



SPIKE PRIME OMNI-3 by Dimi

 **LEGO® Education Academy**
Certified Trainer

You need: 1 x SPIKE Prime set (45678)

+



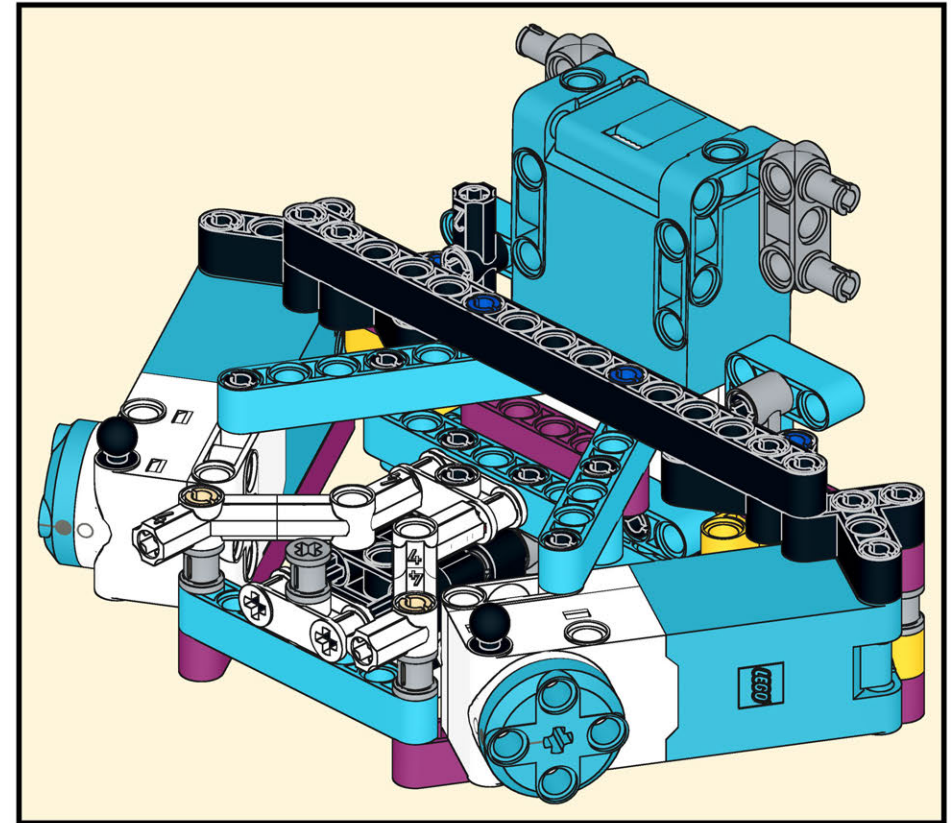
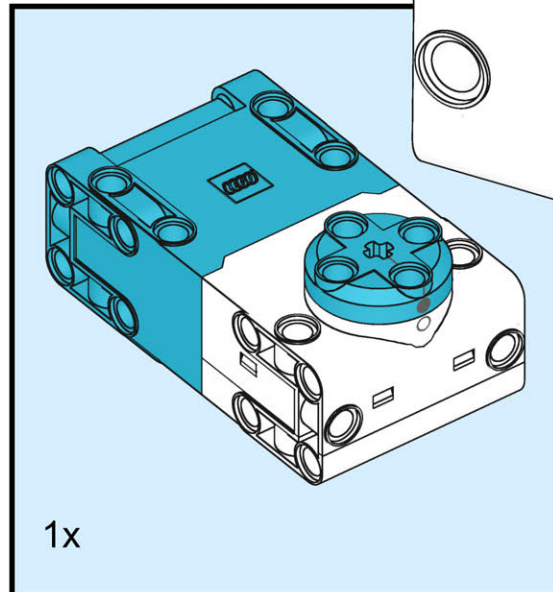
3 x LEGO-built Omni wheels

OR

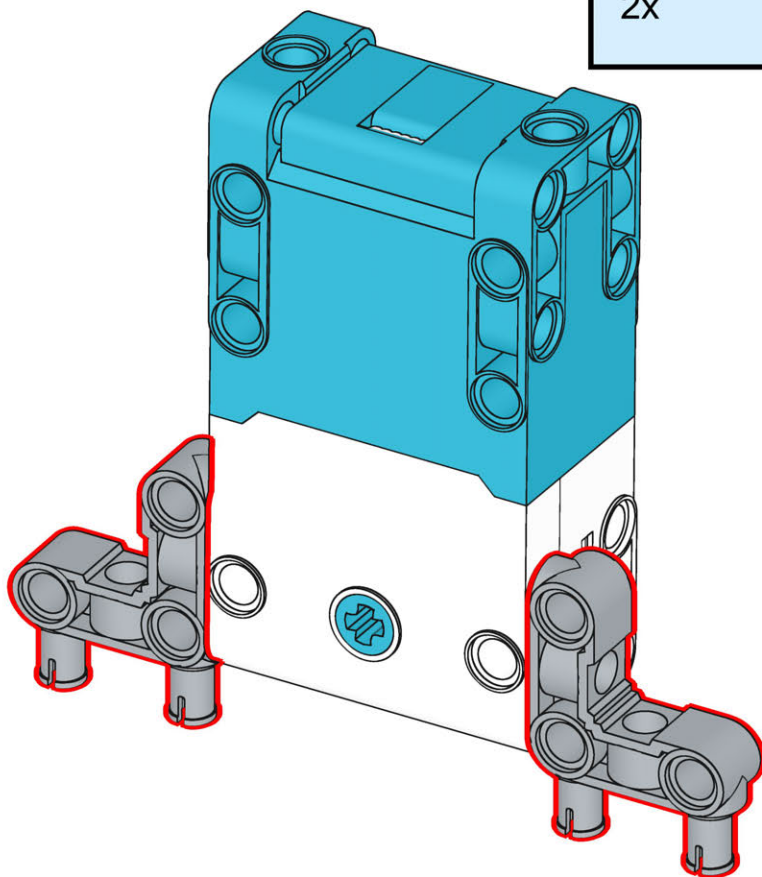
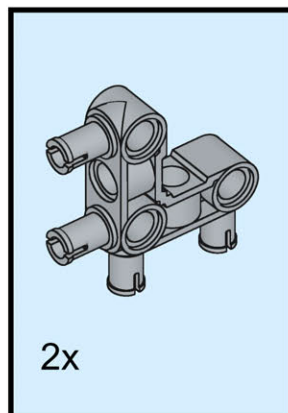


3 x LEGO-compatible Omni wheels (58 mm)

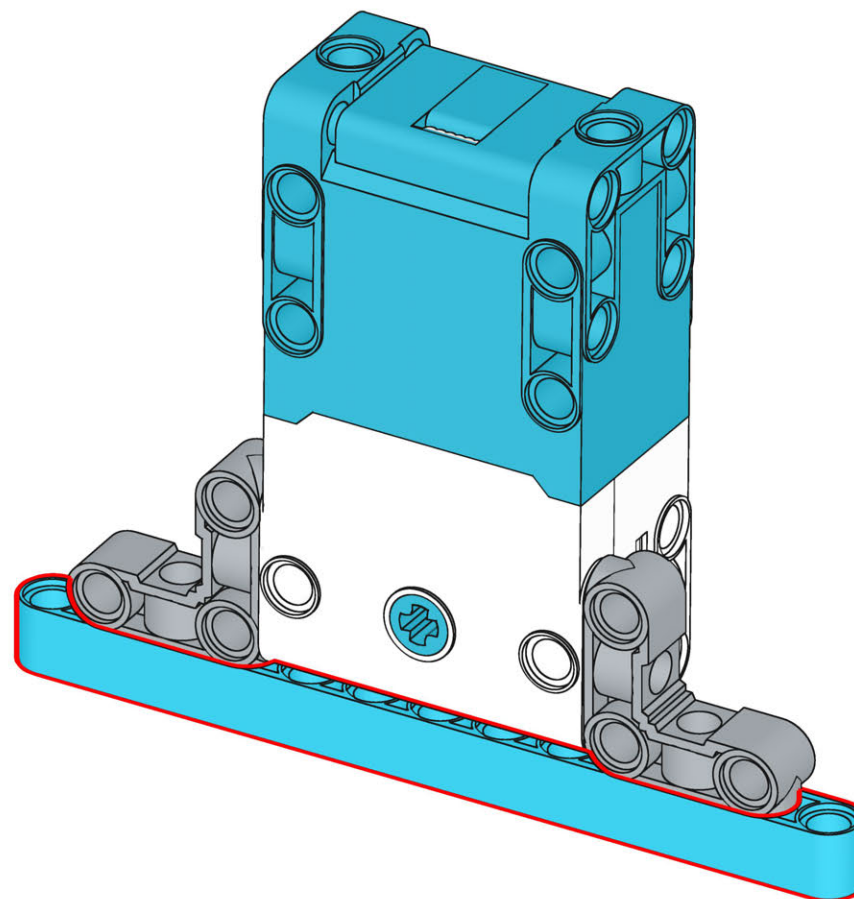
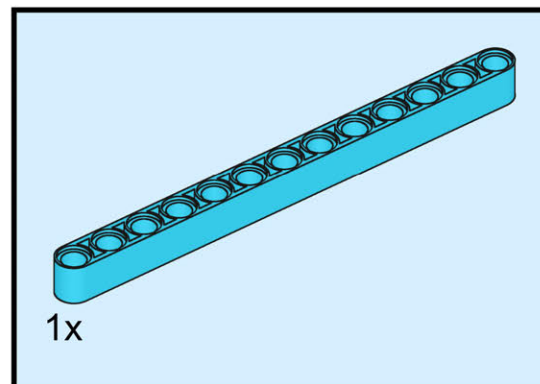
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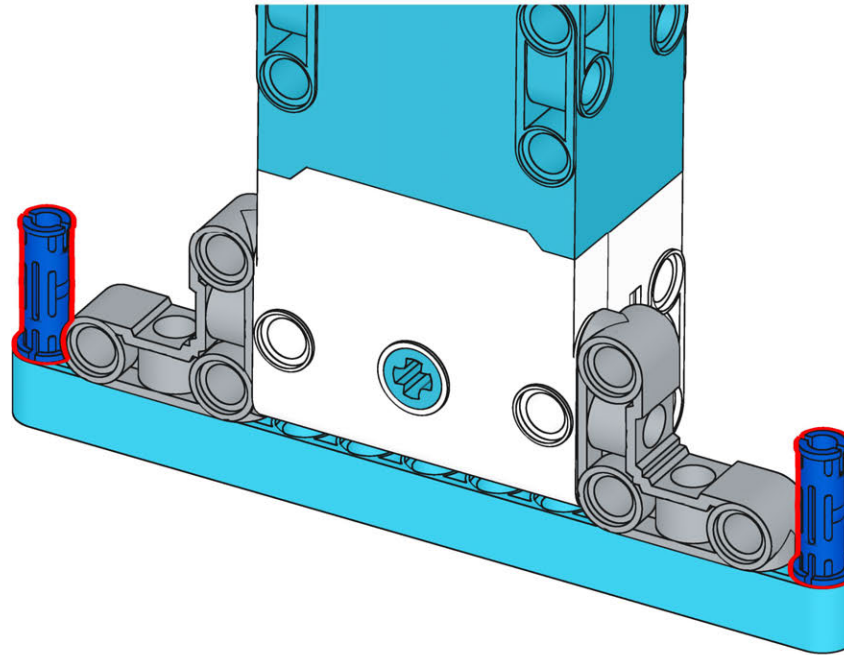
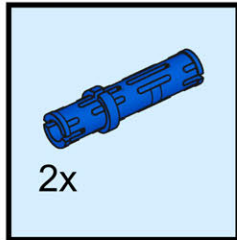
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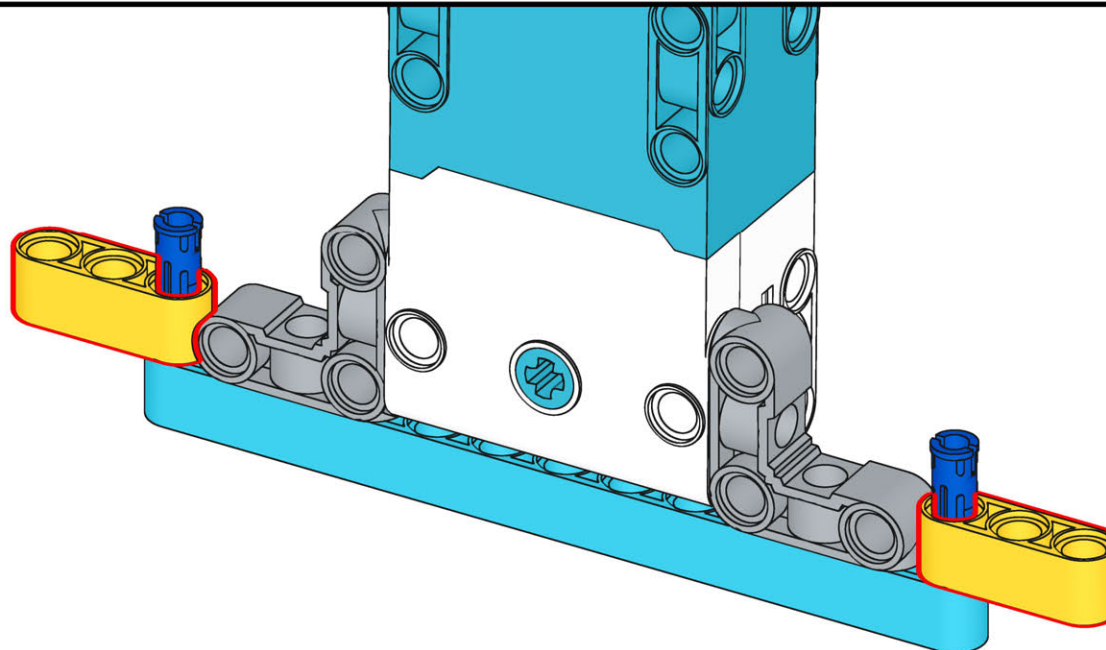
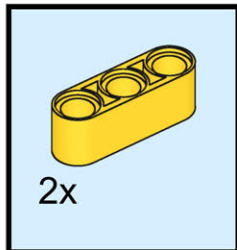
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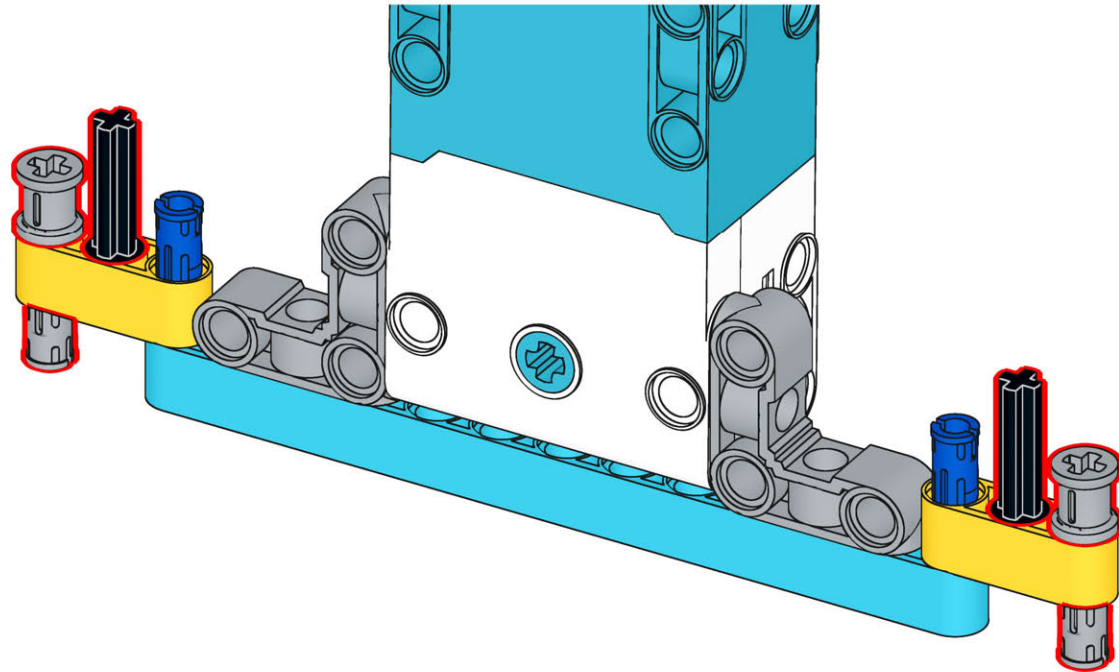
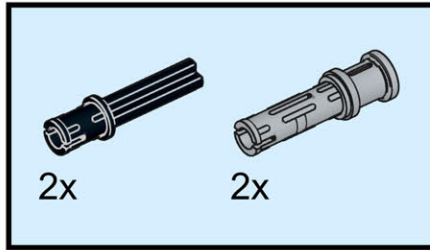
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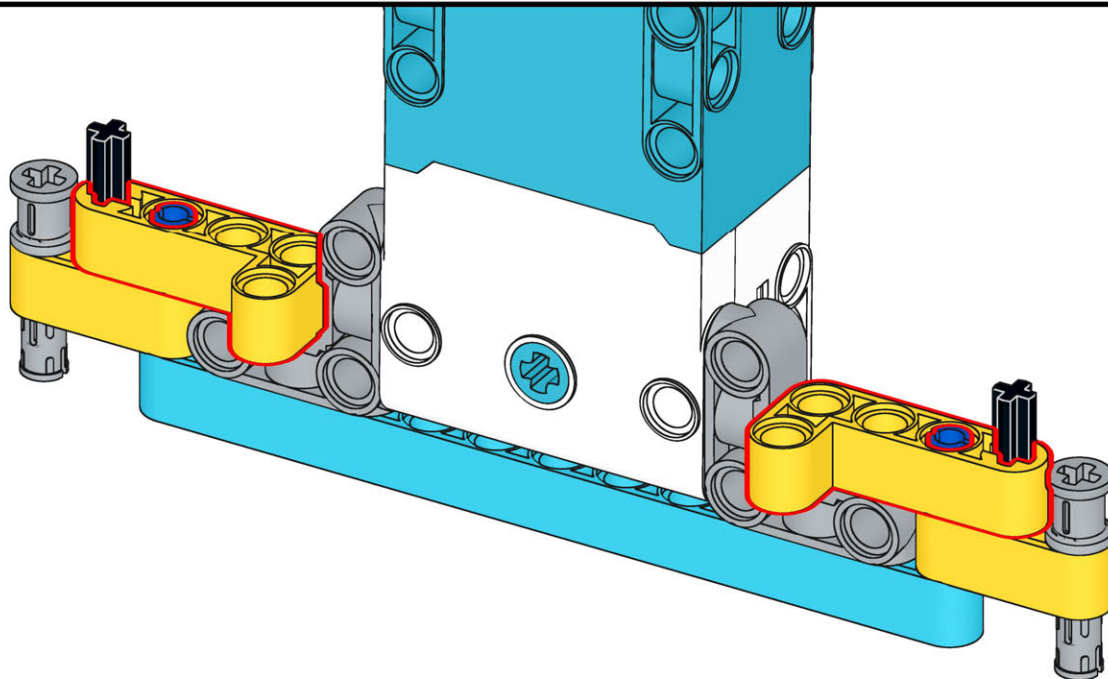
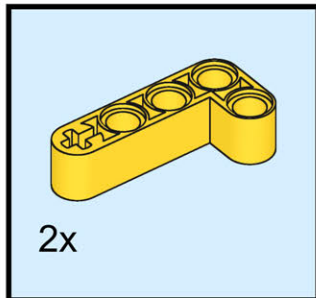
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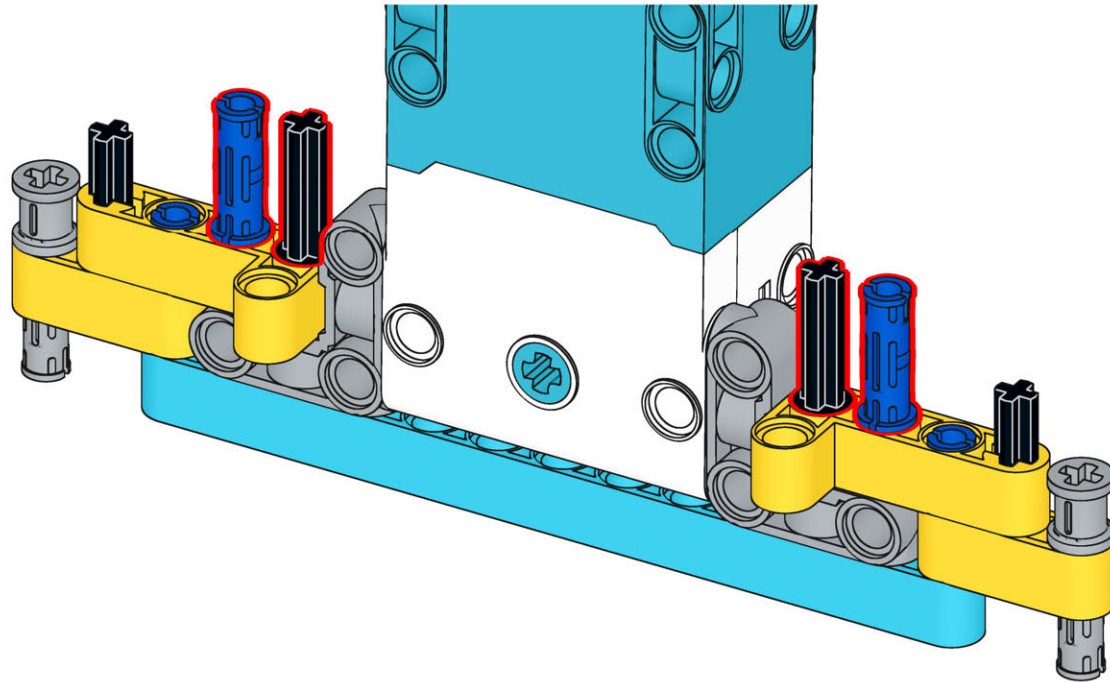
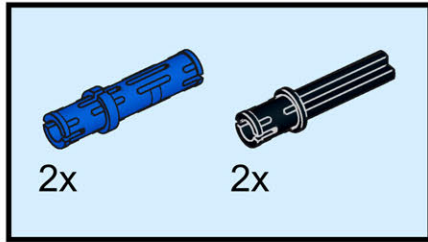
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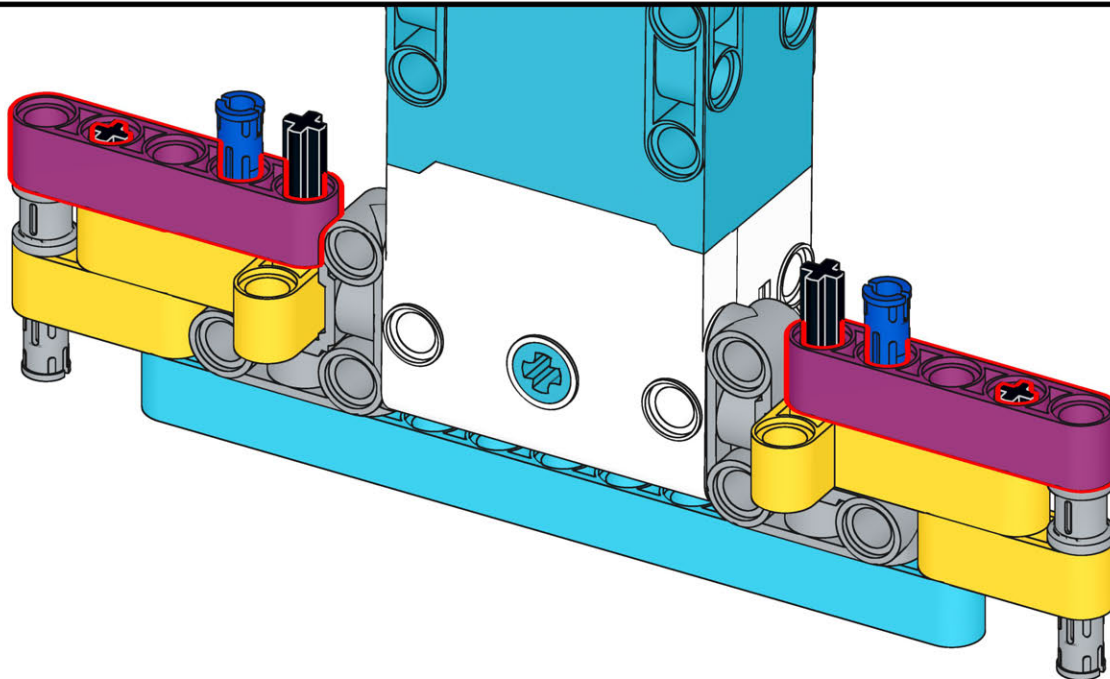
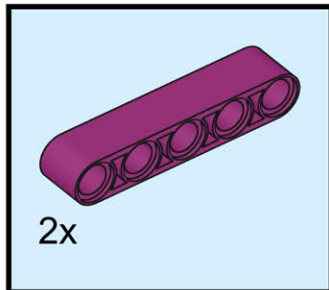
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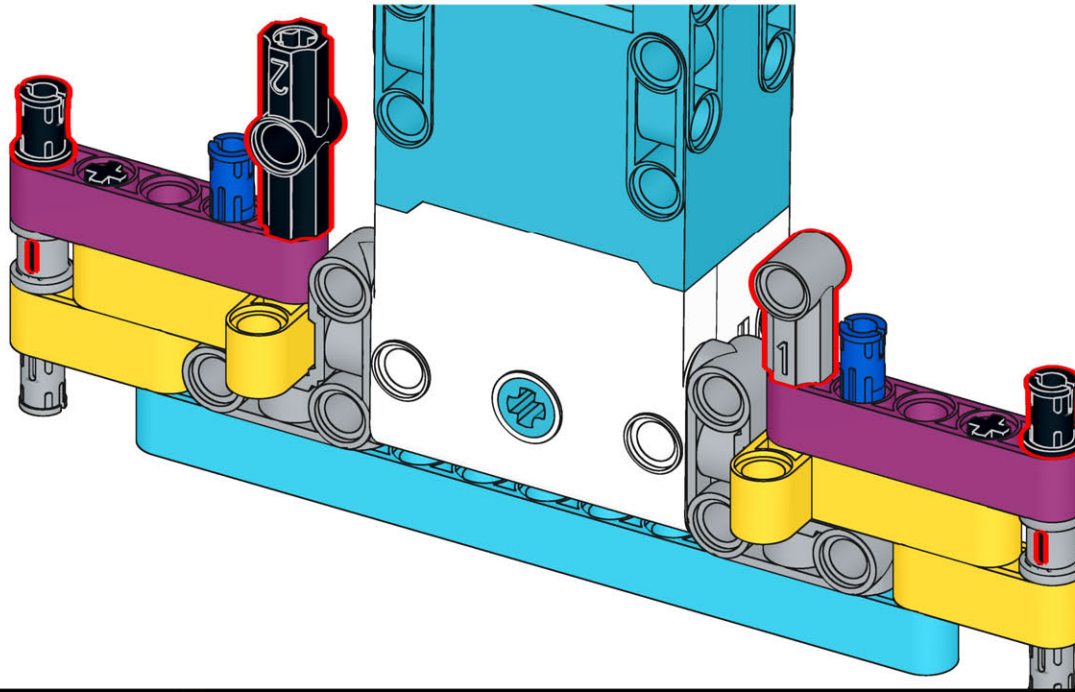
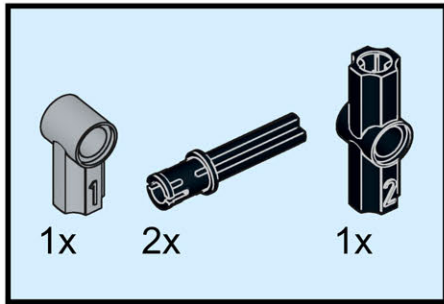
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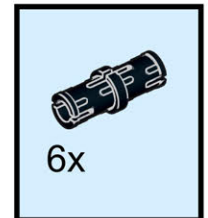
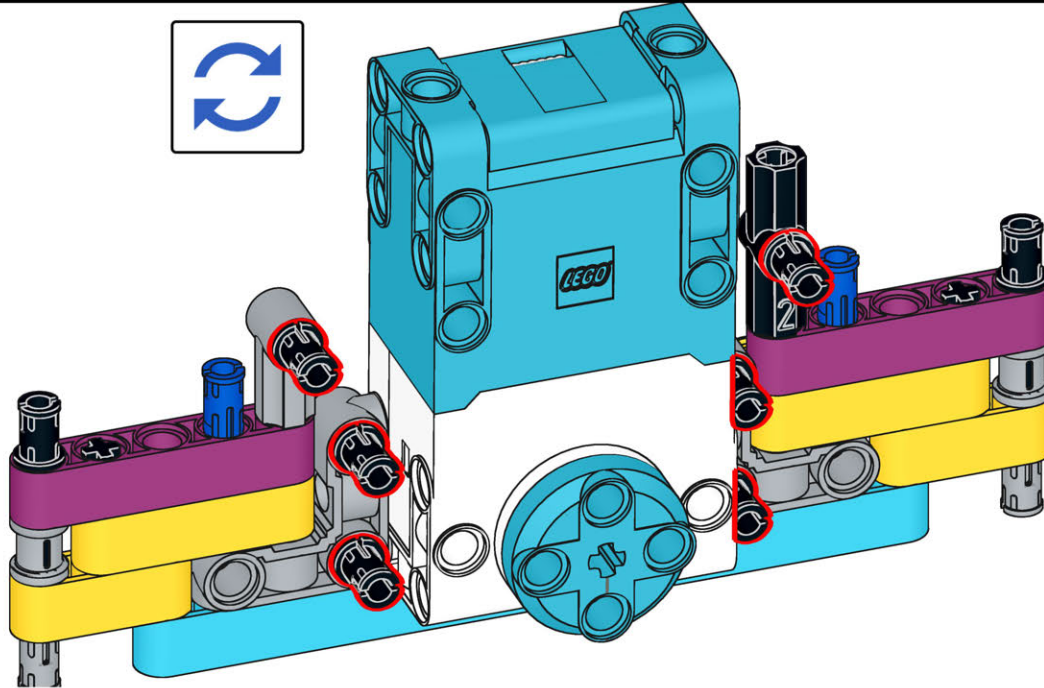
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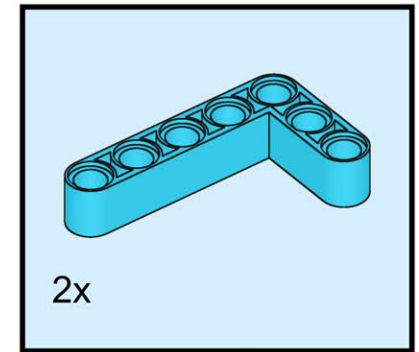
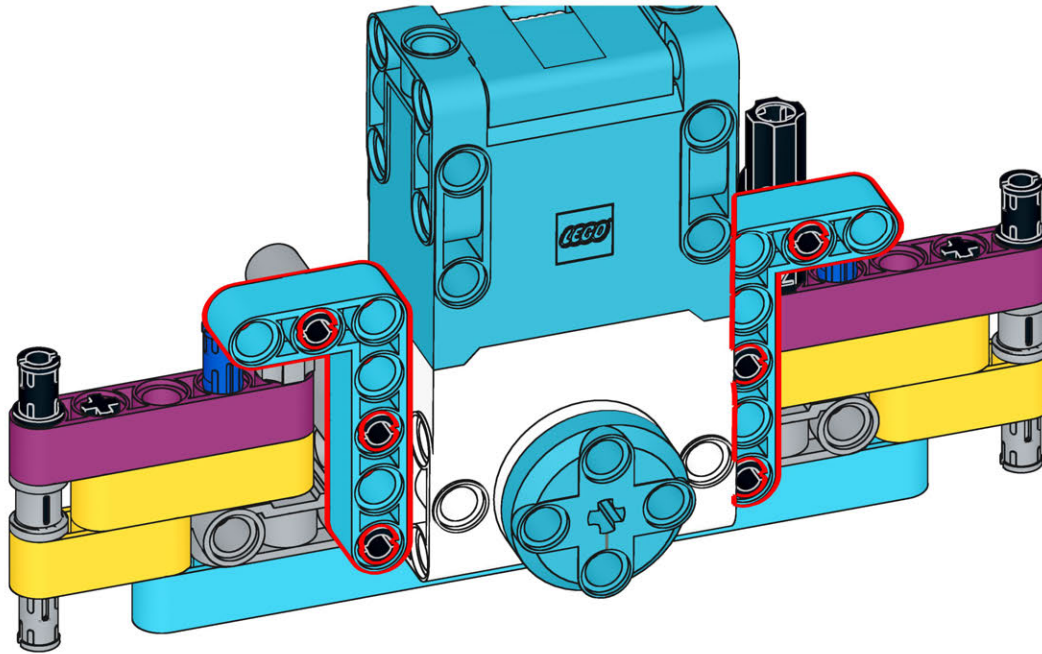
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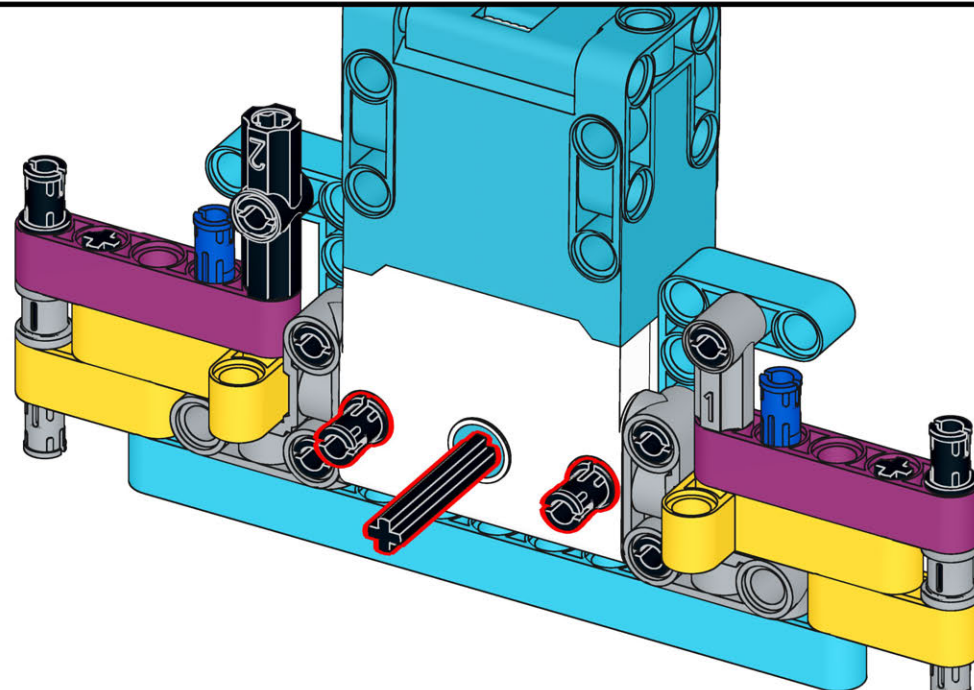
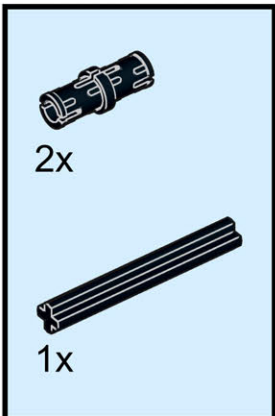
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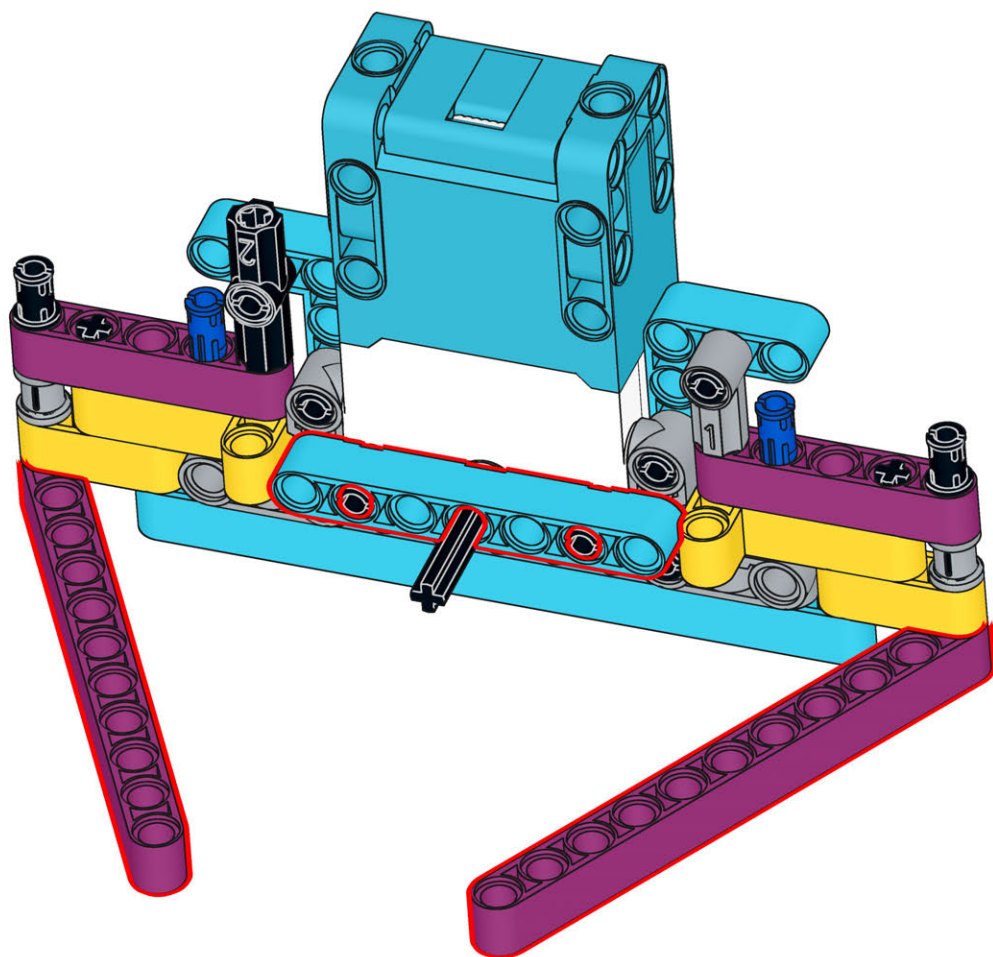
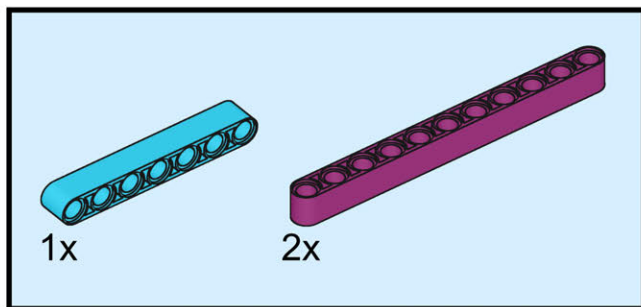
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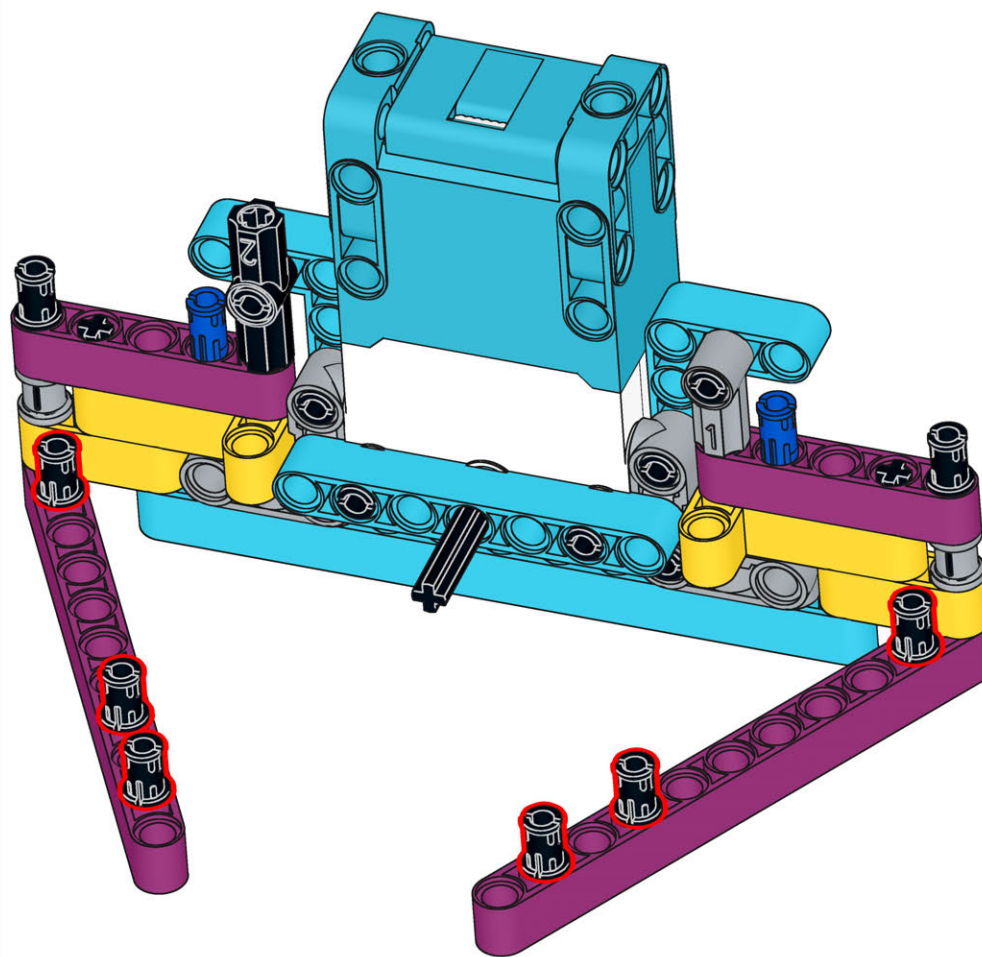
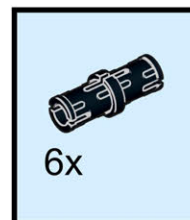
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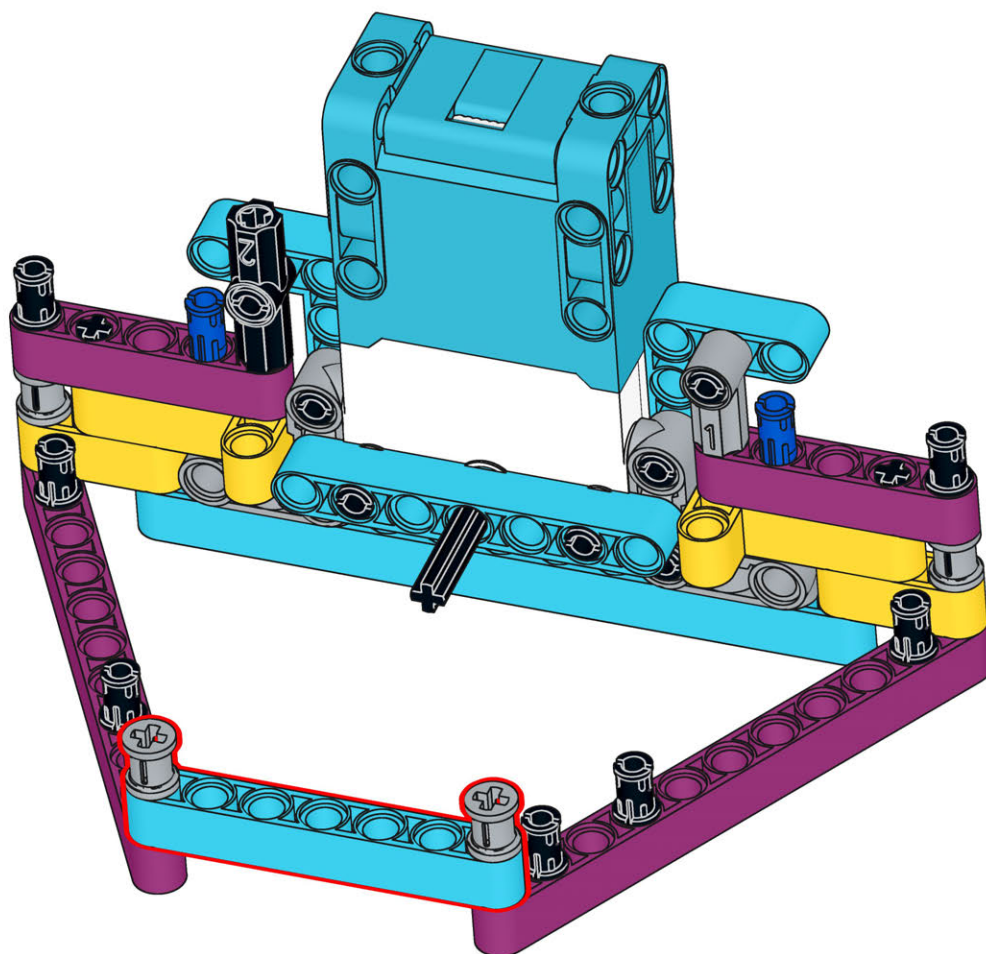
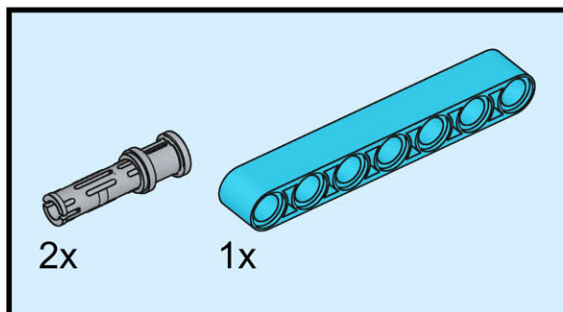
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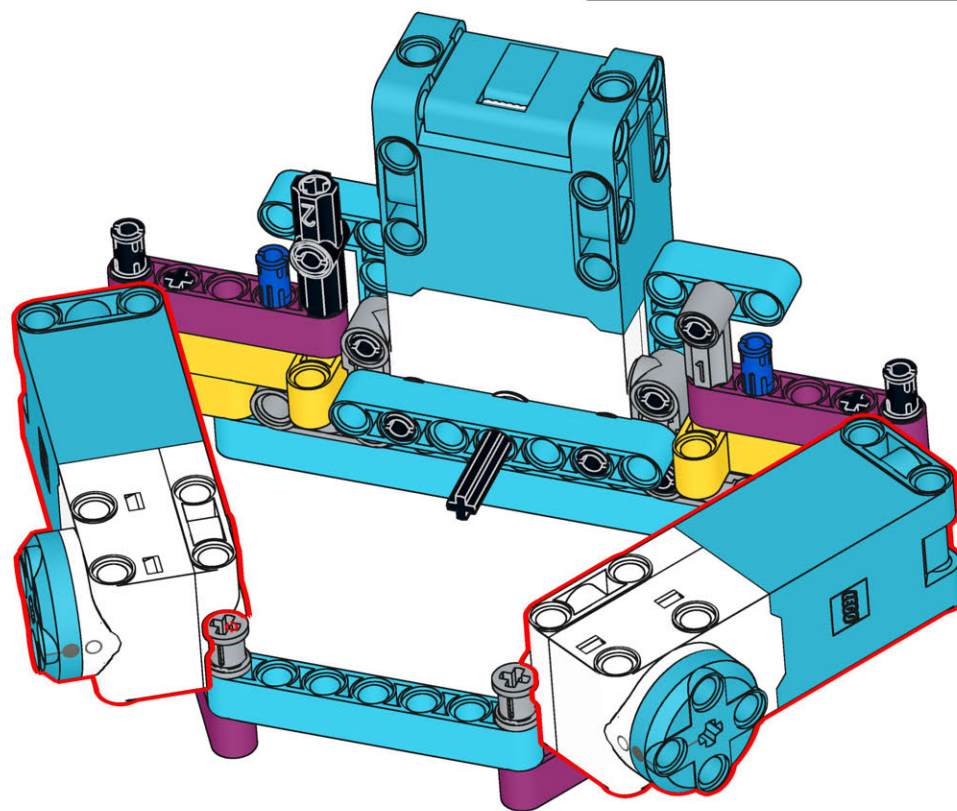
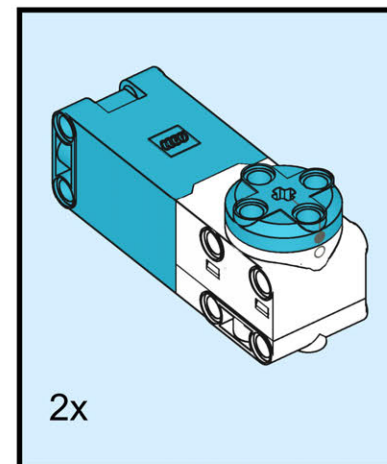
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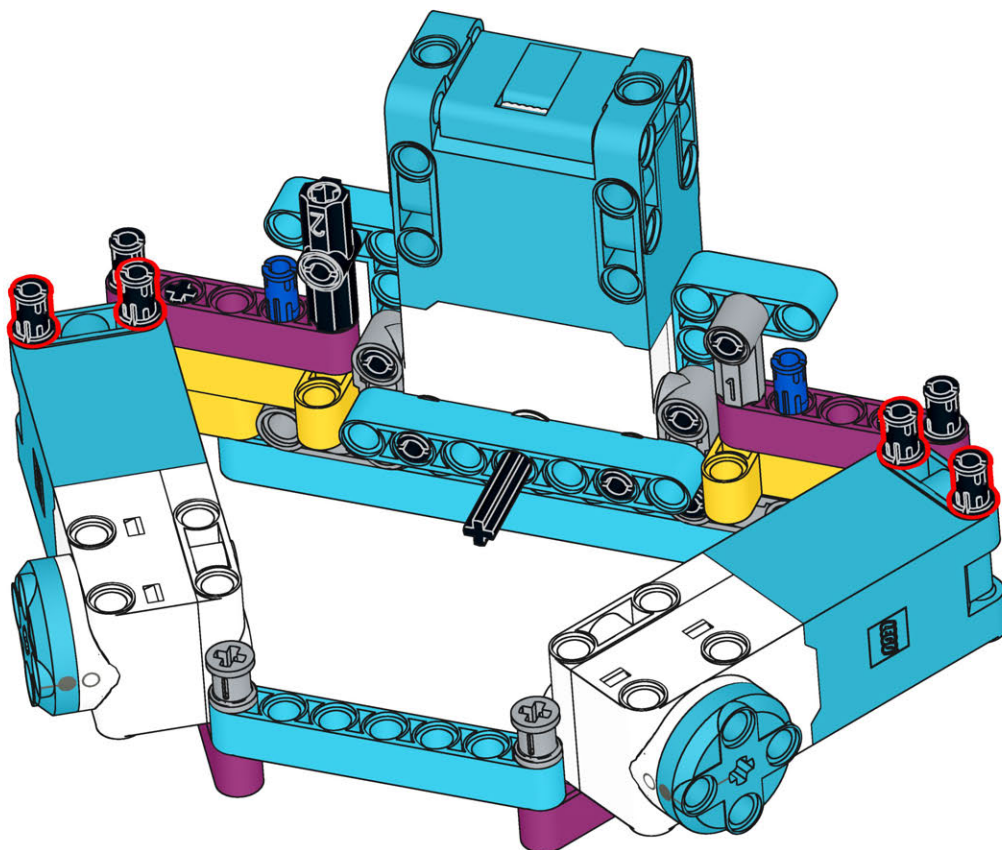
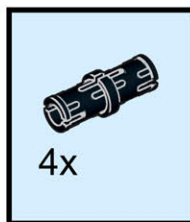
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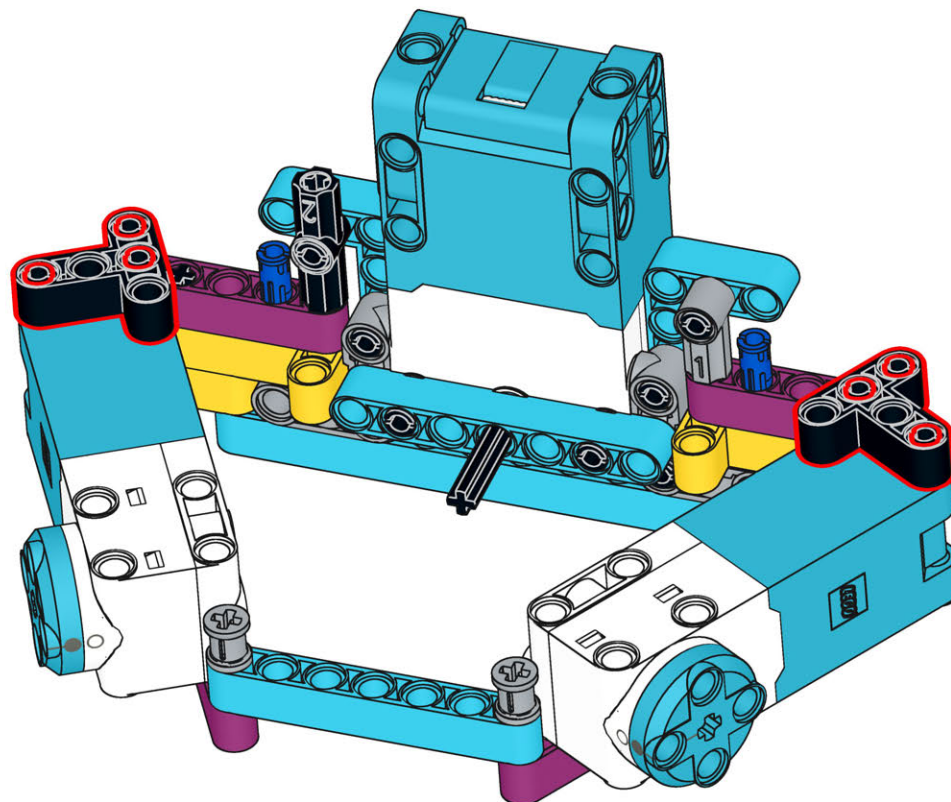
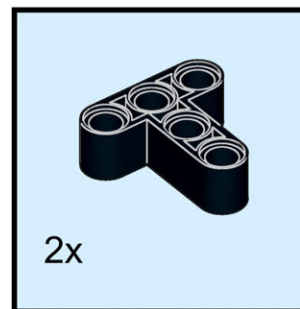
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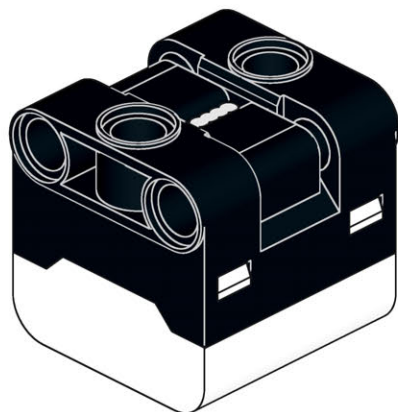
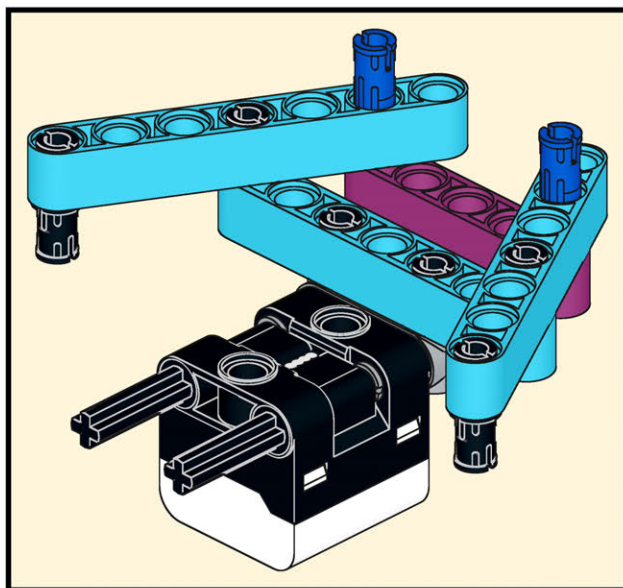
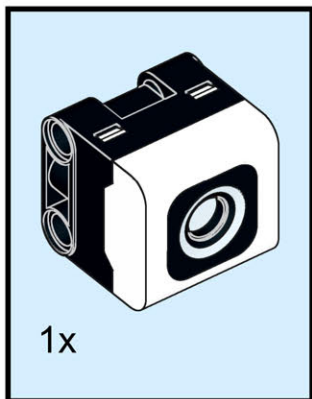
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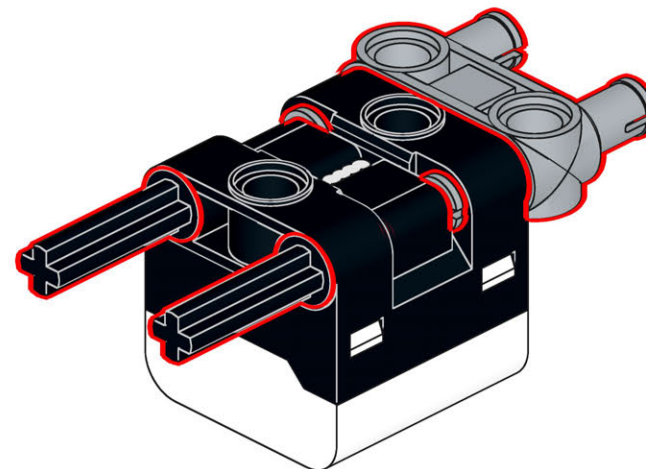
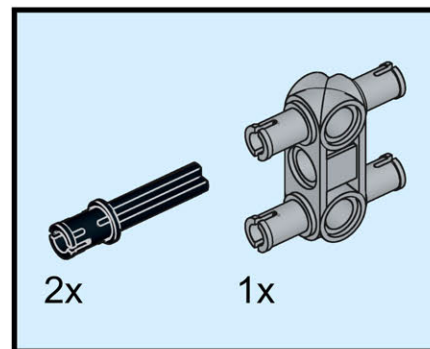
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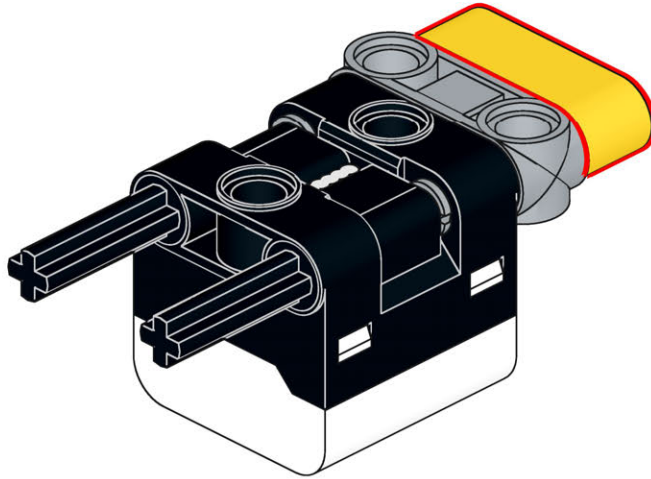
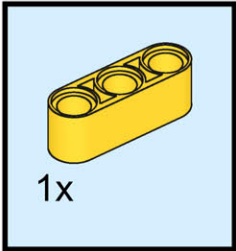
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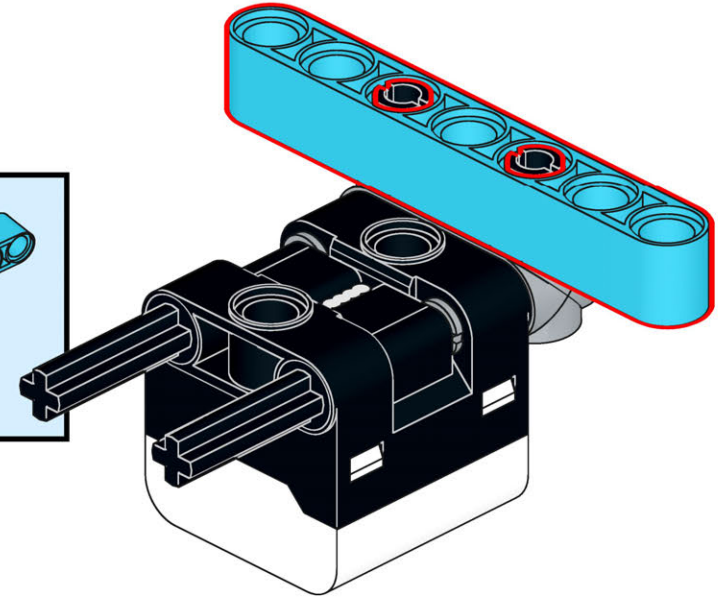
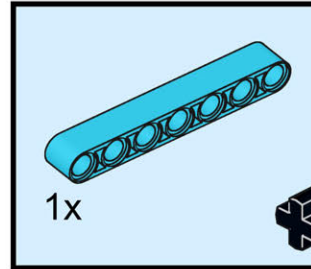
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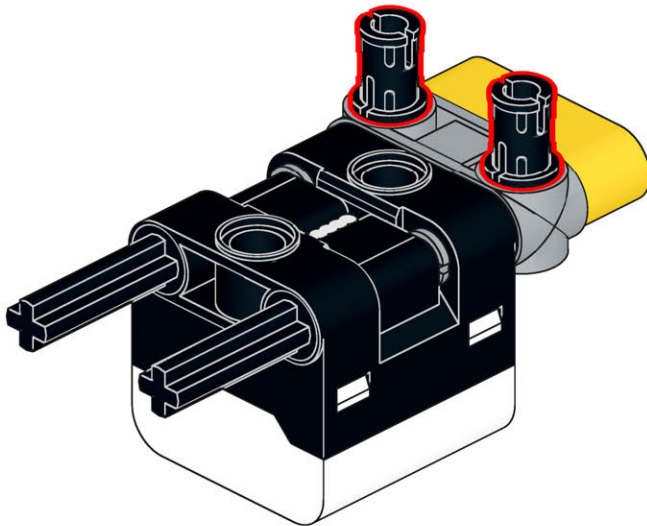
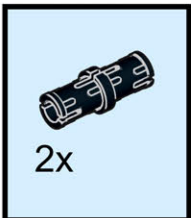
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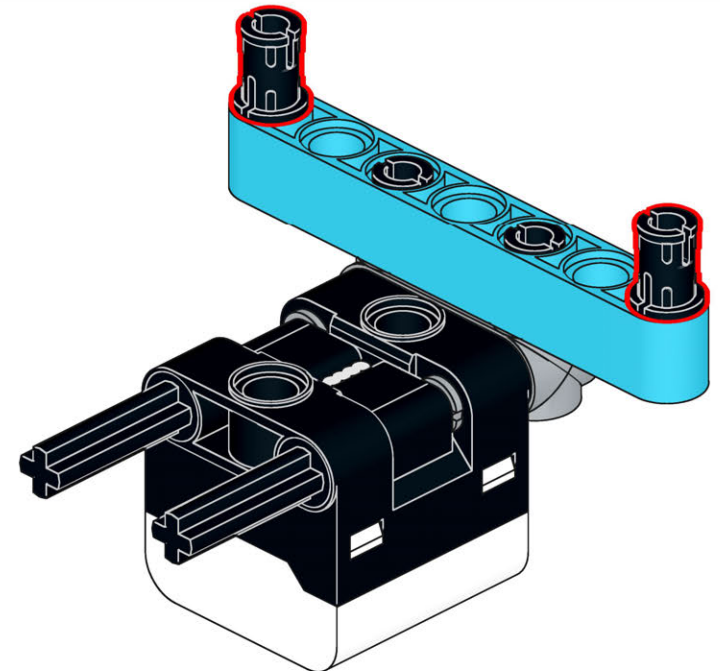
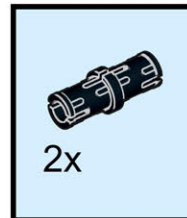
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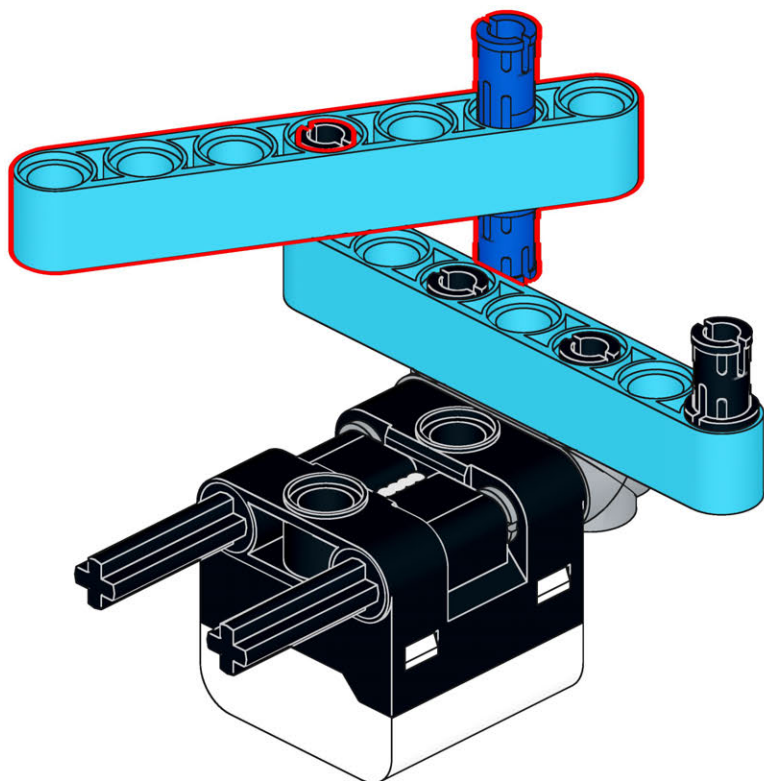
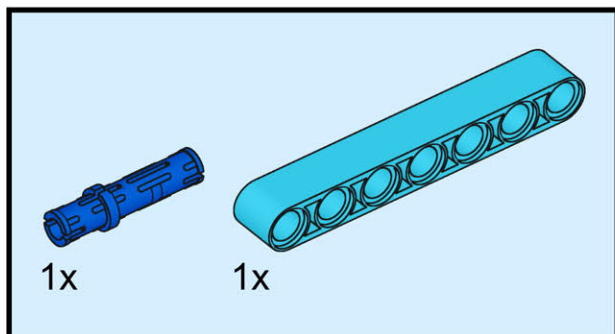
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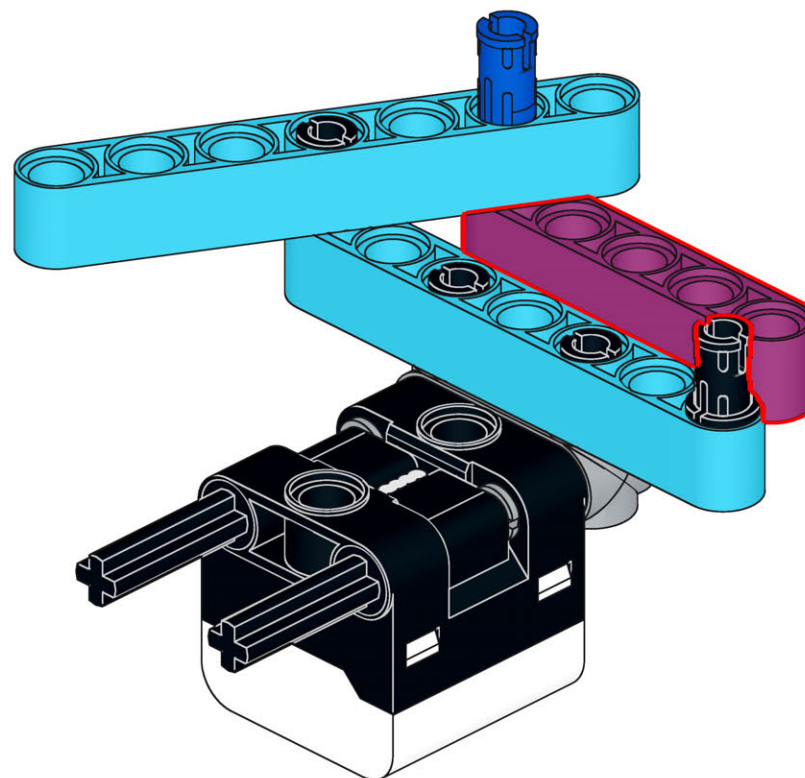
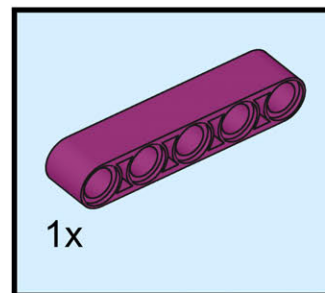
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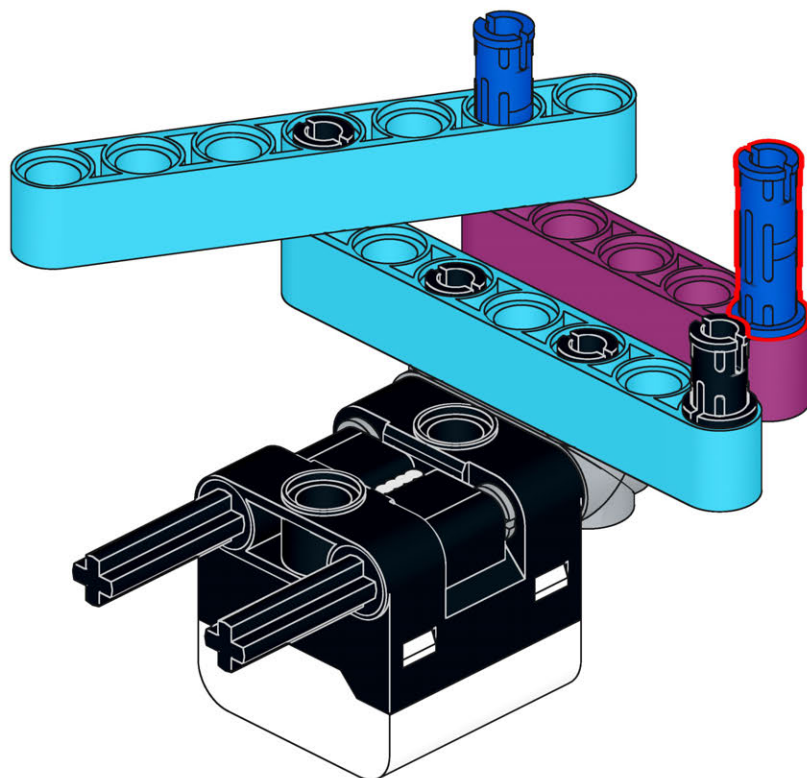
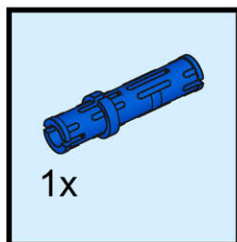
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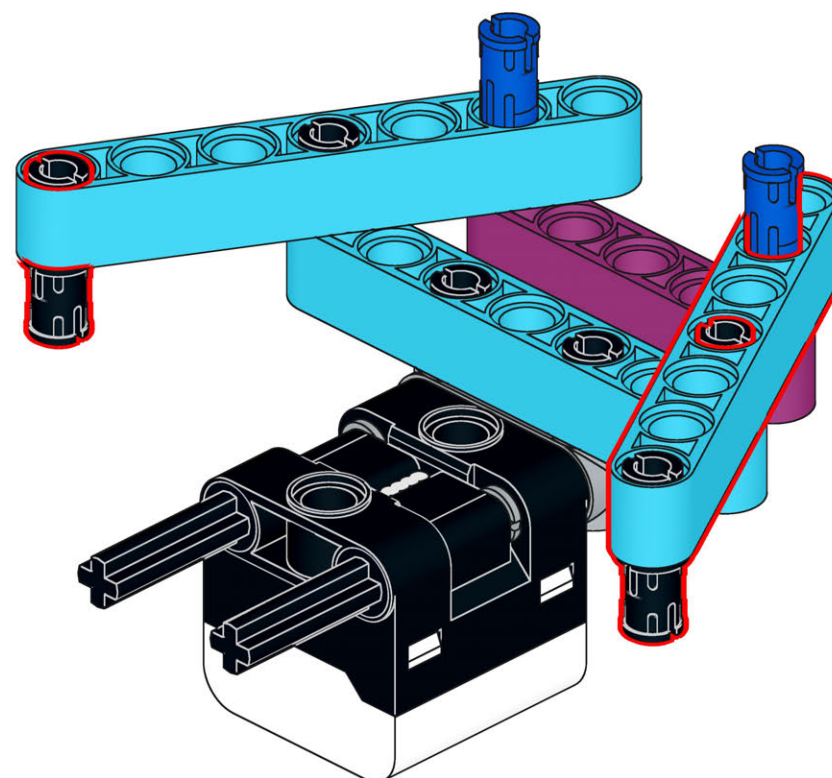
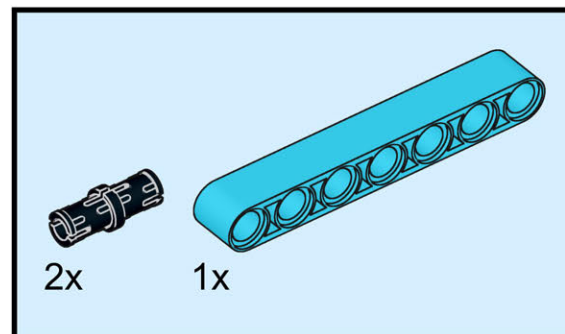
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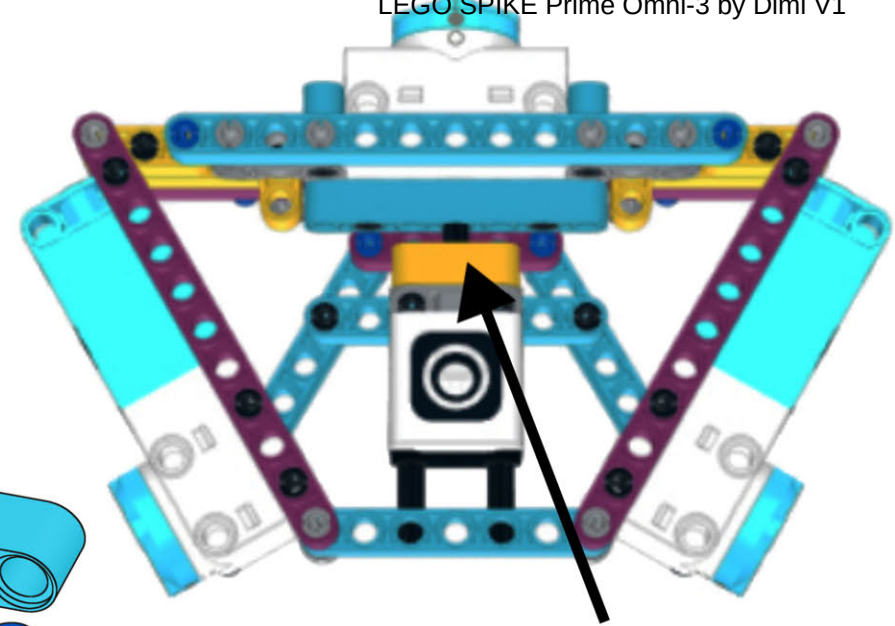
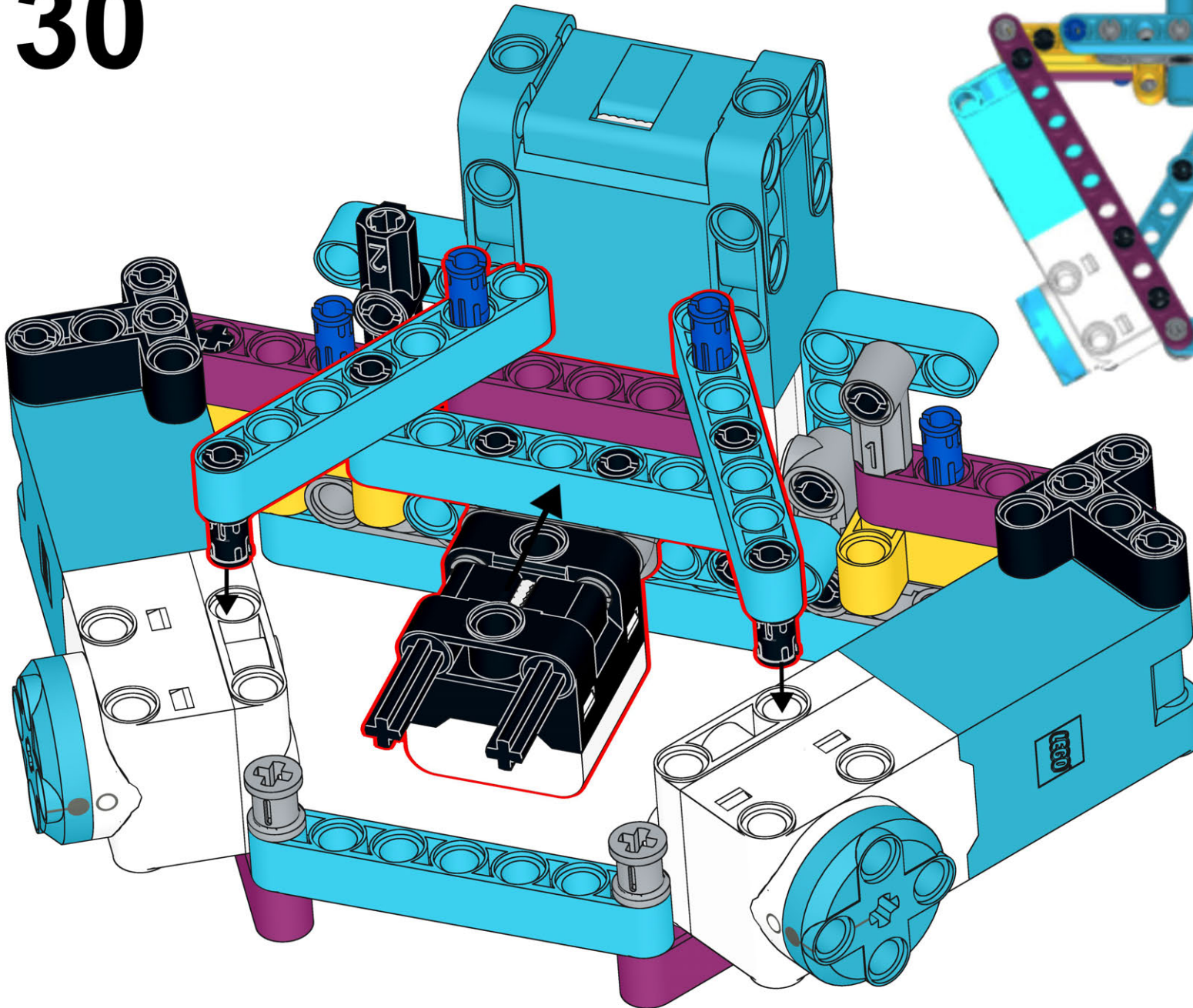
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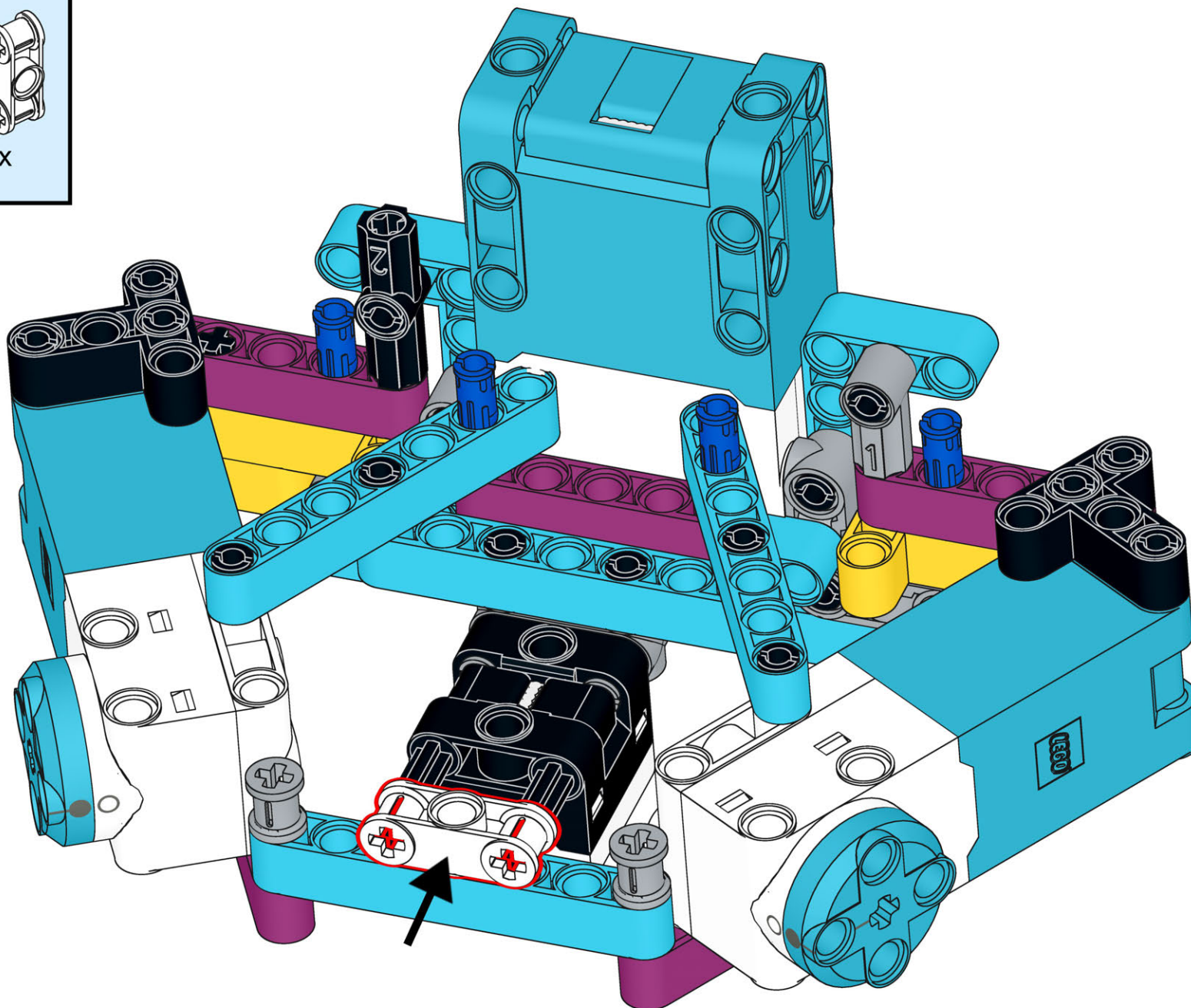
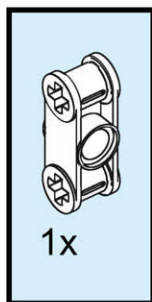


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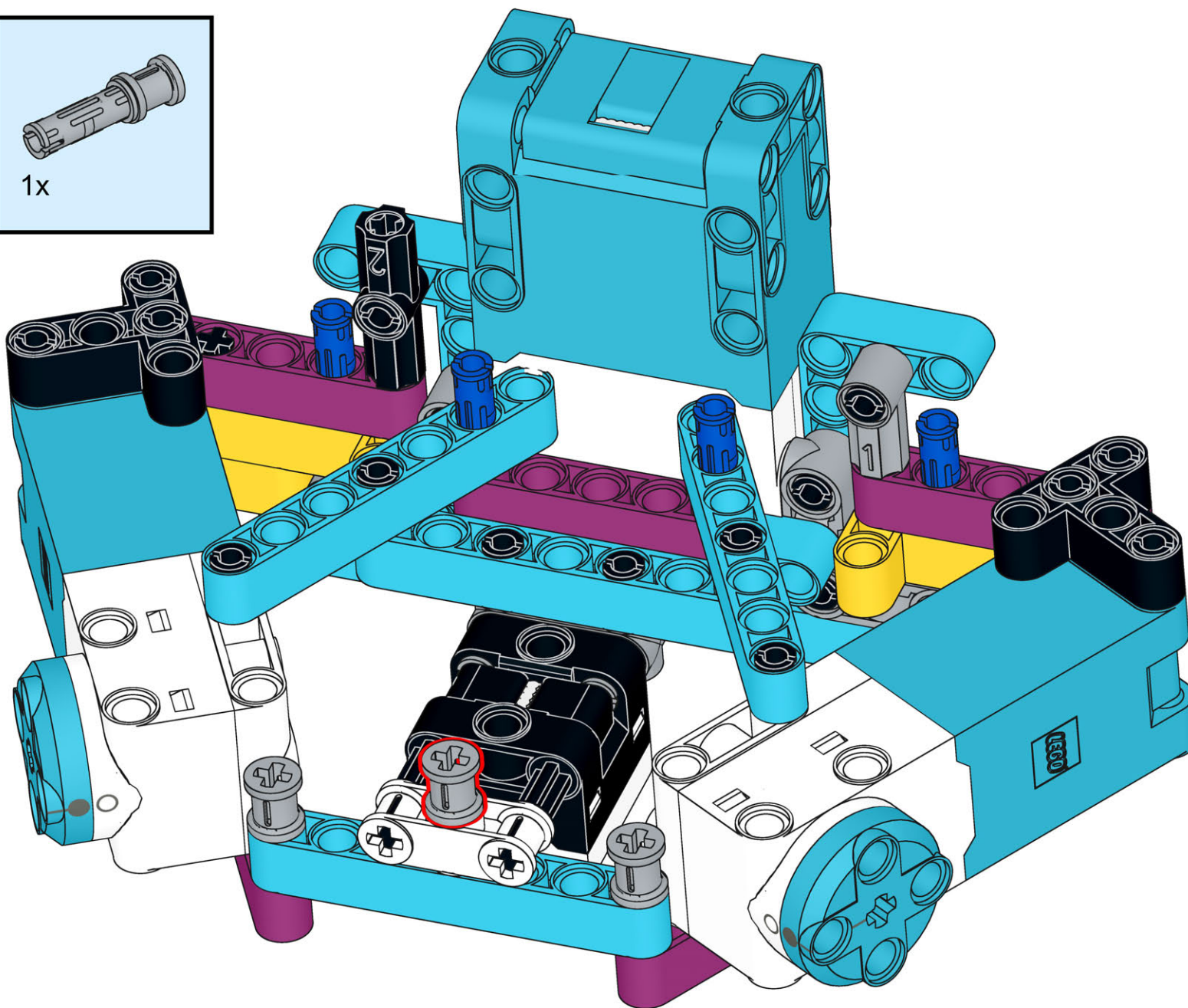
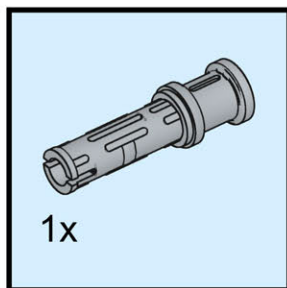


* Make sure the black axle is in the yellow 3x3 beam.

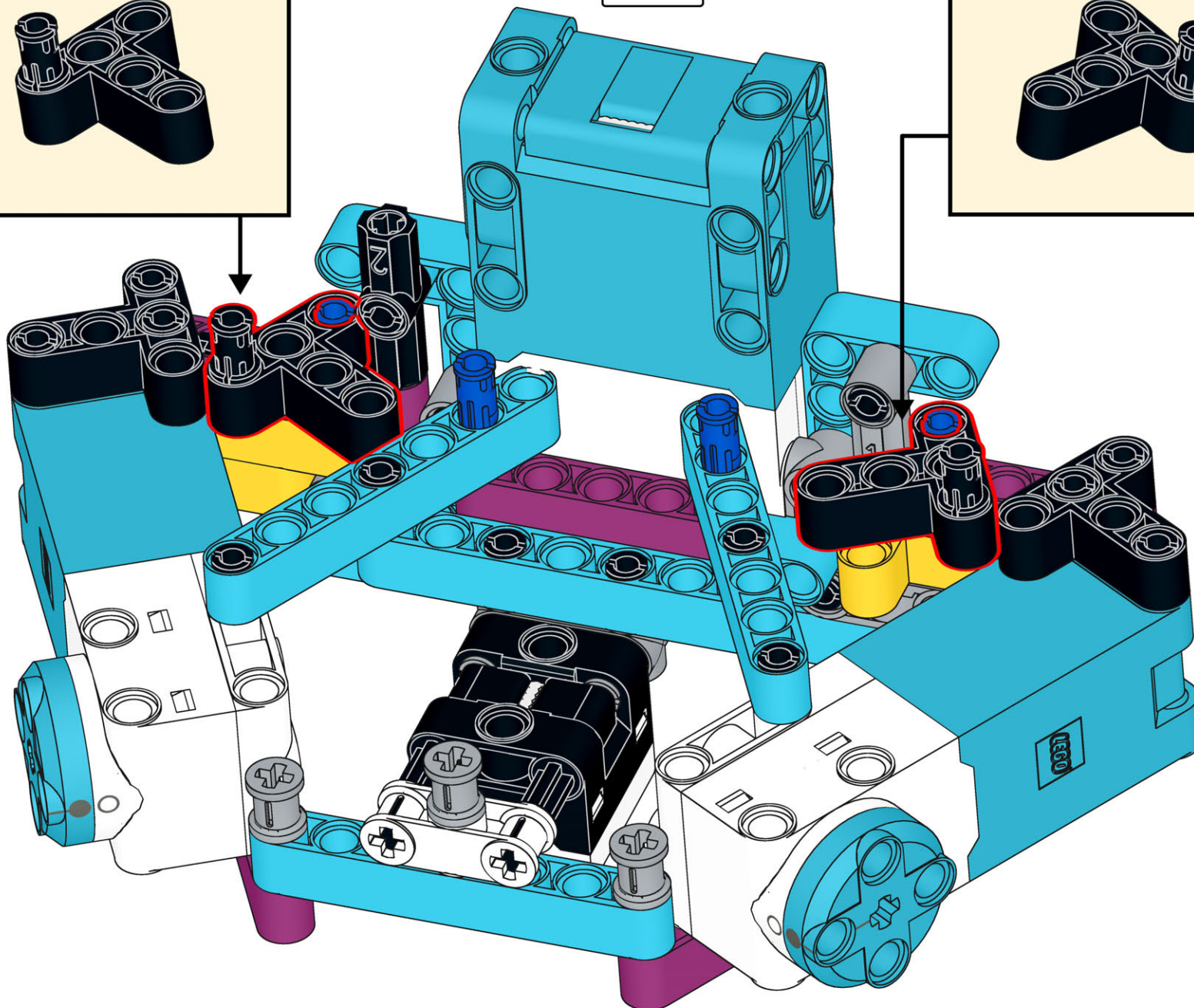
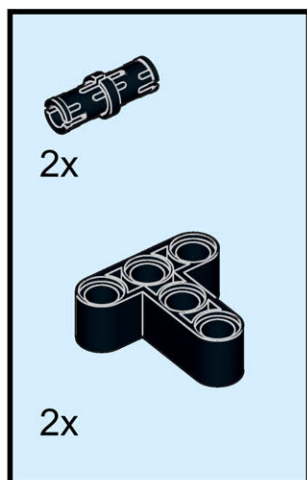
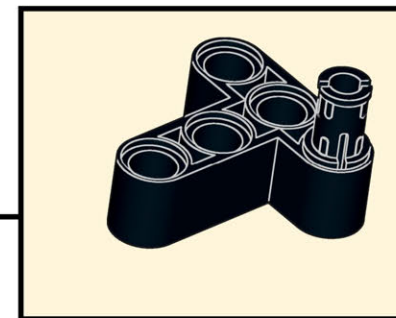
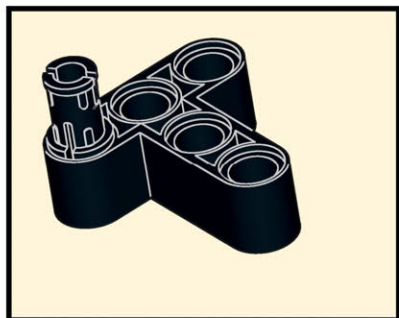
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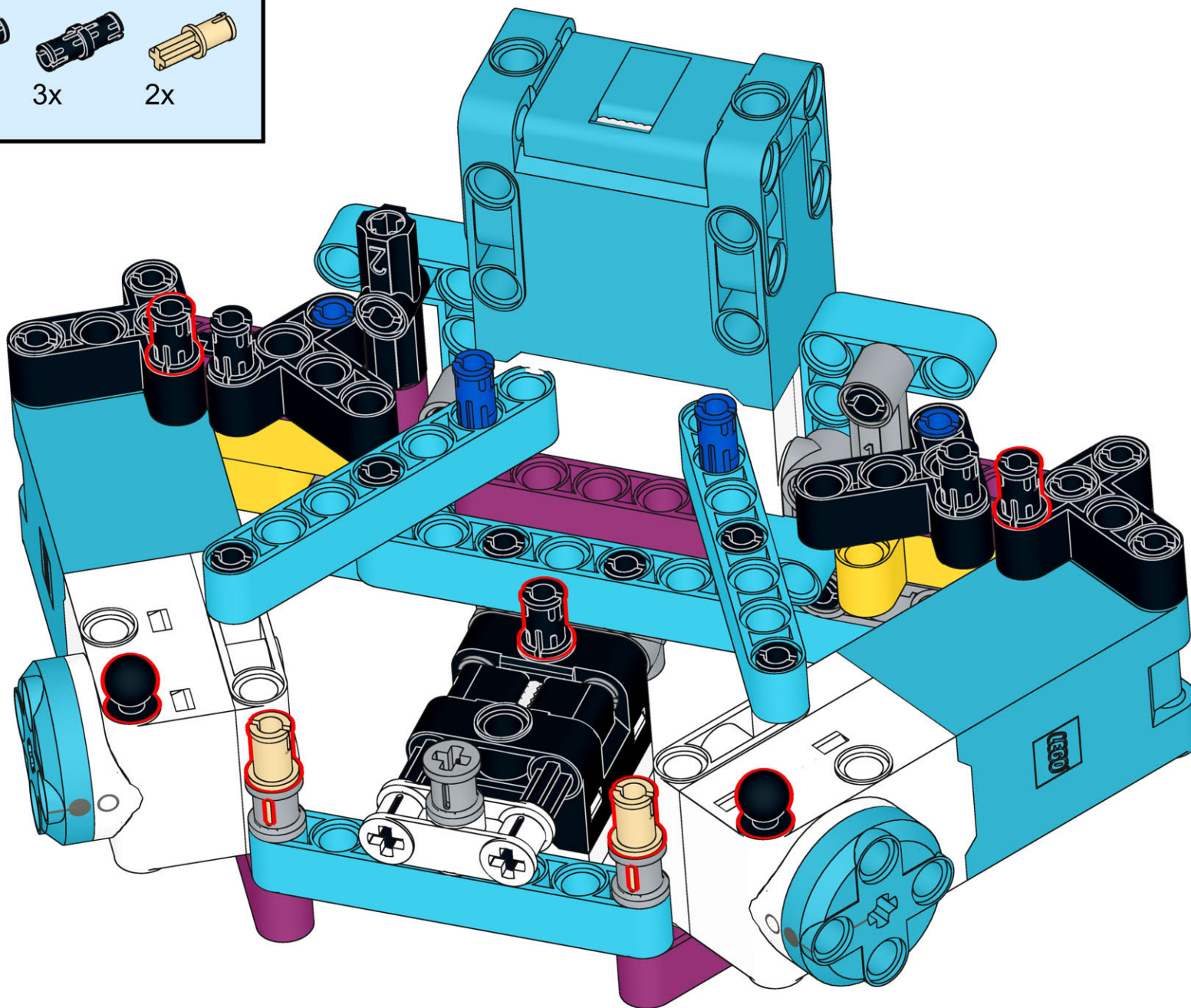
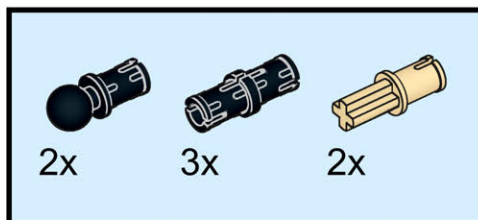
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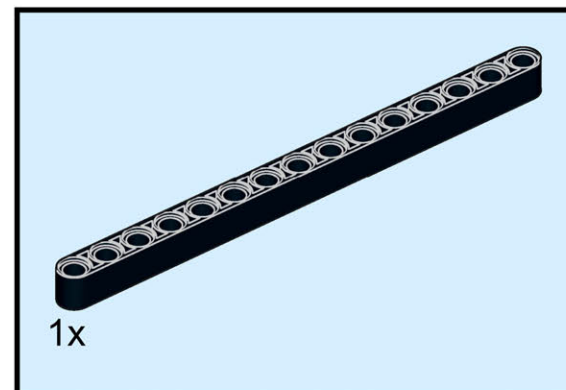
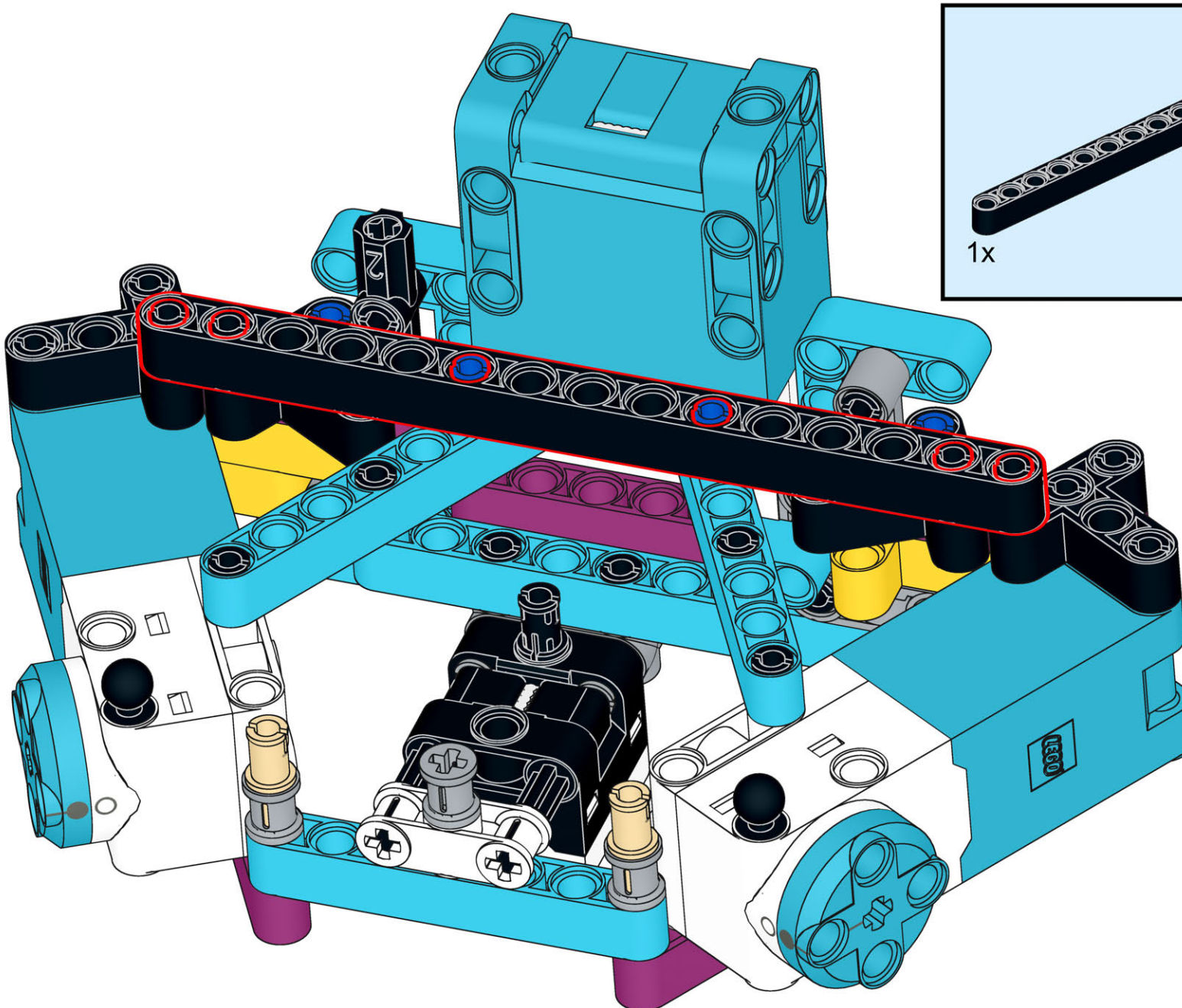
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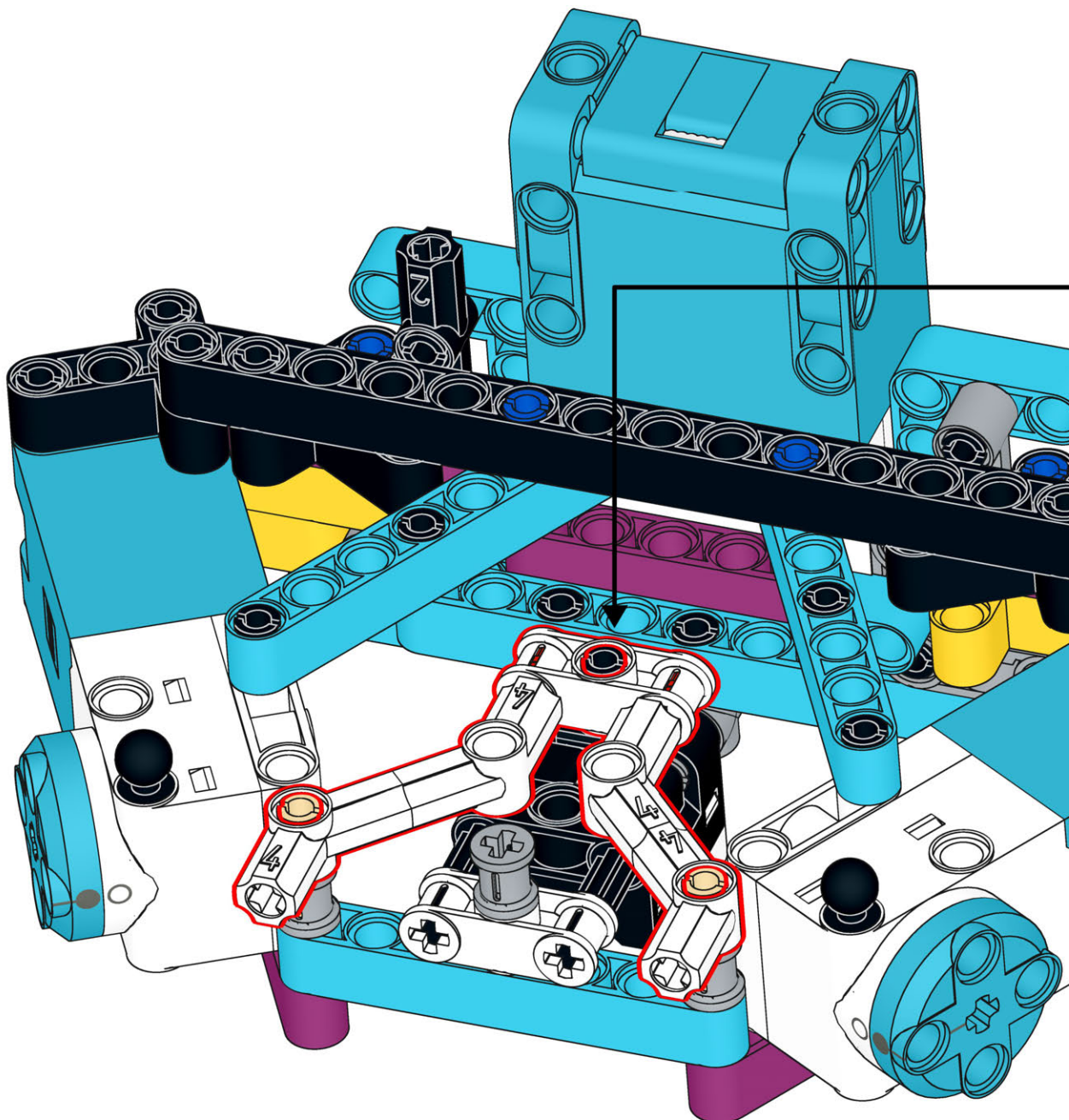
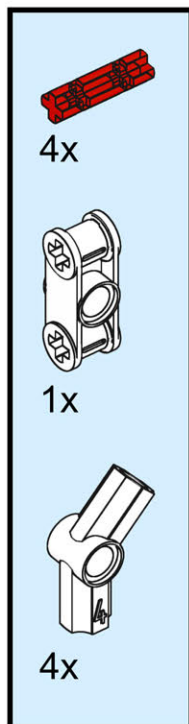
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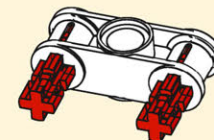
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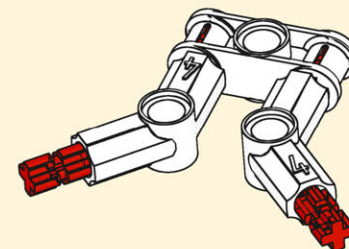
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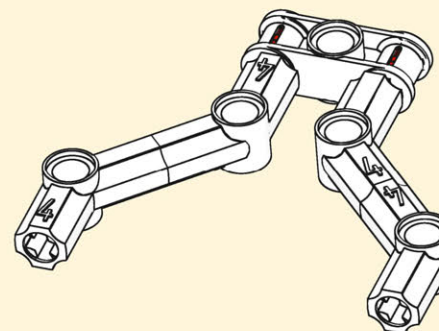
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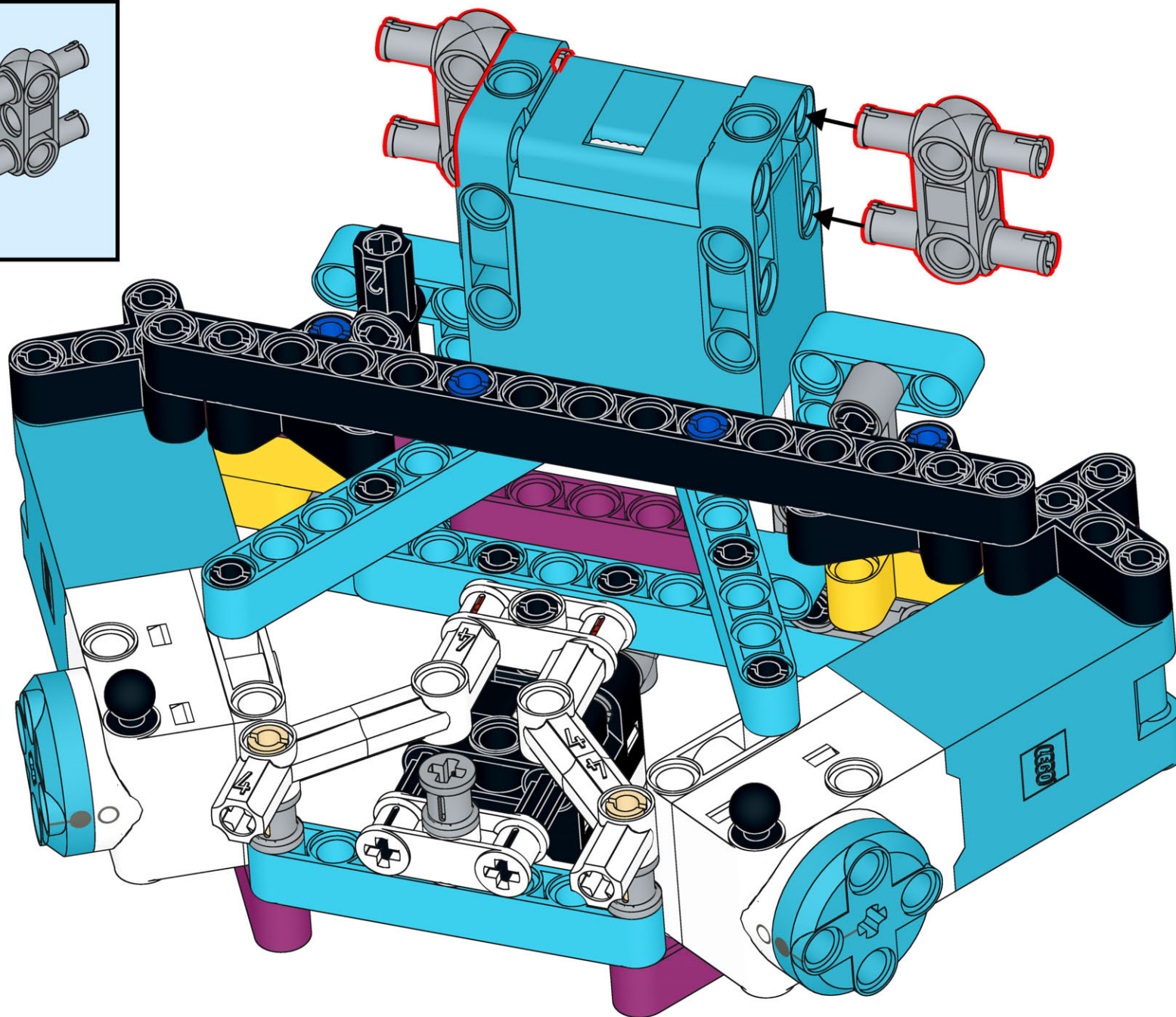
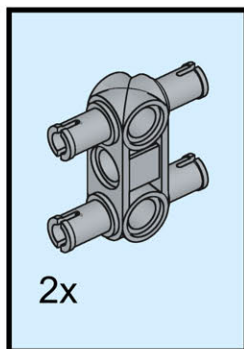
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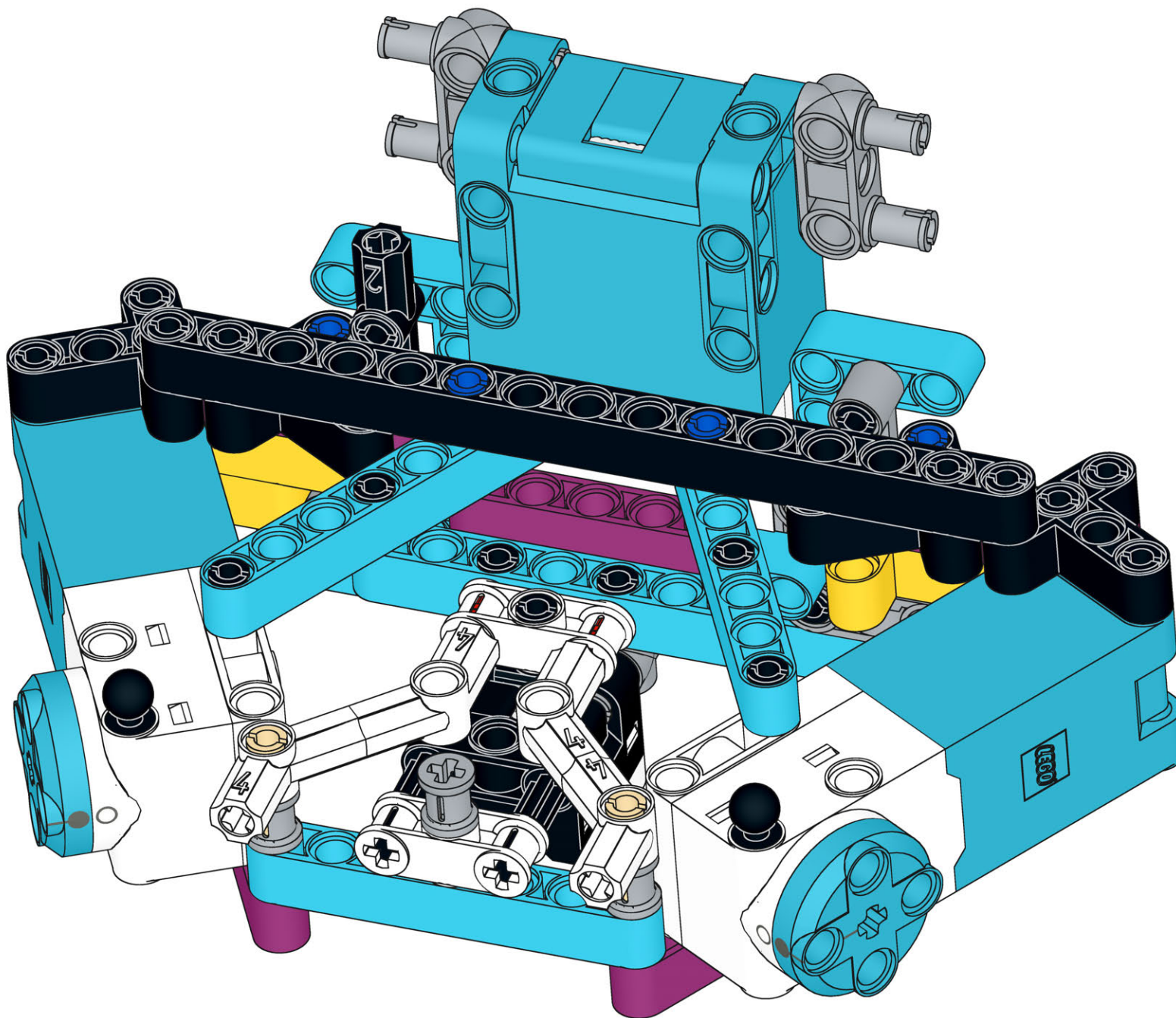
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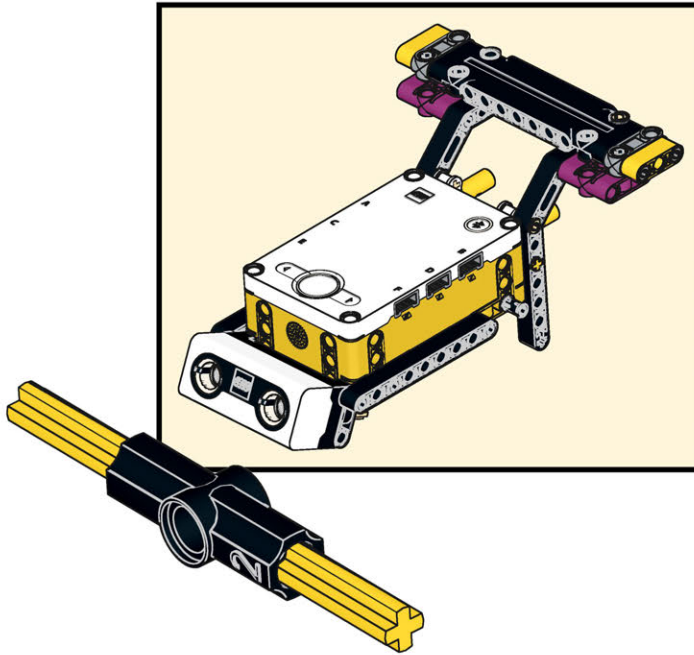
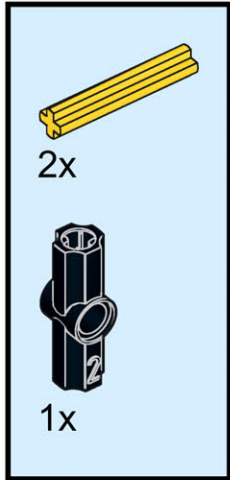
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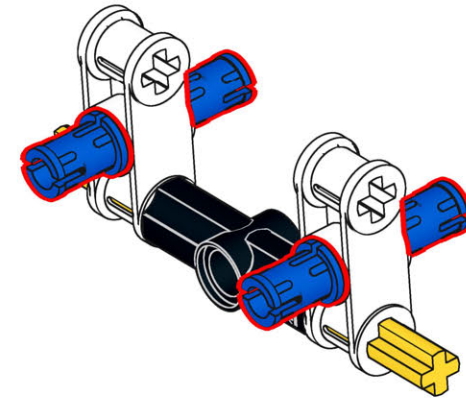
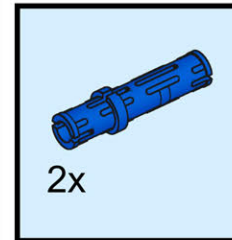
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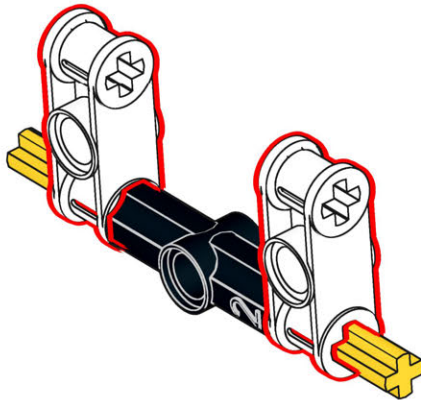
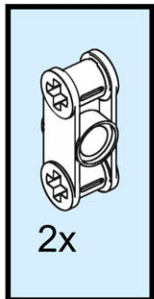
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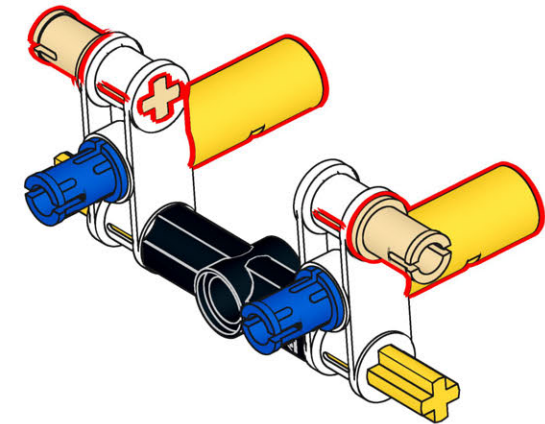
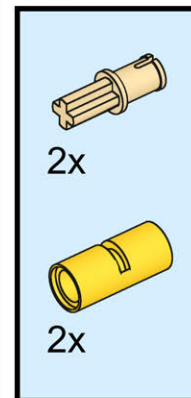
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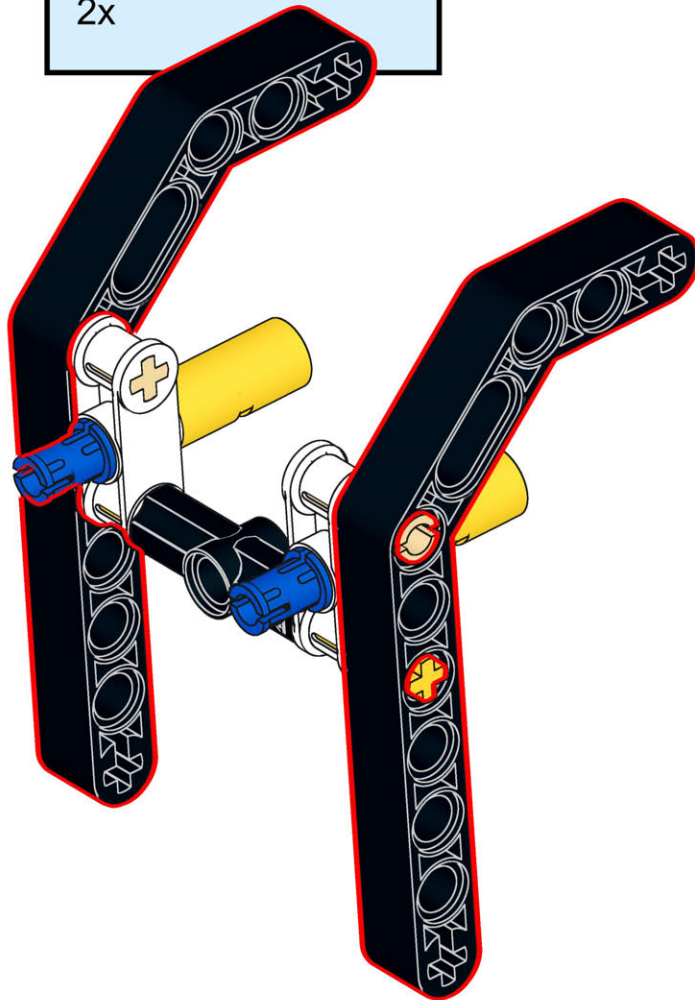
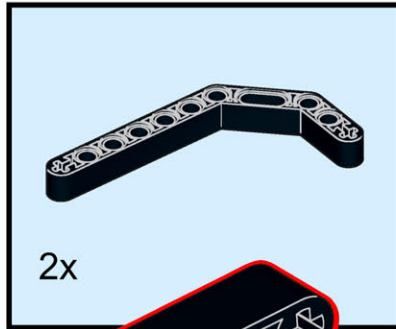
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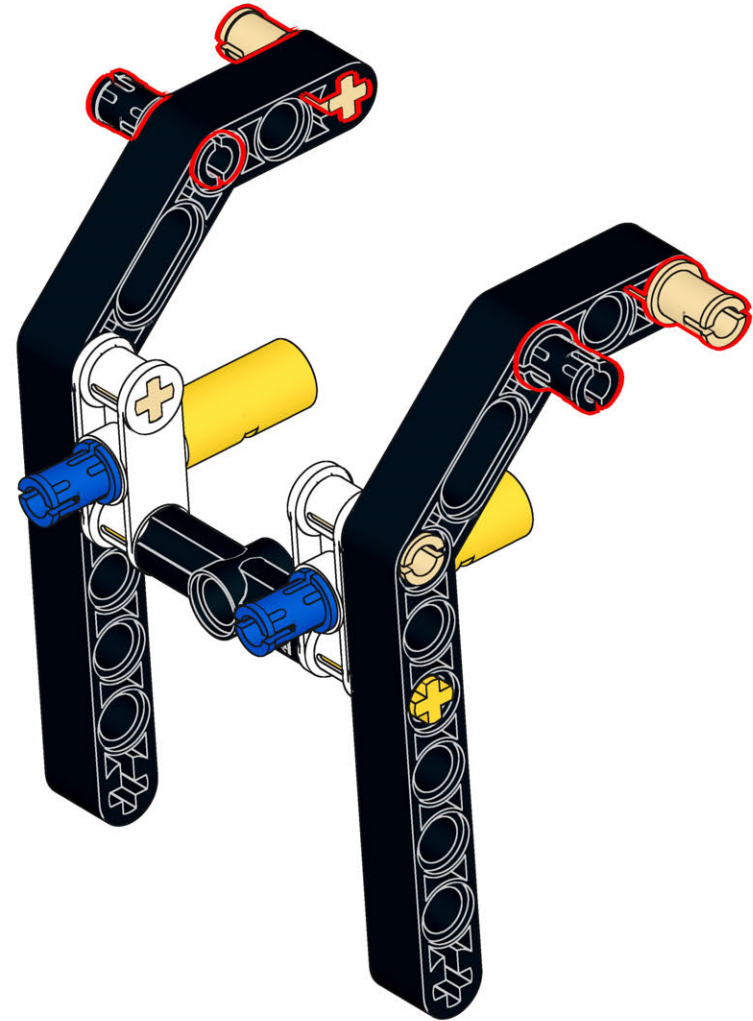
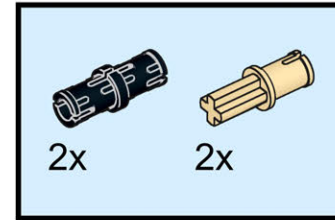
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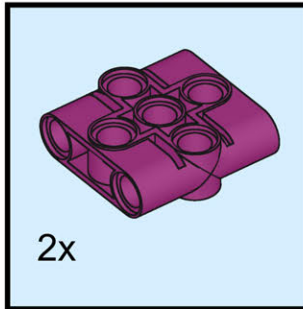
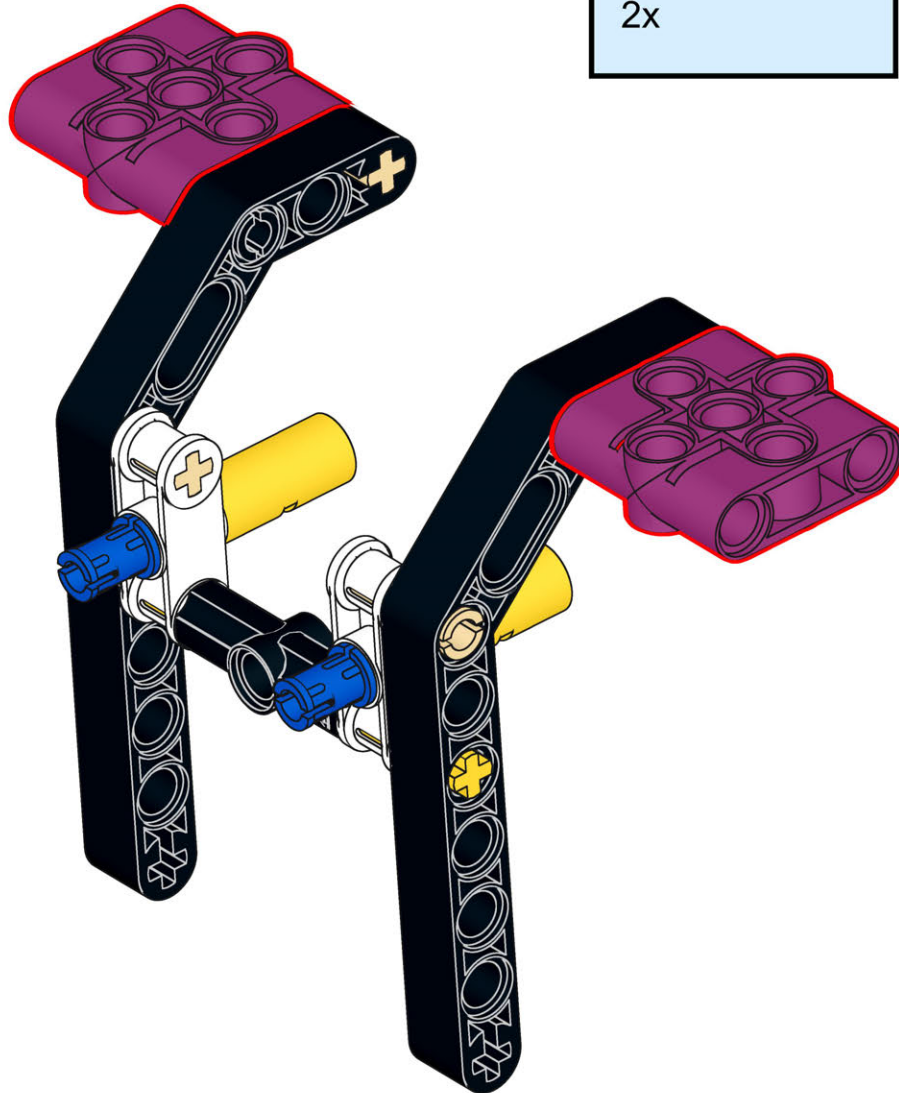
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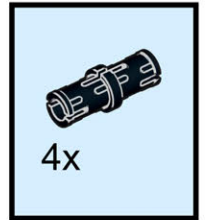
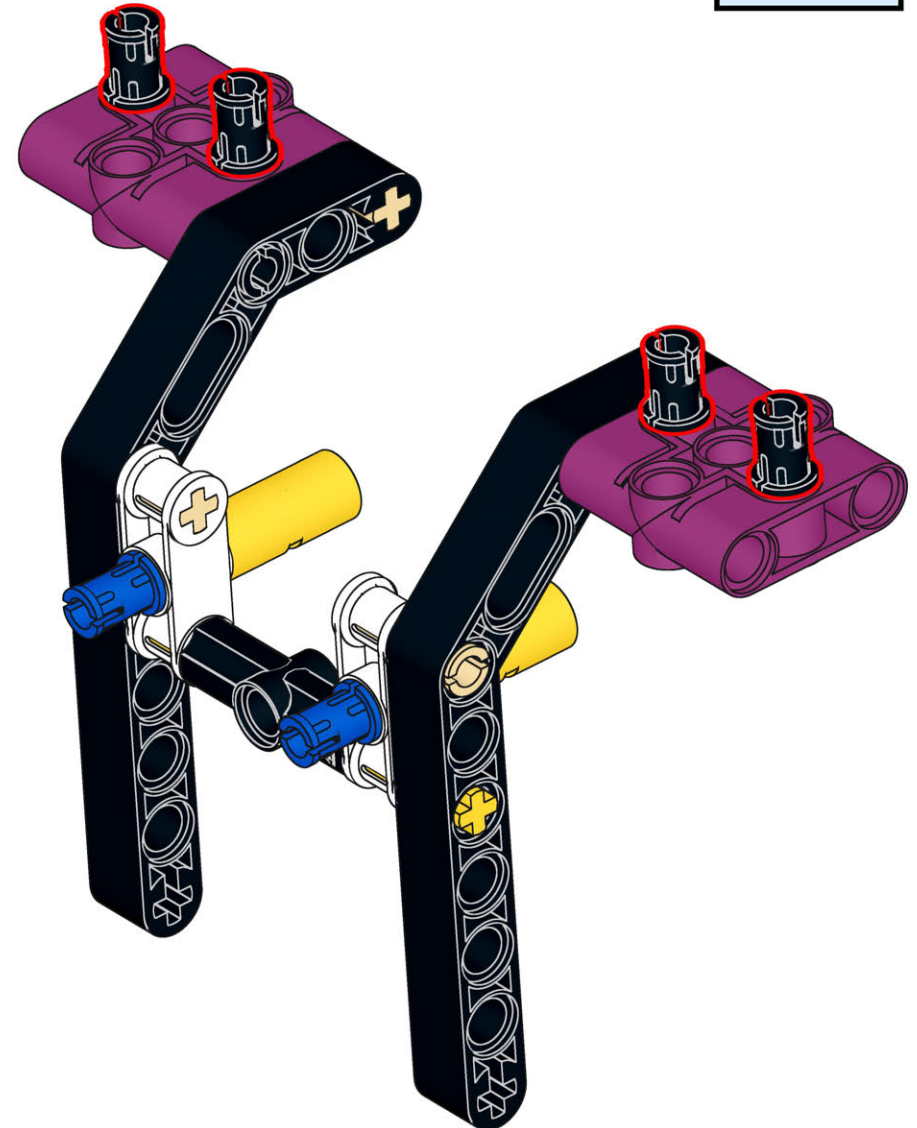
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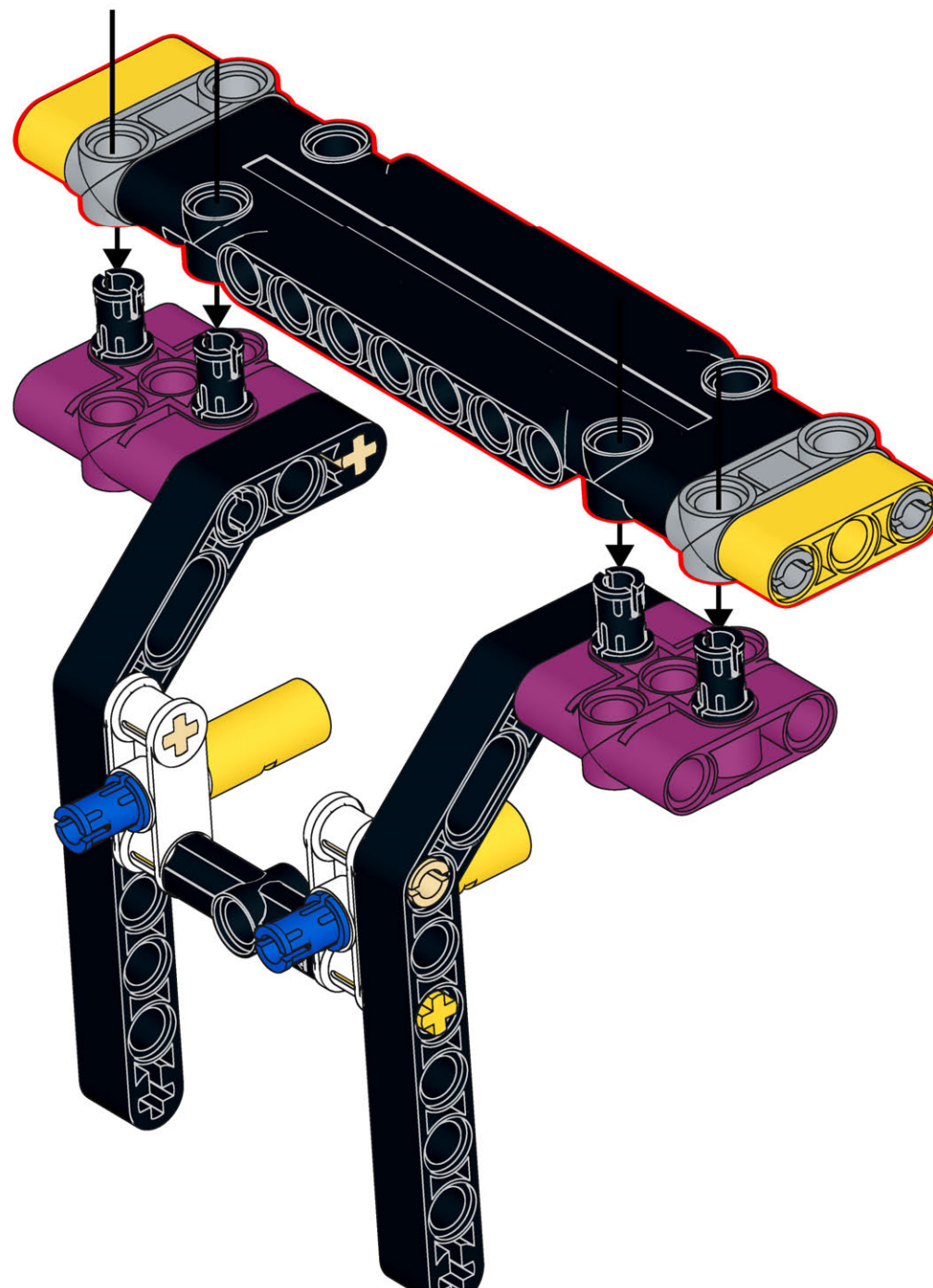
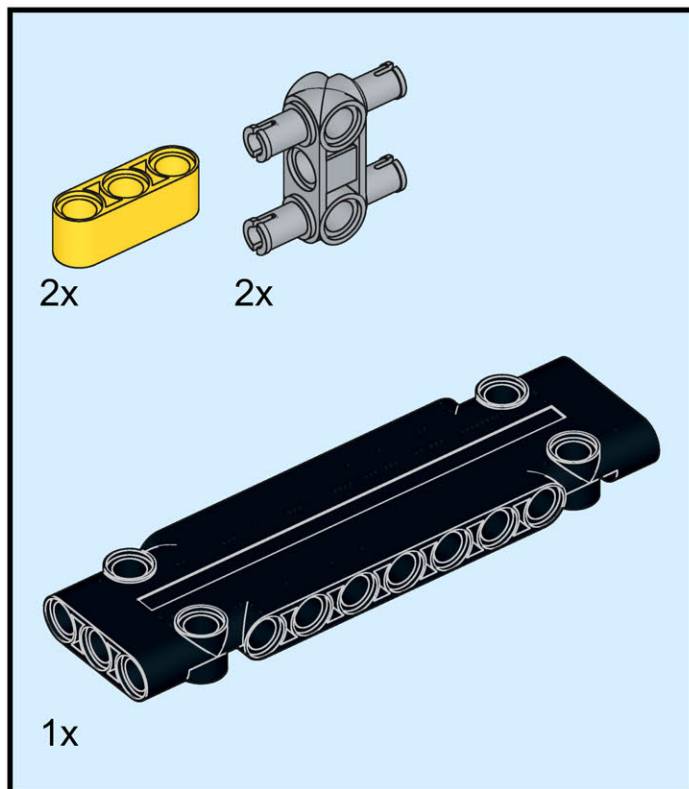
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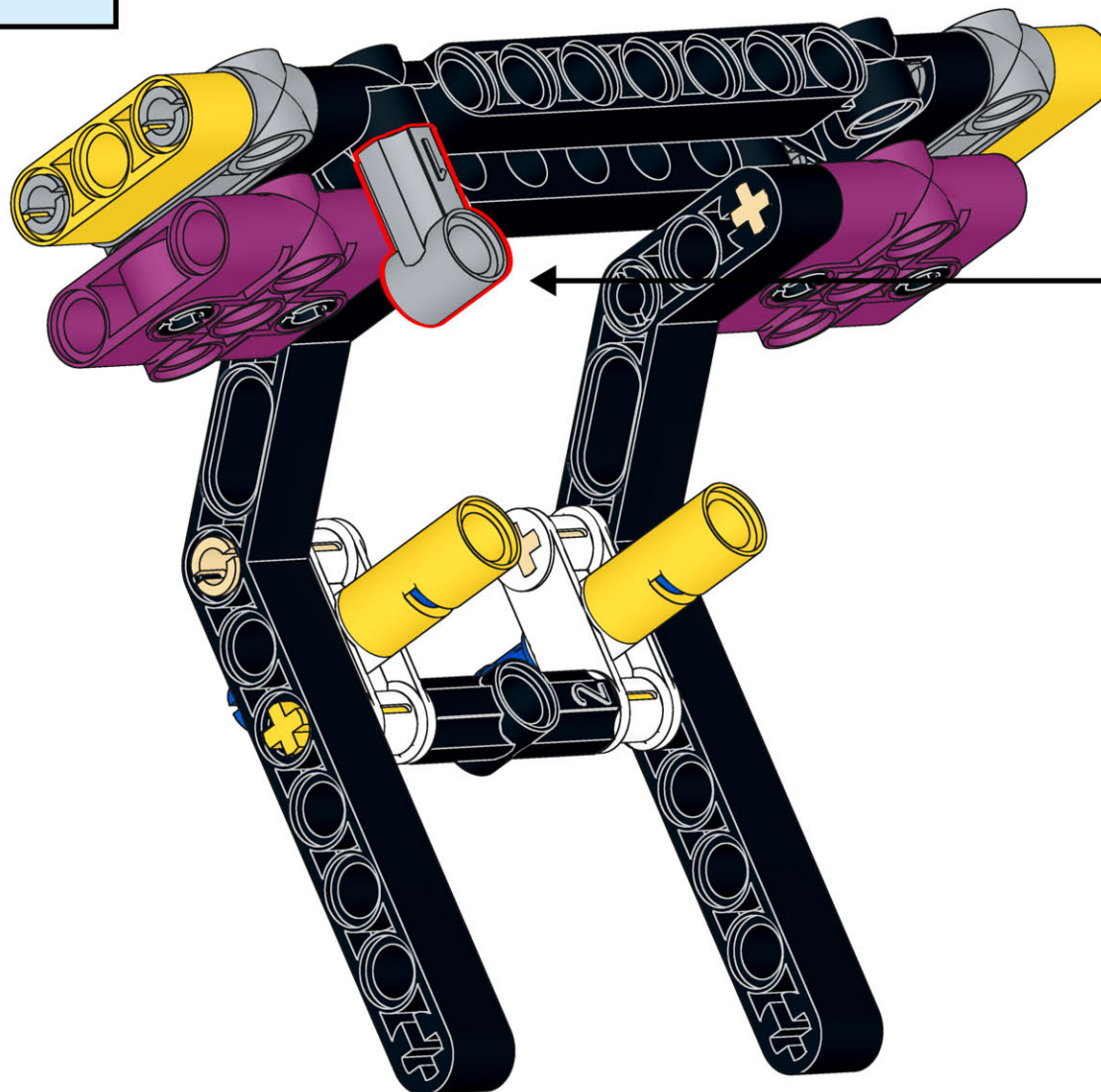
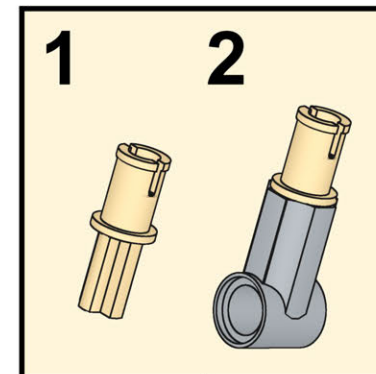
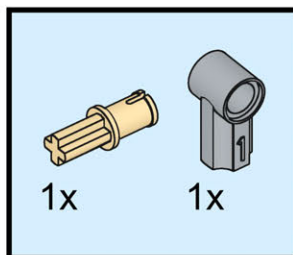
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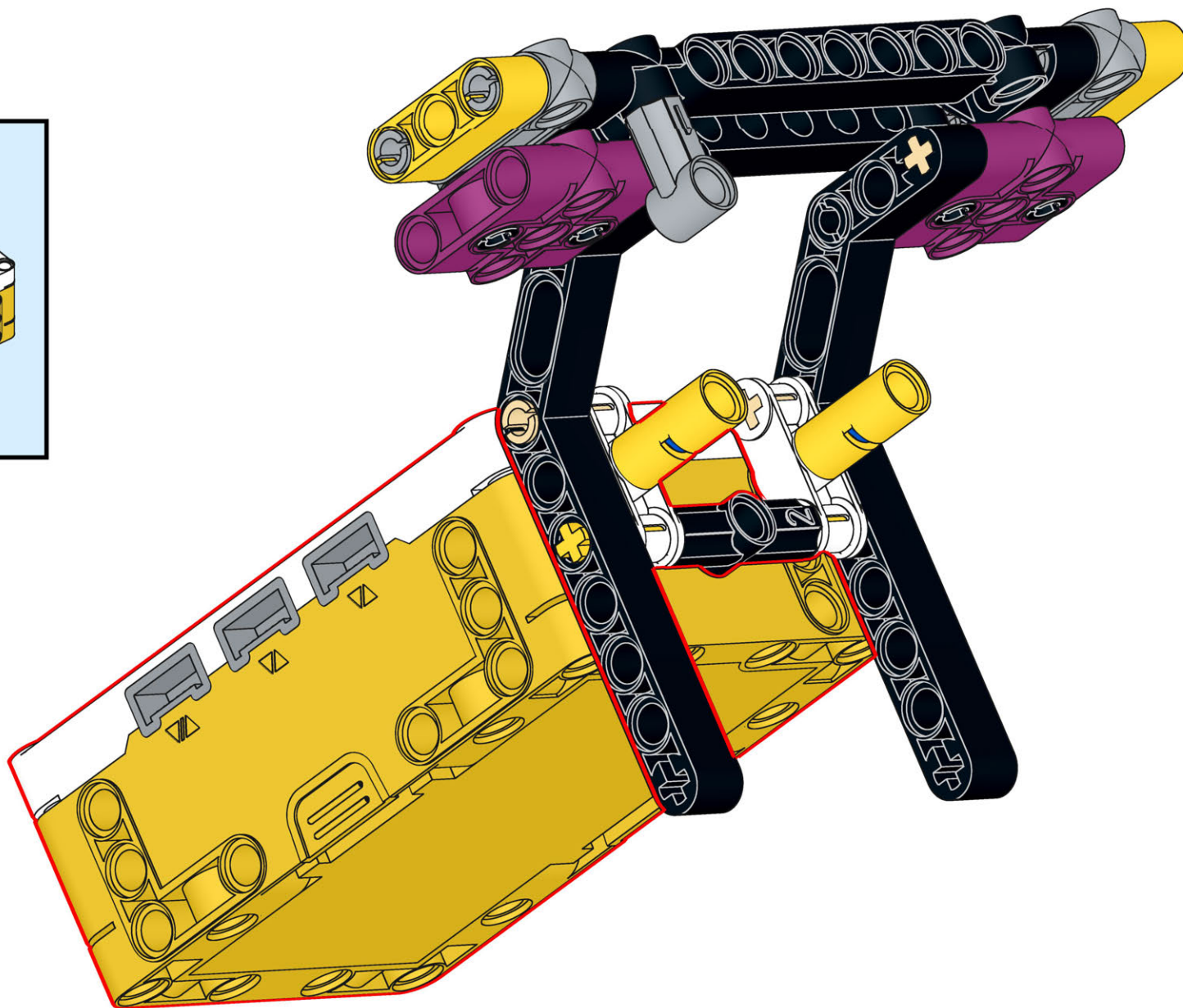
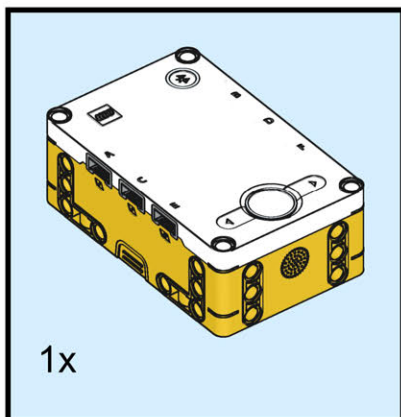
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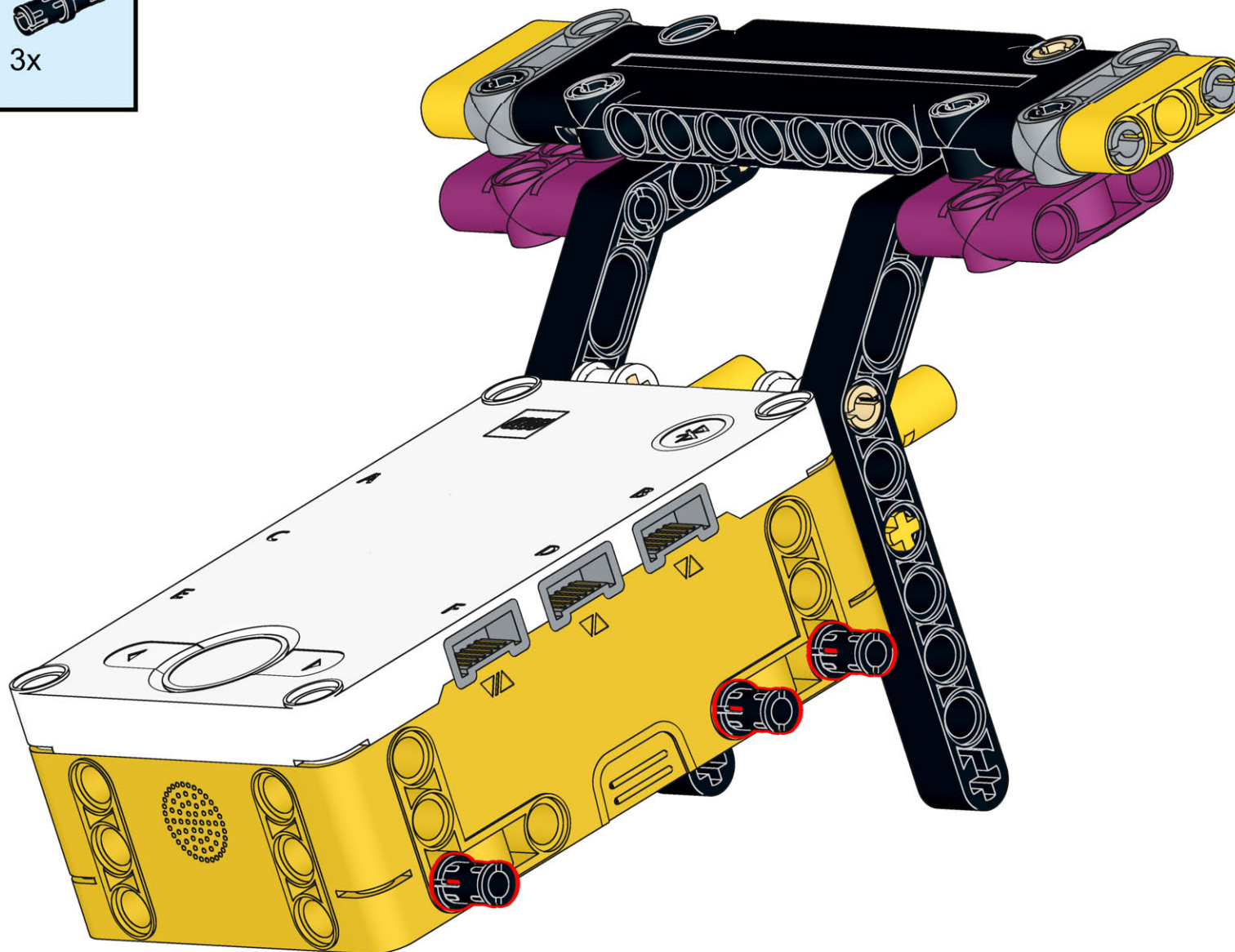
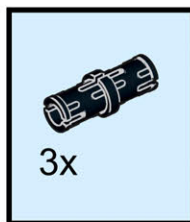
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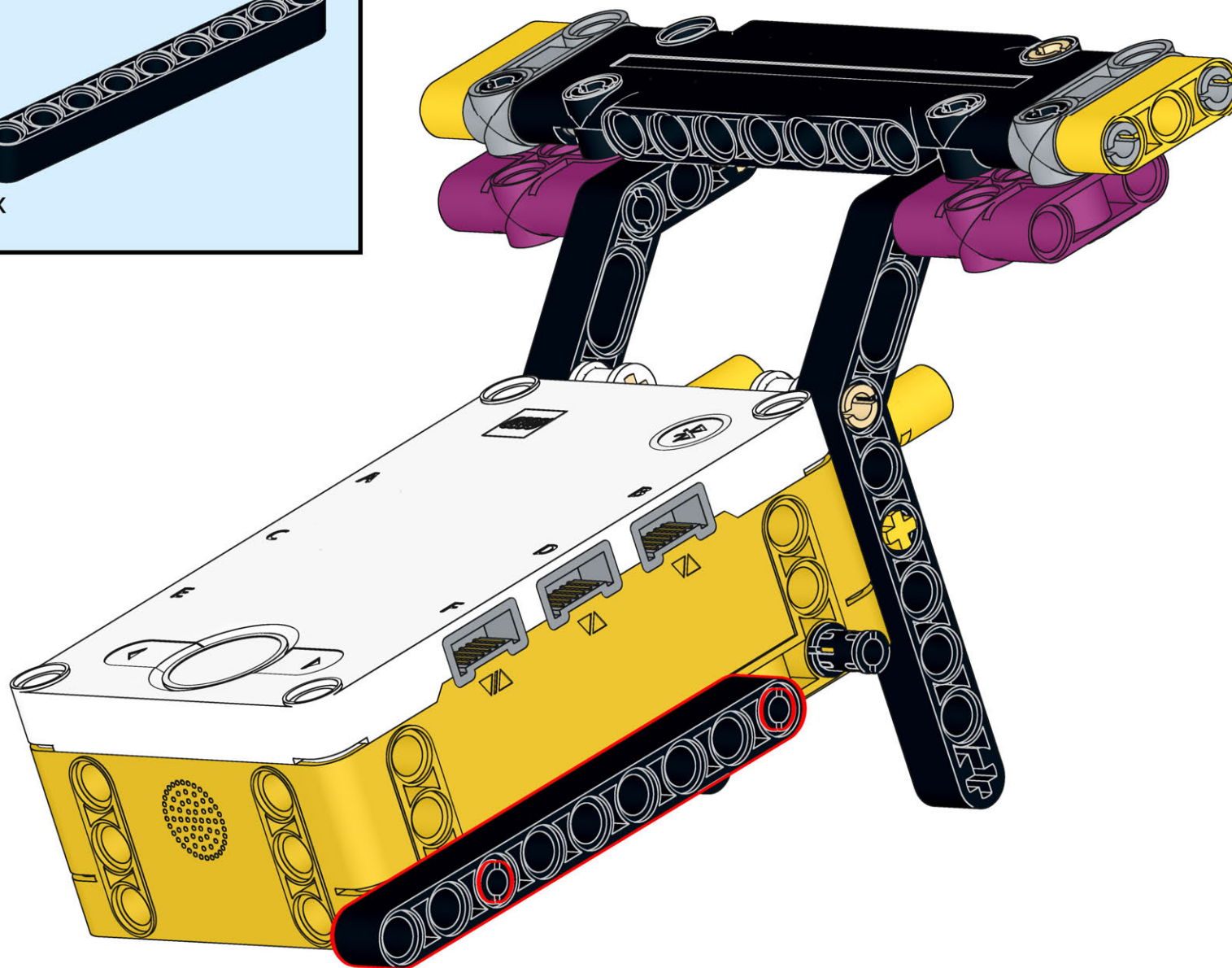
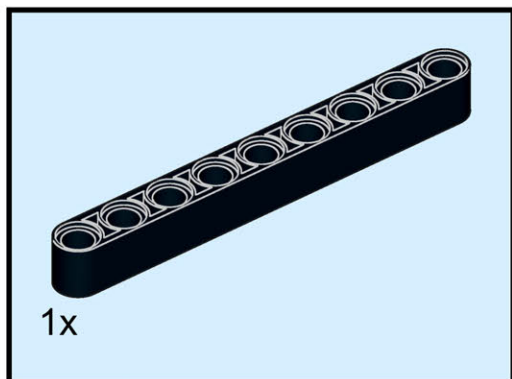
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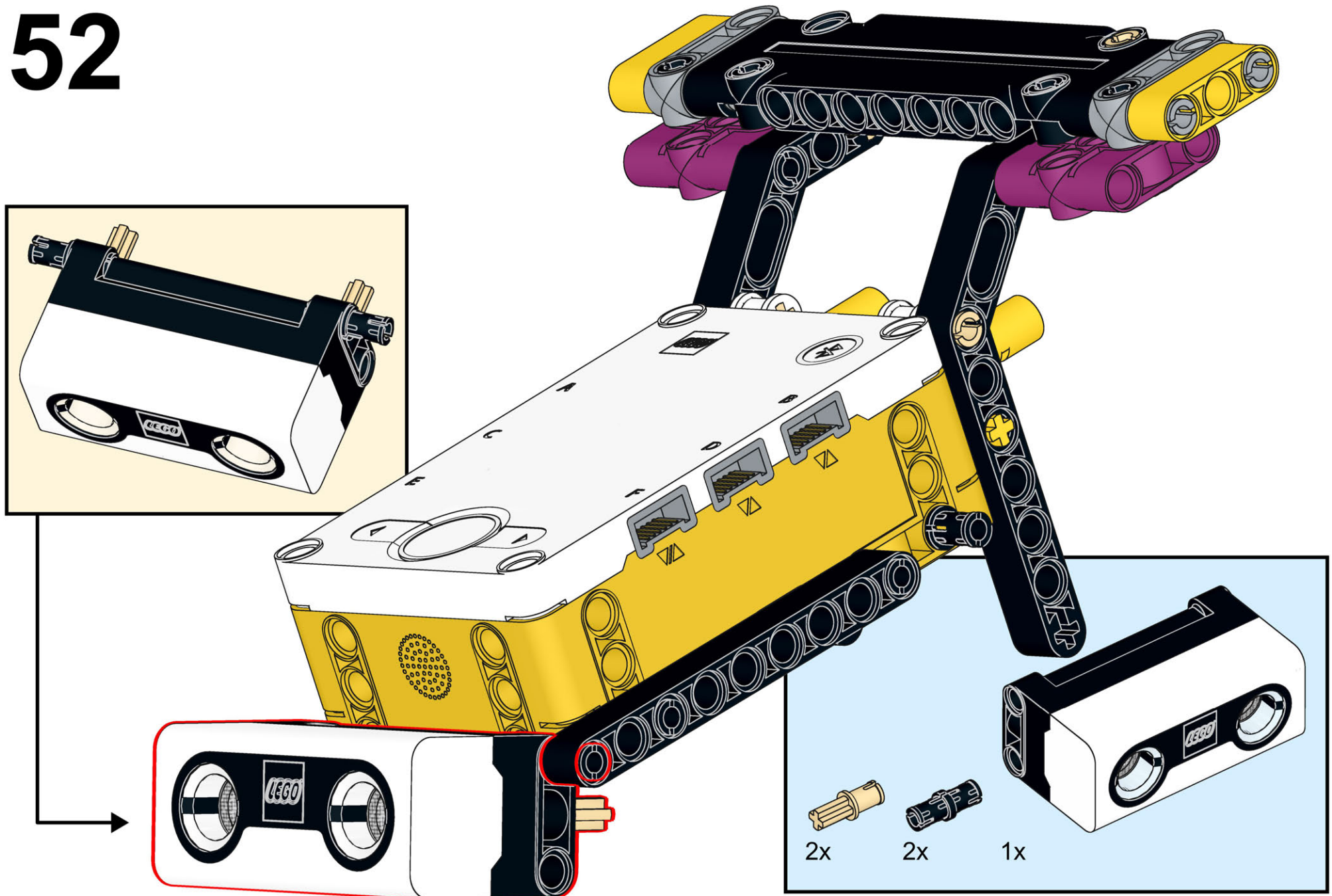
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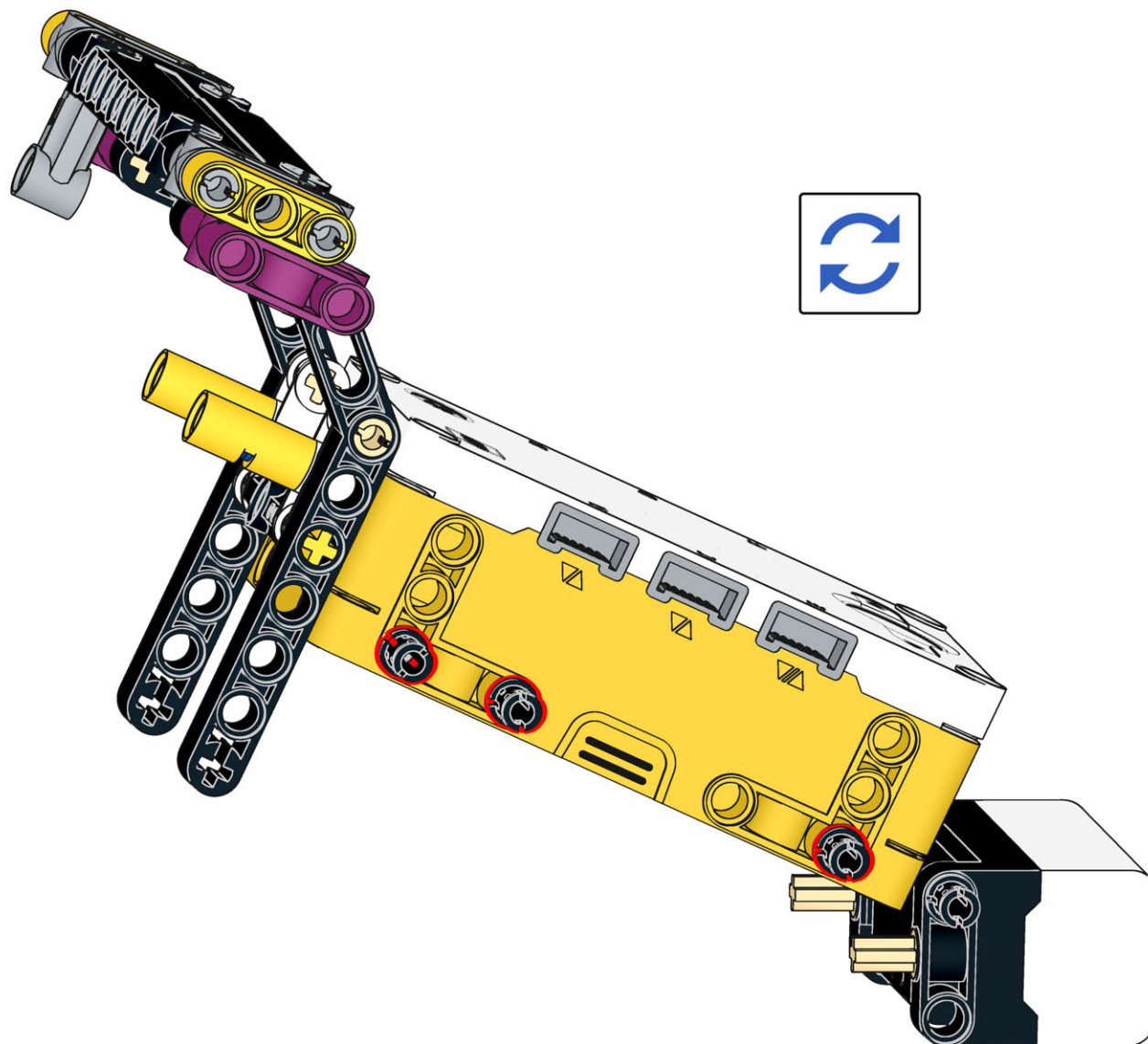
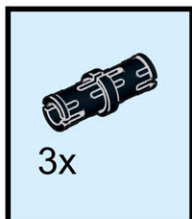
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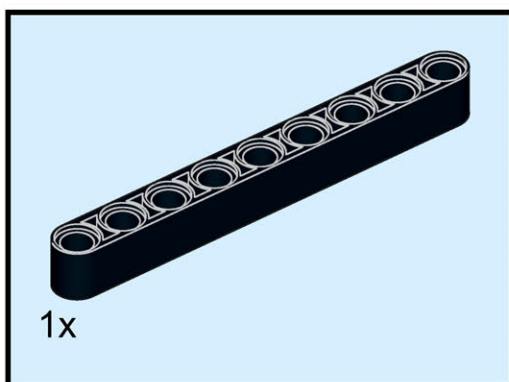
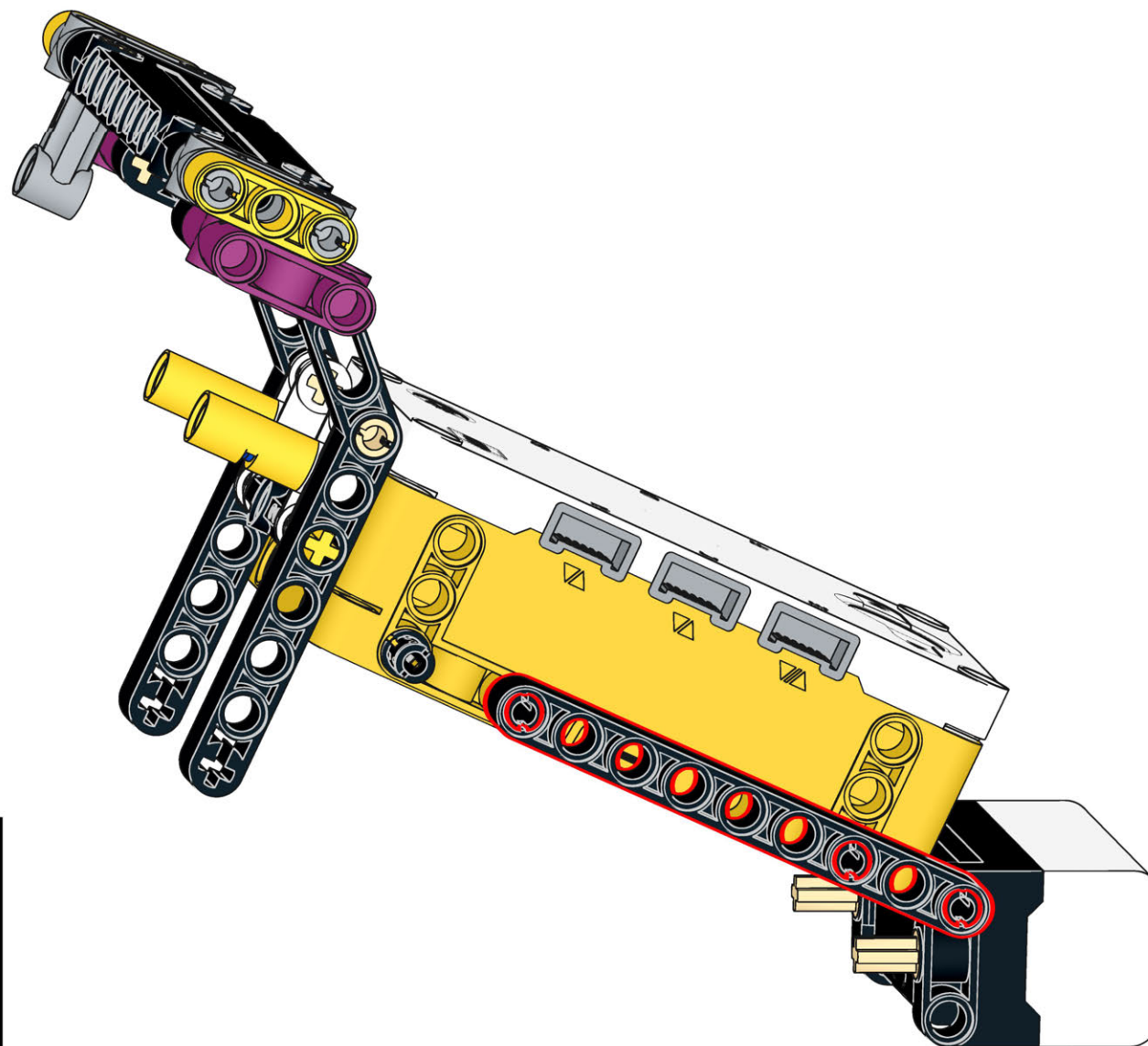
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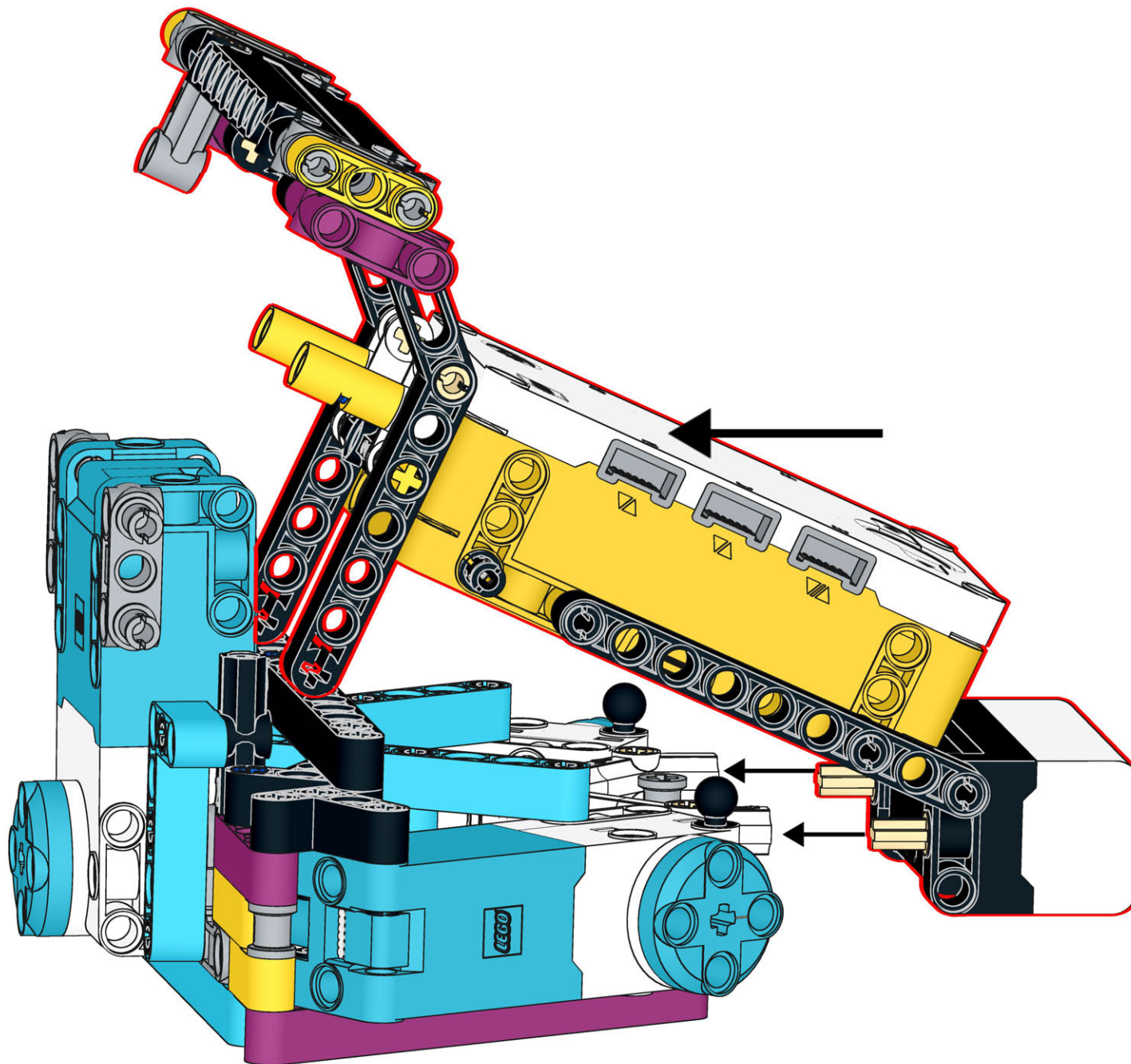
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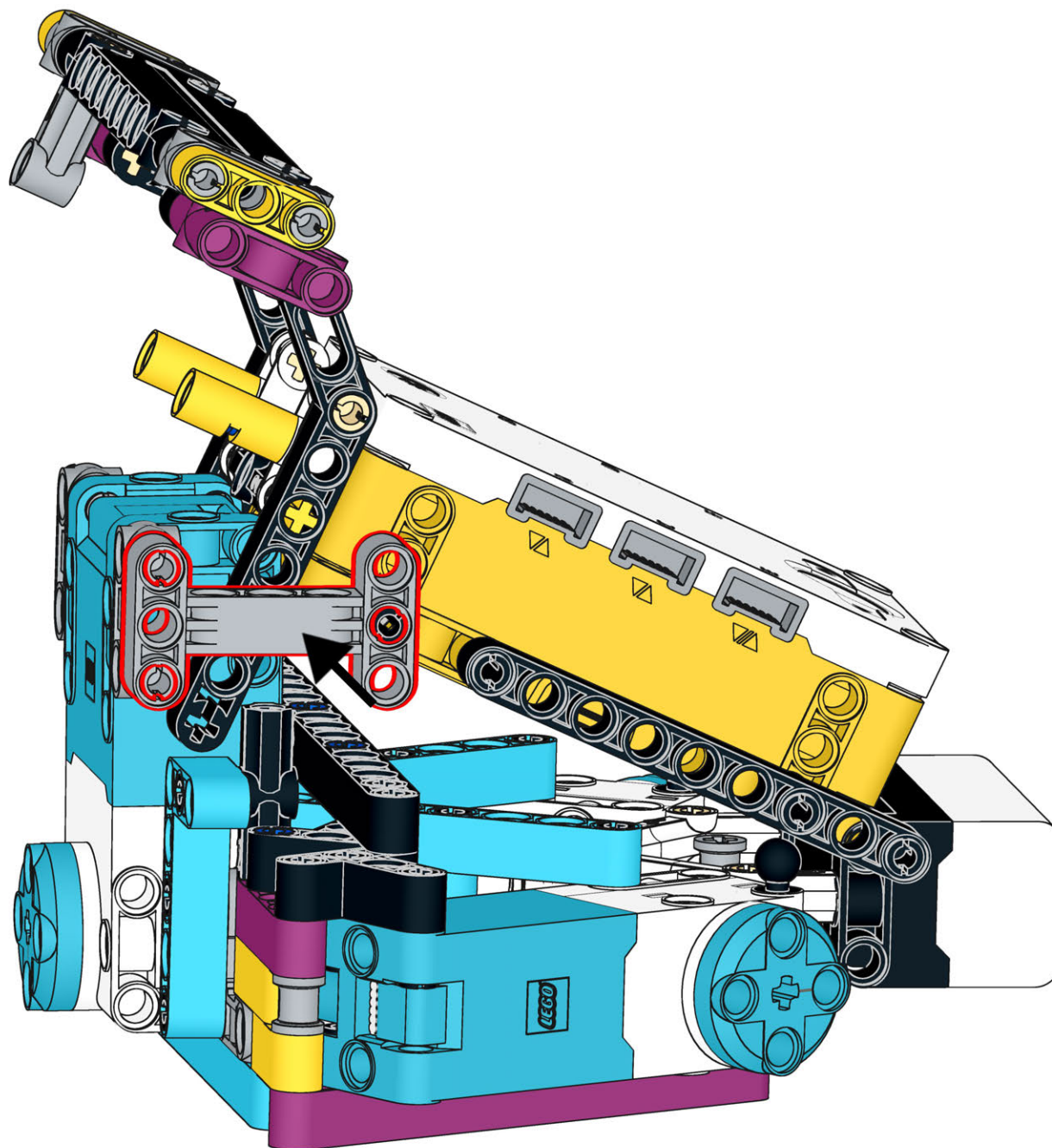
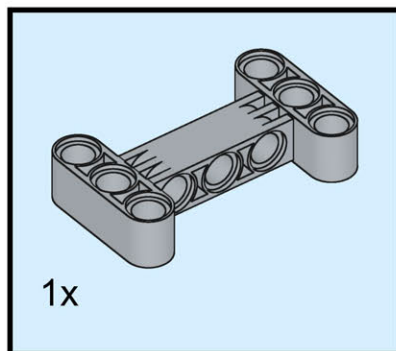
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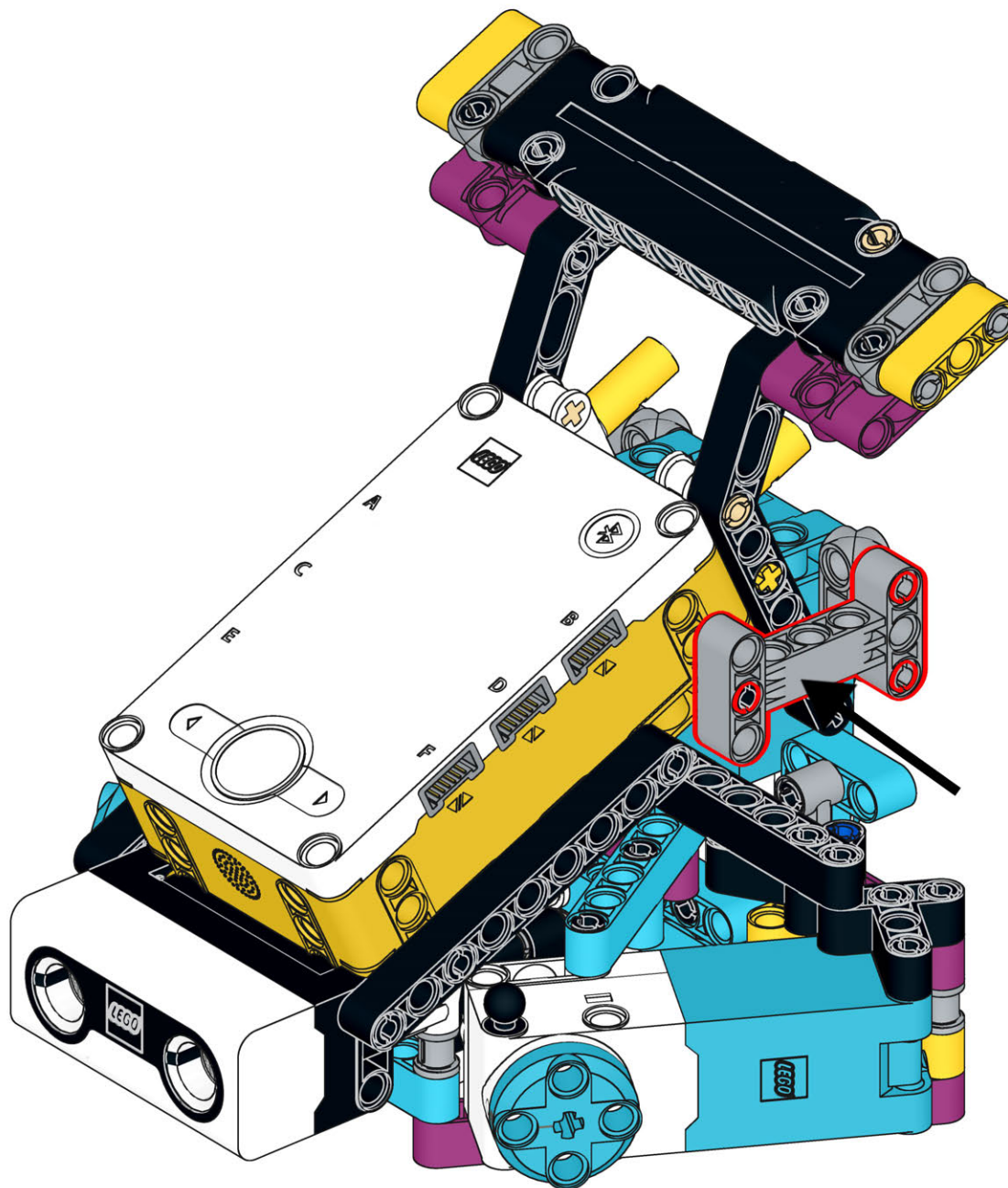
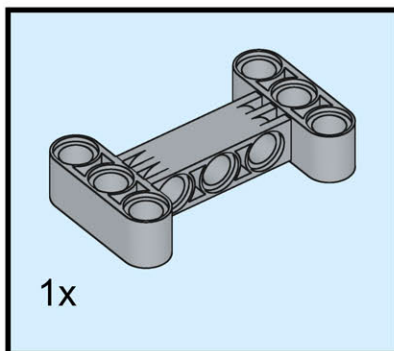
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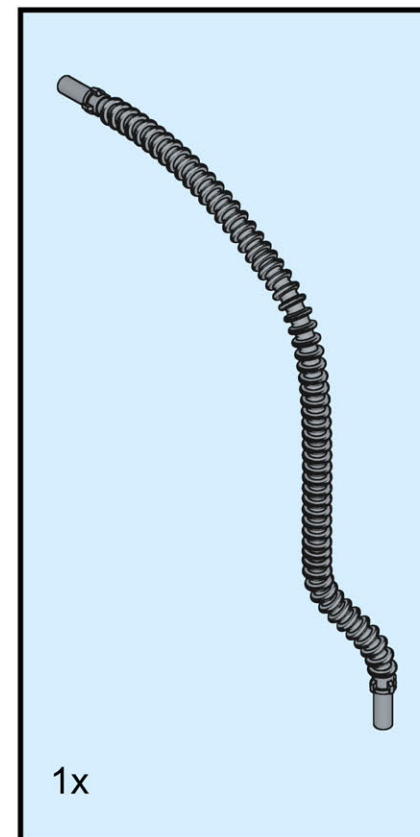
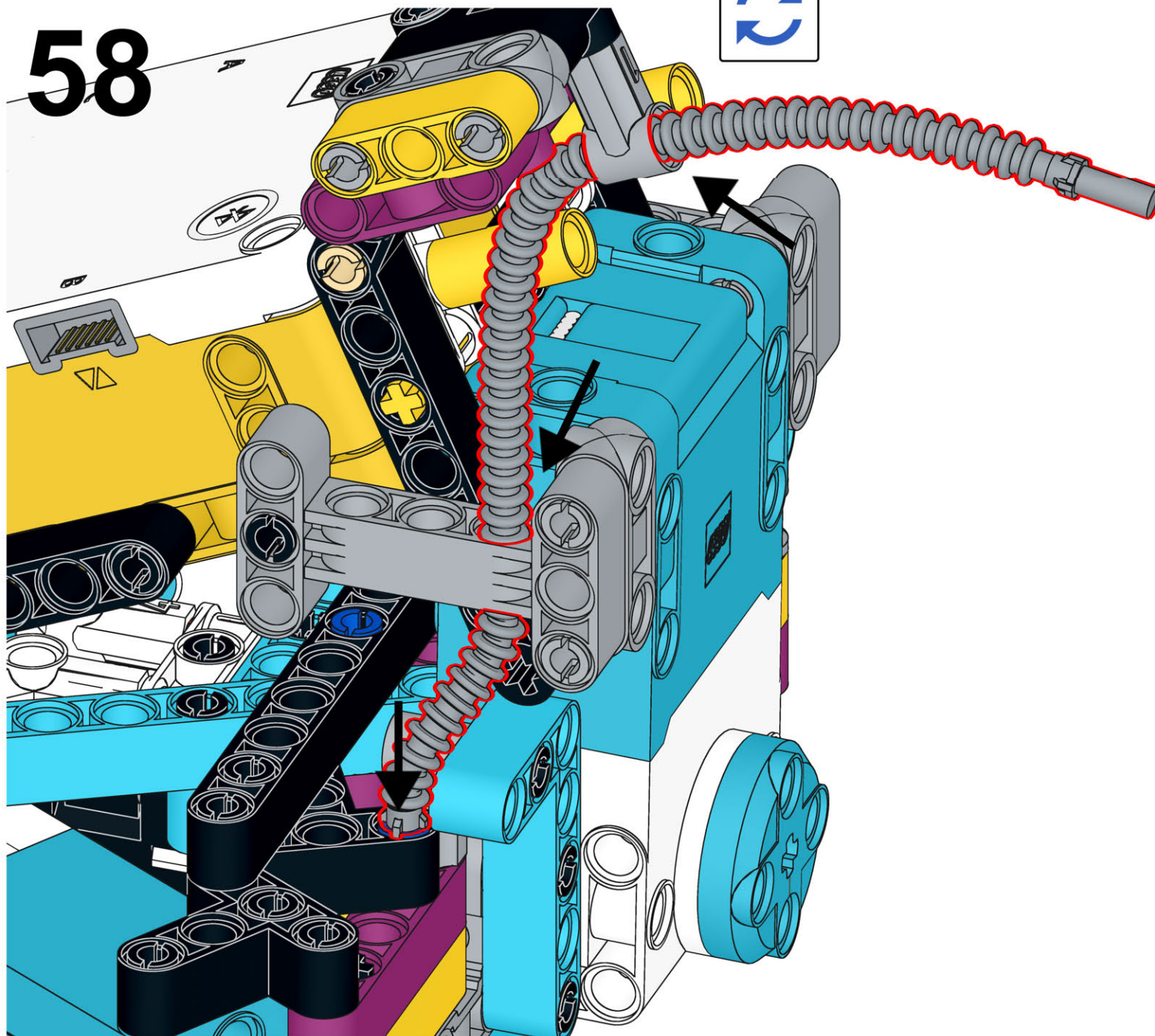
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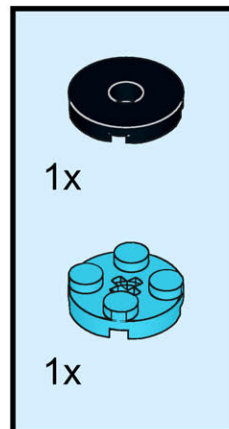
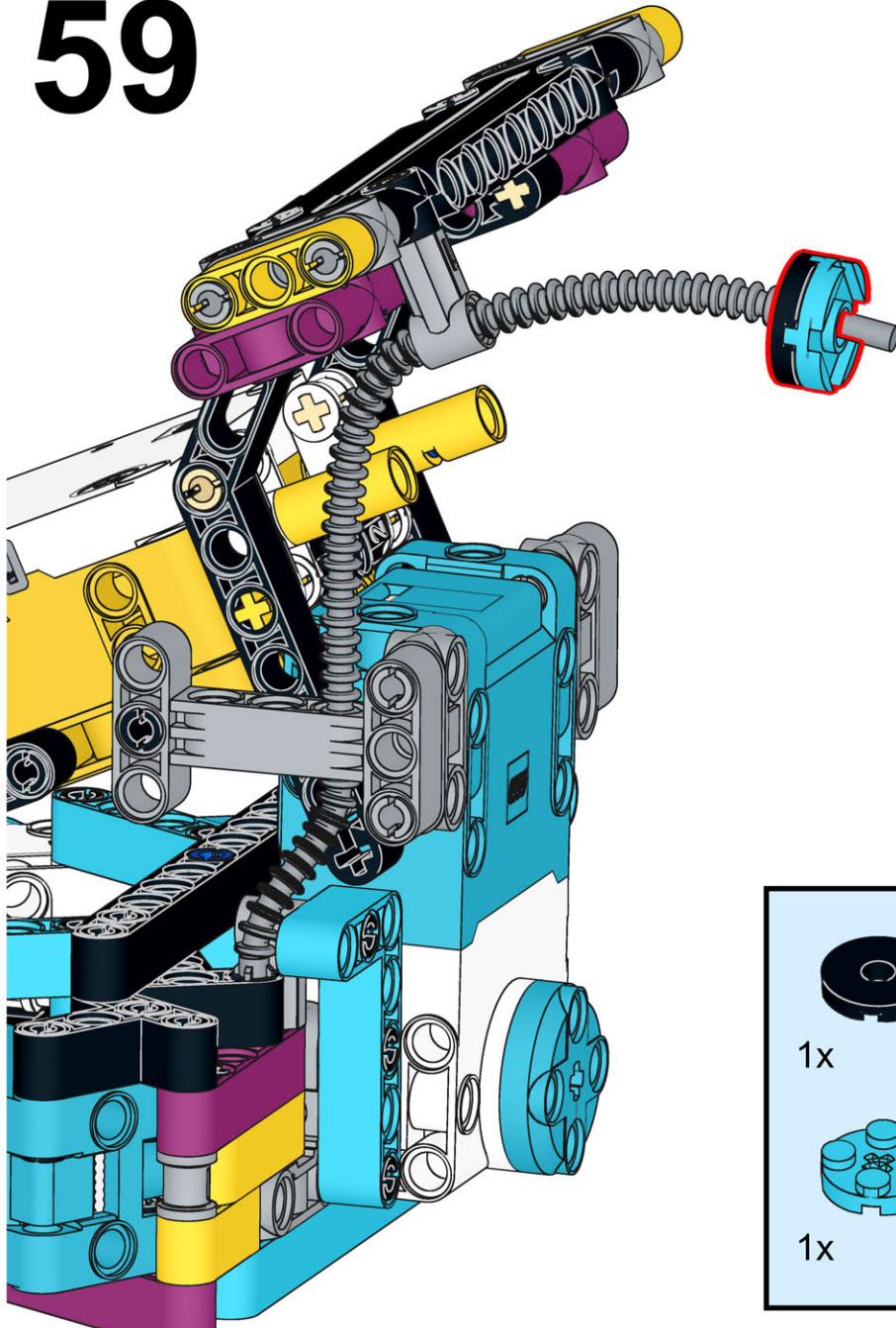
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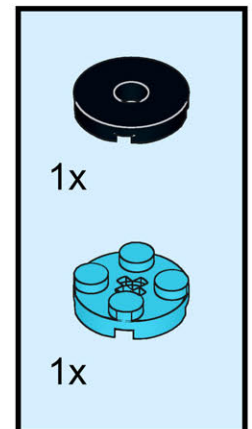
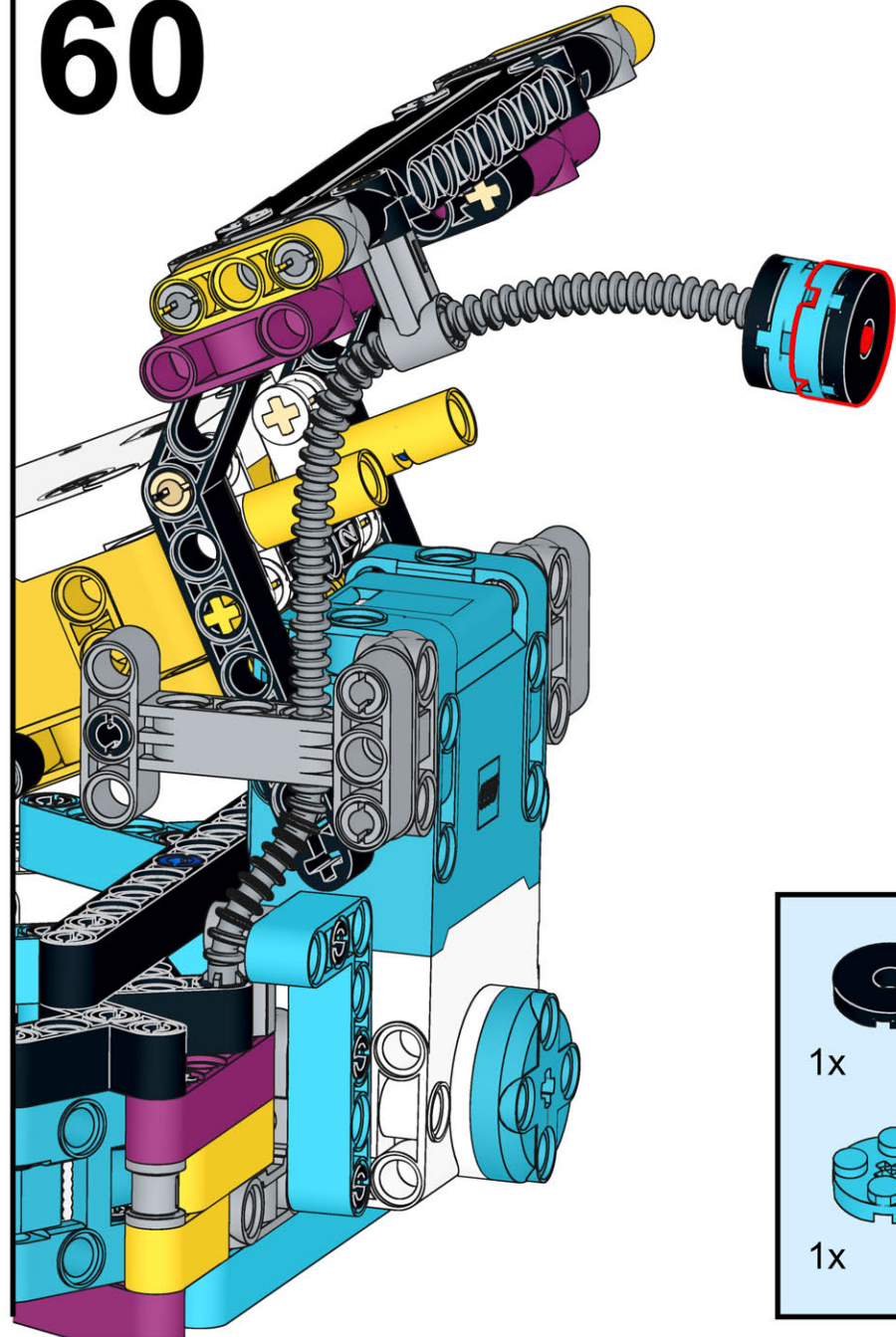
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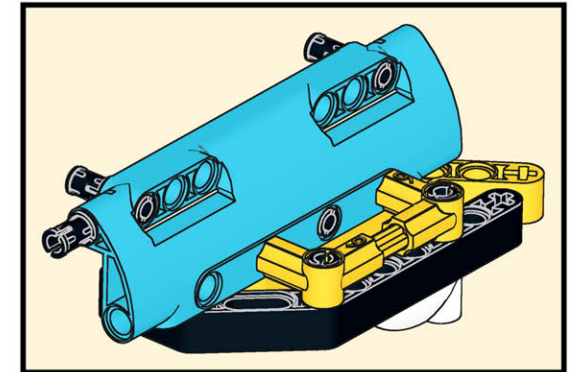
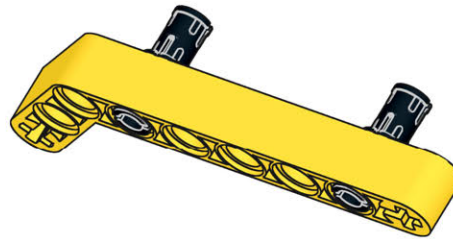
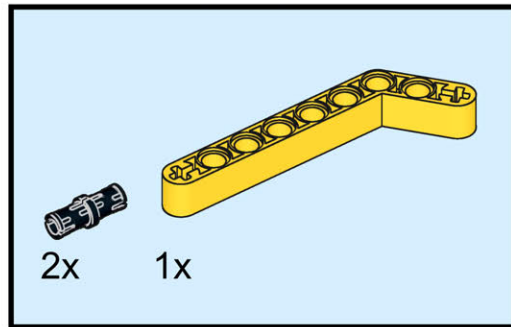
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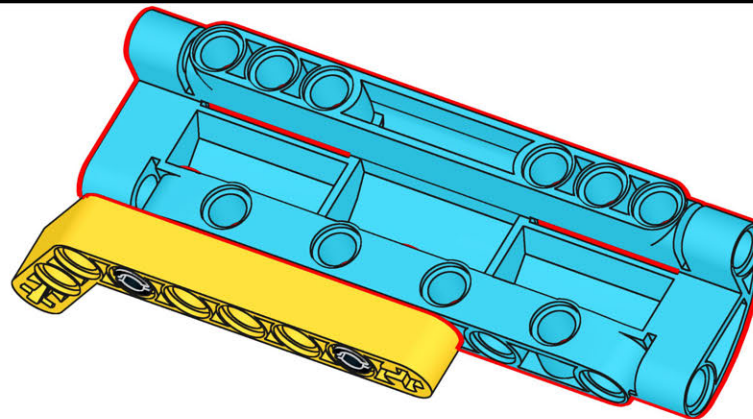
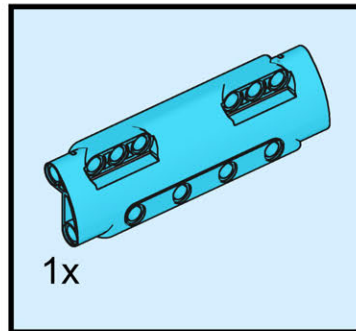
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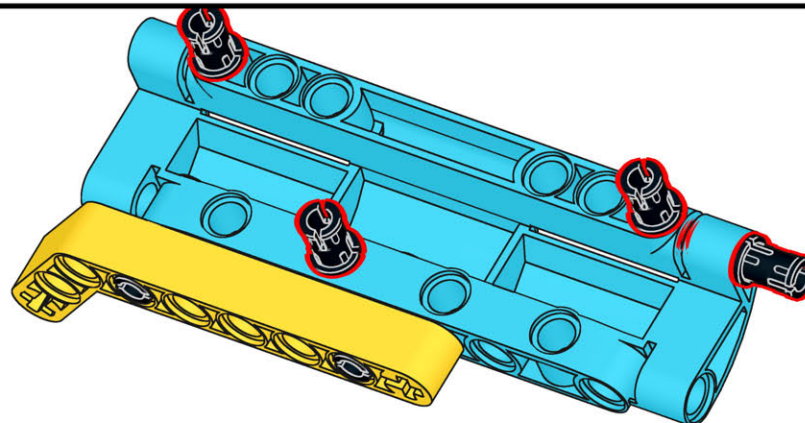
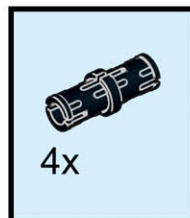
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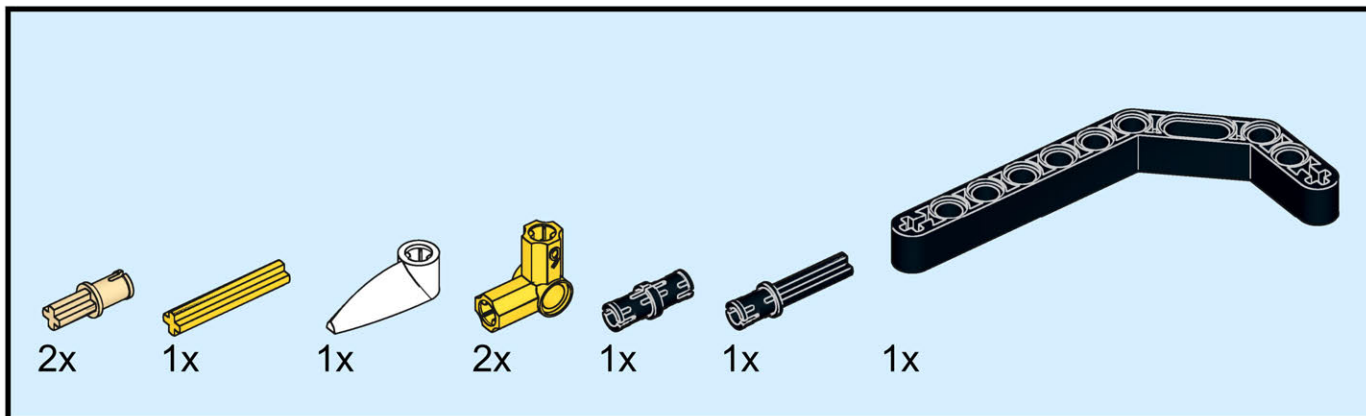
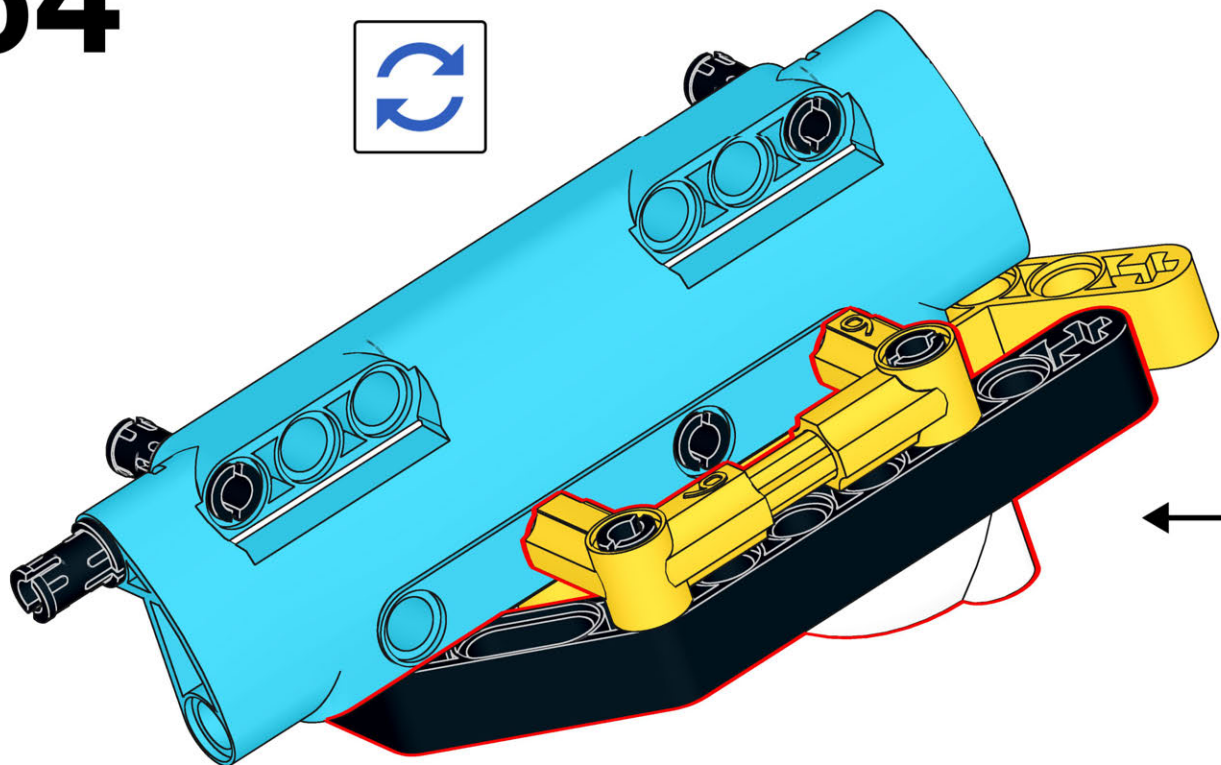
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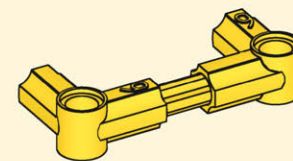


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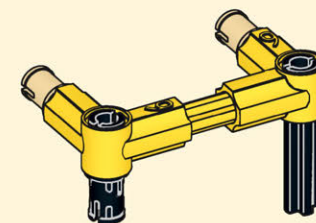


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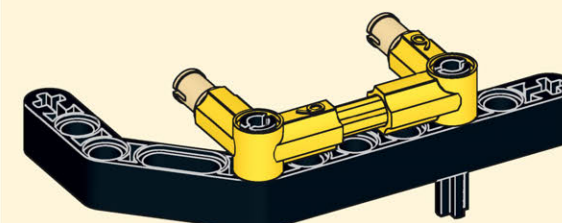
LEGO SPIKE Prime Omni-3 by Dimi V1



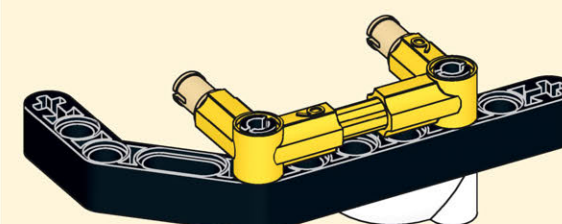
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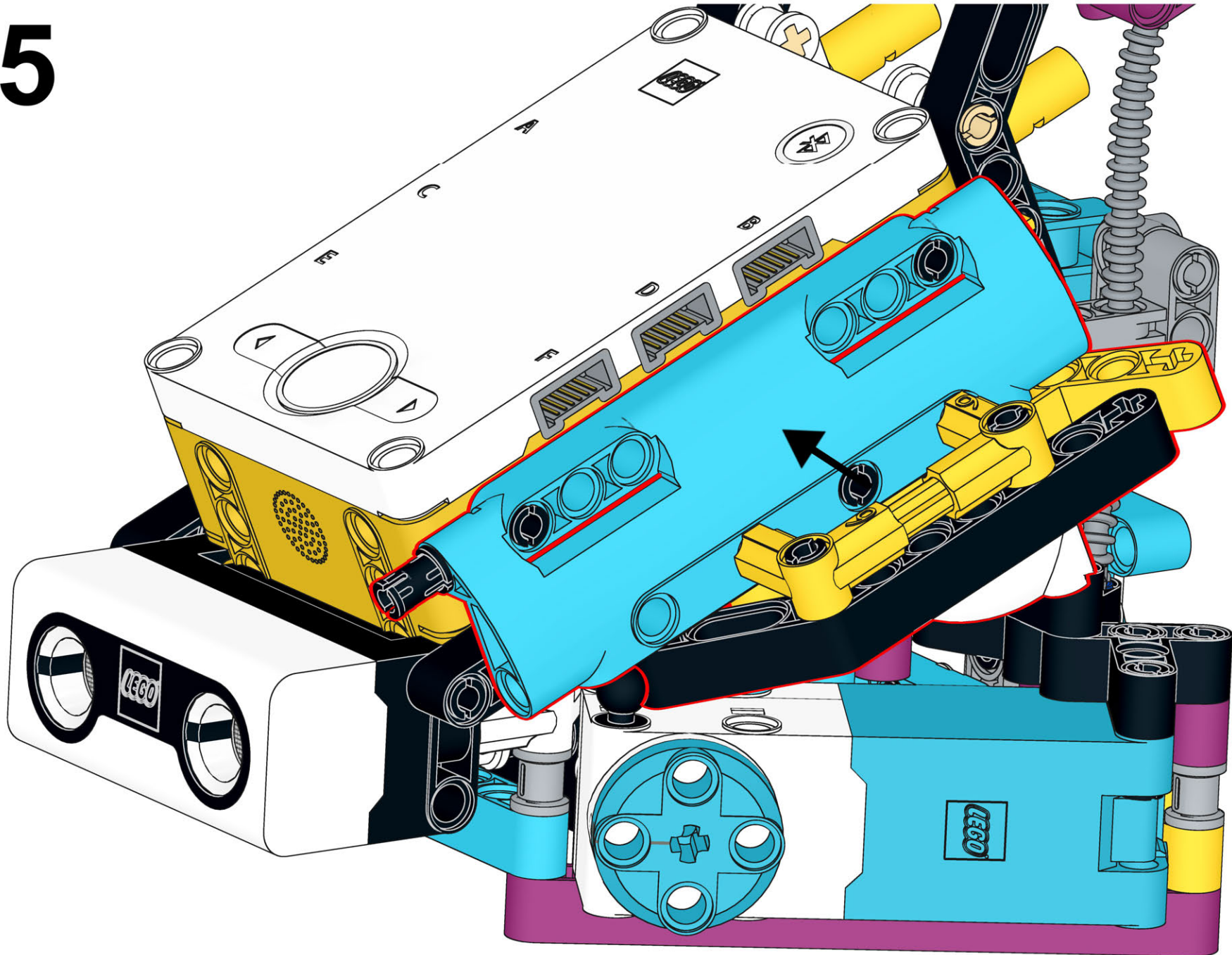
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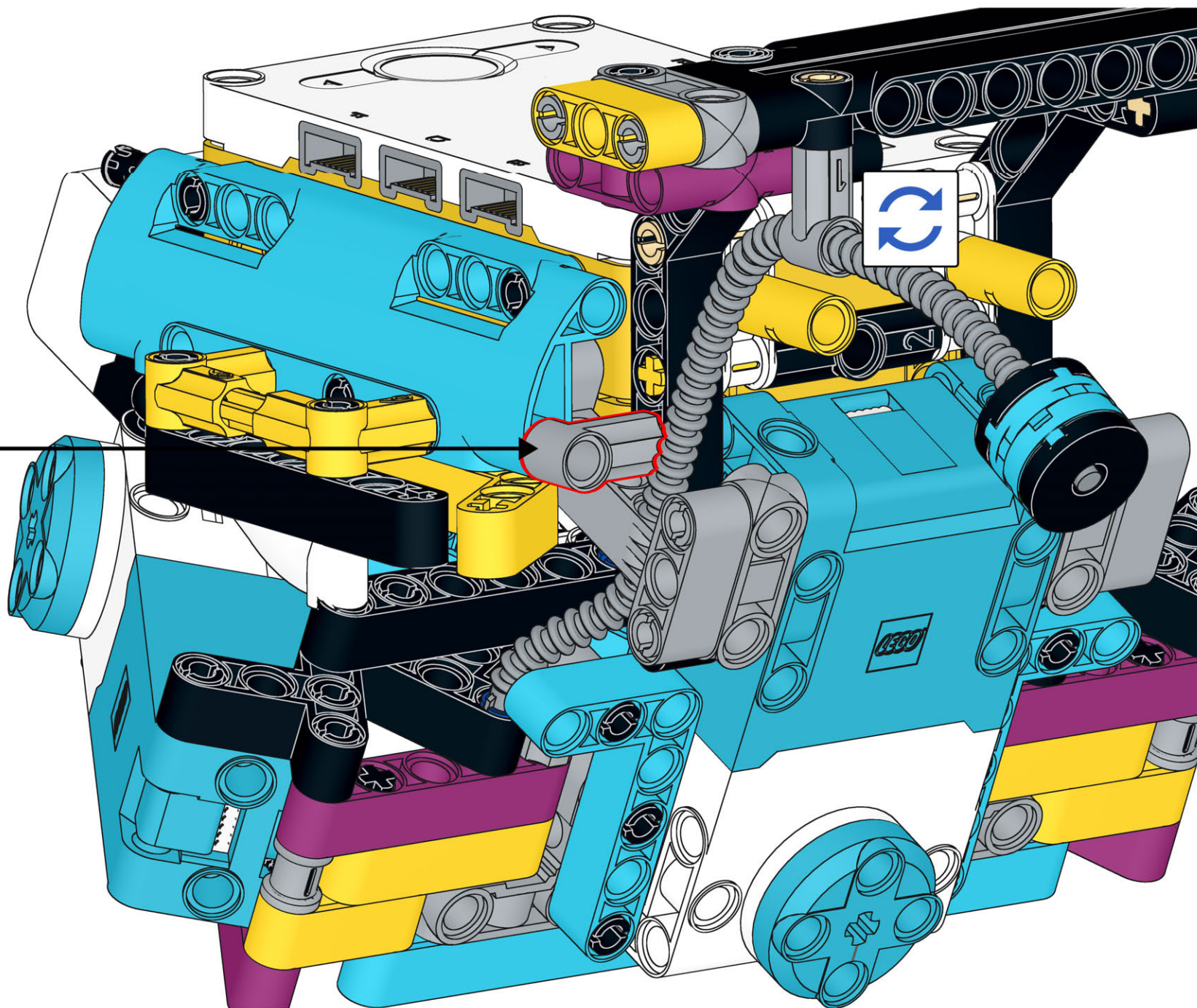
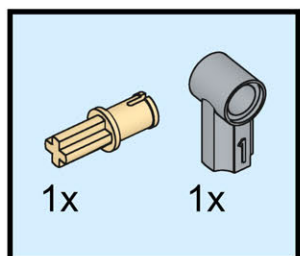
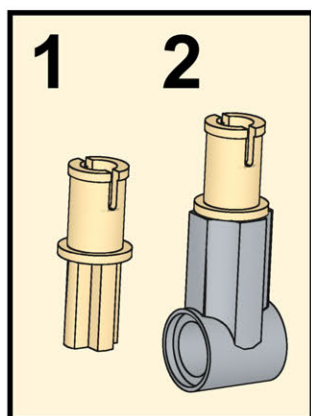
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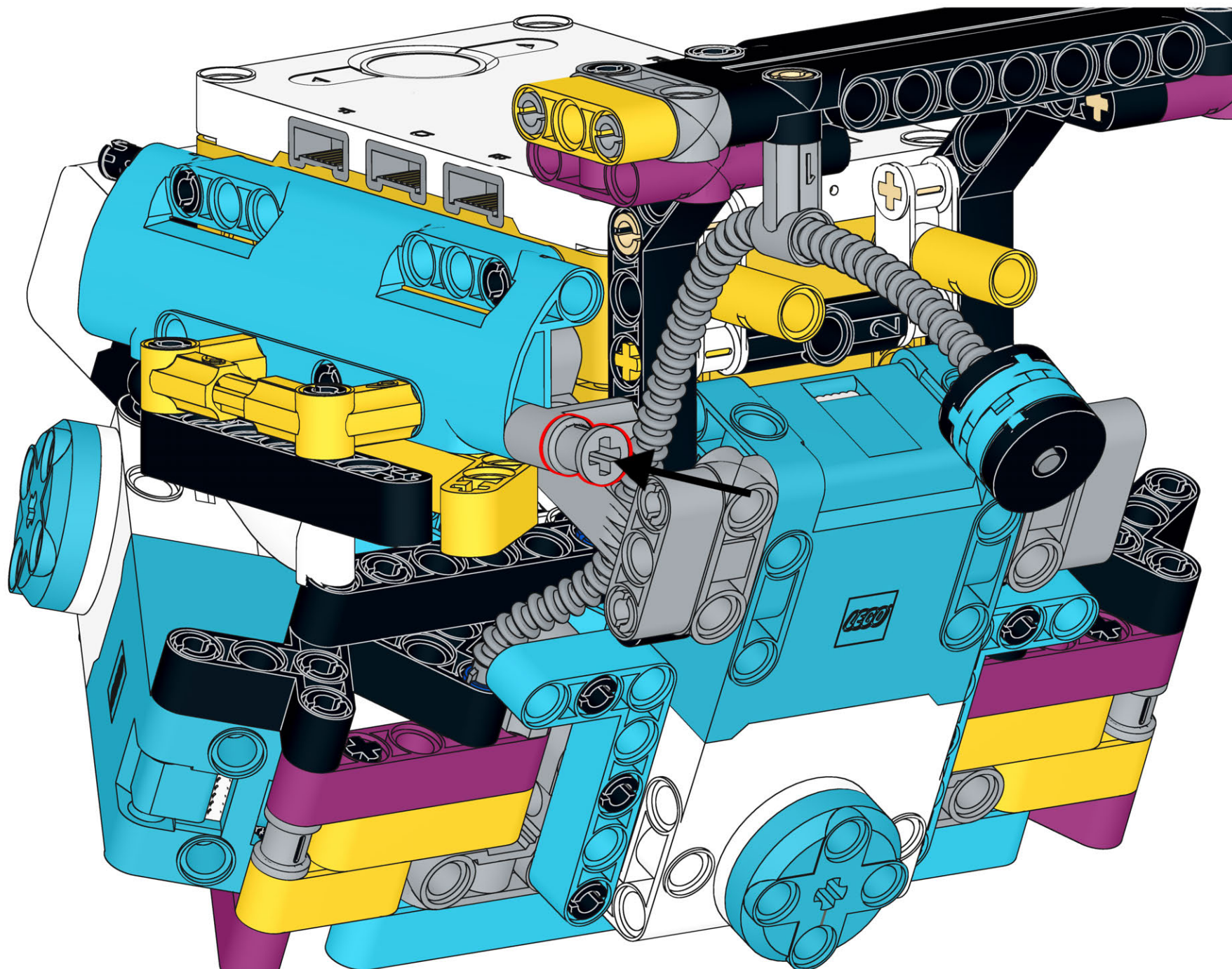
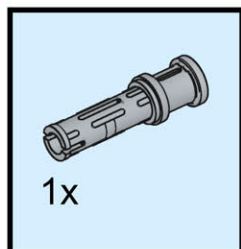
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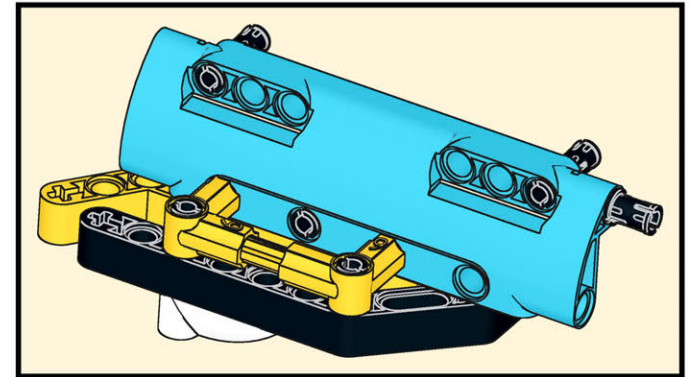
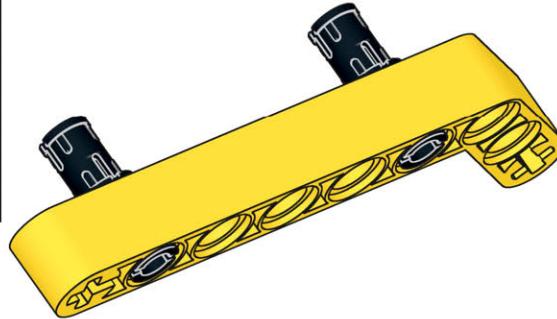
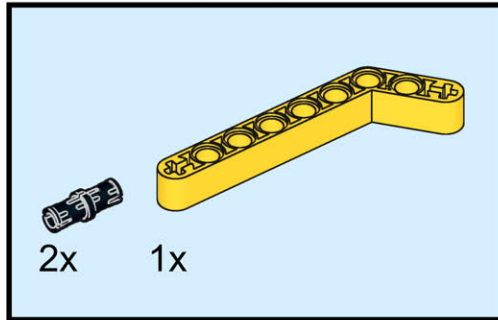
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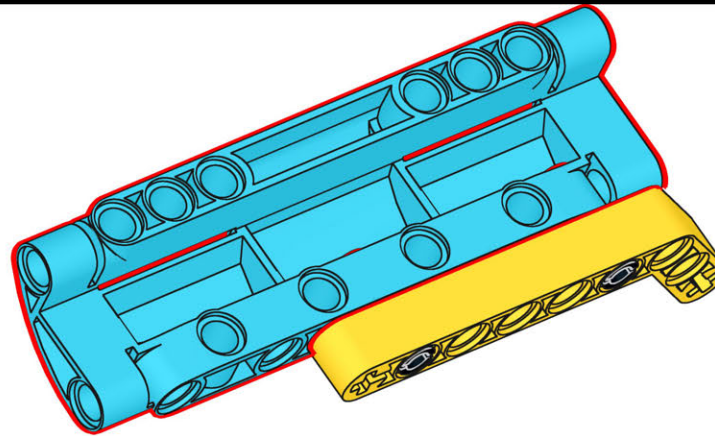
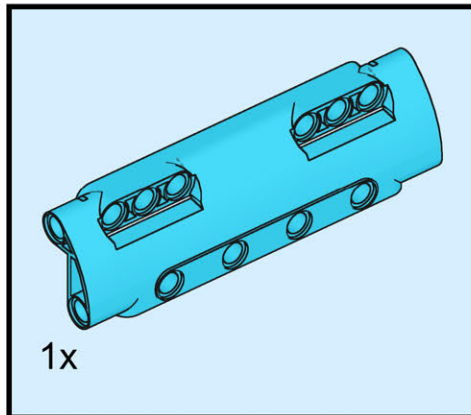
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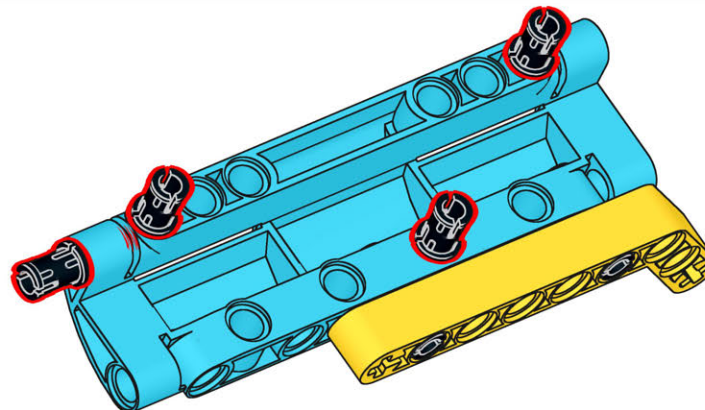
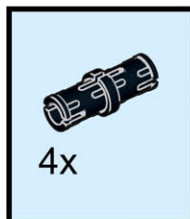
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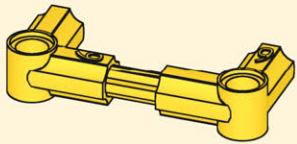


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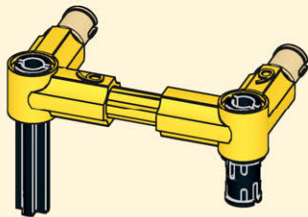


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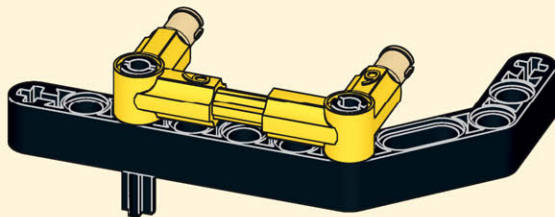
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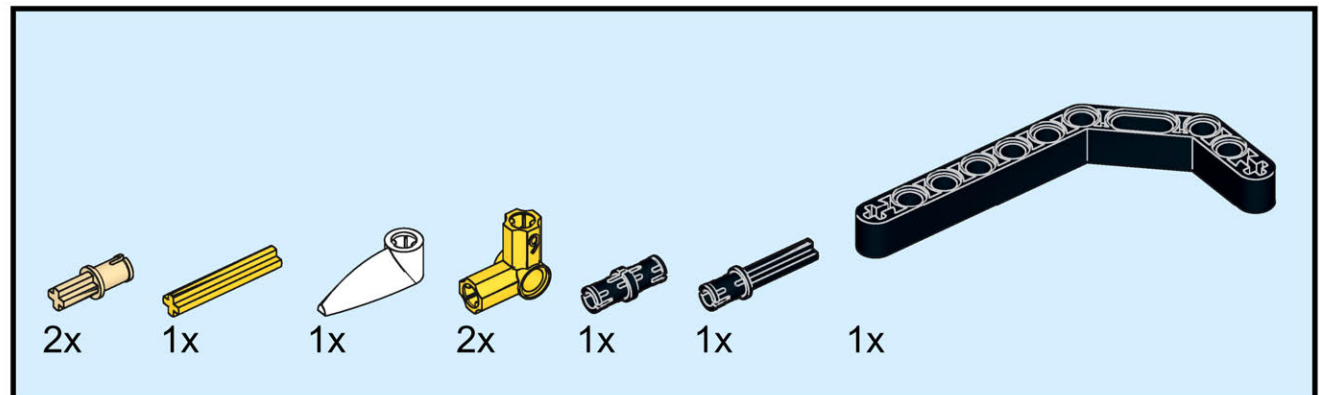
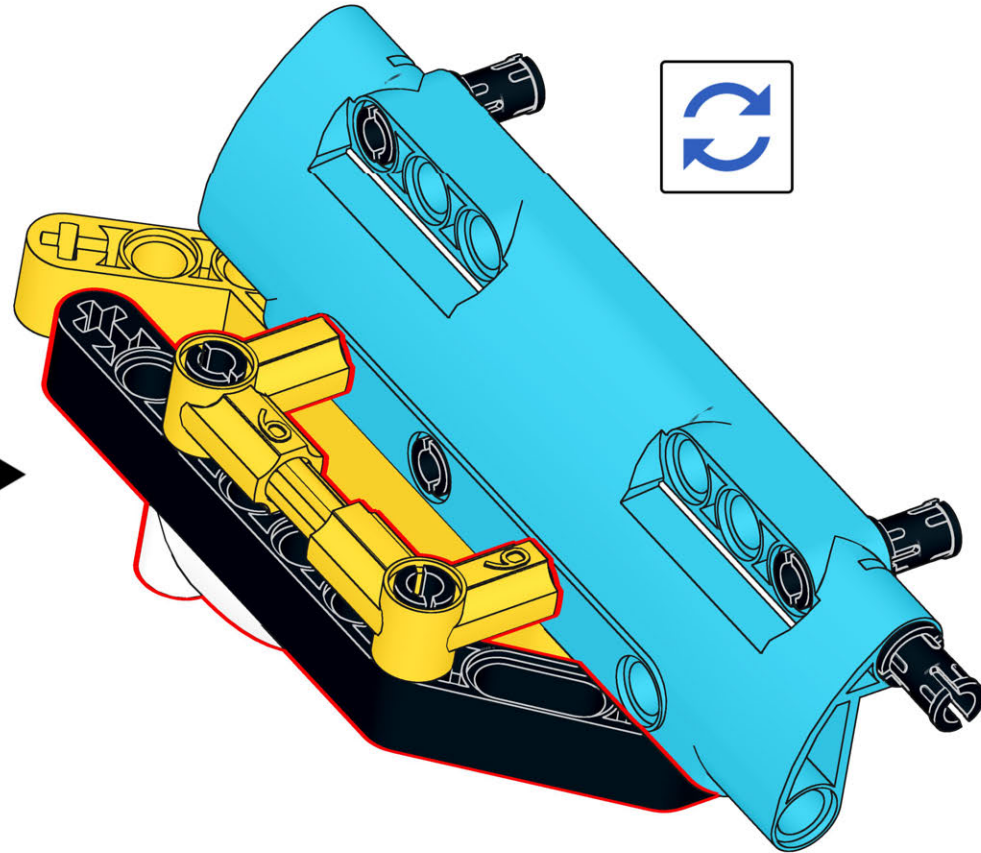
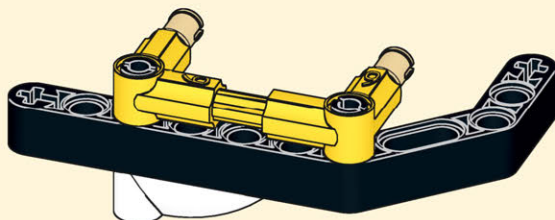
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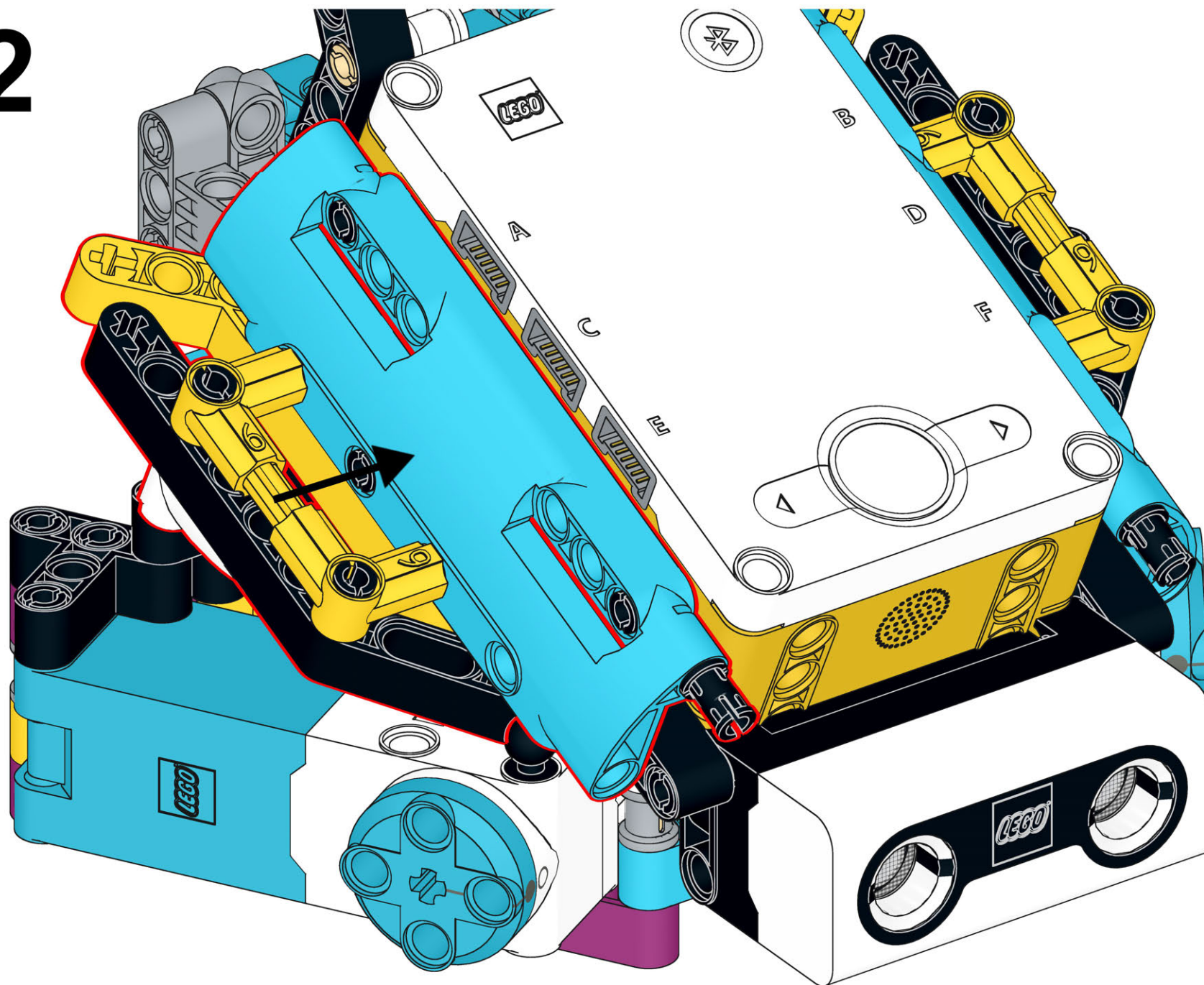
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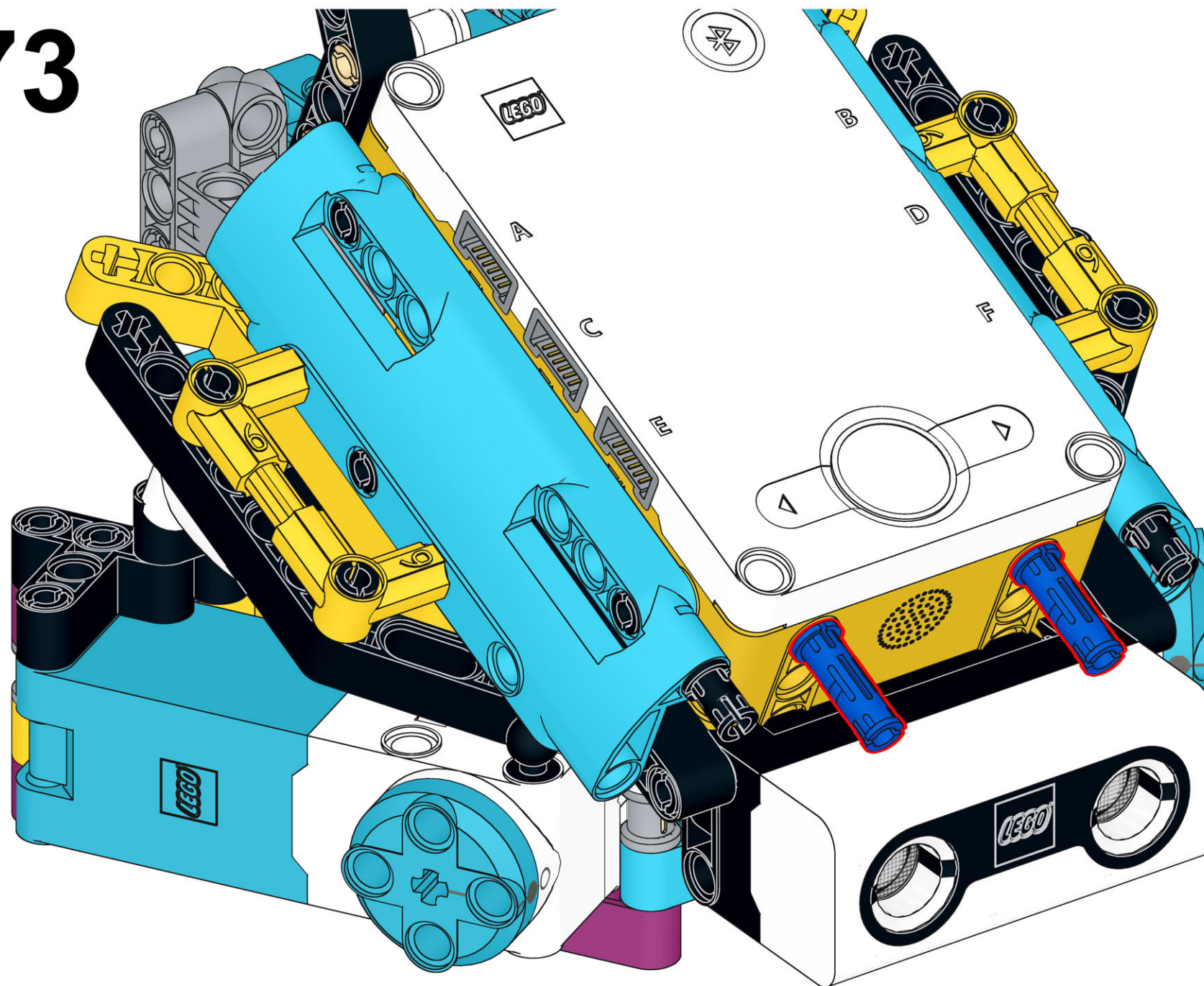
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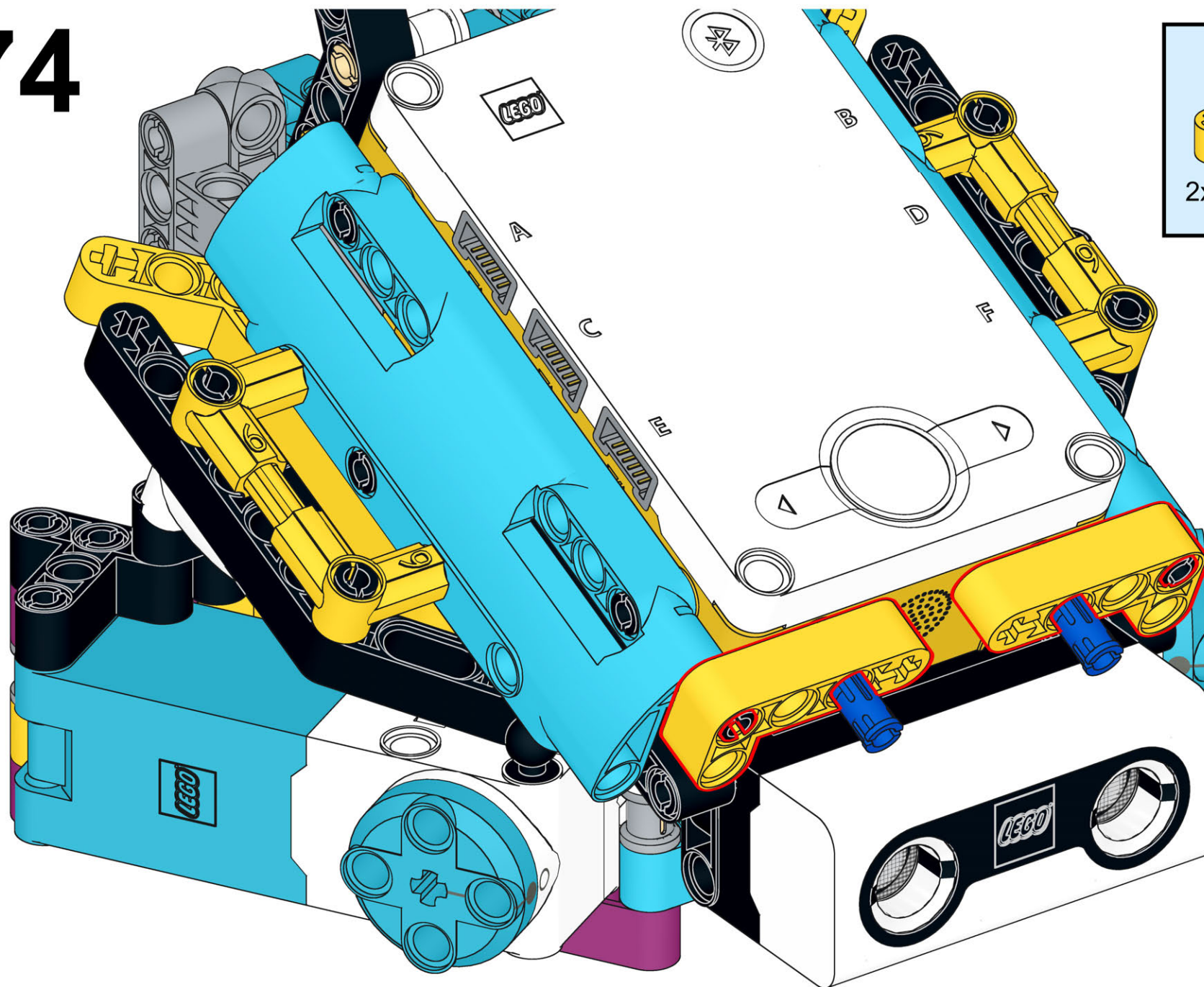
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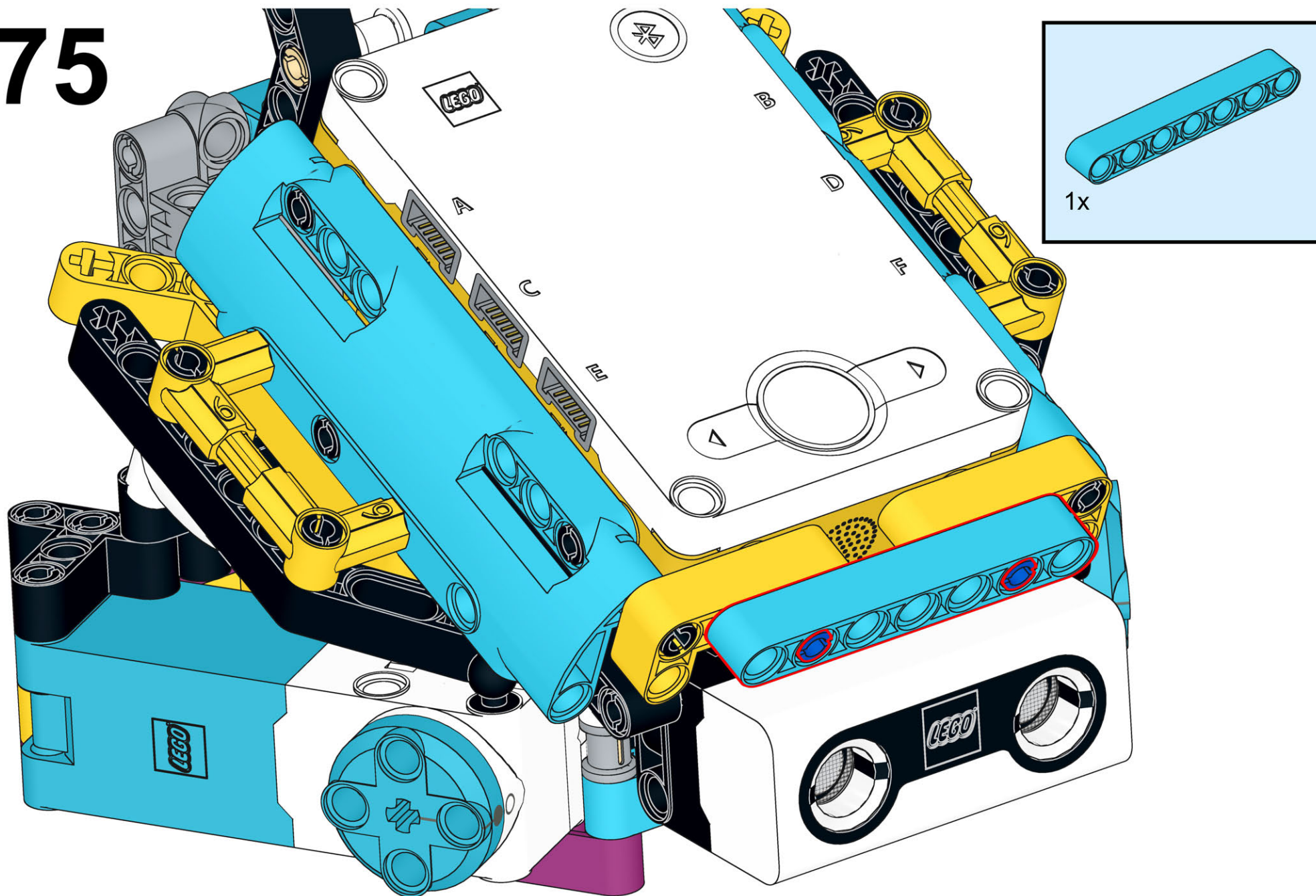
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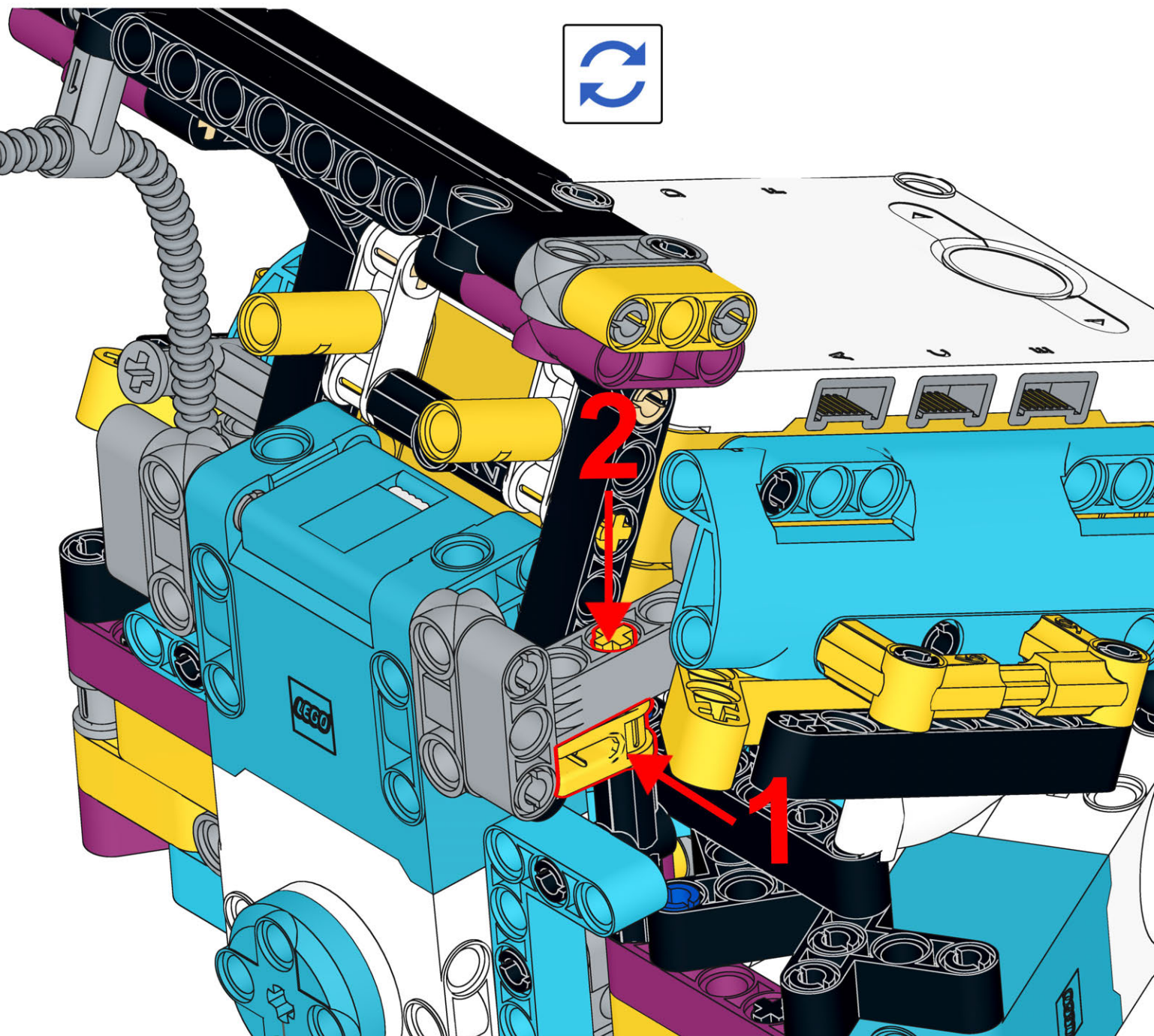
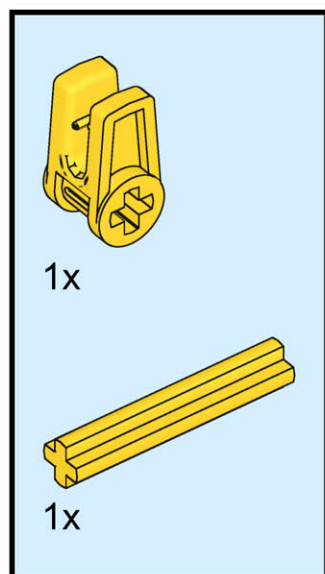
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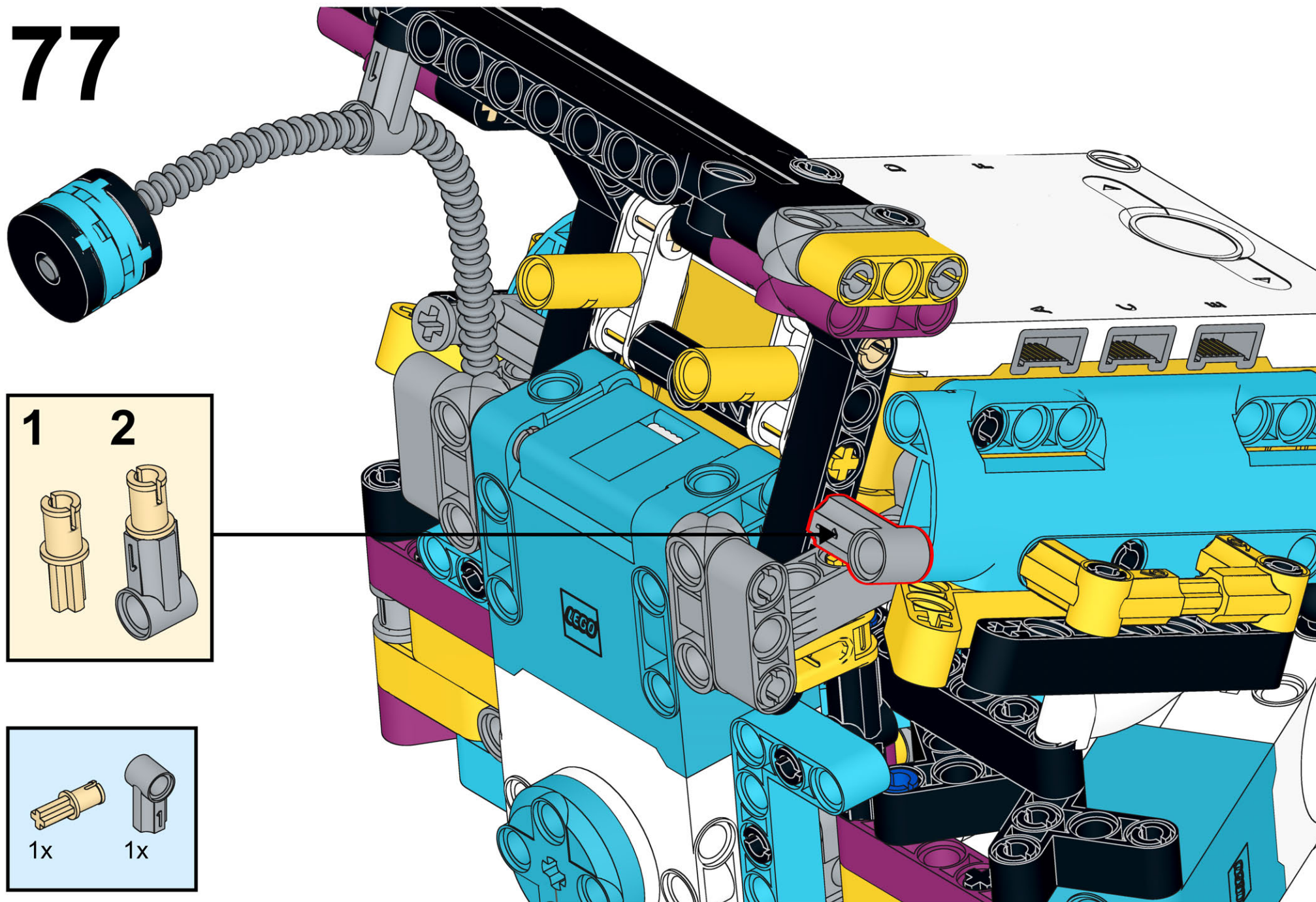
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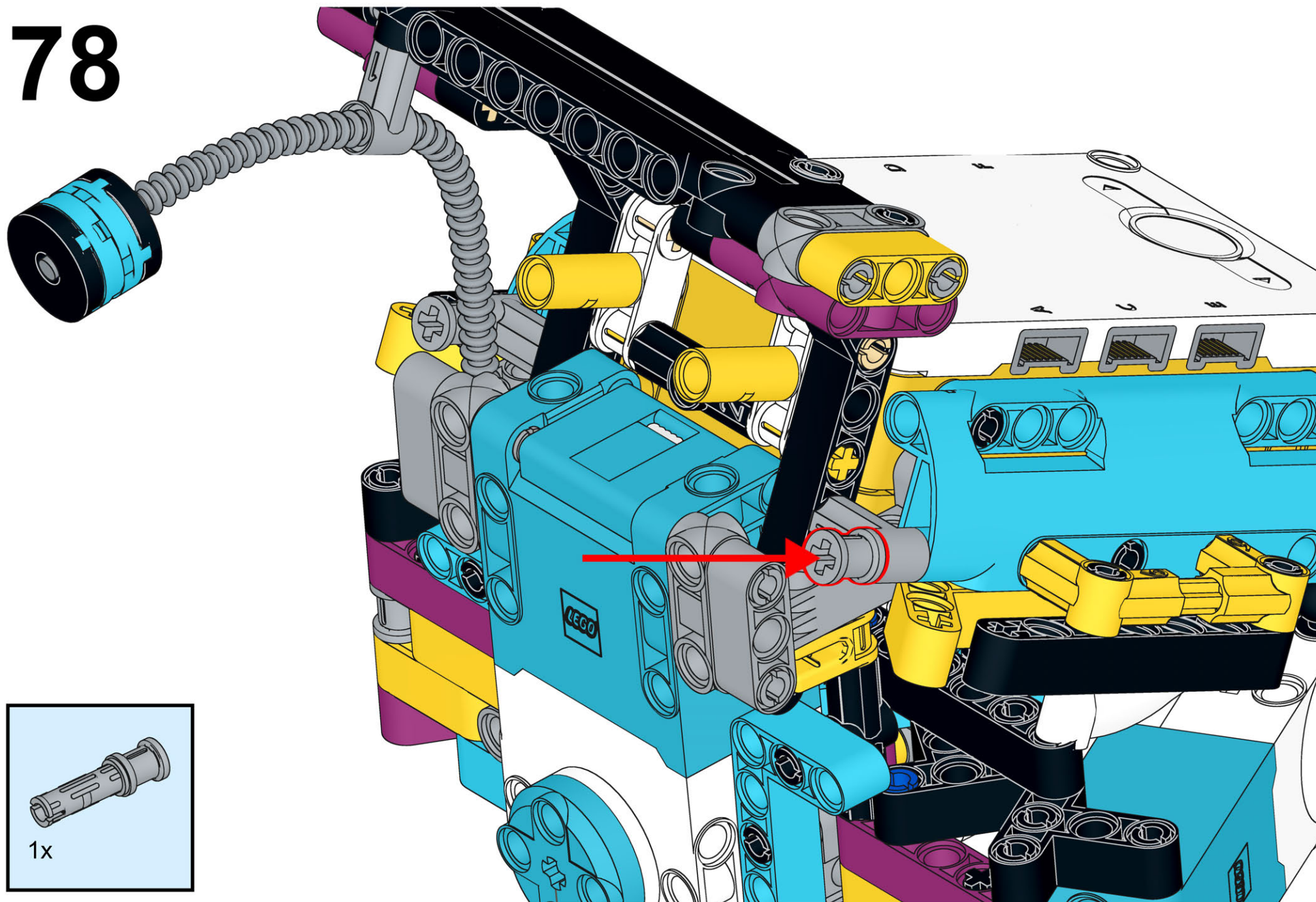
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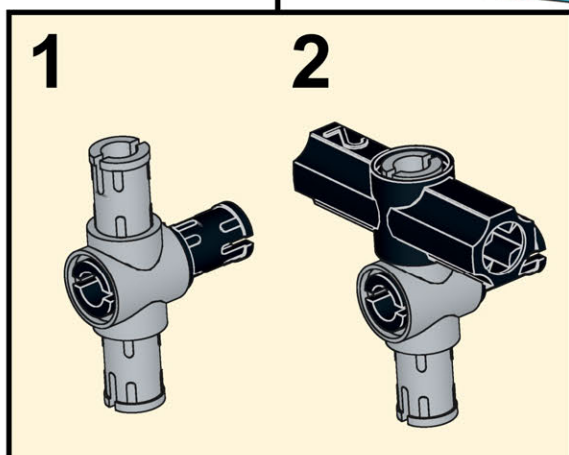
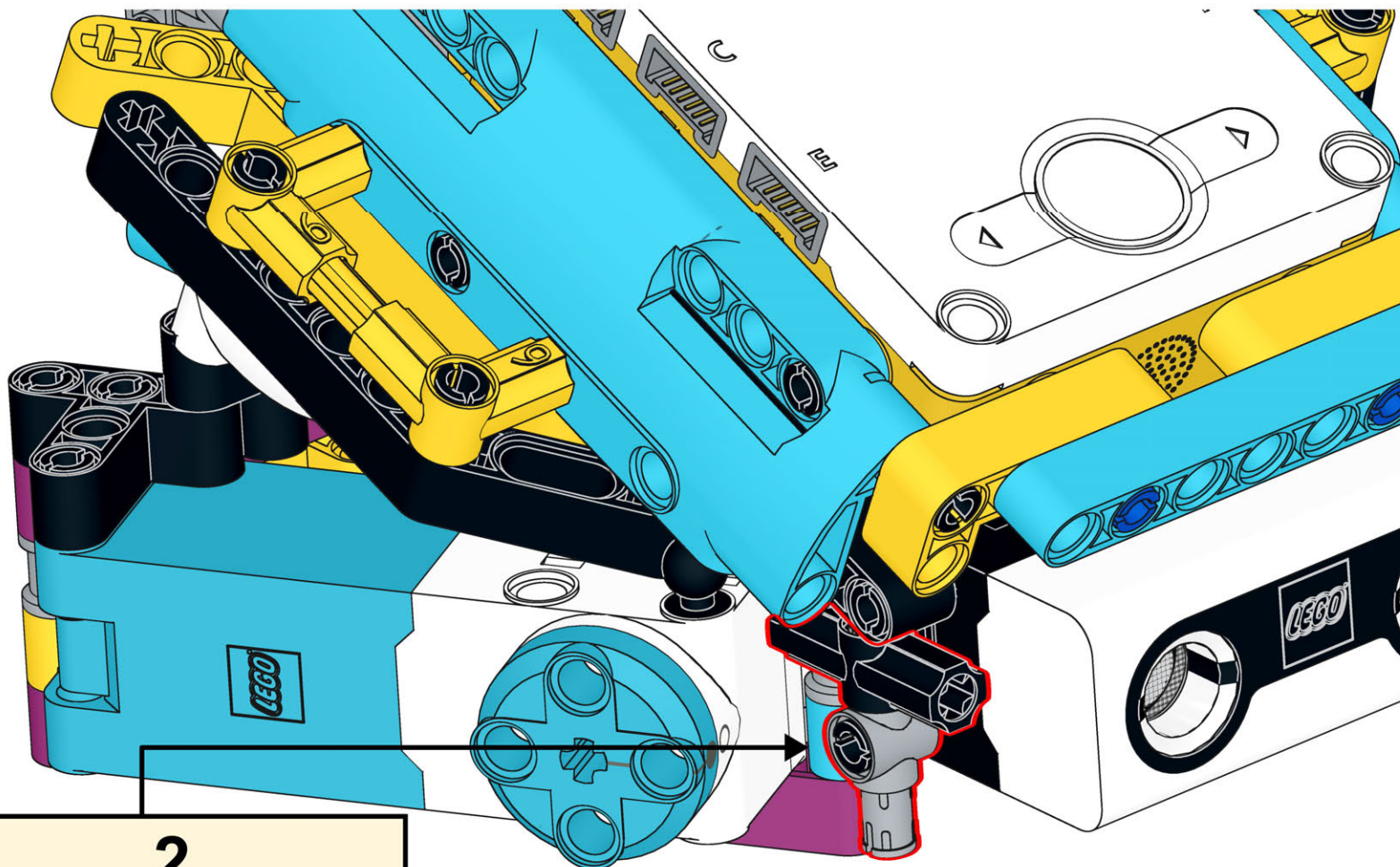
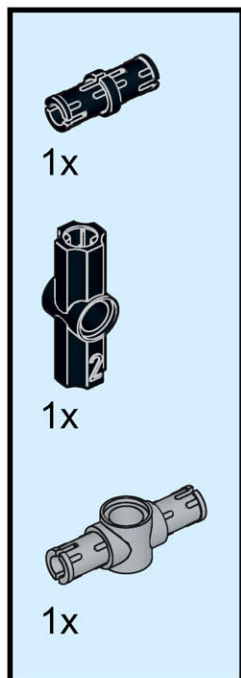
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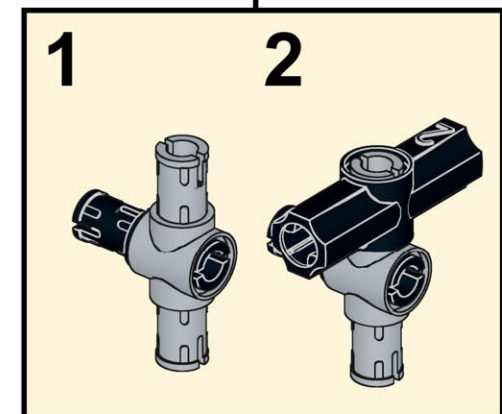
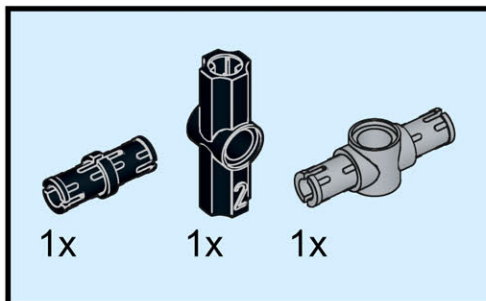
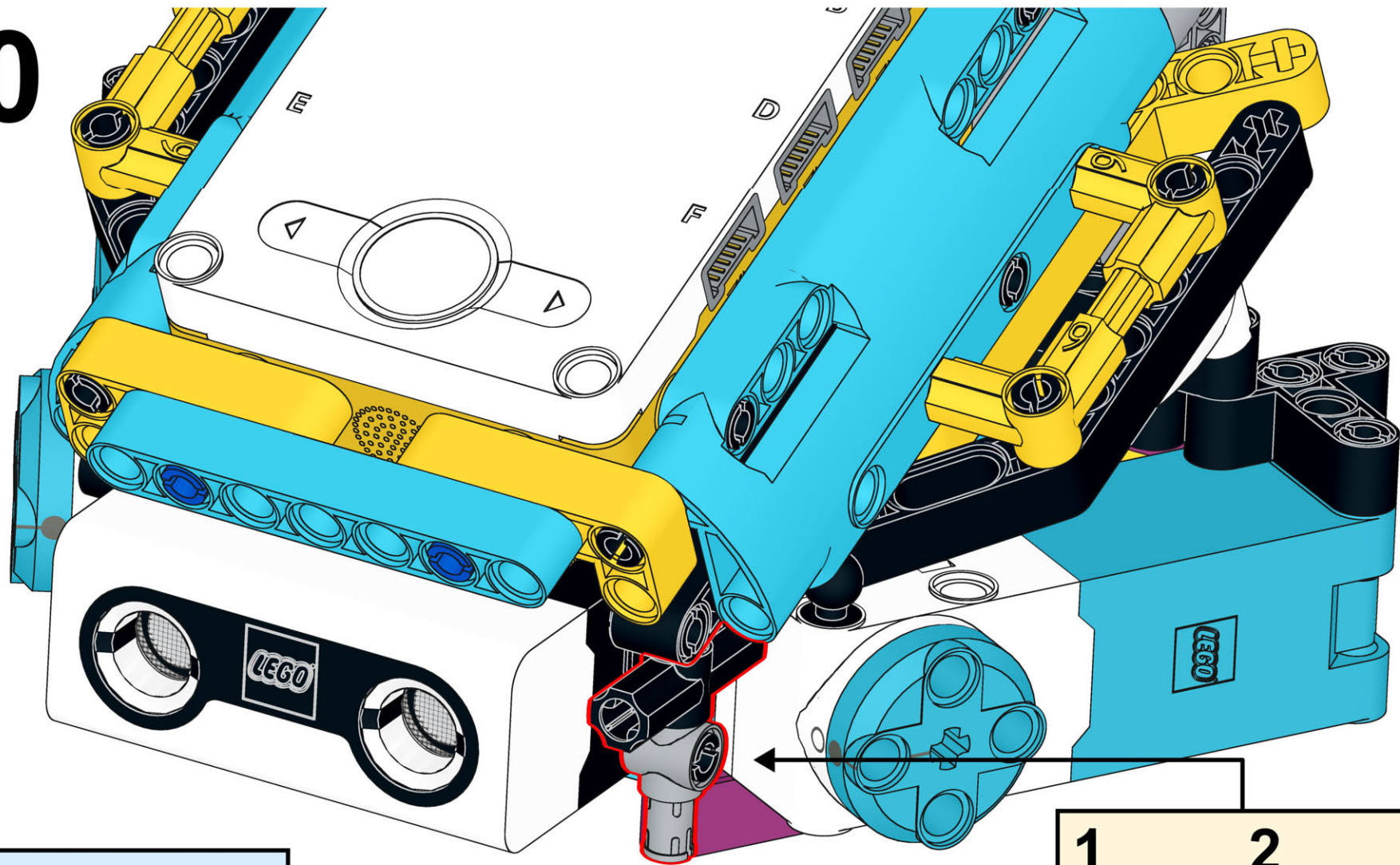
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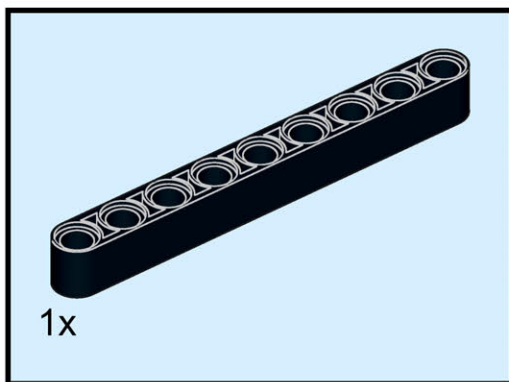
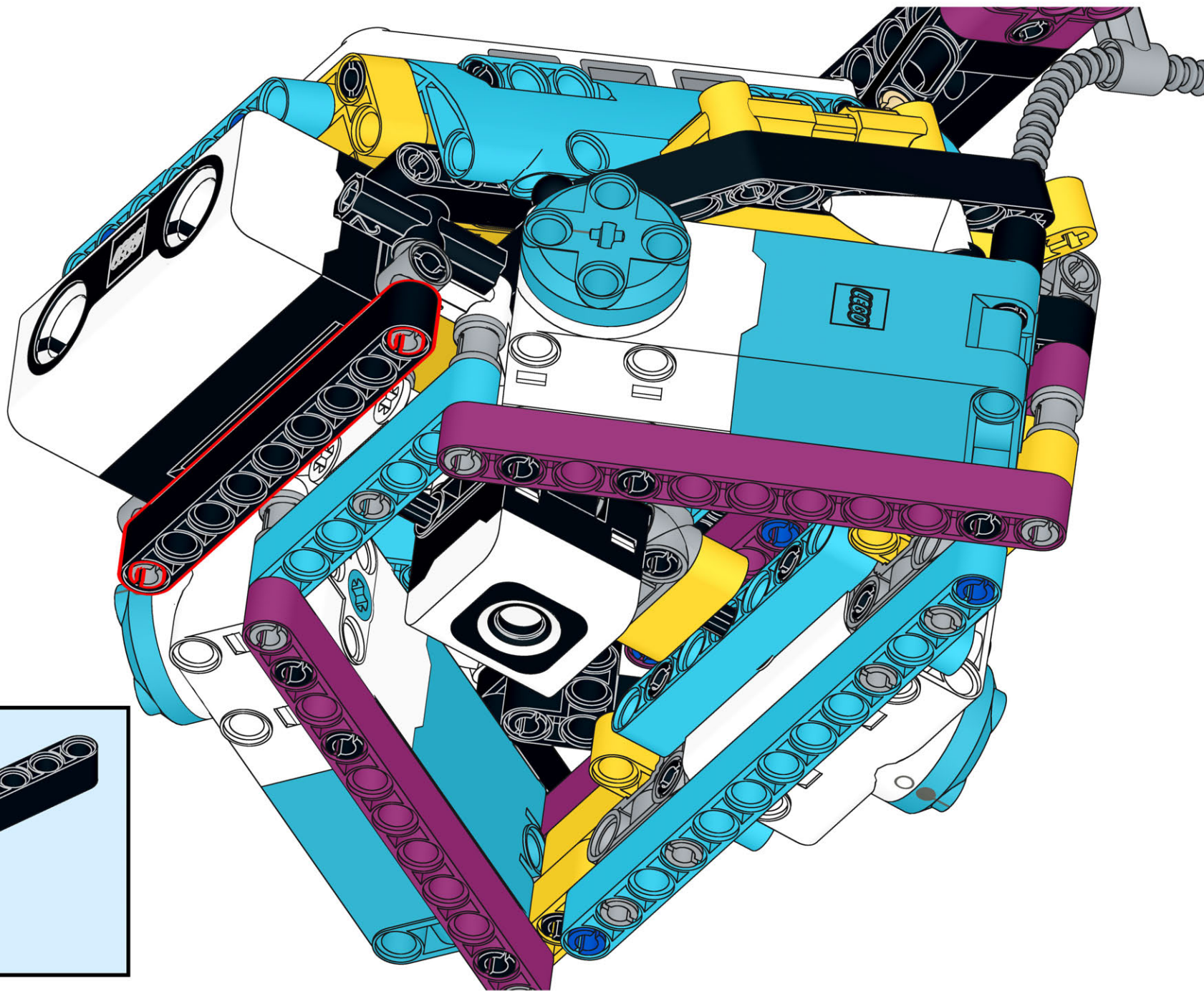
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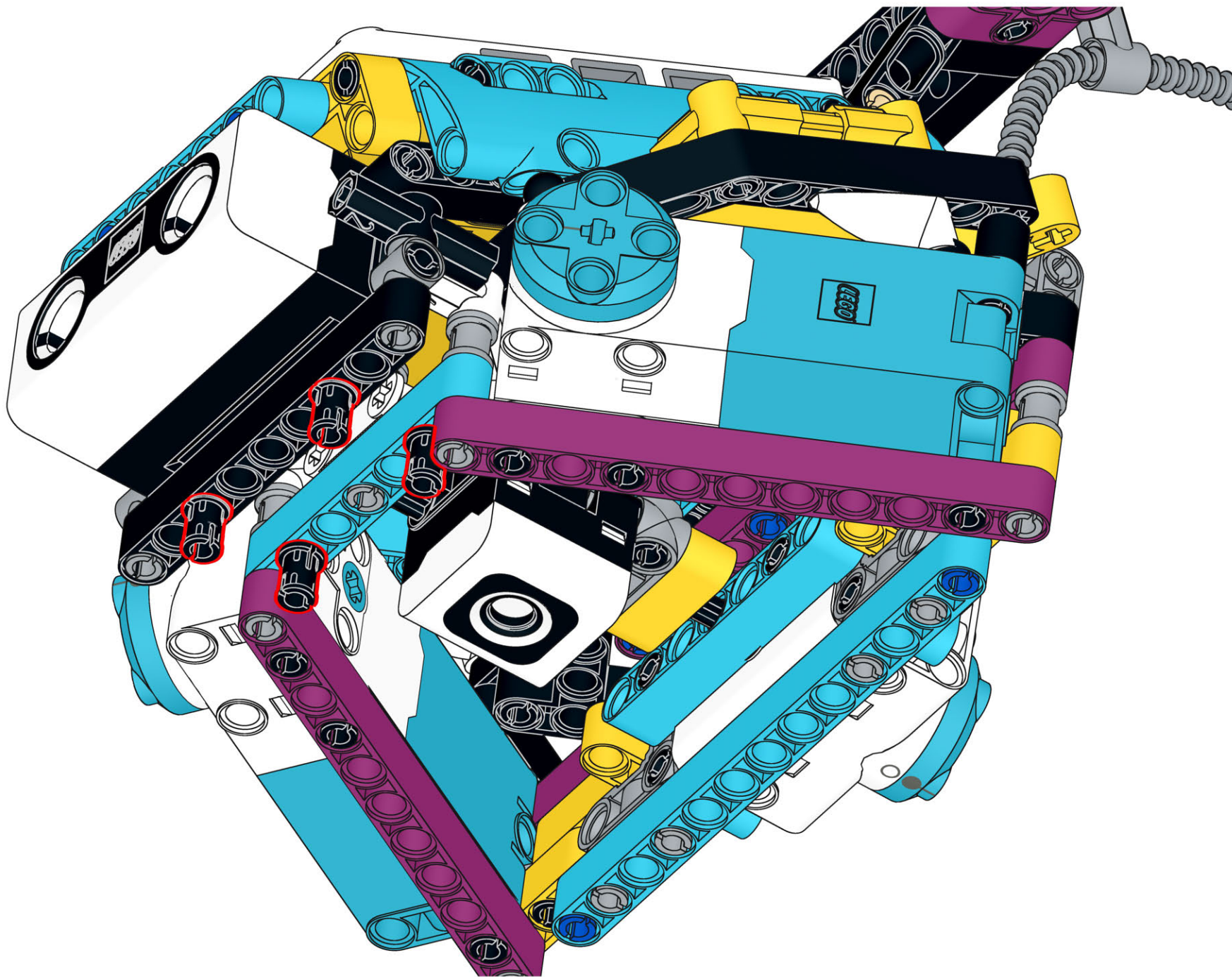
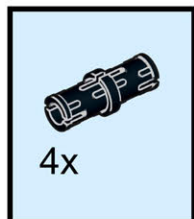
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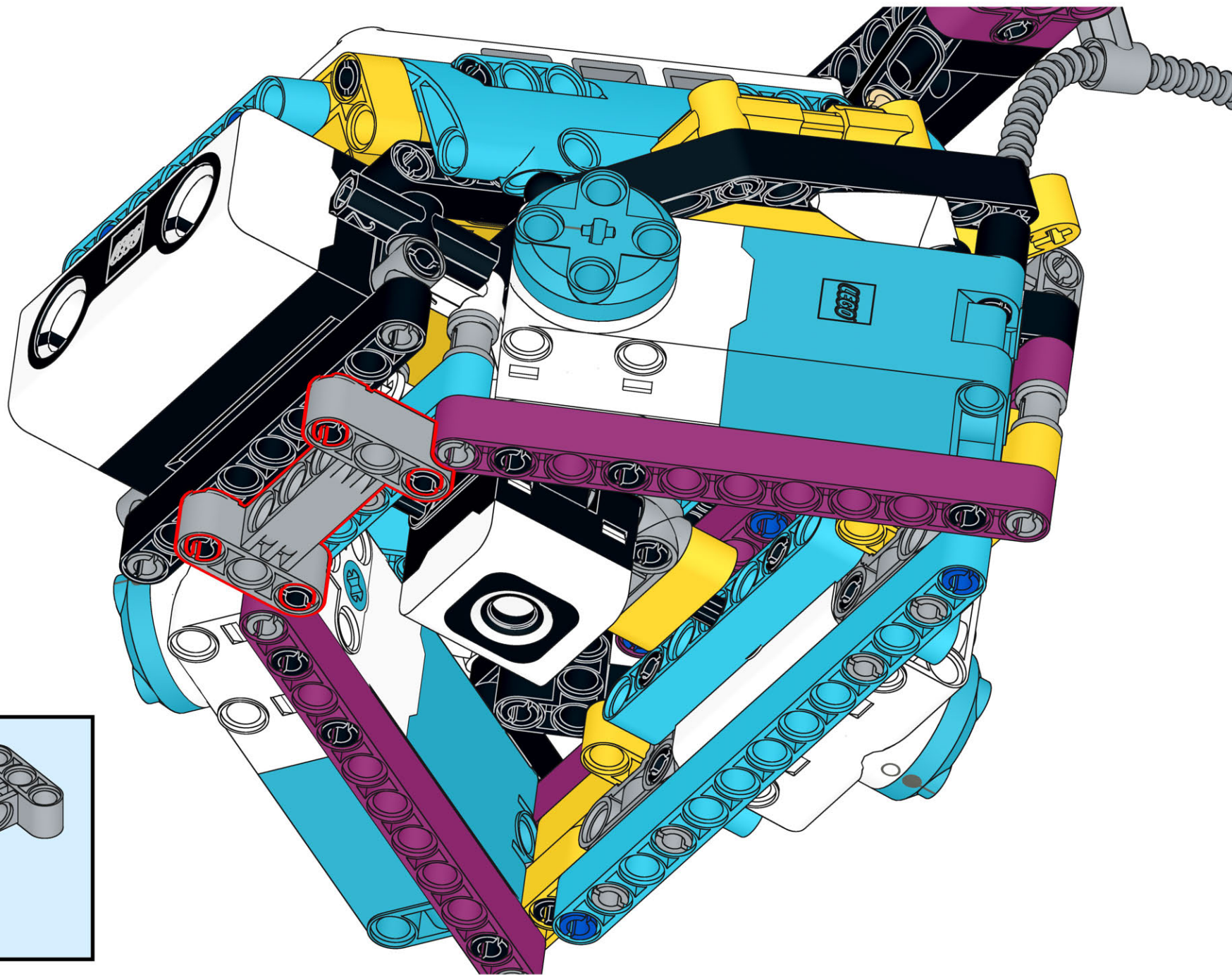
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82

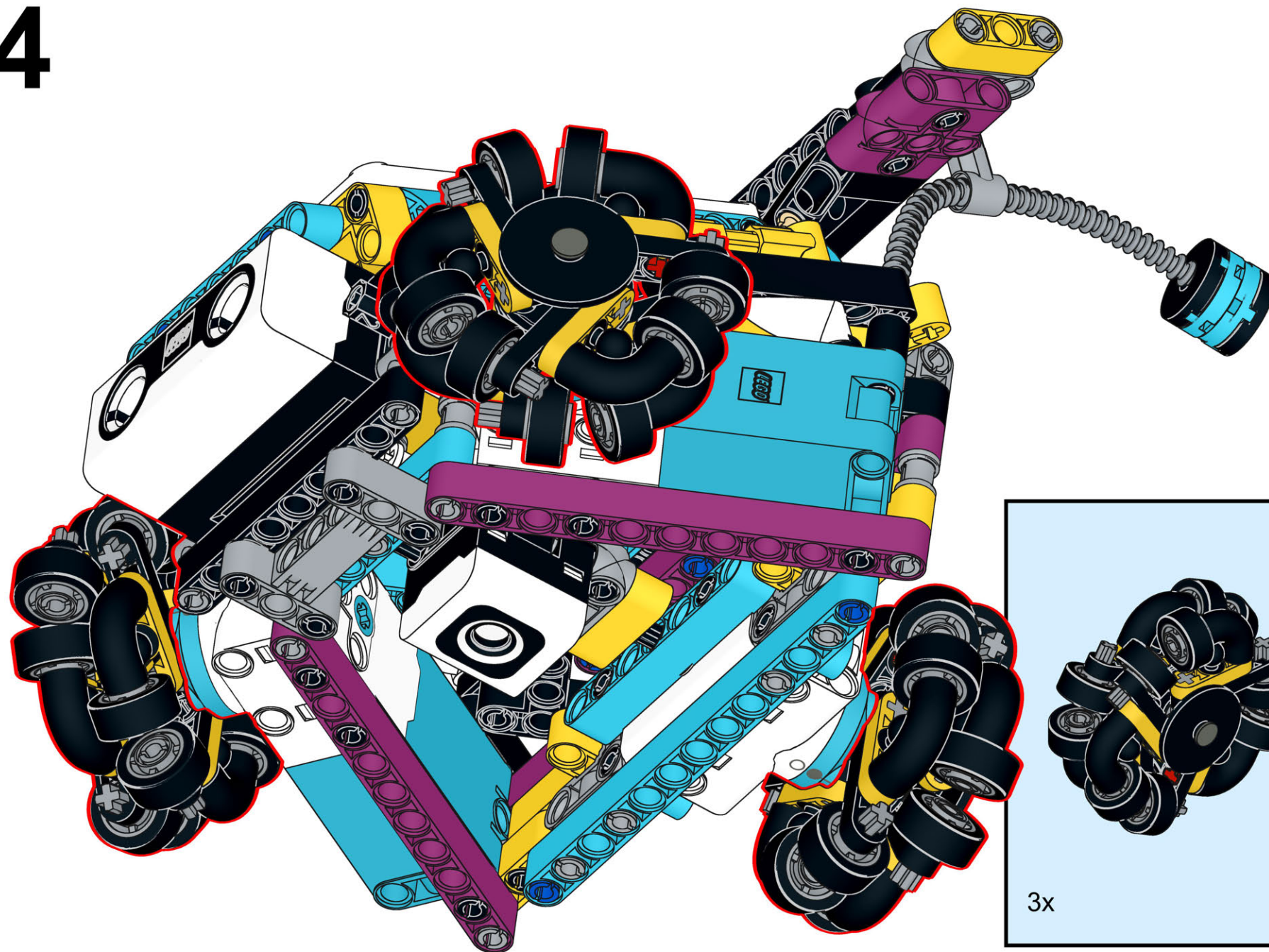


83



1x

84



85



-1 ✓

LARGE MOTOR



0° ✓

EXTRA LARGE
MOTOR

0° ✓

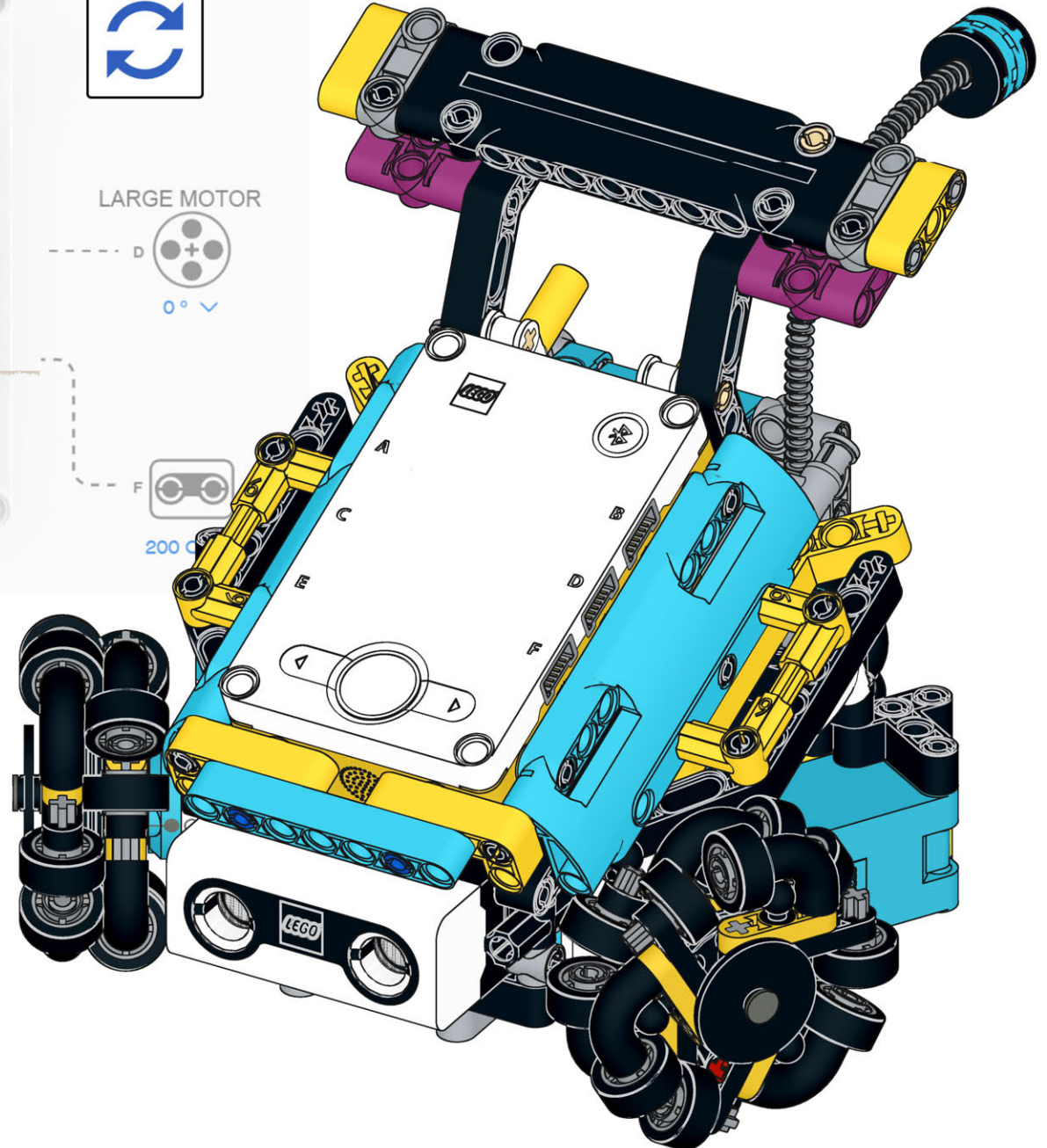
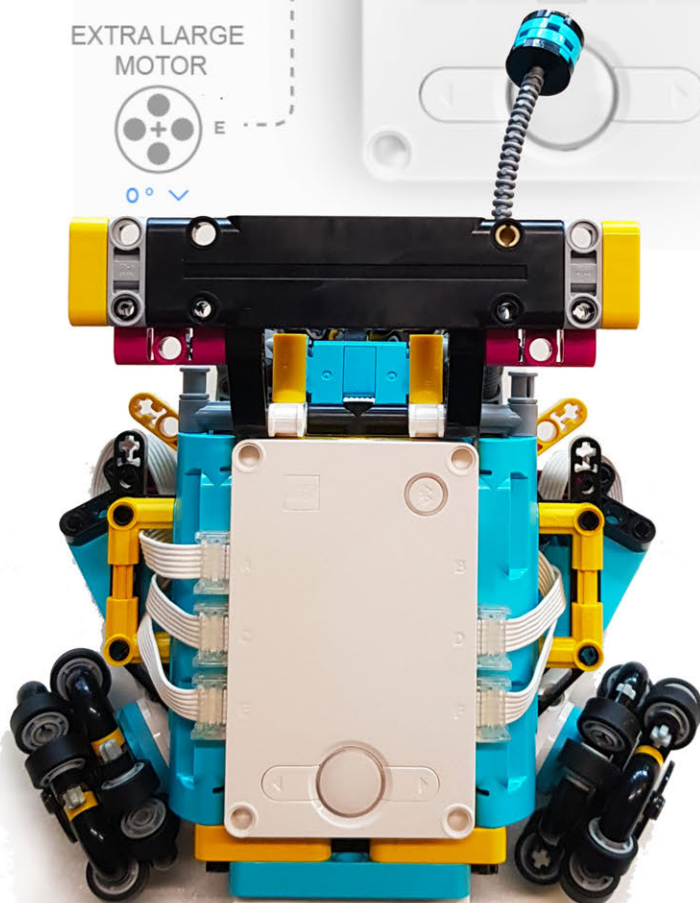


LARGE MOTOR



0° ✓

200° ✓



86 Program it with the 'Start Omni Drive' MyBlock:

The image shows the LEGO SPIKE Prime MyBlocks editor. At the top, a custom block named 'Start Omni Drive' is defined with three inputs: Speed, Direction, and Rotation Speed. The block's internal logic is as follows:

- Define Start Omni Drive:**
 - Speed:** Input field.
 - Direction:** Input field.
 - Rotation Speed:** Input field.
 - Logic:**
 - Calculate the motor control according to the desired speed, direction and rotation speed.
 - For port E: $\text{Speed} \cdot \cos(\text{Direction}) \cdot \cos(90) - \sin(\text{Direction}) \cdot \sin(90) \cdot \text{Rotation Speed} \%$
 - For port D: $\text{Speed} \cdot \cos(\text{Direction}) \cdot \cos(210) - \sin(\text{Direction}) \cdot \sin(210) \cdot \text{Rotation Speed} \%$
 - For port C: $\text{Speed} \cdot \cos(\text{Direction}) \cdot \cos(330) - \sin(\text{Direction}) \cdot \sin(330) \cdot \text{Rotation Speed} \%$
 - Finally, use the 'E+C+D' block to start the motor.

The main program, labeled 'Demo program', consists of the following sequence of blocks:

- When program starts
- Light up (F) indicator
- Turn on LED
- Start Omni Drive (0, 0, 20) - *Rotate on the spot*
- Wait 5 seconds
- Stop motor (C+D+E)
- Turn on LED
- Start Omni Drive (22, 0, 0) - *Drive forward*
- Wait 2 seconds
- Stop motor (C+D+E)
- Turn on LED
- Start Omni Drive (22, 90, 0) - *Drive sideways*
- Wait 2 seconds
- Stop motor (C+D+E)
- Turn on LED
- Start Omni Drive (22, 180, 0) - *Drive backwards*
- Wait 1.5 seconds
- Stop motor (C+D+E)
- Turn on LED
- Start Omni Drive (22, -90, 0) - *Drive sideways*
- Wait 2 seconds
- Stop motor (C+D+E)

There is also a sub-program 'Drive a circular motion' which includes:

- Turn on LED
- Set count to 0
- Repeat until count > 360:
 - Start Omni Drive (40, count, 0)
 - Change count by 6
 - Wait 0.1 seconds
- Stop motor (C+D+E)

Or download the Demo program.

2x
6628, 11



4x
60484, 11

63x
2780, 11



3x
40490, 11

2x
15535, 11



1x
15458, 11



1x
32278, 11

10x
18651, 11



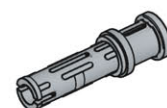
4x
32034, 11

4x
32009, 11

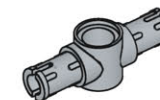
1x
3705, 11



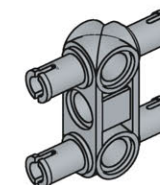
4x
32013, 86



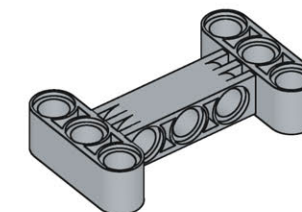
7x
32054, 86



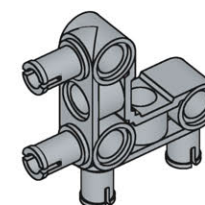
2x
87082, 86



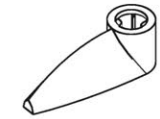
5x
48989, 86



3x
14720, 86



2x
55615, 86



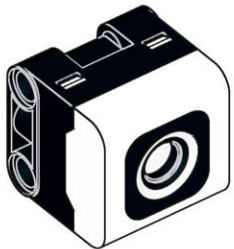
2x
x346, 1



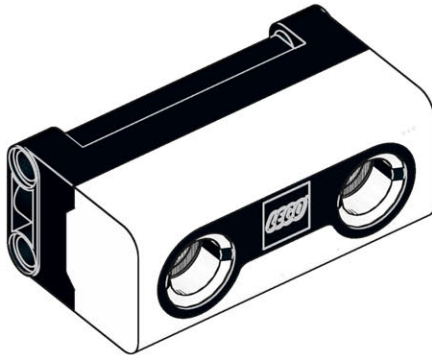
4x
32184, 1



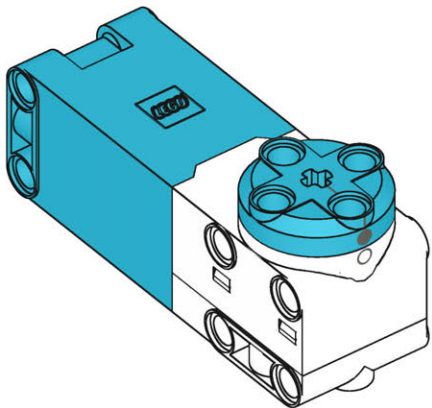
4x
32192, 1



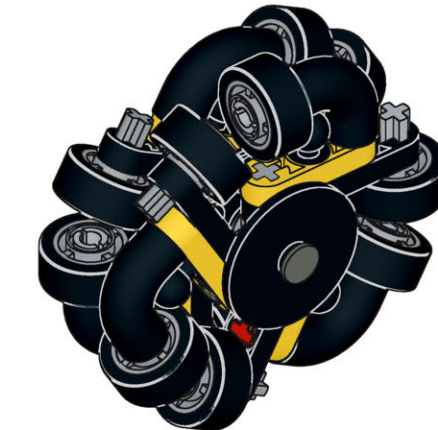
1x



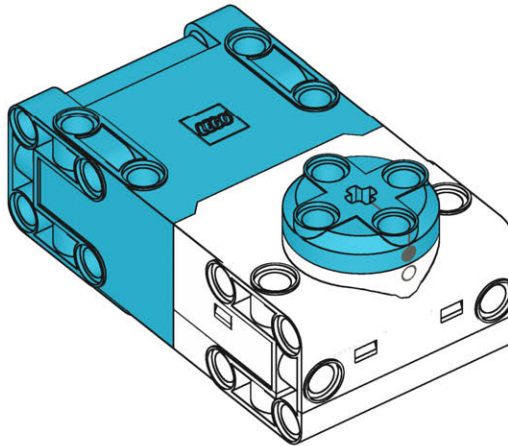
1x



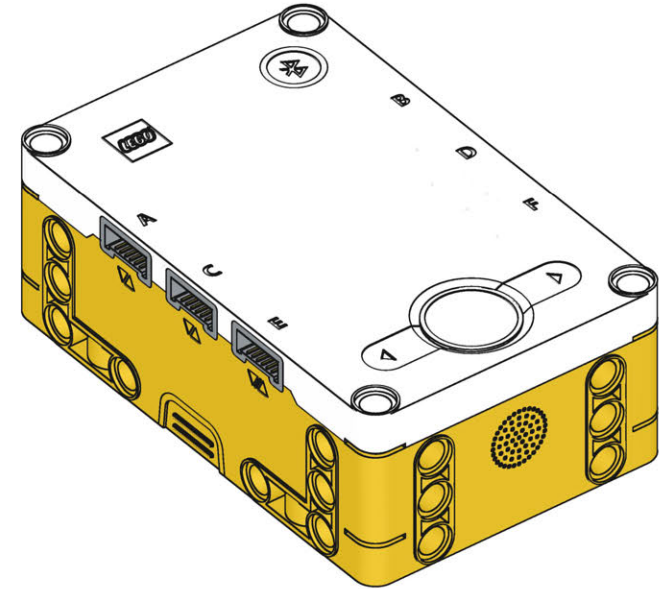
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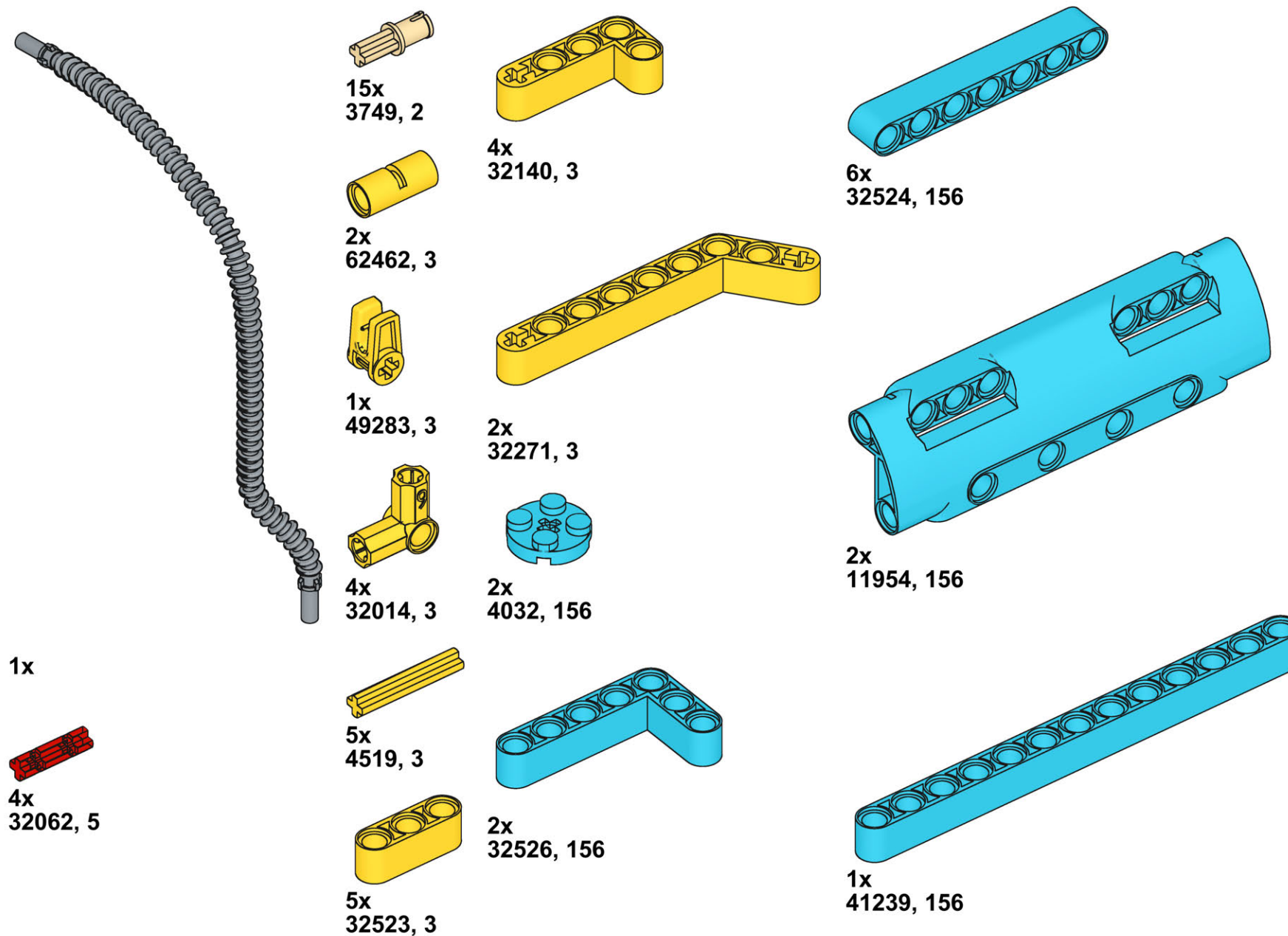


3x



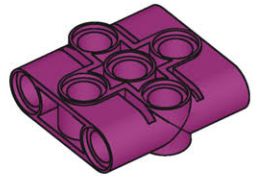
1x



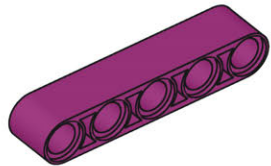




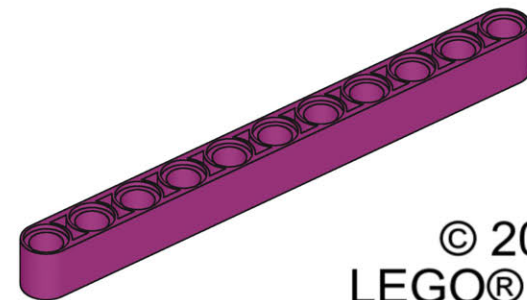
10x
6558, 7



2x
39793, 71



3x
32316, 71



2x
32525, 71



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