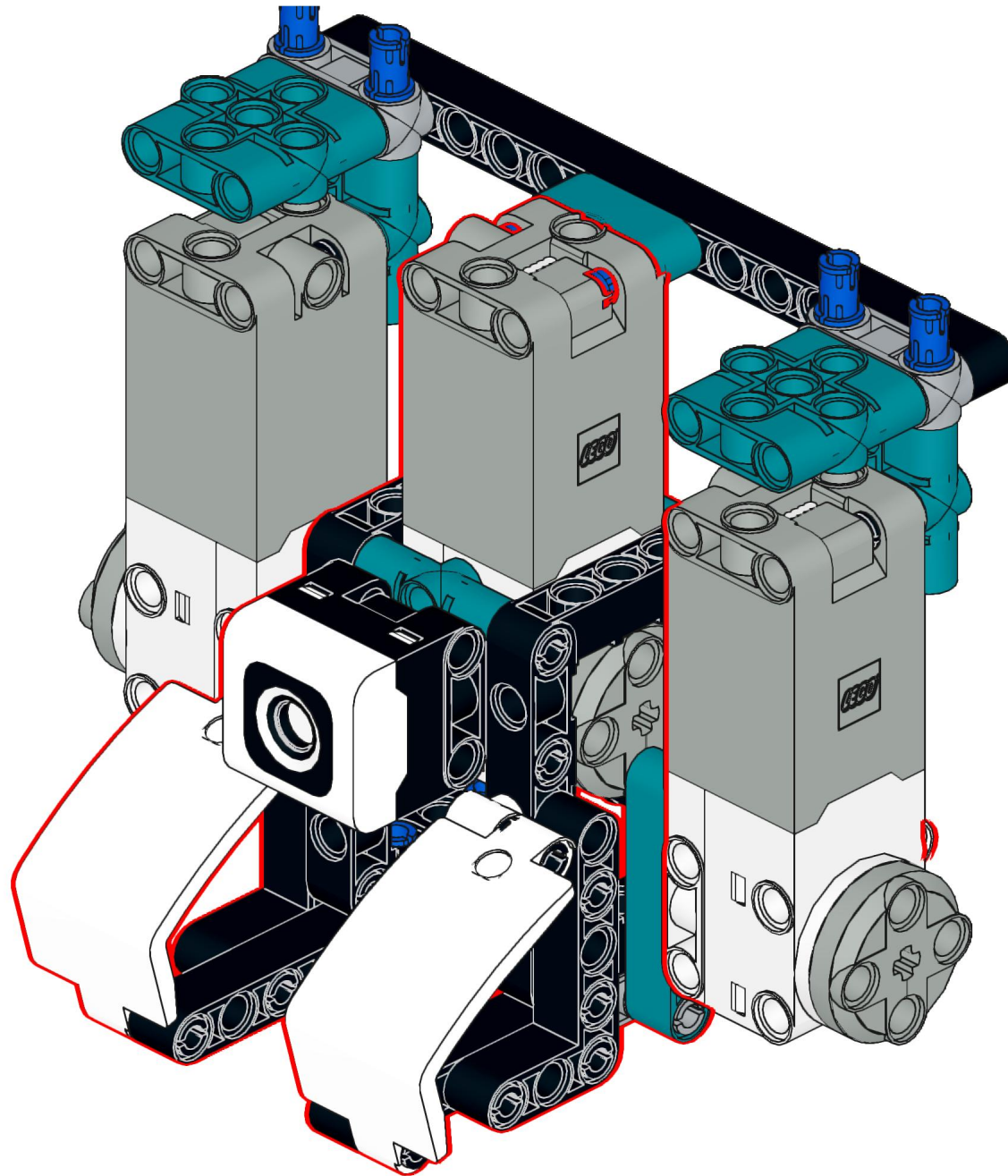
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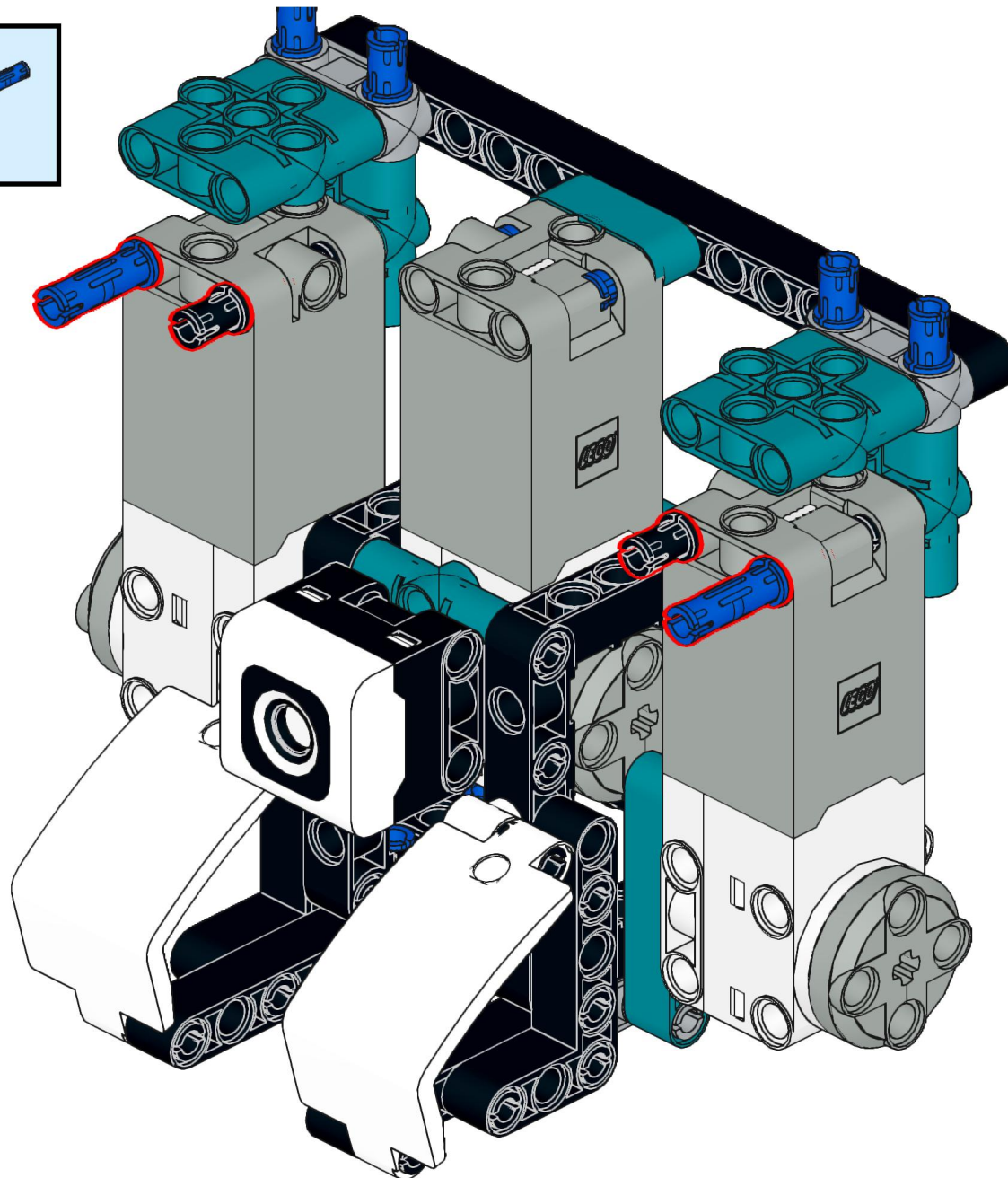
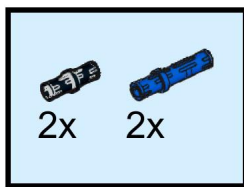
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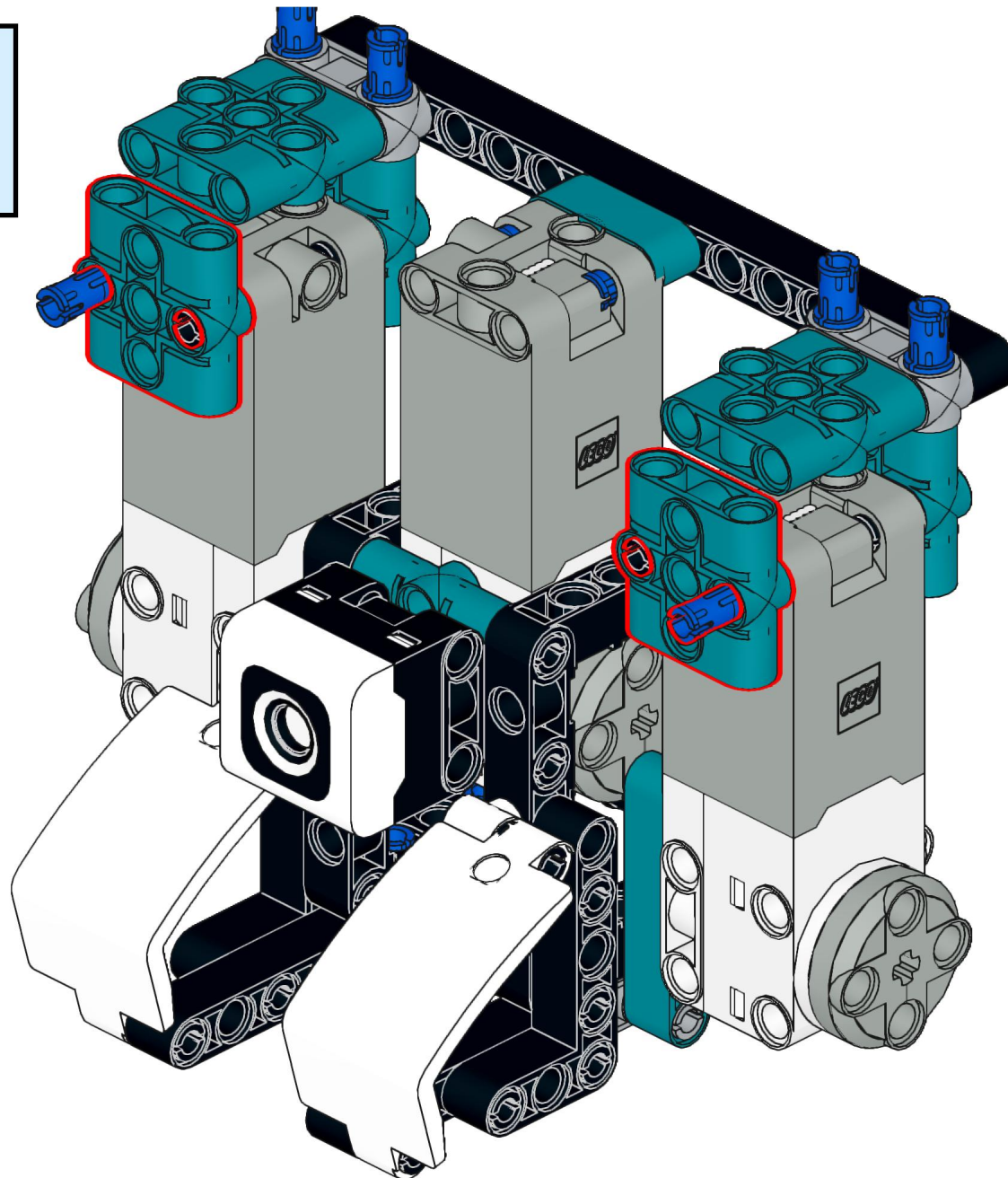
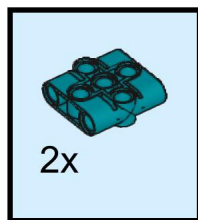
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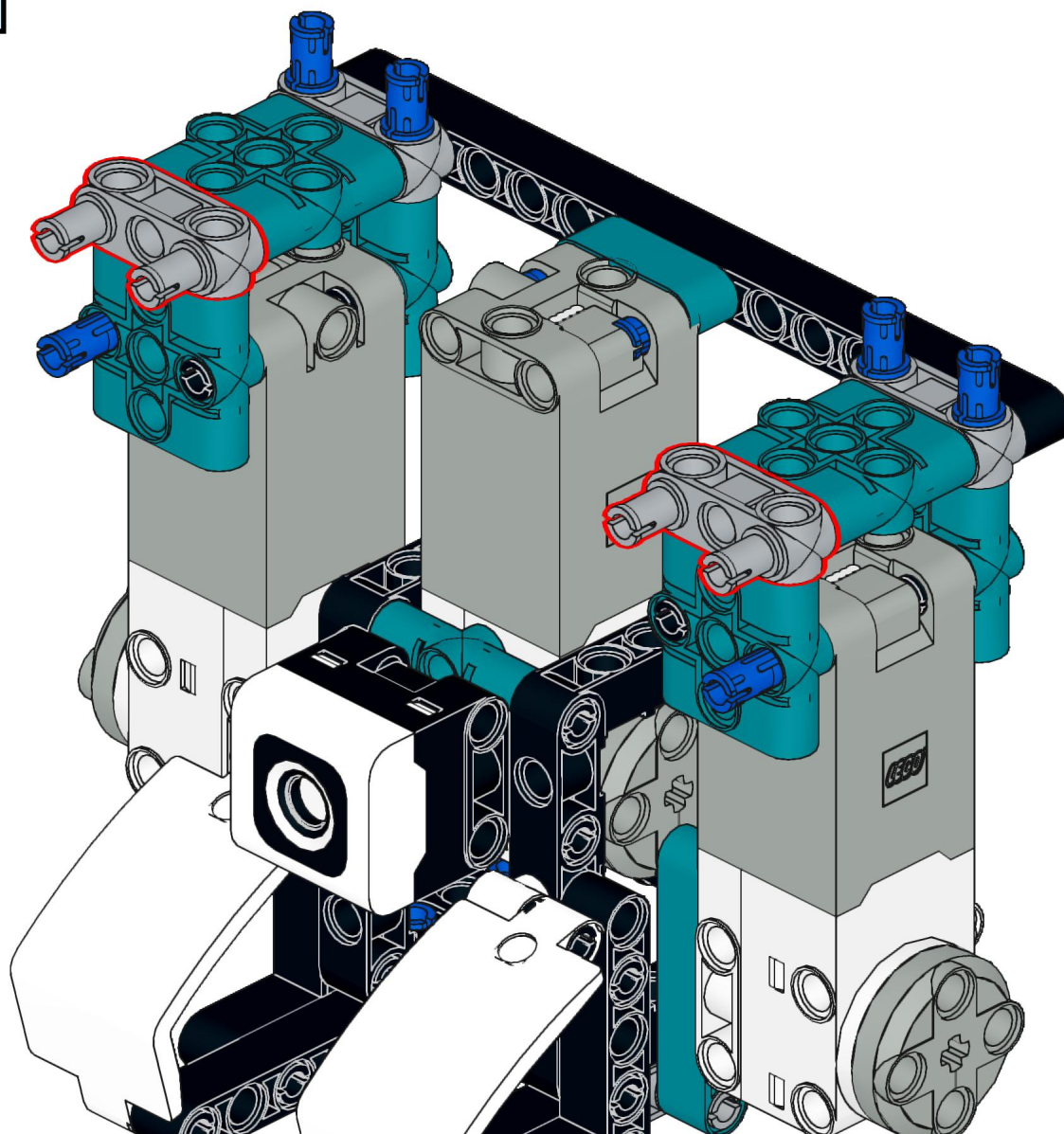
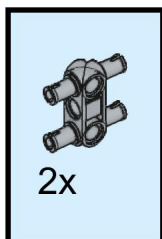
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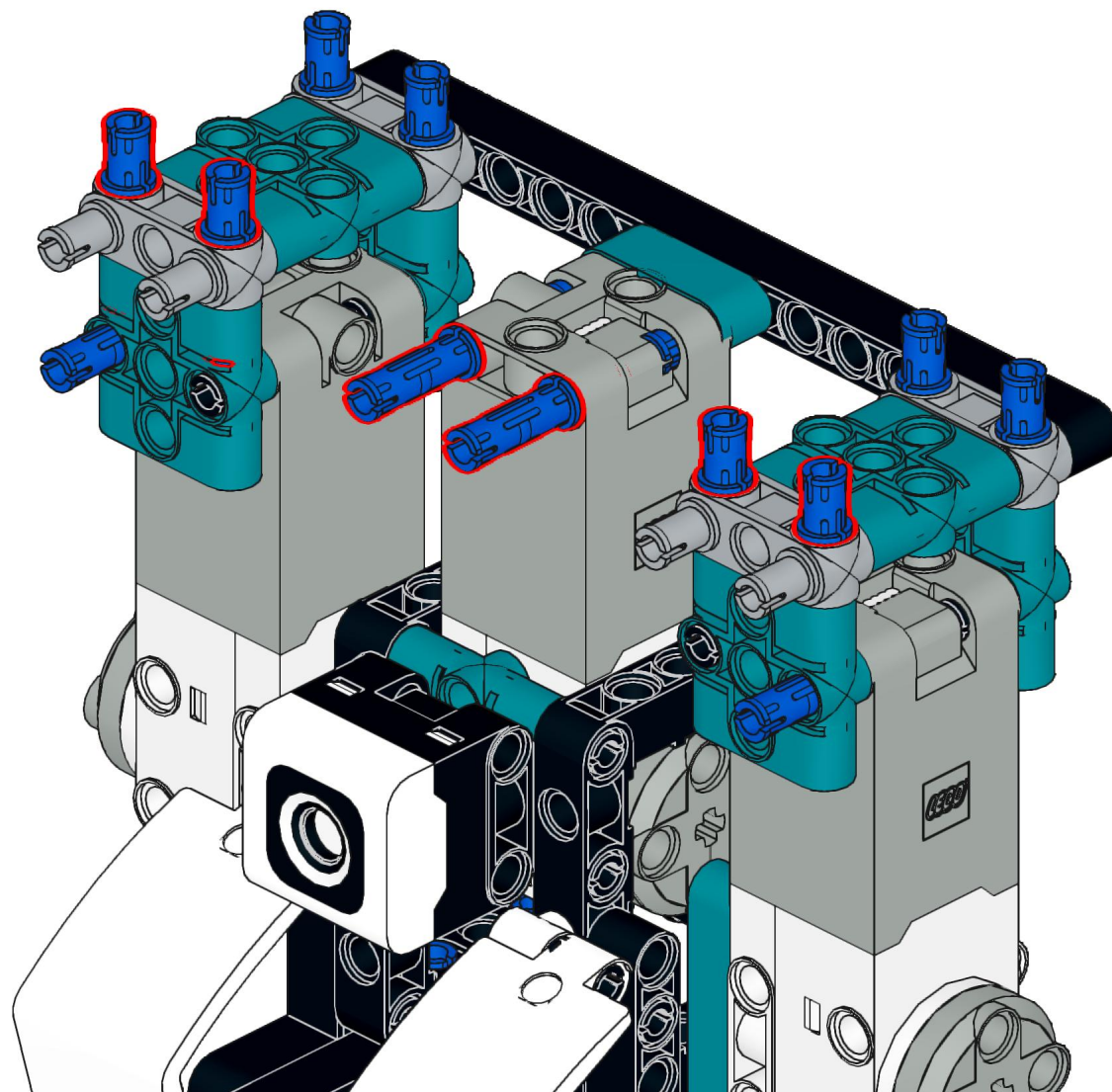
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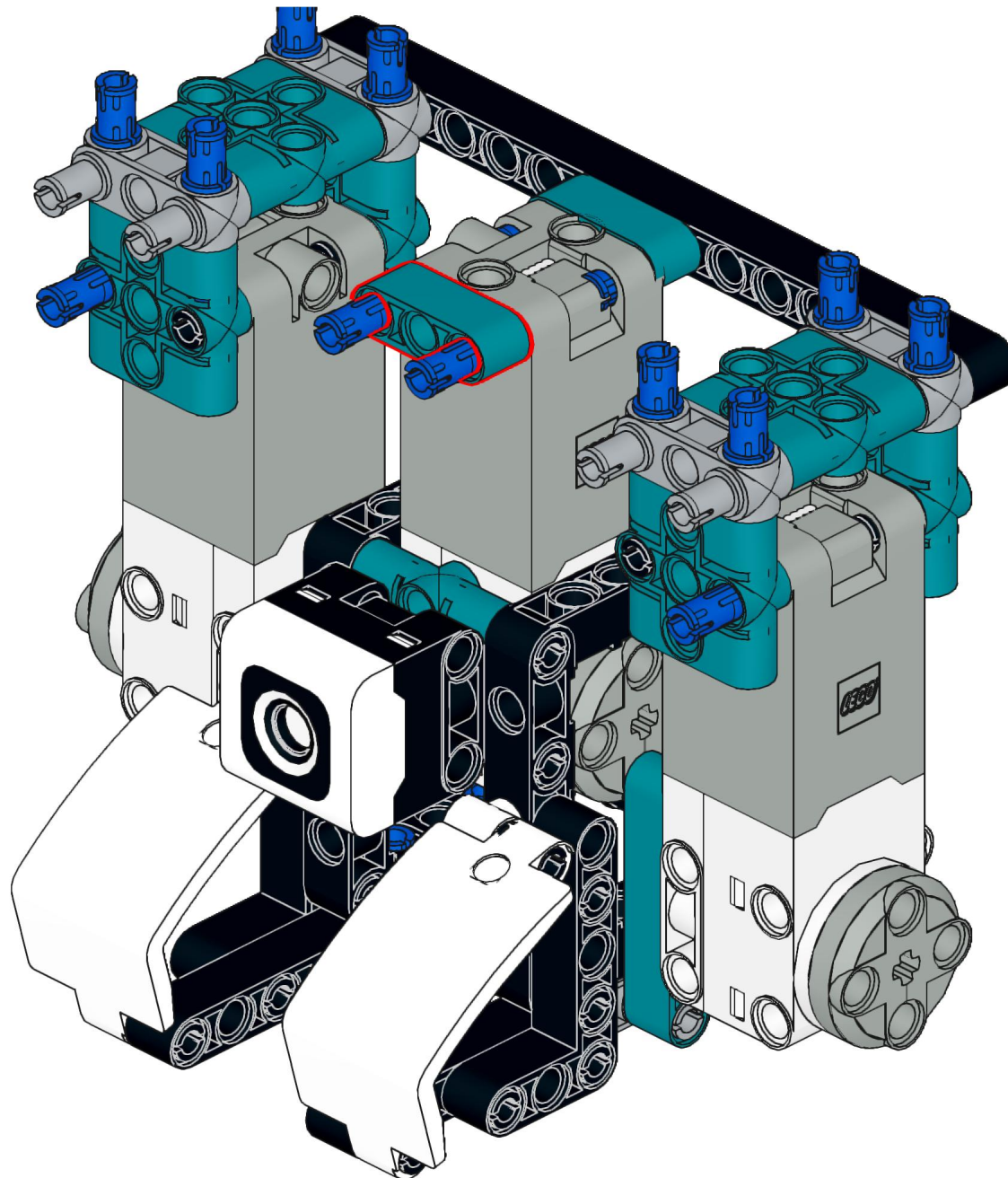
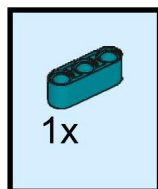
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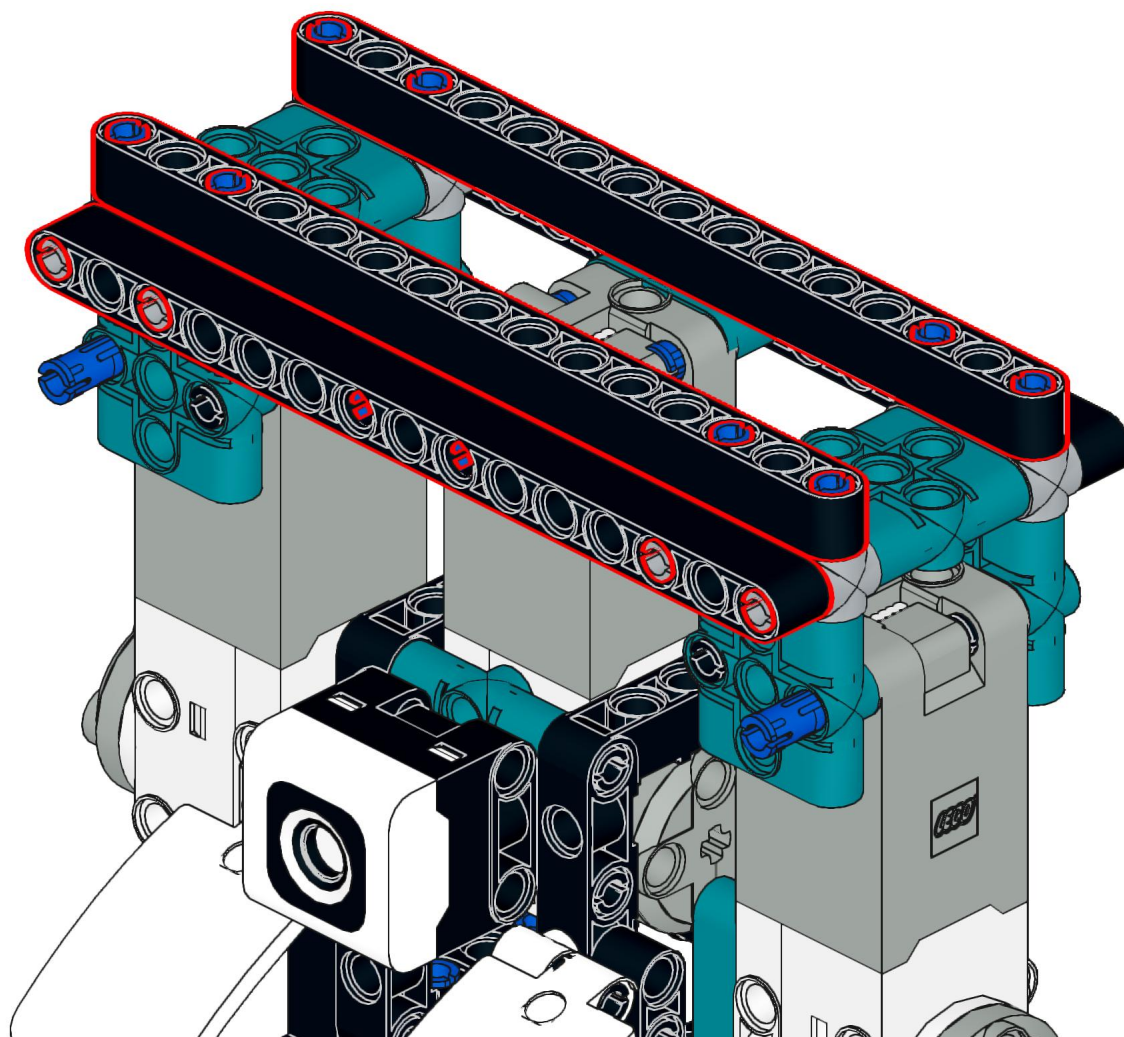
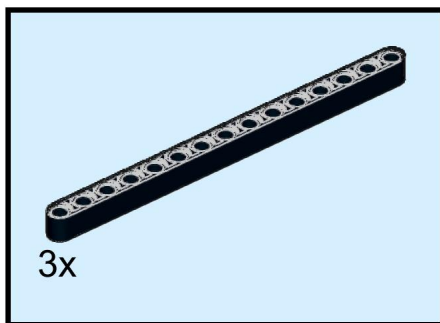
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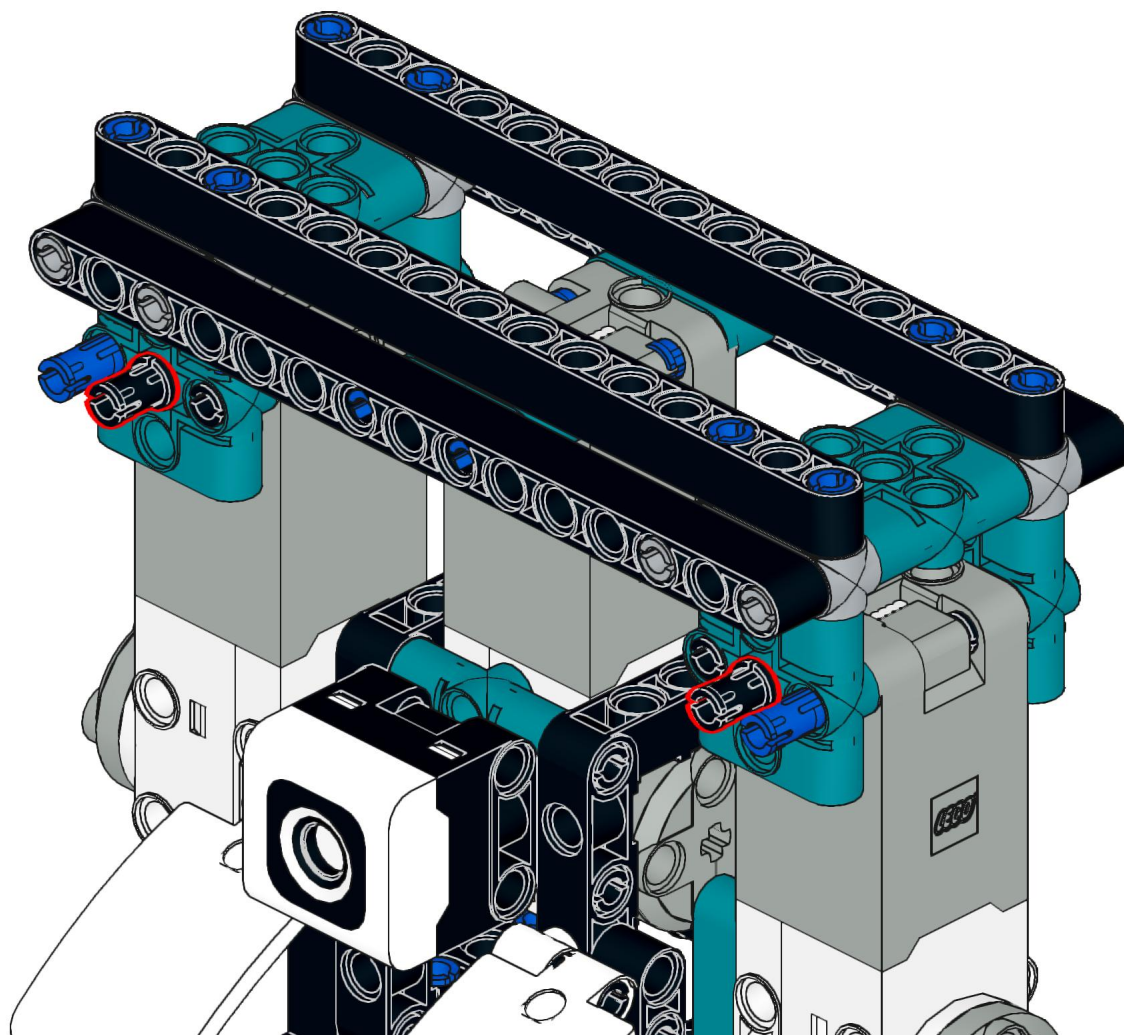
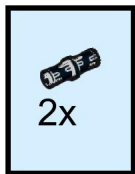
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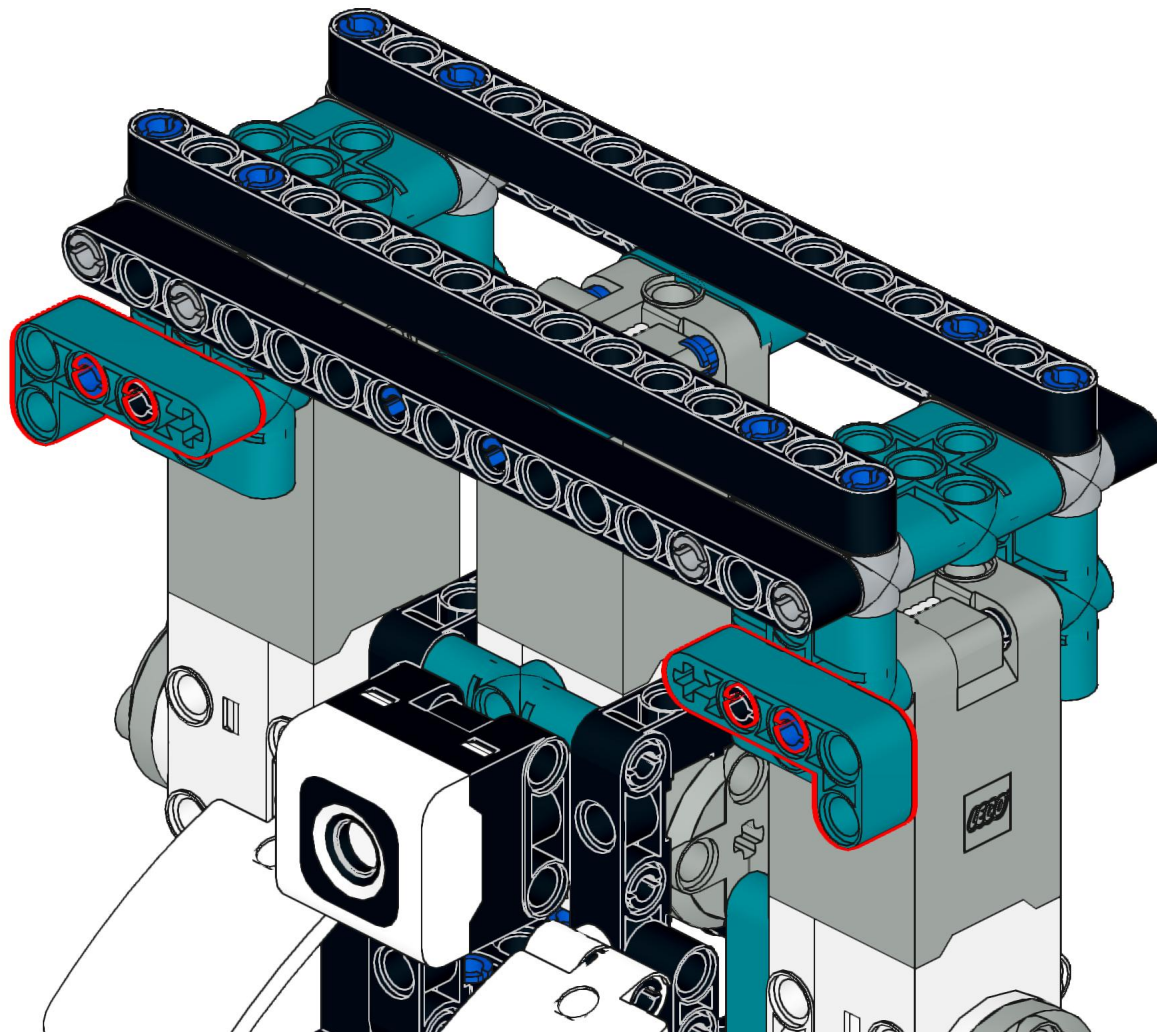
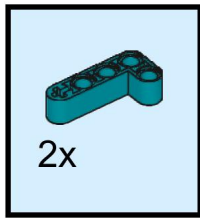
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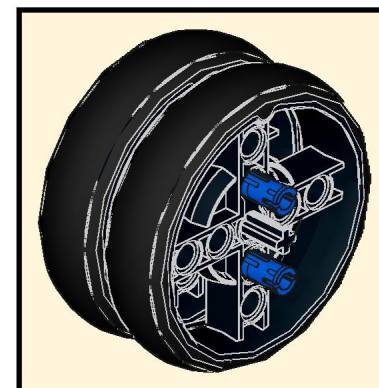
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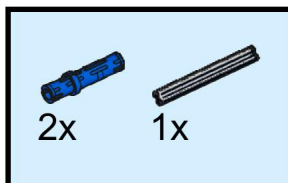
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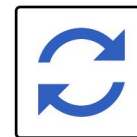
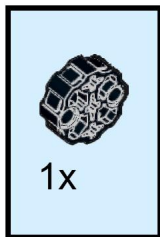
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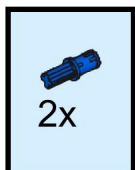
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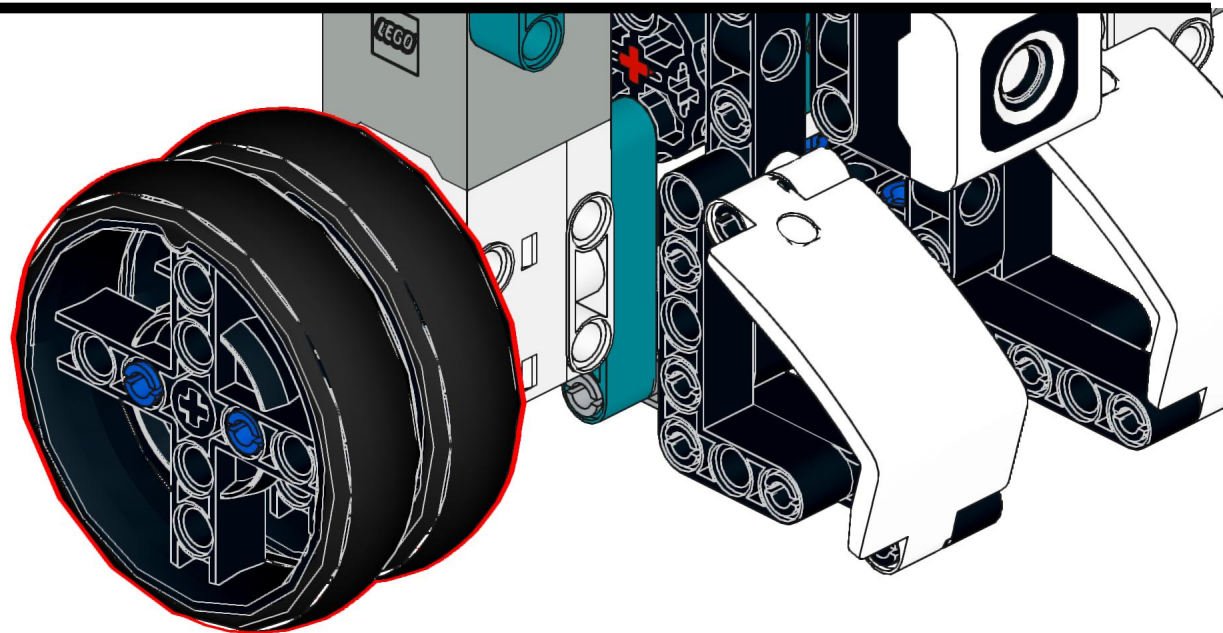
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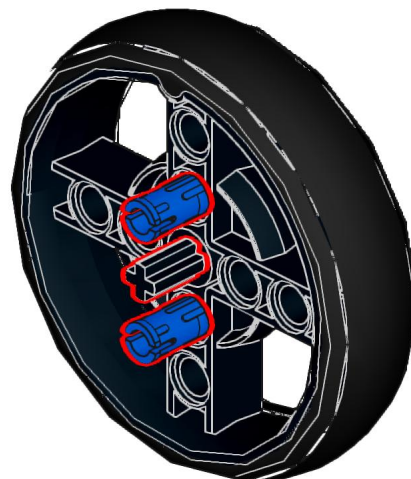
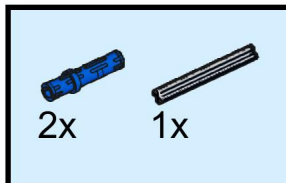
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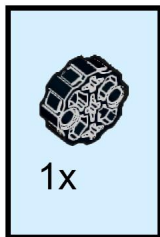
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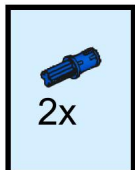
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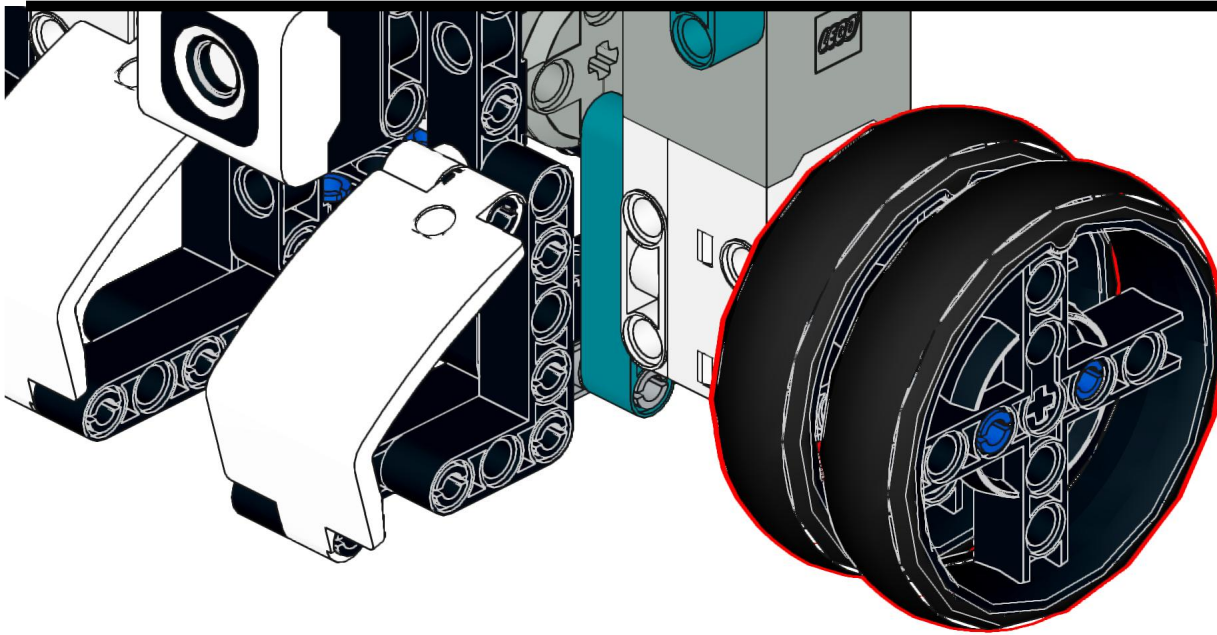
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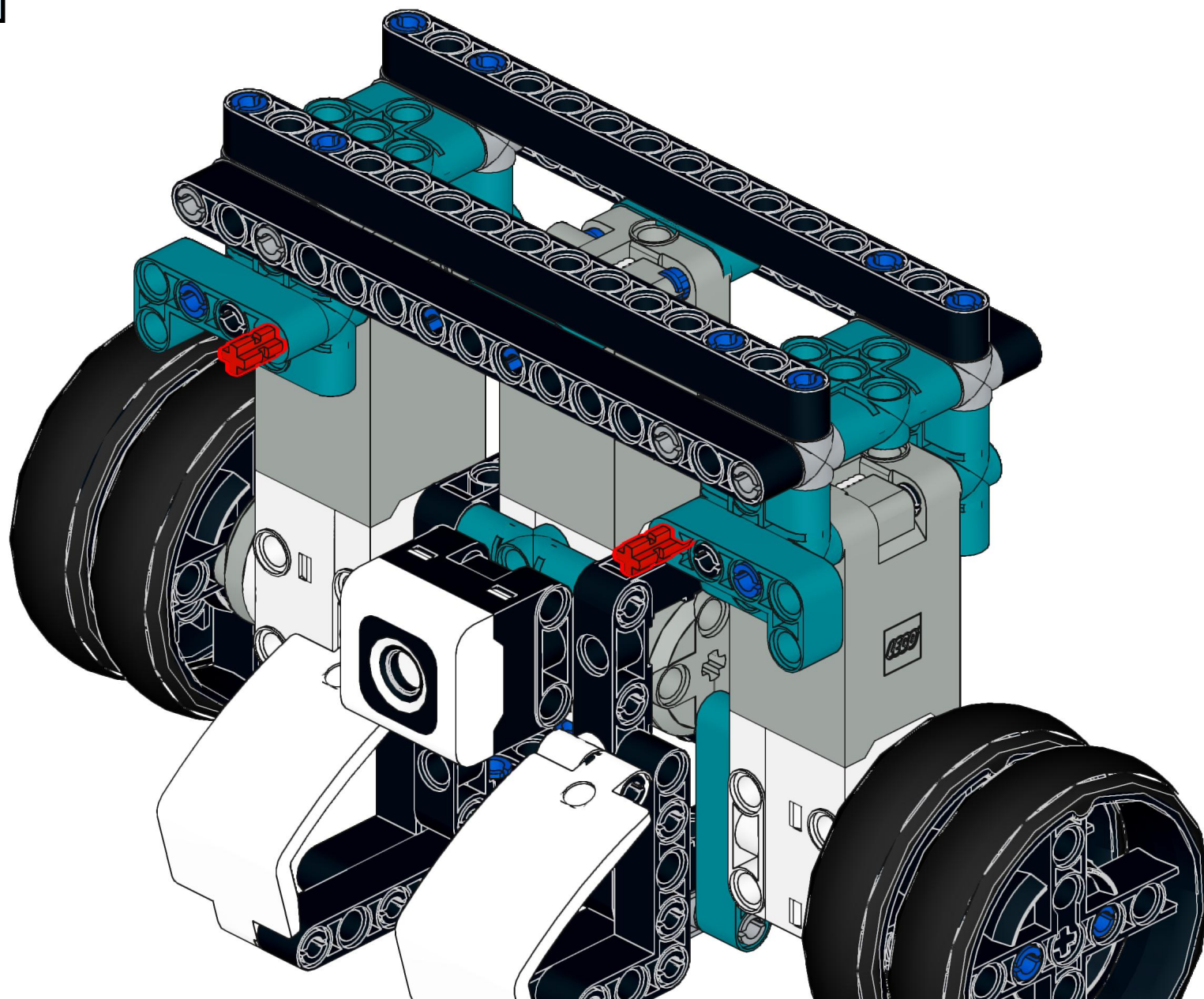
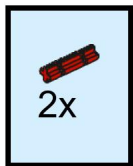


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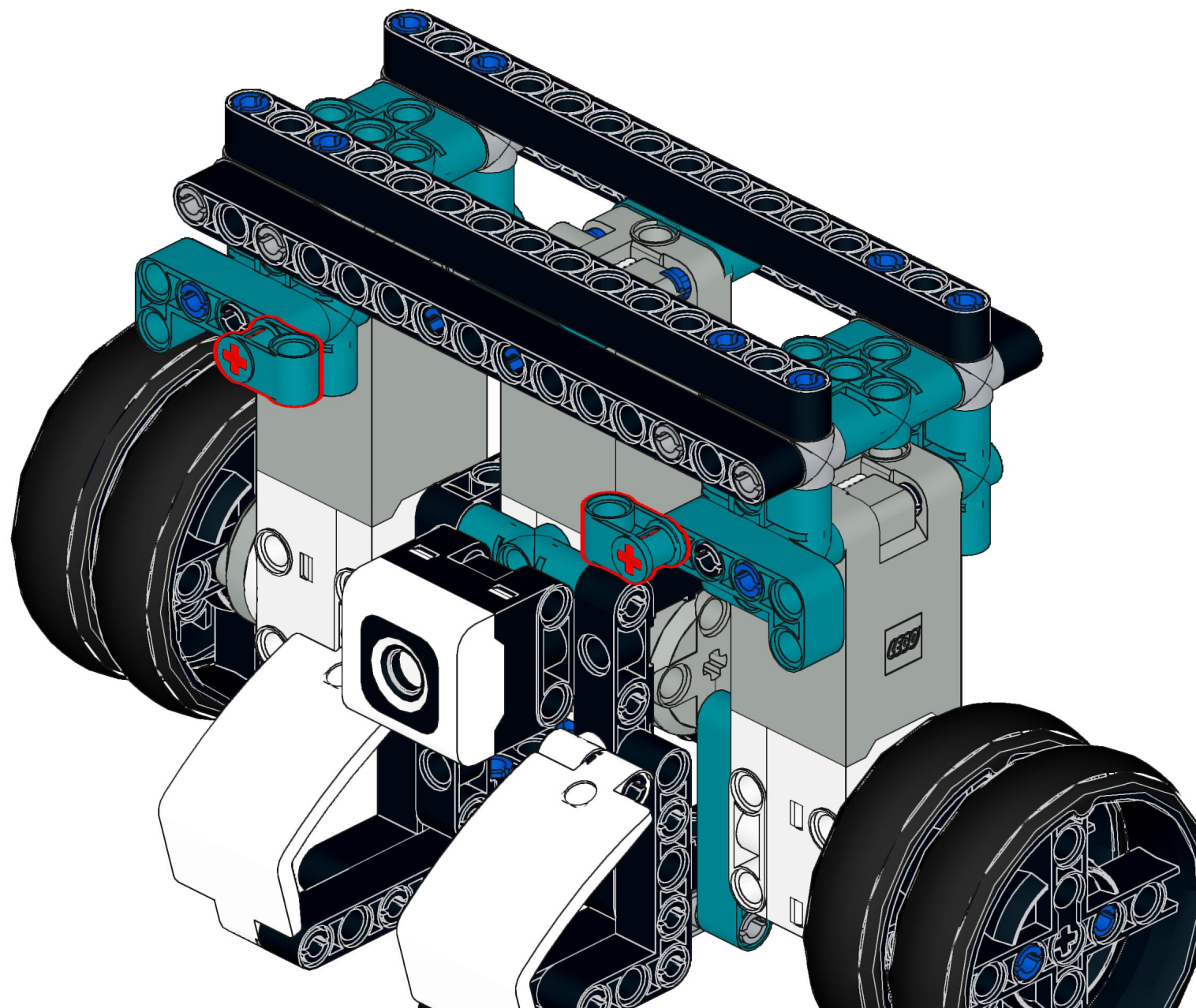


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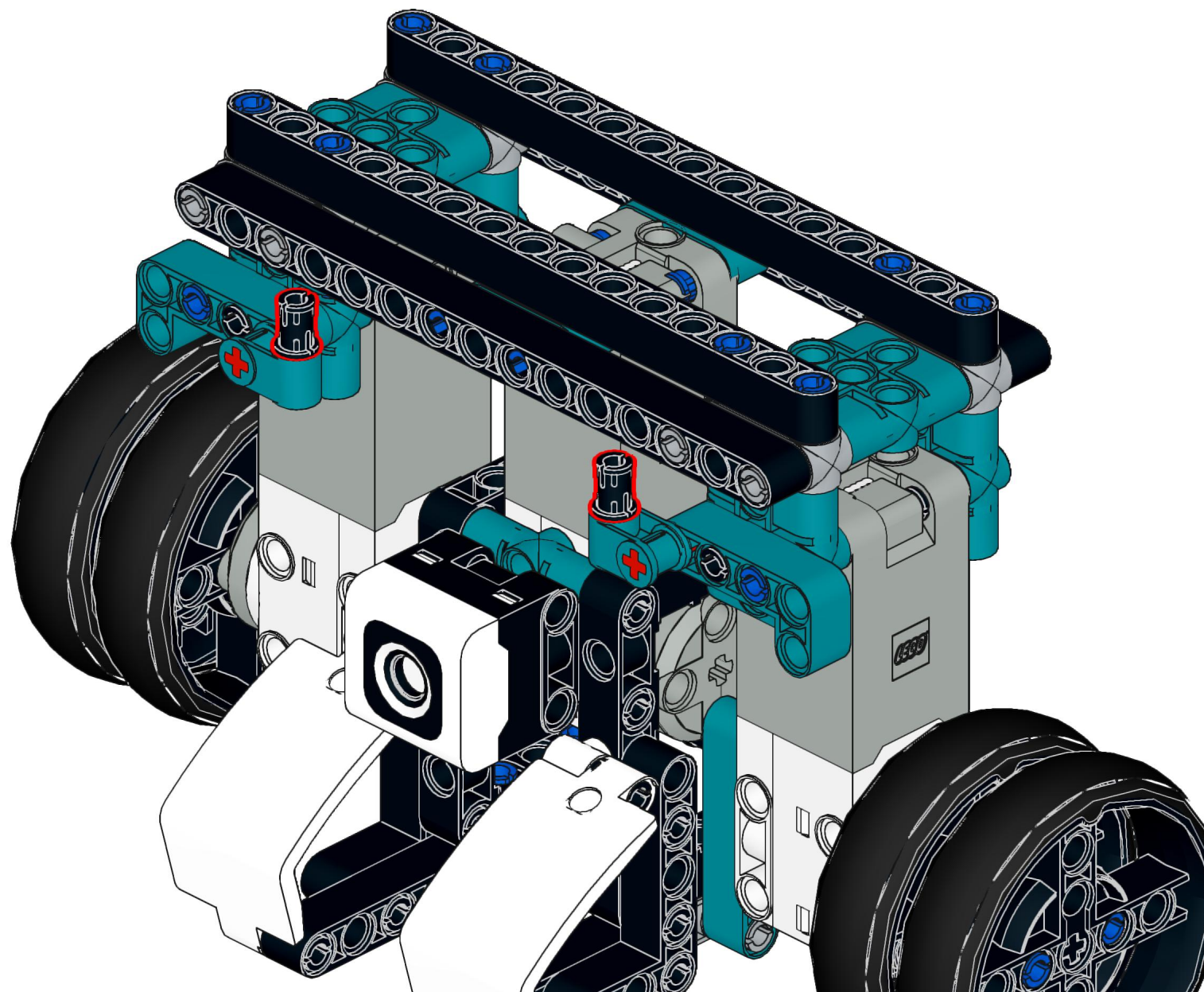
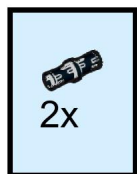
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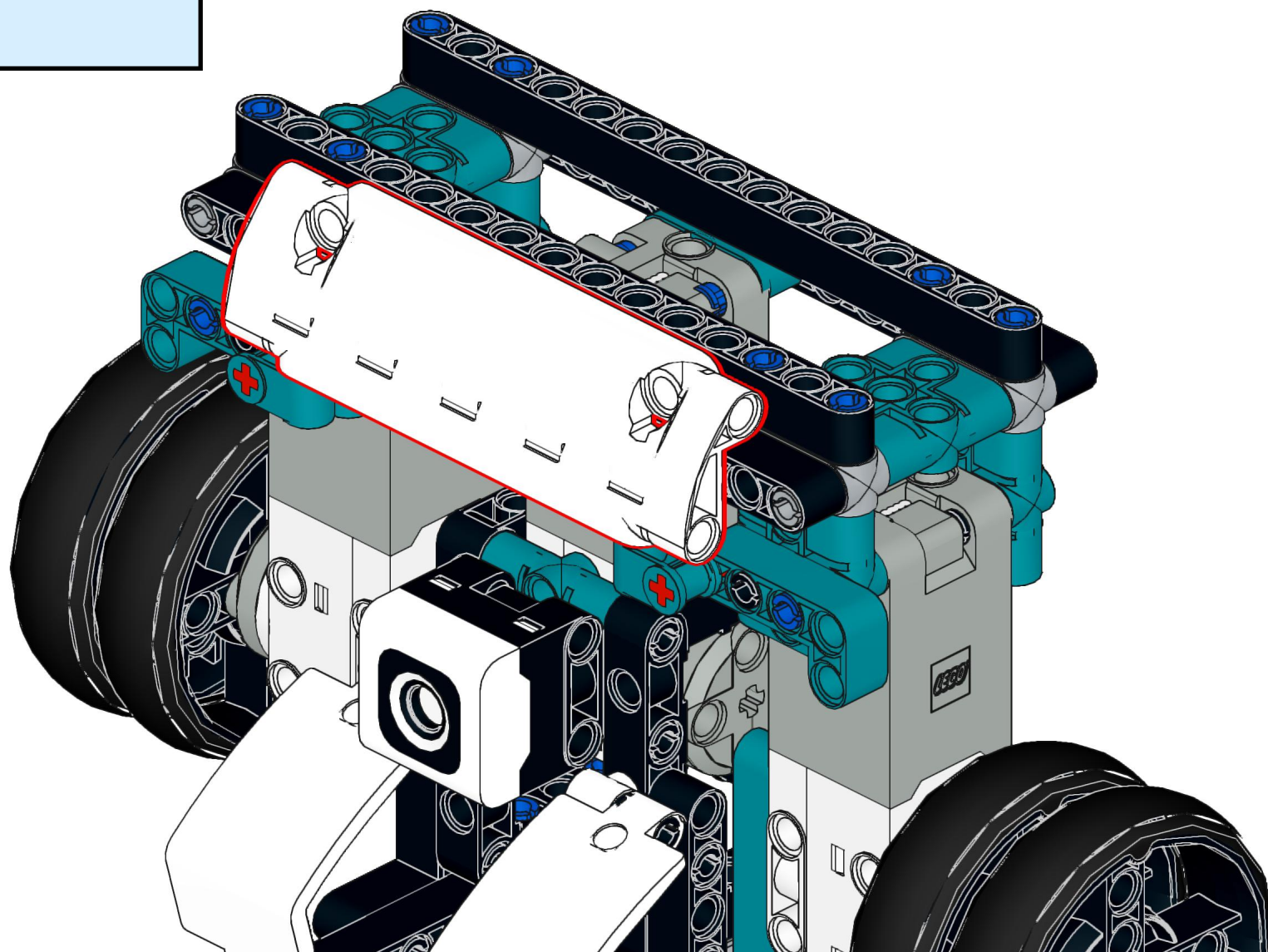
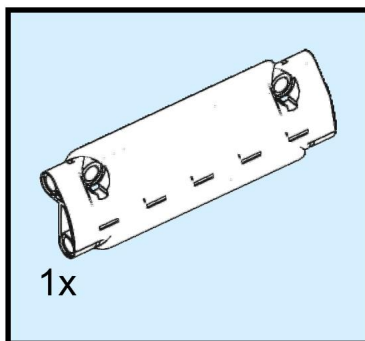
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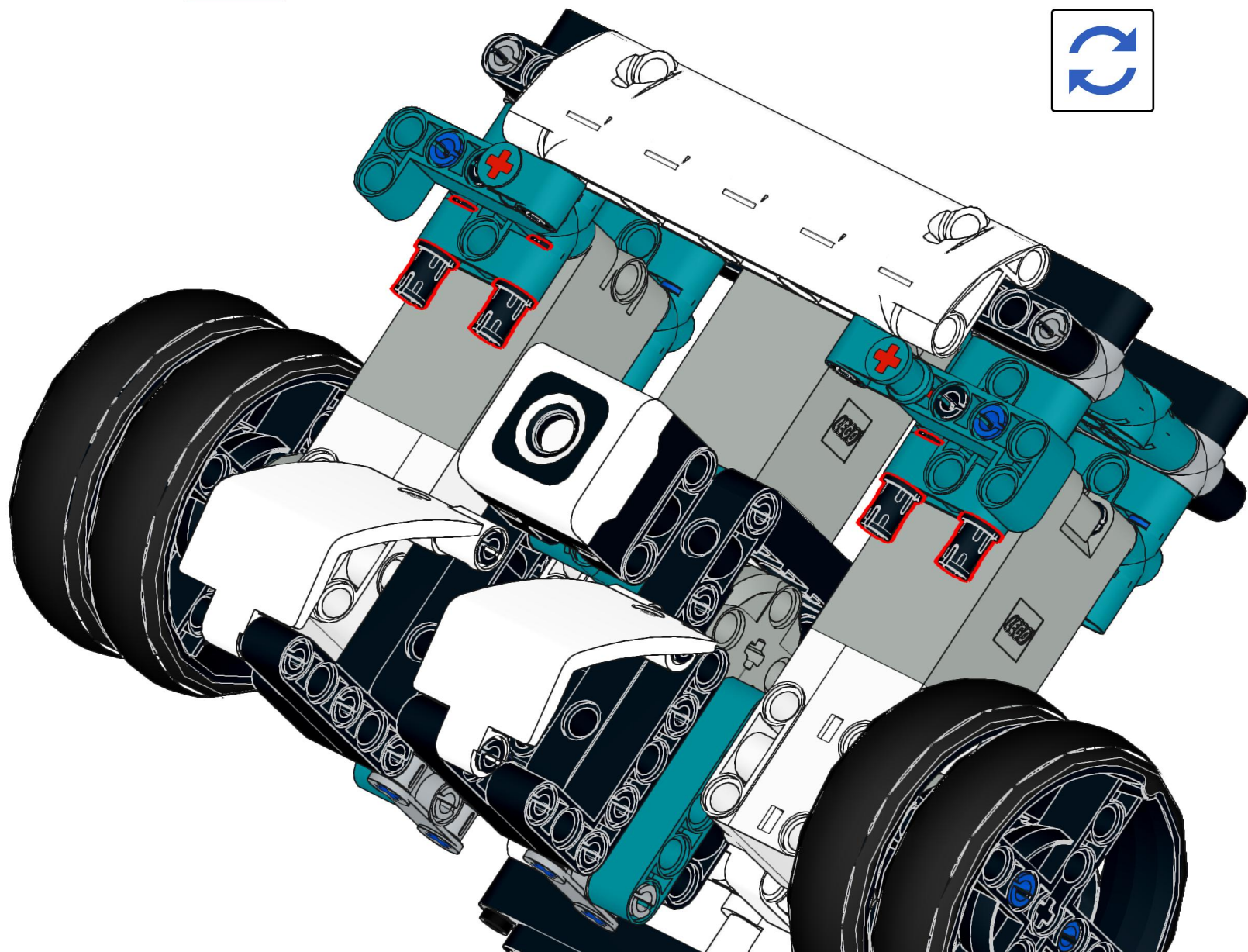
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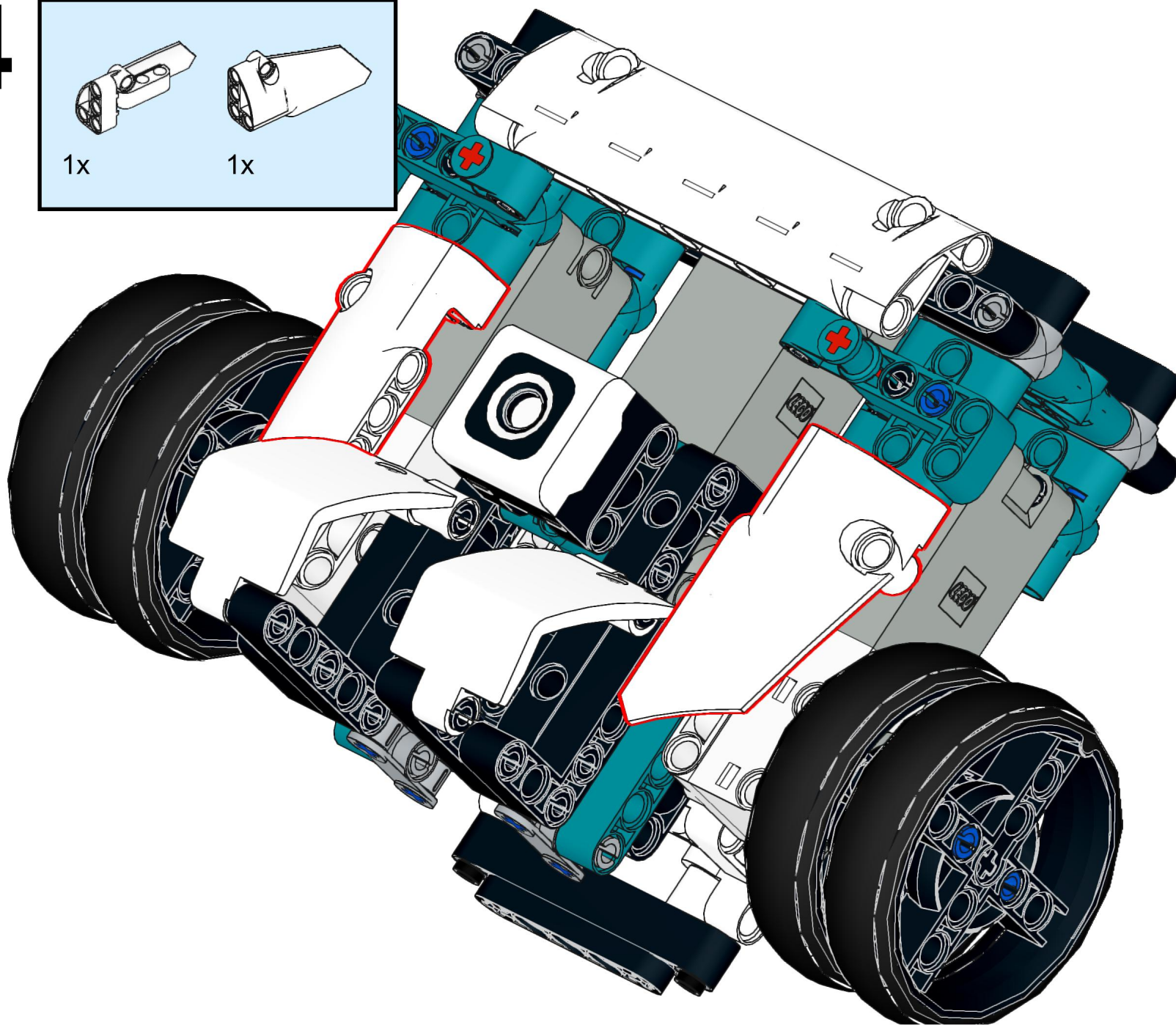
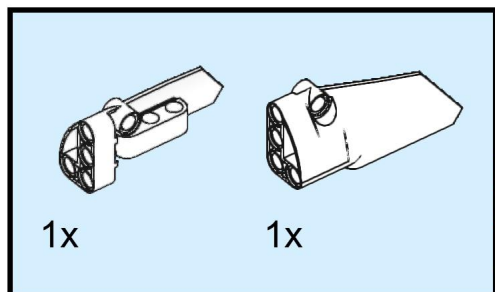
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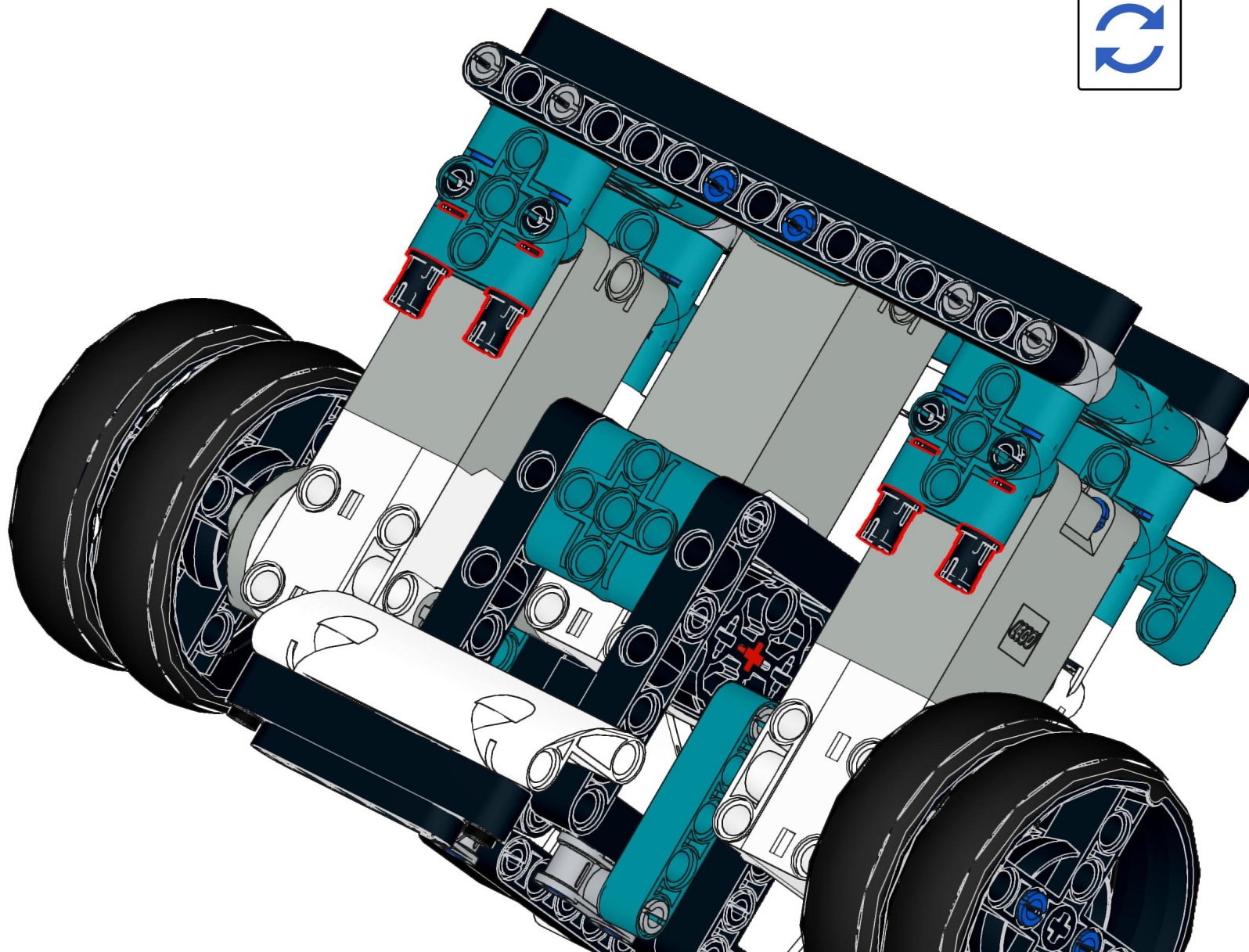
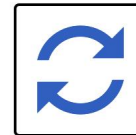
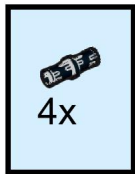
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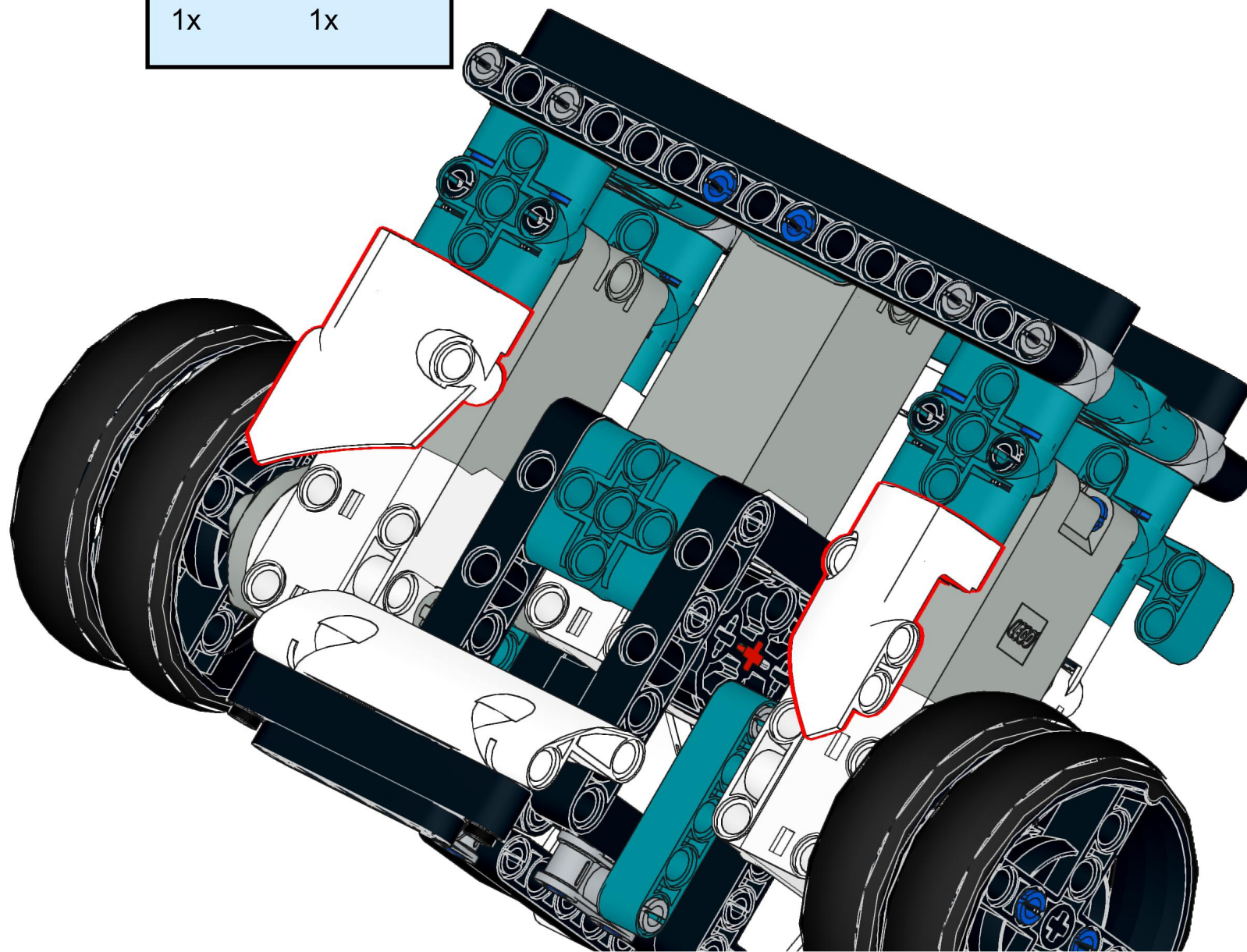
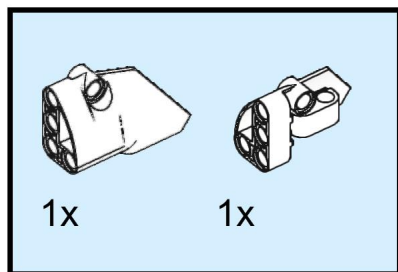
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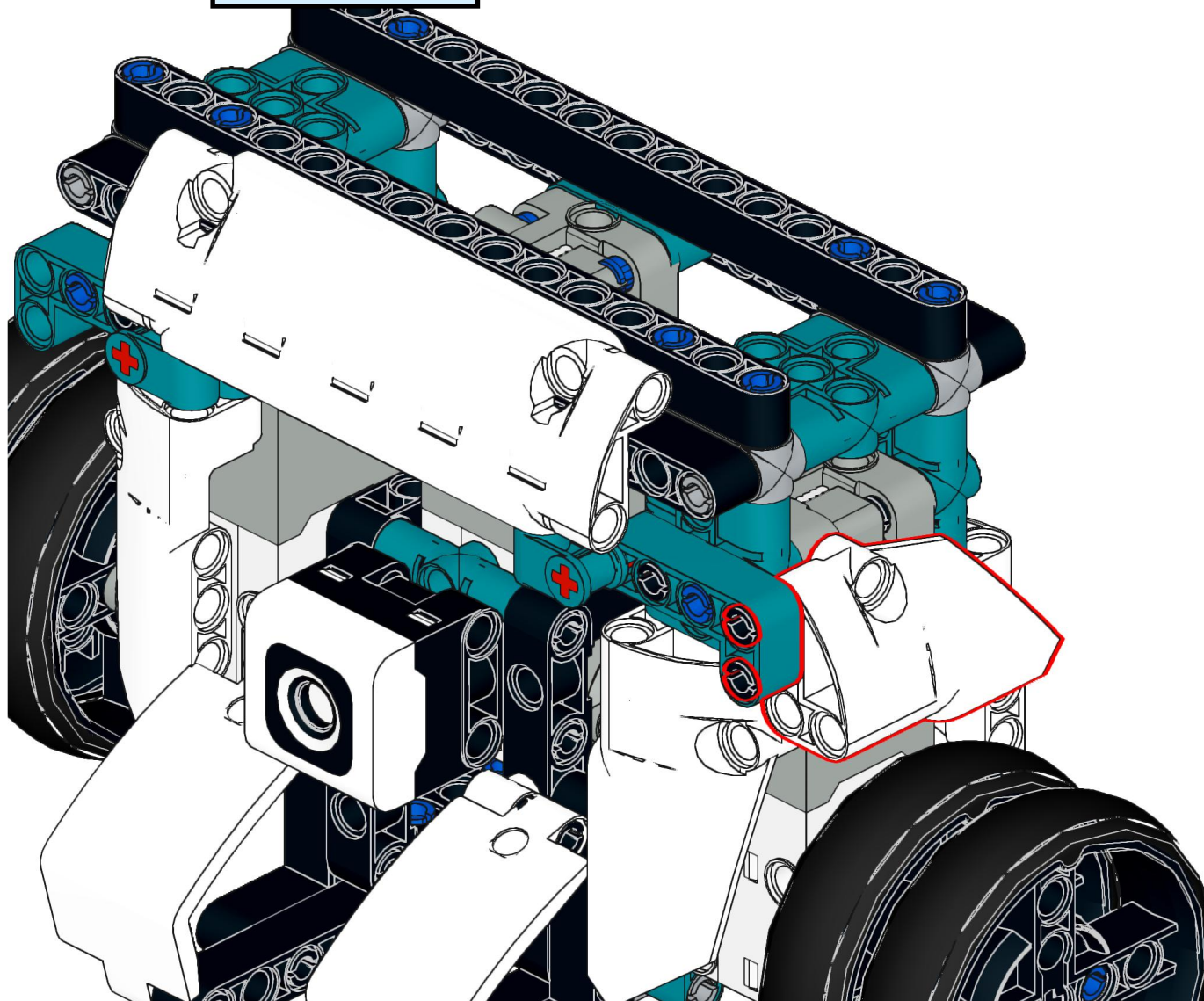
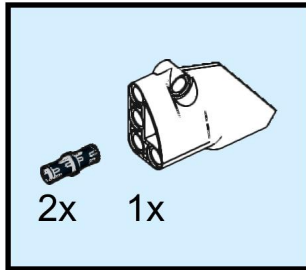
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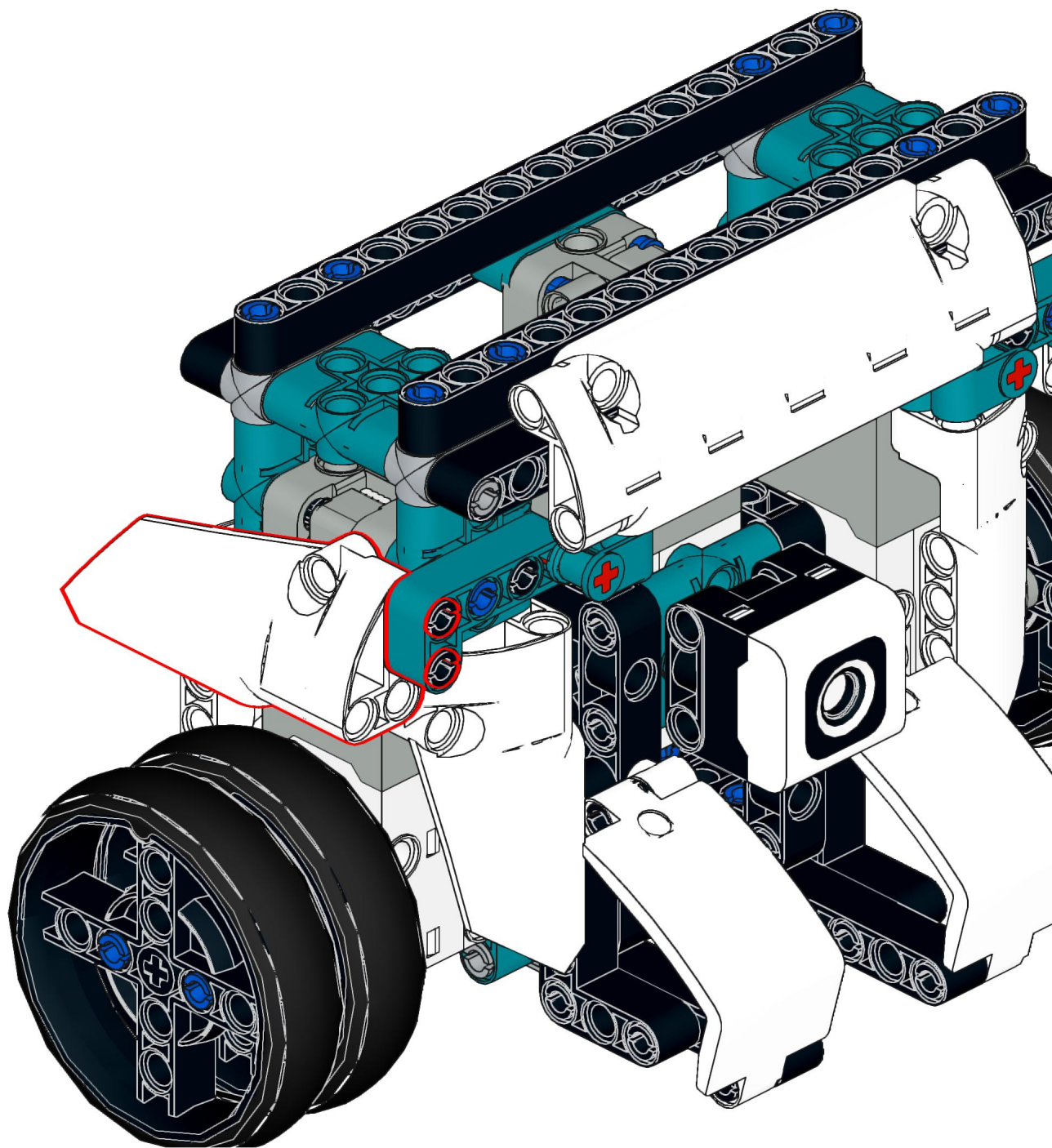
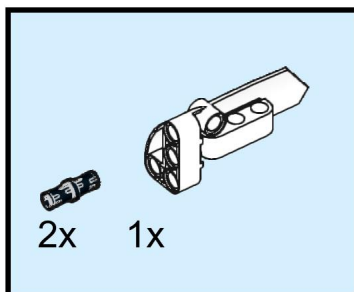
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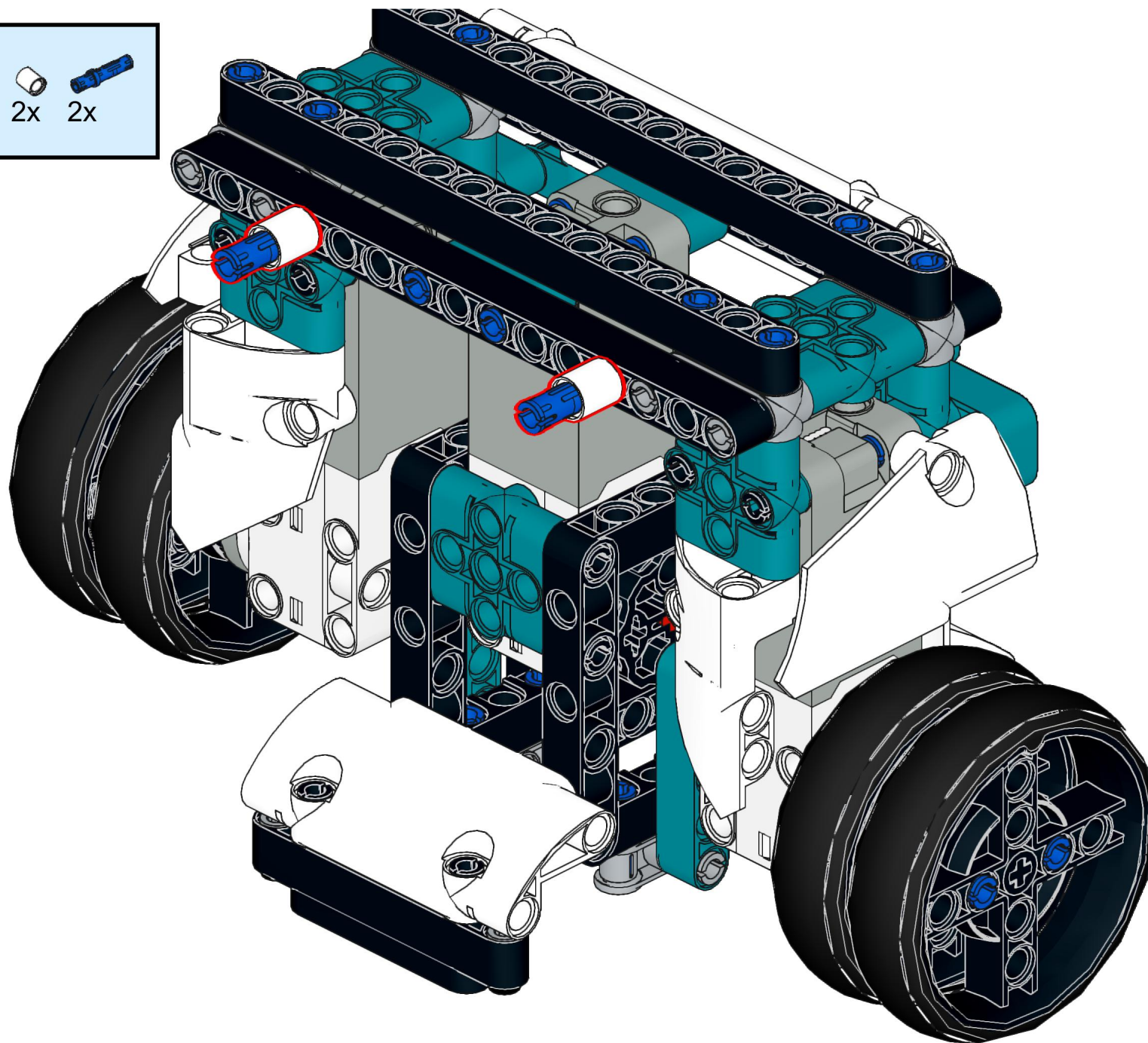
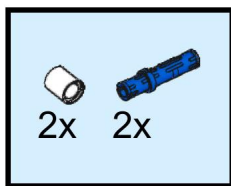
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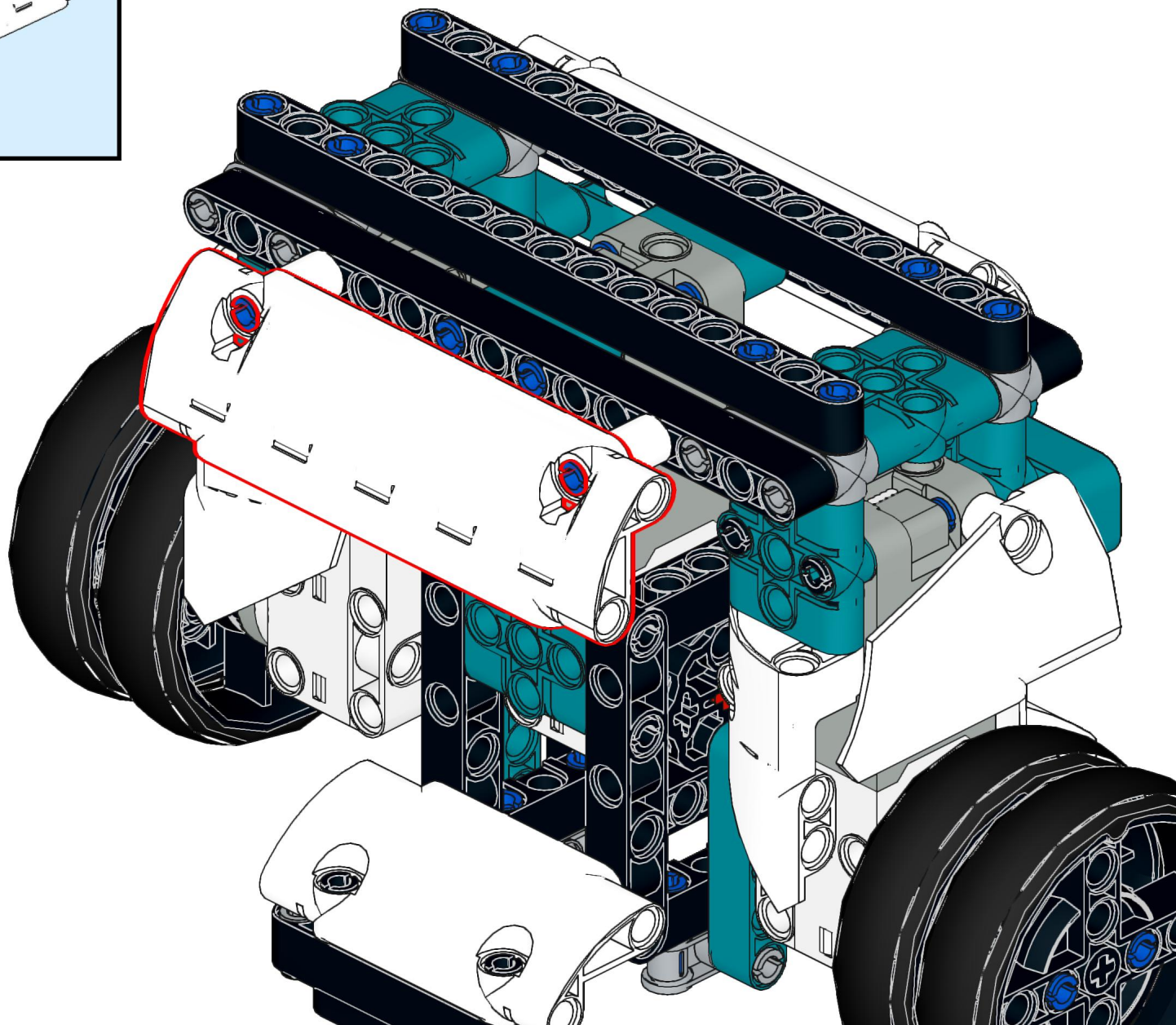
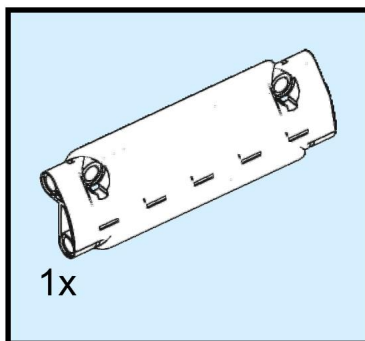
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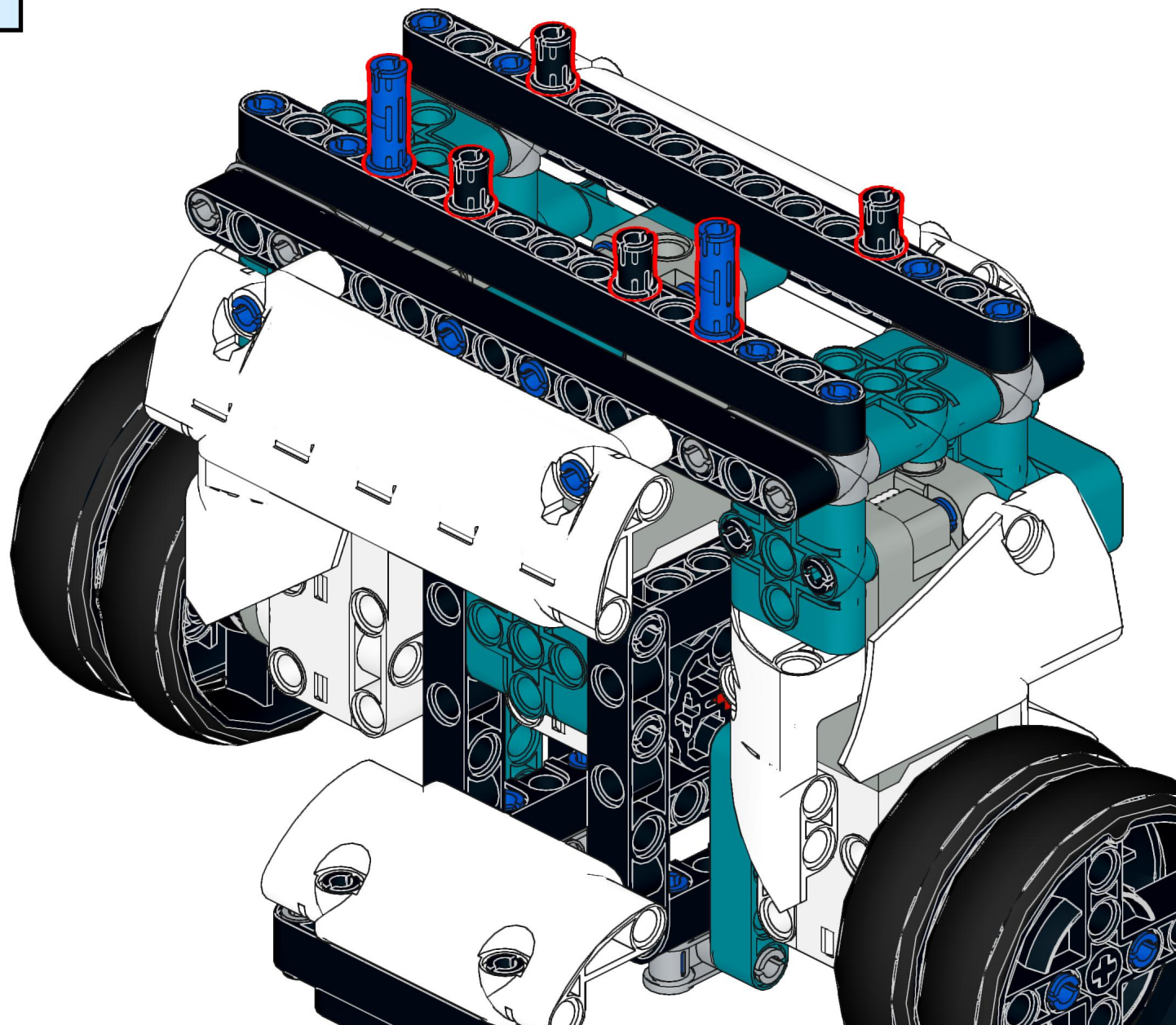
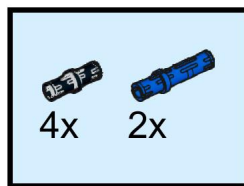
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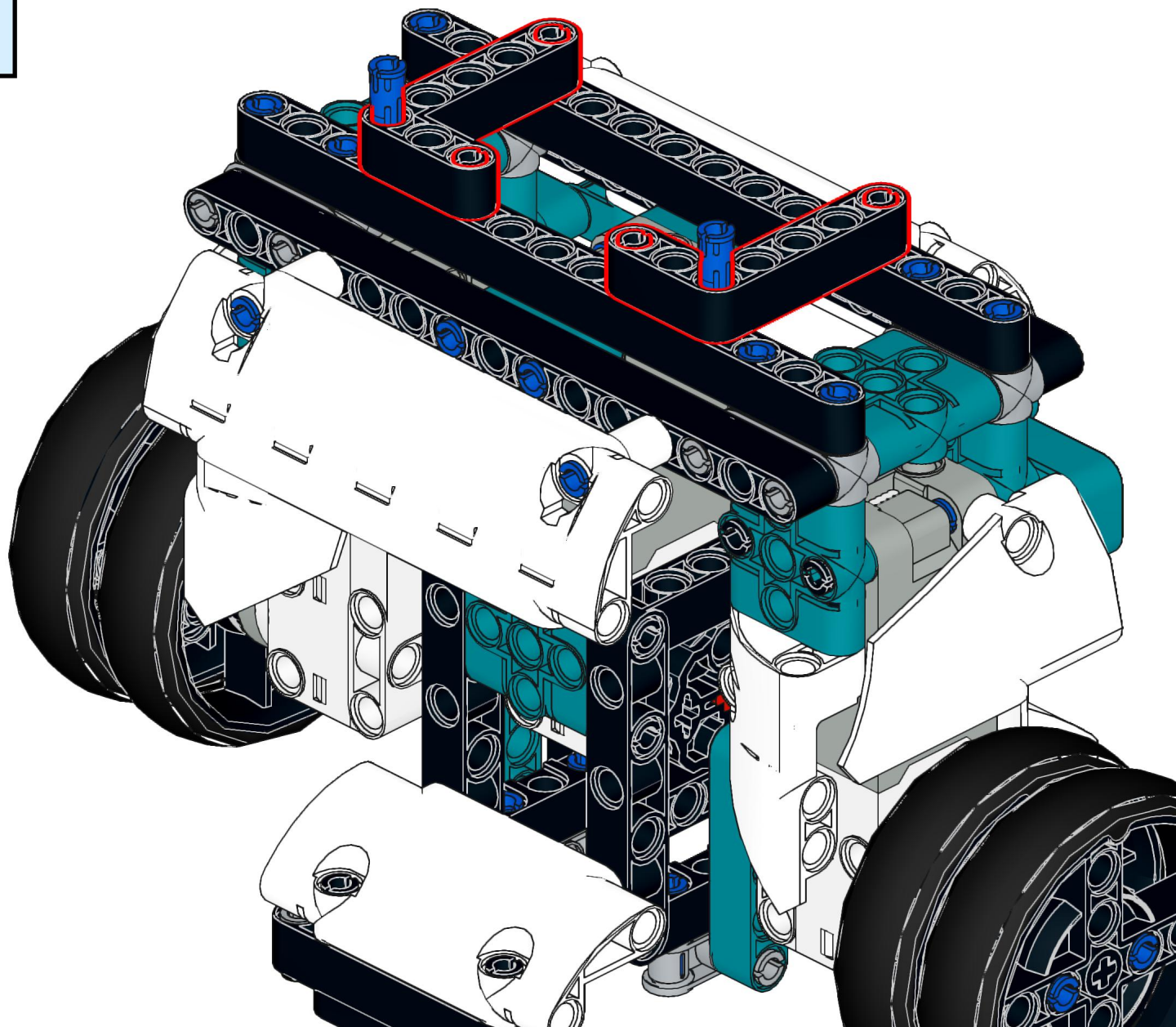
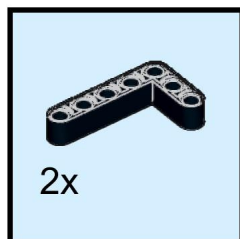
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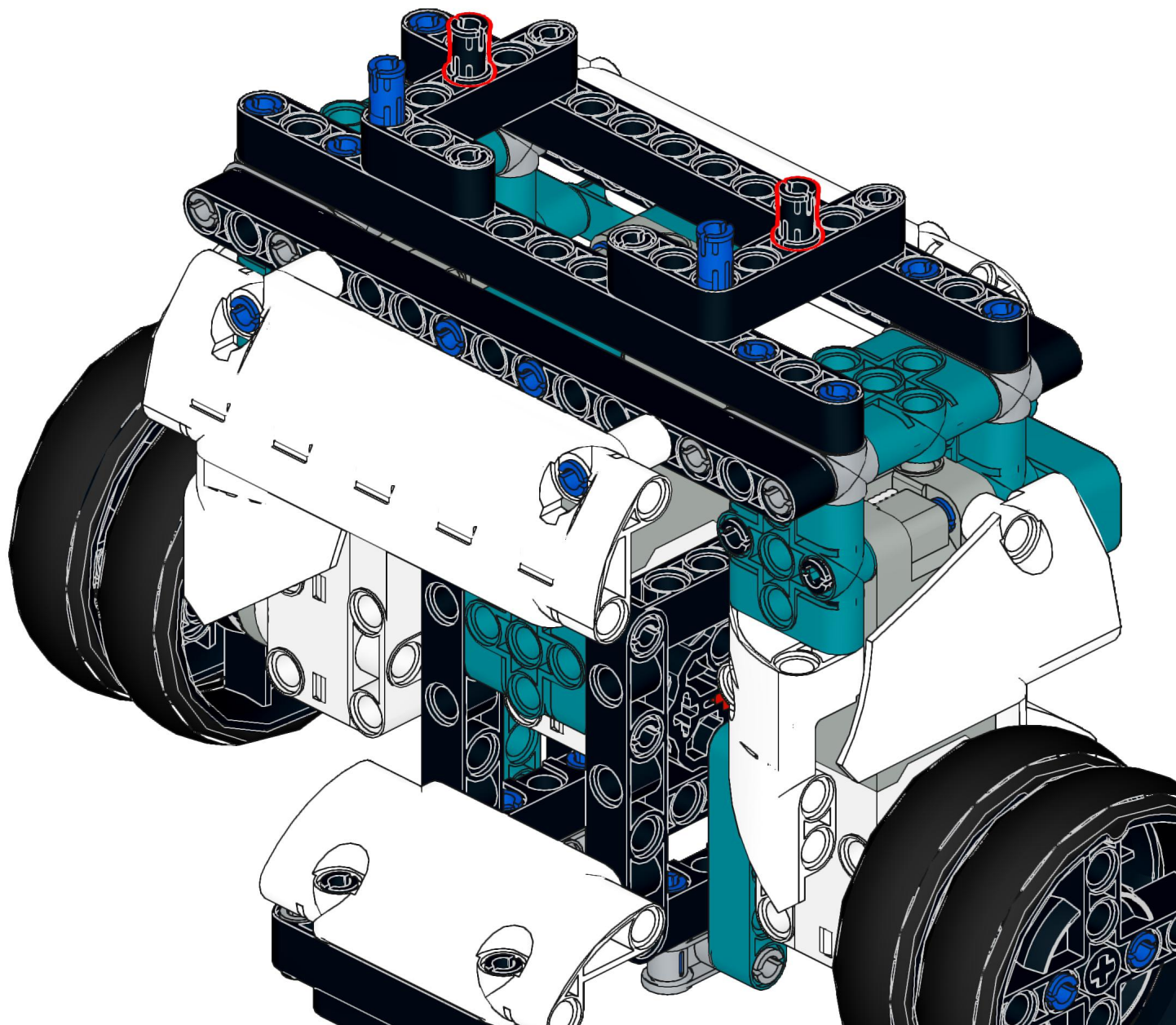
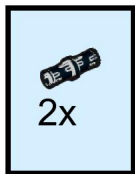
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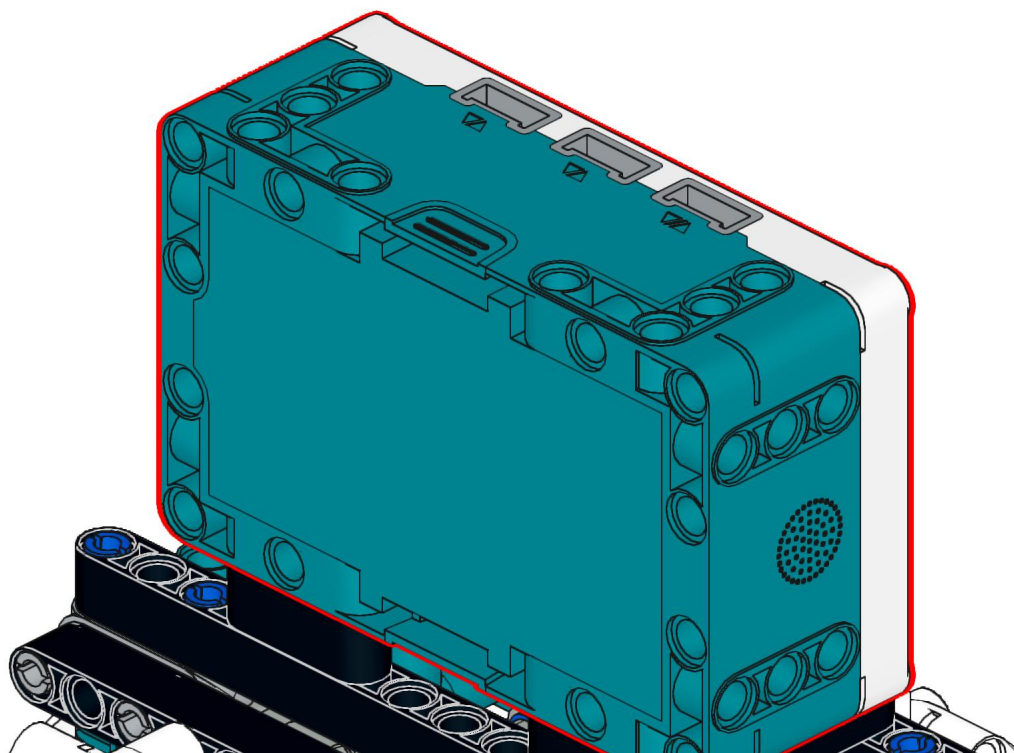
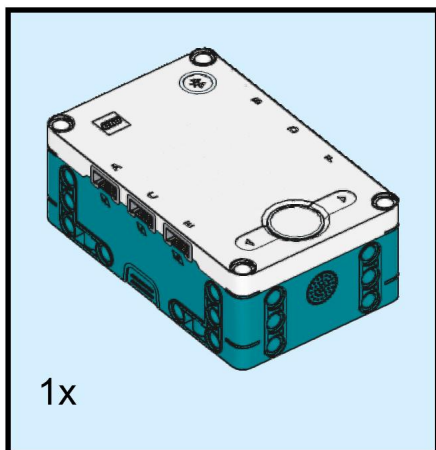
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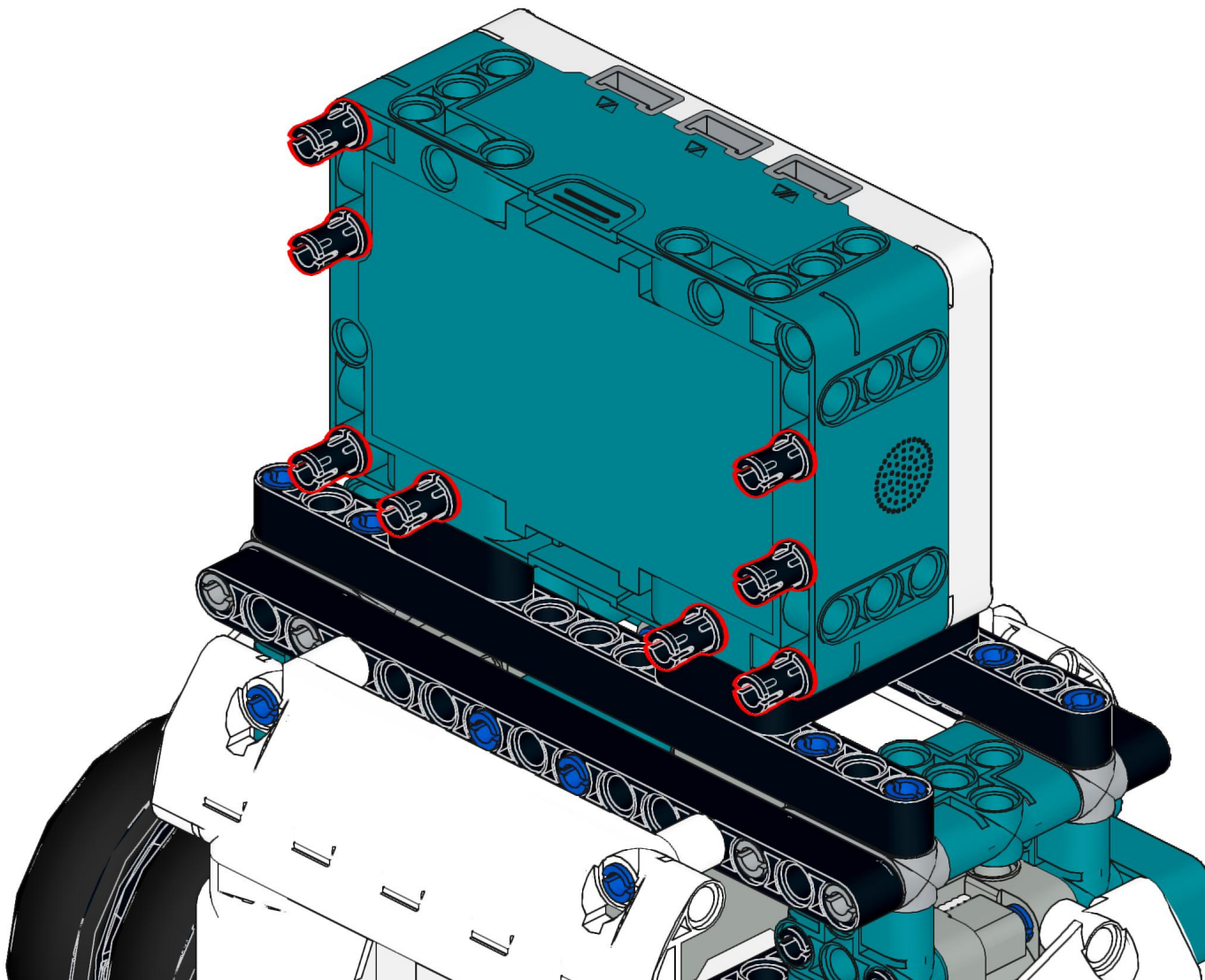
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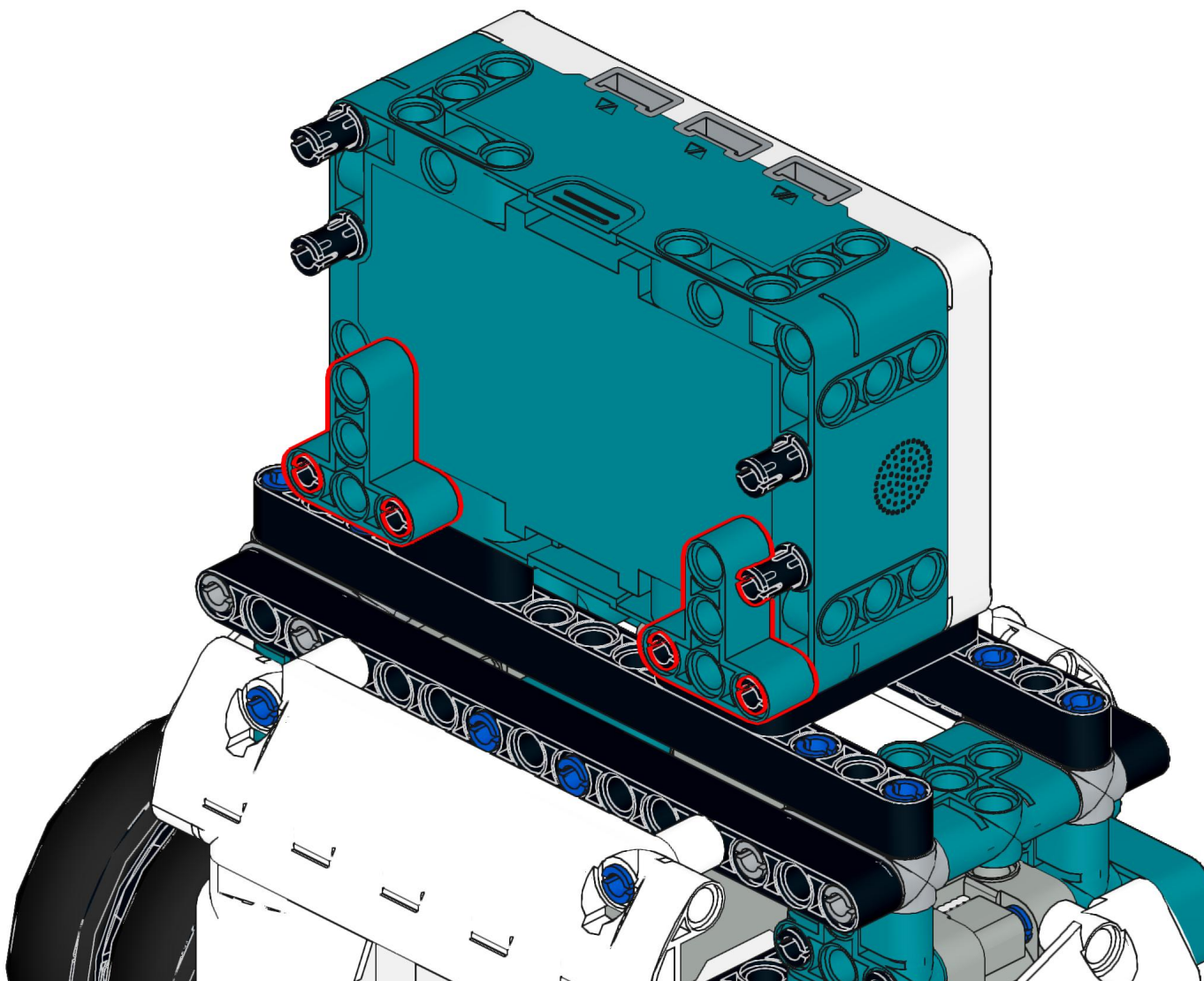
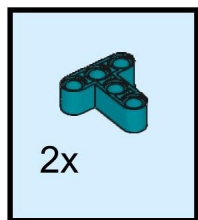
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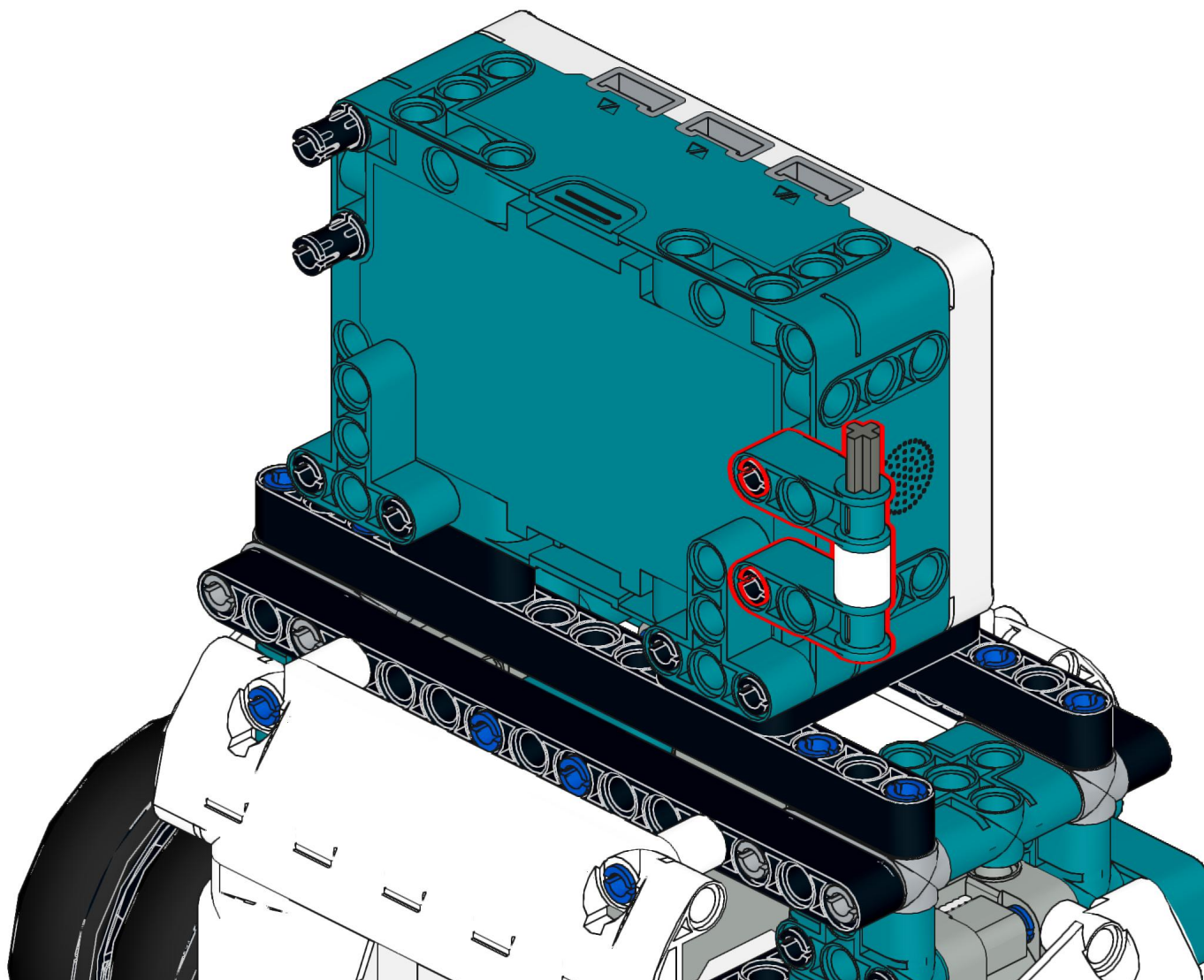
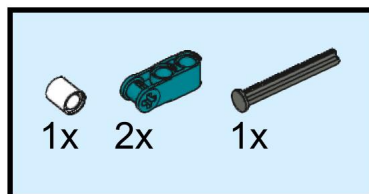
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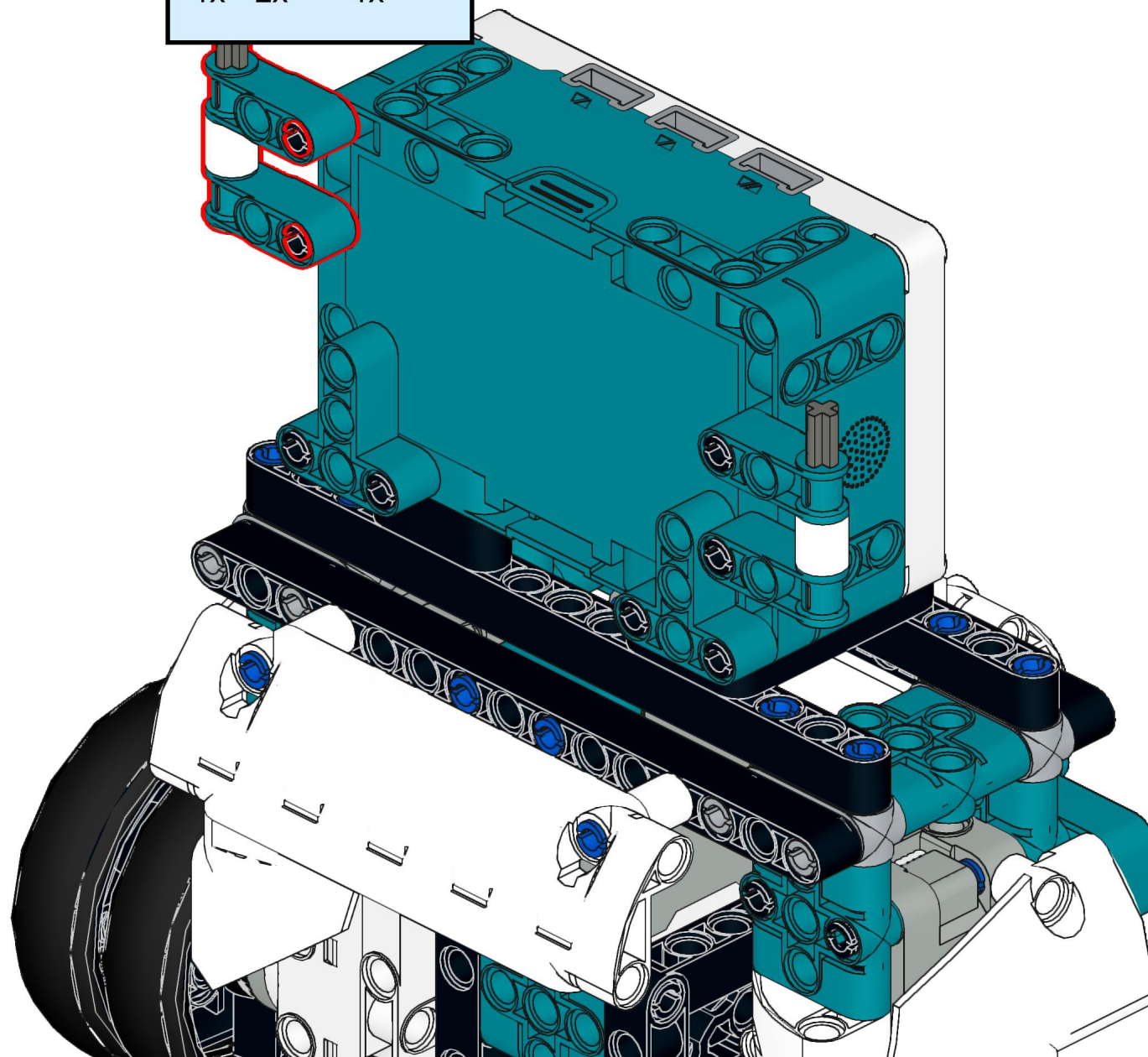
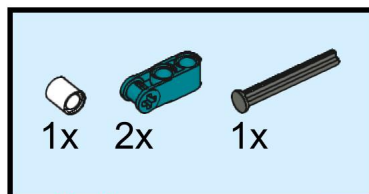
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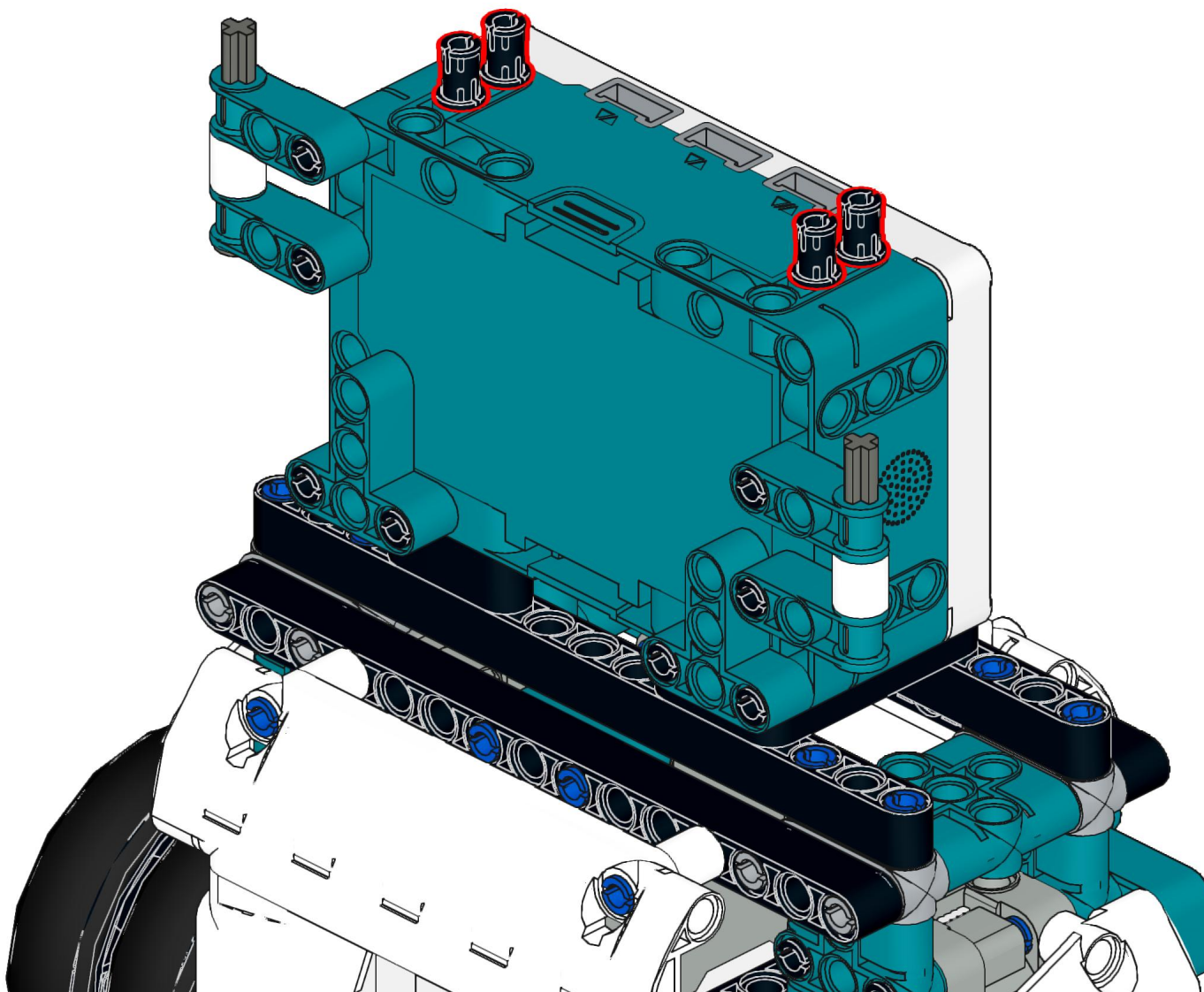
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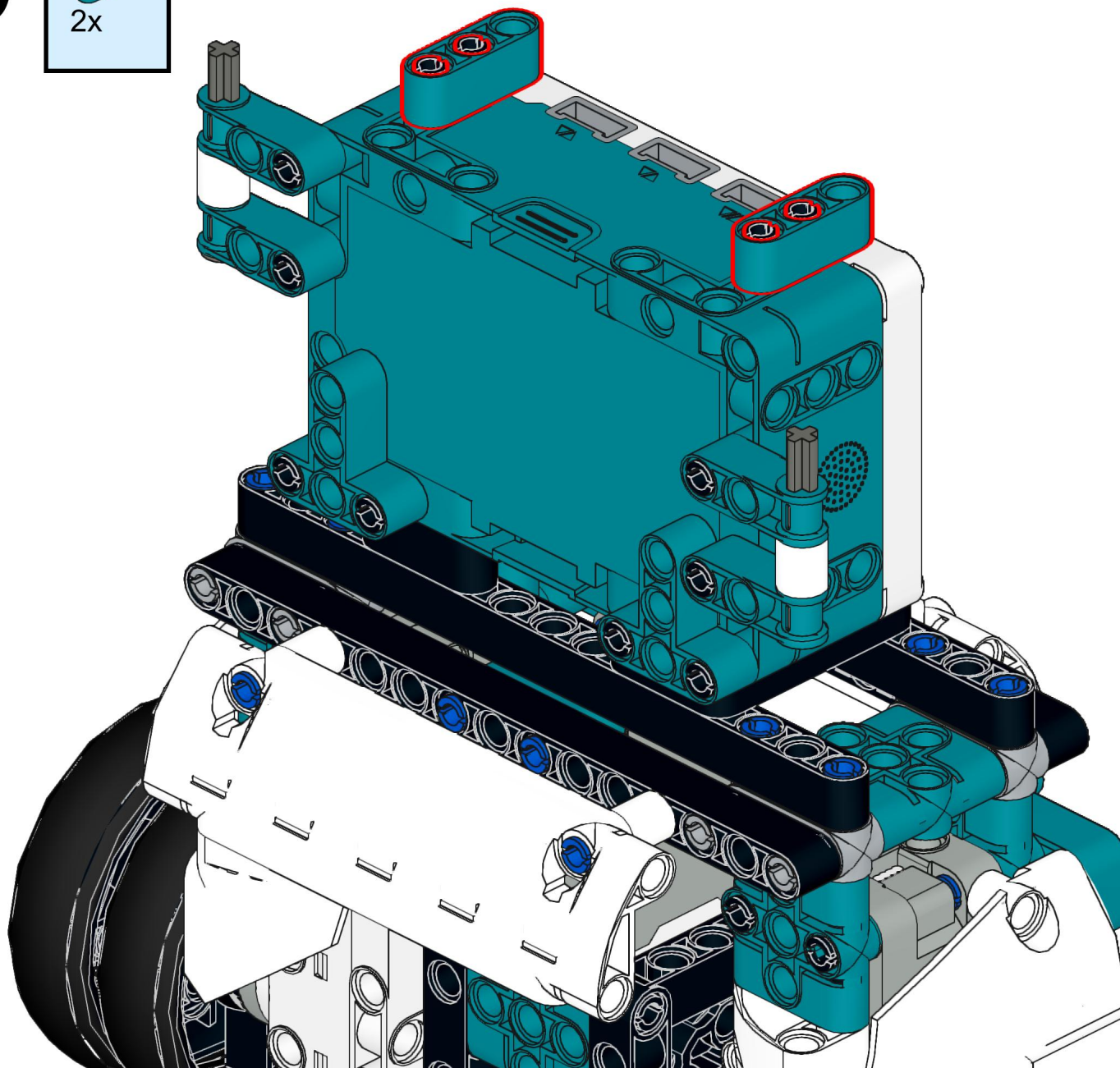
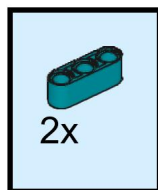
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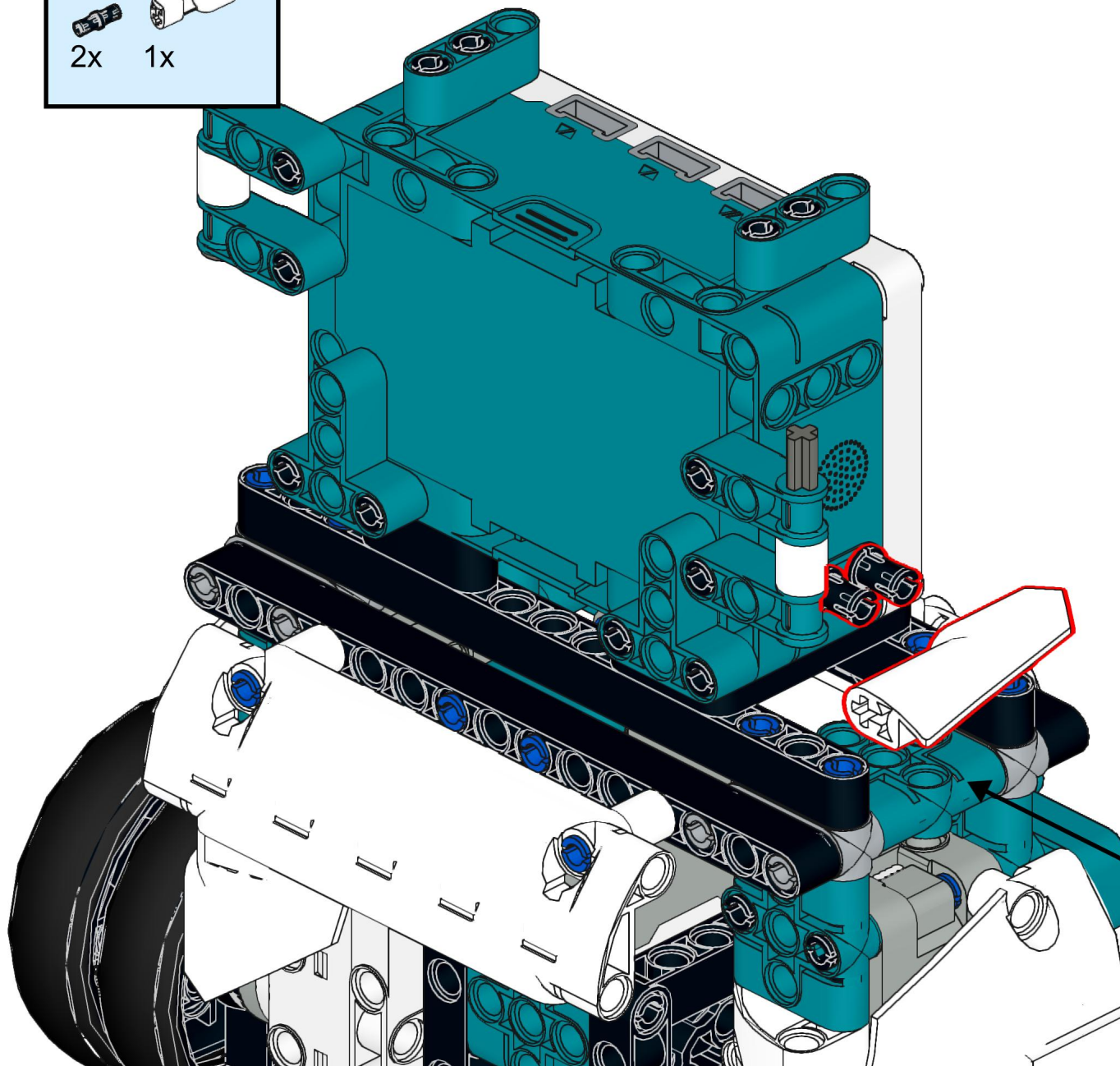
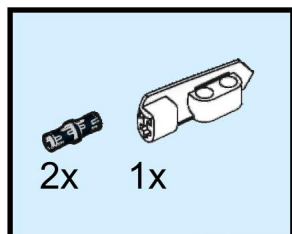
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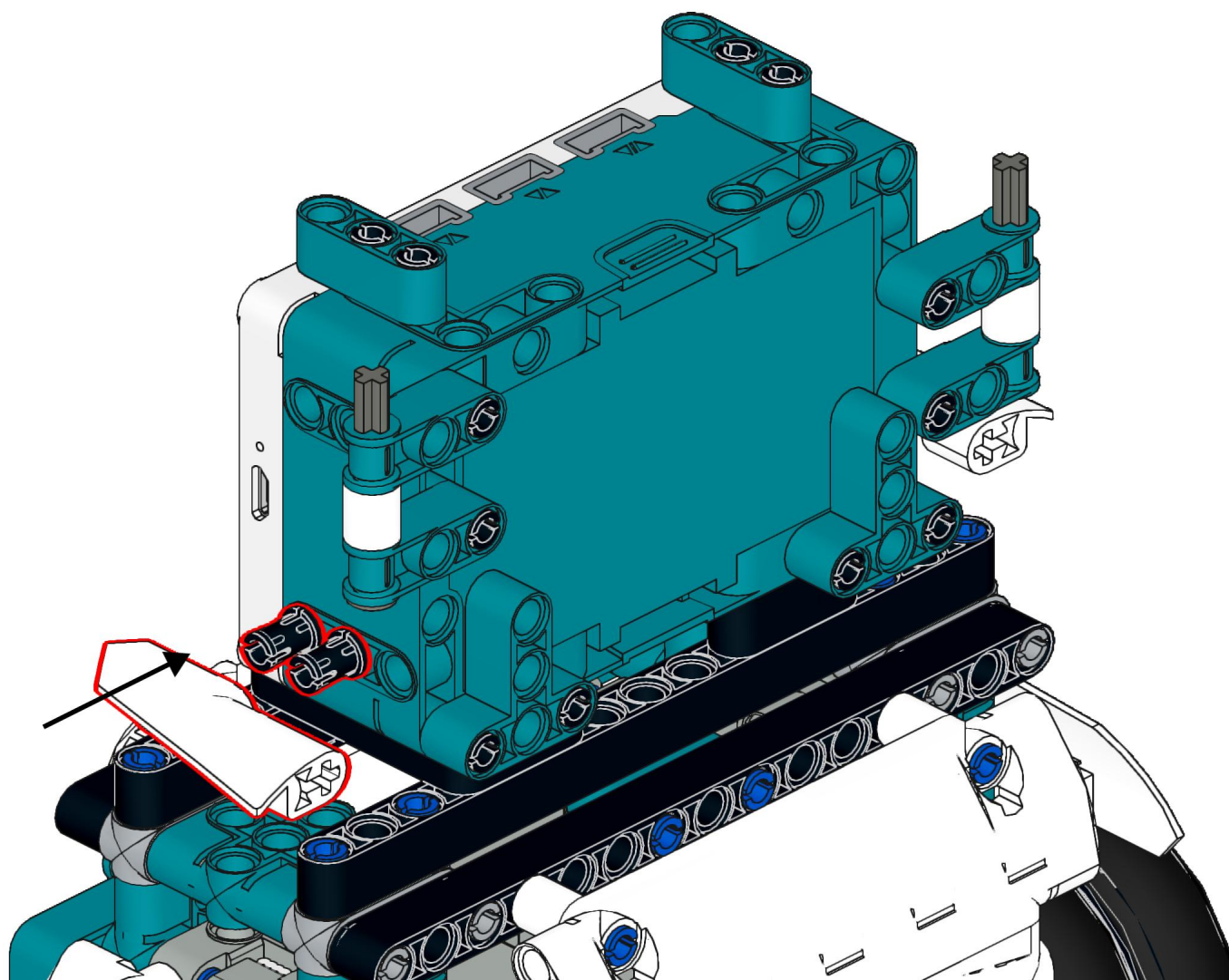
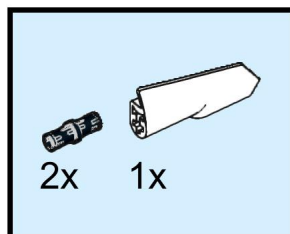
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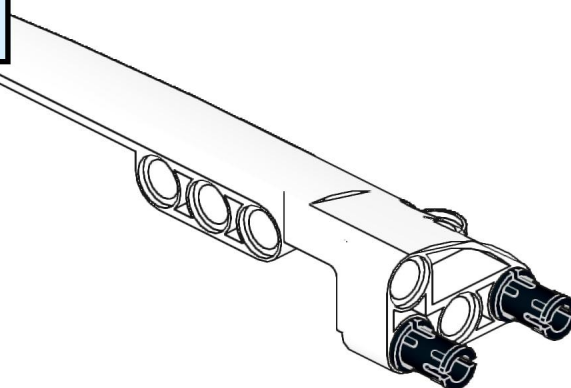
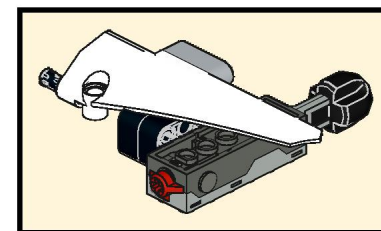
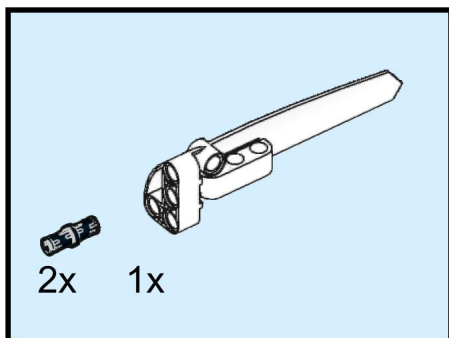
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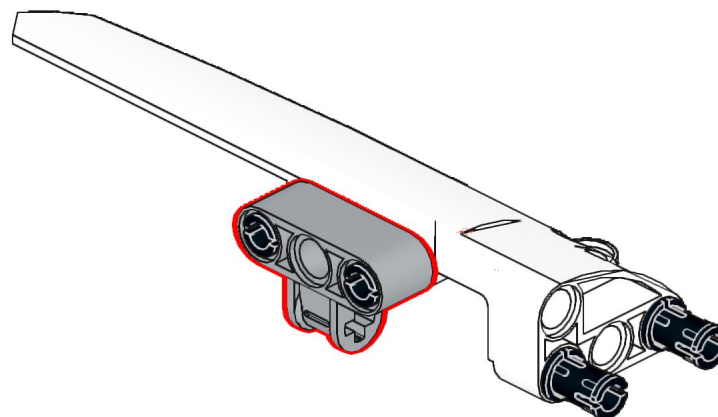
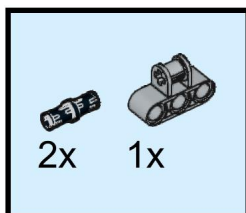
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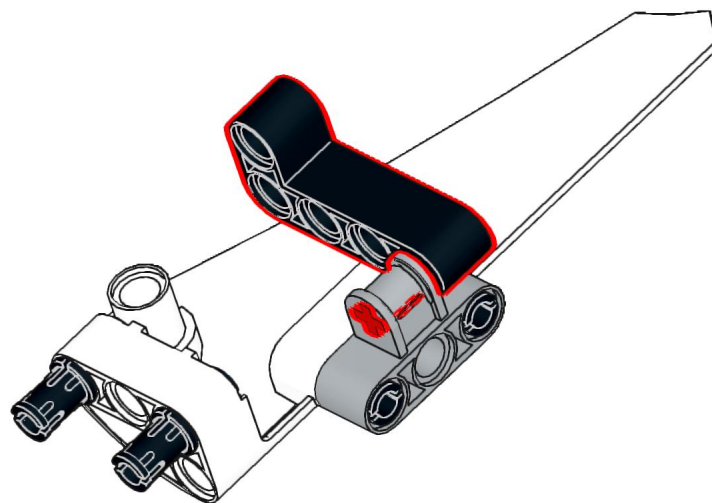
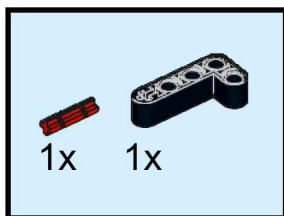
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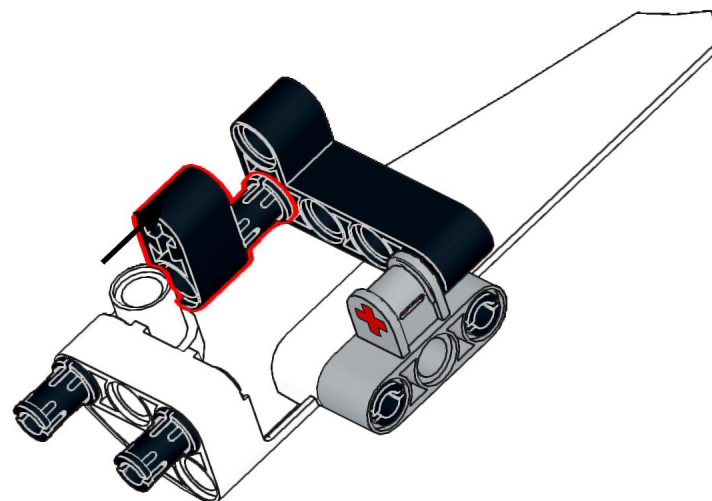
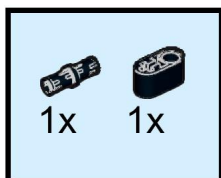
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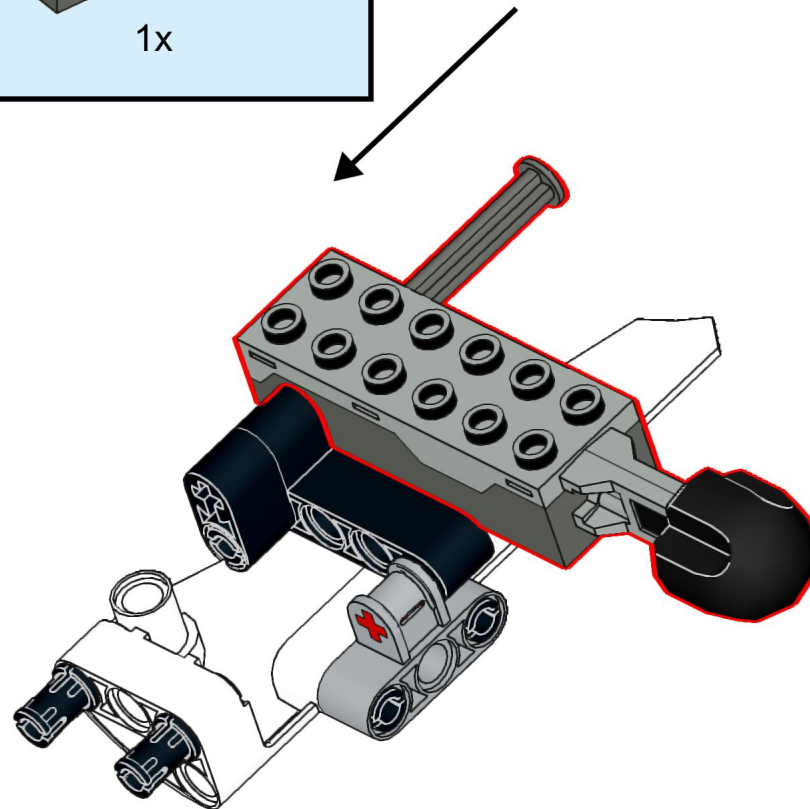
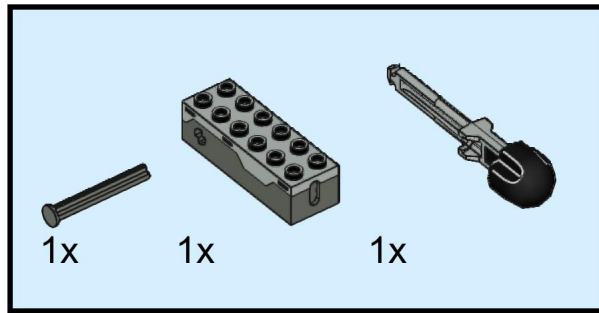
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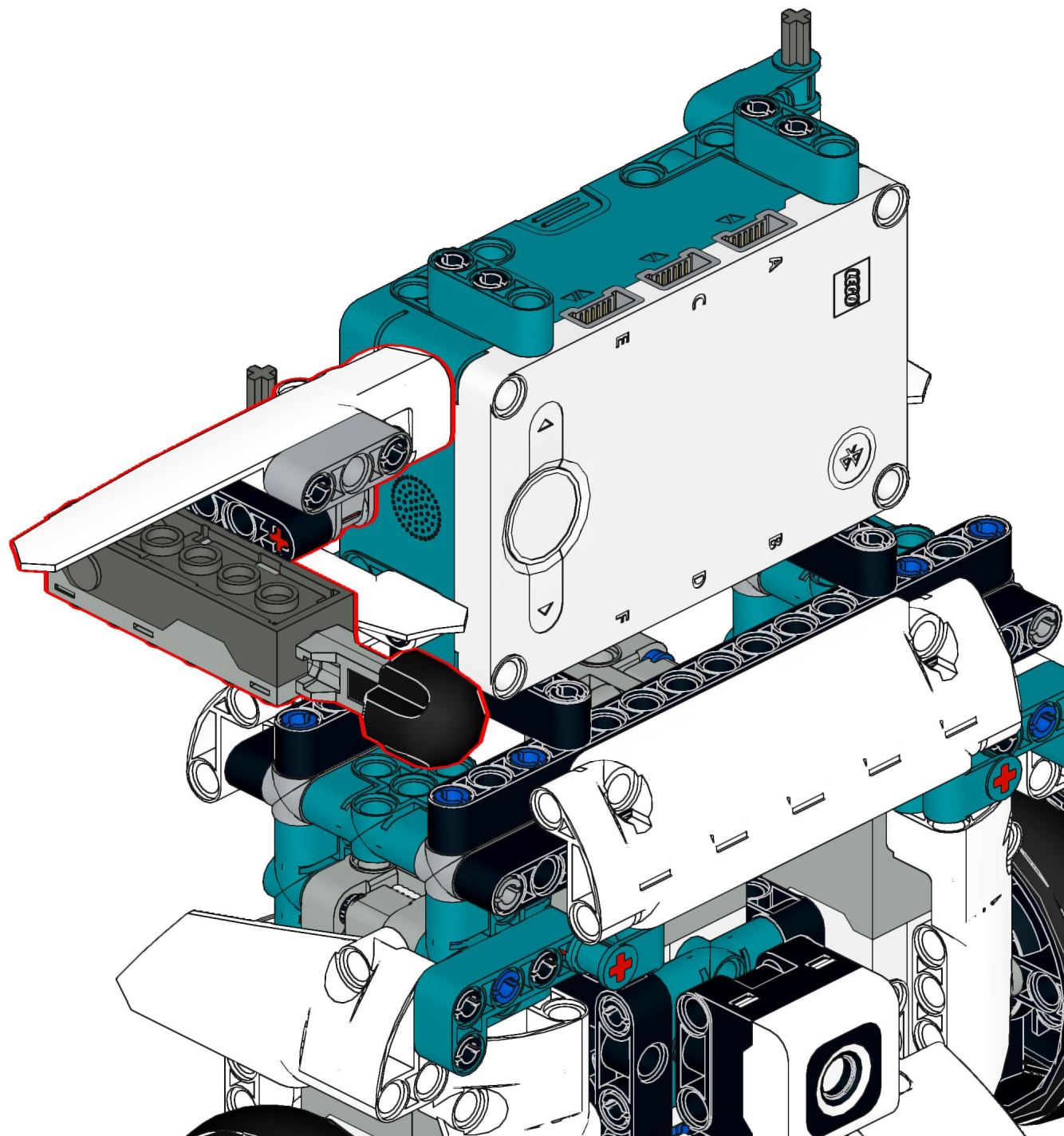
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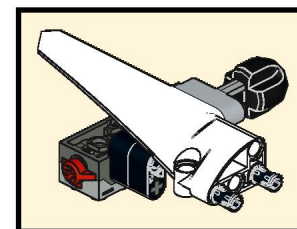
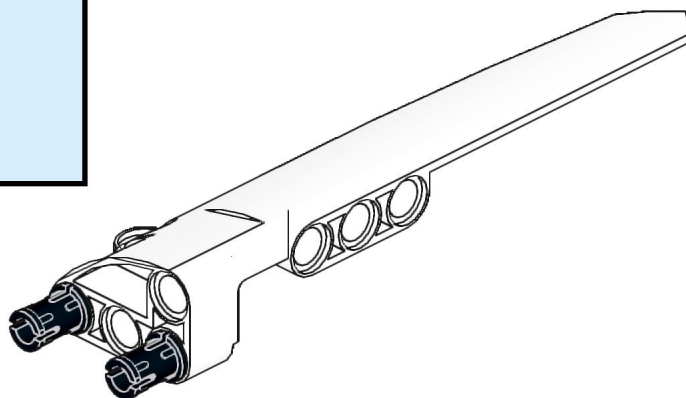
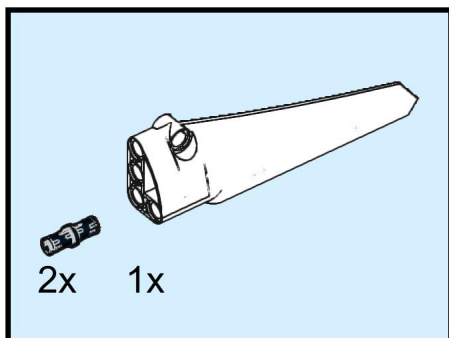
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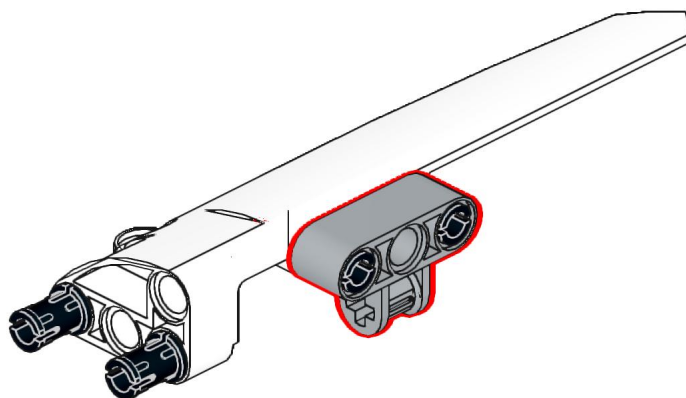
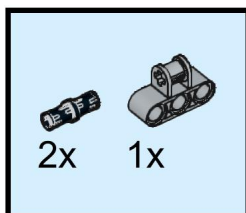
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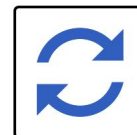
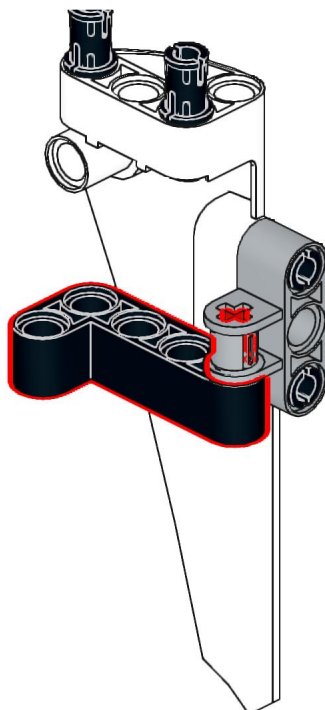
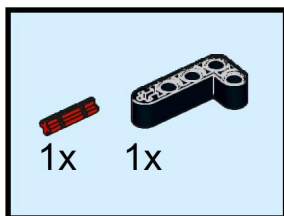
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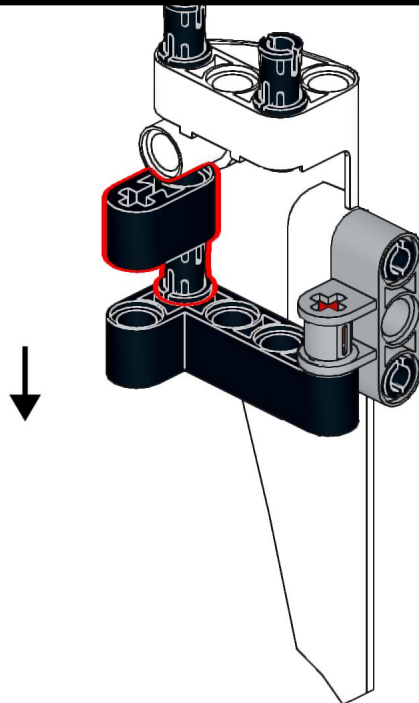
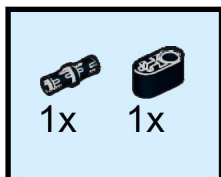
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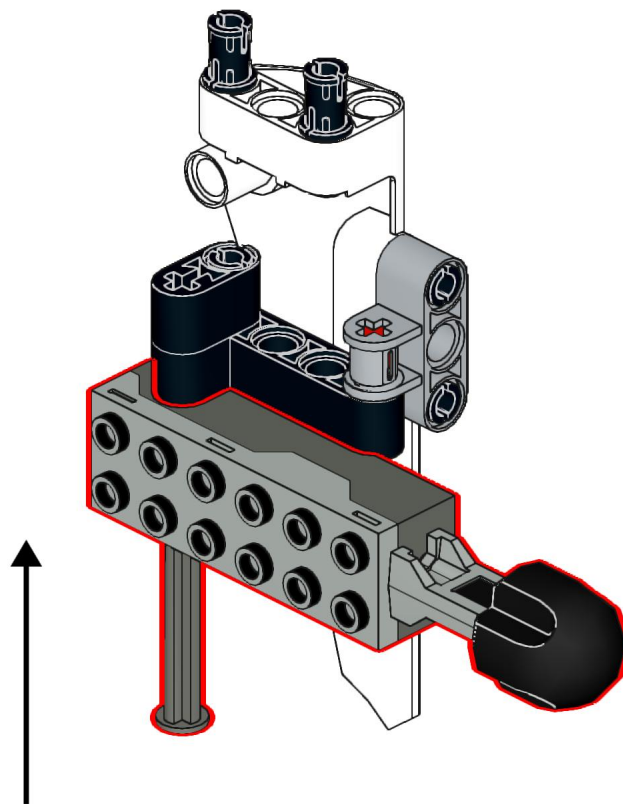
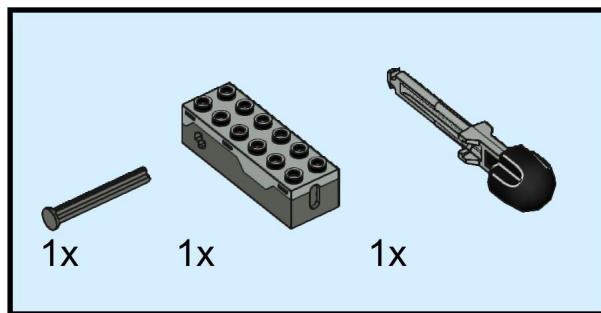
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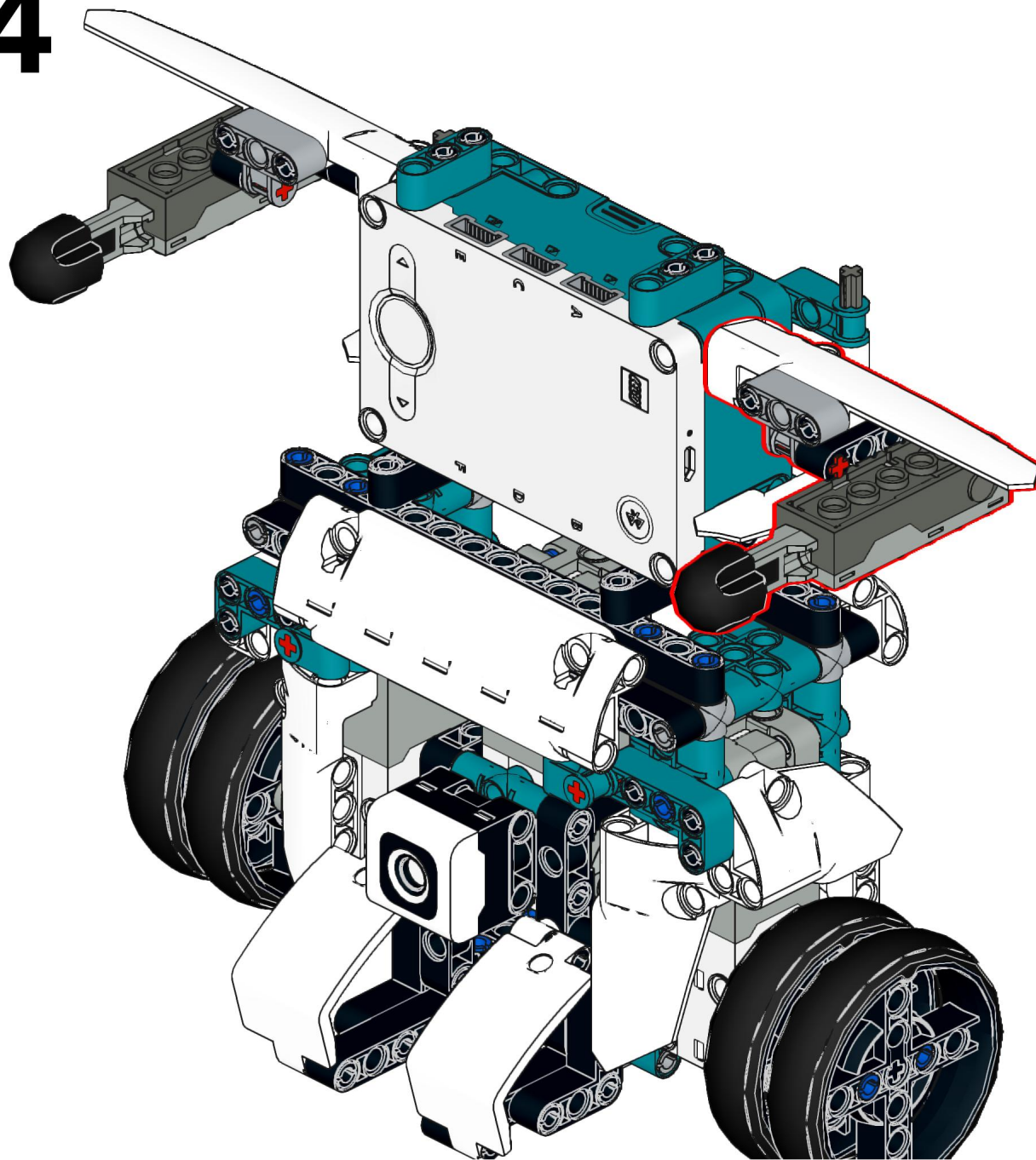
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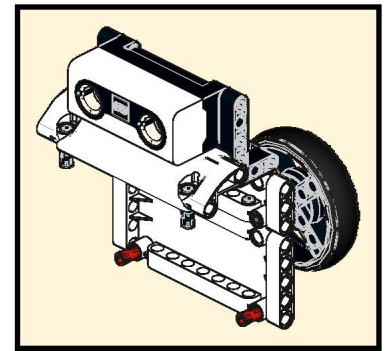
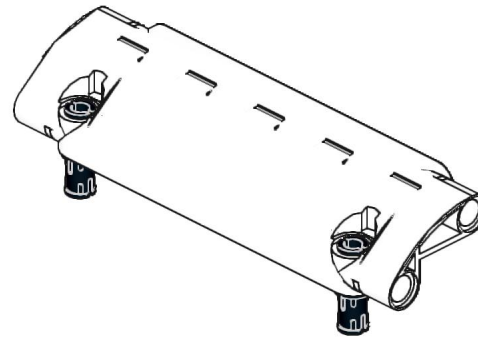
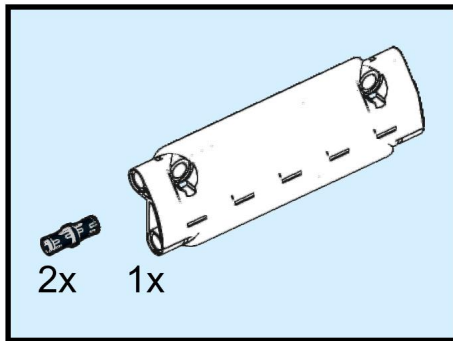
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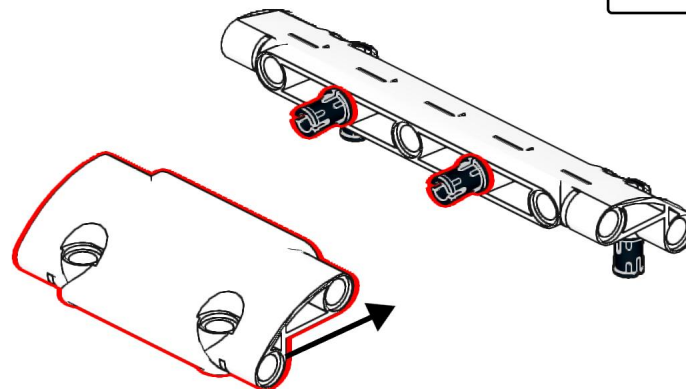
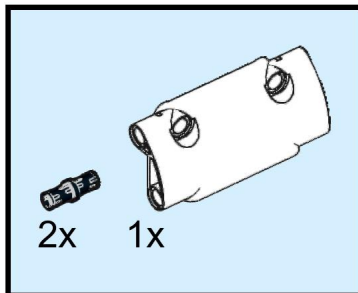
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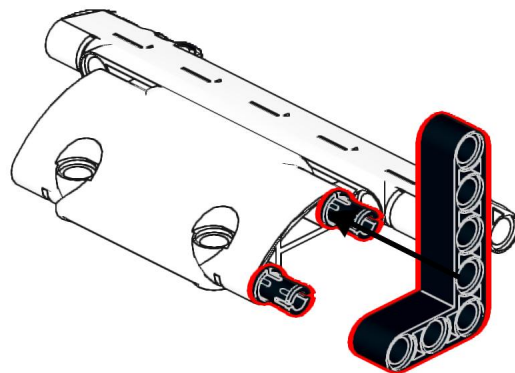
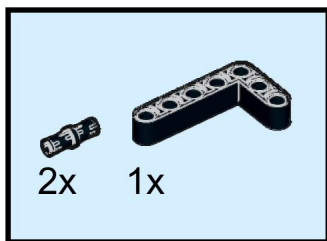
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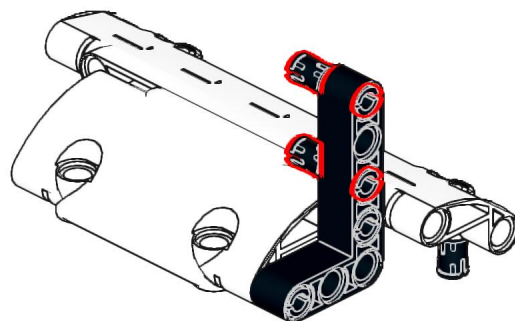
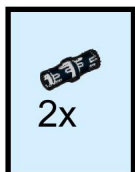
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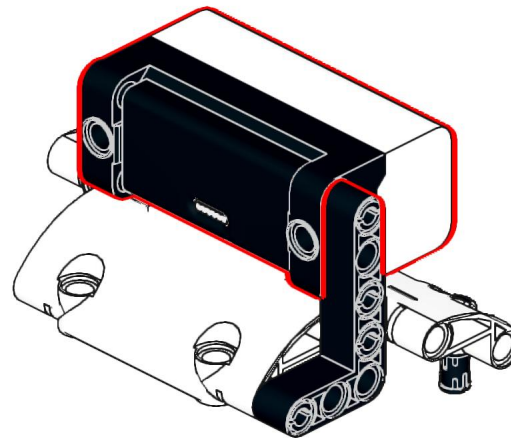
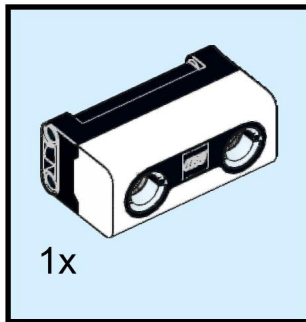
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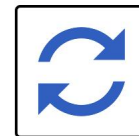
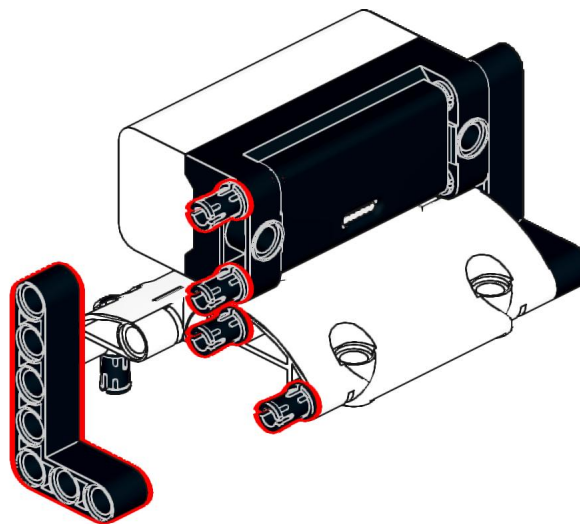
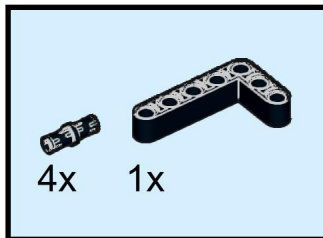
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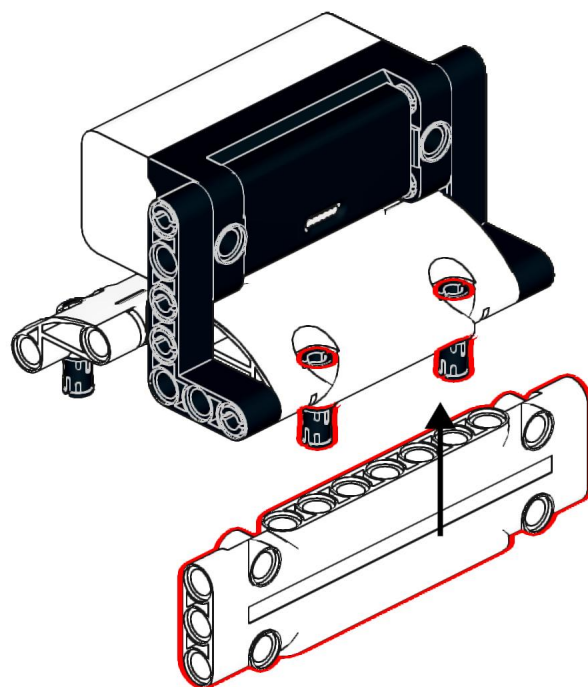
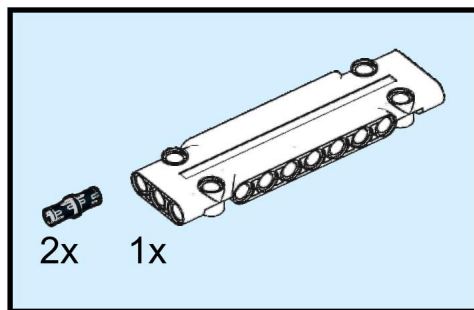
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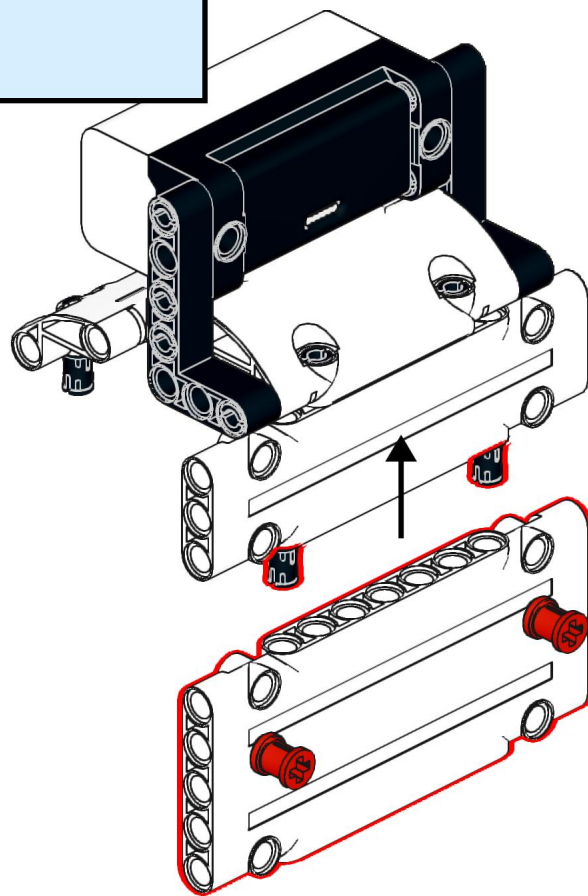
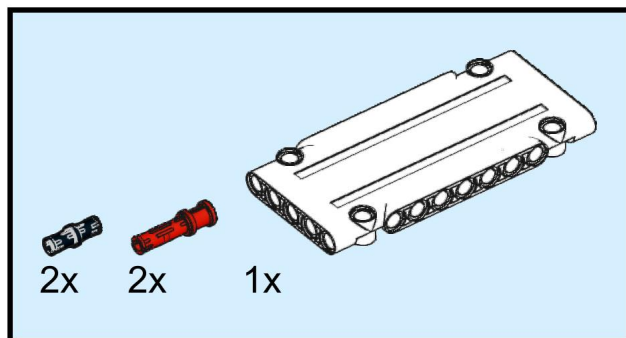
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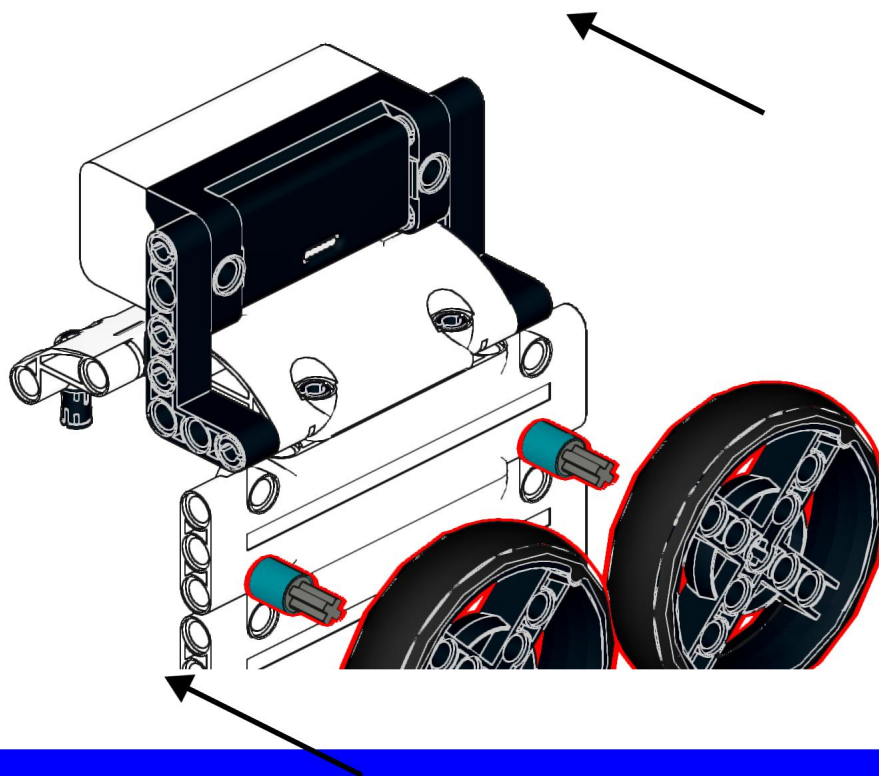
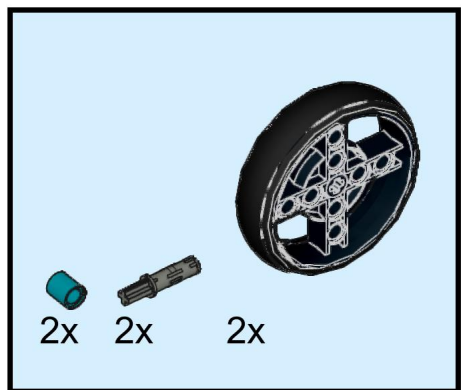
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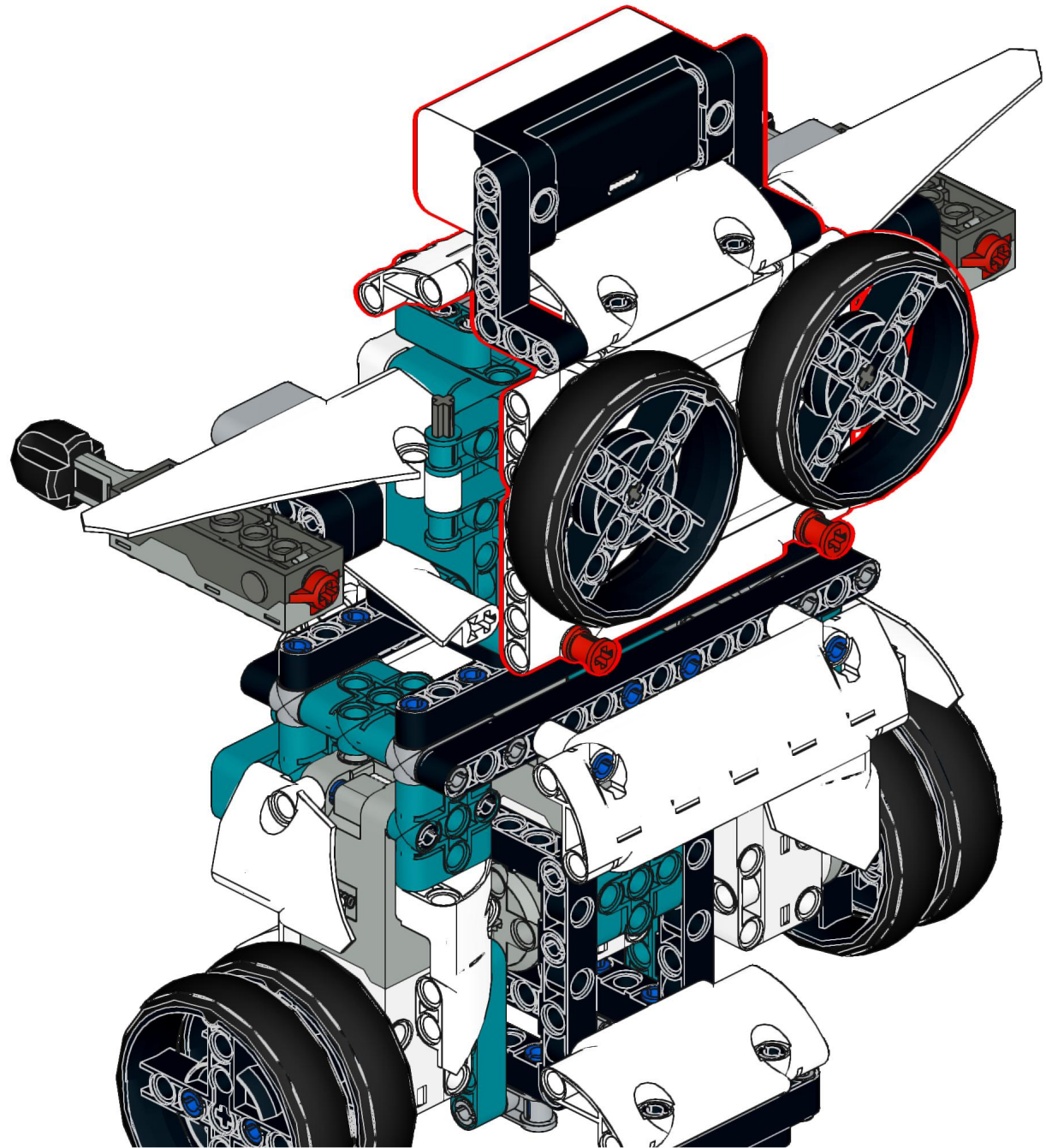
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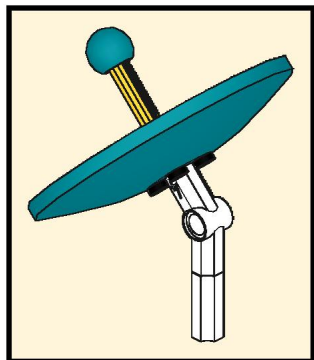
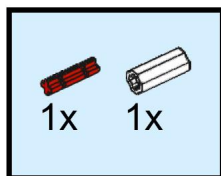
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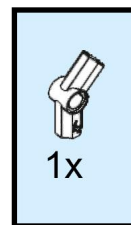
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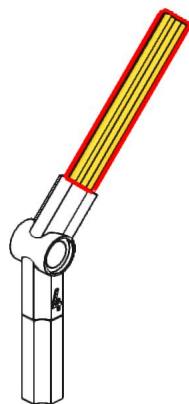
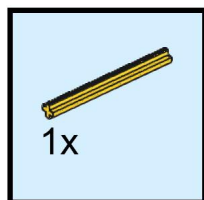
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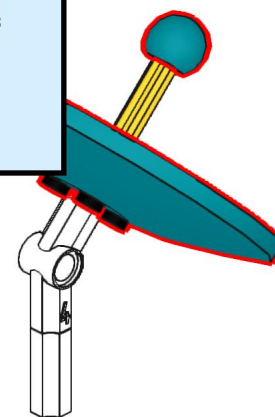
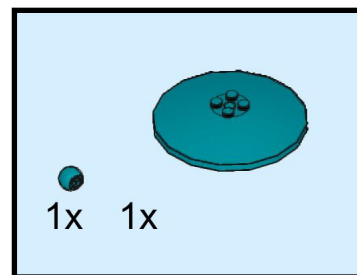
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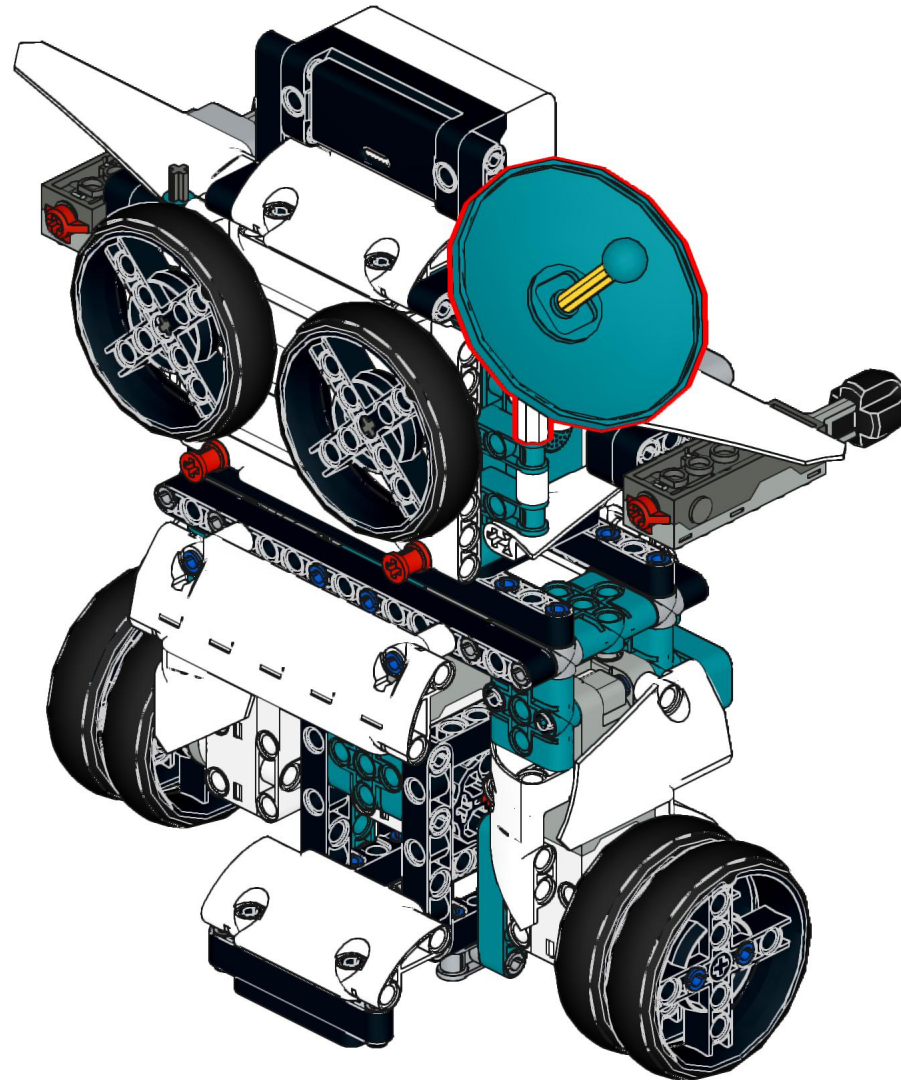
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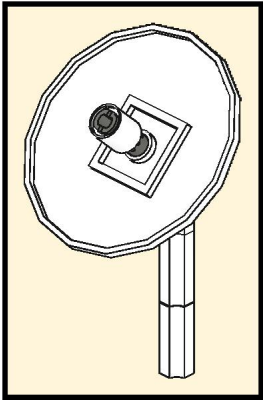
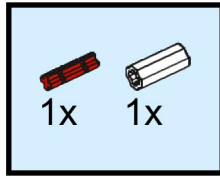
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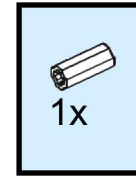
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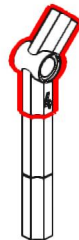
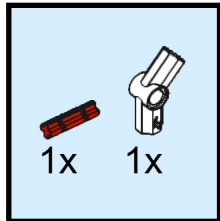
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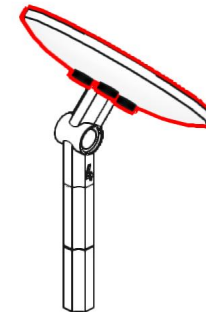
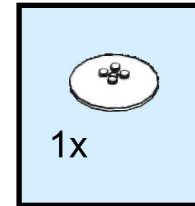
101



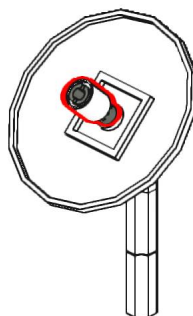
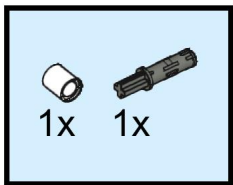
102



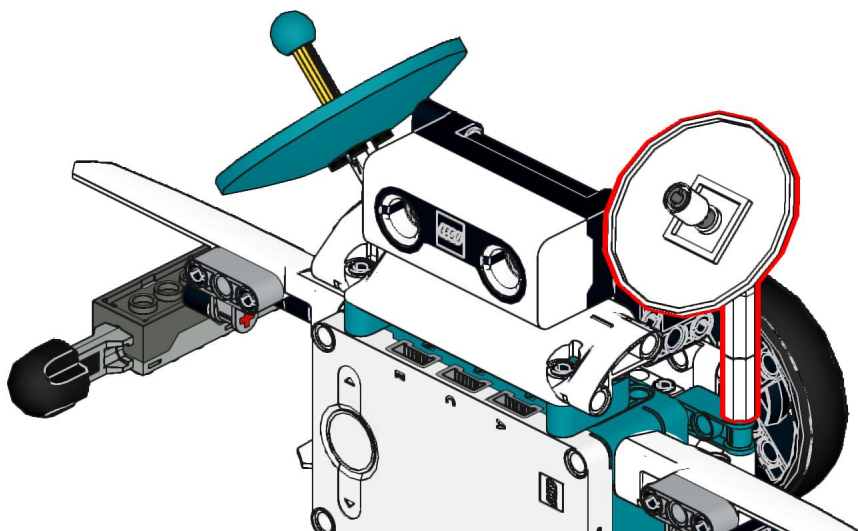
103



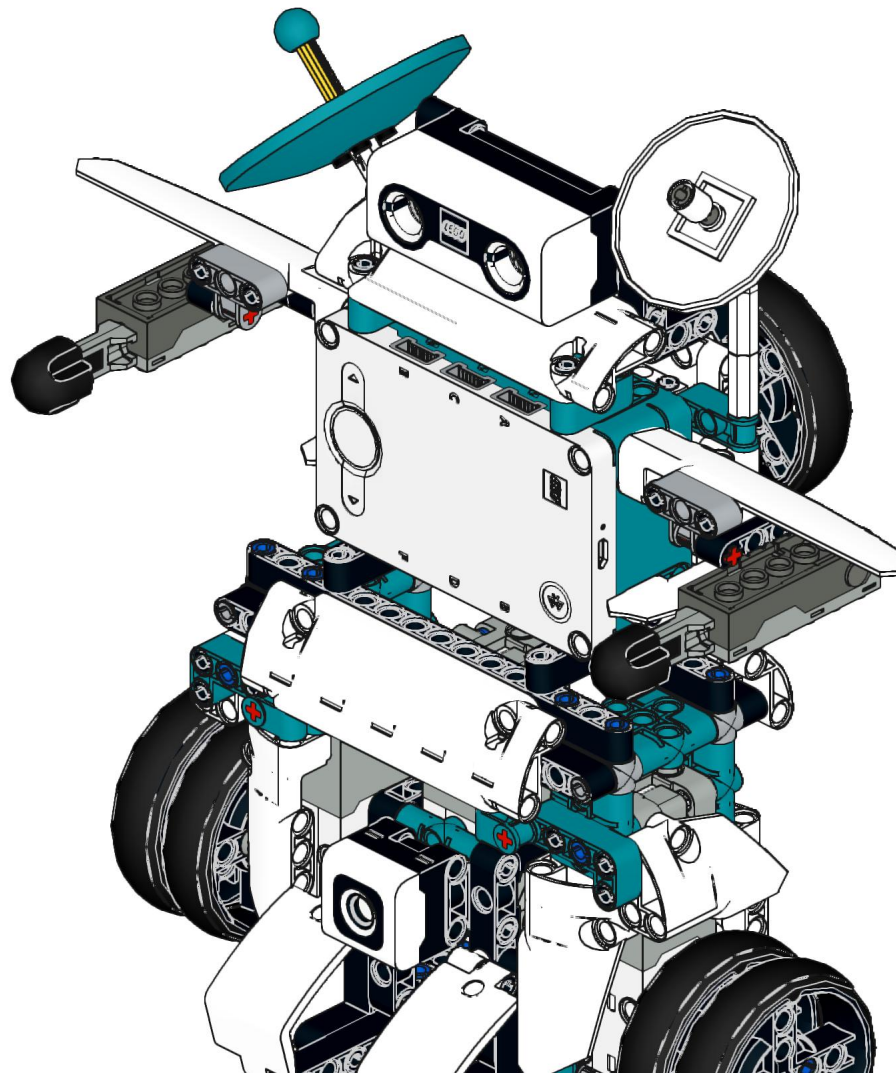
104

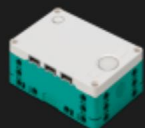


105



106





LEGO Hub Hub OS: 2.1.4.10 60 %

Disconnect



Hardware

Programs



Tilt angle

Orientation

Gyro rate

Acceleration

Yaw:

-134

Pitch:

0

Roll:

88



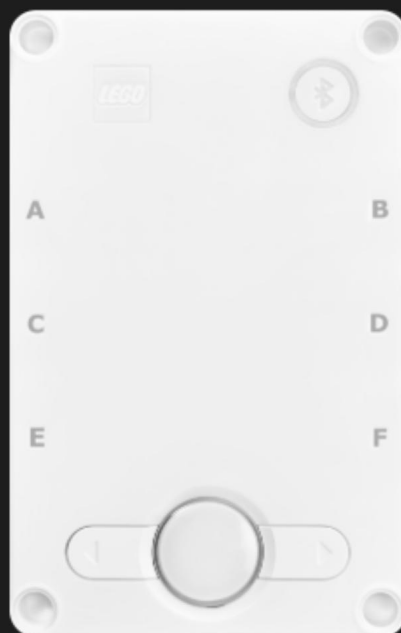
A

84CM



C

-1



B

269°



D

314°

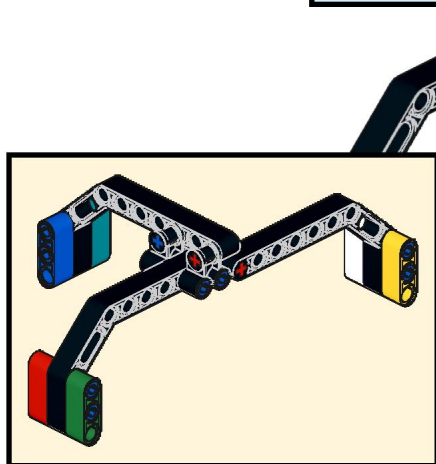
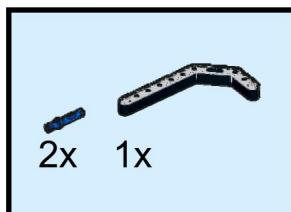


F

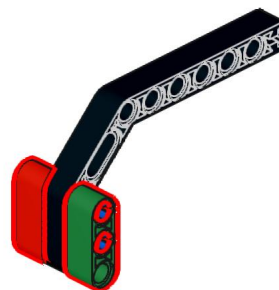
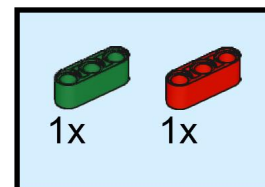
197°



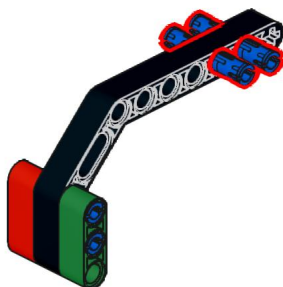
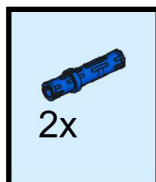
107



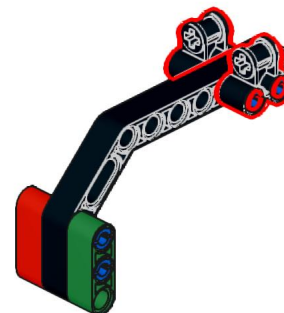
108



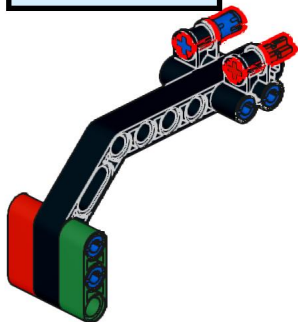
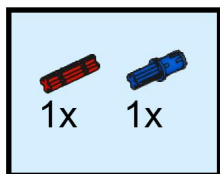
109



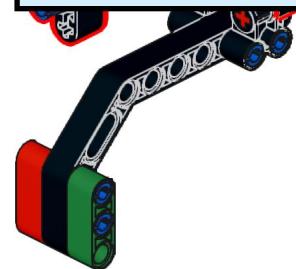
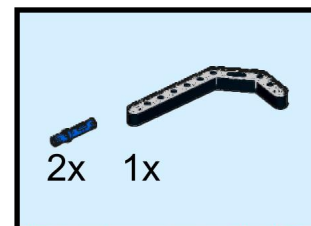
110



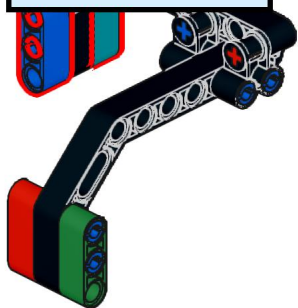
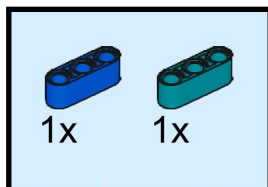
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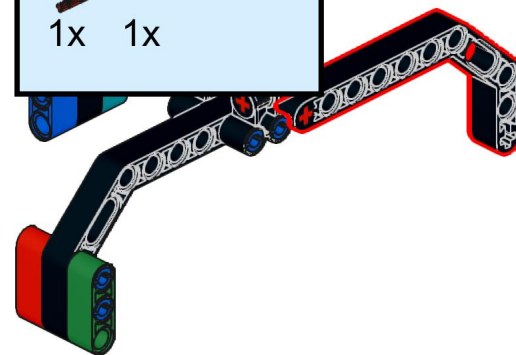
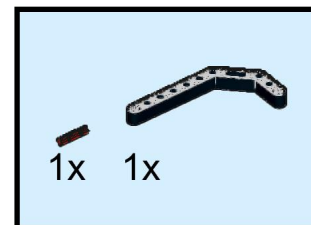
112



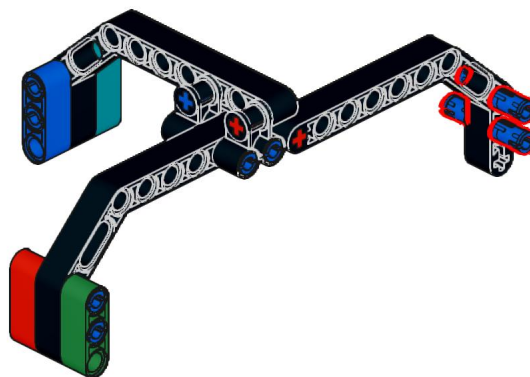
113



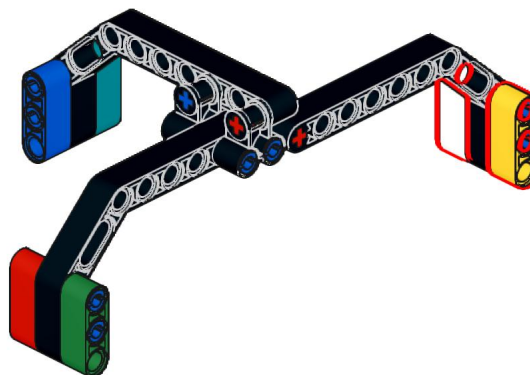
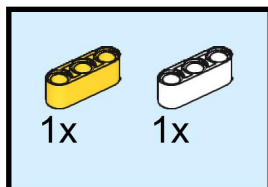
114



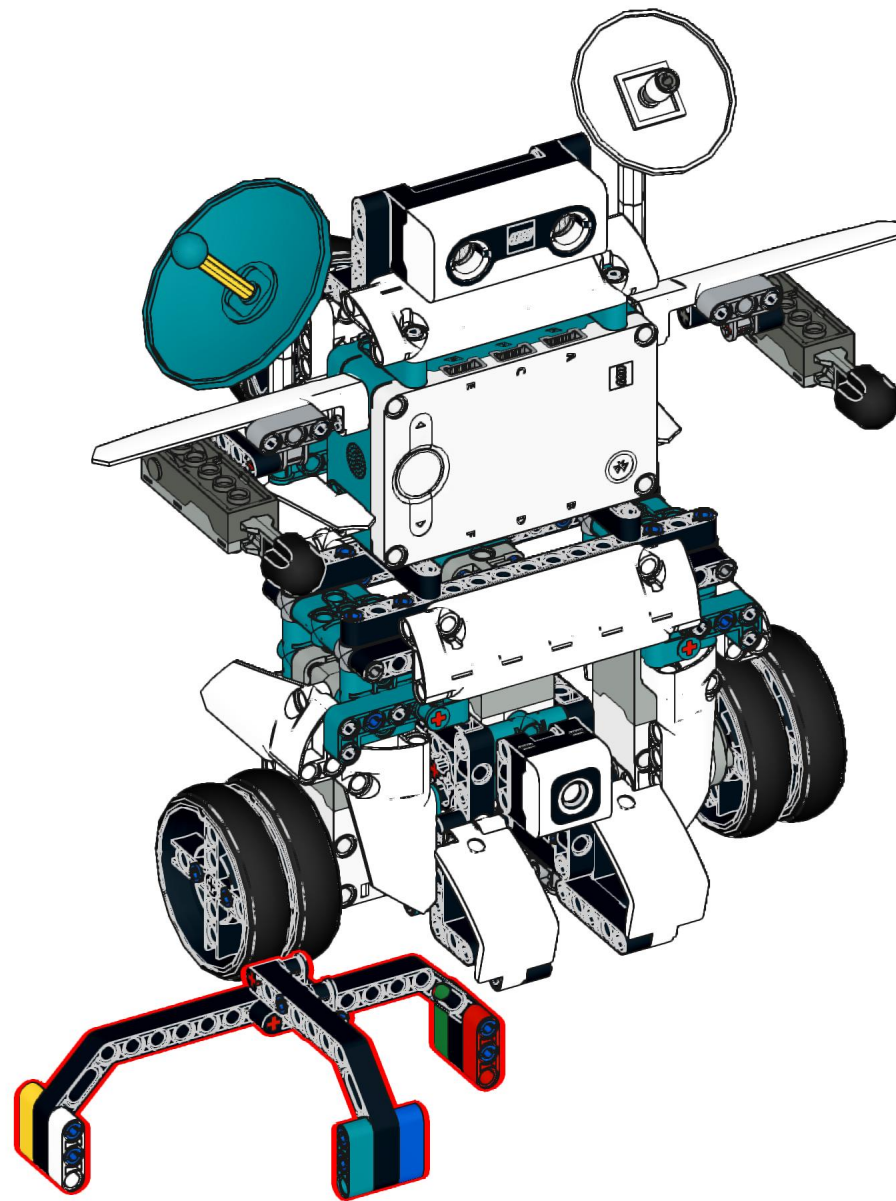
115

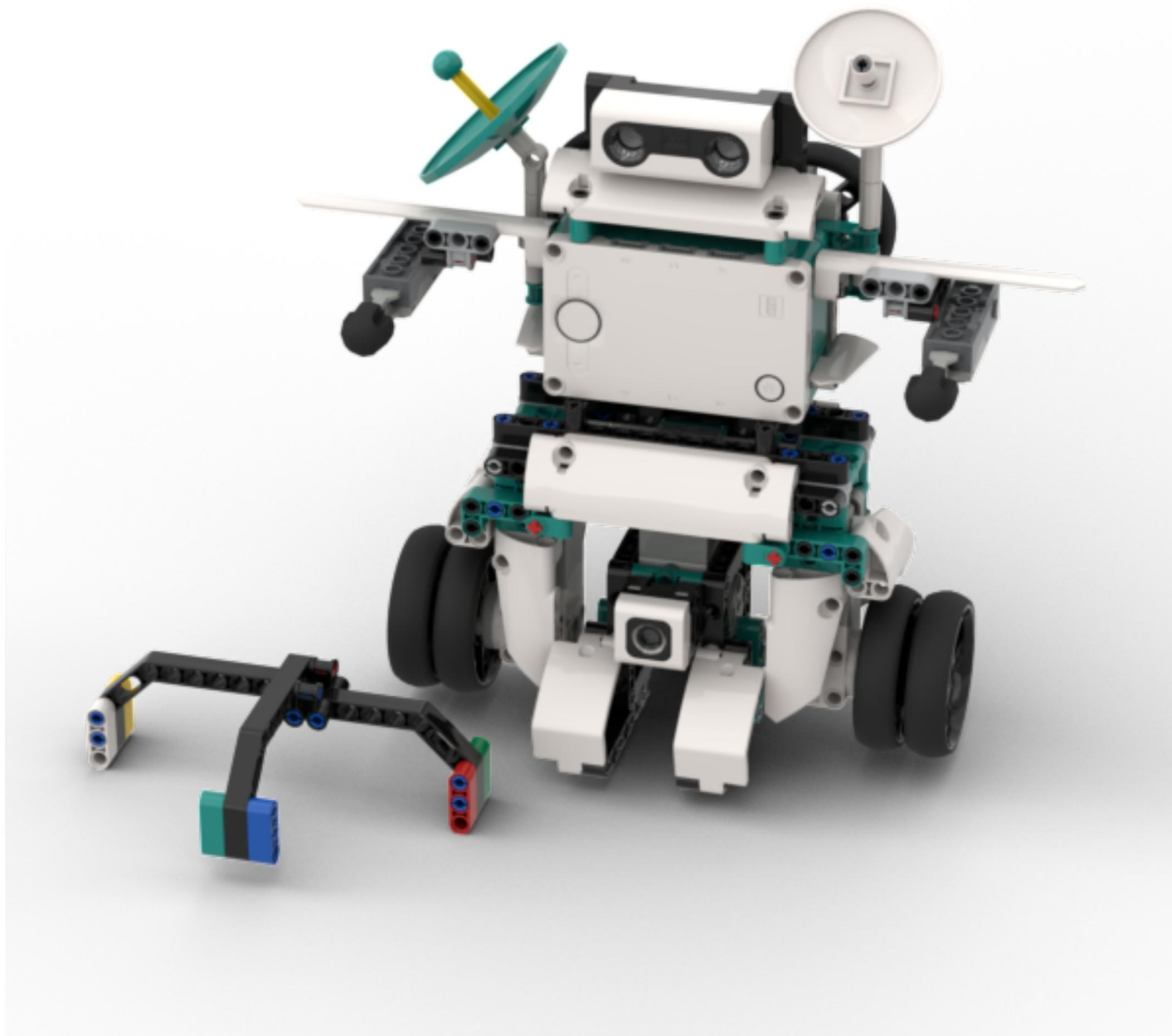


116



117







96x
2780, 11



2x
32316, 11



6x
39367c02, 11



4x
87083, 85



4x
3673, 86



1x
32523, 1



2x
60483, 11



6x
32526, 11



2x
32291, 11



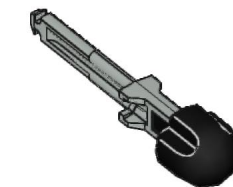
1x
32524, 11



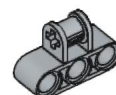
2x
3705, 11



3x
32009, 11



2x



2x
63869, 86



1x



3x
98585, 11



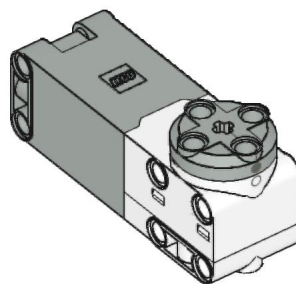
2x
64179, 11



2x
32140, 11



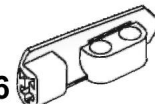
4x
32278, 11



3x
54696c01, 9



5x
18654, 1



1x
11946, 1



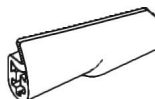
1x
11478, 11



3x
11214, 85



3x
6538c, 1



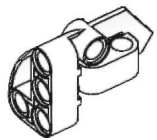
1x
11947, 1



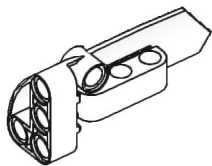
2x
15100, 1



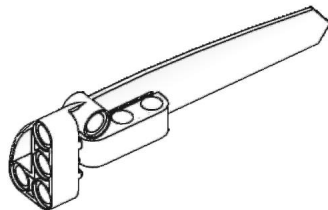
4x
4274, 86



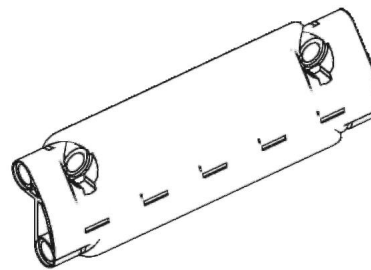
1x
87086, 1



2x
64391, 1



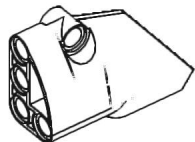
1x
64393, 1



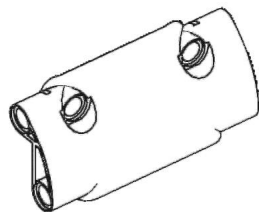
3x
62531, 1



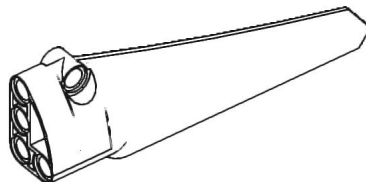
1x
32523, 3



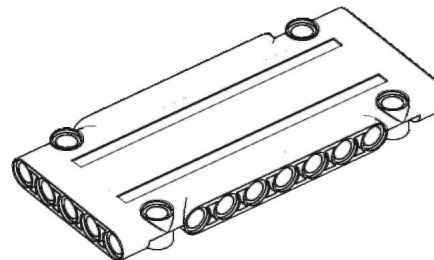
2x
87080, 1



2x
24119, 1



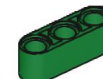
1x
64681, 1



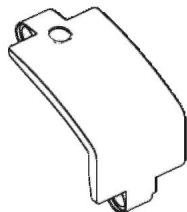
1x
64782, 1



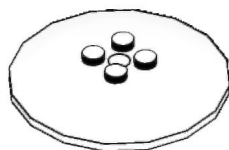
1x
32073, 3



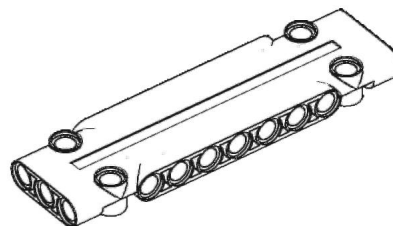
1x
32523, 6



2x
24116, 1



1x
44375b, 1



1x
15458, 1



10x
32062, 5



1x
32523, 5



2x
32054, 5



2x
18654, 39



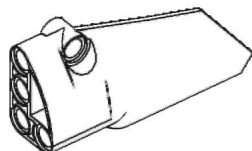
1x
32474, 39



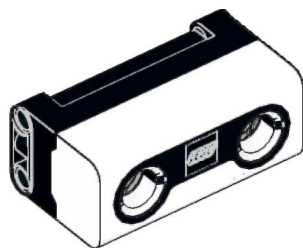
2x
6536, 39



4x
42003, 39



1x
64683, 1



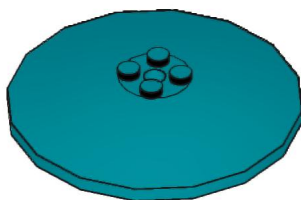
1x



5x
32523, 39



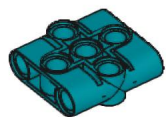
1x
32523, 7



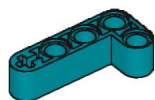
1x
3961, 39



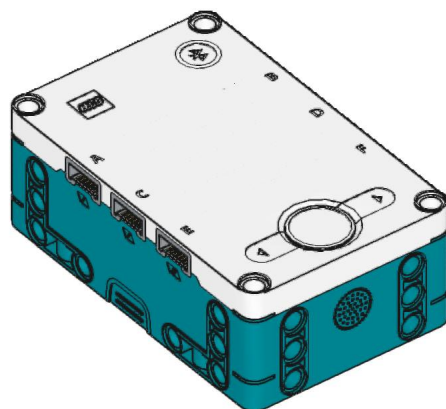
2x
60484, 39



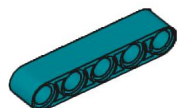
8x
39793, 39



2x
32140, 39



1x



2x
32316, 39



9x
43093, 7



30x
6558, 7

