



BEWARE OF THE BEAST
BUGRIDER
MADE OF LEGO MINDSTORMS
ROBOT INVENTOR 51515

 **BINGOBRICKS**

Model designs by BINGOBRICKS Switzerland - bingobricks@bluewin.ch
Building instructions available at www.rebrickable.com/users/Bingobricks/mocs

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9. June 2022, BUGRIDER Version 1.0

BEWARE OF BUGRIDER!

BUGRIDER attacks everything that gets in front of his bared teeth. His rider recognizes all his enemies who approach him and his fearsome beast from the front or the side. BUGRIDER boldly finds its own way through your territory. You can also let him follow a black line, or control him directly with your smartphone. But beware of his most dangerous weapon: he can shoot his rubber bullets up to 5 meters in all directions. Lock the cat away and warn your brother or sister! BUGRIDER knows no mercy!

Check out also my YouTube channel: <https://www.youtube.com/c/BingobricksSwitzerland>

NECESSARY PARTS

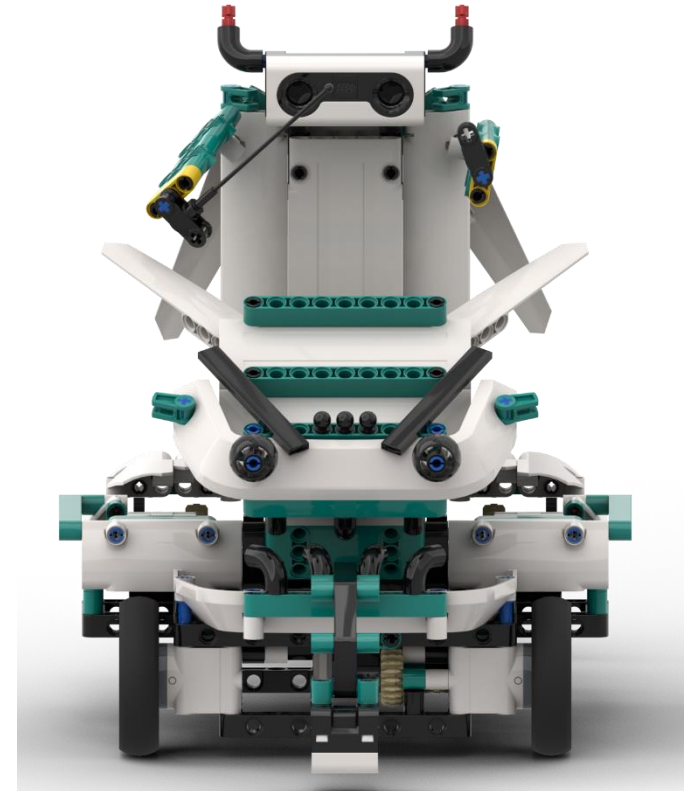
This model is built entirely from one set of **LEGO ROBOT INVENTOR (51515)**. **You don't need any additional parts** from other sets to build BUGRIDER. All you additionally need are some rubber bands, which you can easily find in your household. Great, isn't it?

SOFTWARE

I also have a very cool software ready for you that brings BUGRIDER to live. It has three modes: A line follower mode, an open space mode and a smartphone control mode. Check the last pages on this building instructions to know more about the functionality of the software!

SHARE YOUR EXPERIENCE!

Show your friends how much fun you have with BUGRIDER! Share a picture or video clip of BUGRIDER in the Facebook group "LEGO MINDSTORMS ROBOT INVENTOR" or any other MINDSTORMS related group!





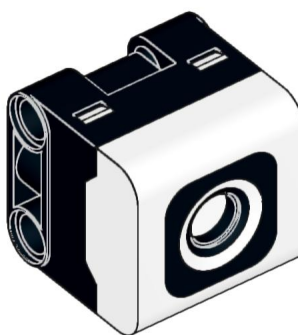
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2x
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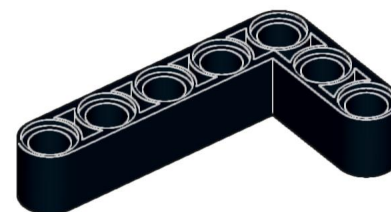
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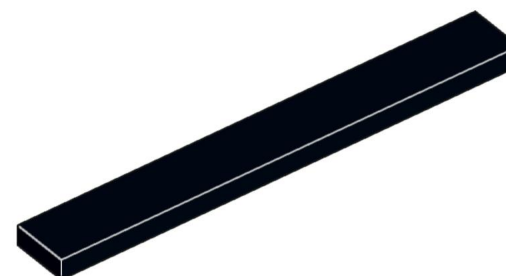
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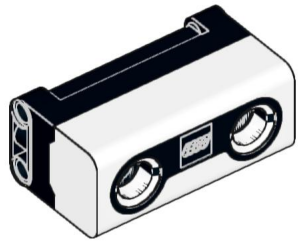
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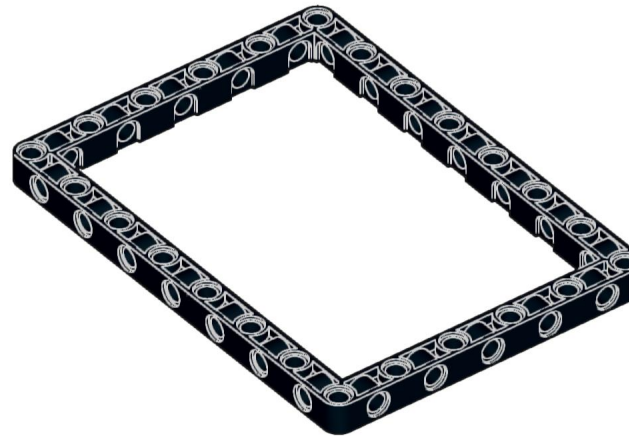
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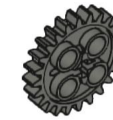
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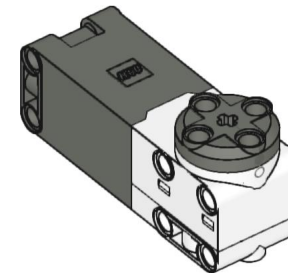
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7x
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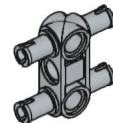
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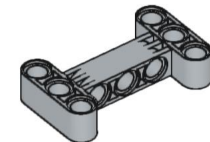
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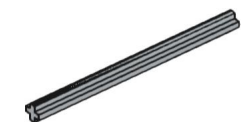
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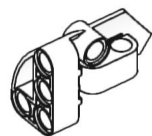
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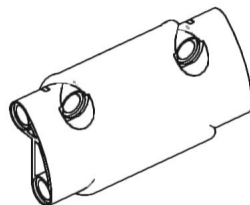
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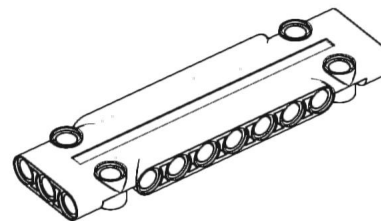
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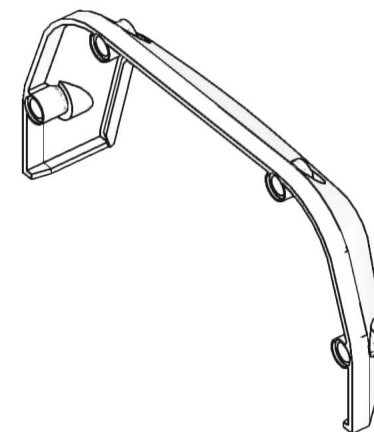
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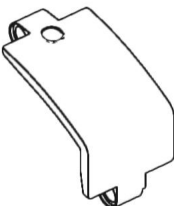
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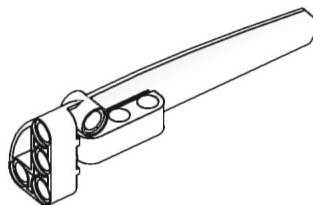
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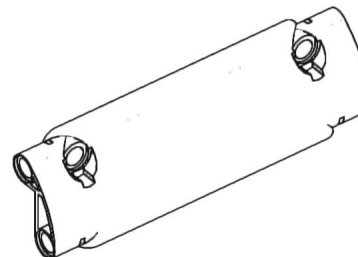
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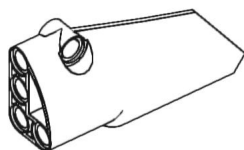
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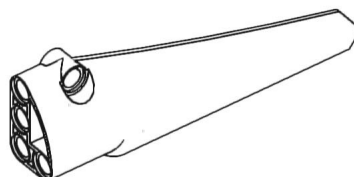
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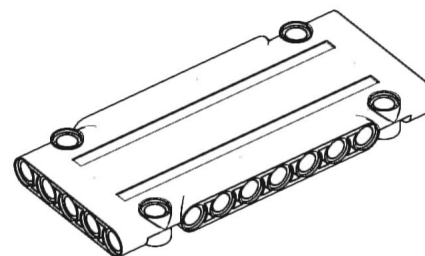
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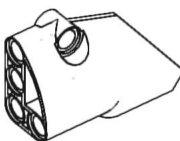
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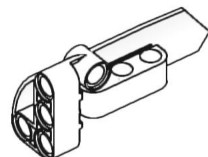
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Reddish Brown



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Yellow



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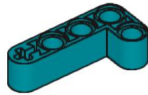
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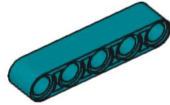
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4x
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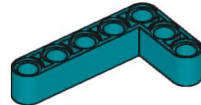
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6x
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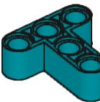
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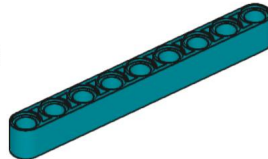
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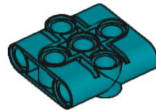
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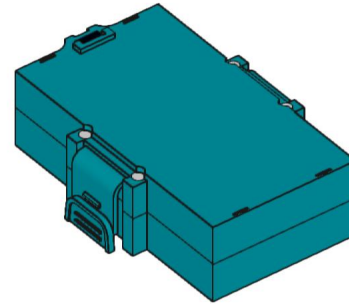
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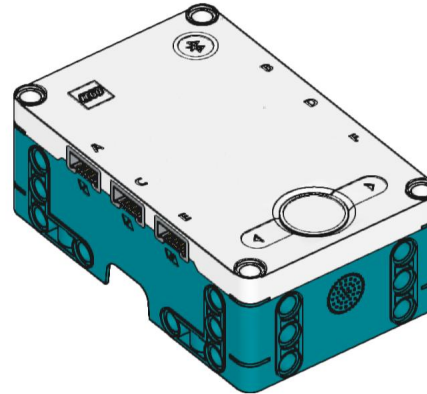
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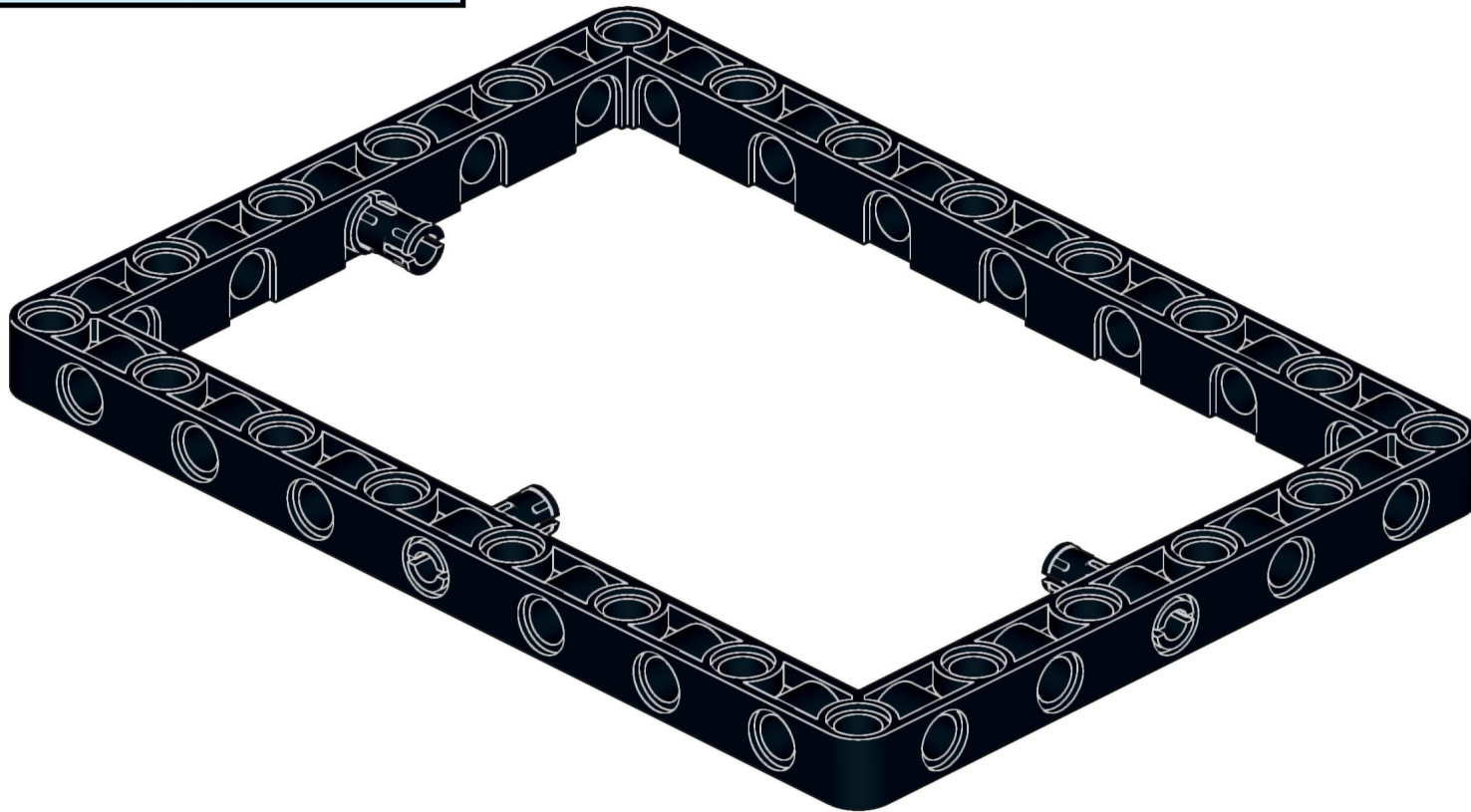
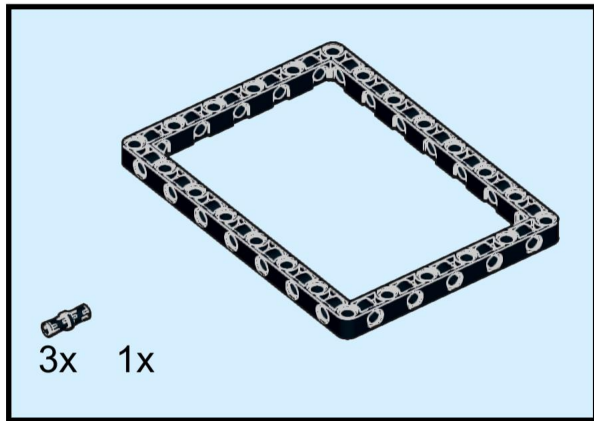


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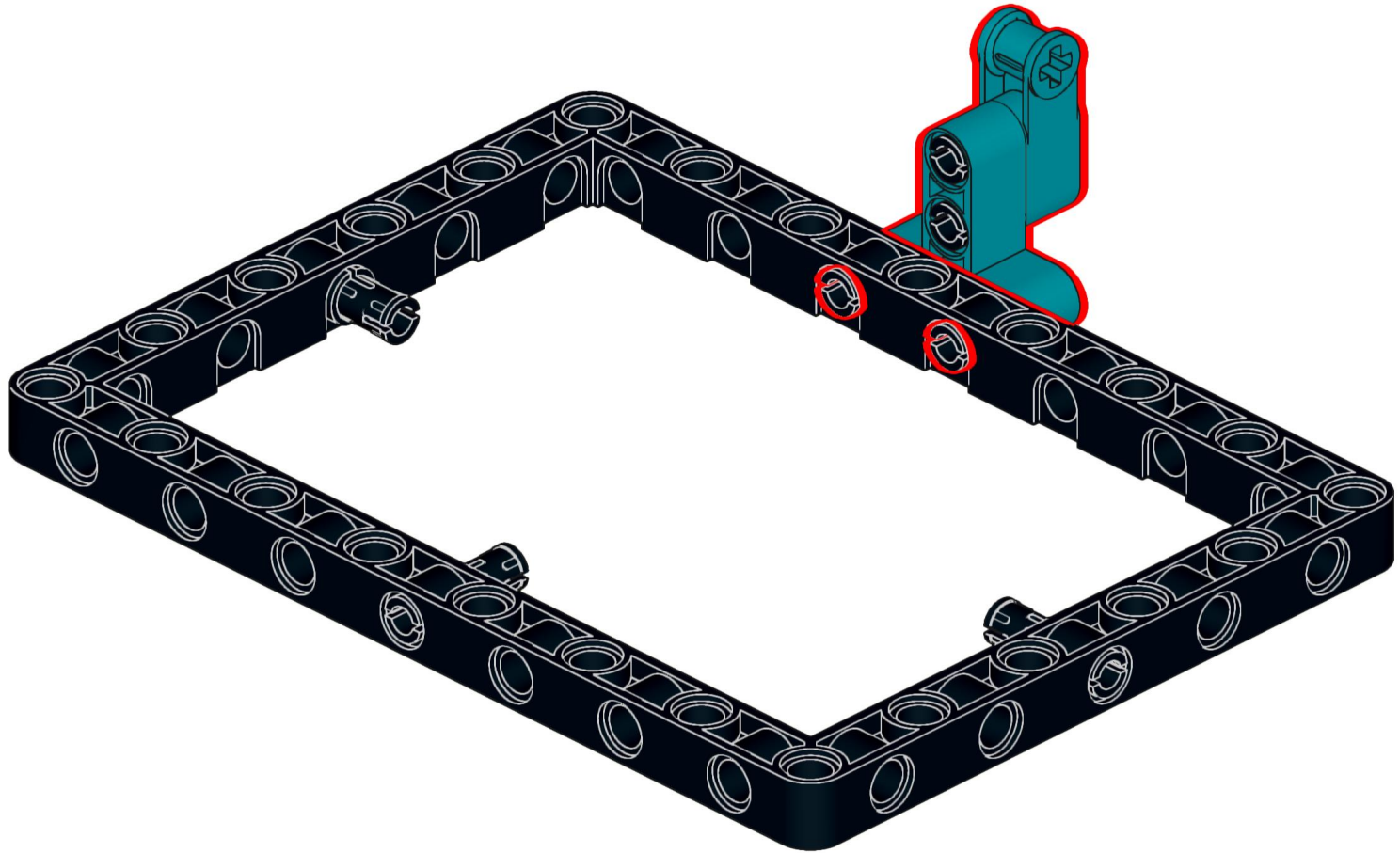
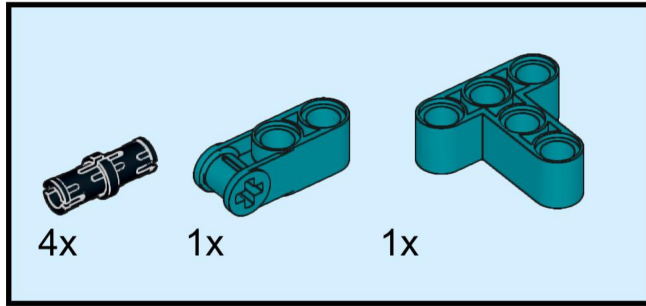


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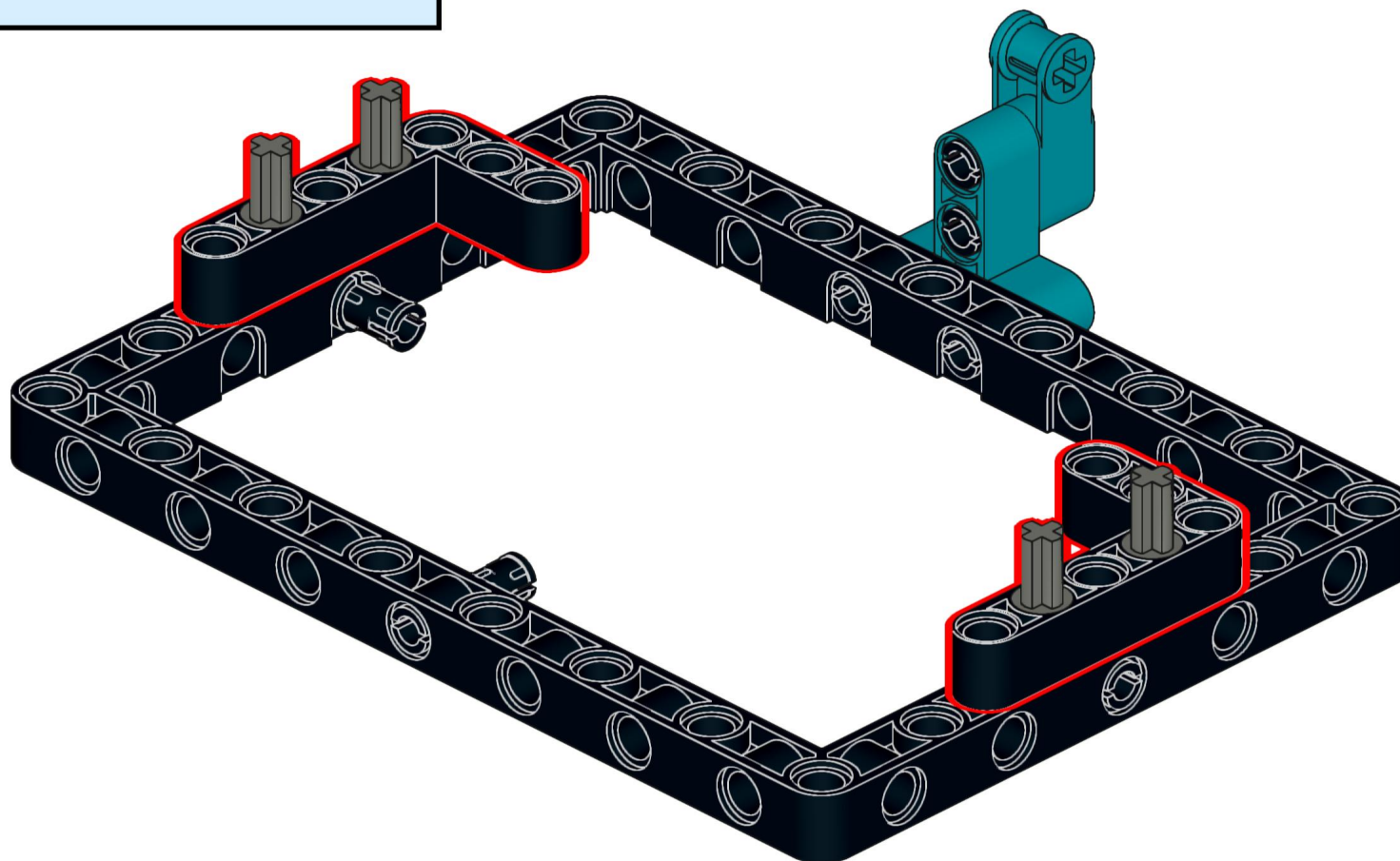
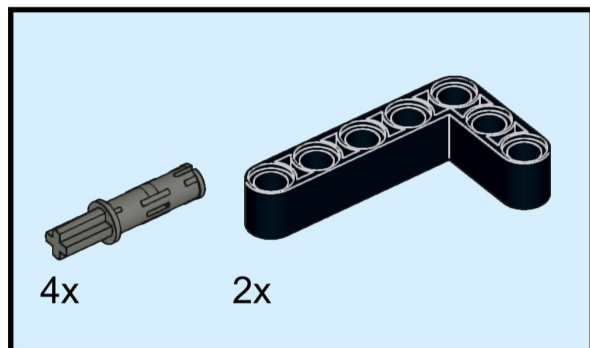
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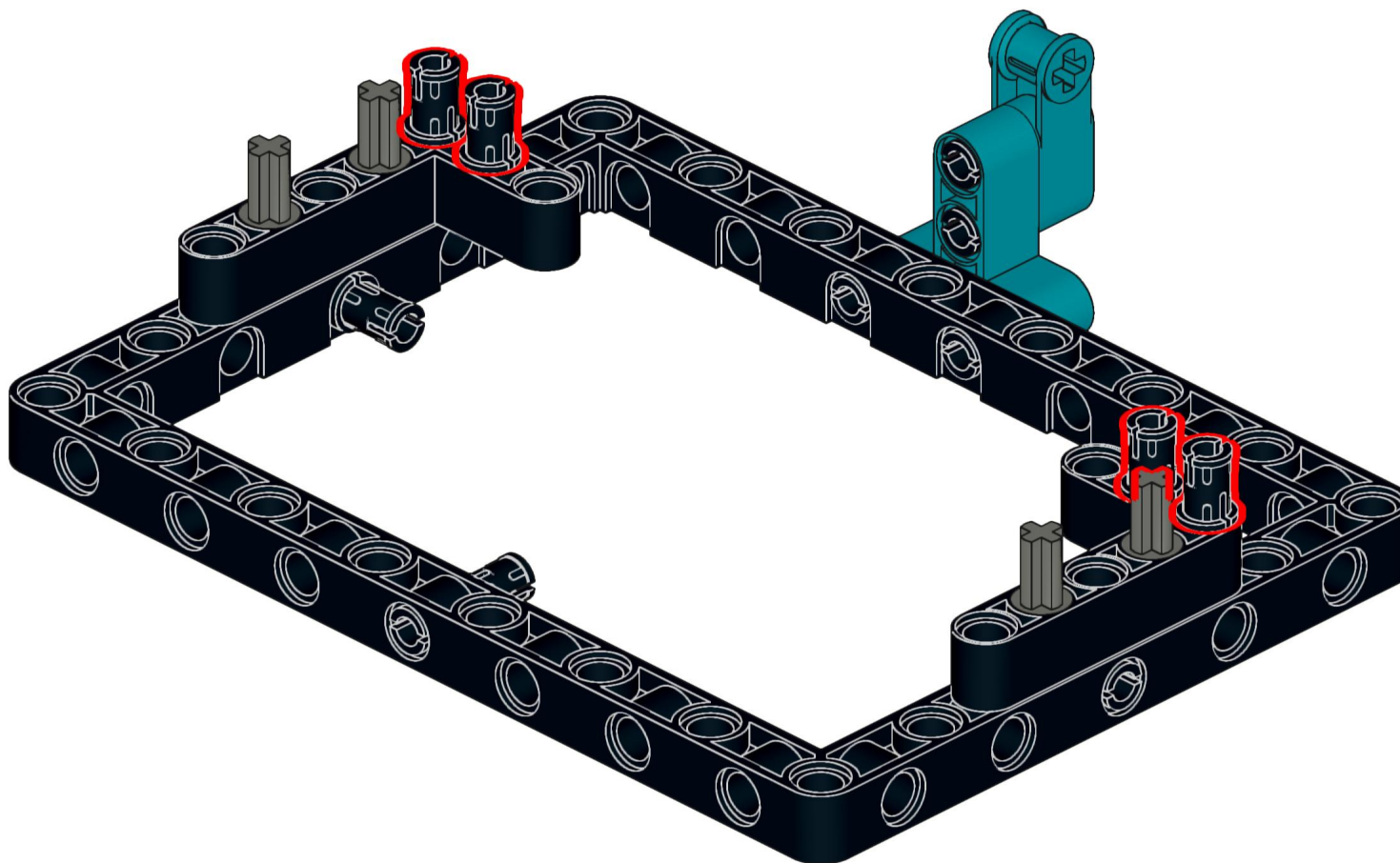
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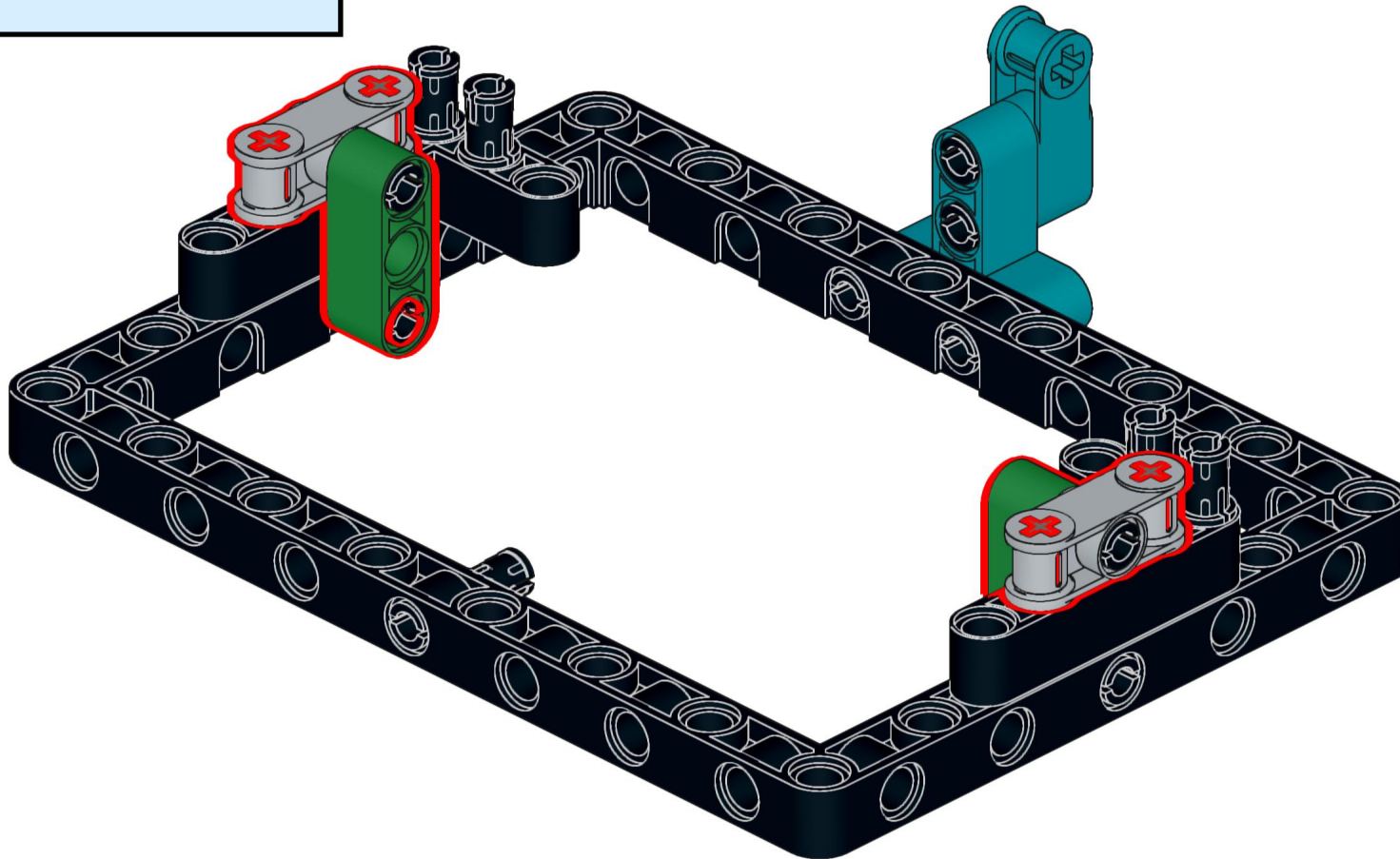
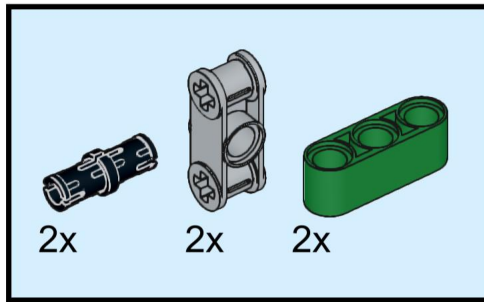
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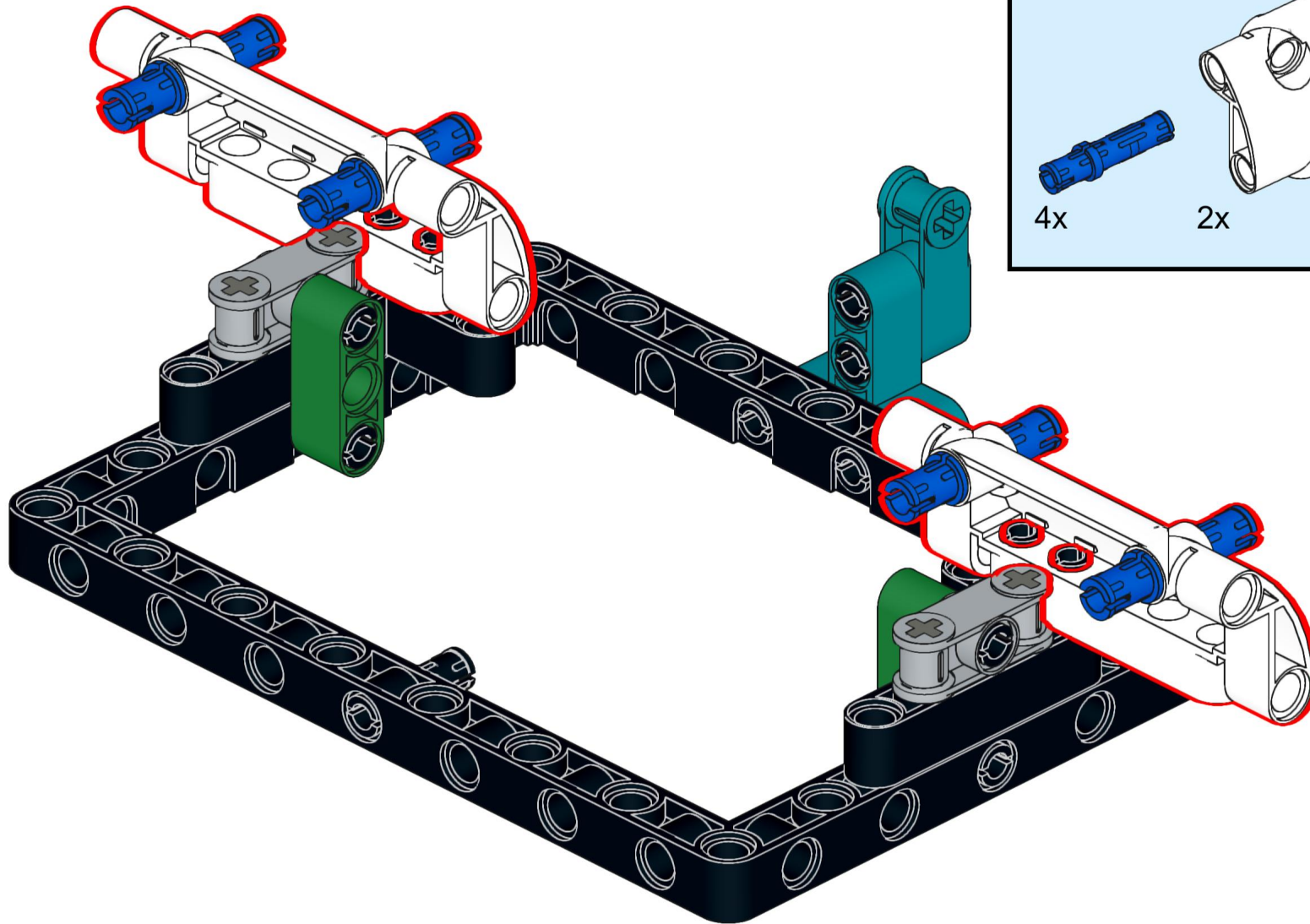
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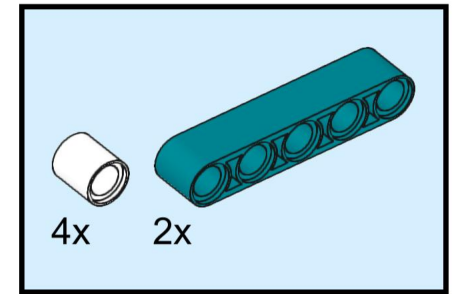
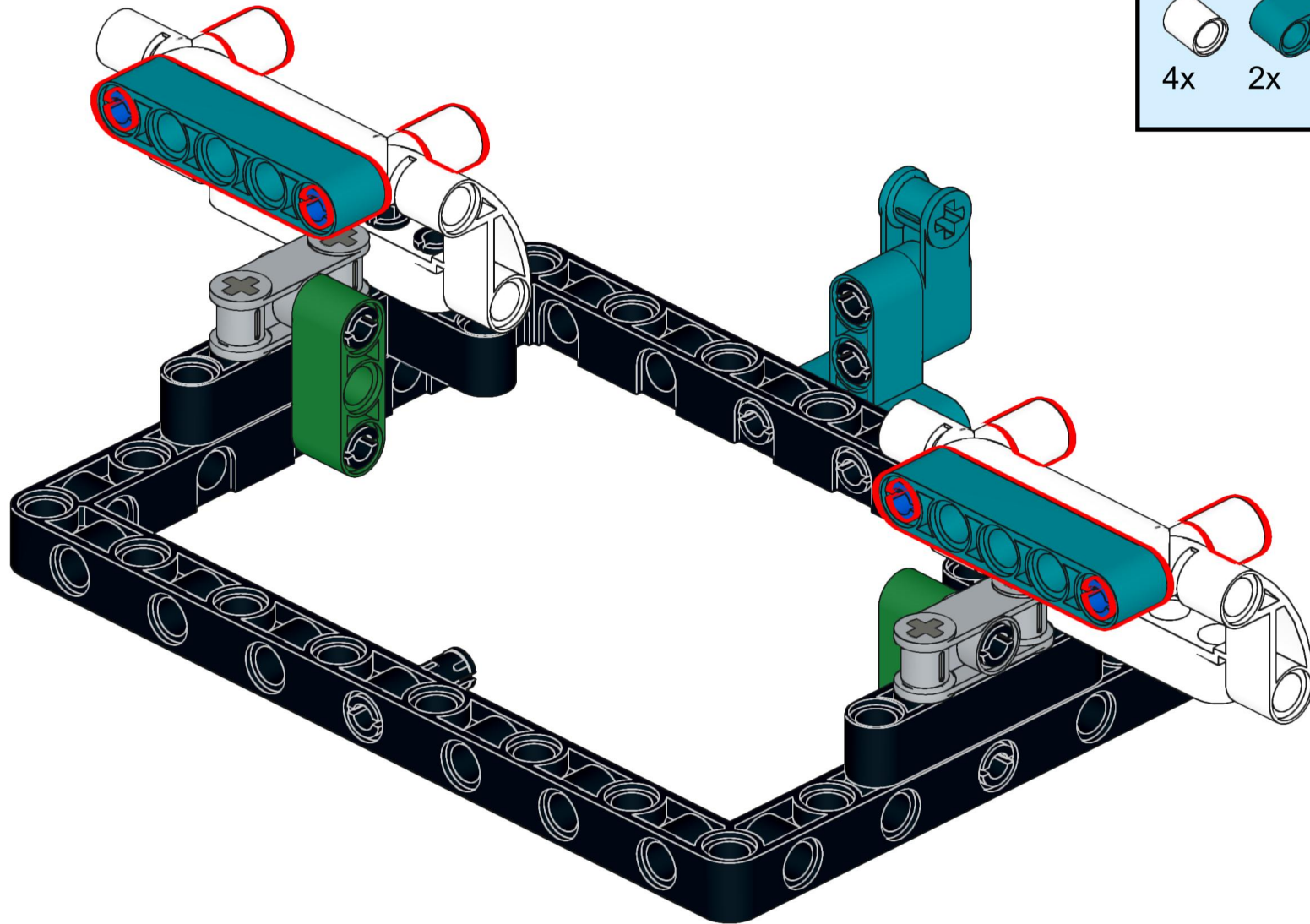
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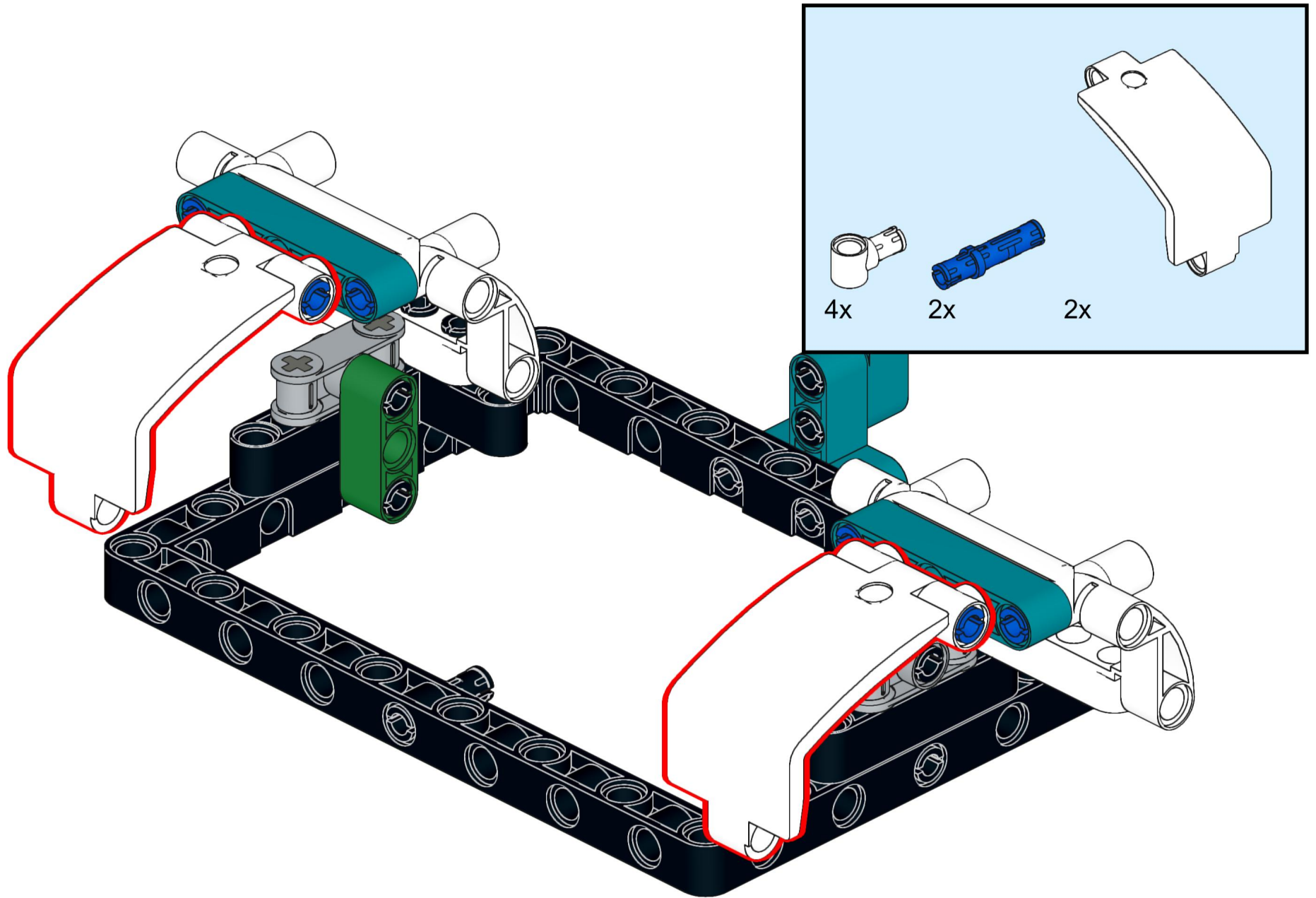
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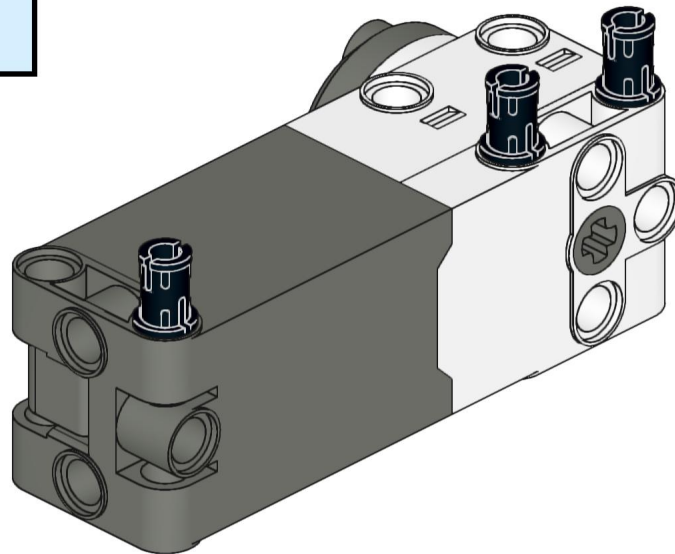
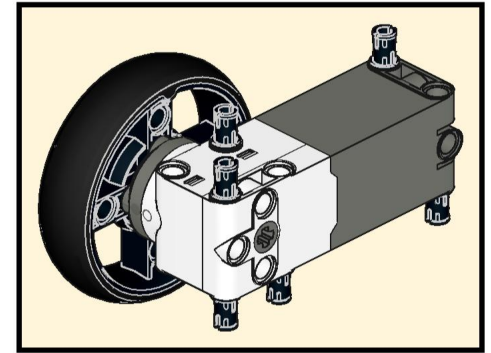
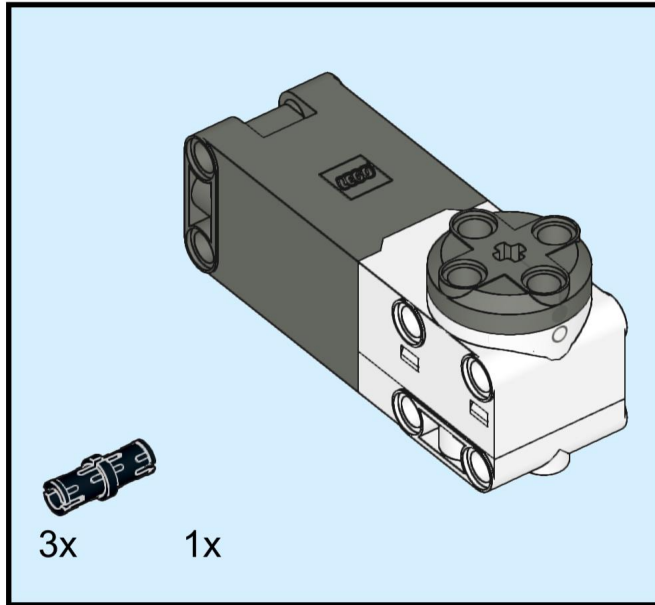
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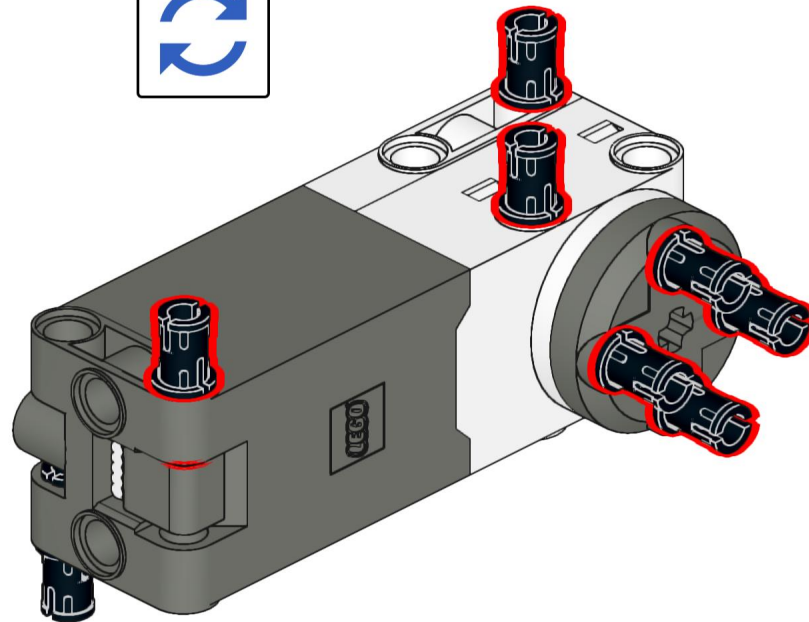
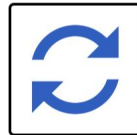
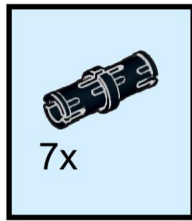
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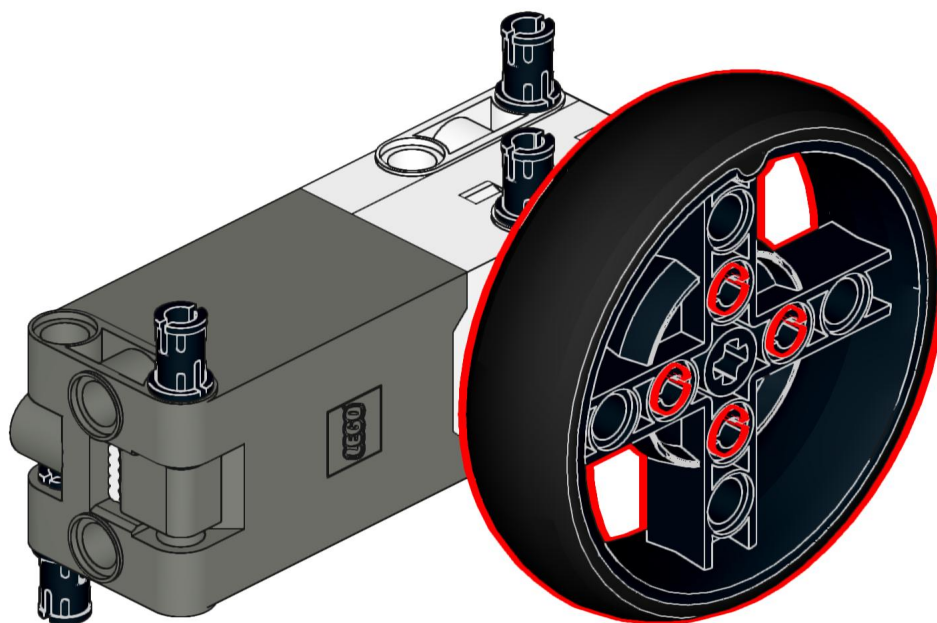
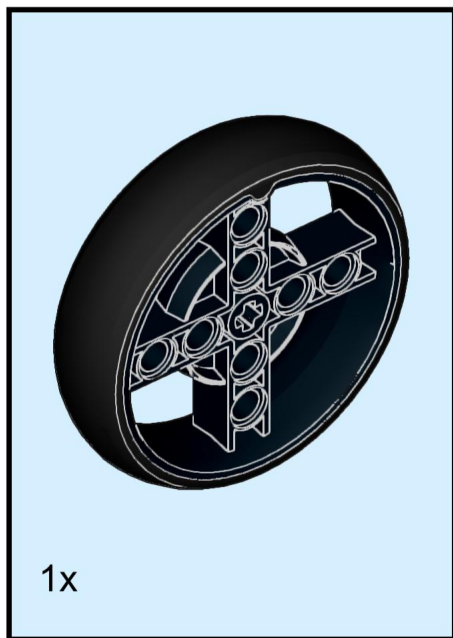
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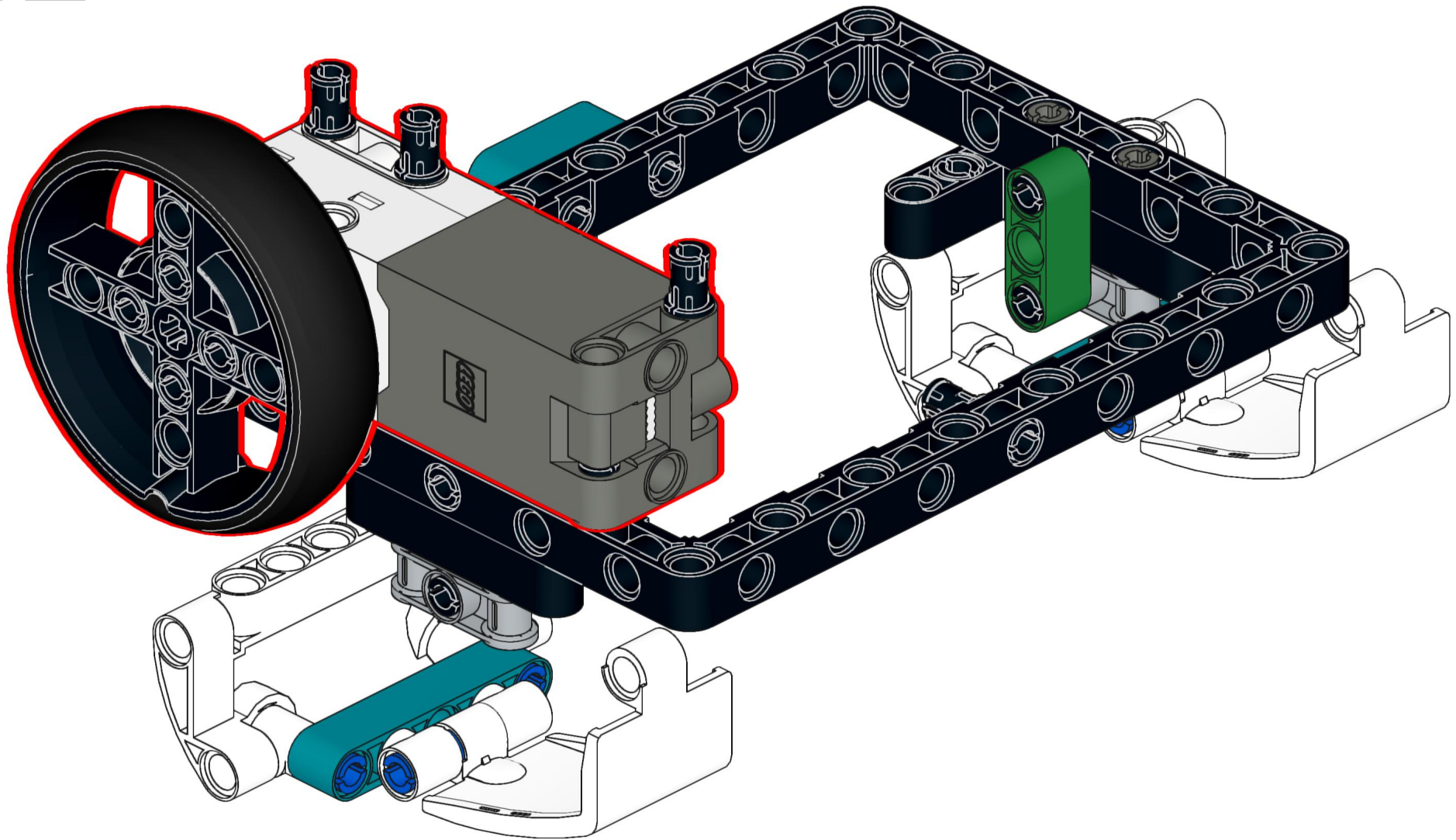
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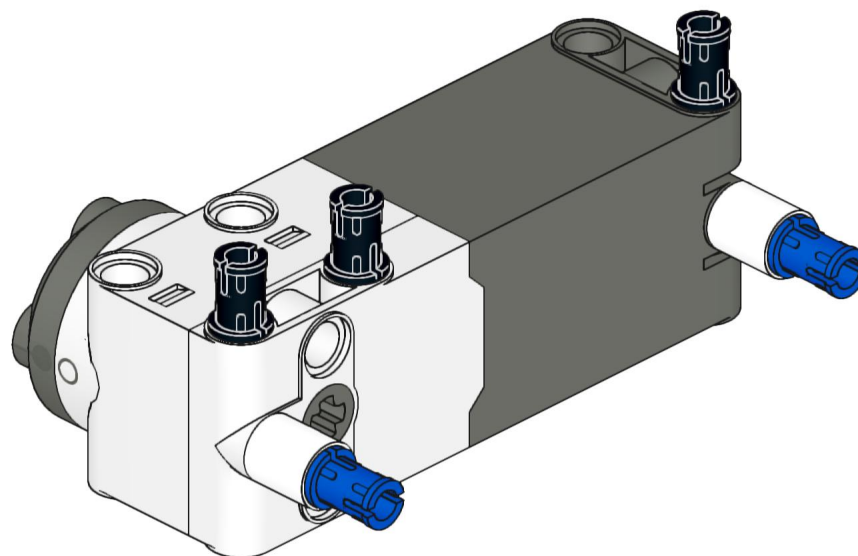
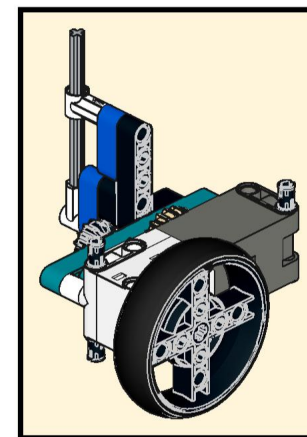
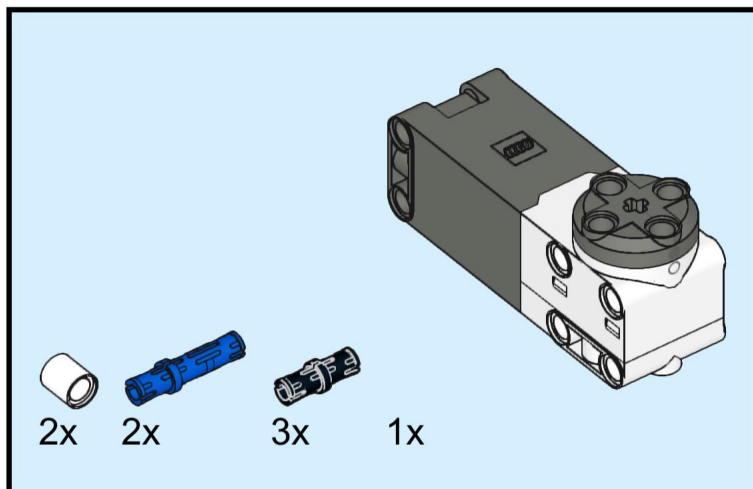
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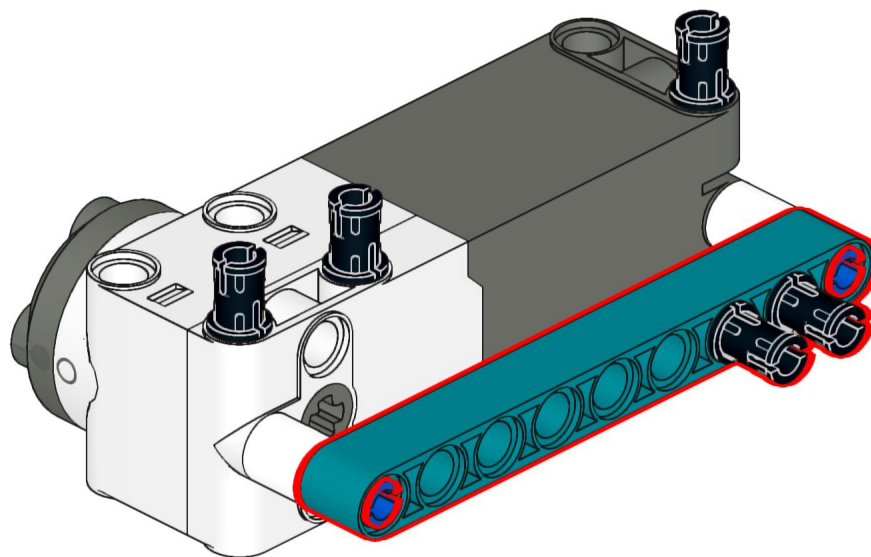
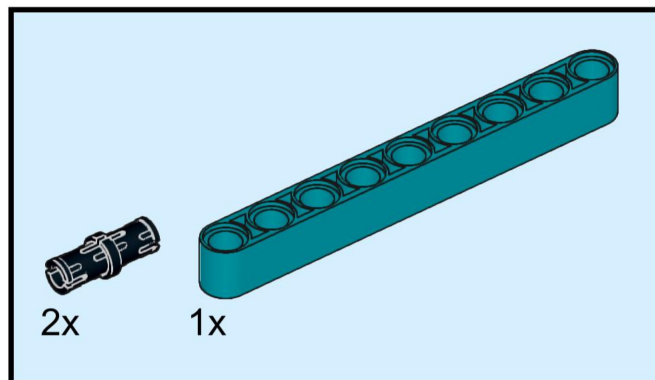
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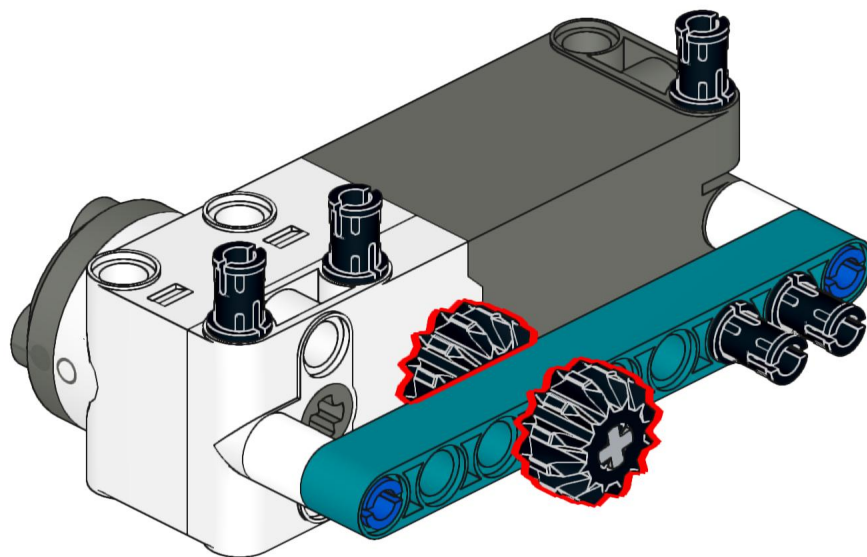
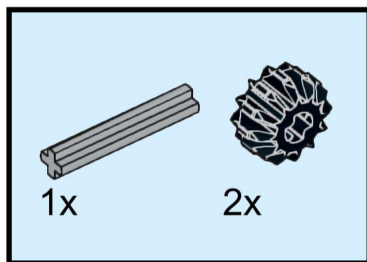
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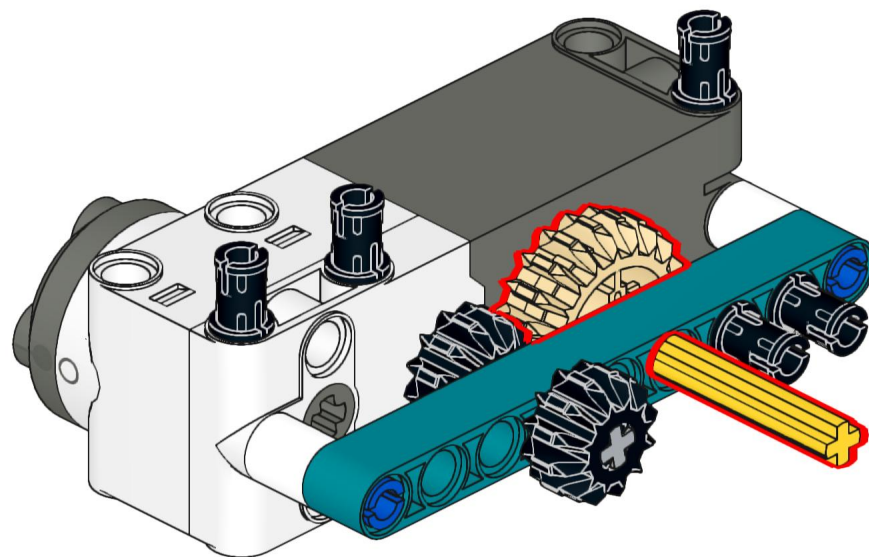
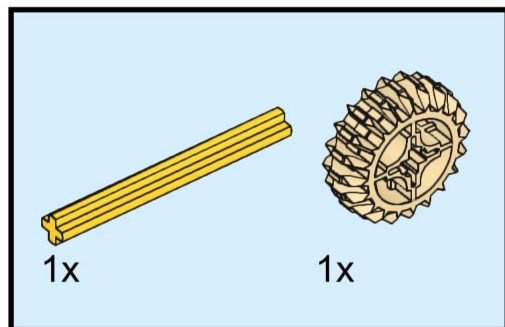
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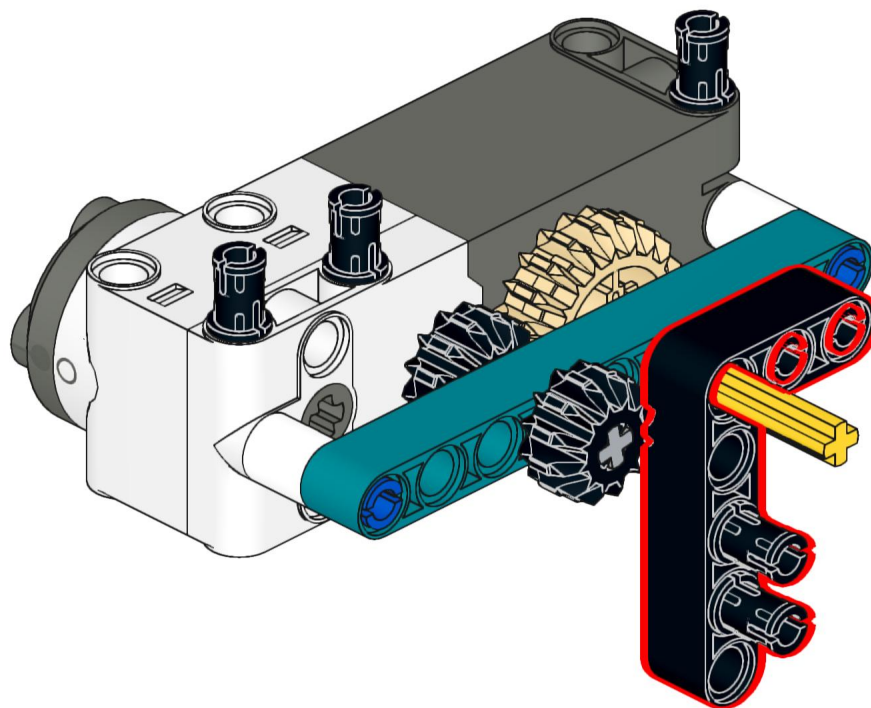
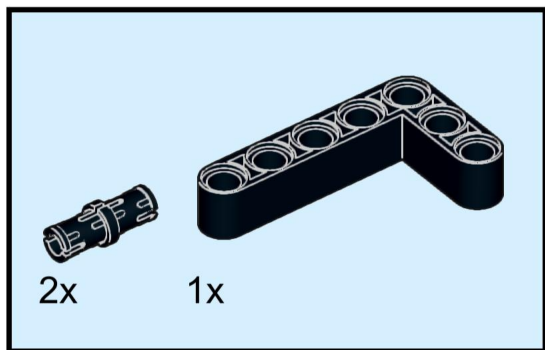
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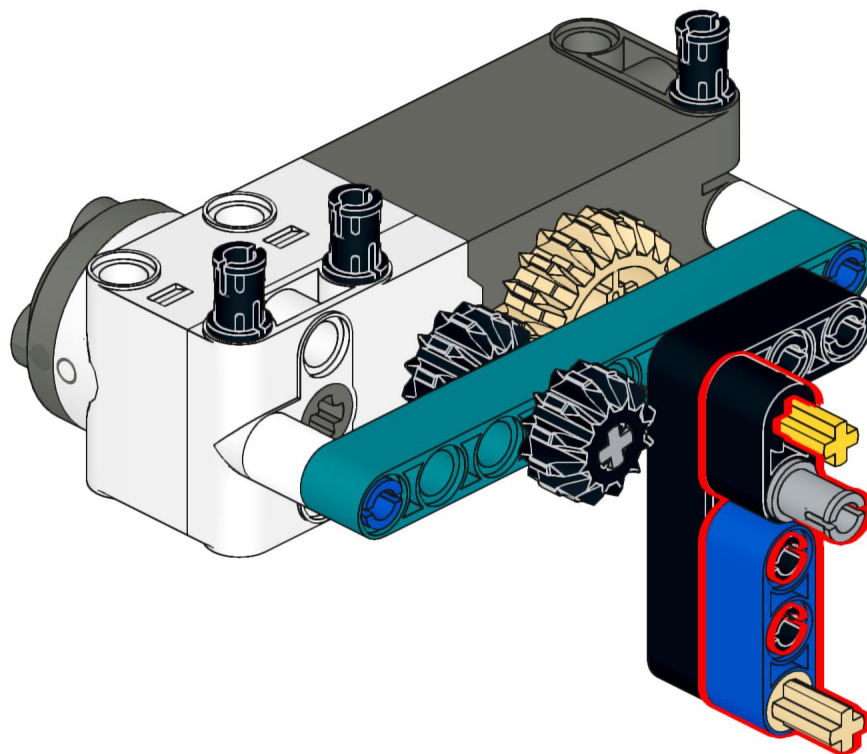
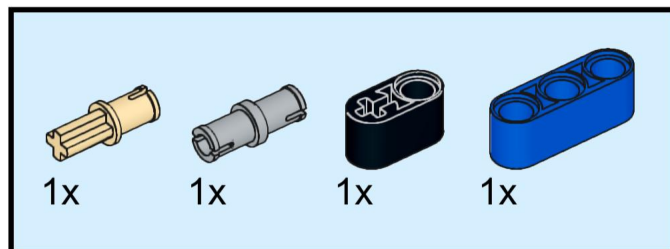
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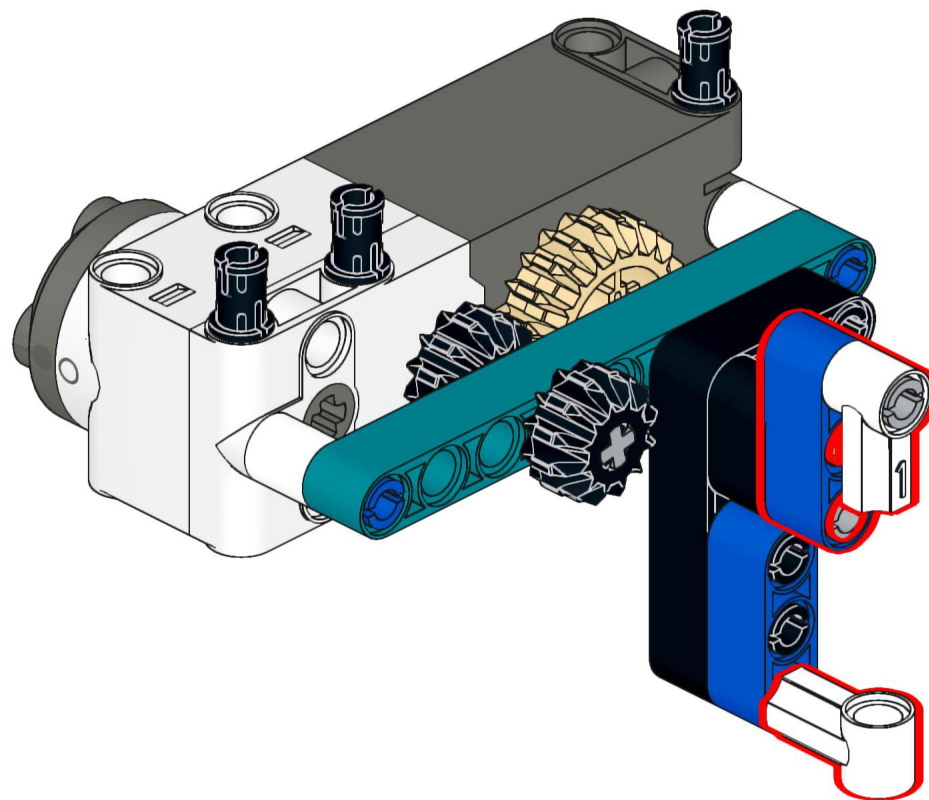
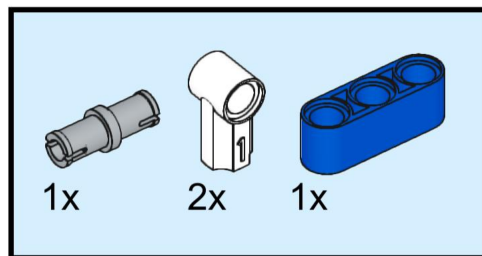
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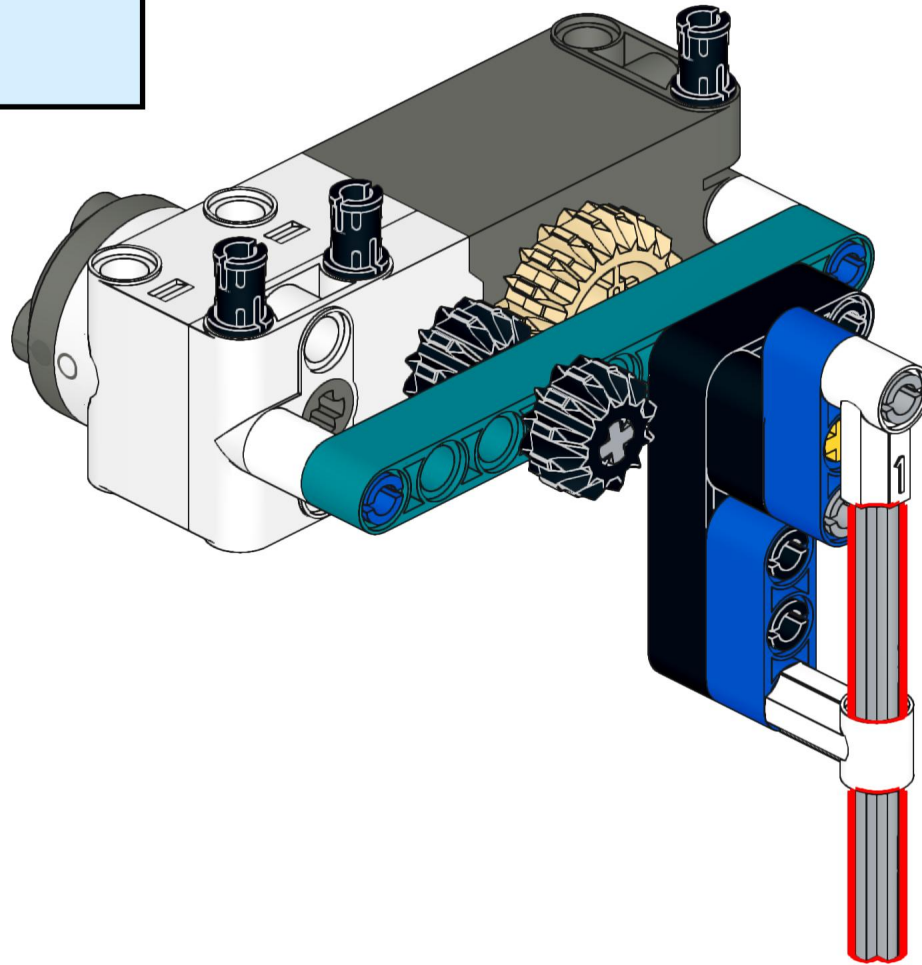
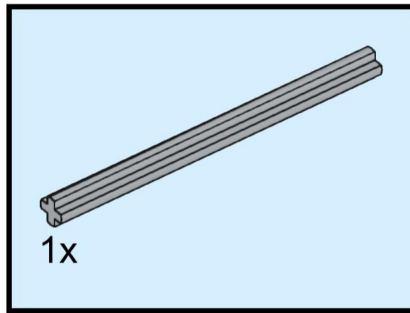
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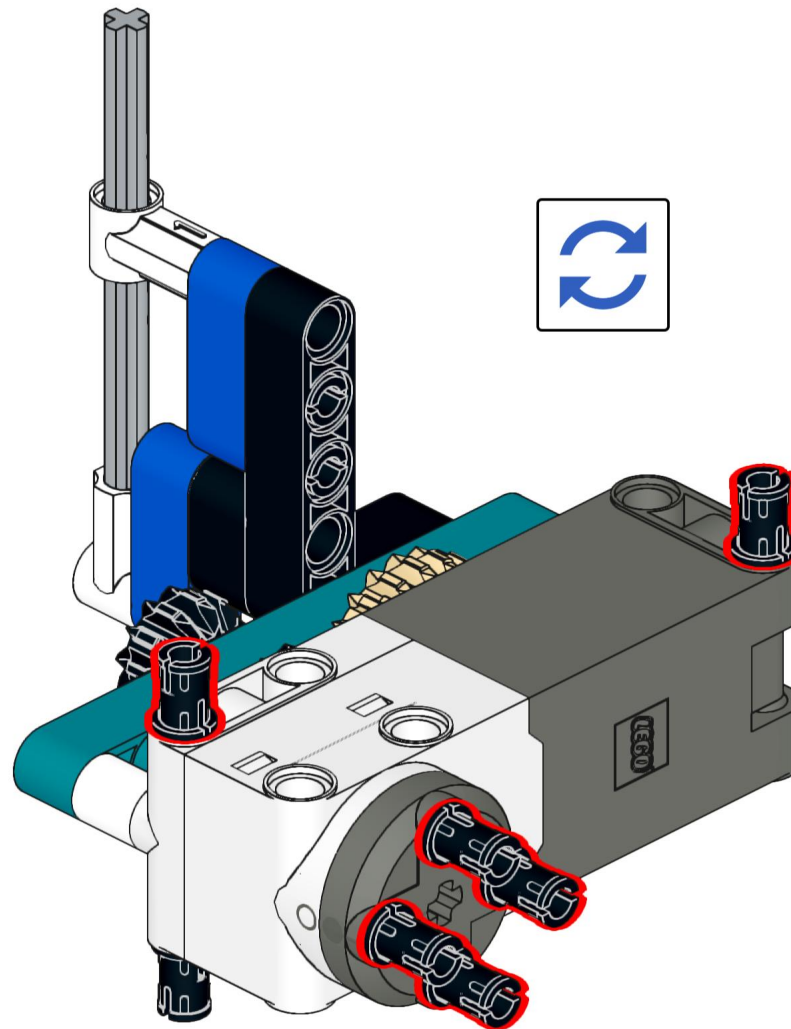
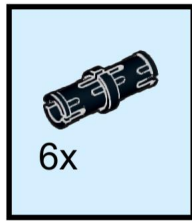
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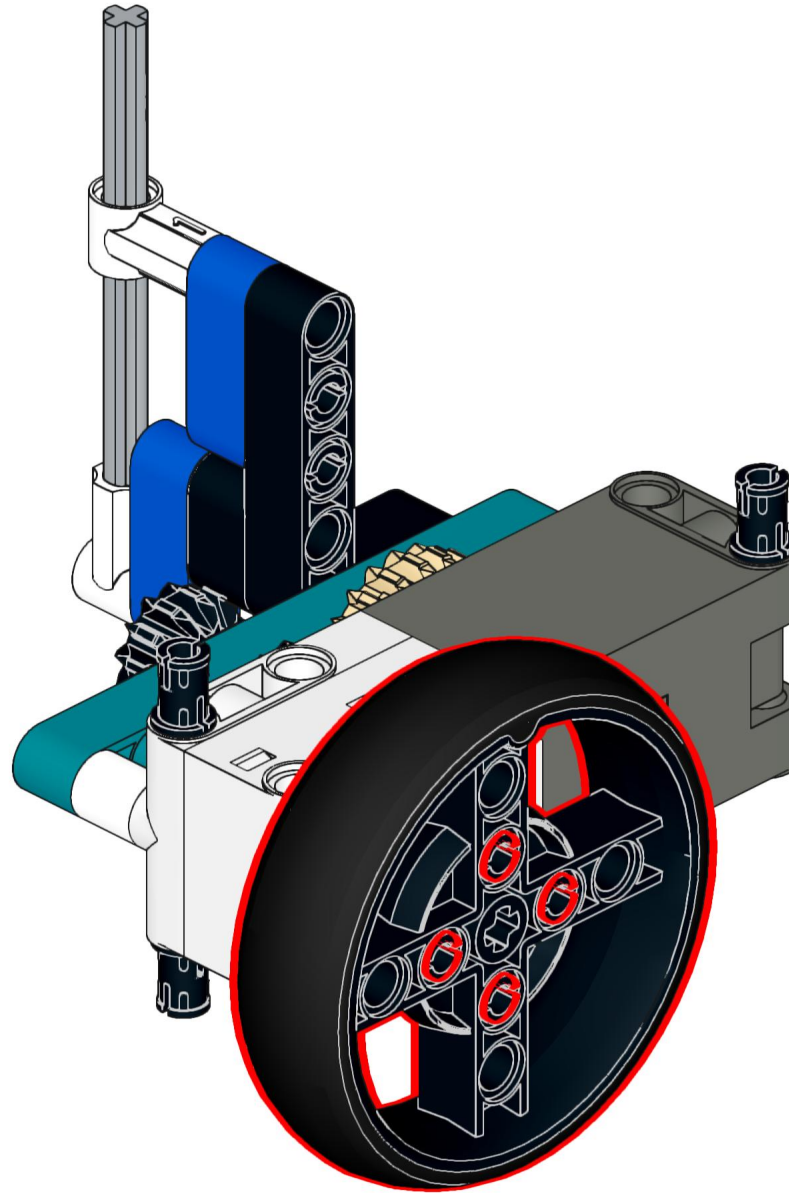
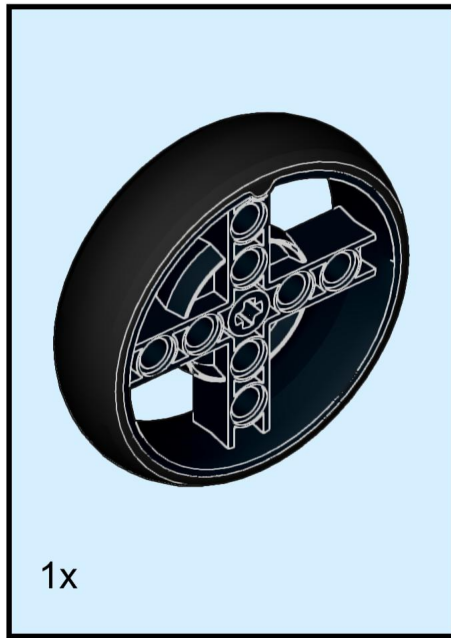
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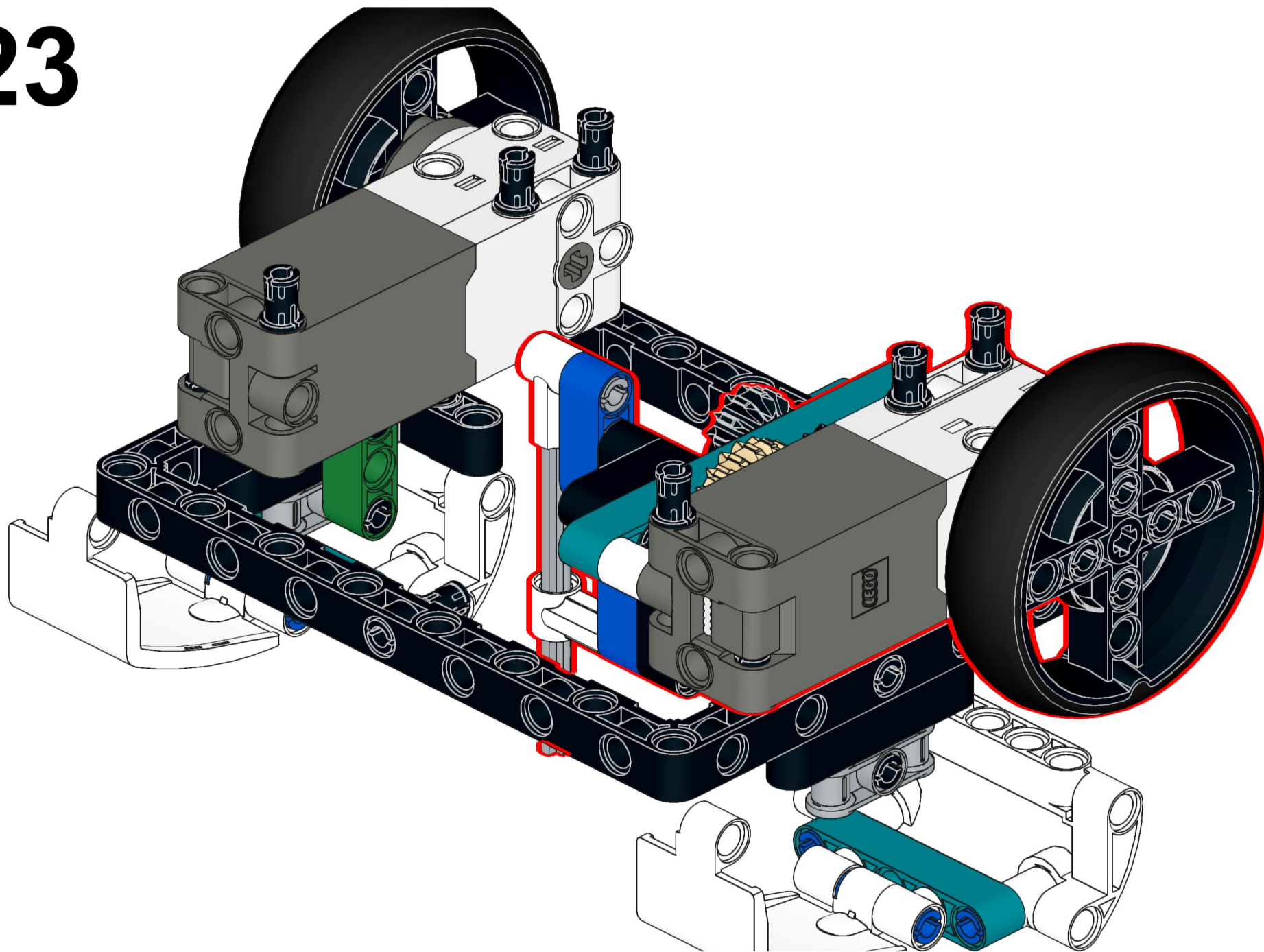
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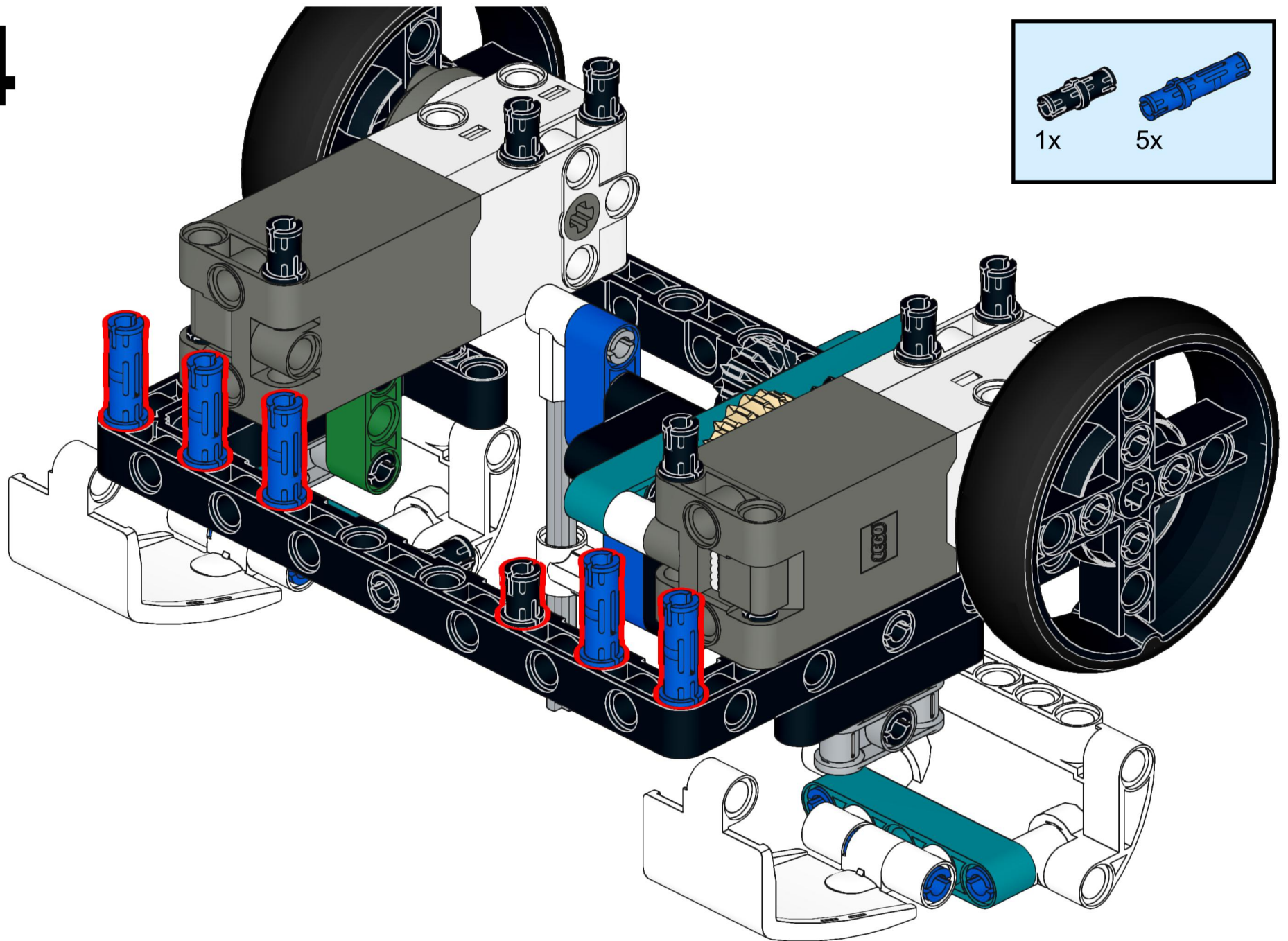
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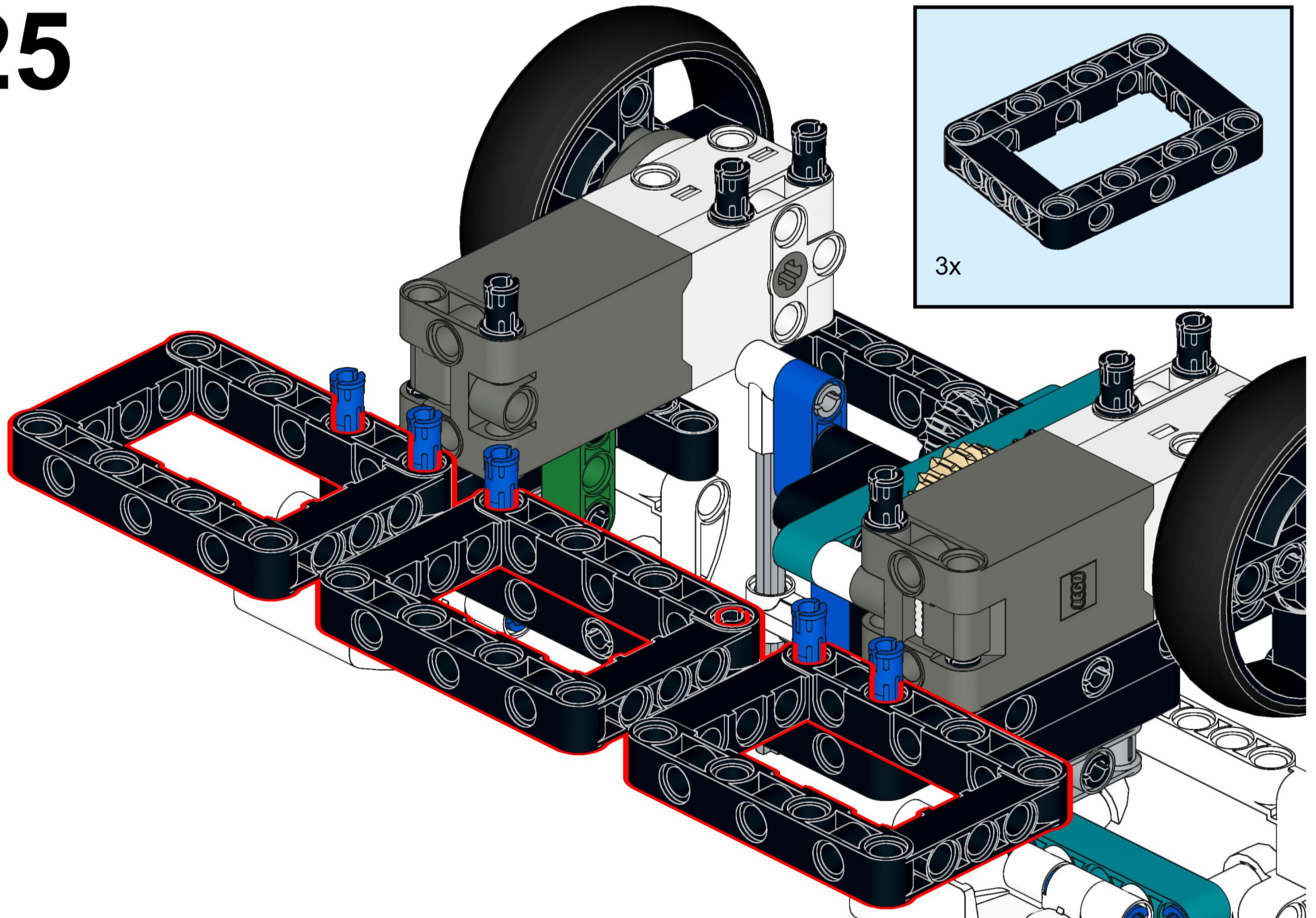
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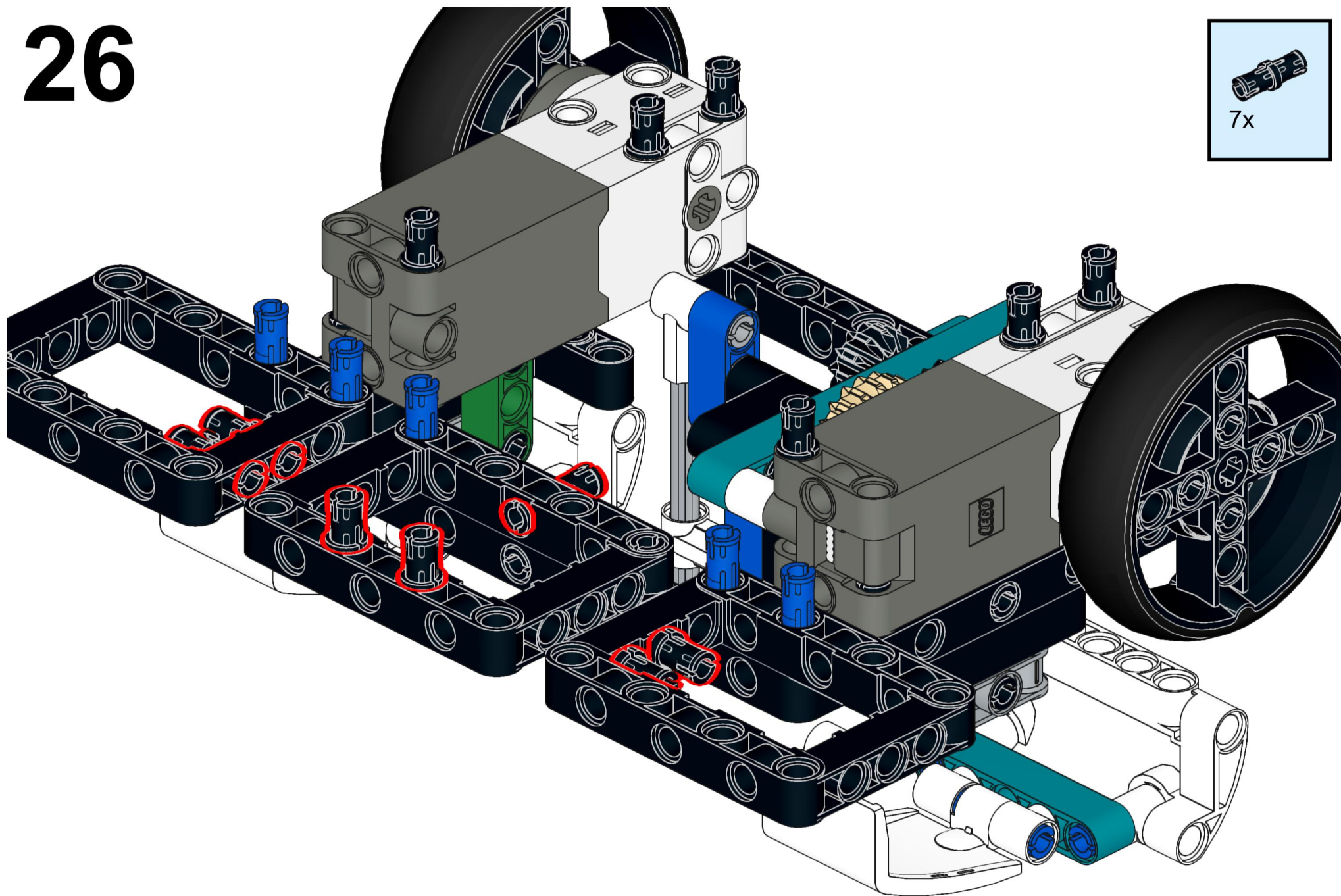
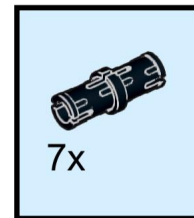
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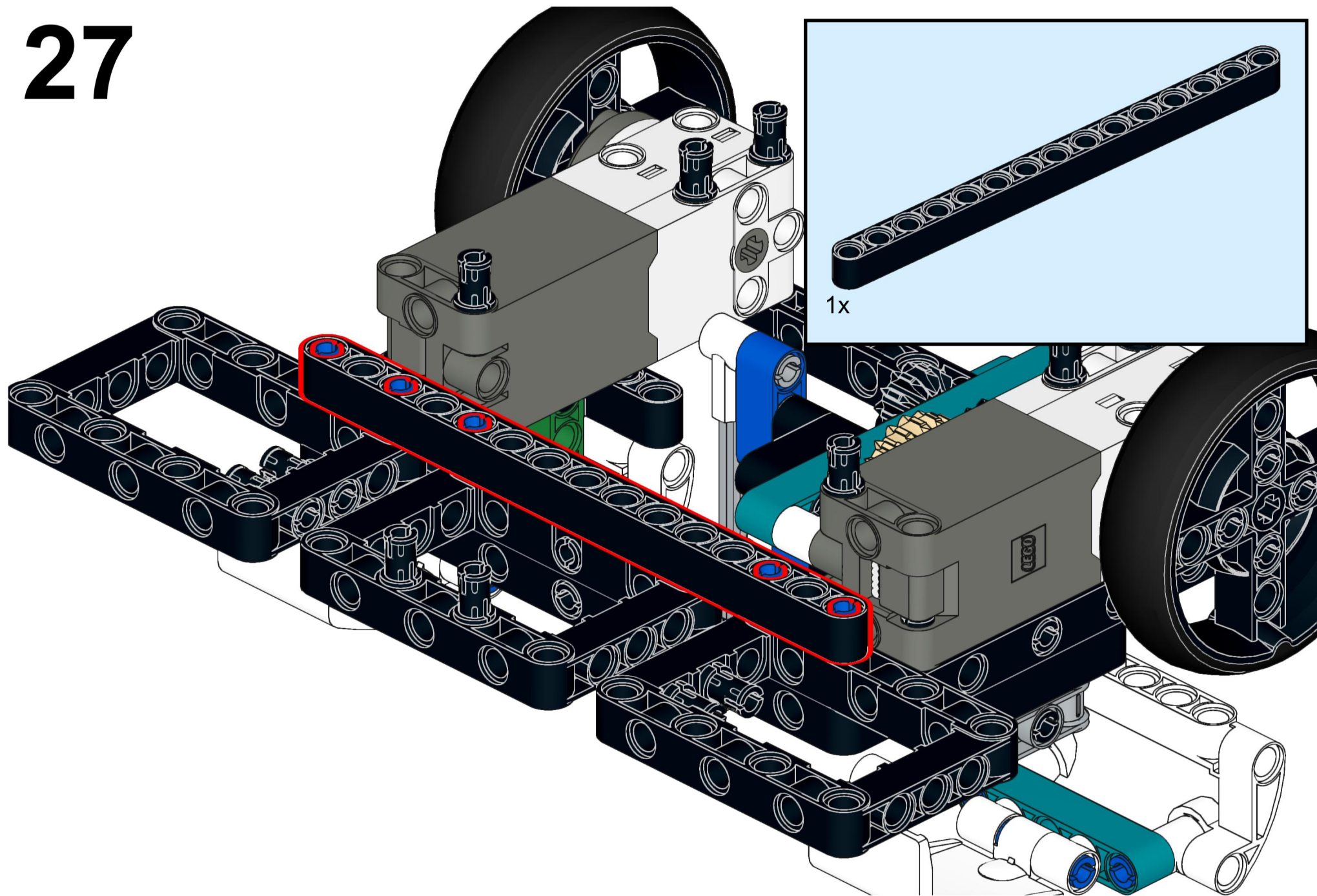
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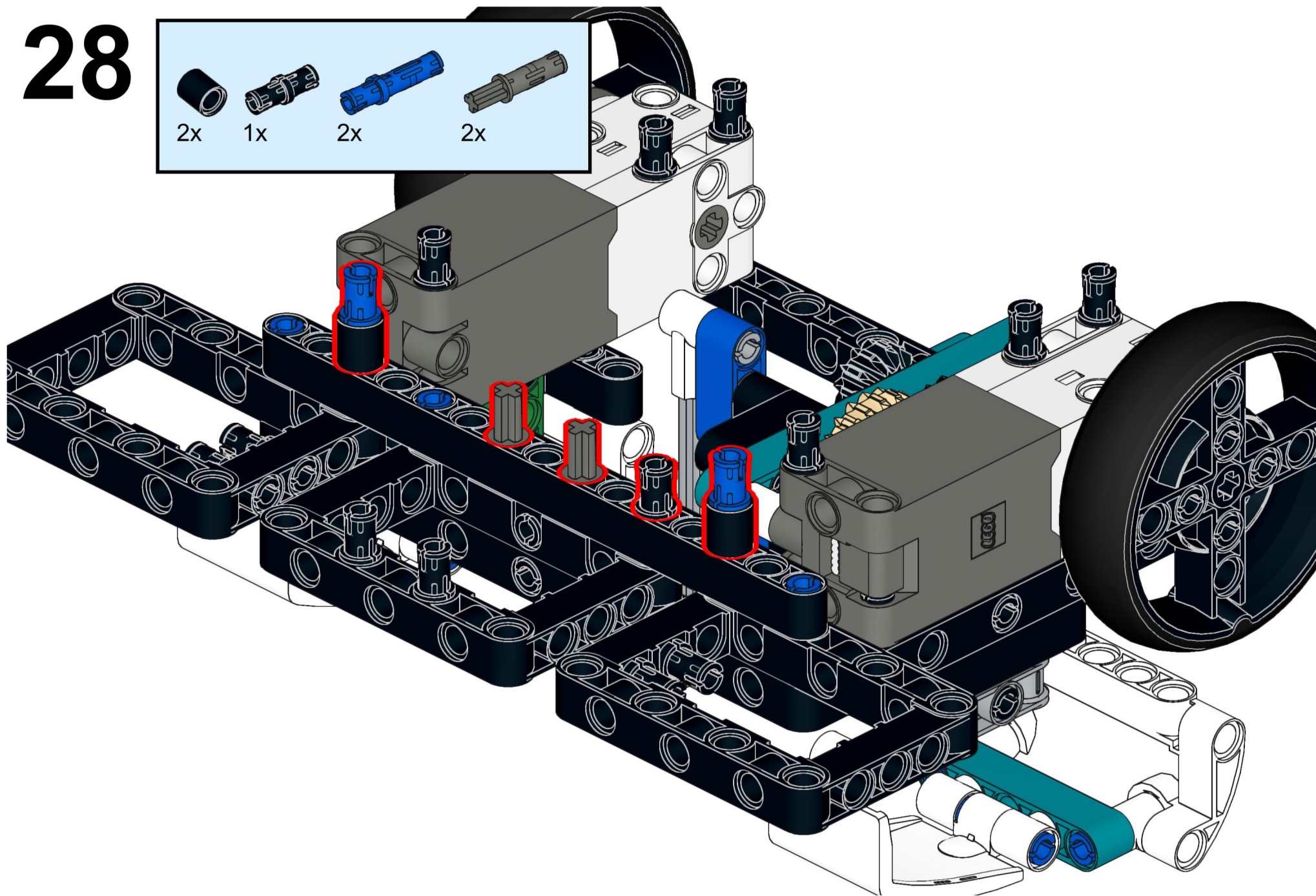
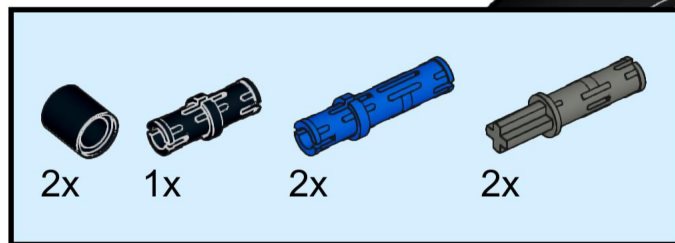
26



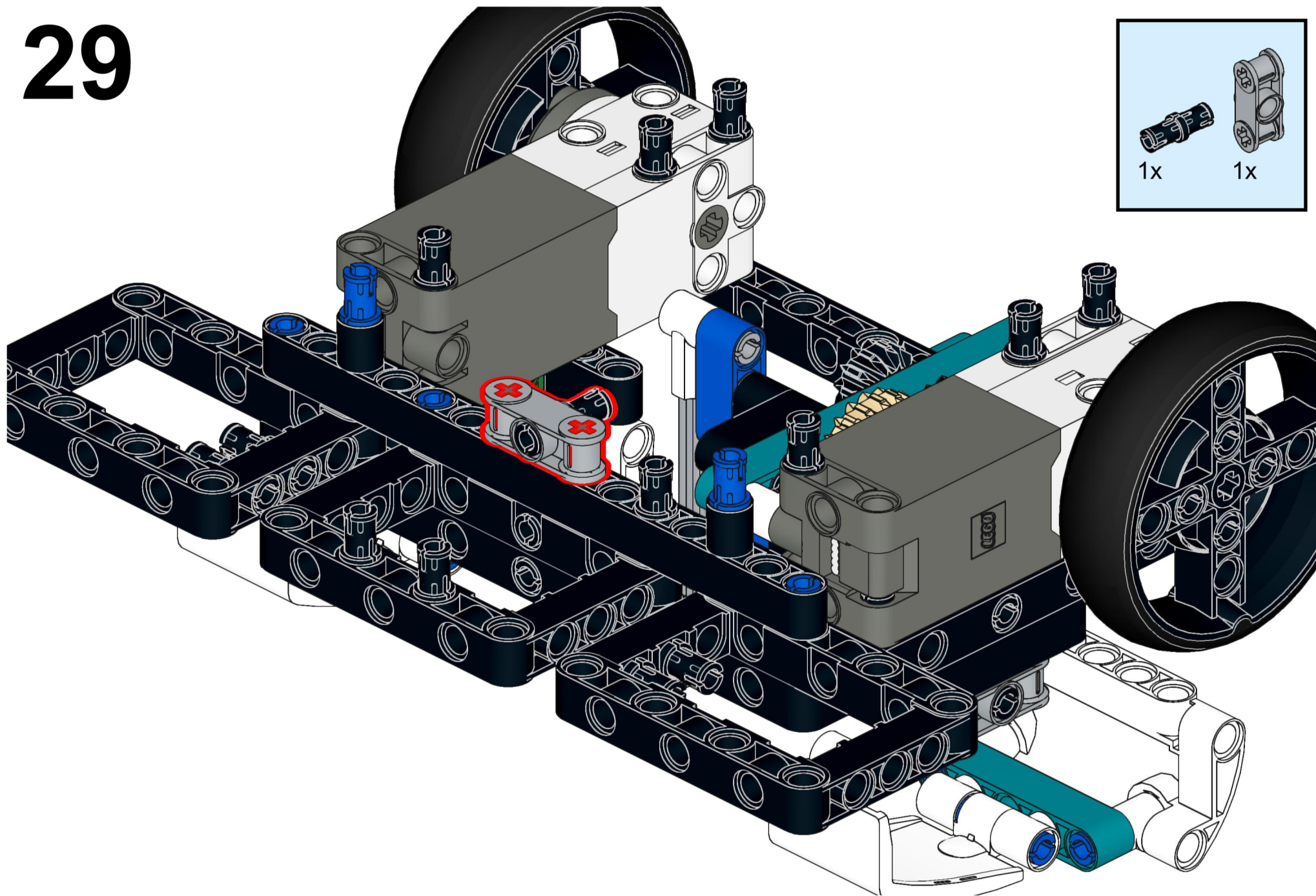
27



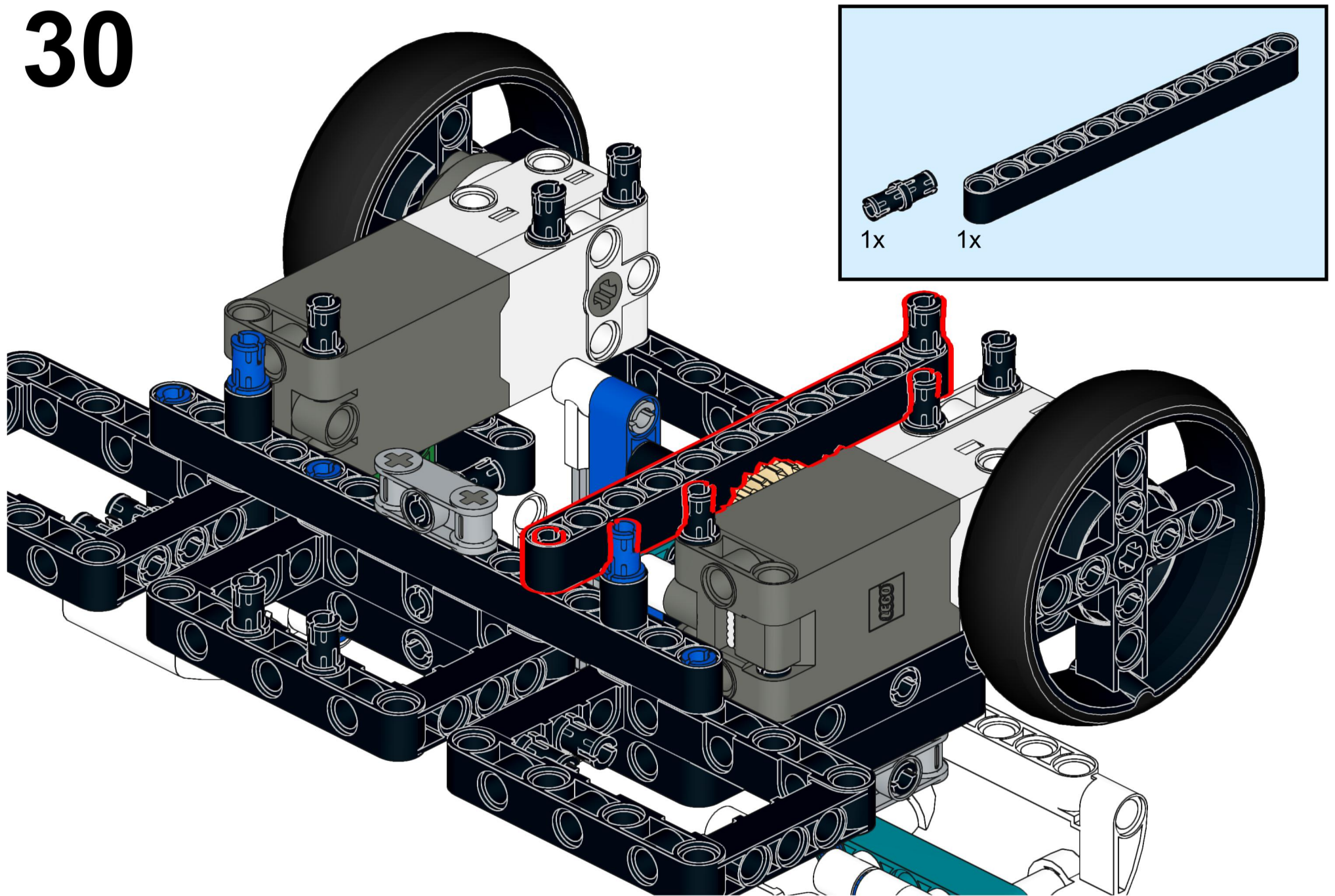
28



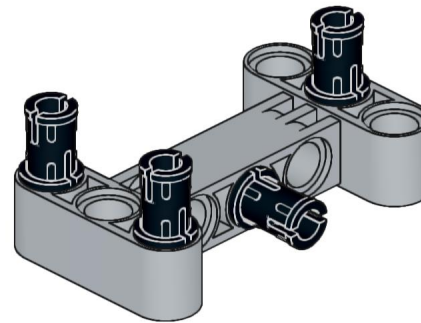
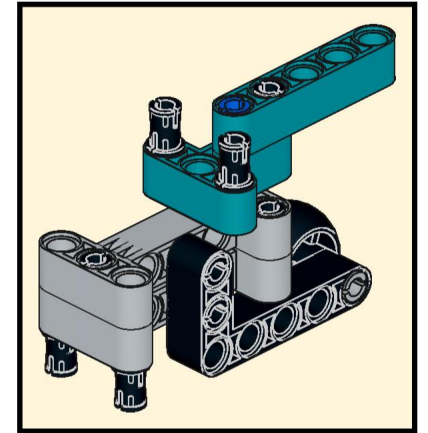
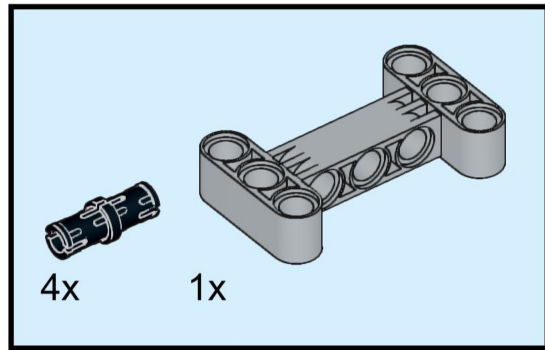
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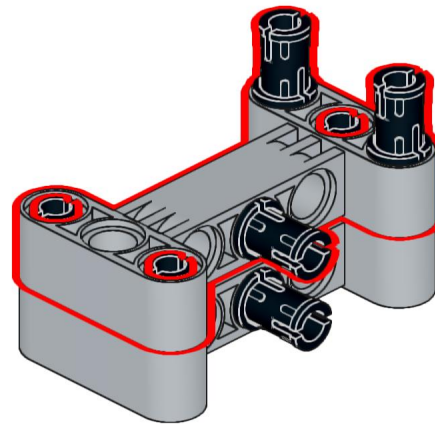
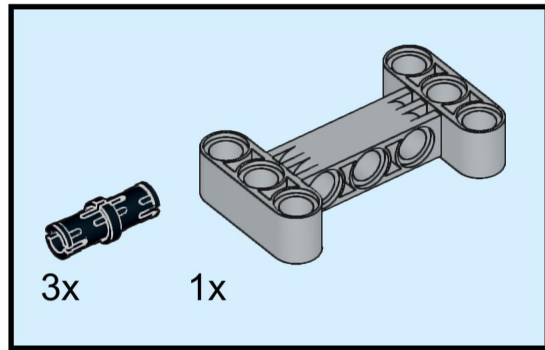
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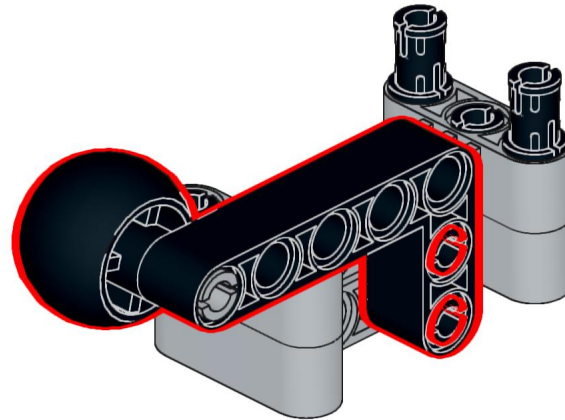
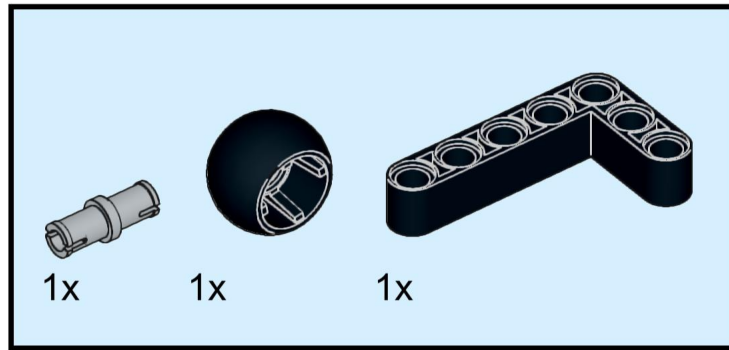
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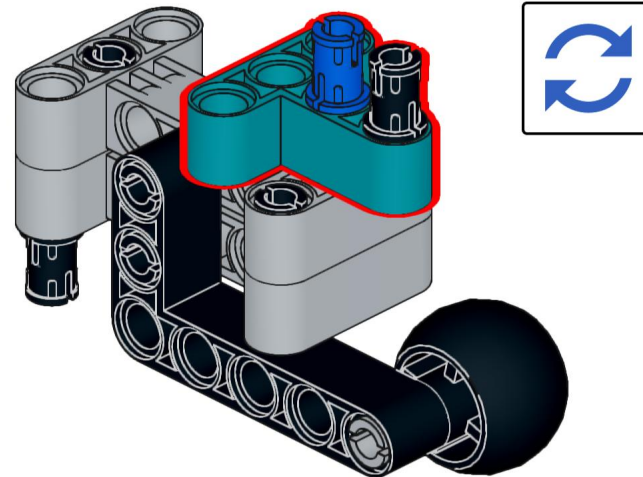
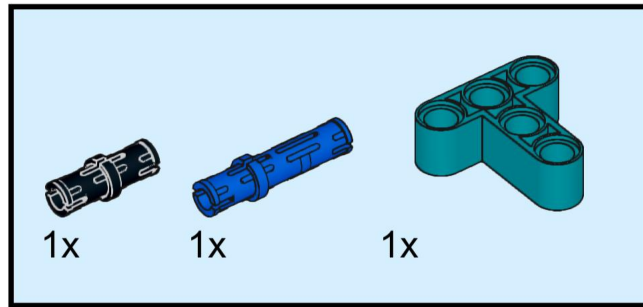
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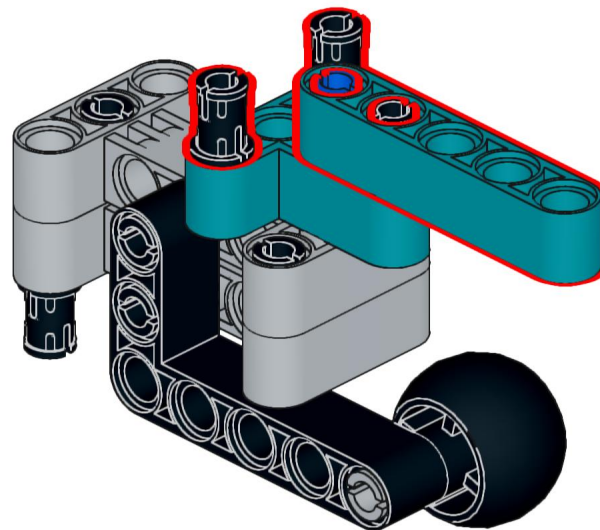
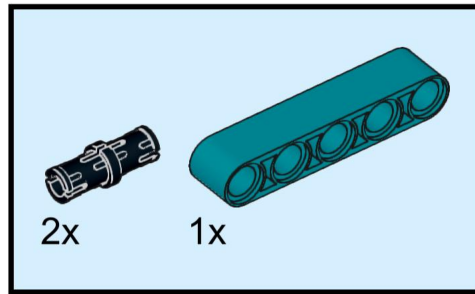
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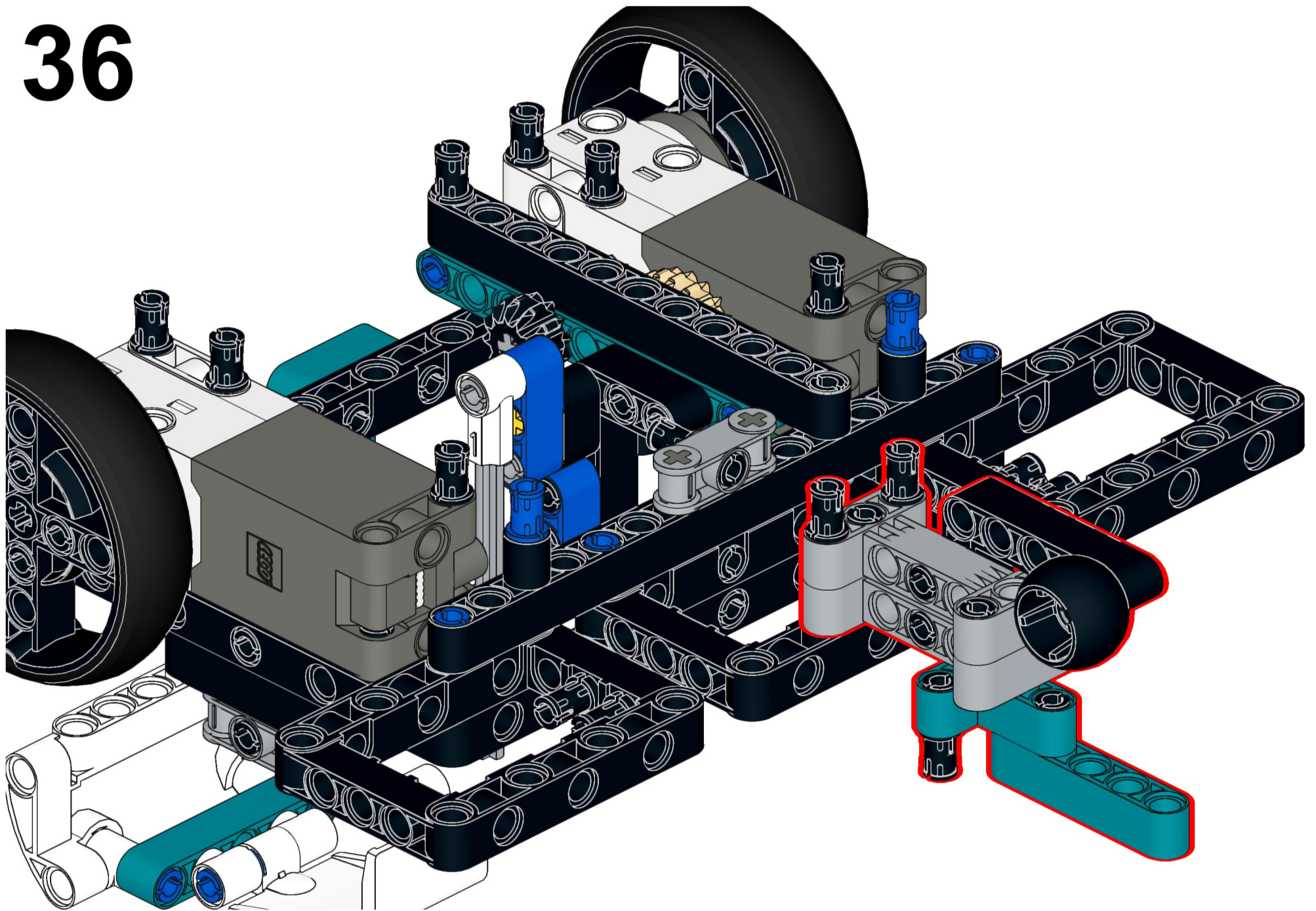
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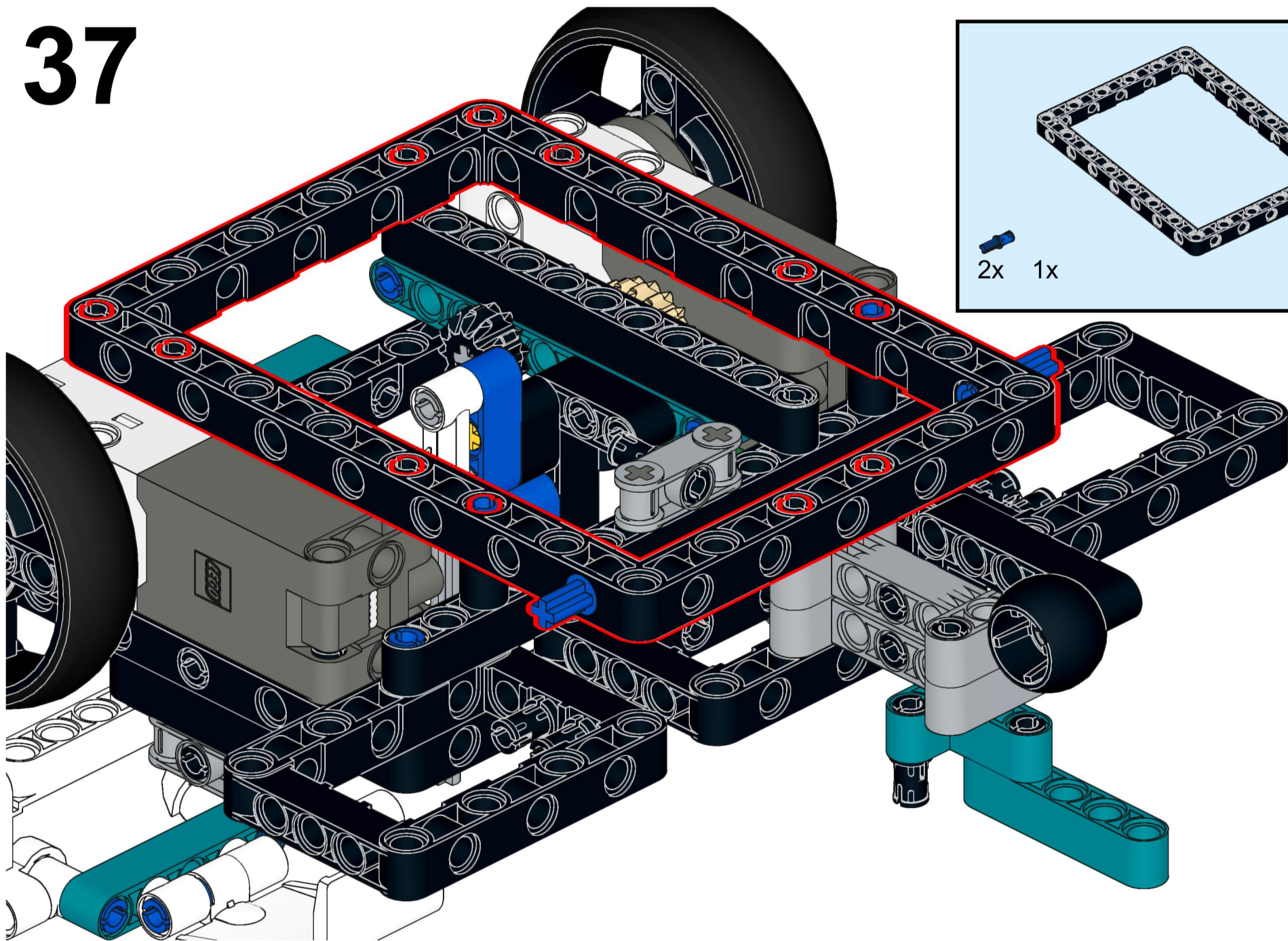
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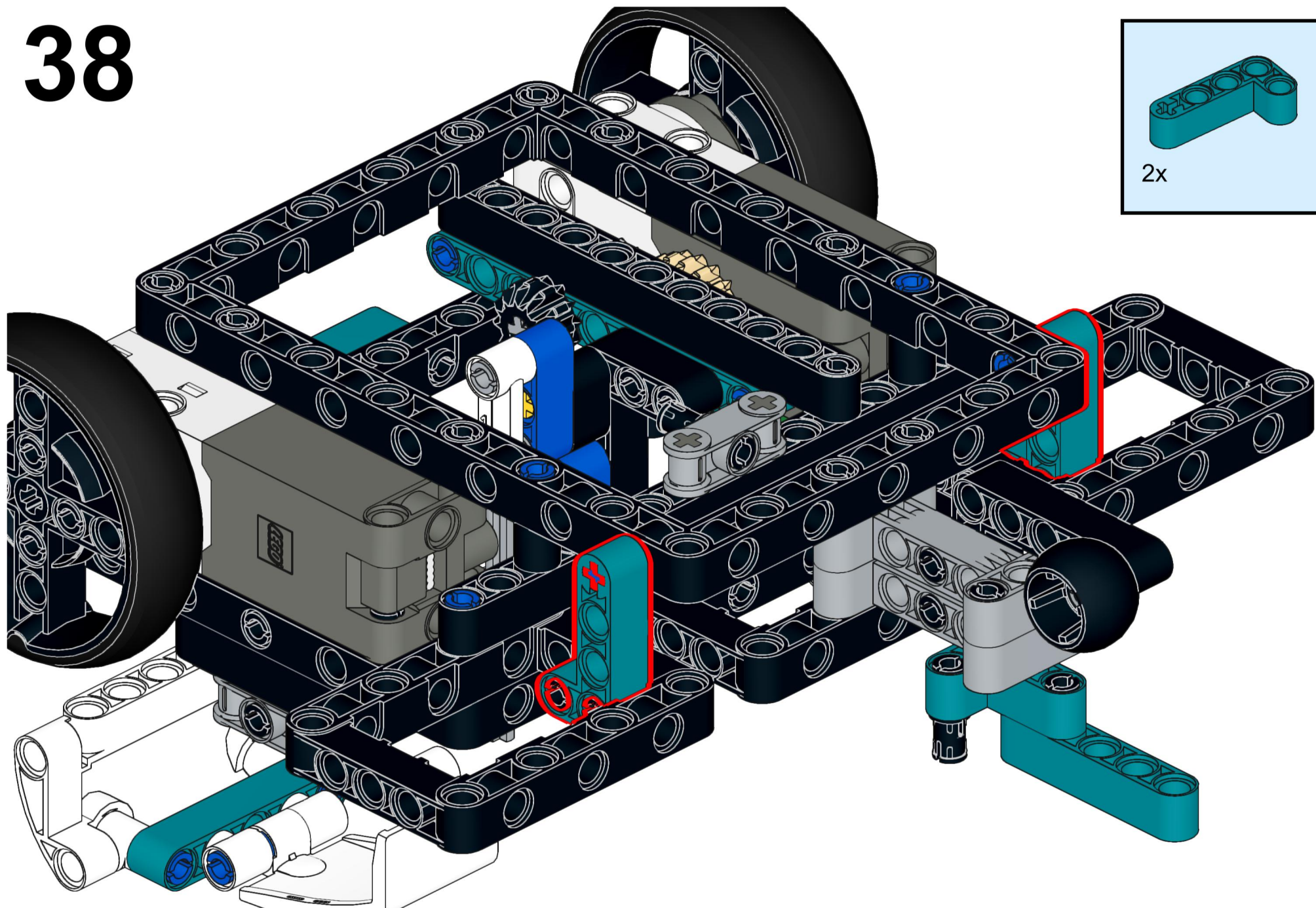
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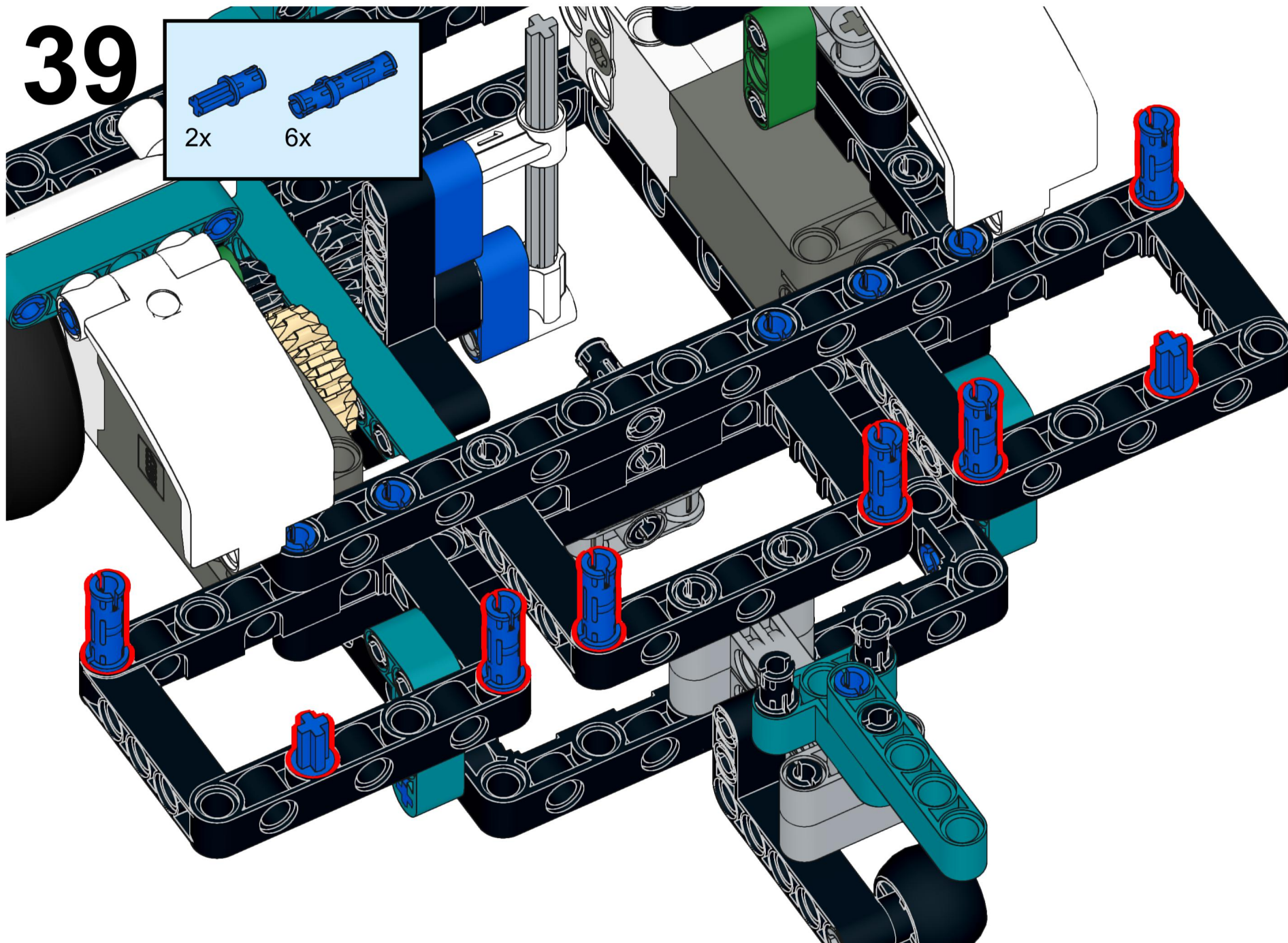
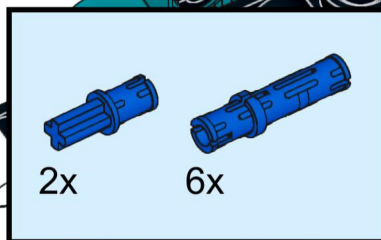
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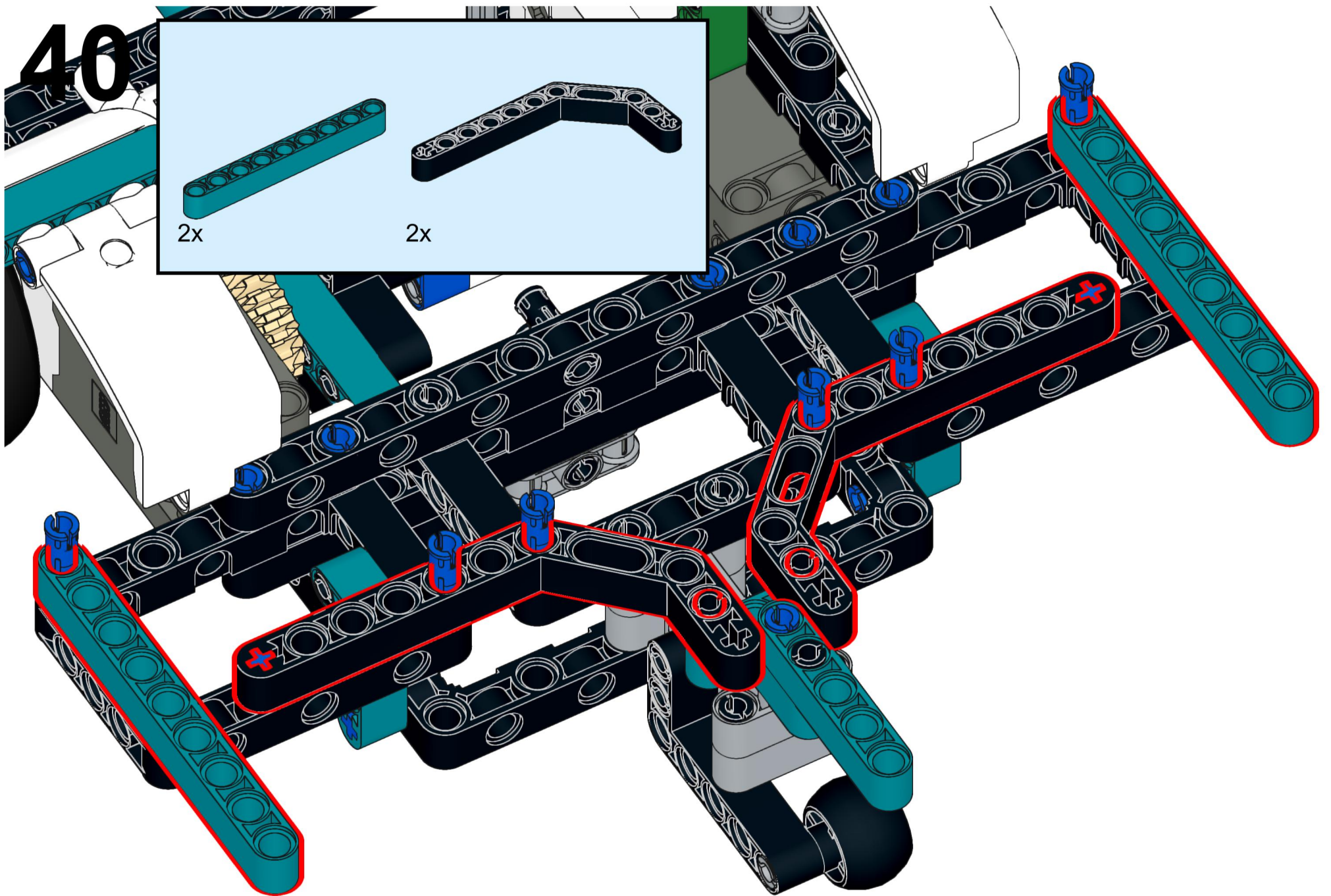
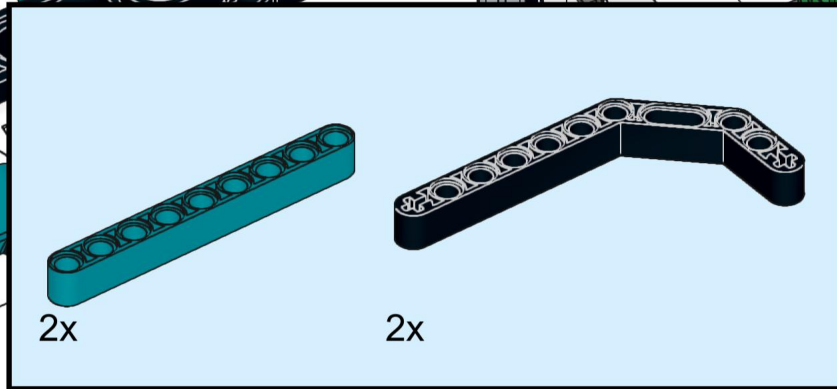
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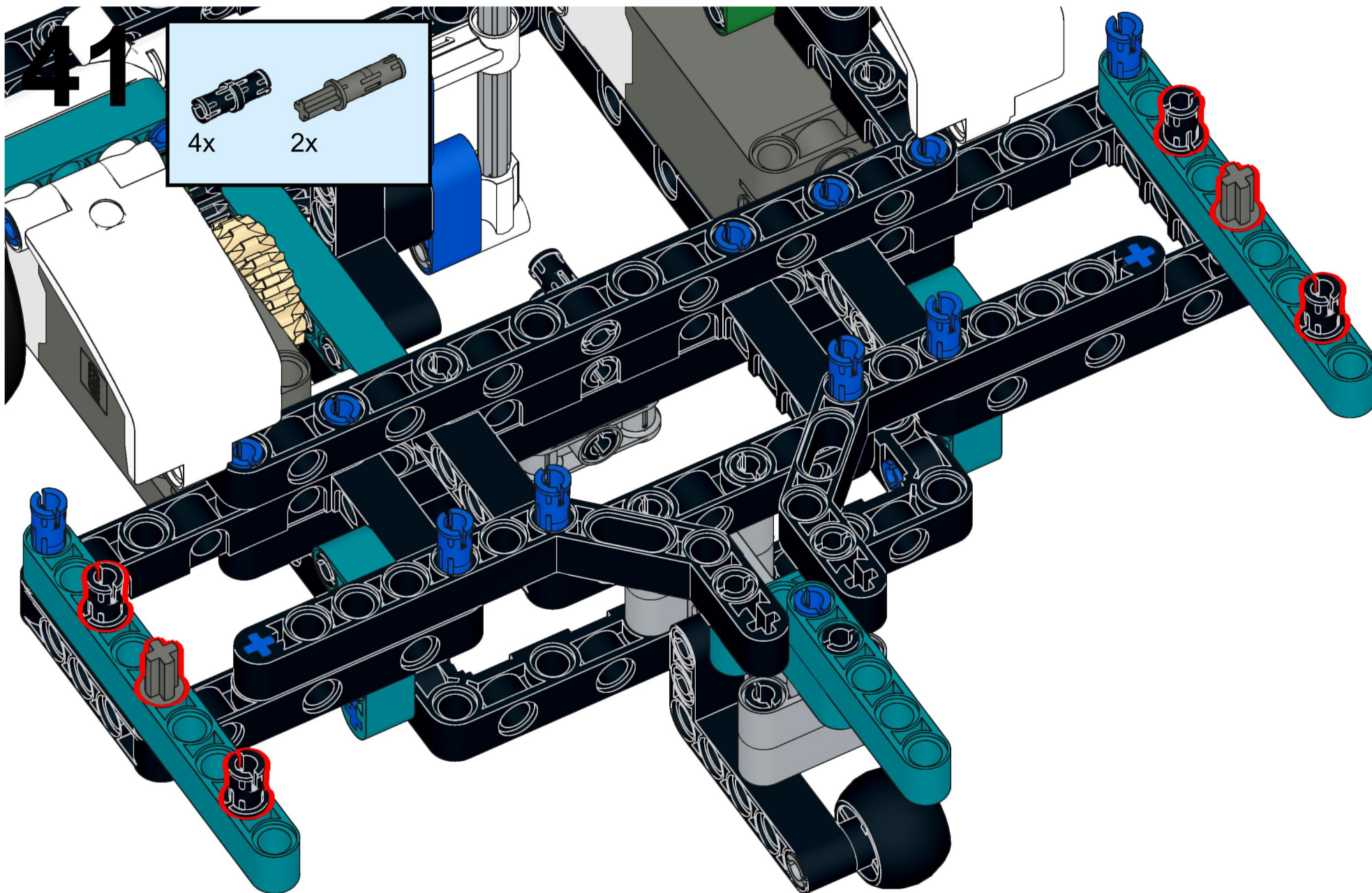


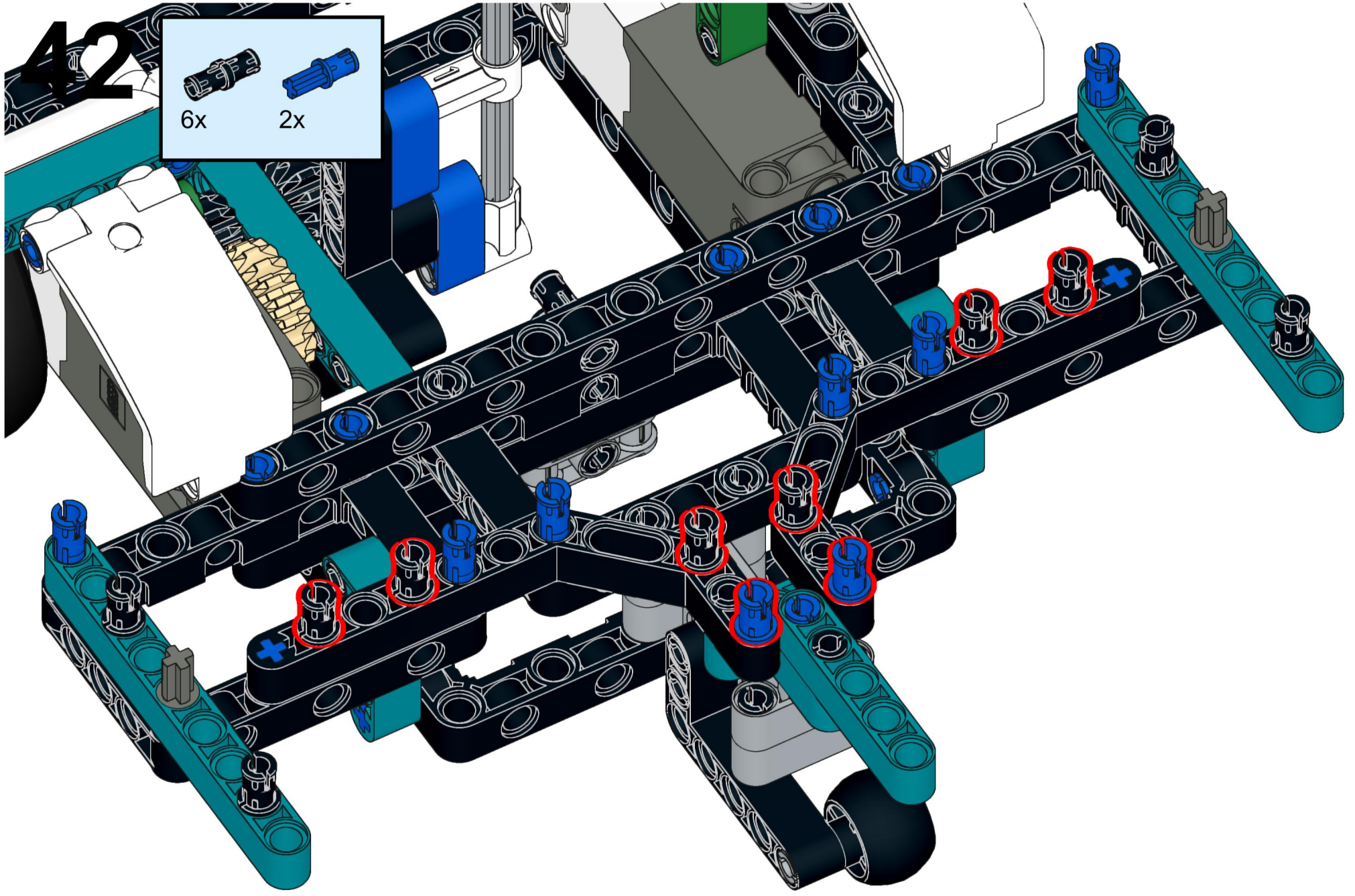
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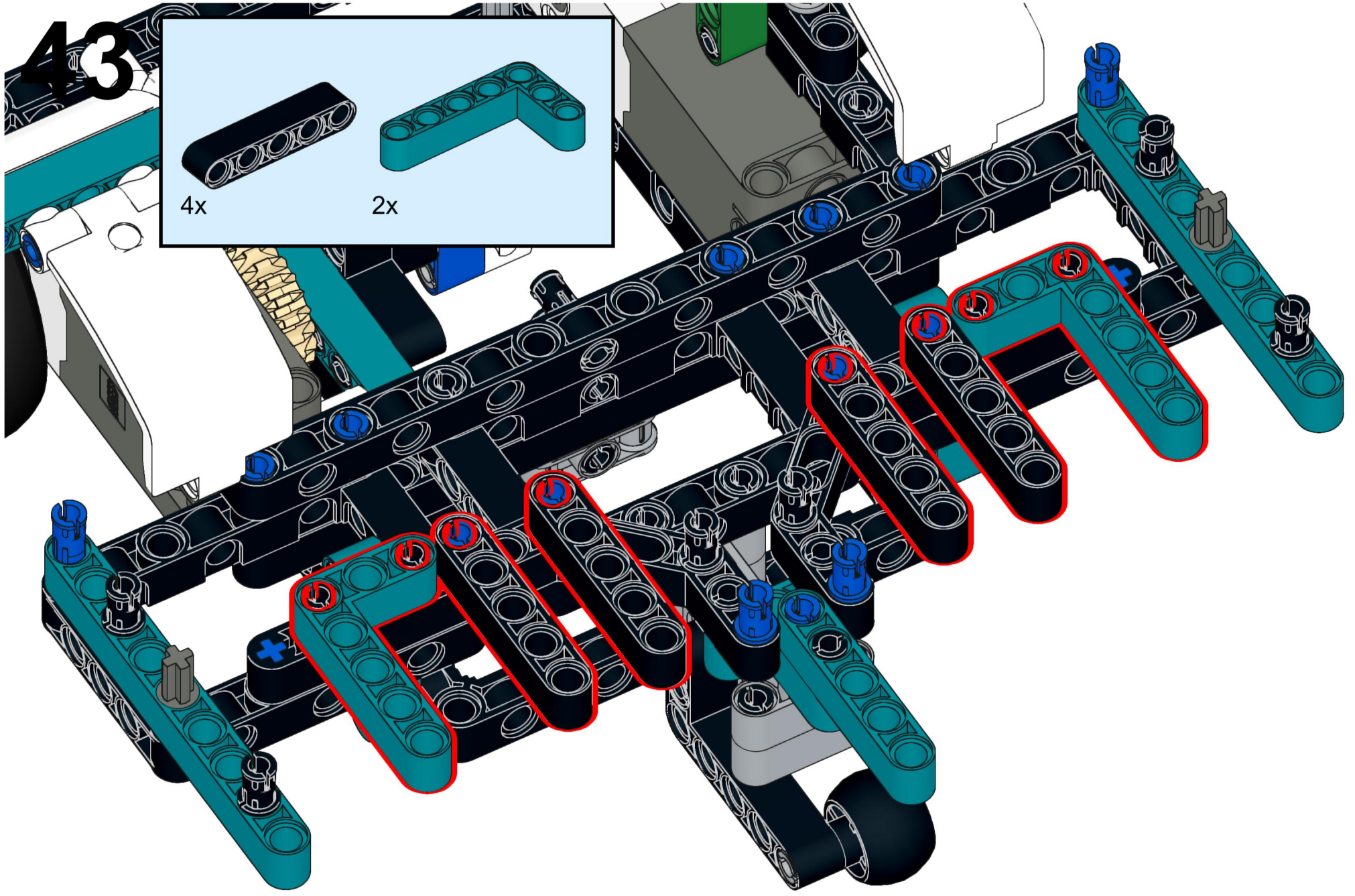


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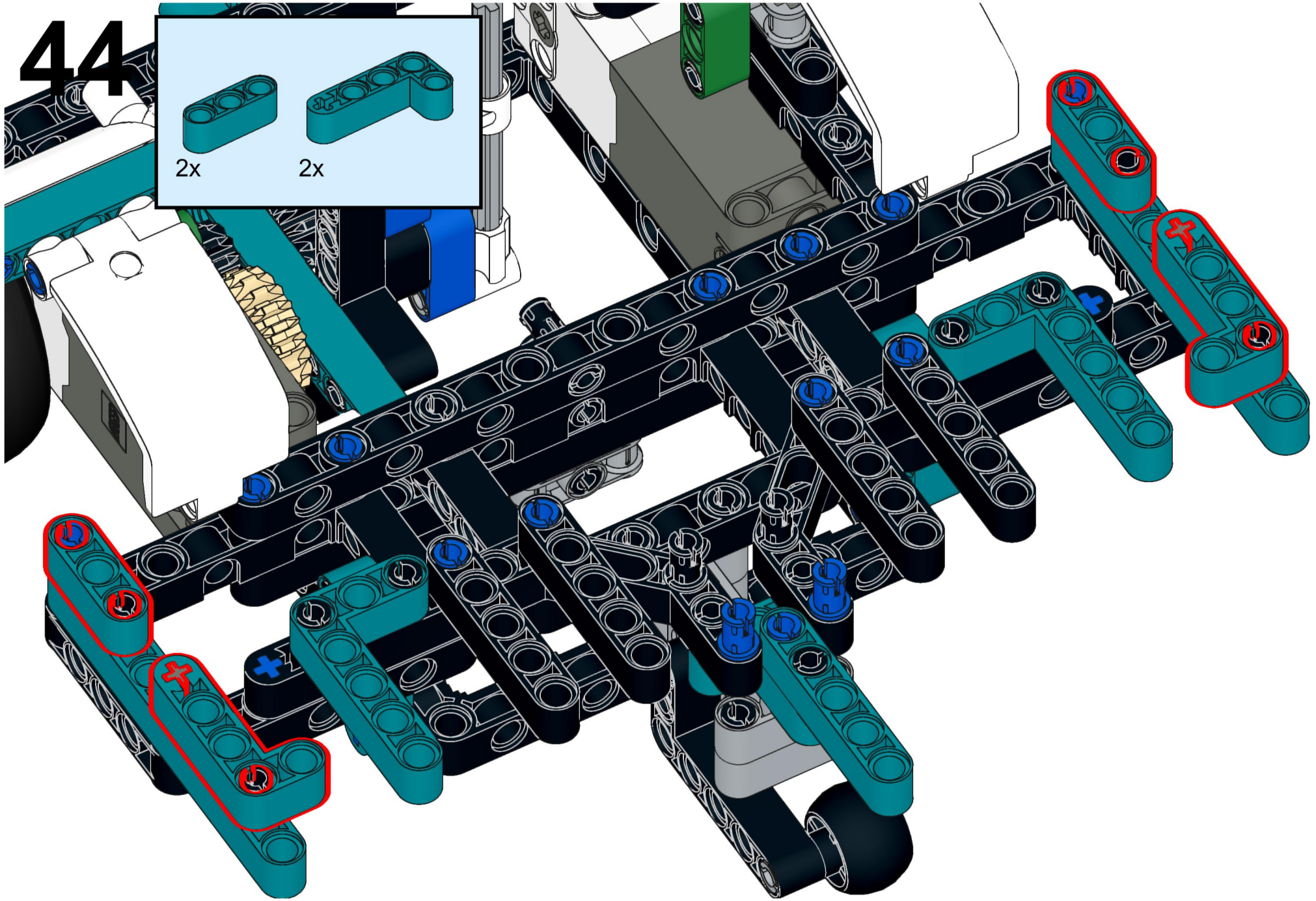
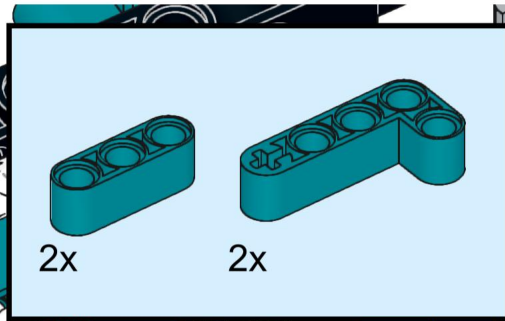




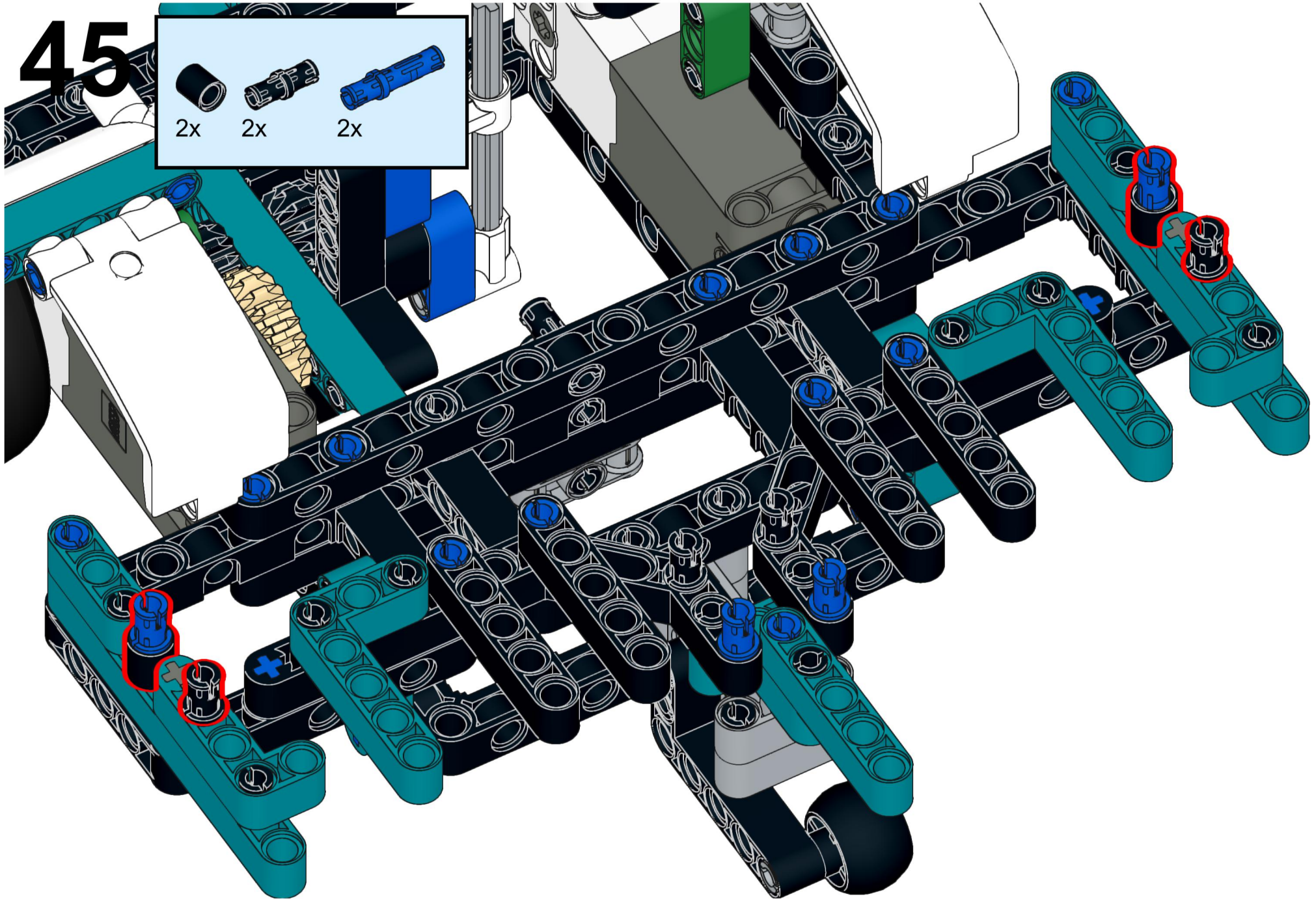




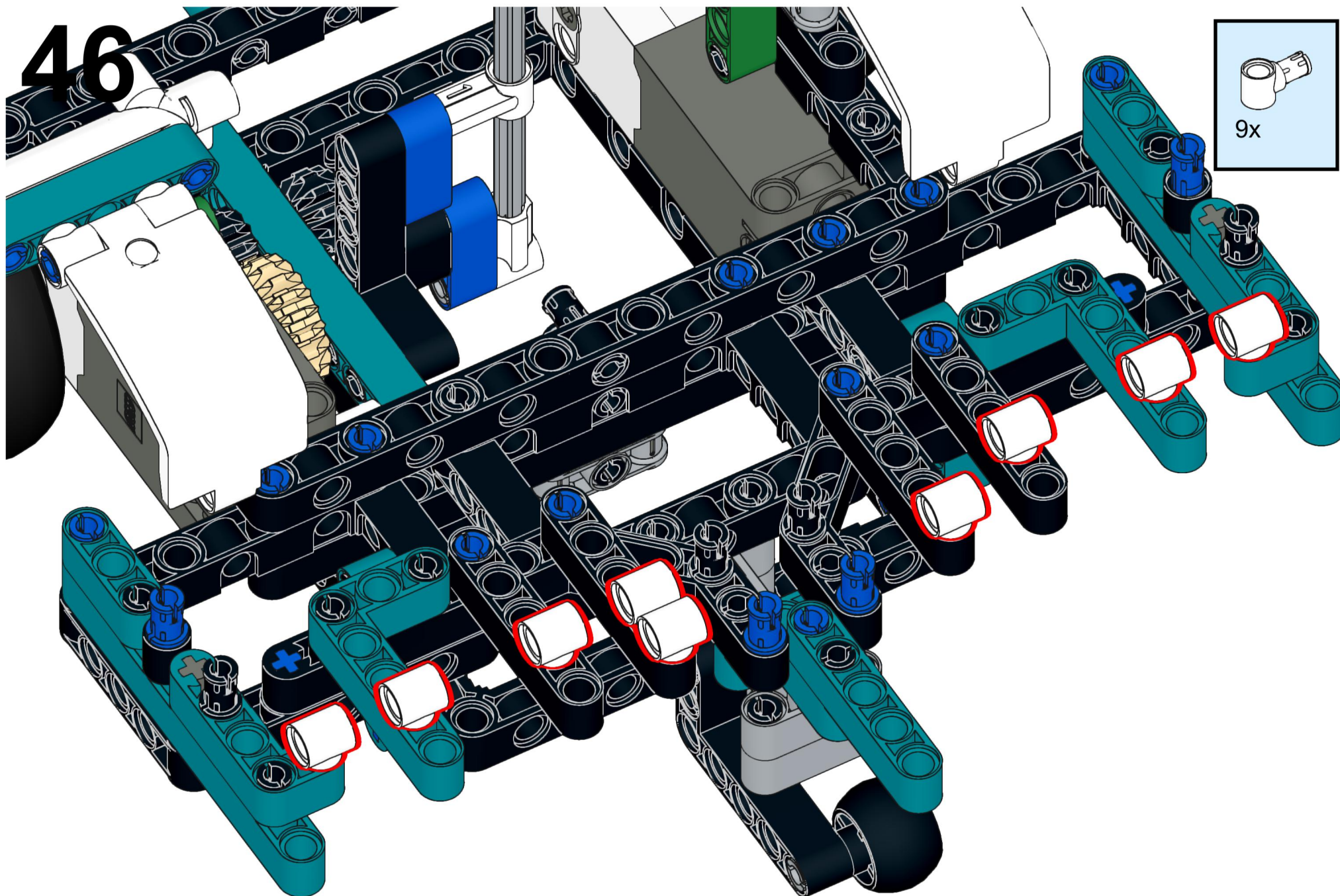
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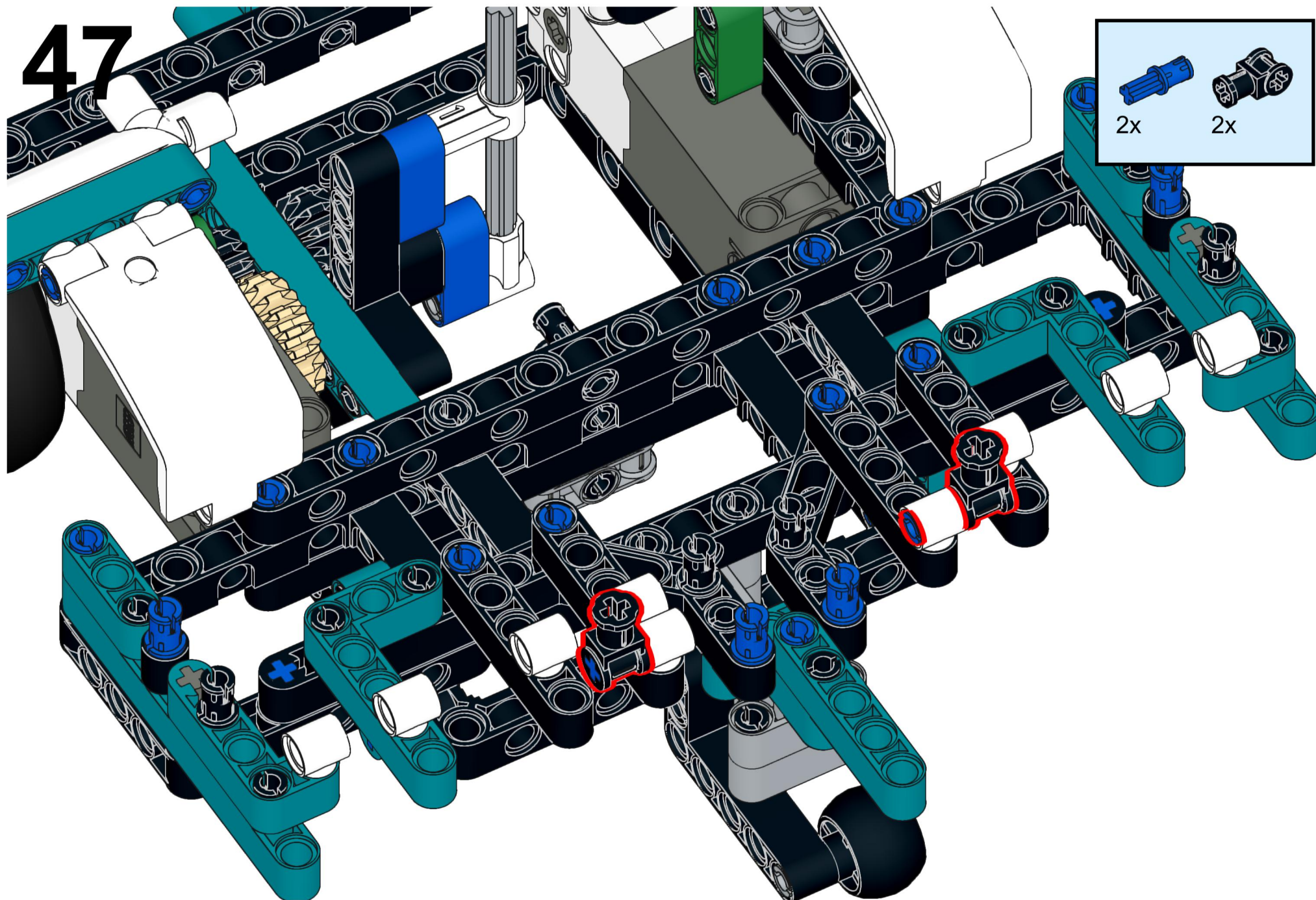
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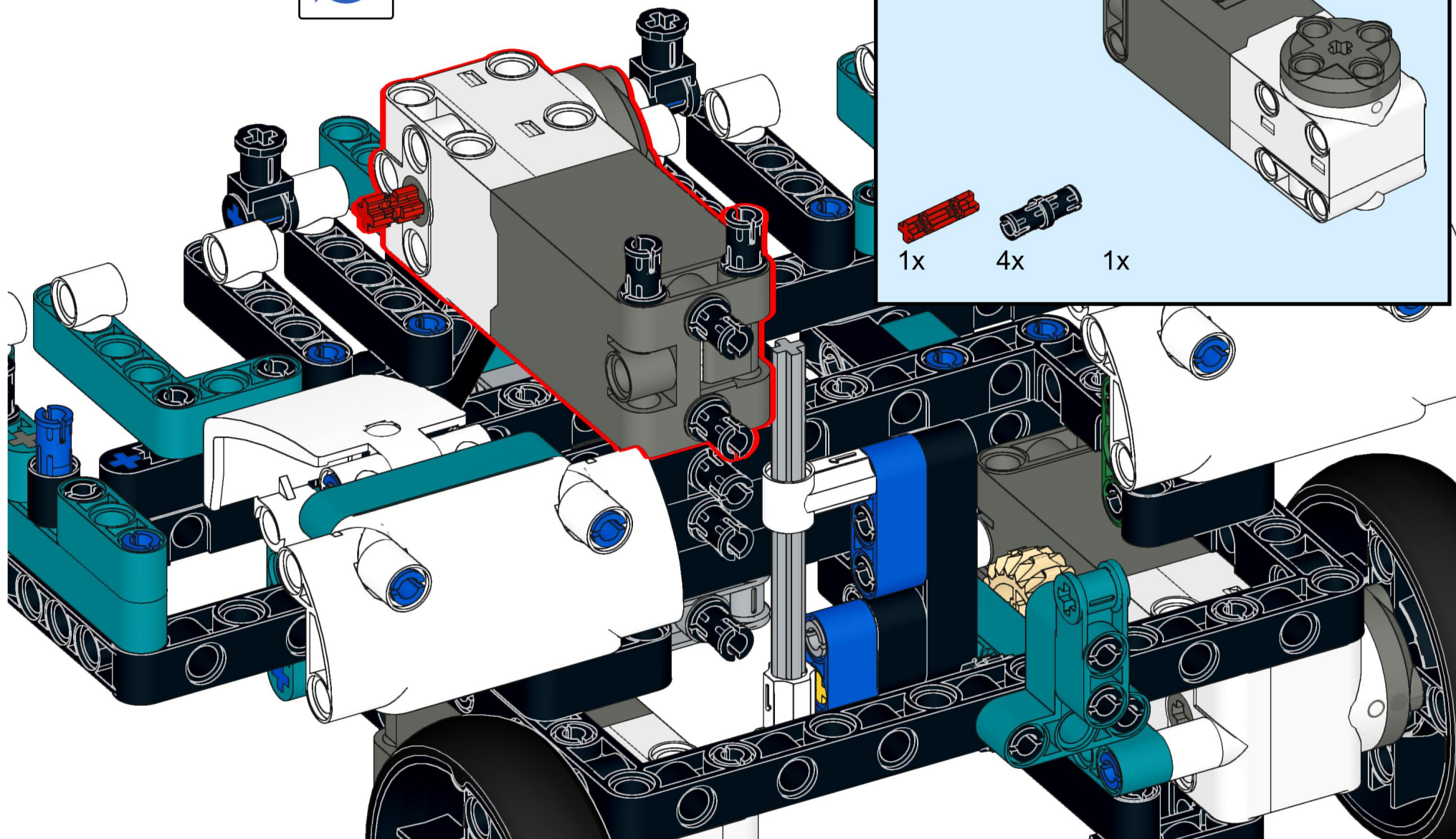
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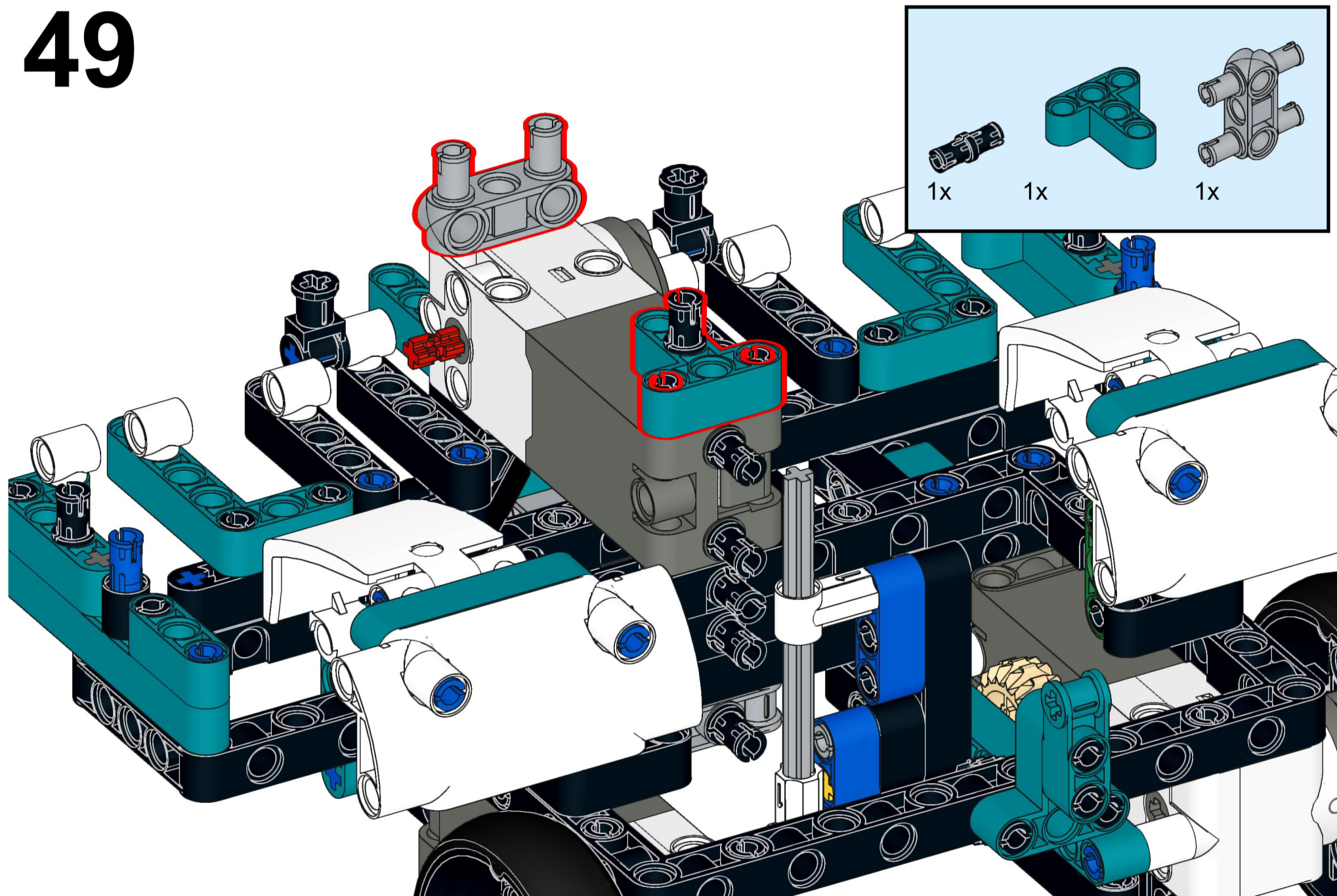
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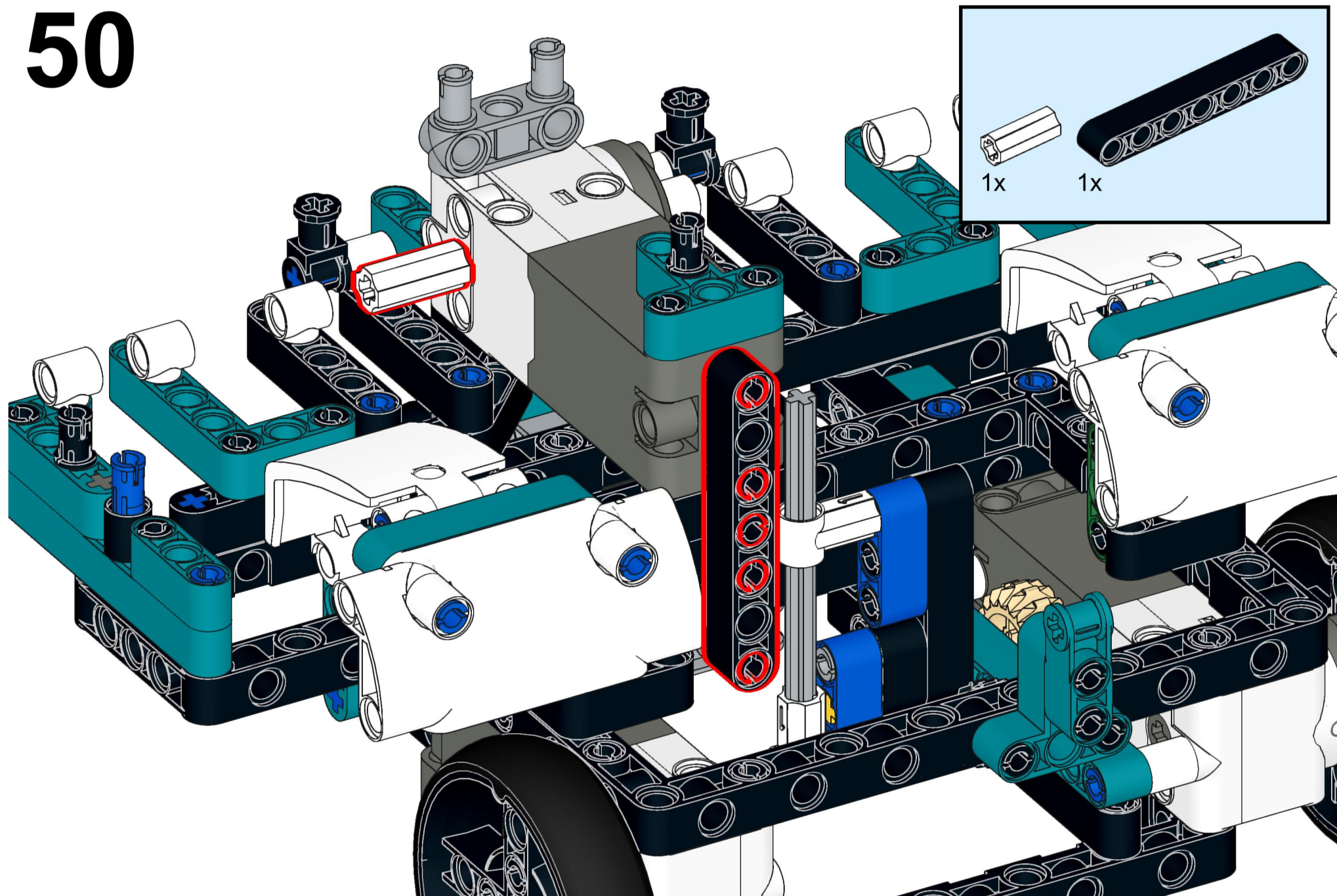
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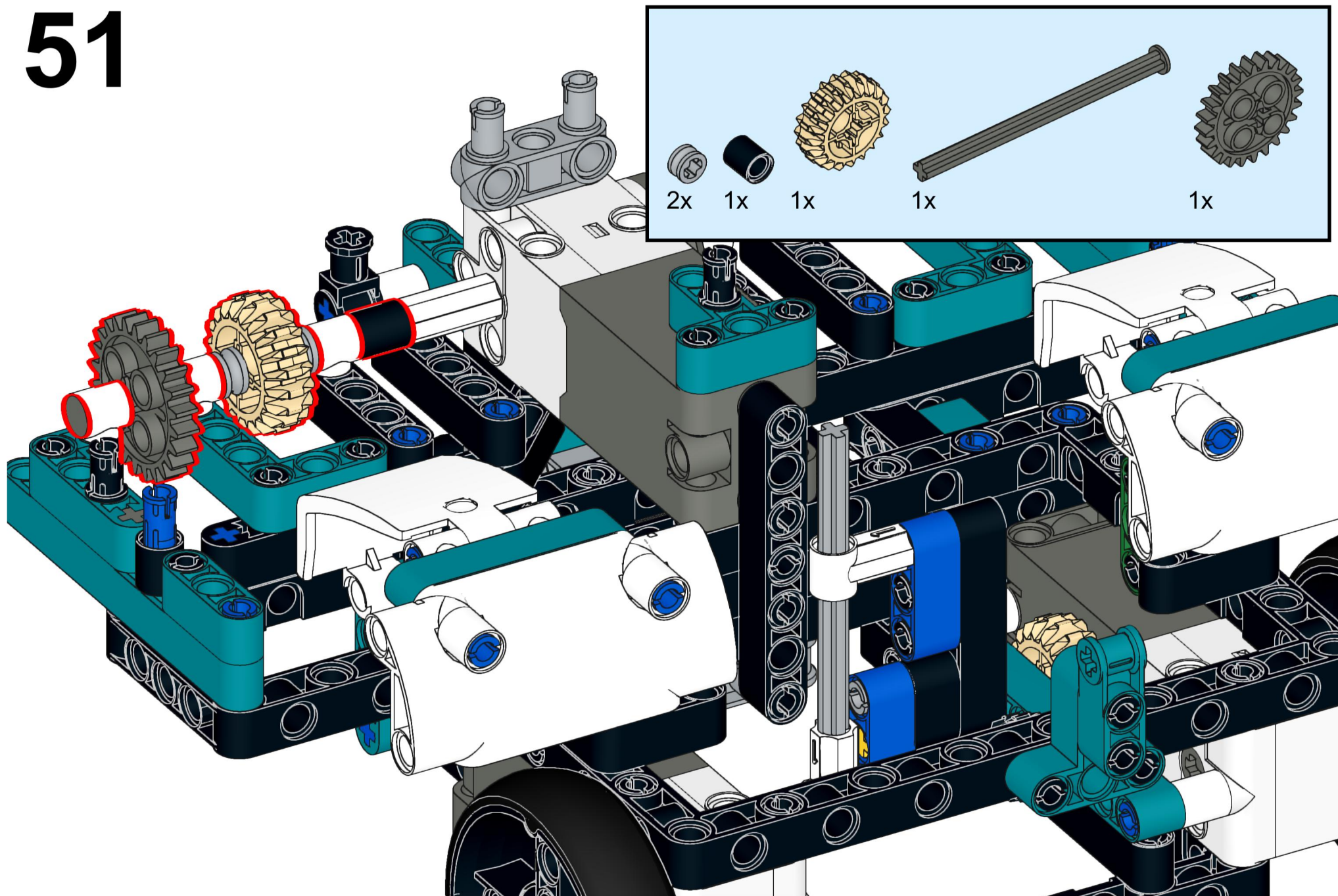
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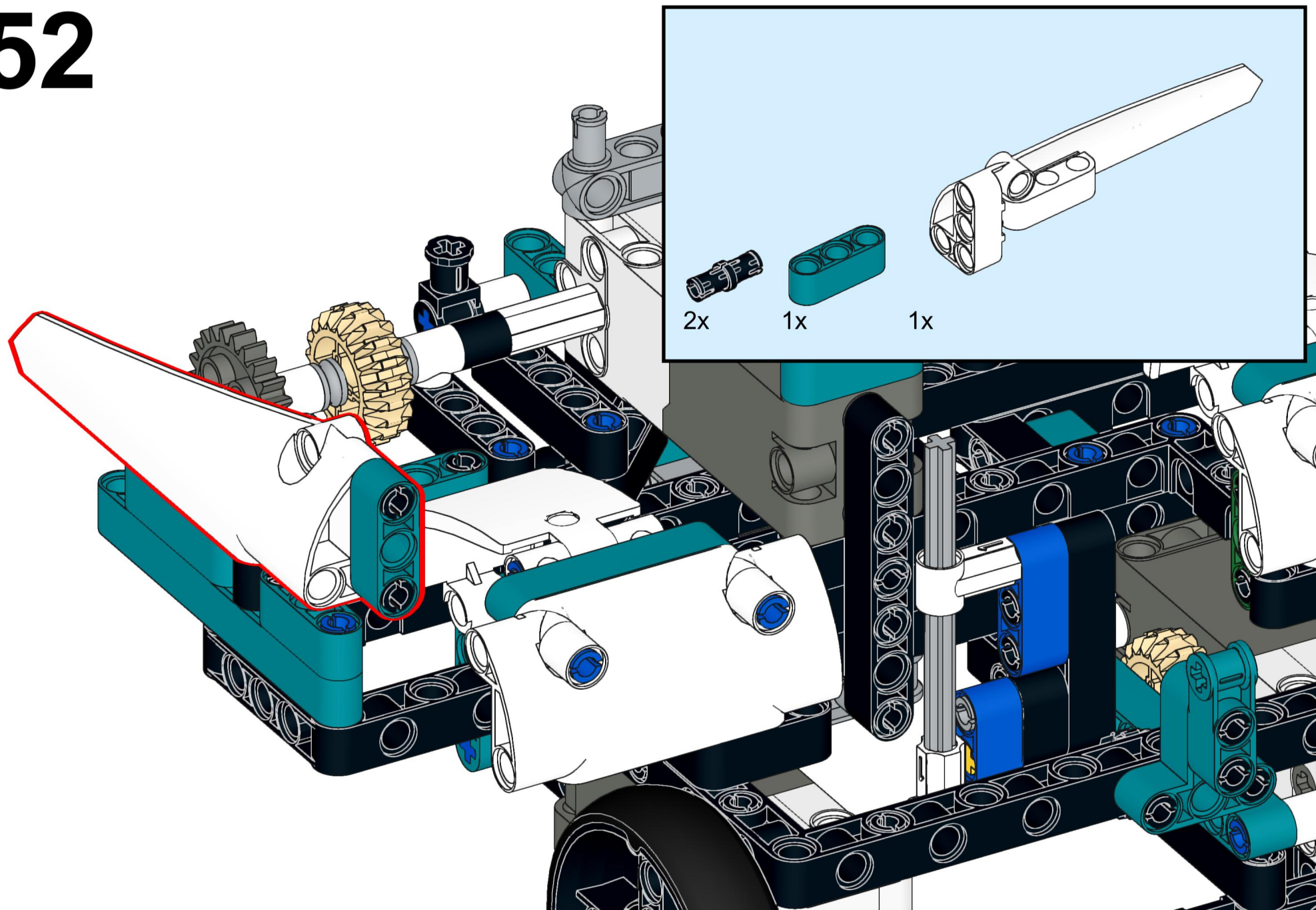
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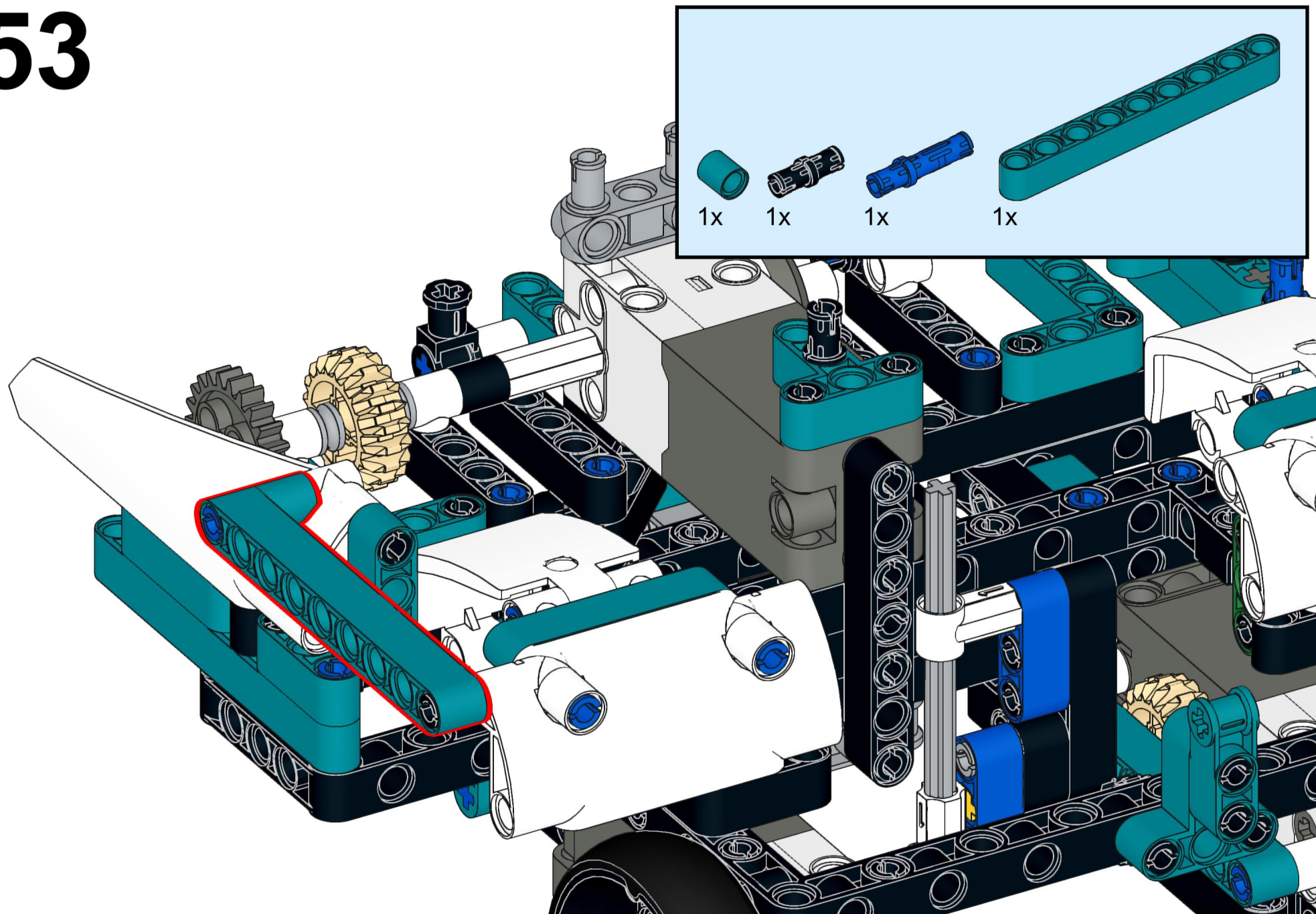
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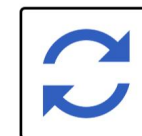
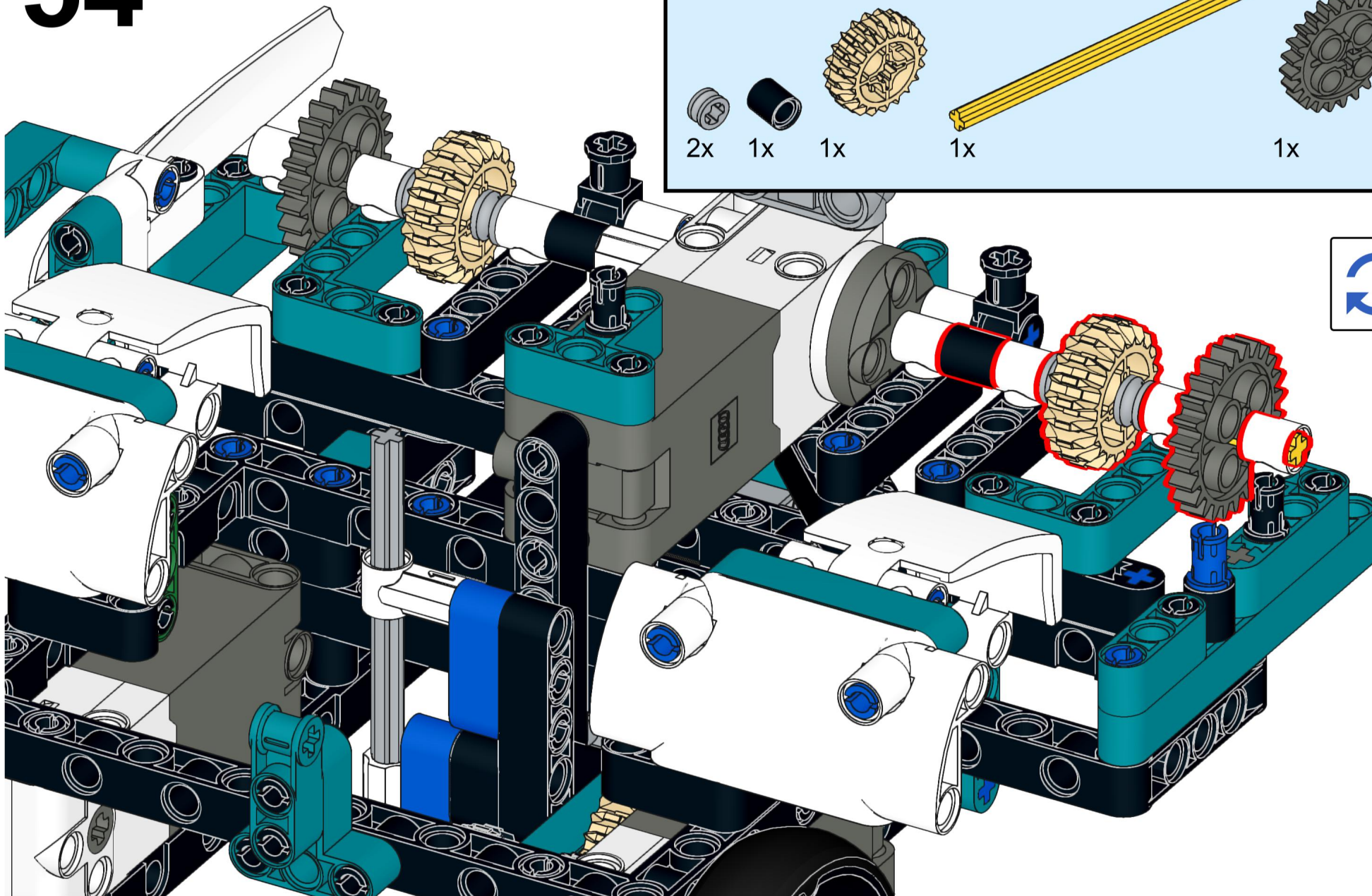
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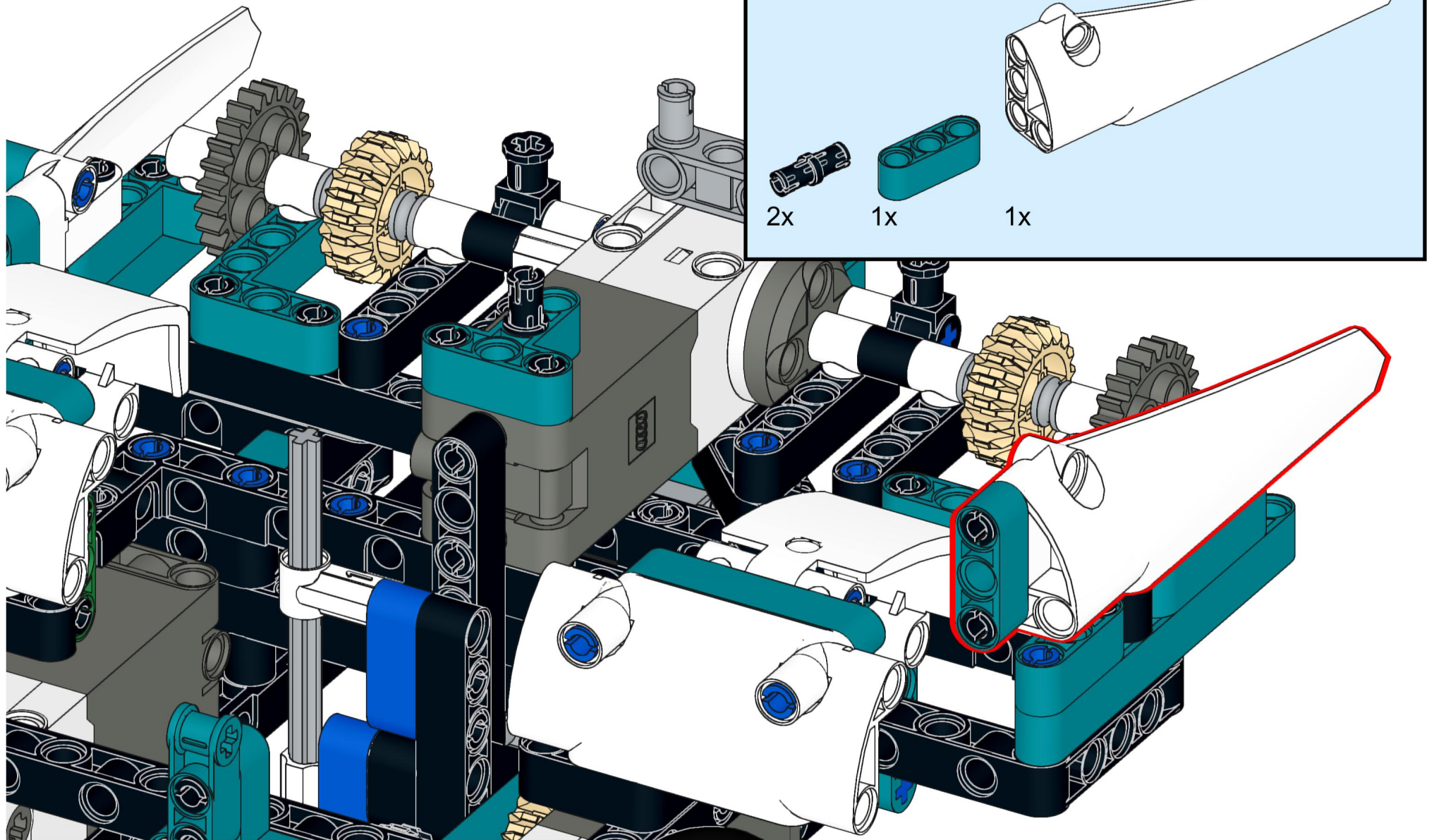
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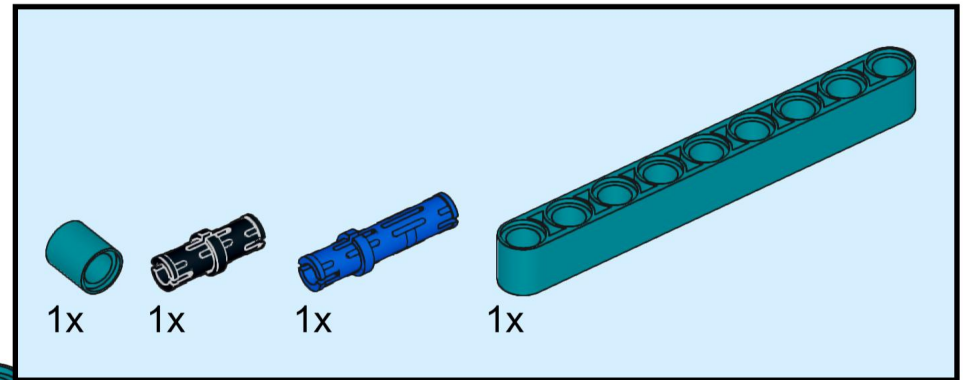
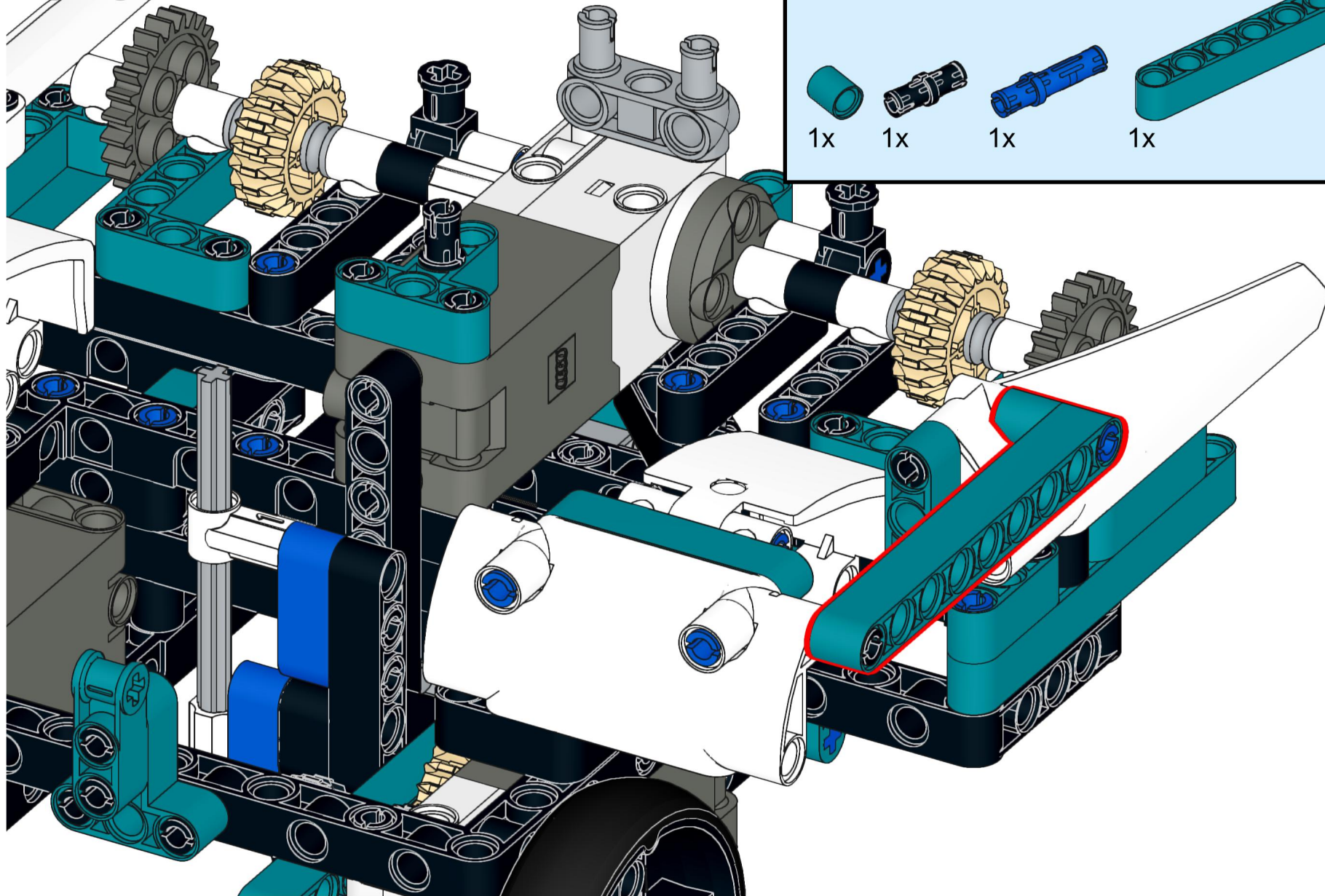
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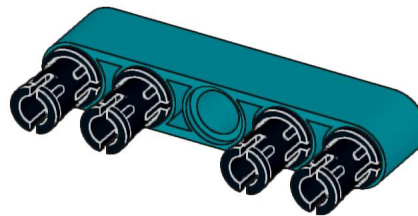
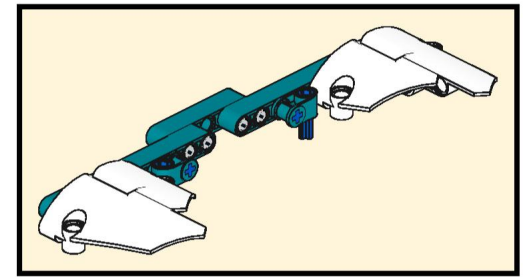
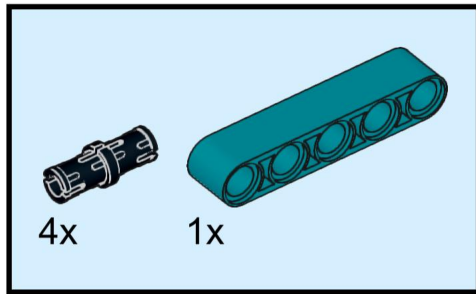
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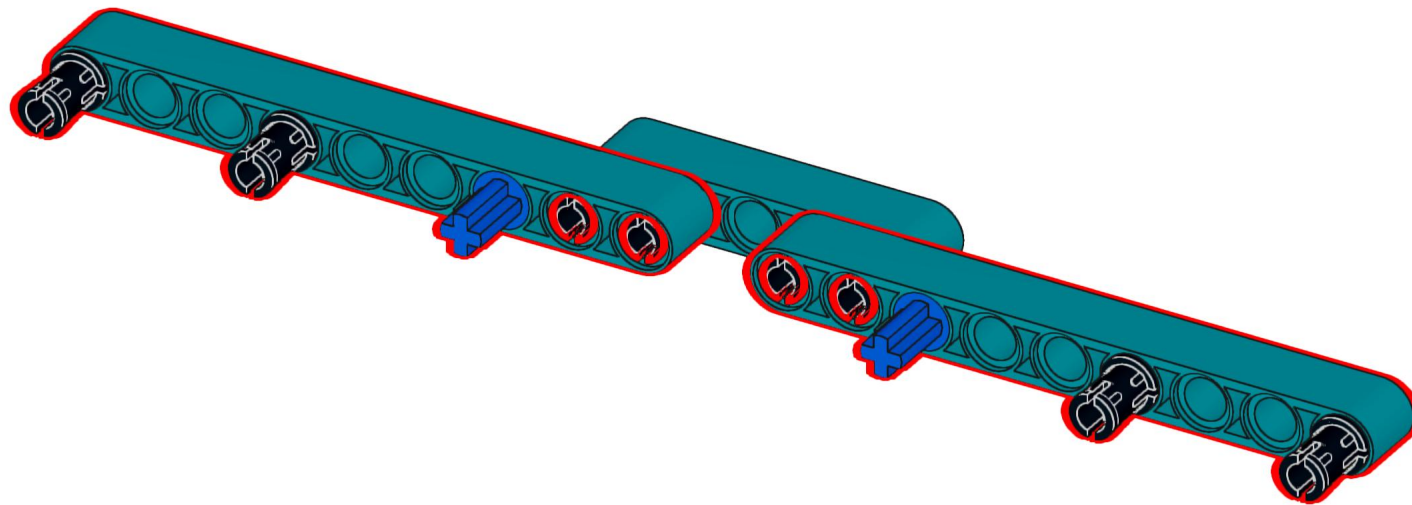
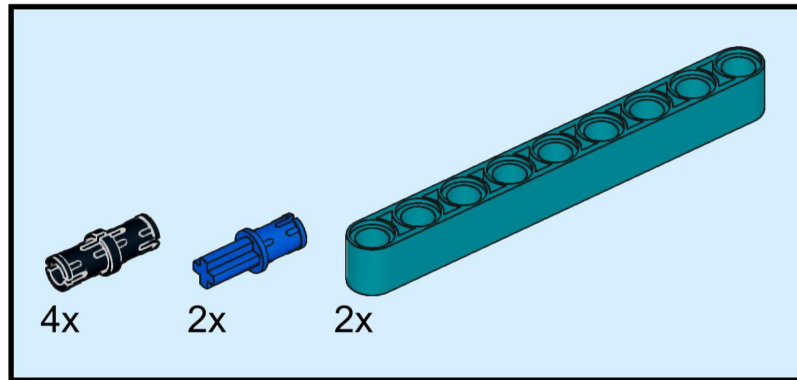
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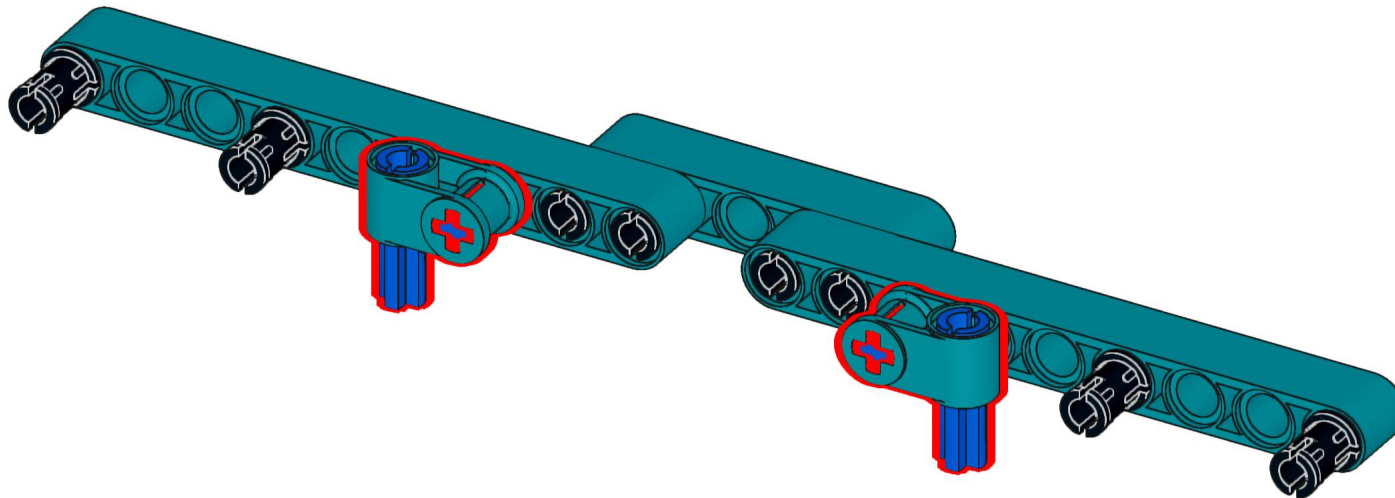
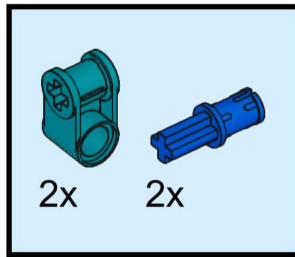
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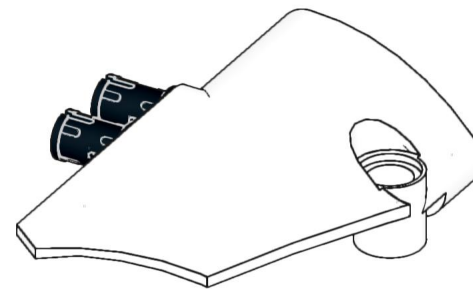
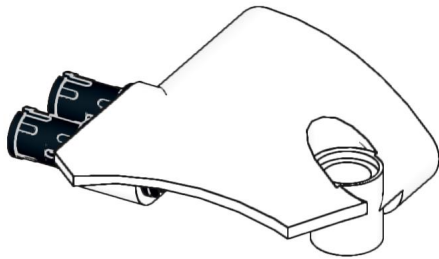
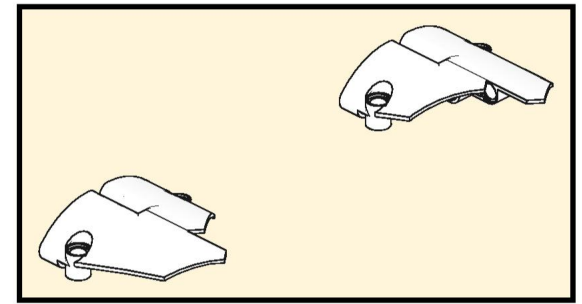
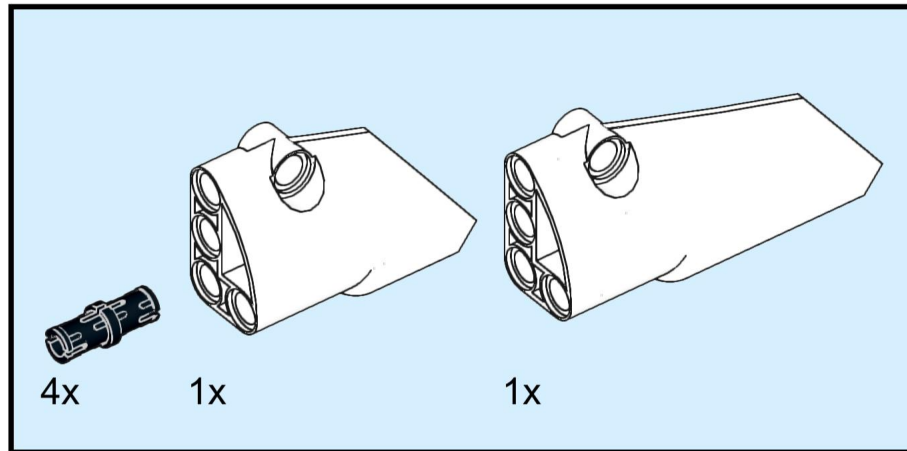
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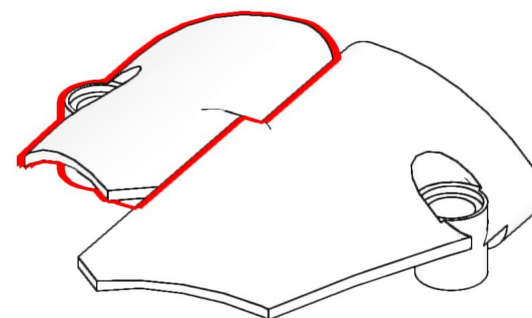
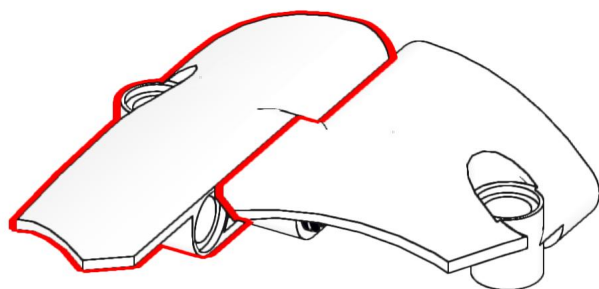
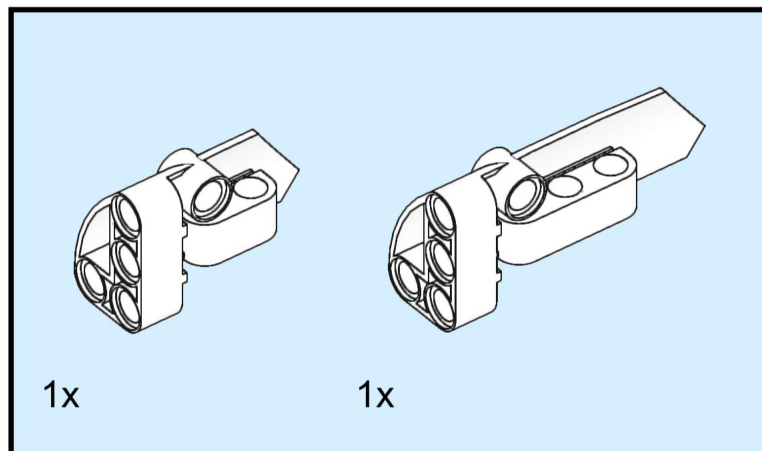
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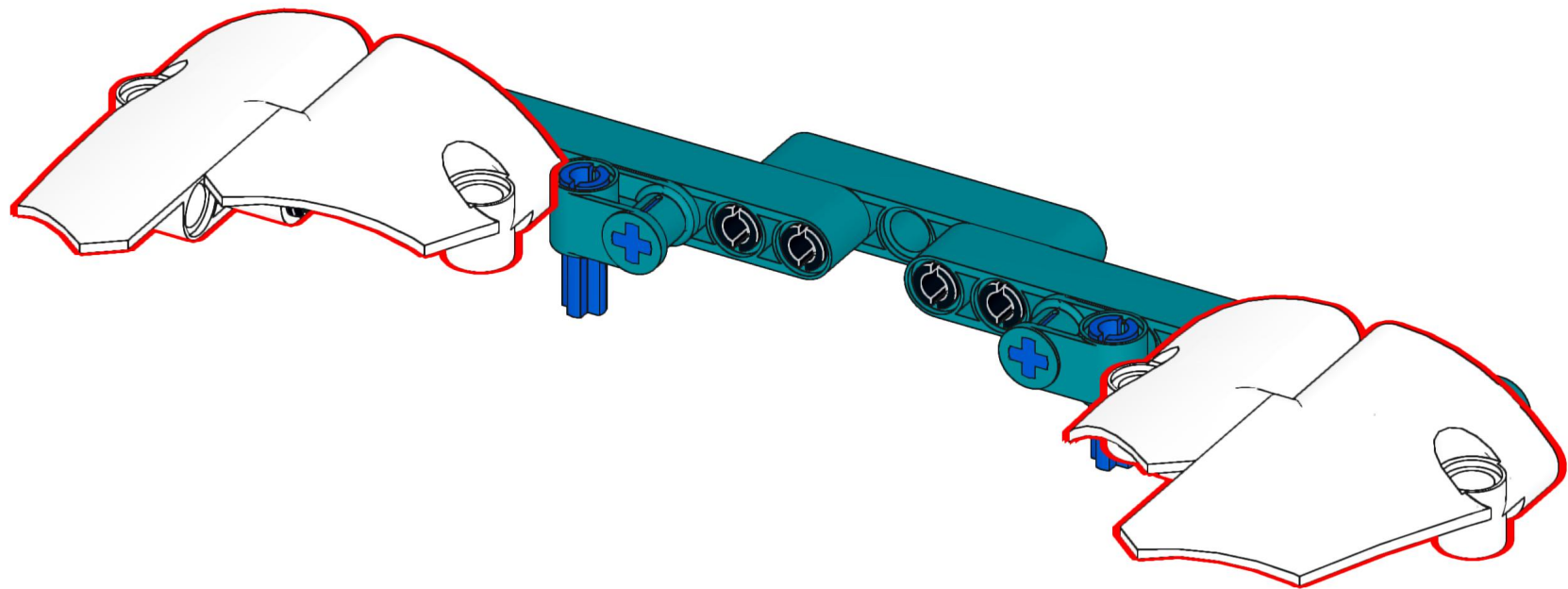
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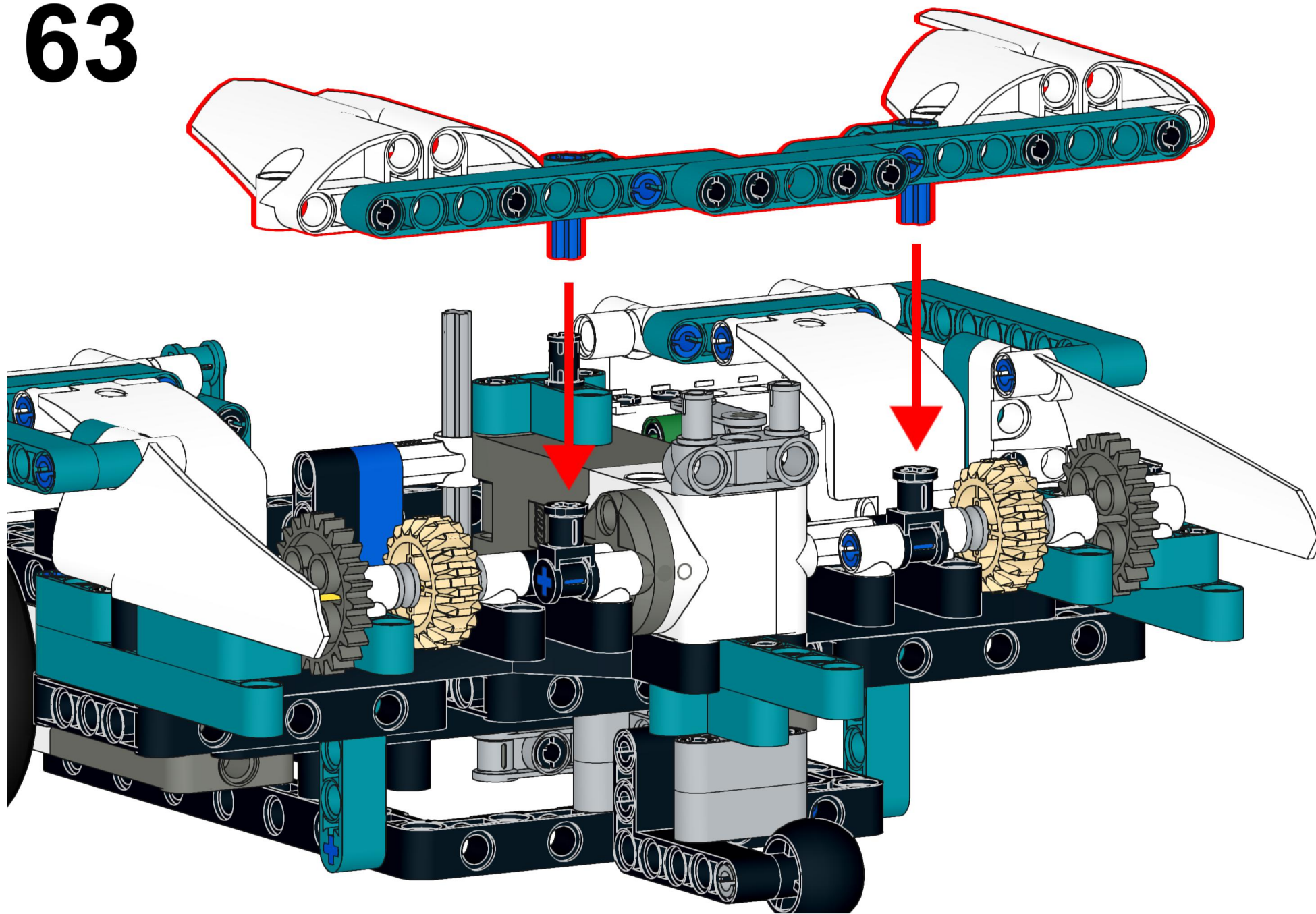
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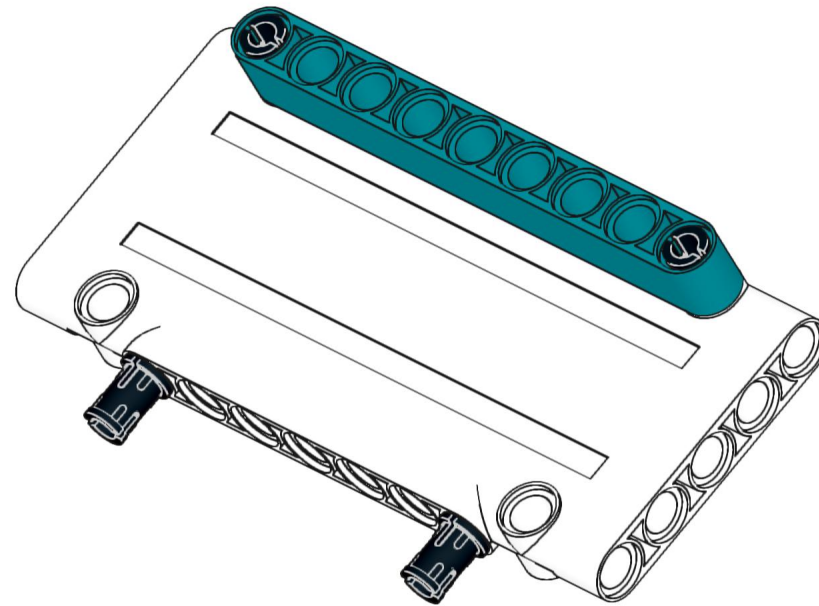
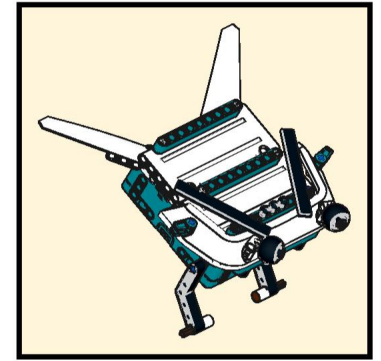
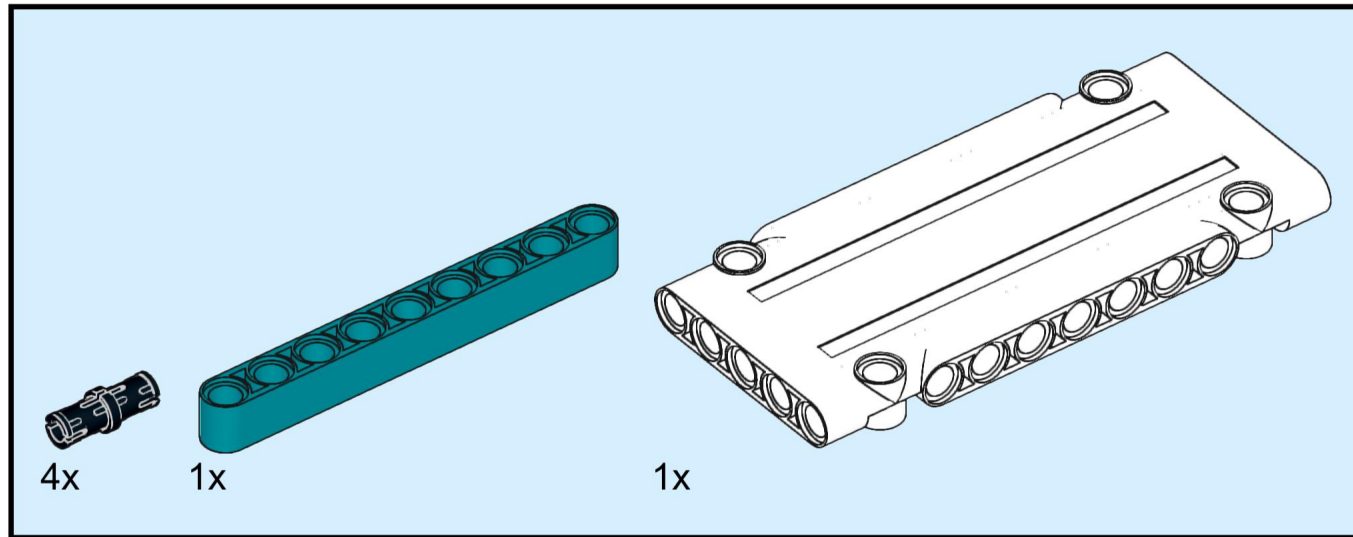
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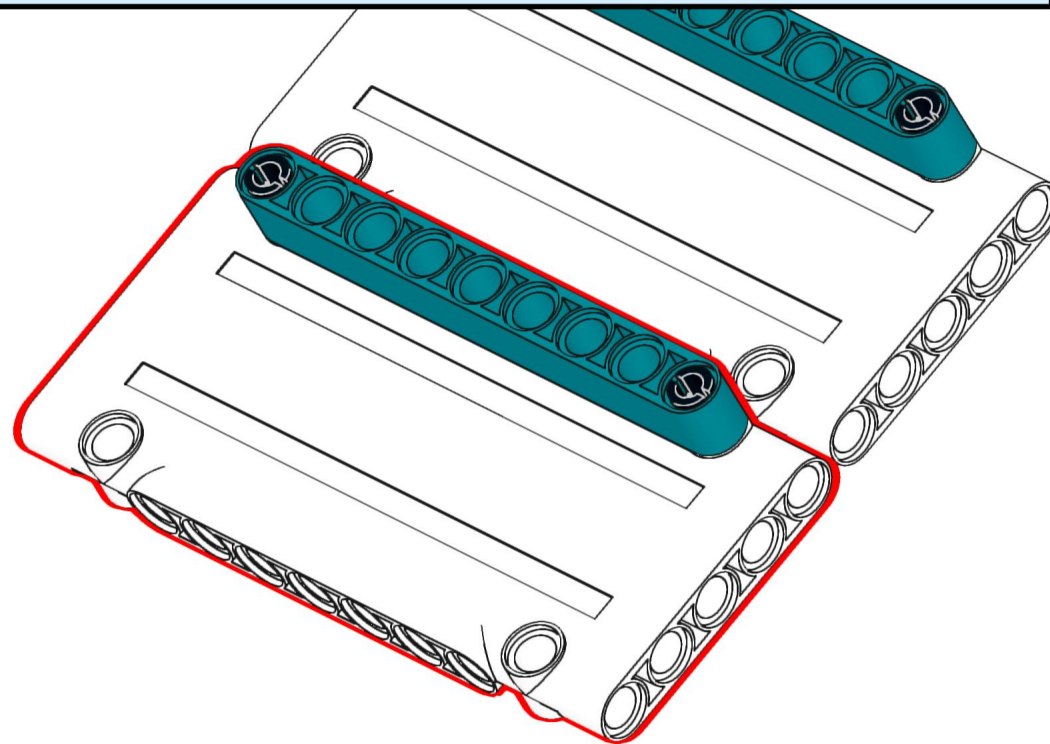
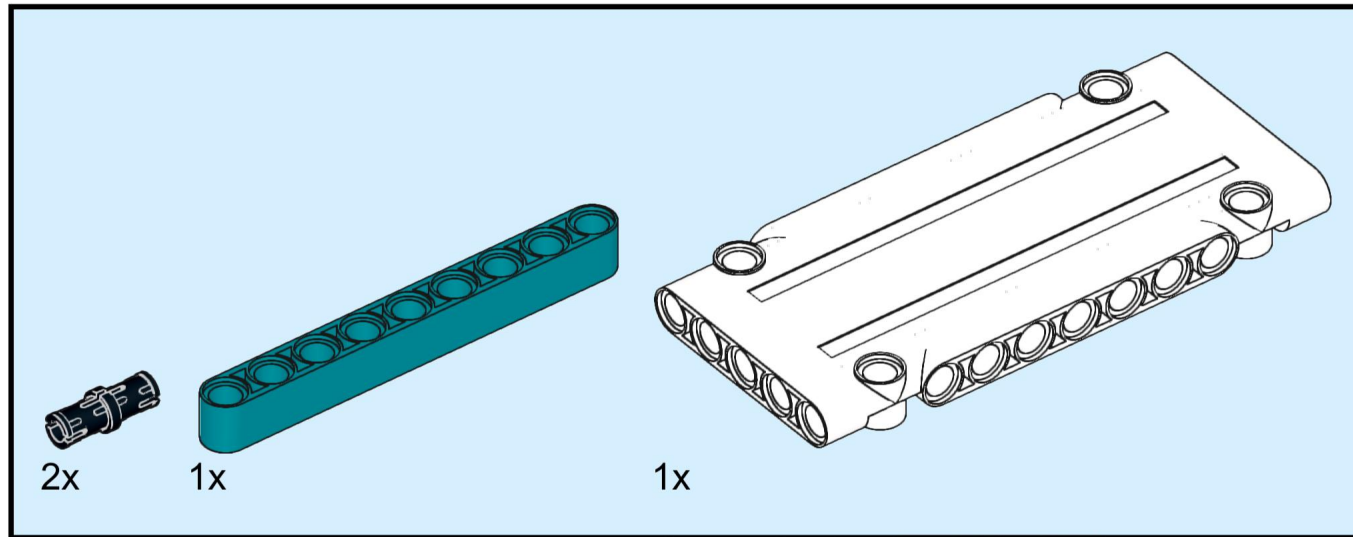
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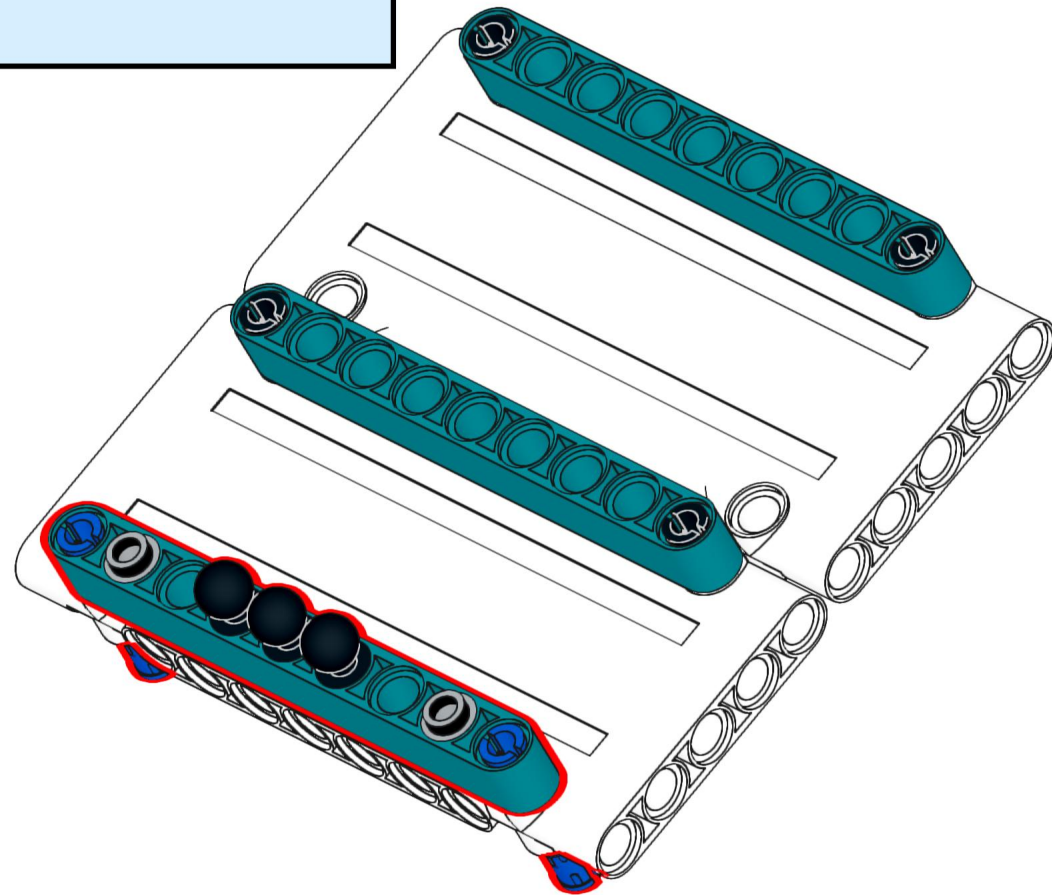
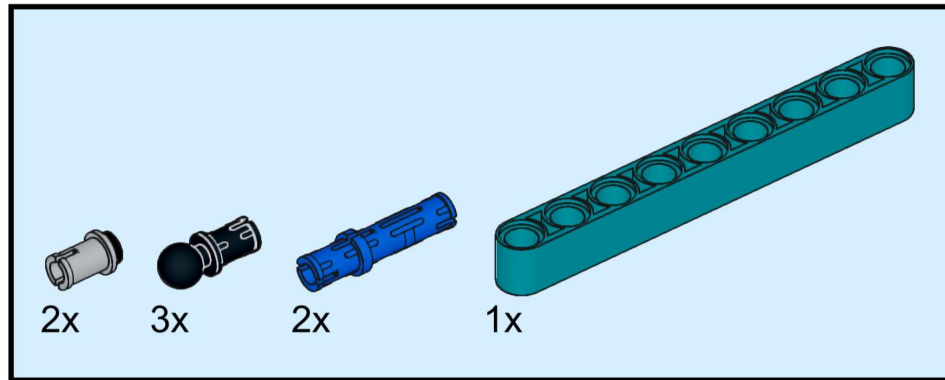
64



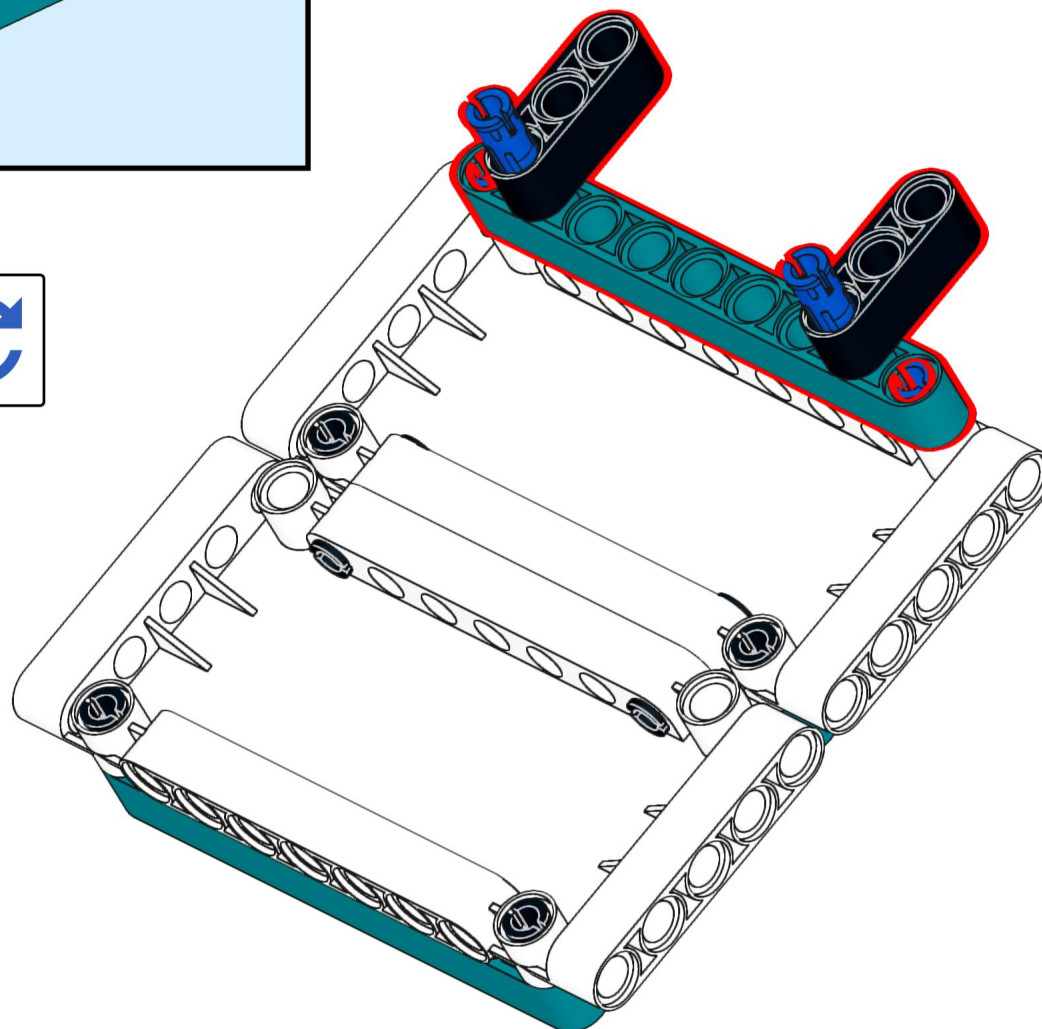
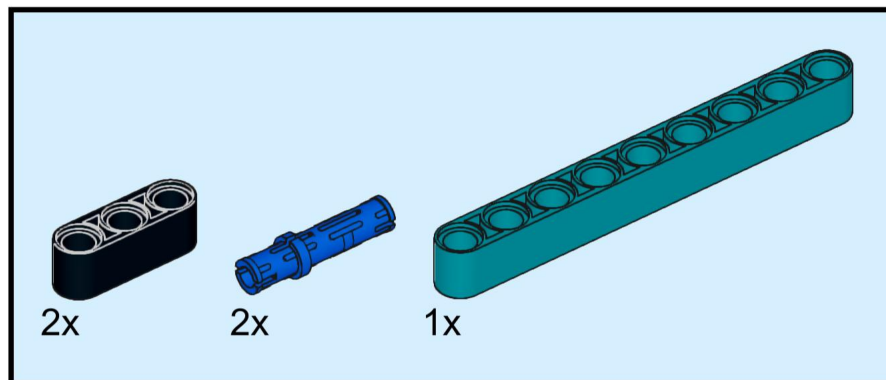
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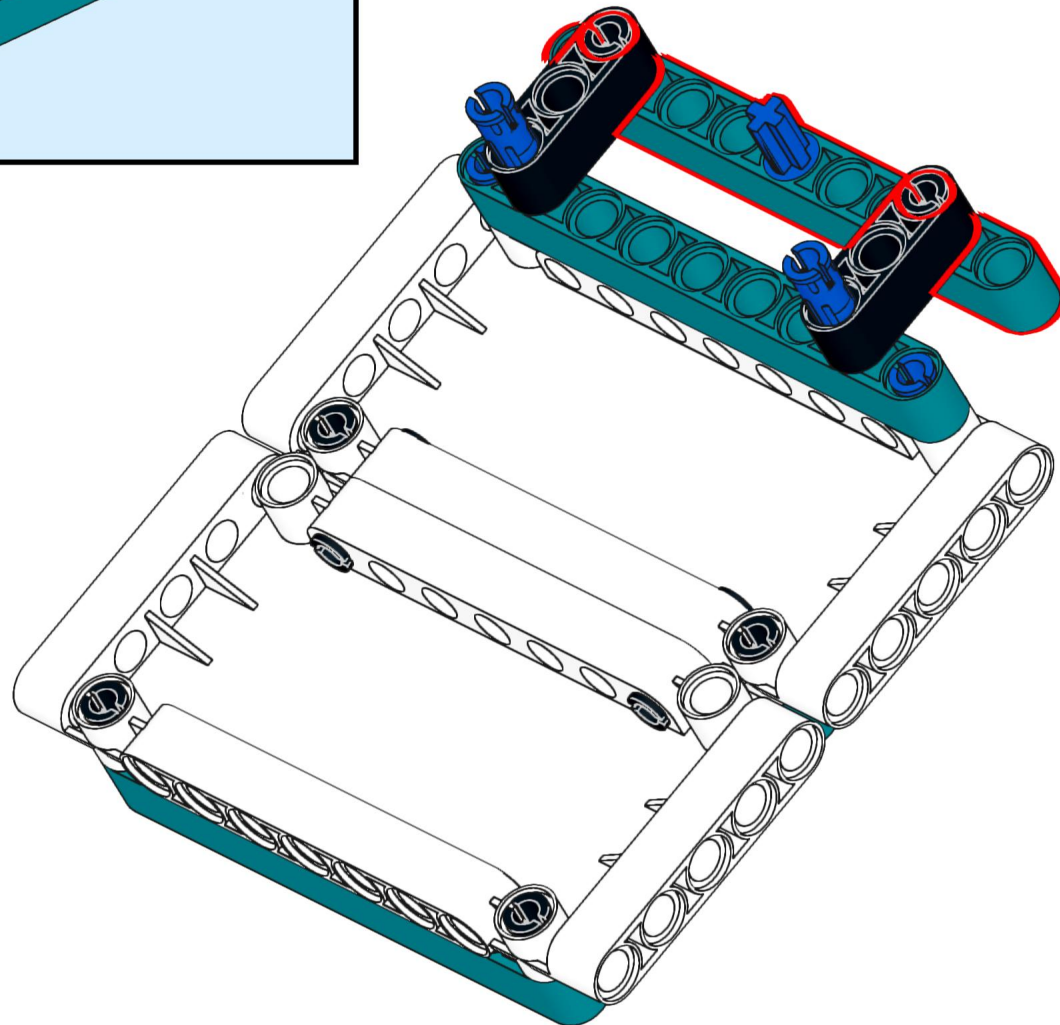
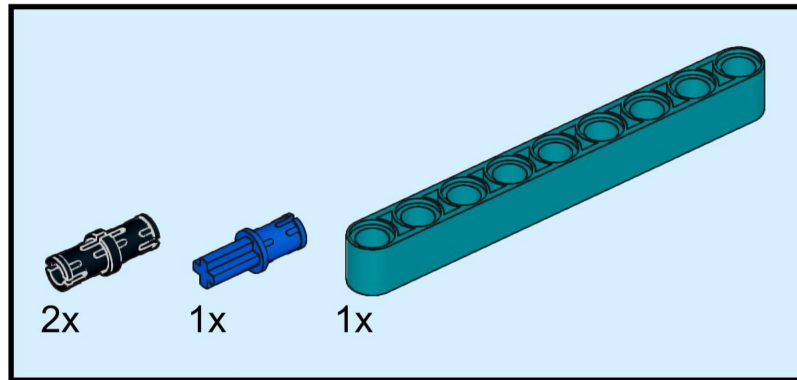
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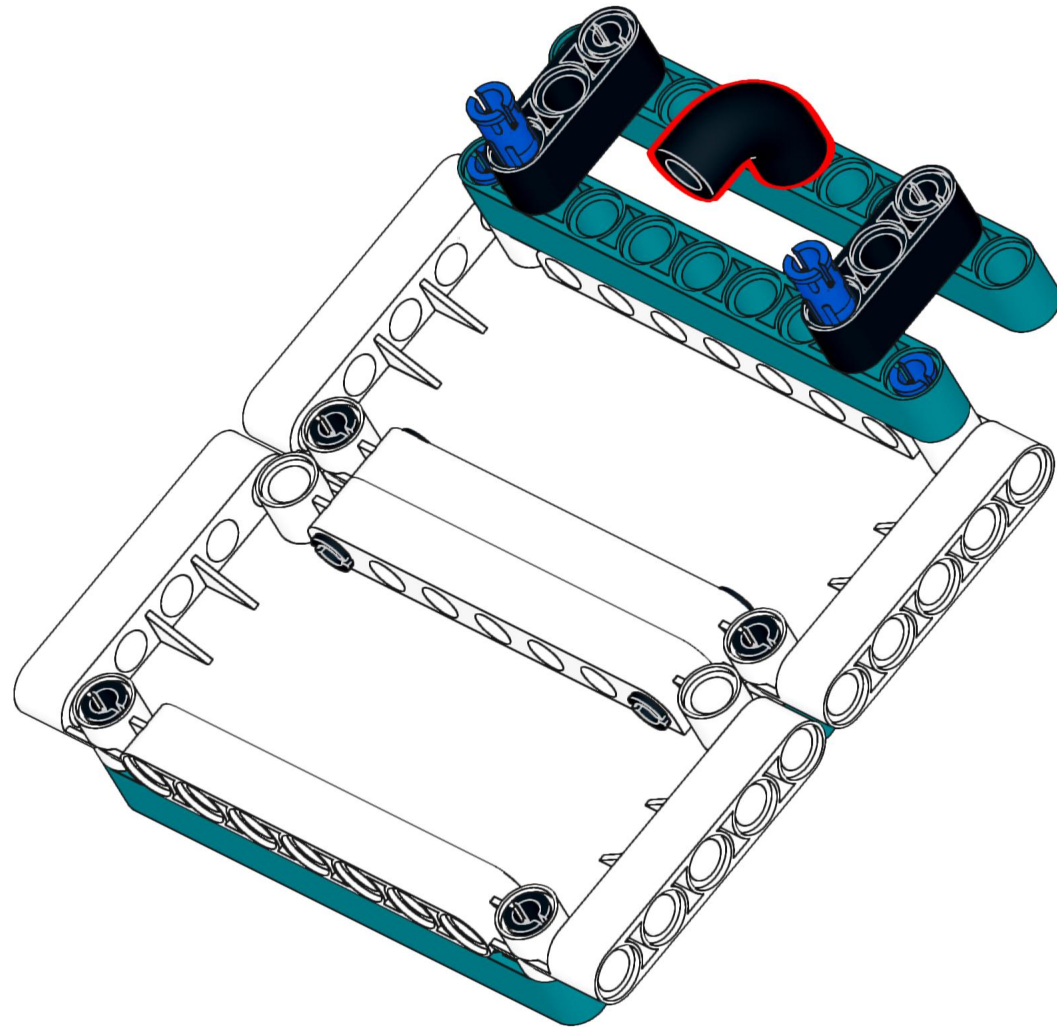
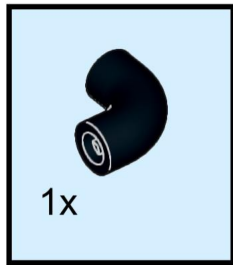
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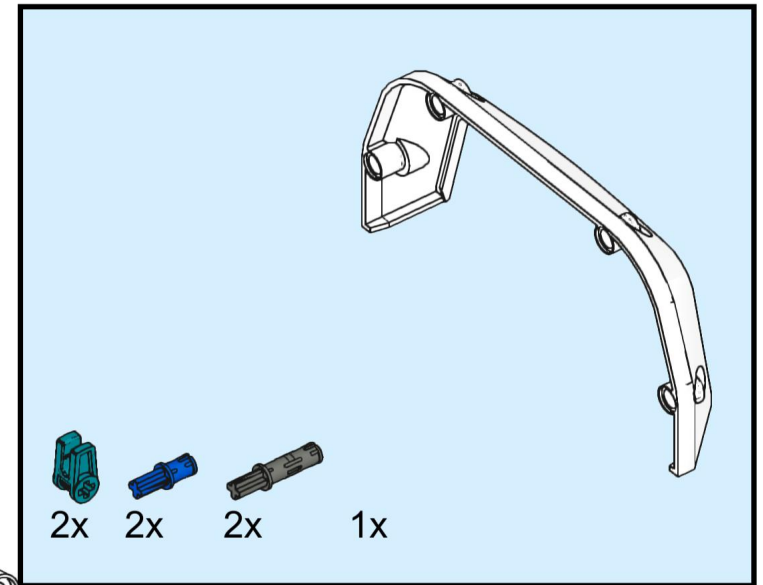
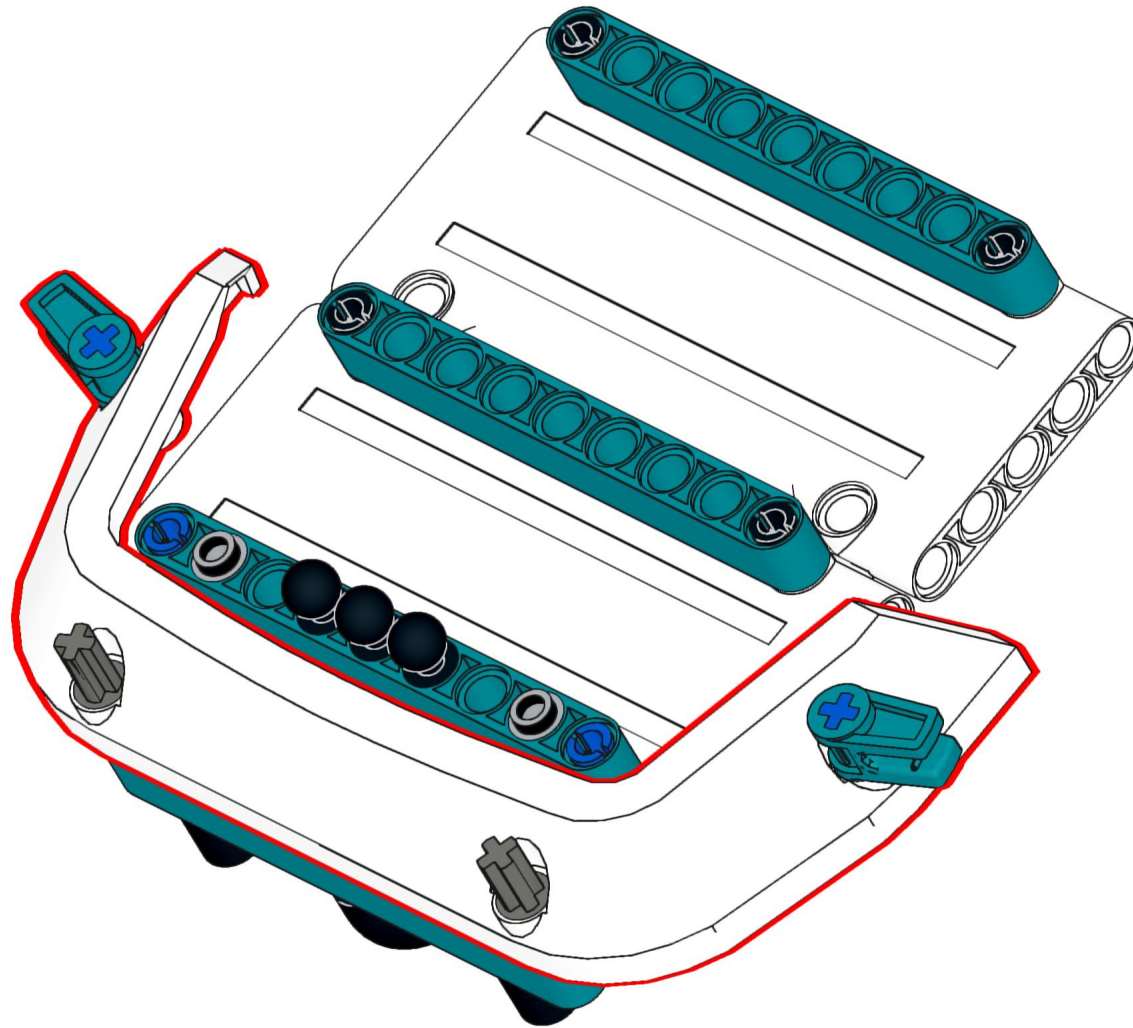
68



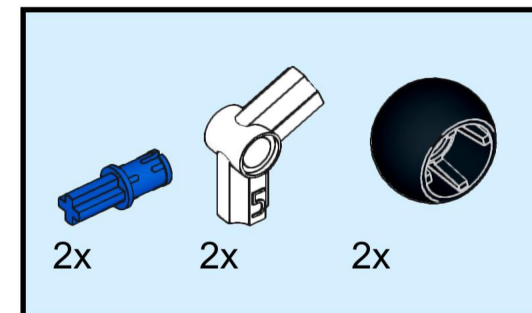
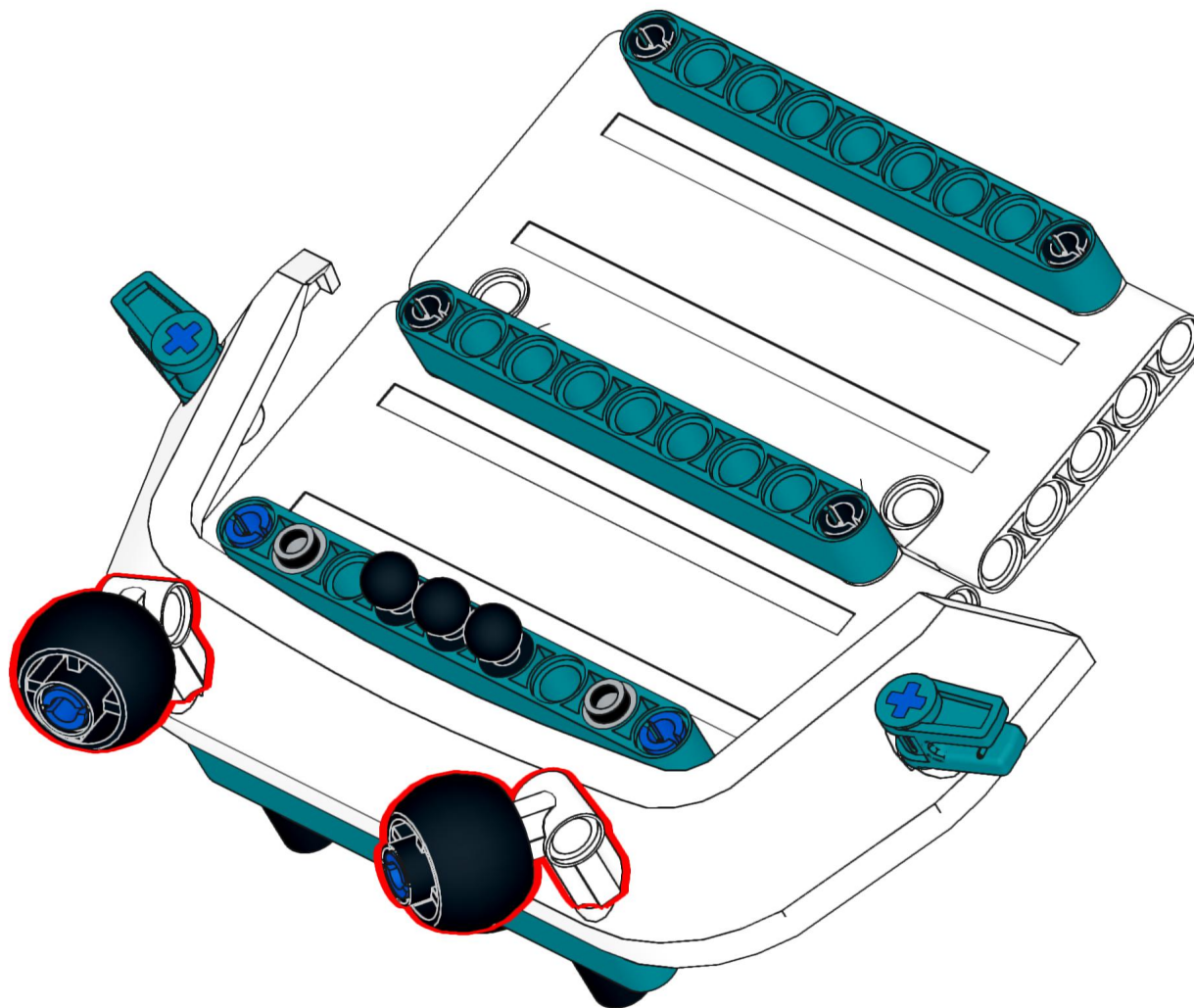
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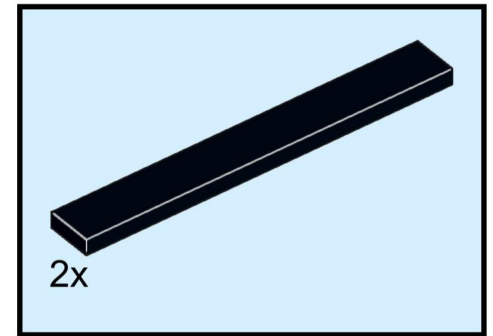
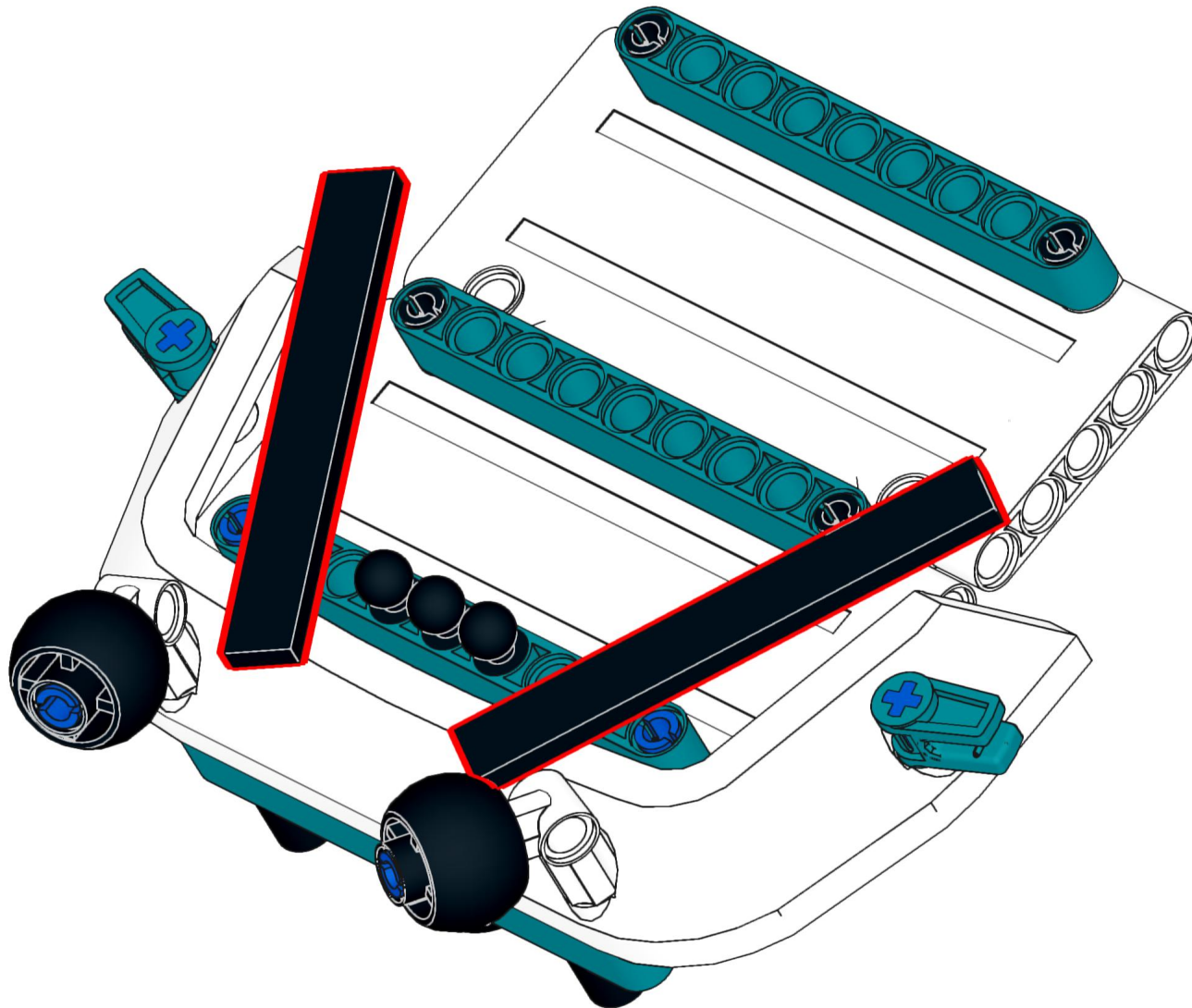
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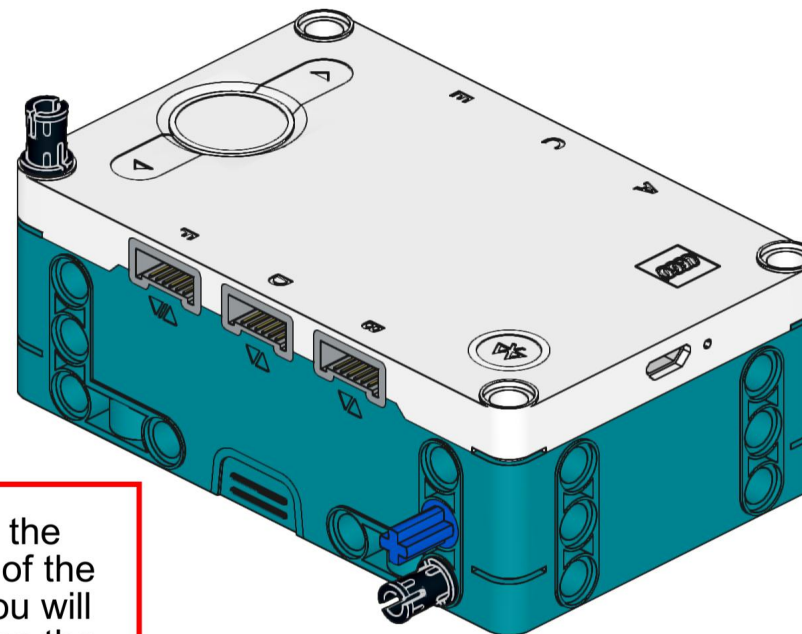
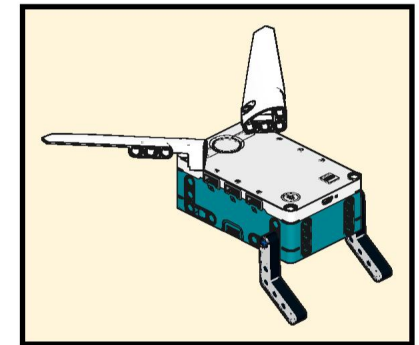
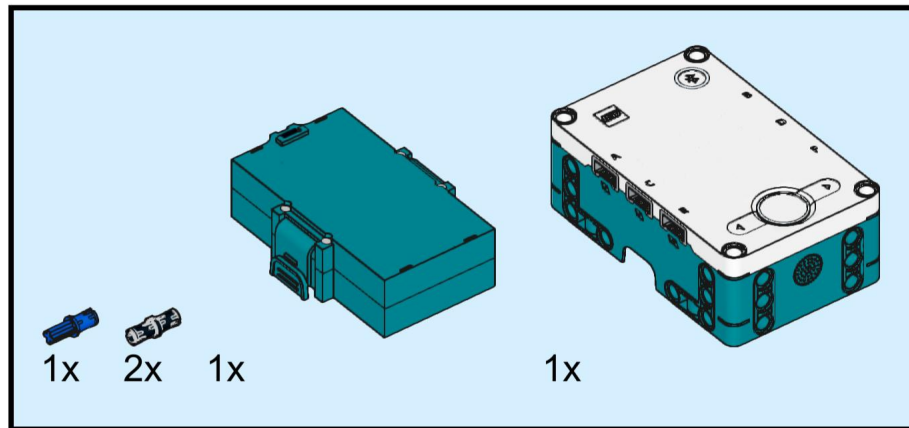
71



72

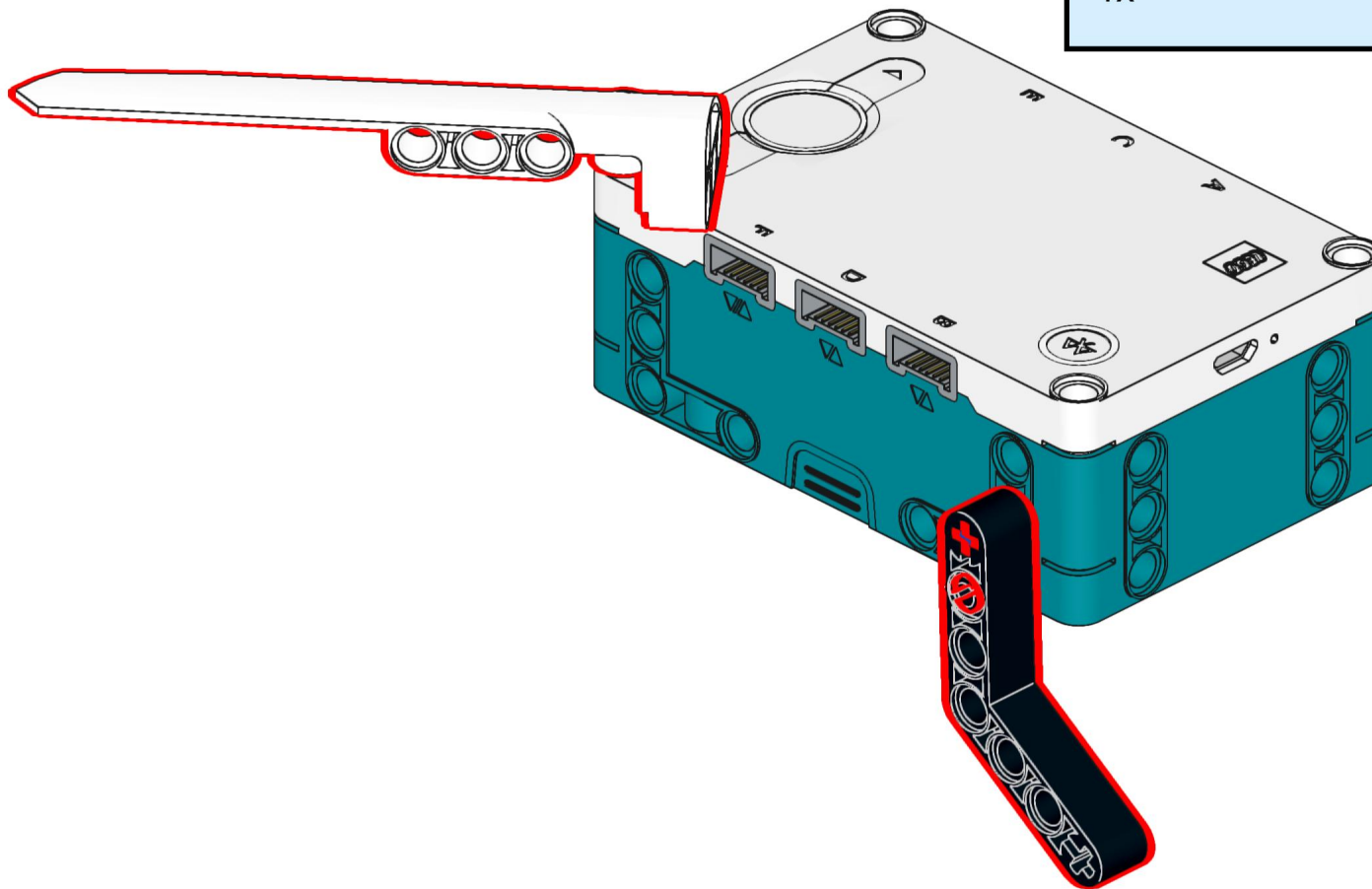
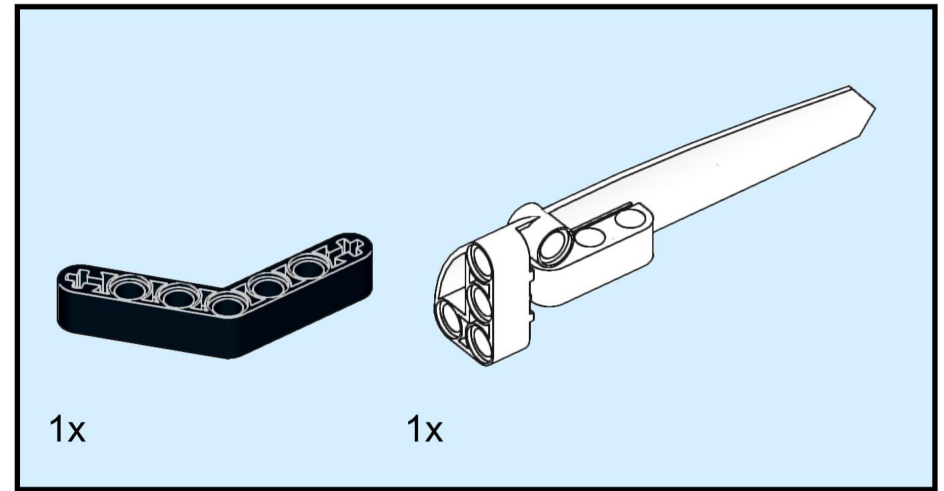


73

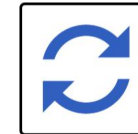
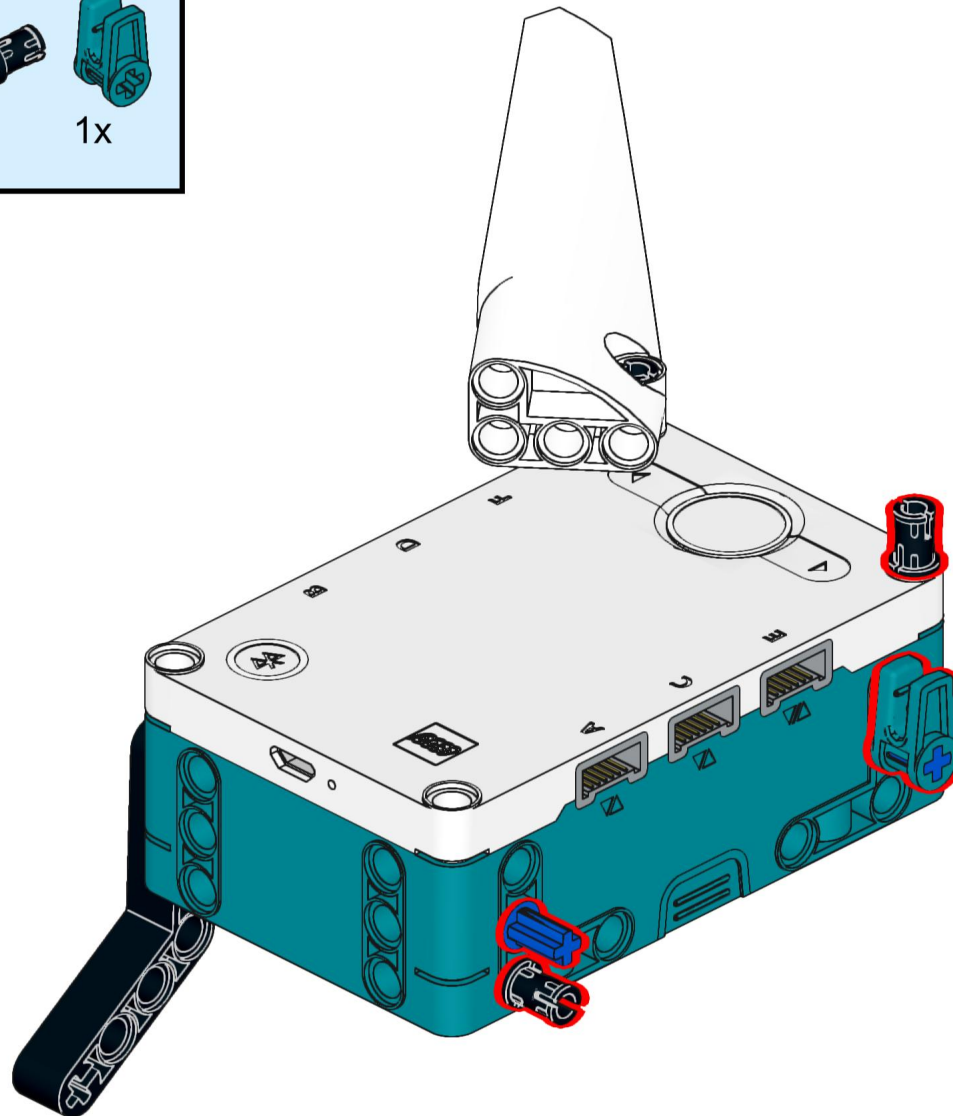
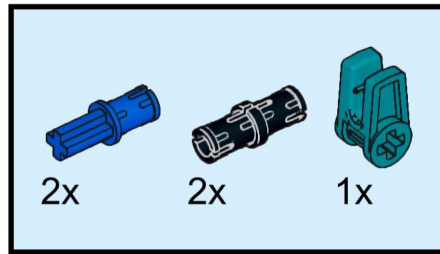


Pay attention to the correct alignment of the hub! Otherwise you will not be able to press the buttons.

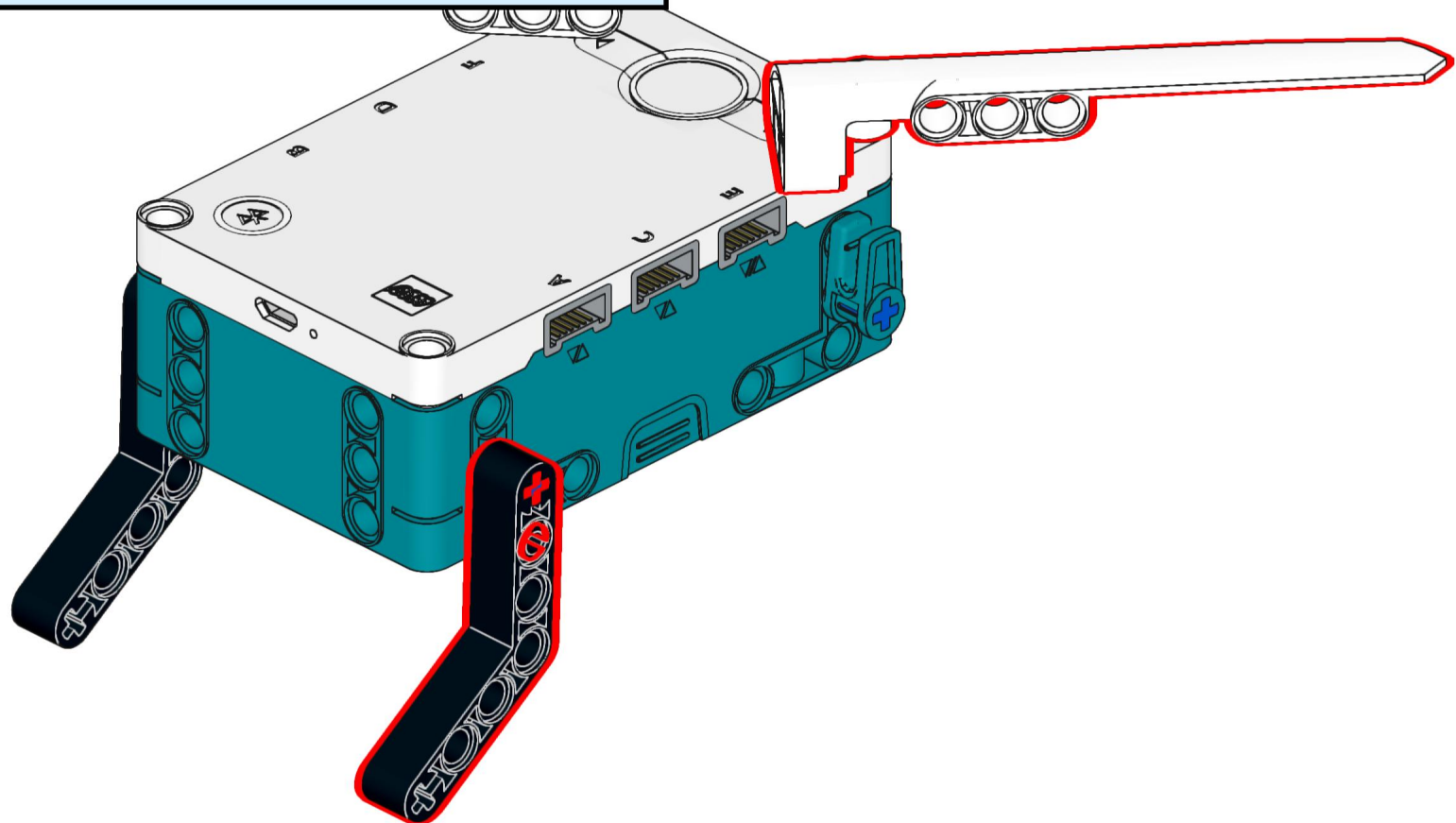
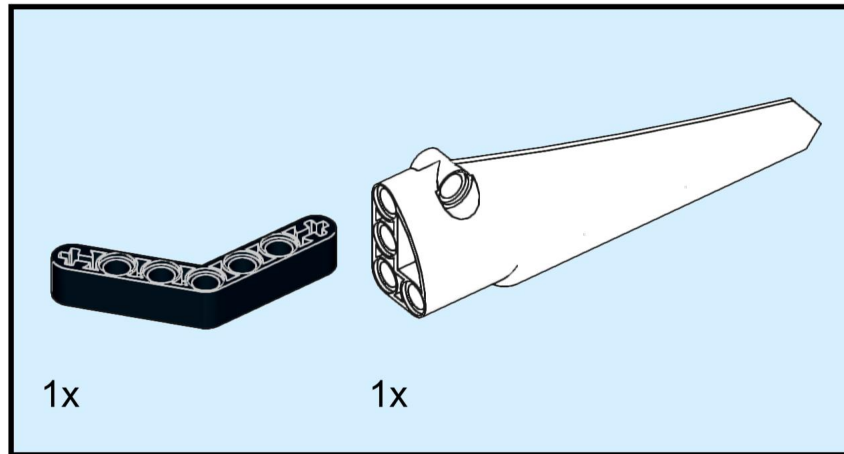
74



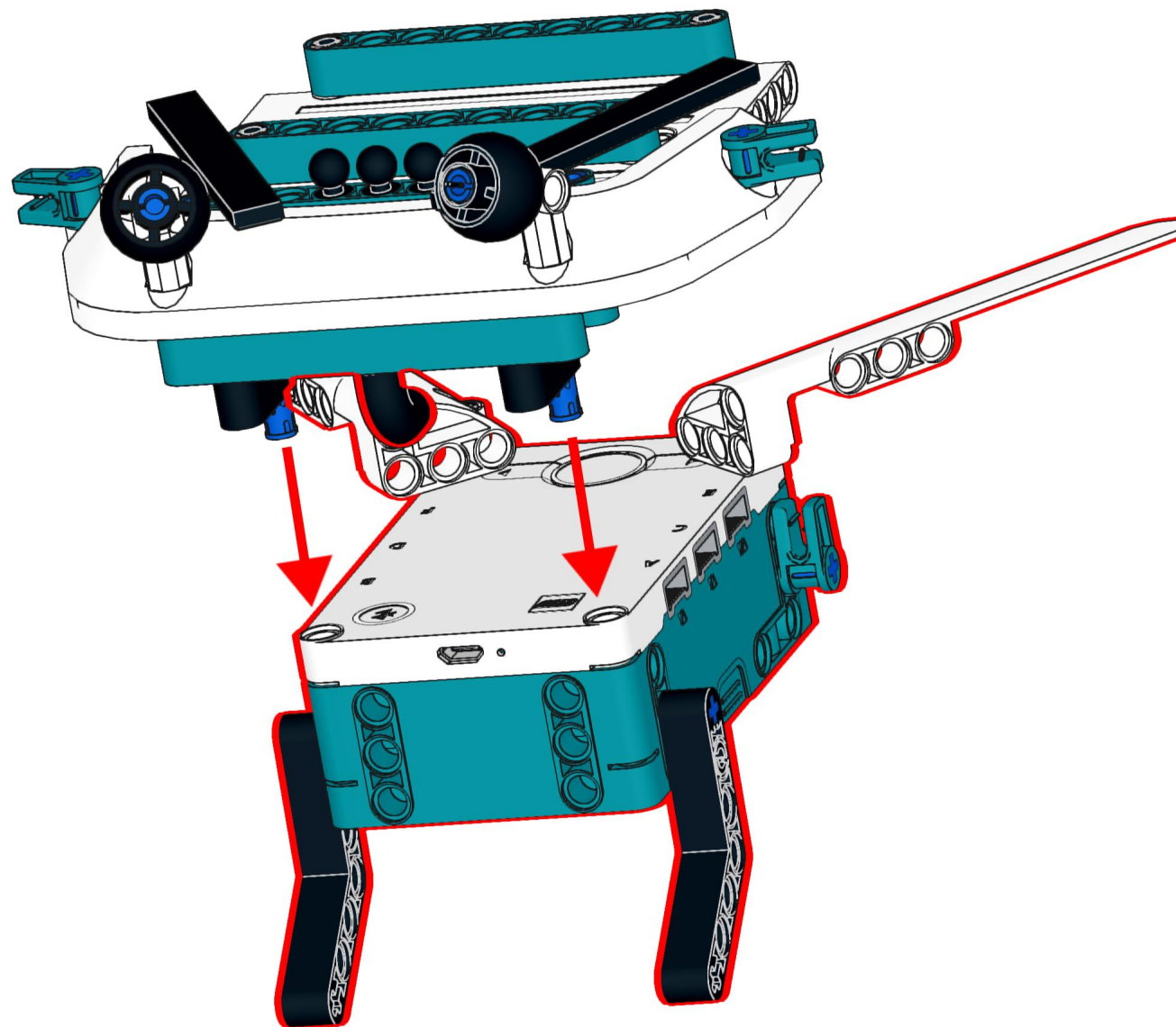
75



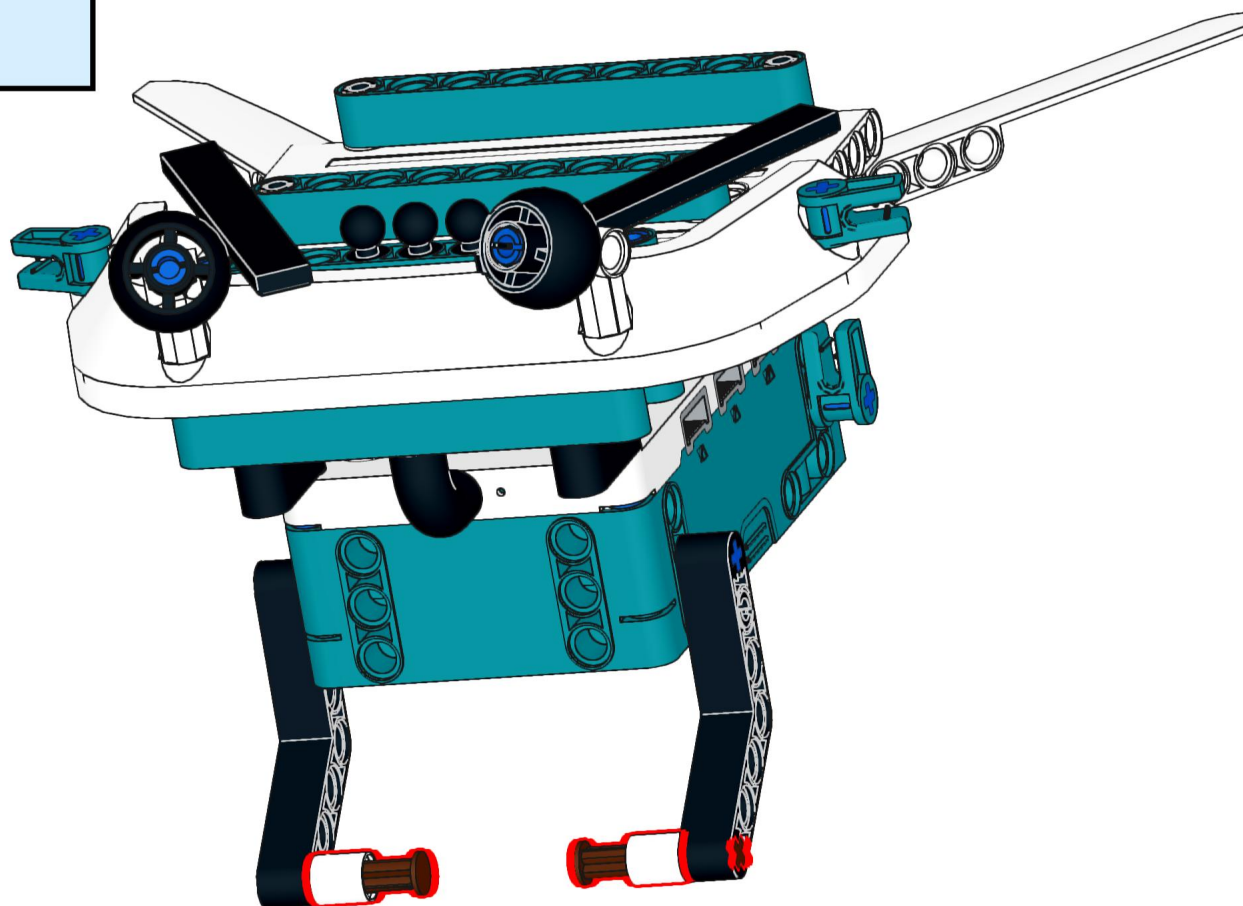
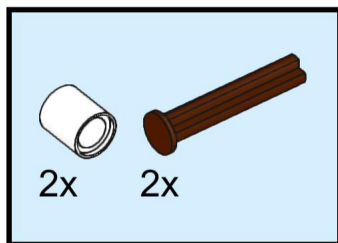
76



77

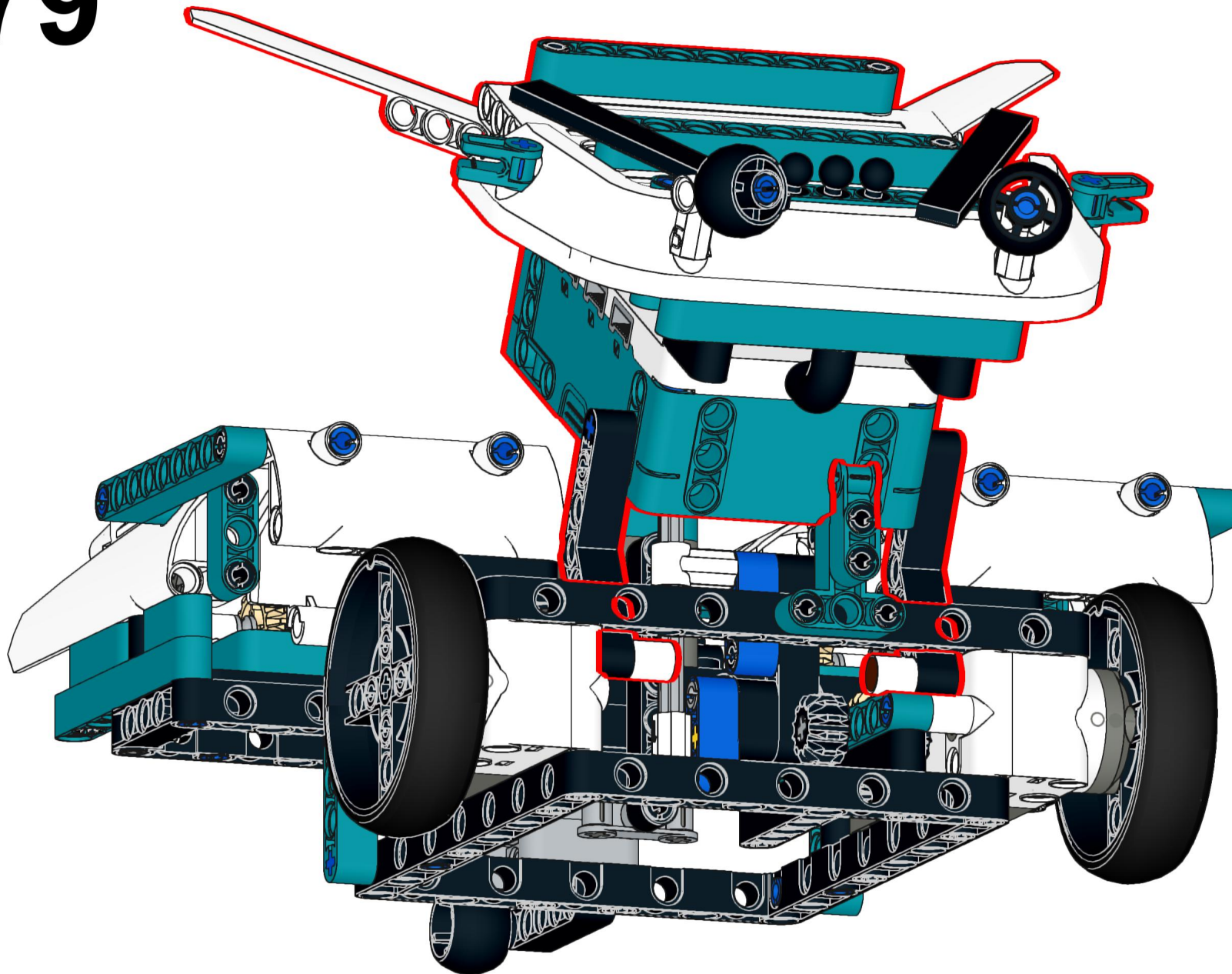


78



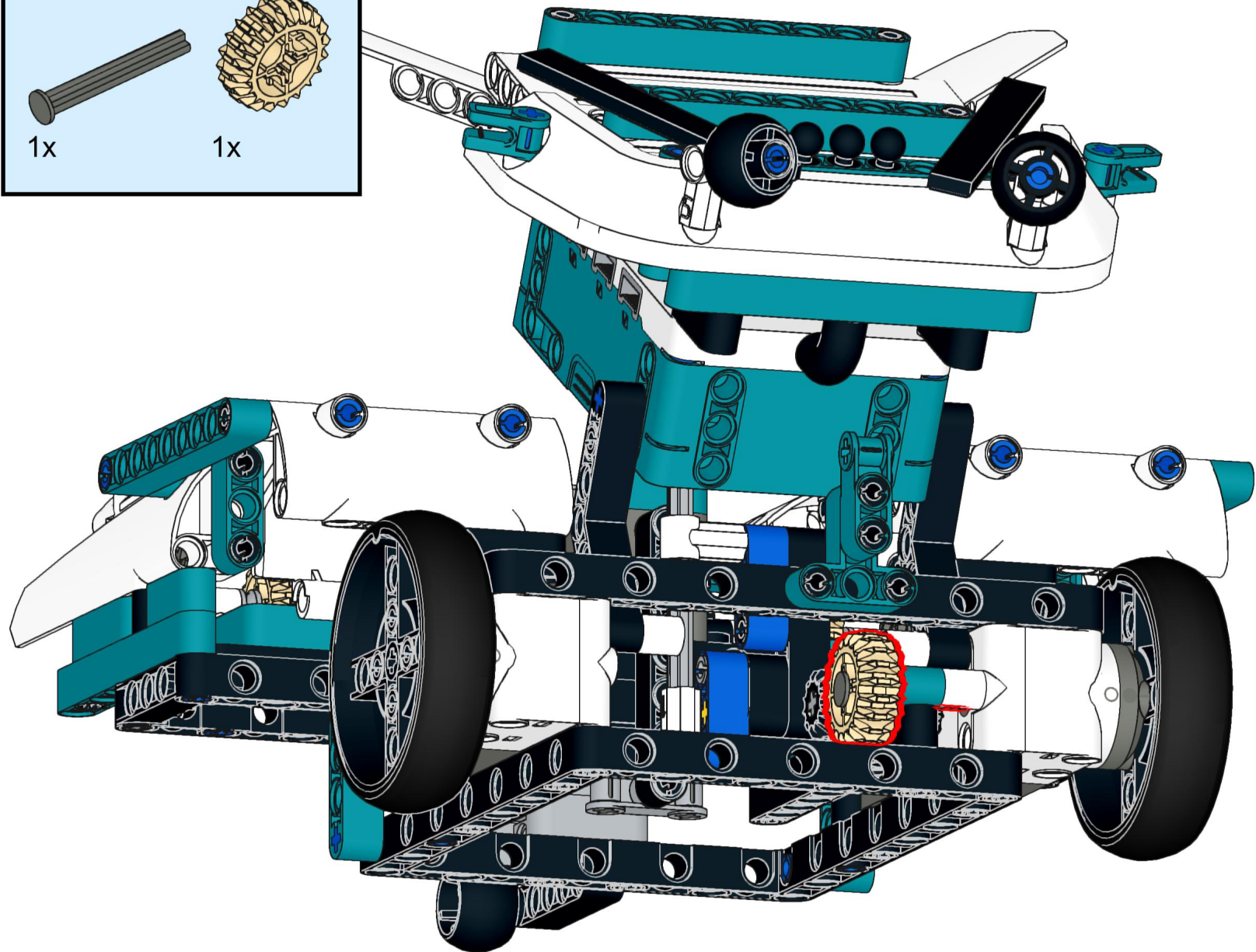
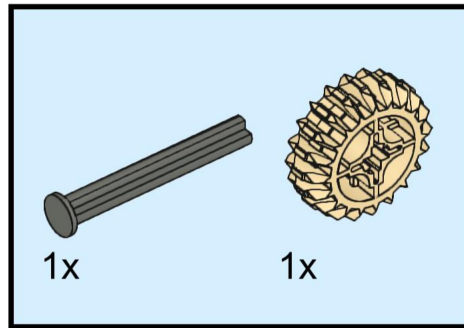
Don't push the
axles all the
way in yet!

79

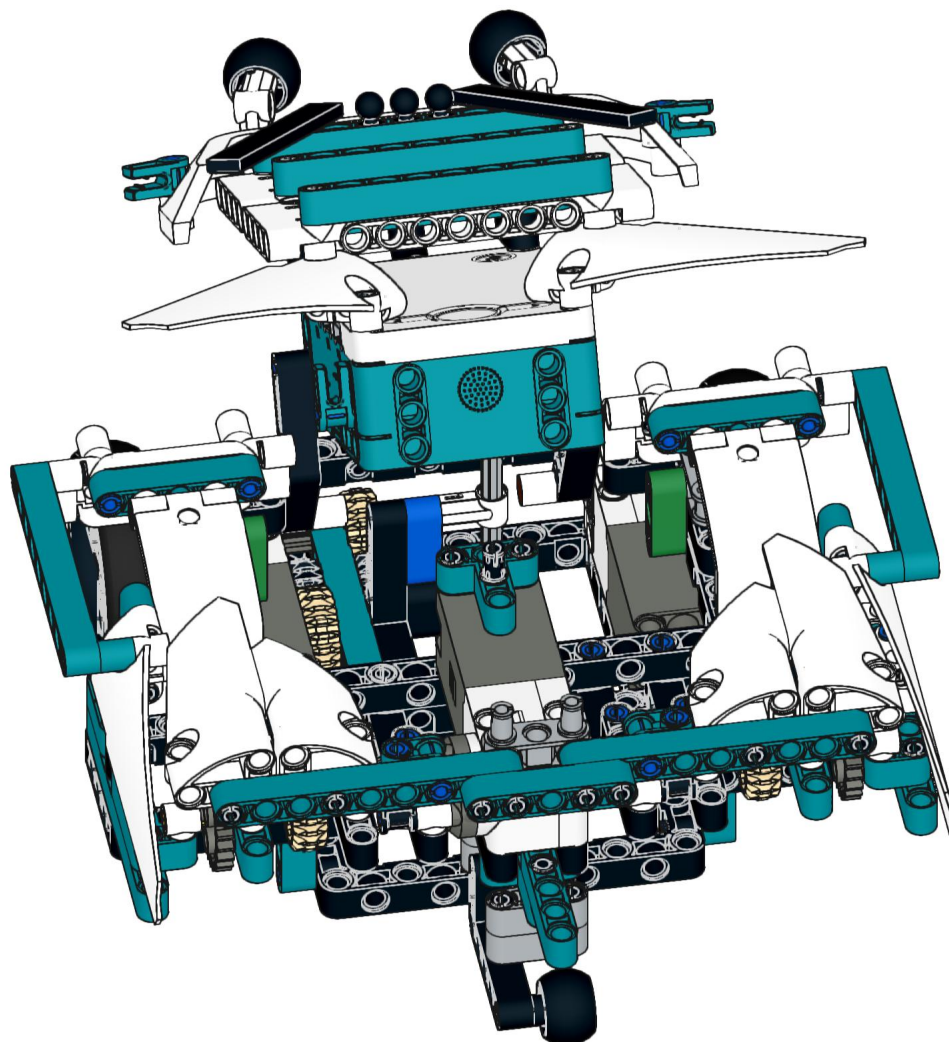


Now push the
two axles all
the way in.

80



81

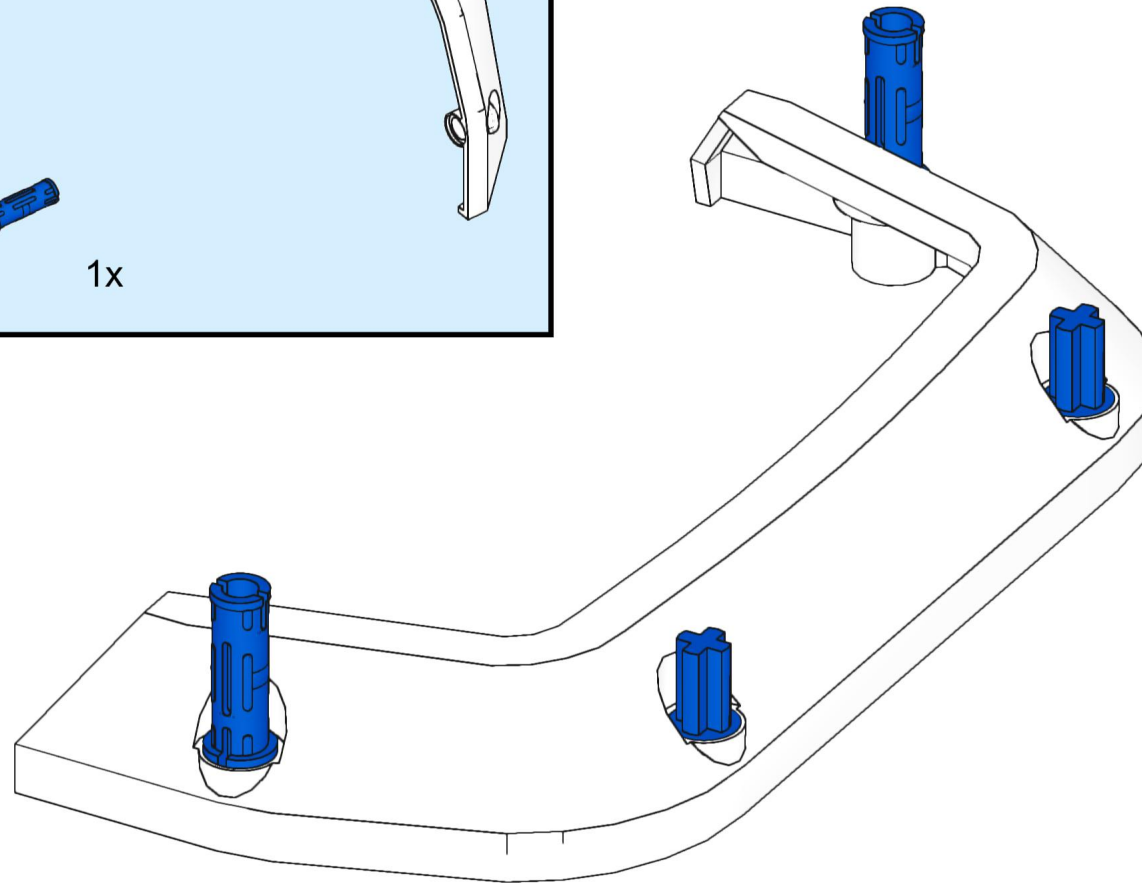
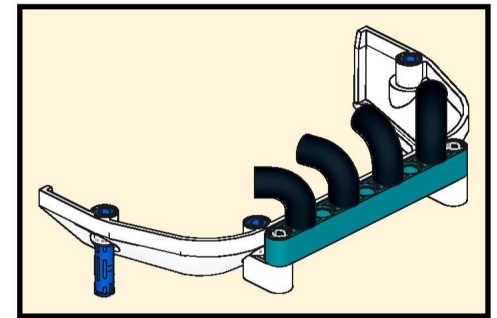
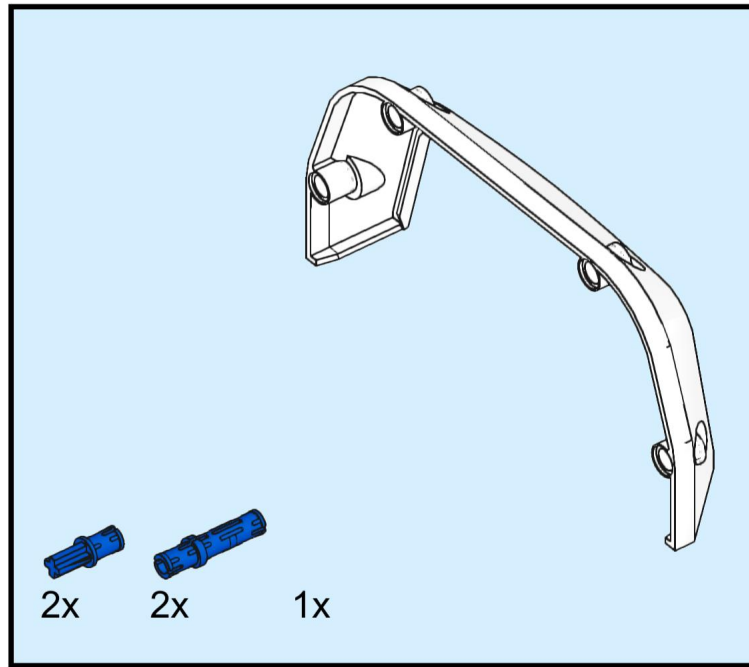


CONNECT
LEFT MOTOR
TO THE HUB
ON PORT C

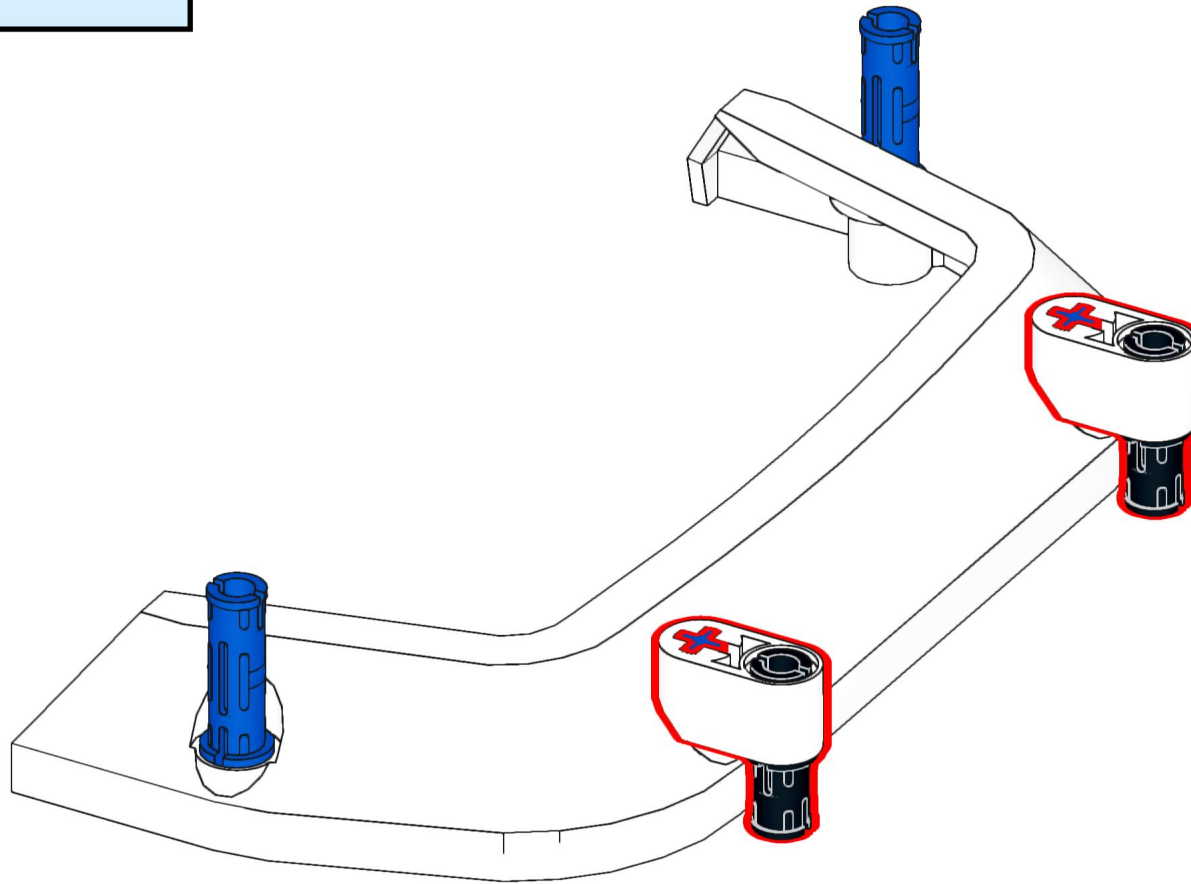
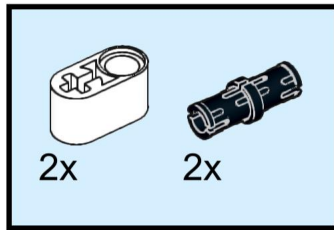
CONNECT
RIGHT MOTOR
TO THE HUB
ON PORT F

CONNECT
CENTER MOTOR
(SHOOTER) TO
THE HUB ON
PORT D

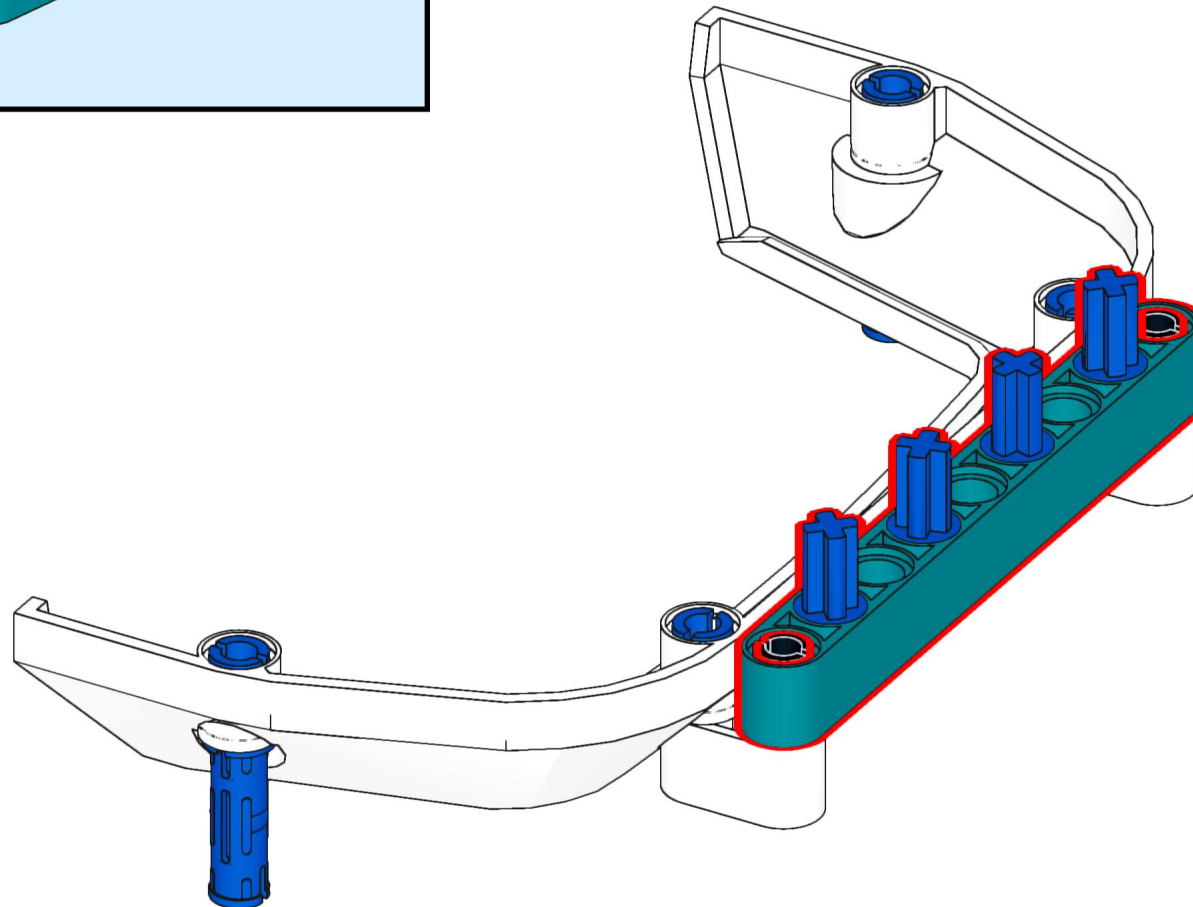
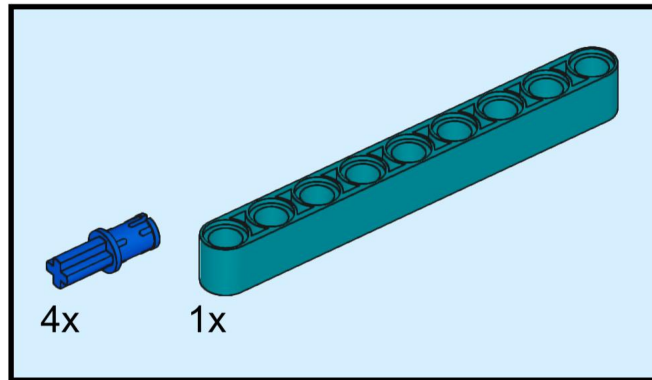
82



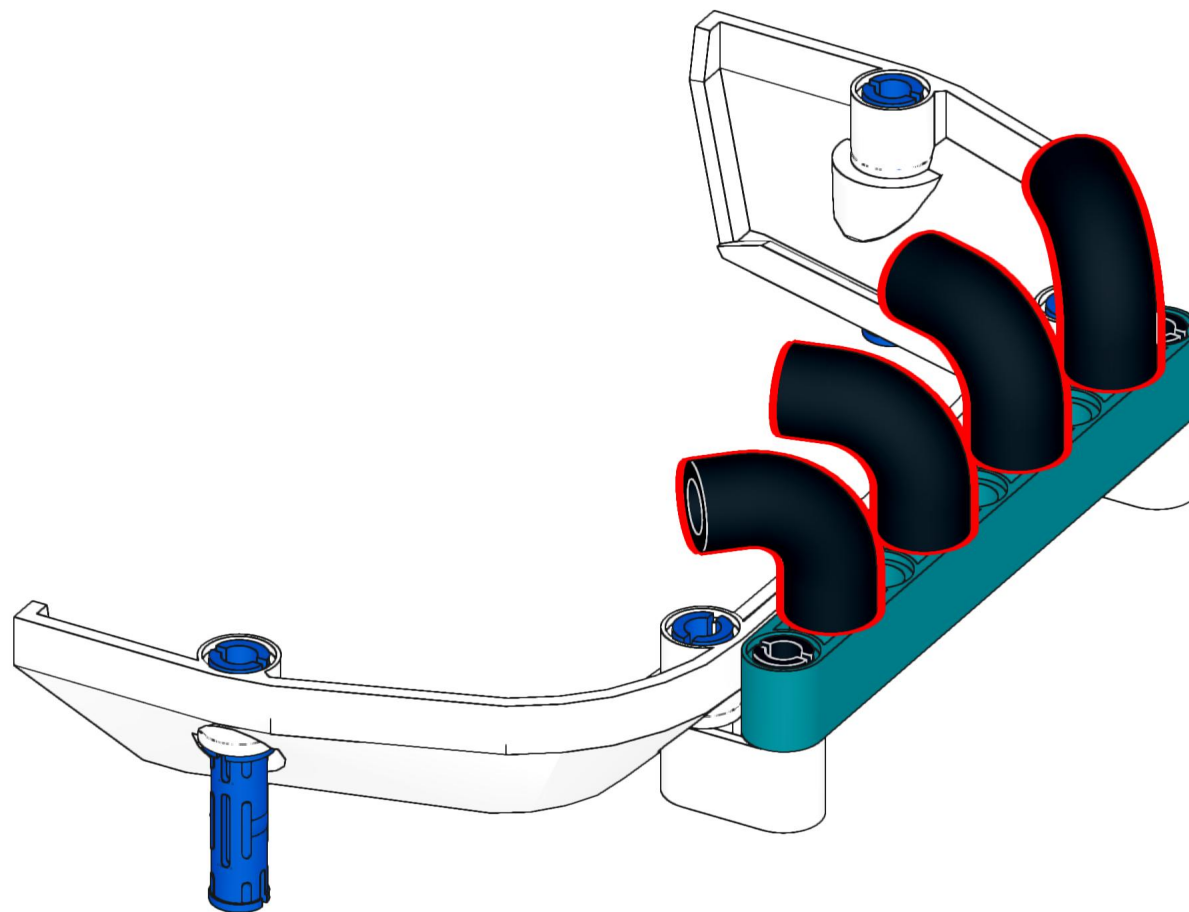
83



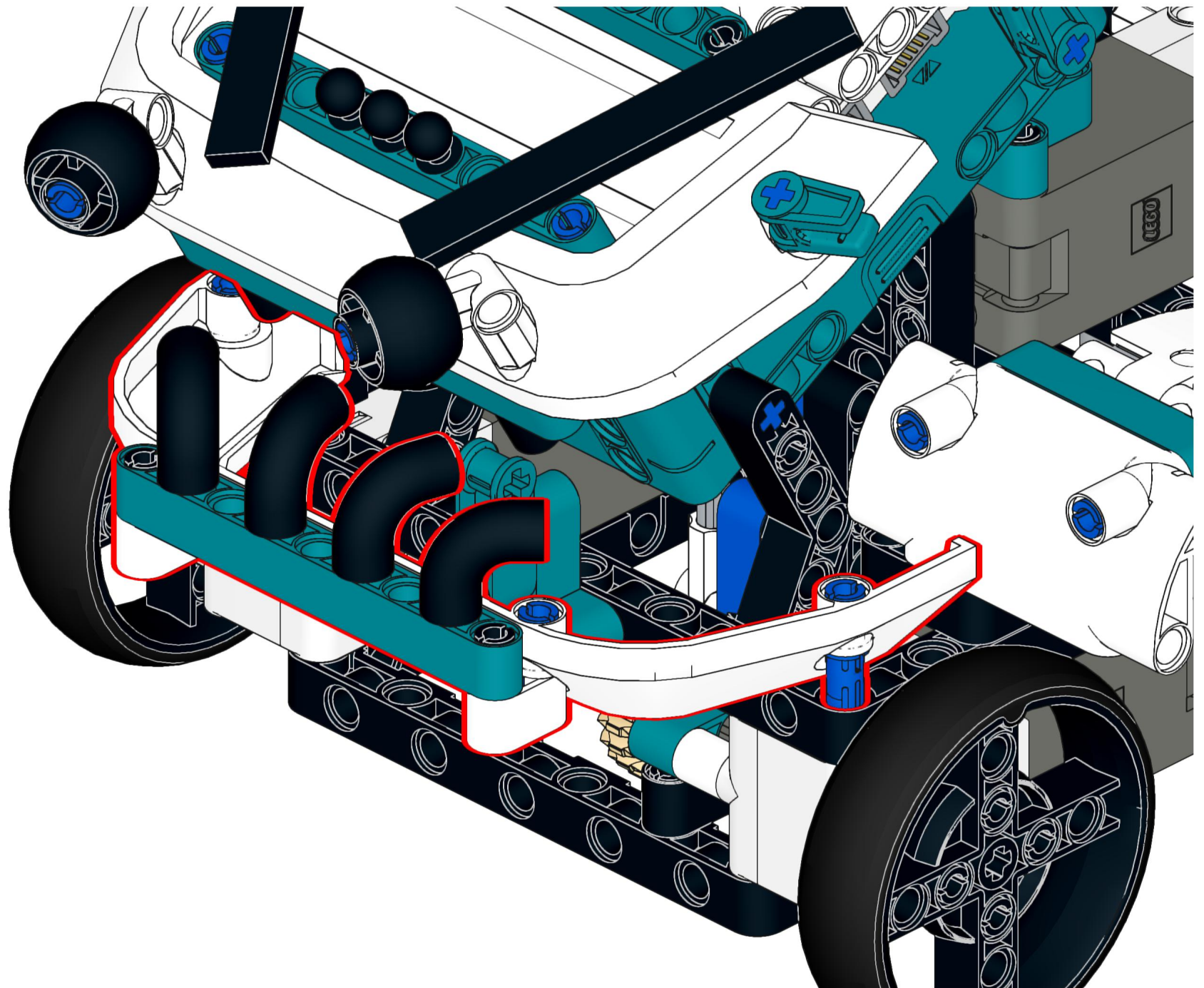
84



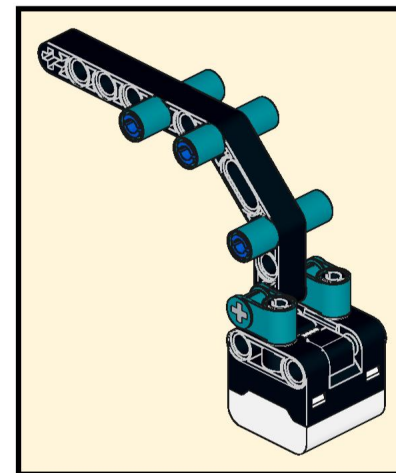
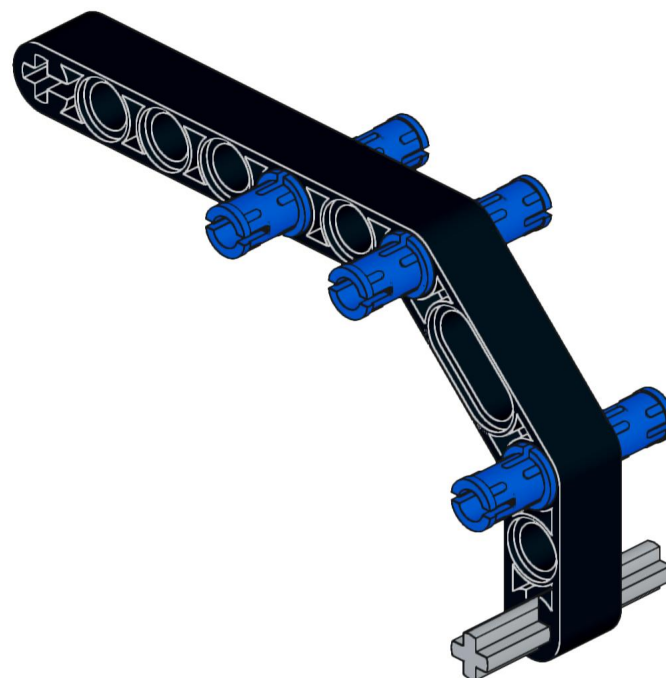
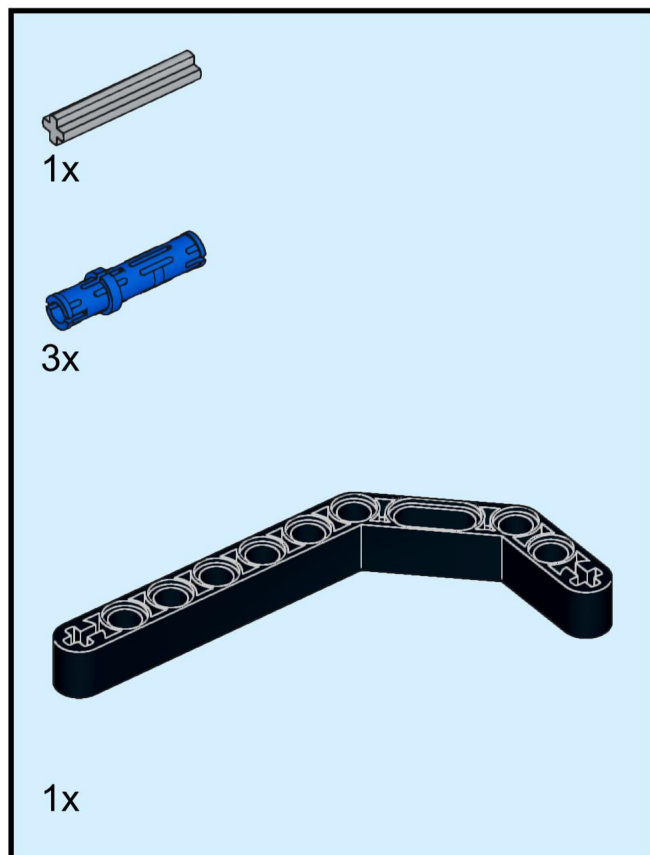
85



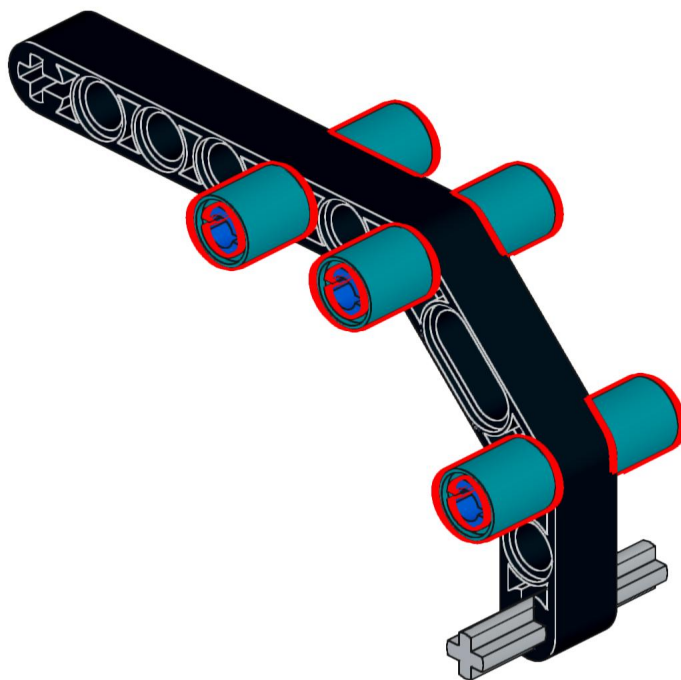
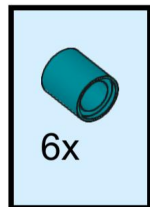
86



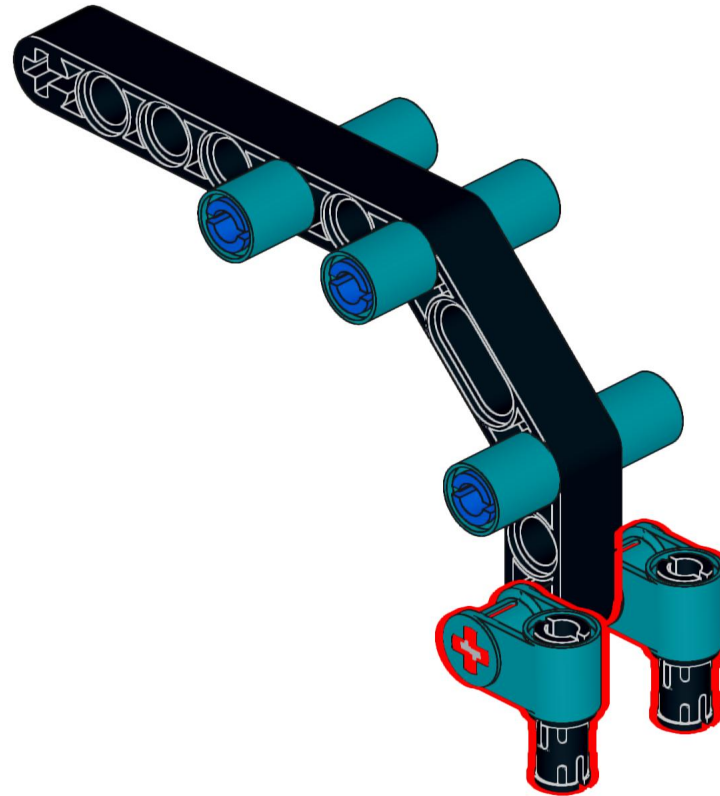
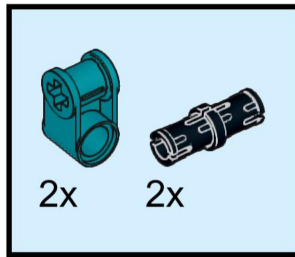
87



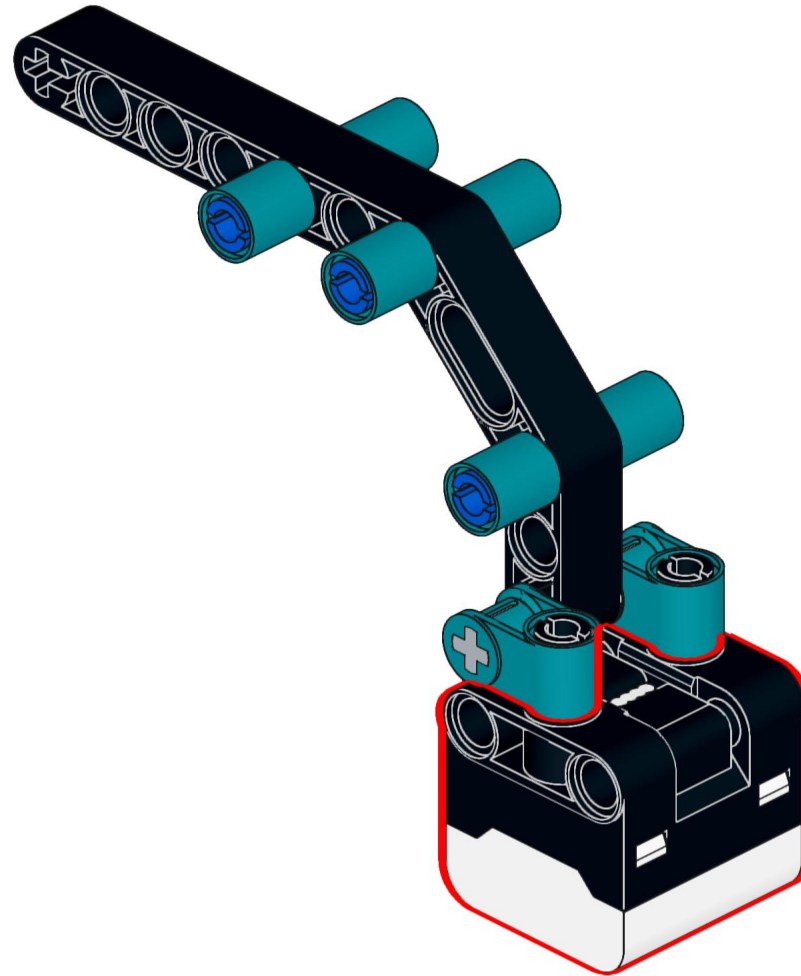
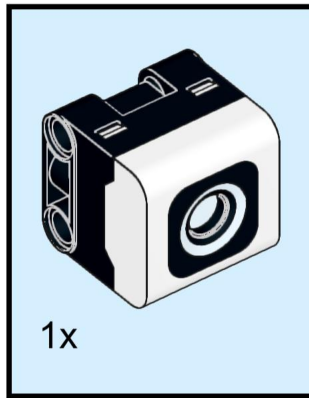
88



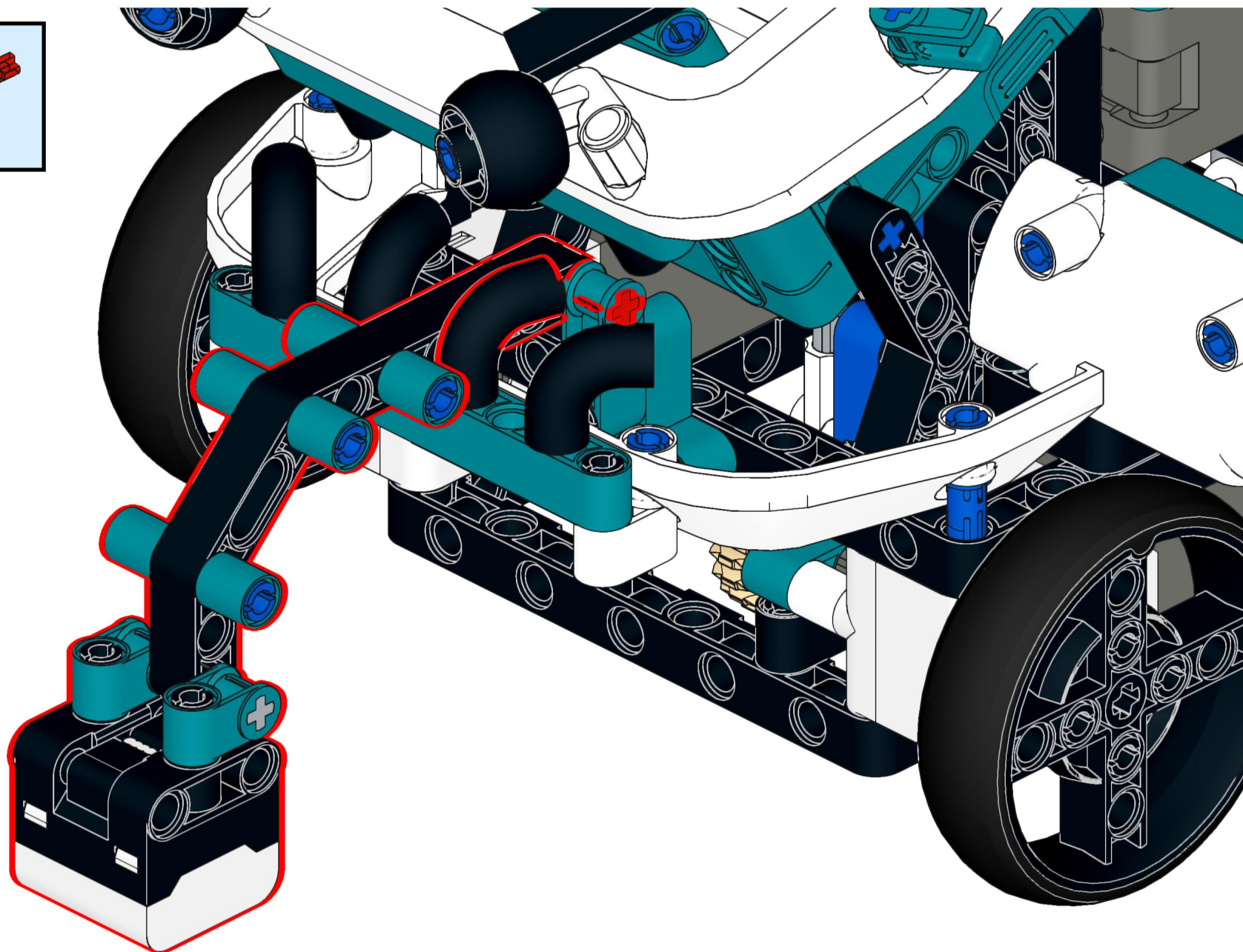
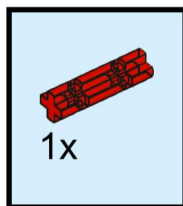
89



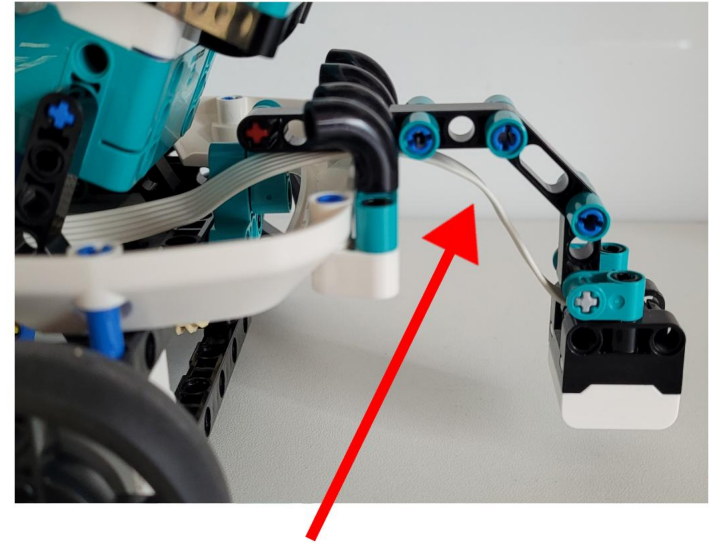
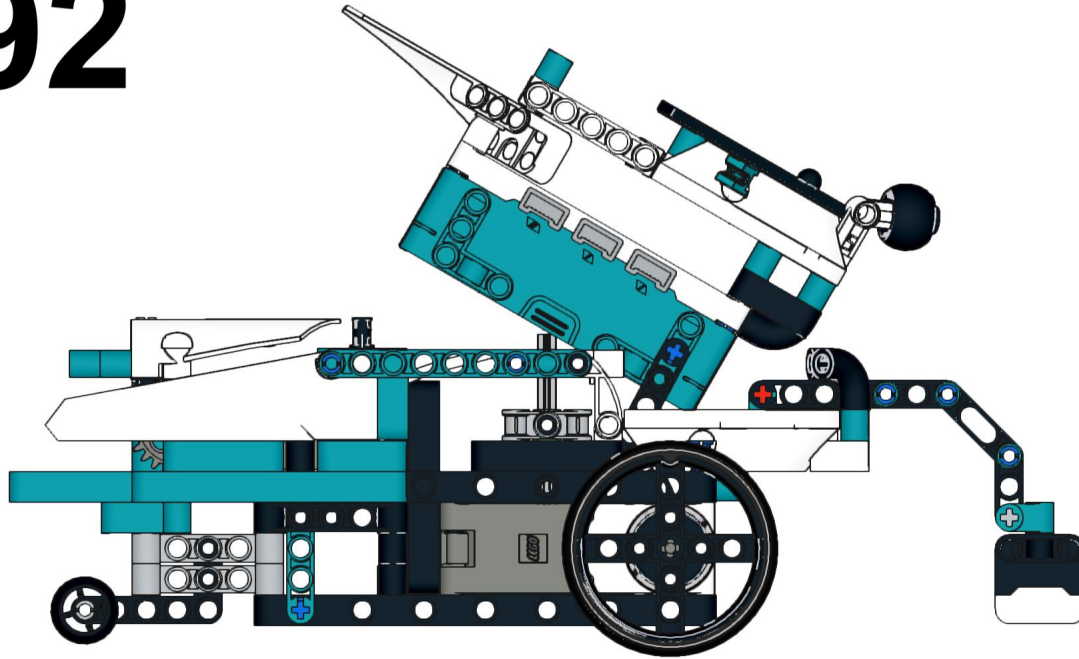
90



91



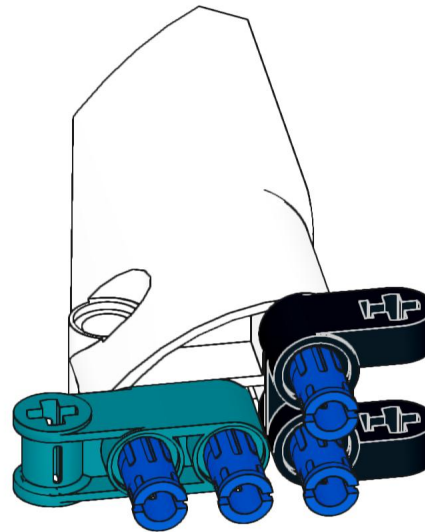
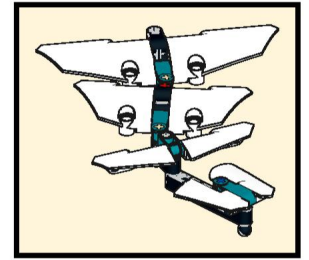
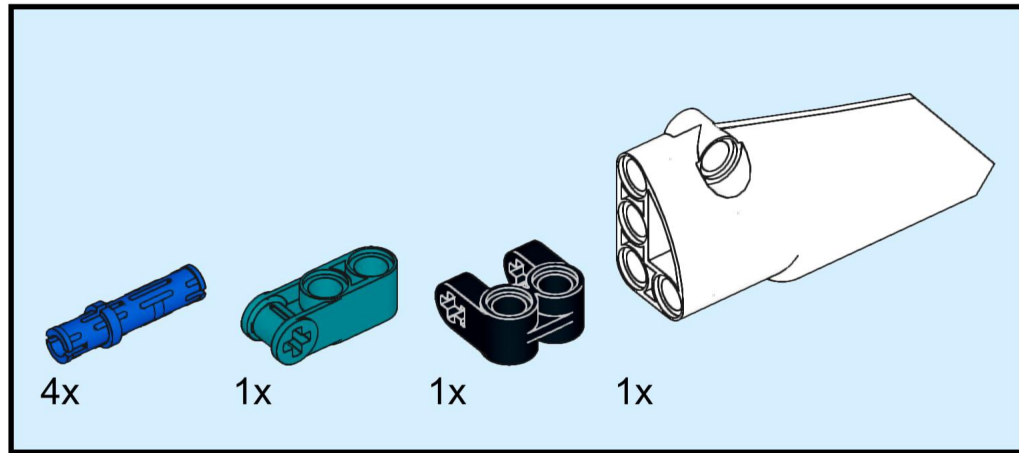
92



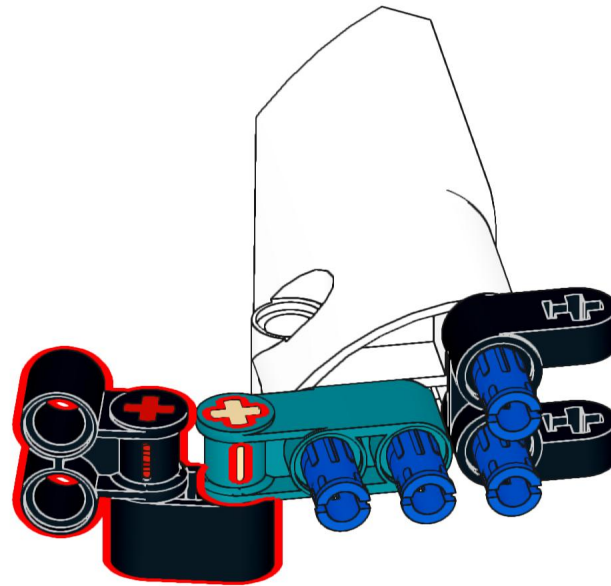
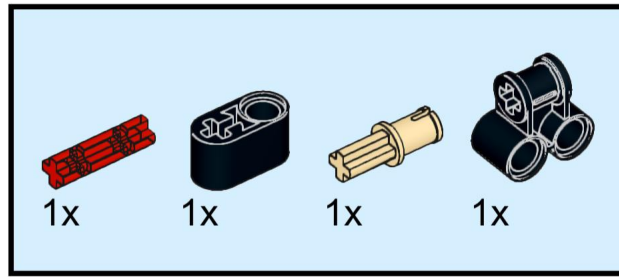
PAY ATTENTION TO THE
CABLE ROUTING!

CONNECT LIGHT SENSOR
TO THE HUB ON PORT B

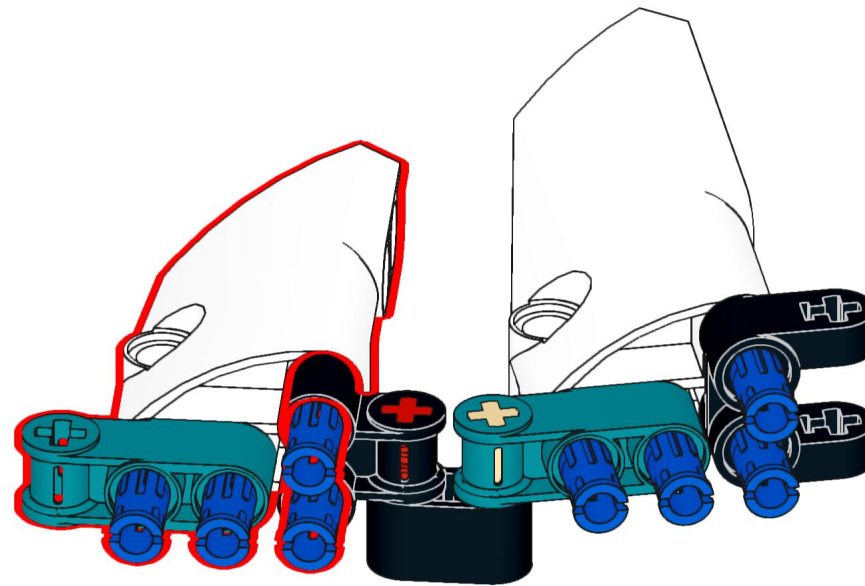
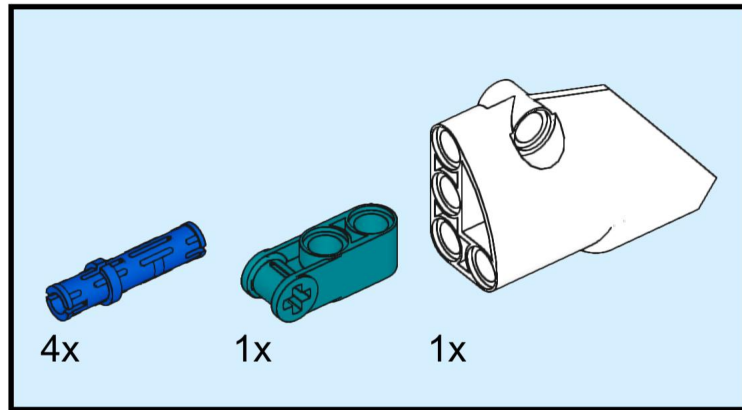
93



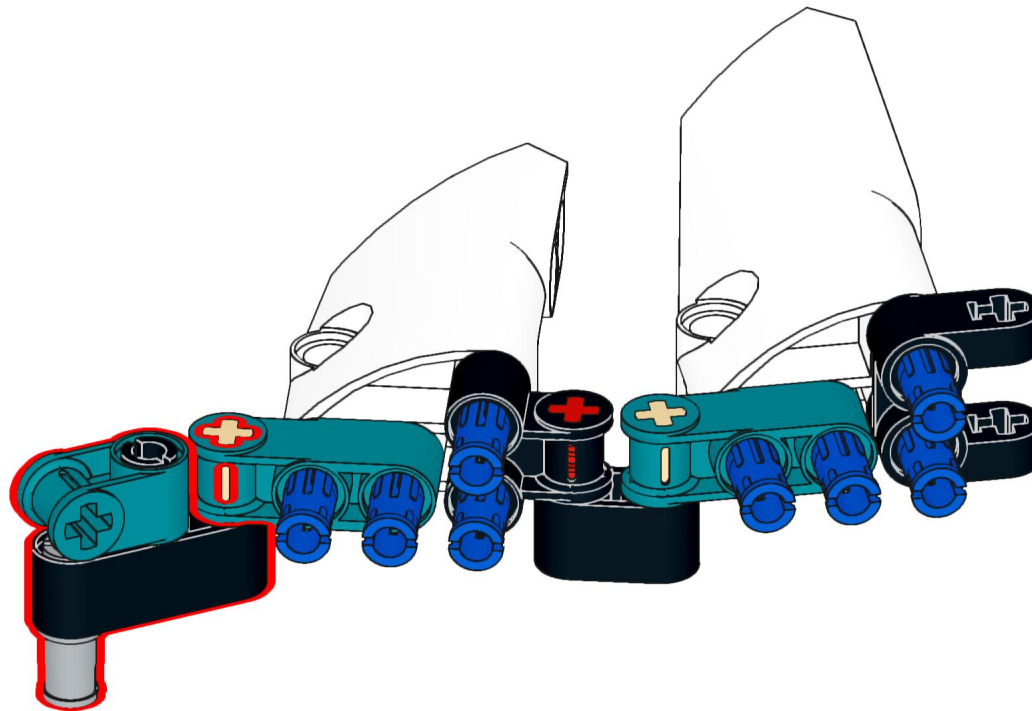
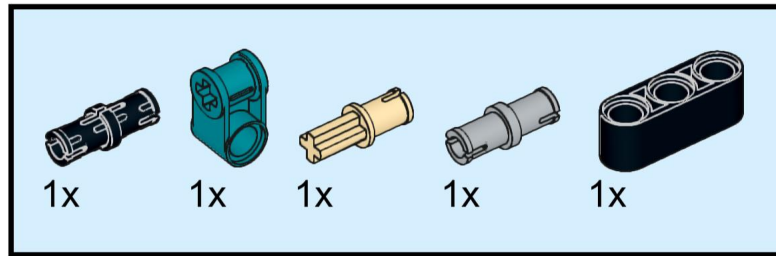
94



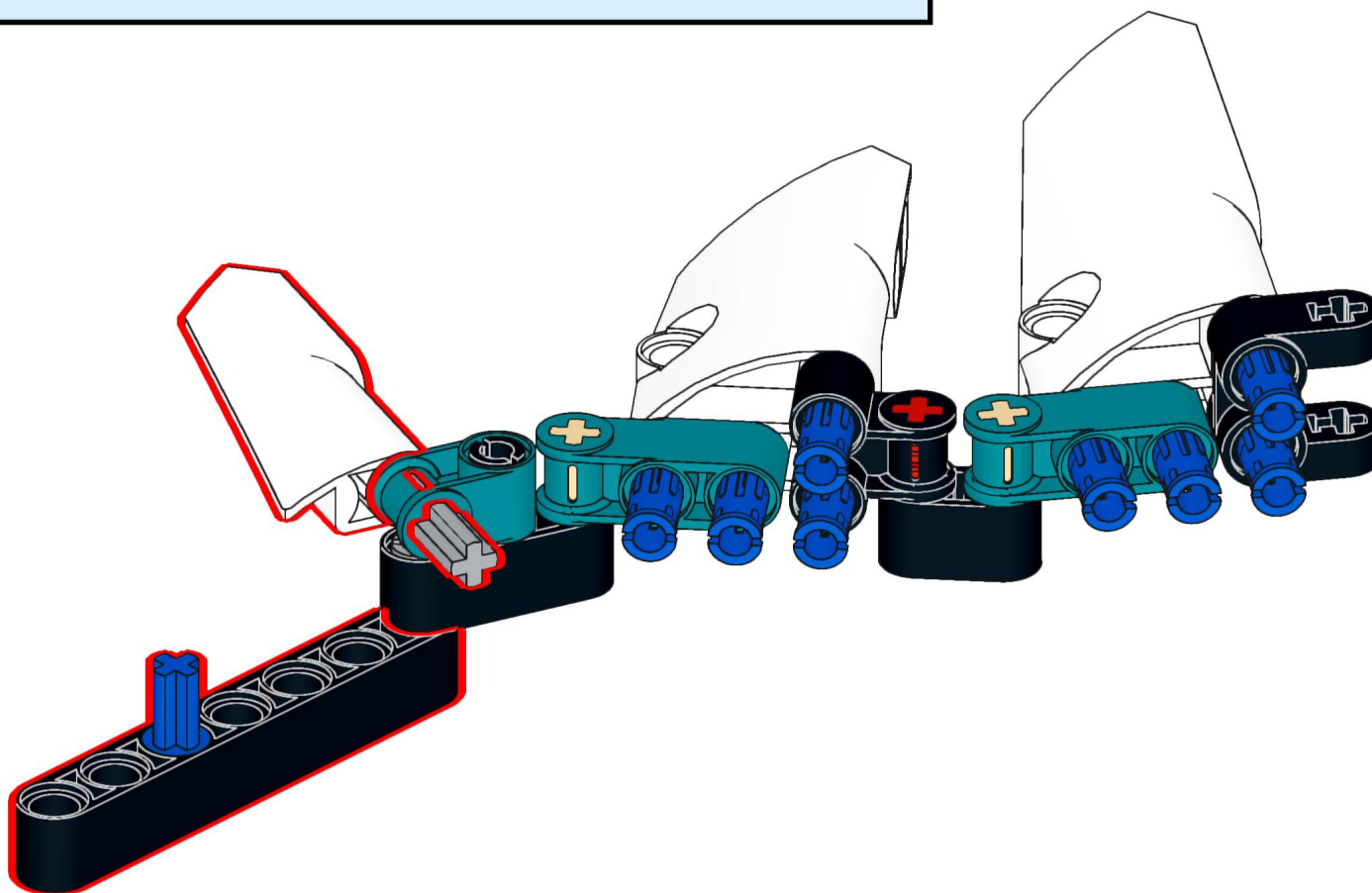
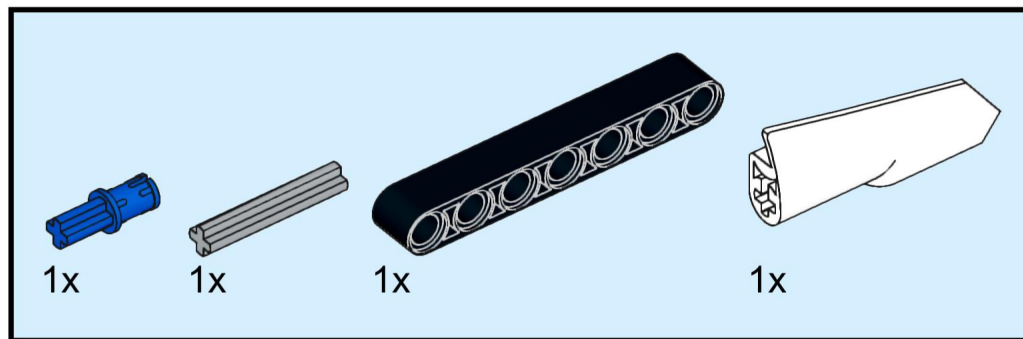
95



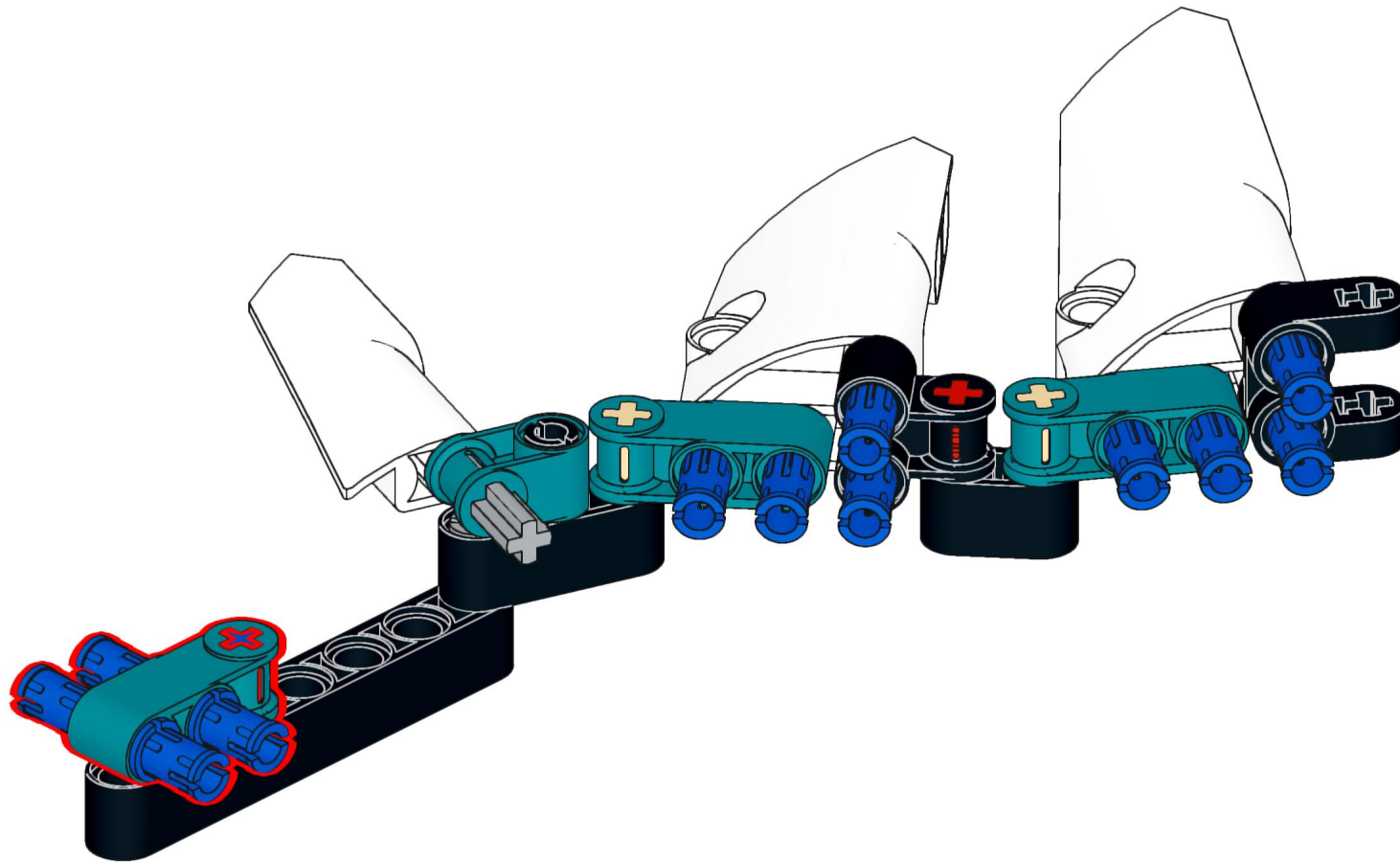
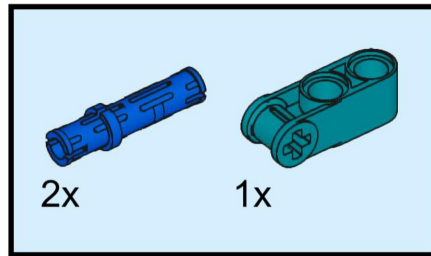
96



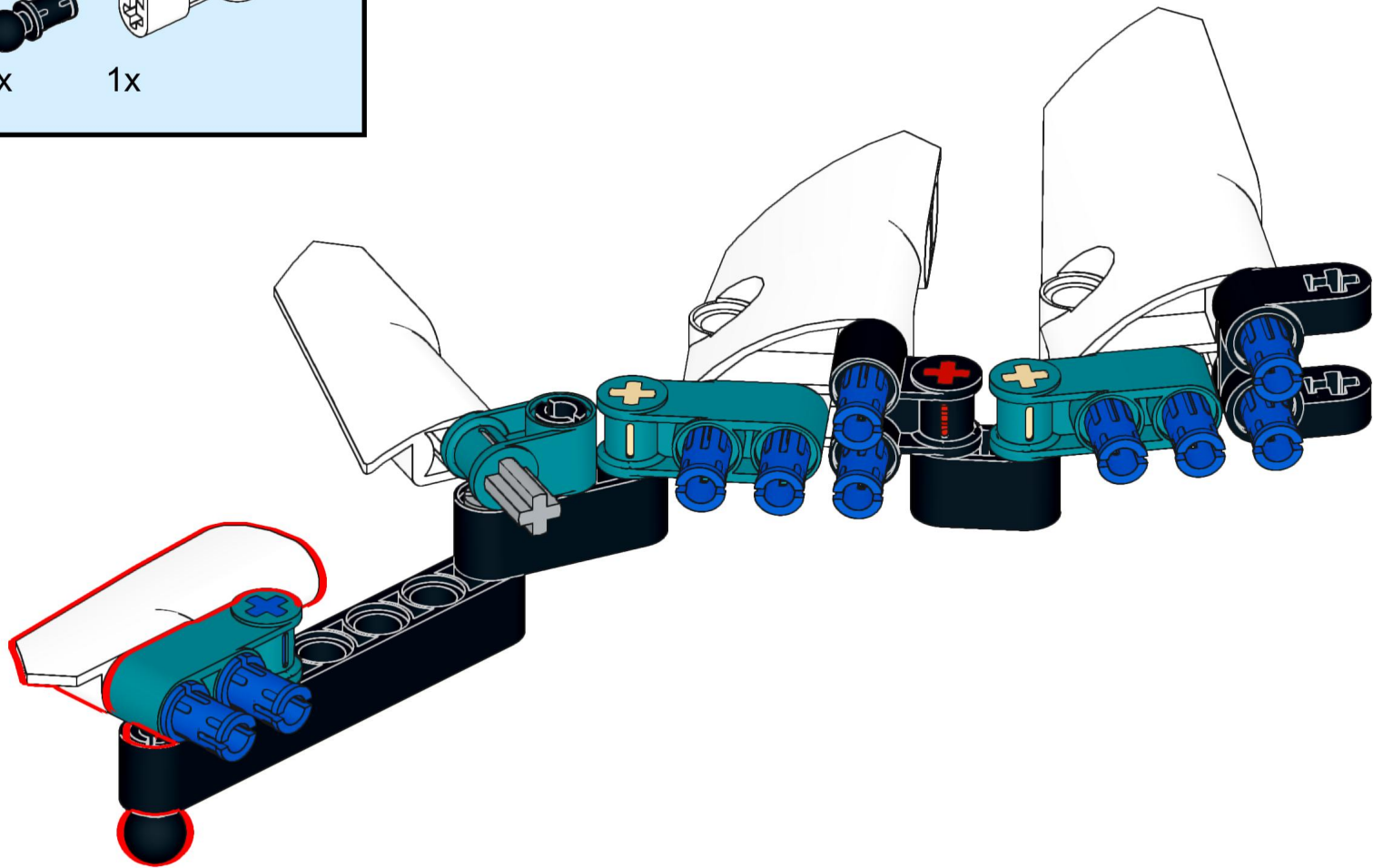
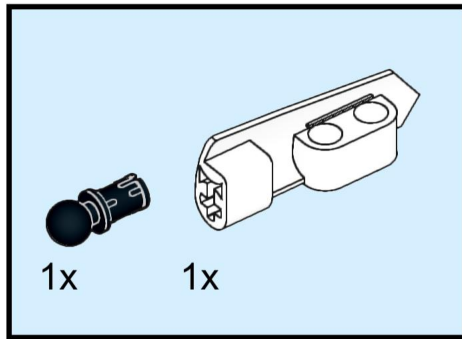
97



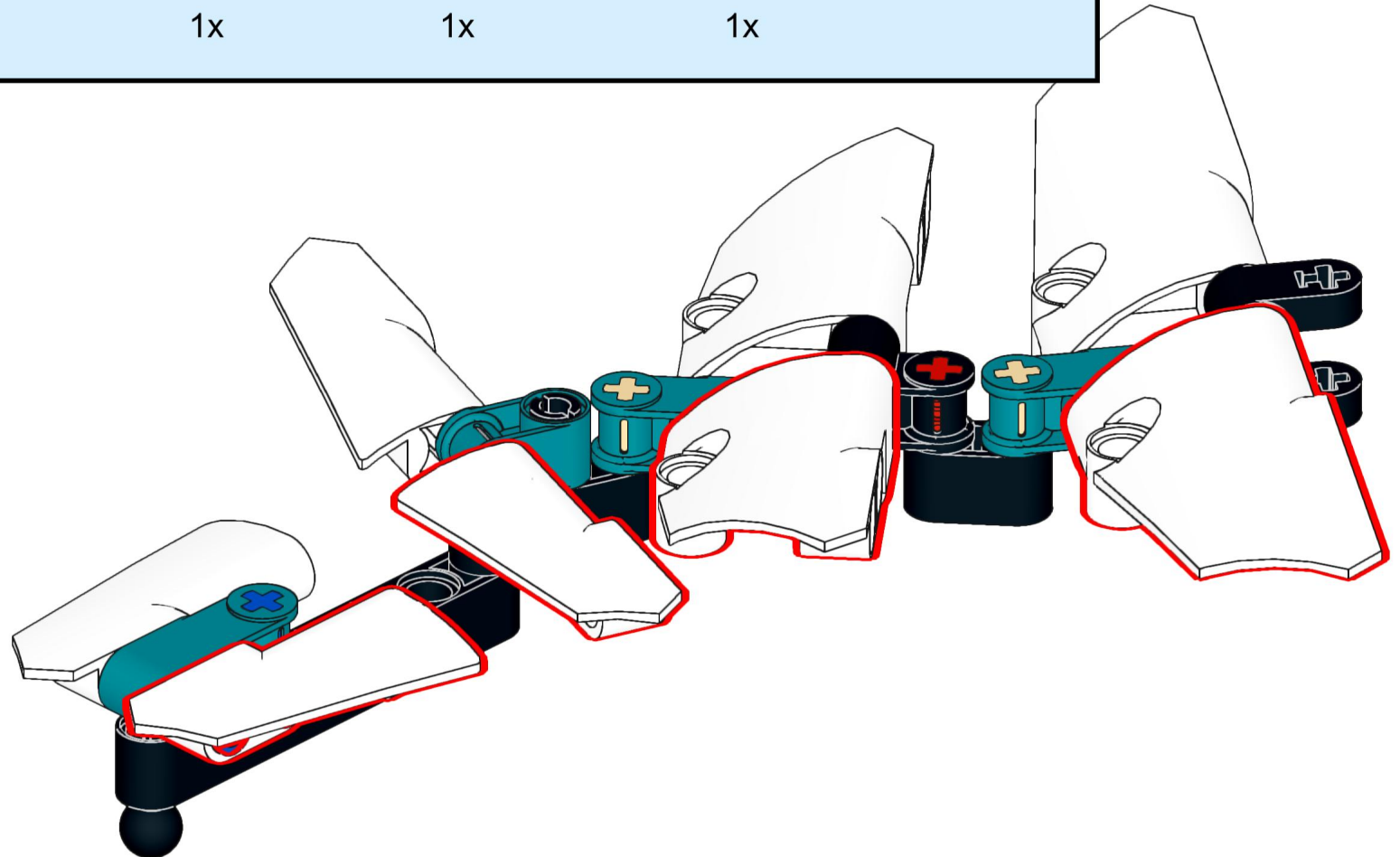
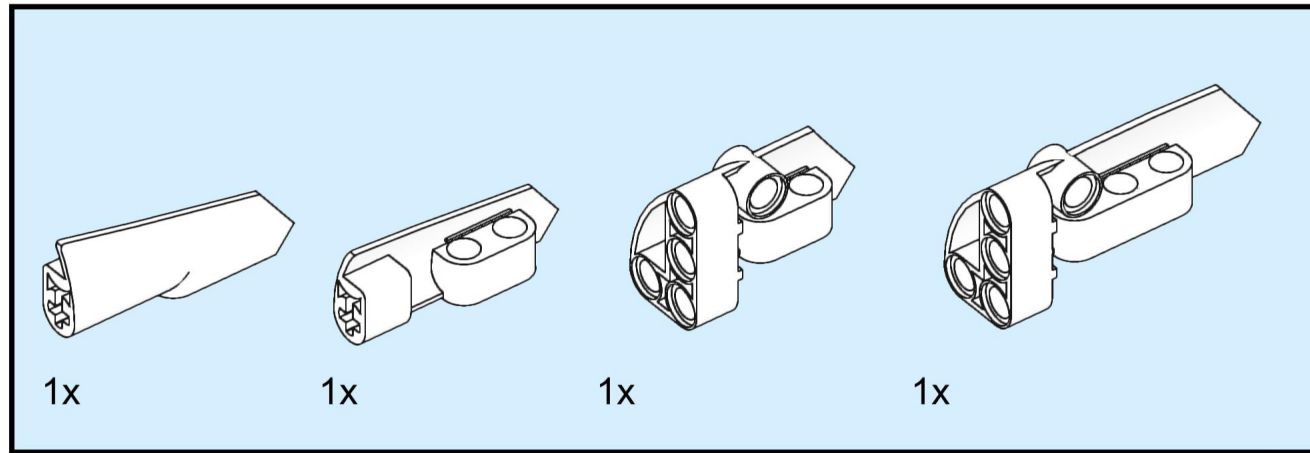
98



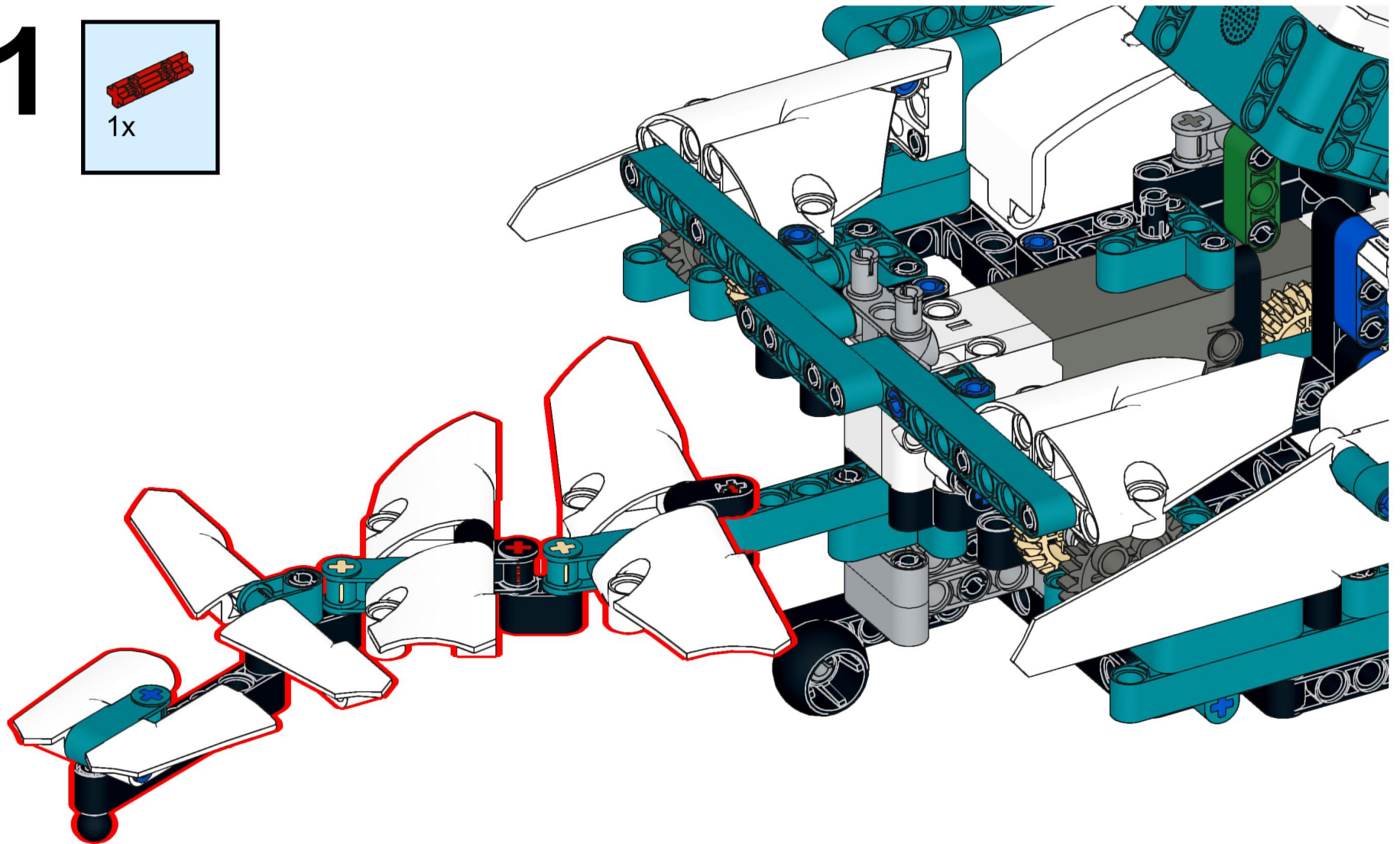
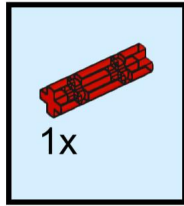
99



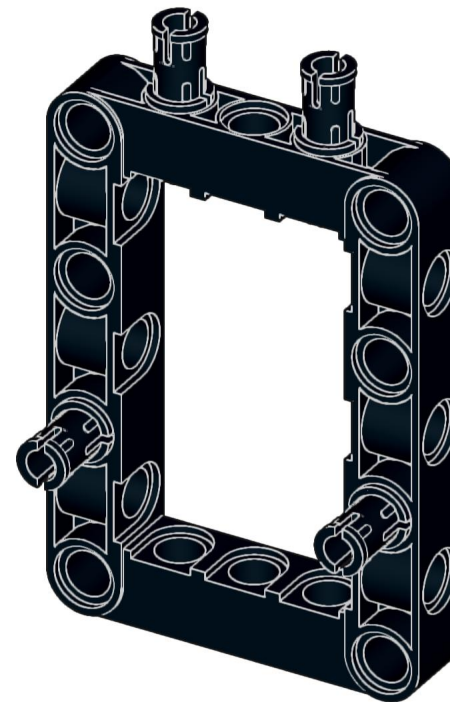
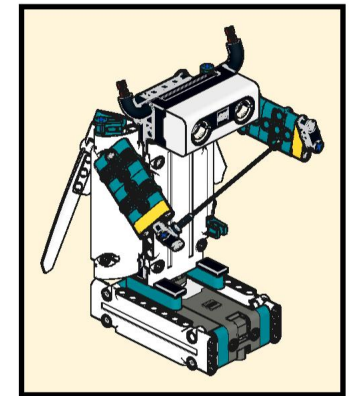
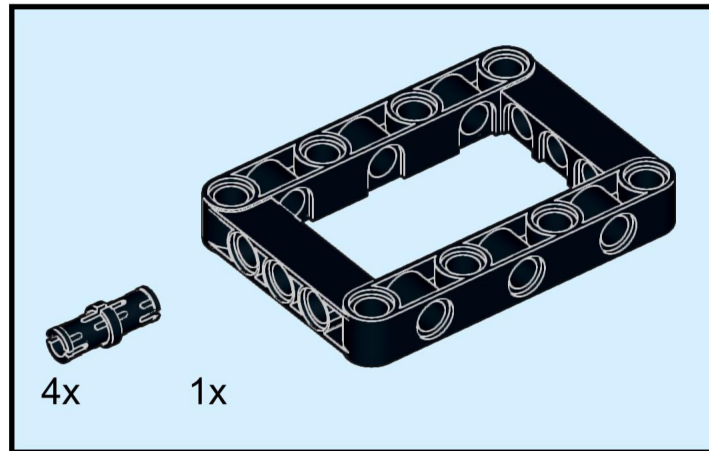
100



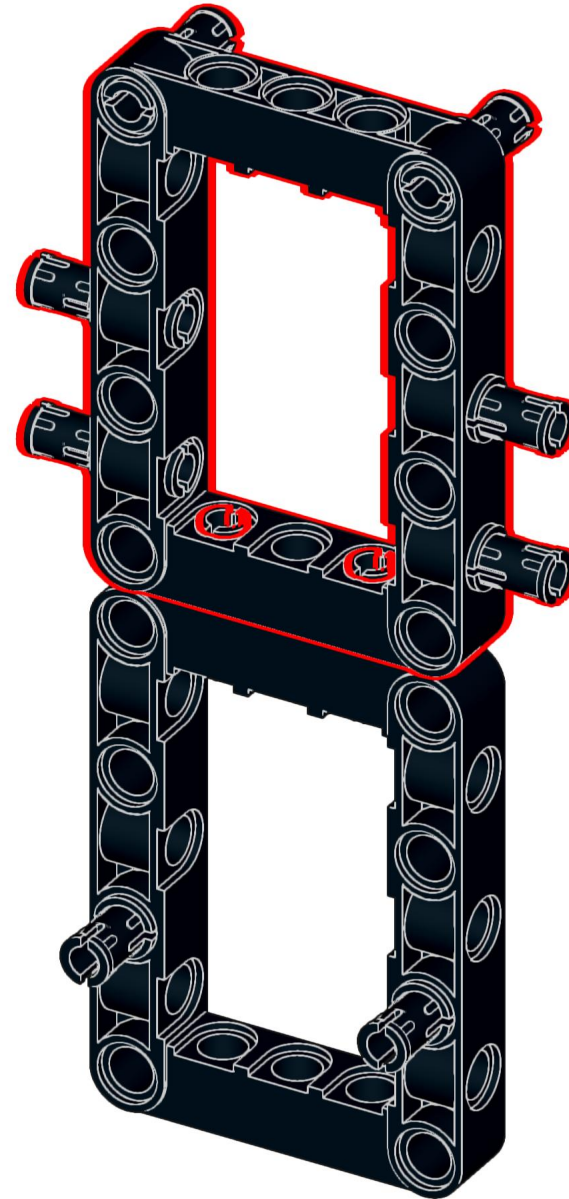
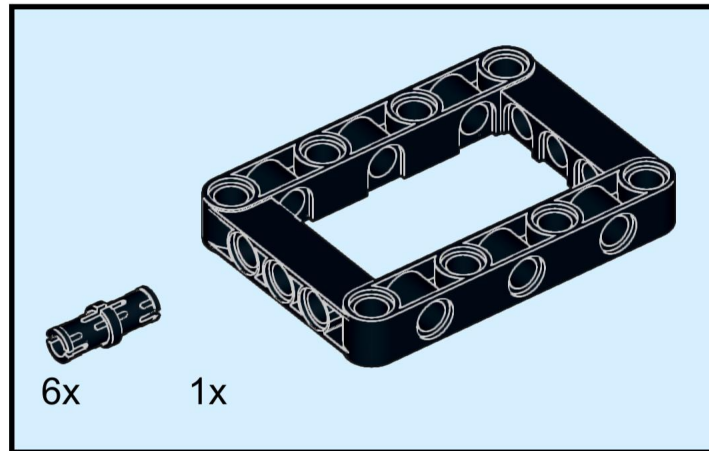
101



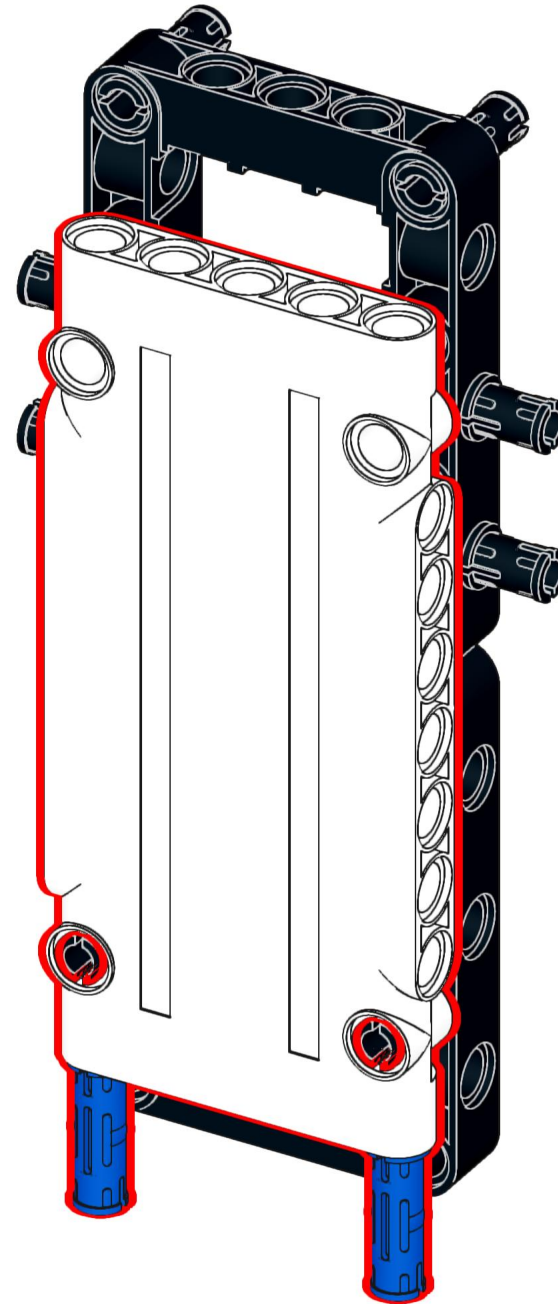
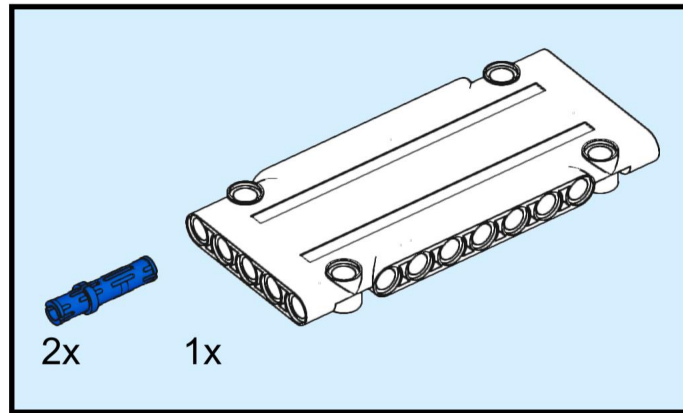
102



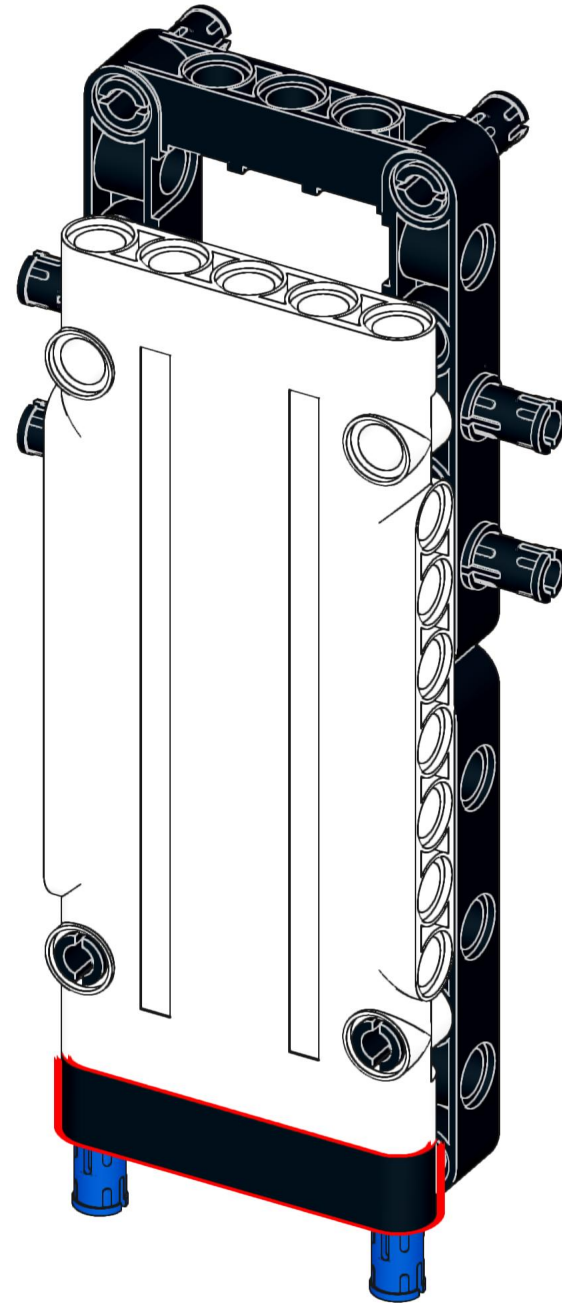
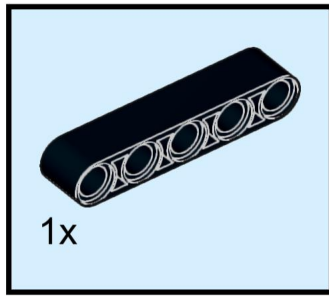
103



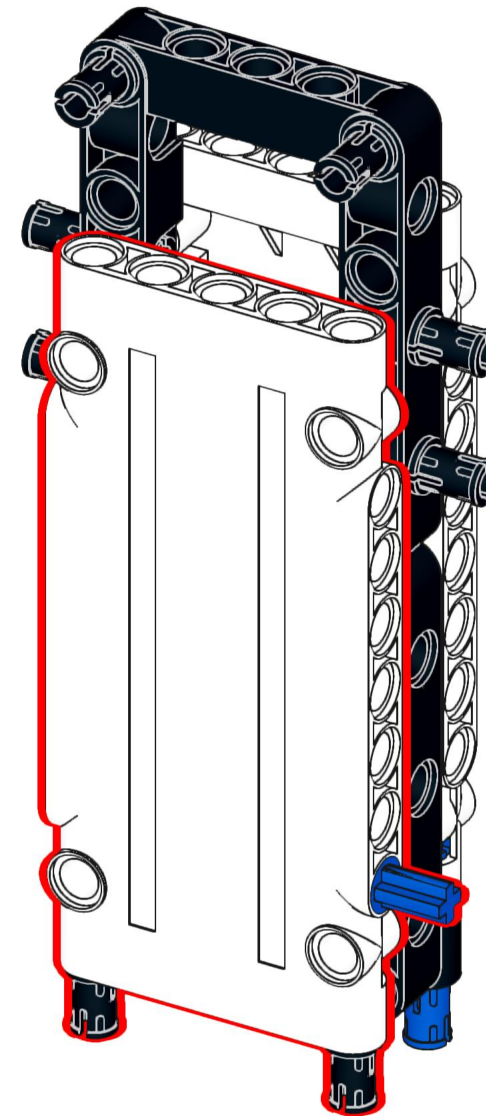
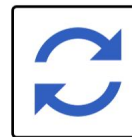
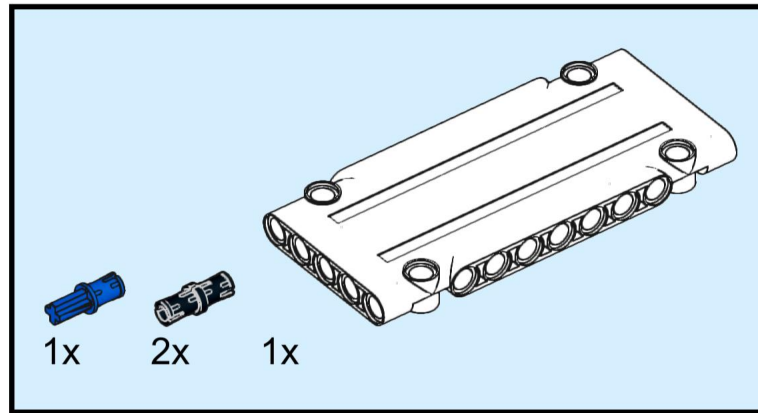
104



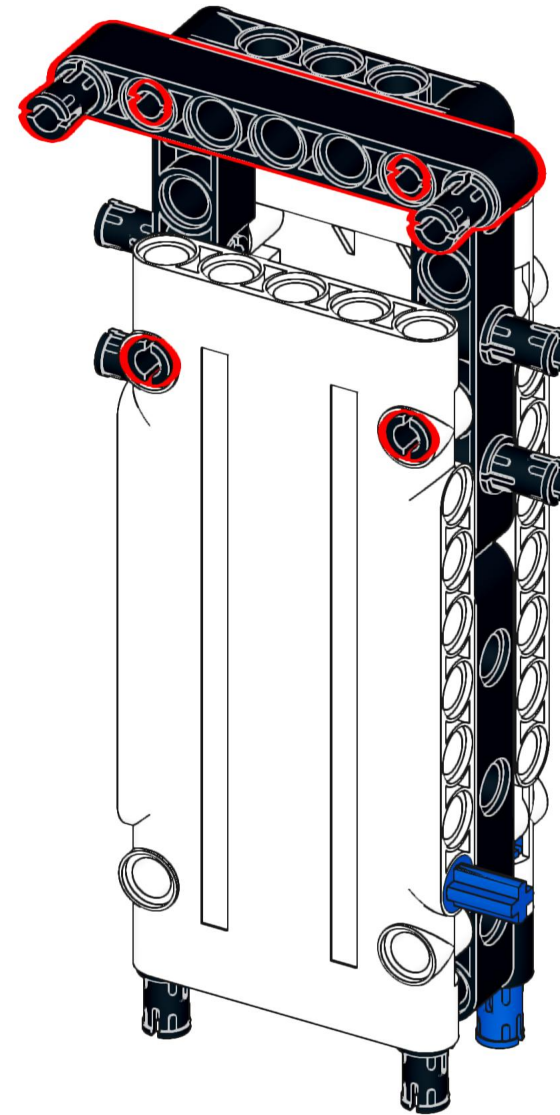
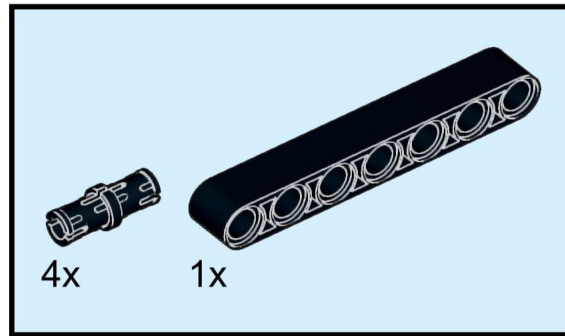
105



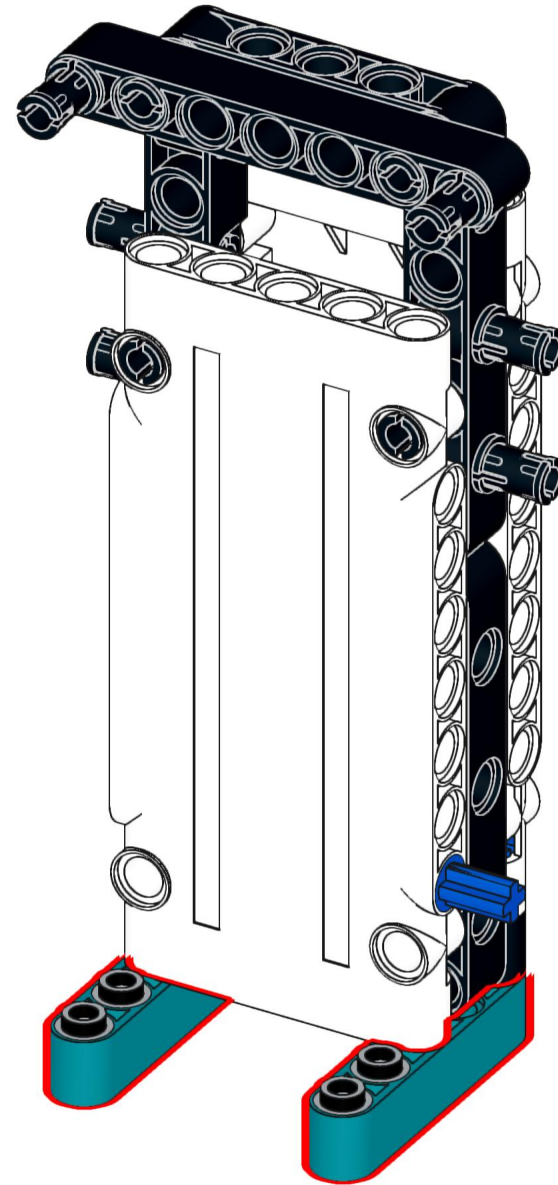
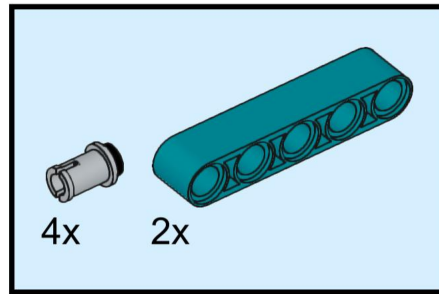
106



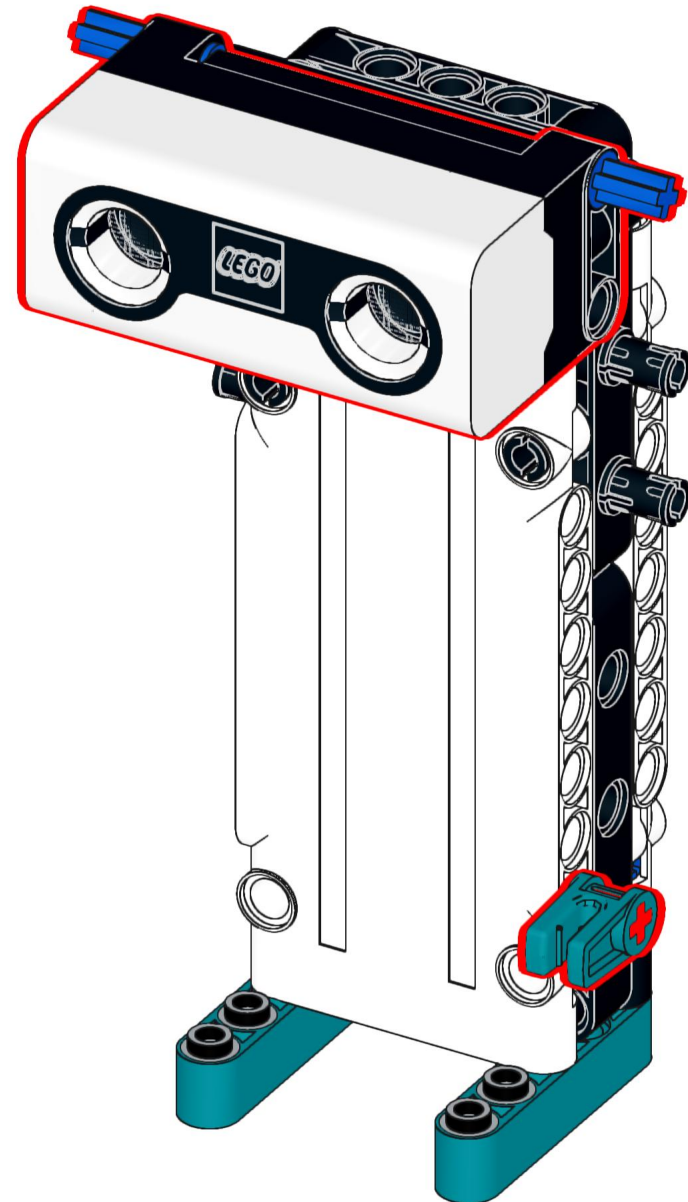
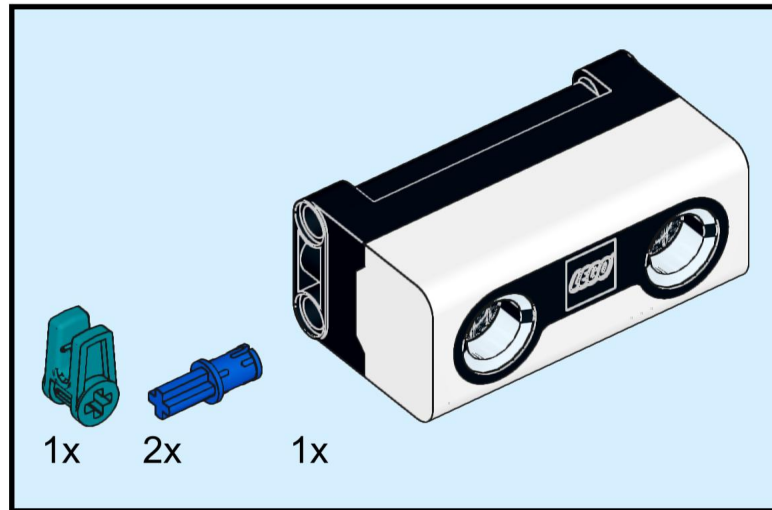
107



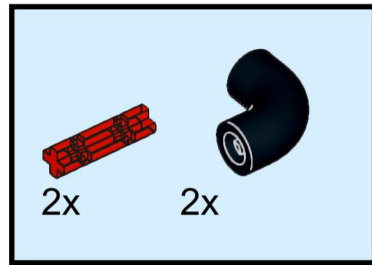
108



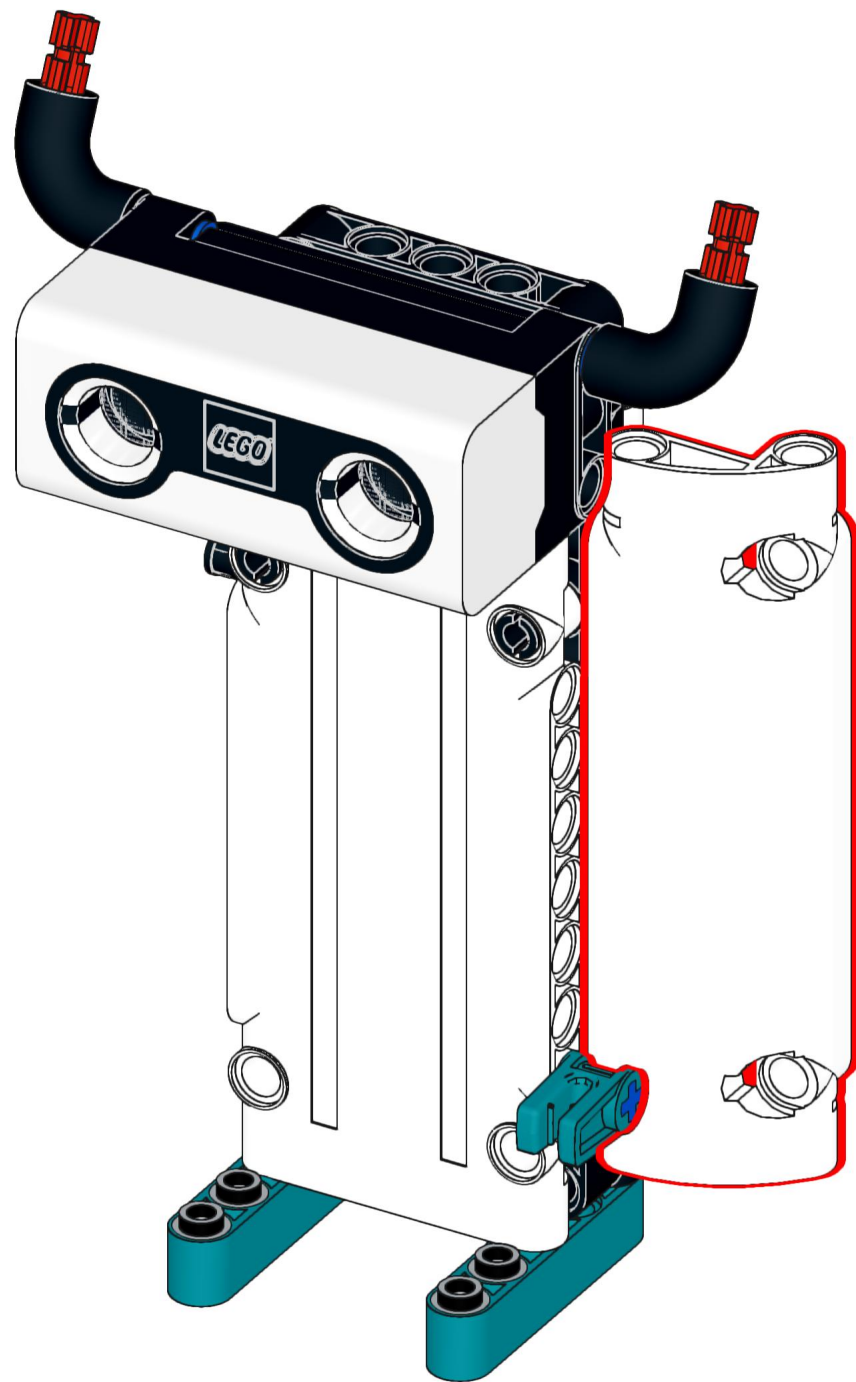
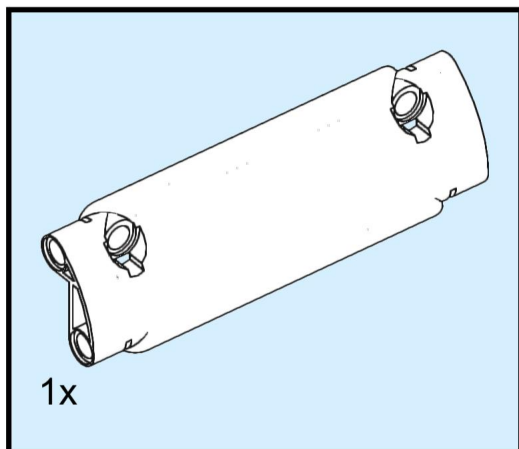
109



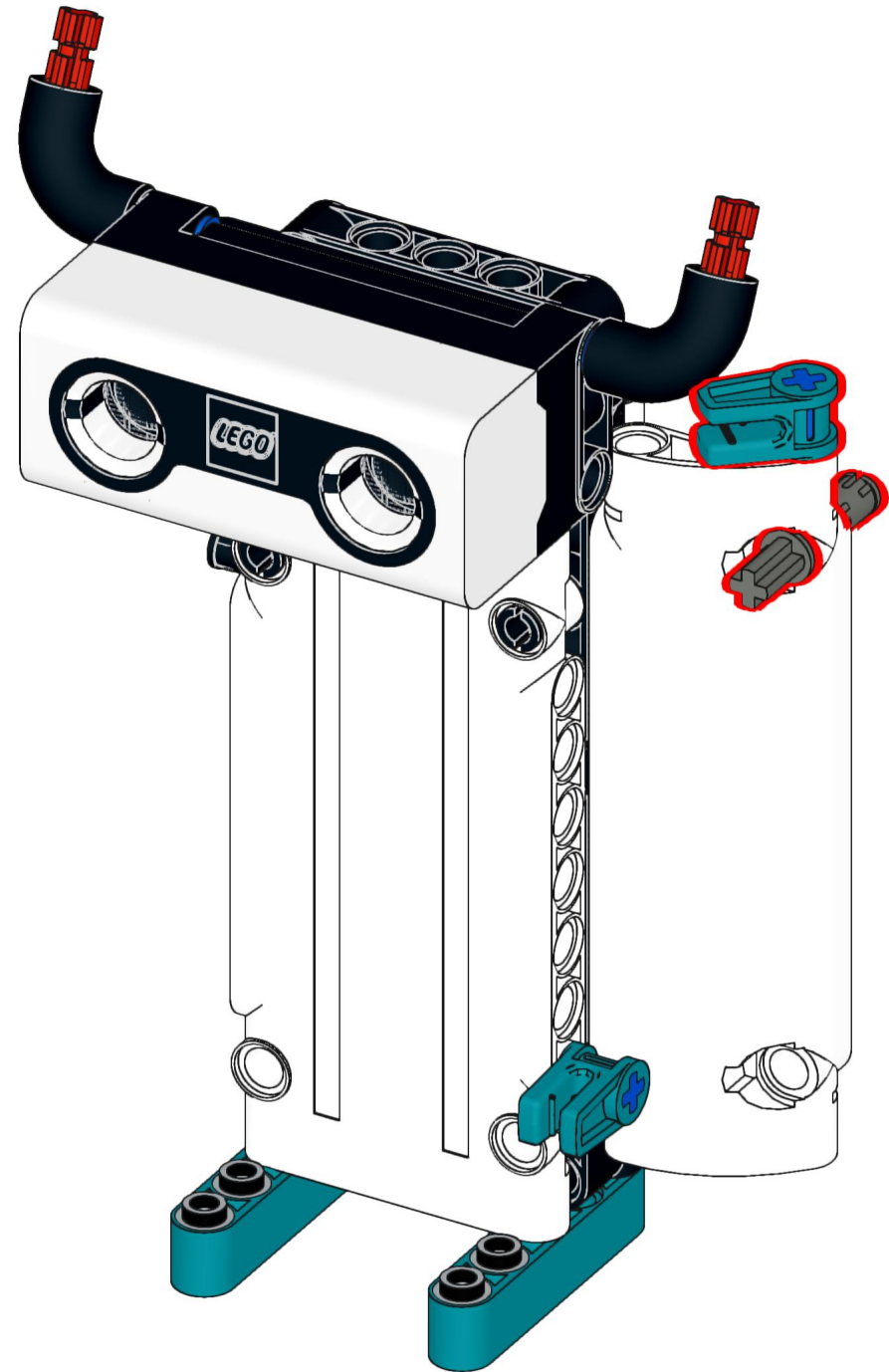
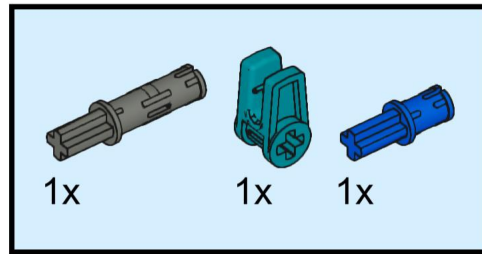
110



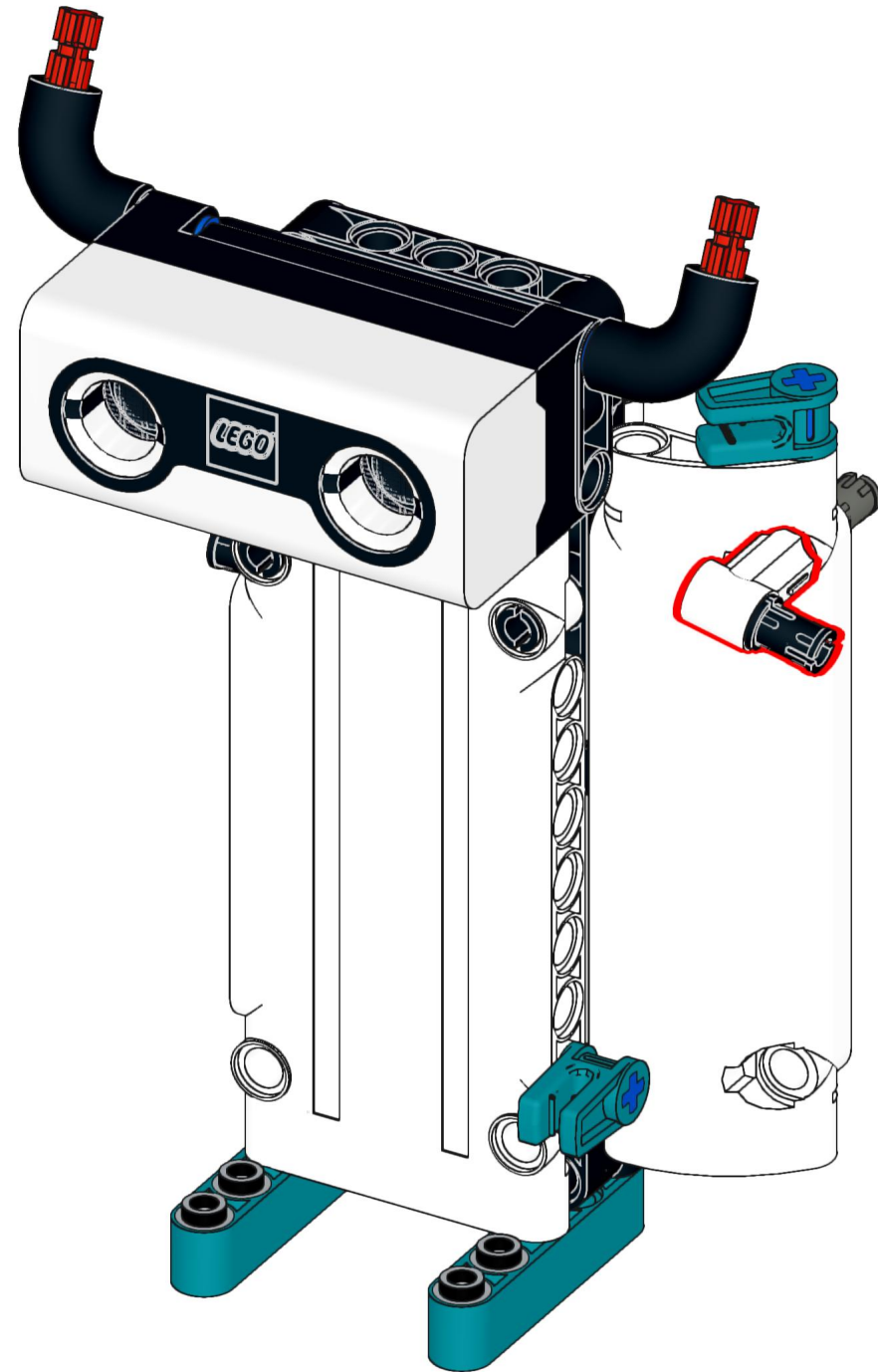
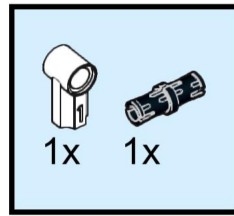
111



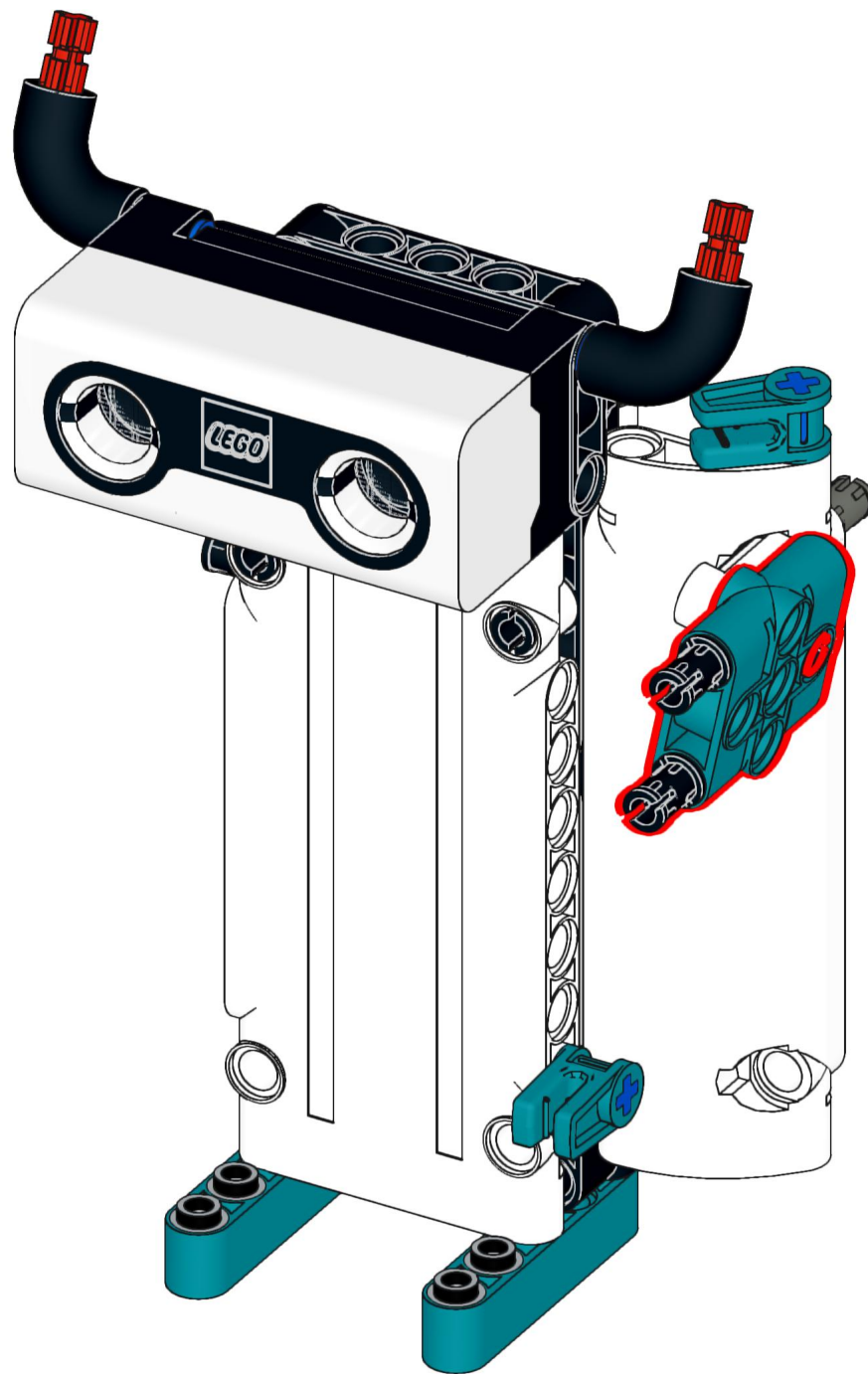
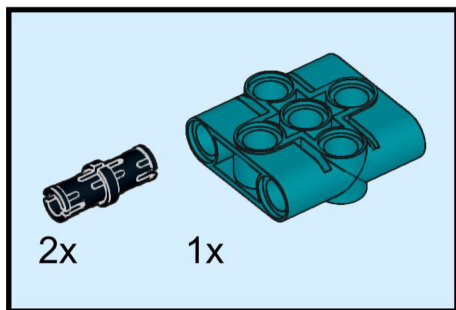
112



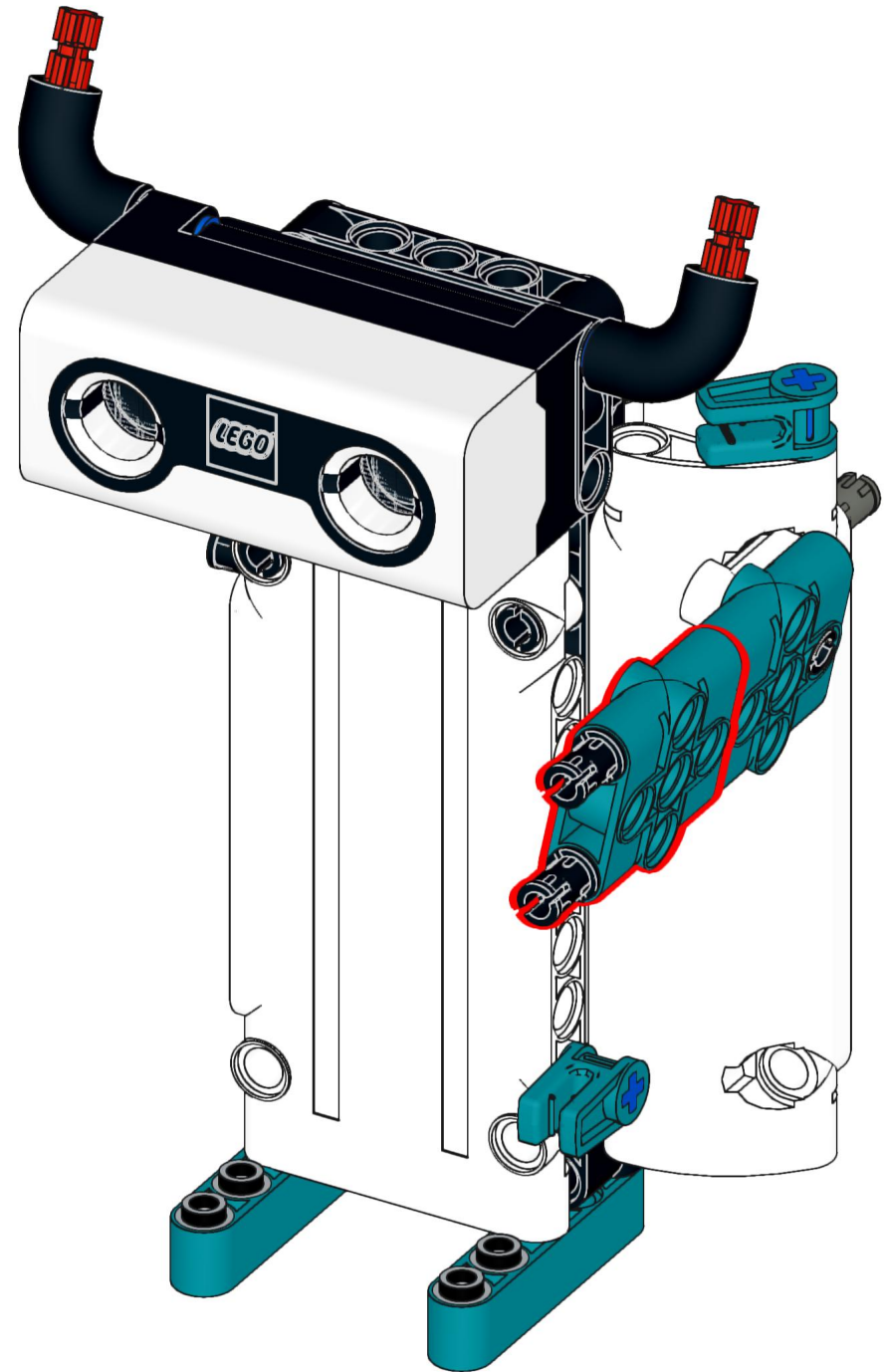
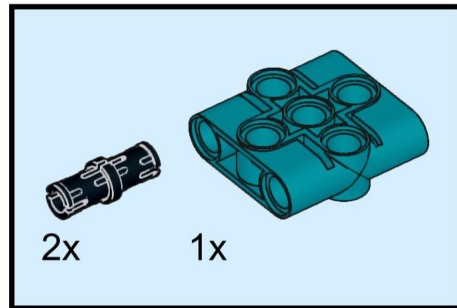
113



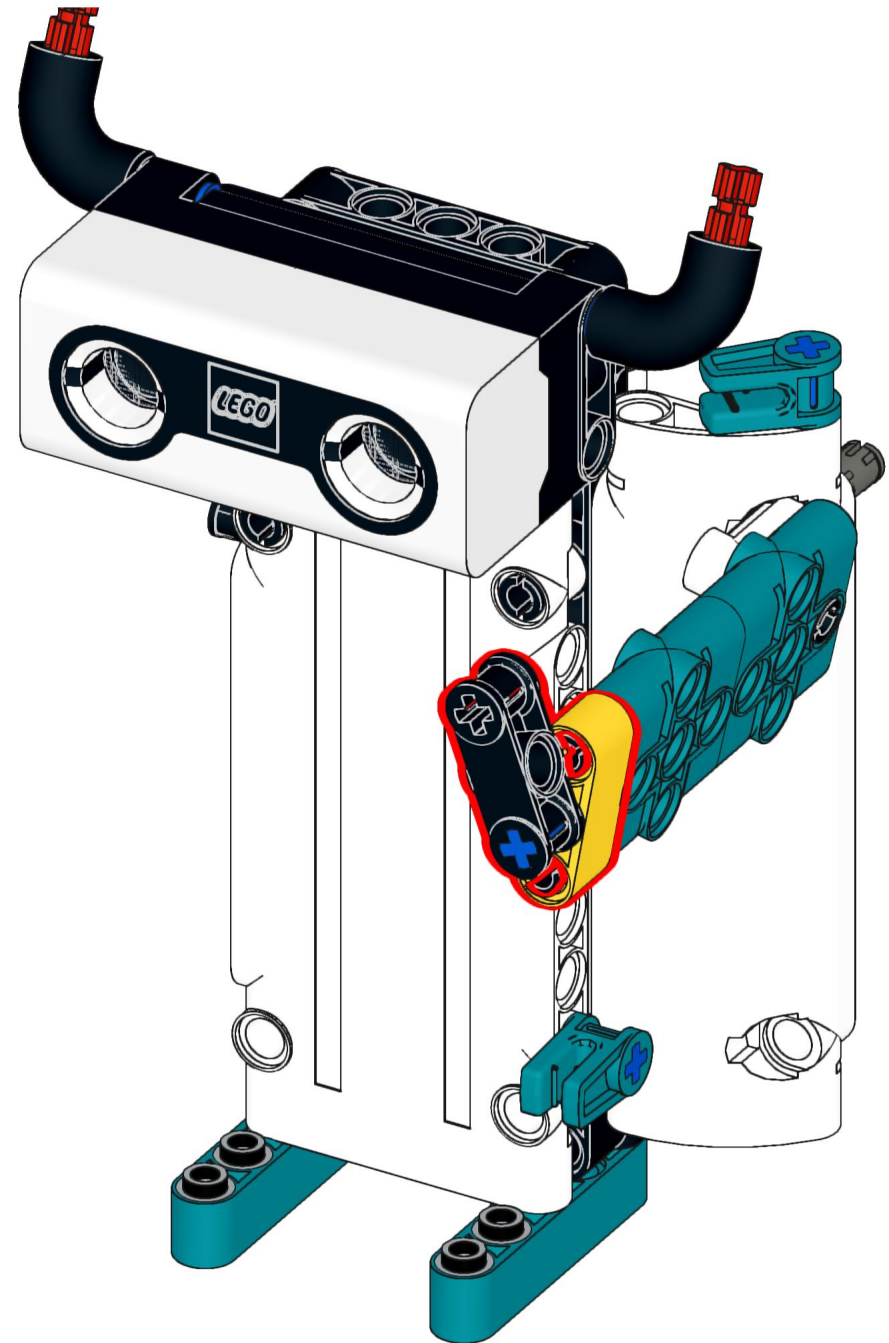
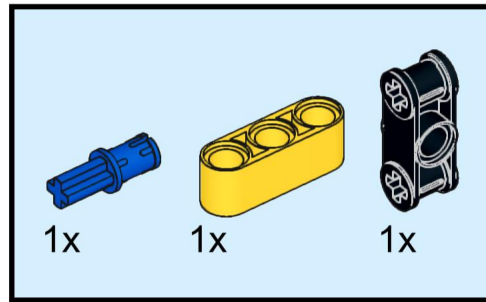
114



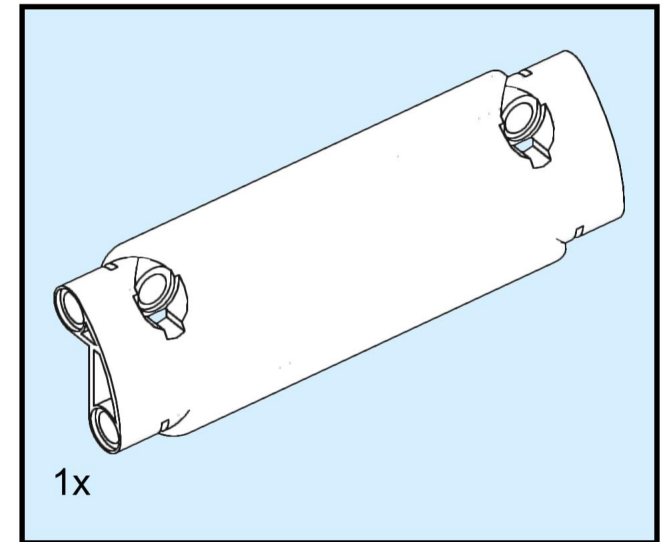
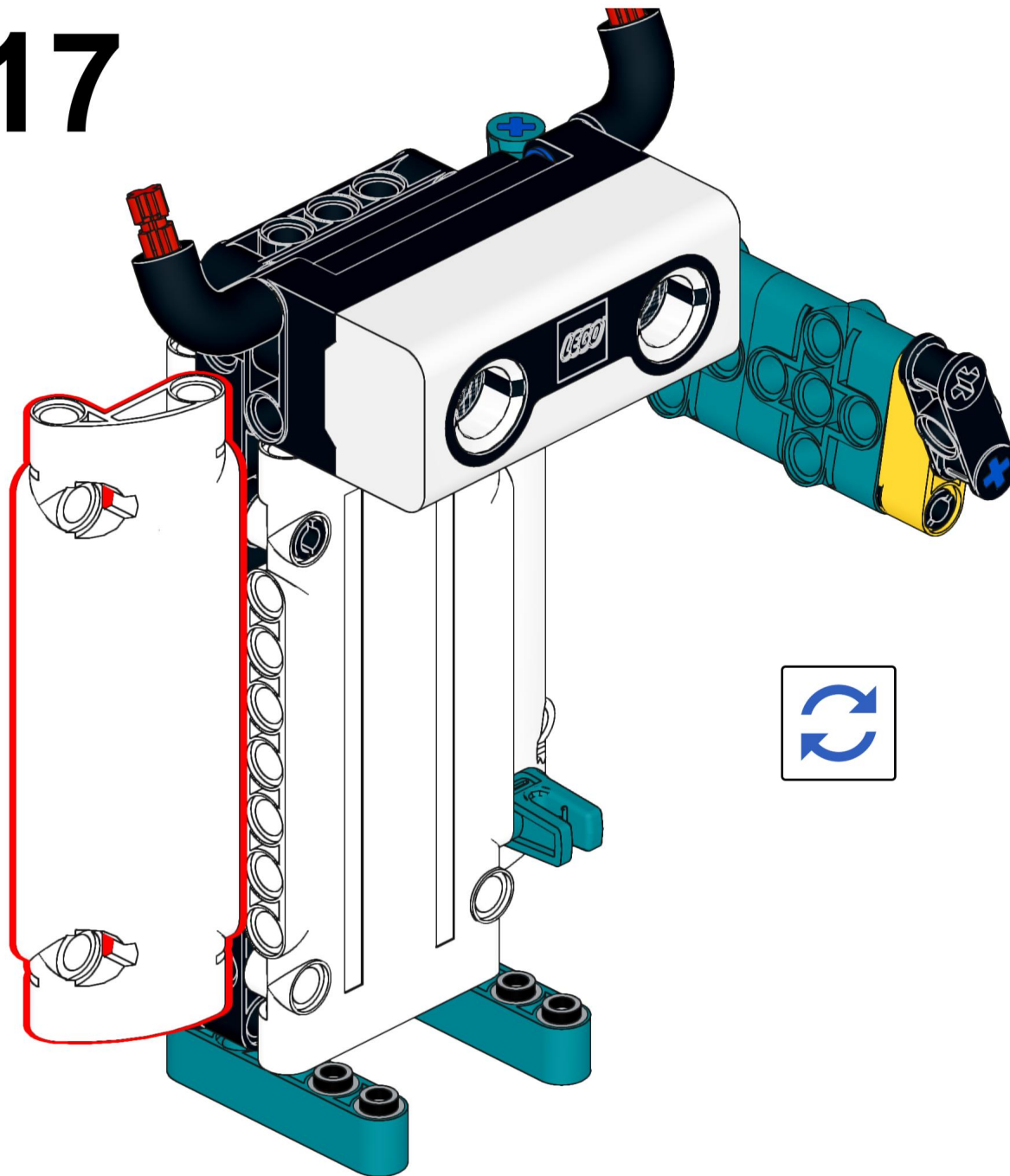
115



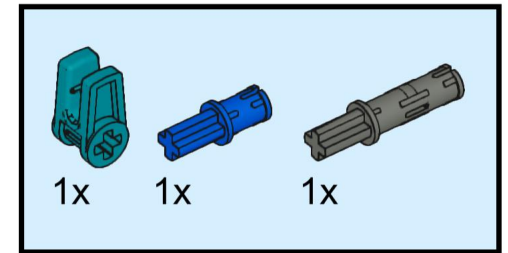
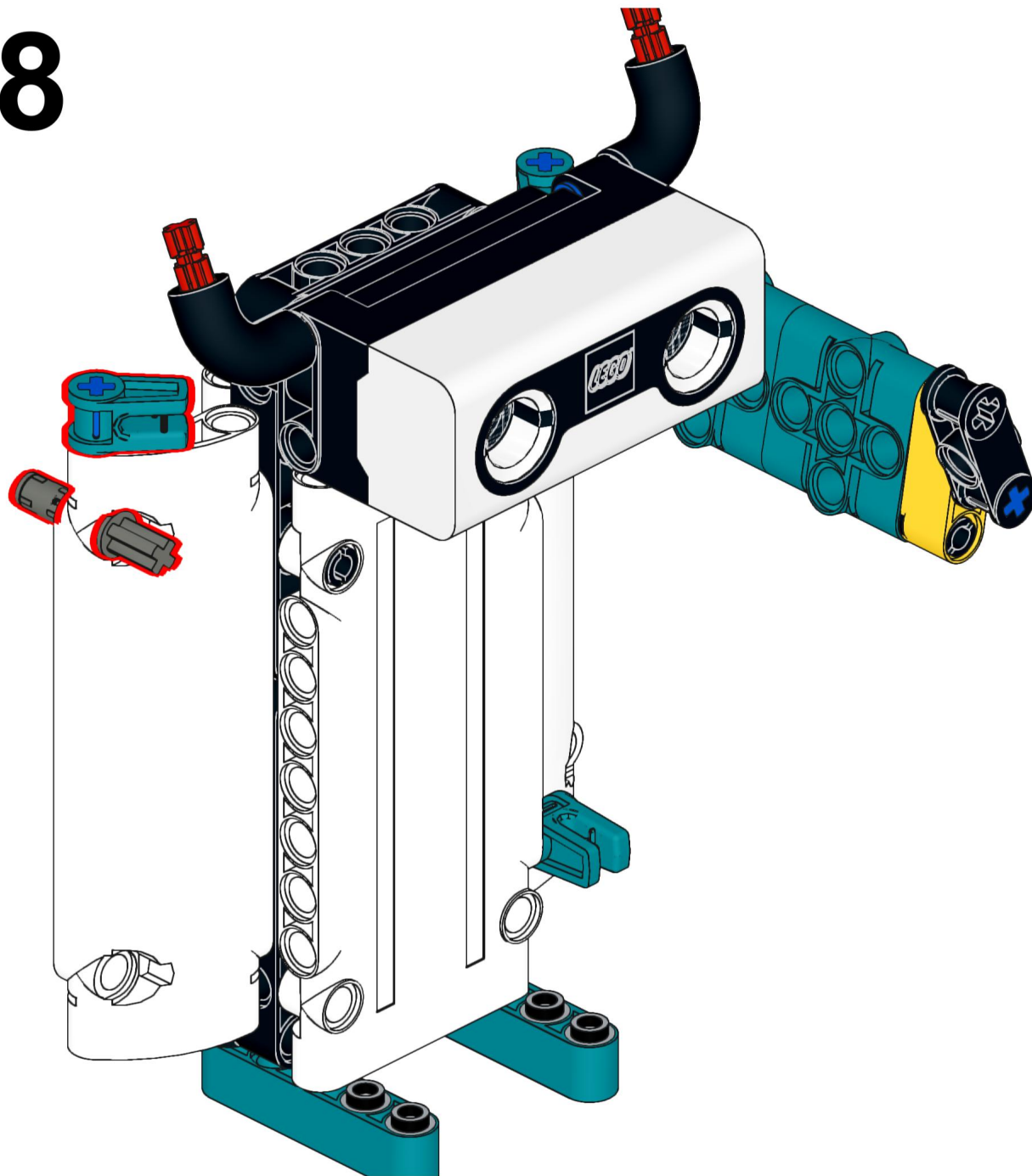
116



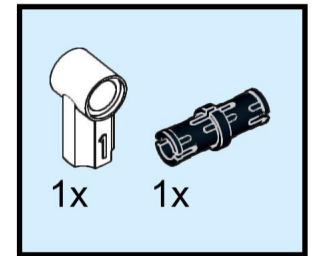
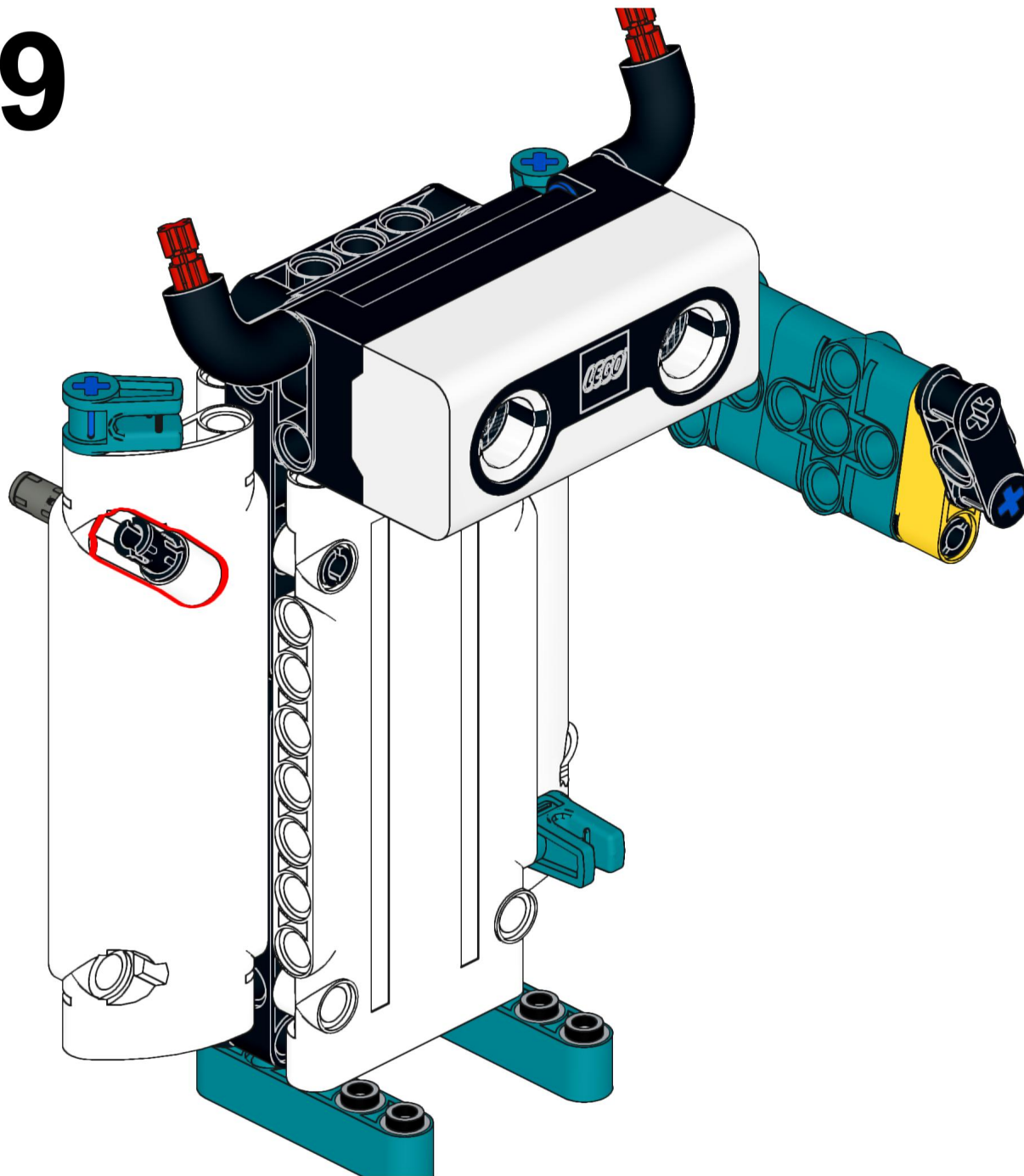
117



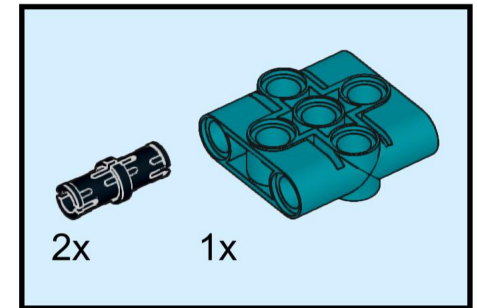
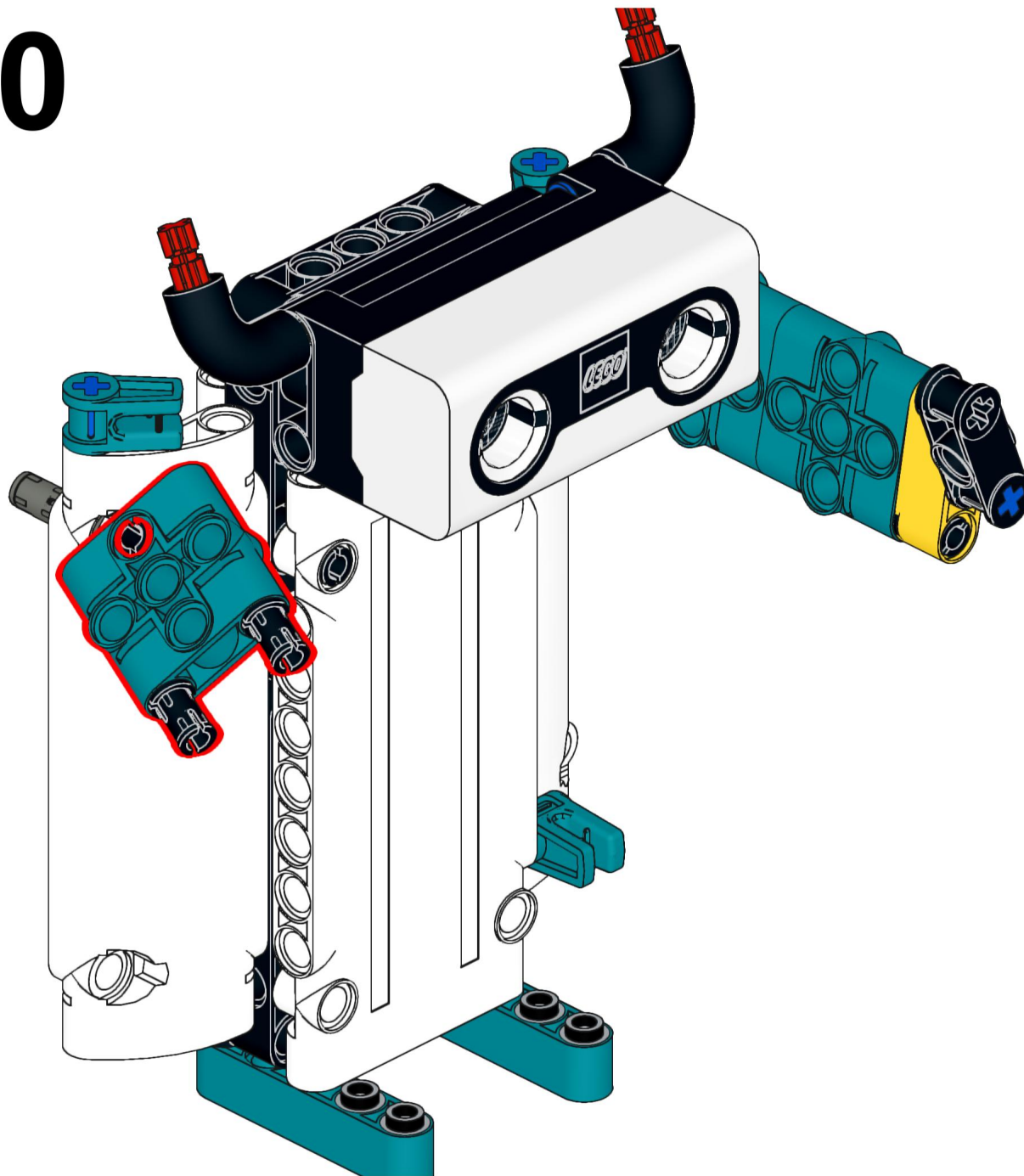
118



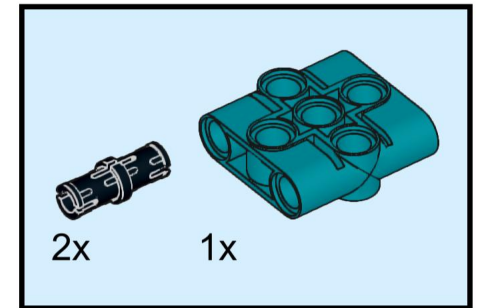
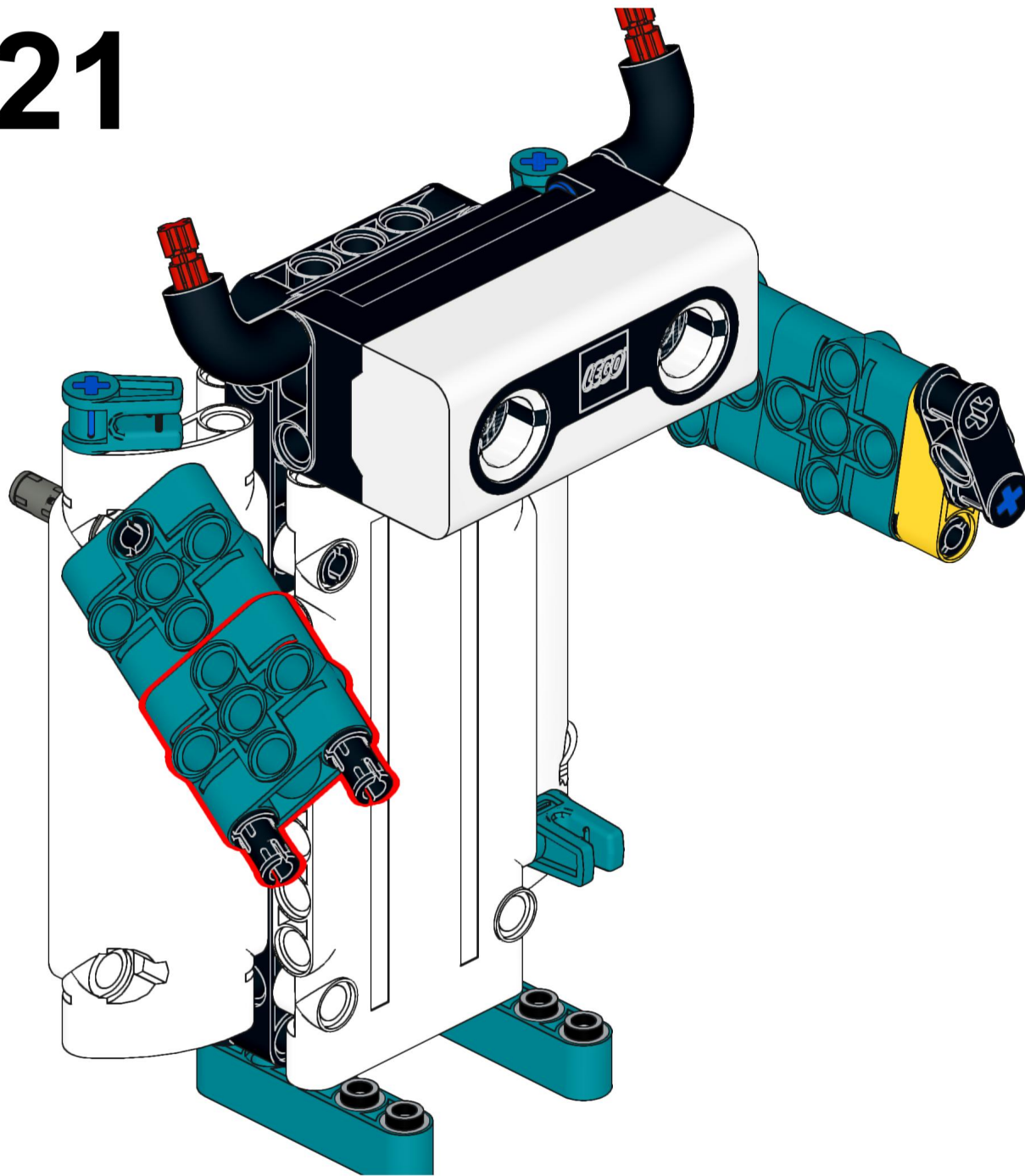
119



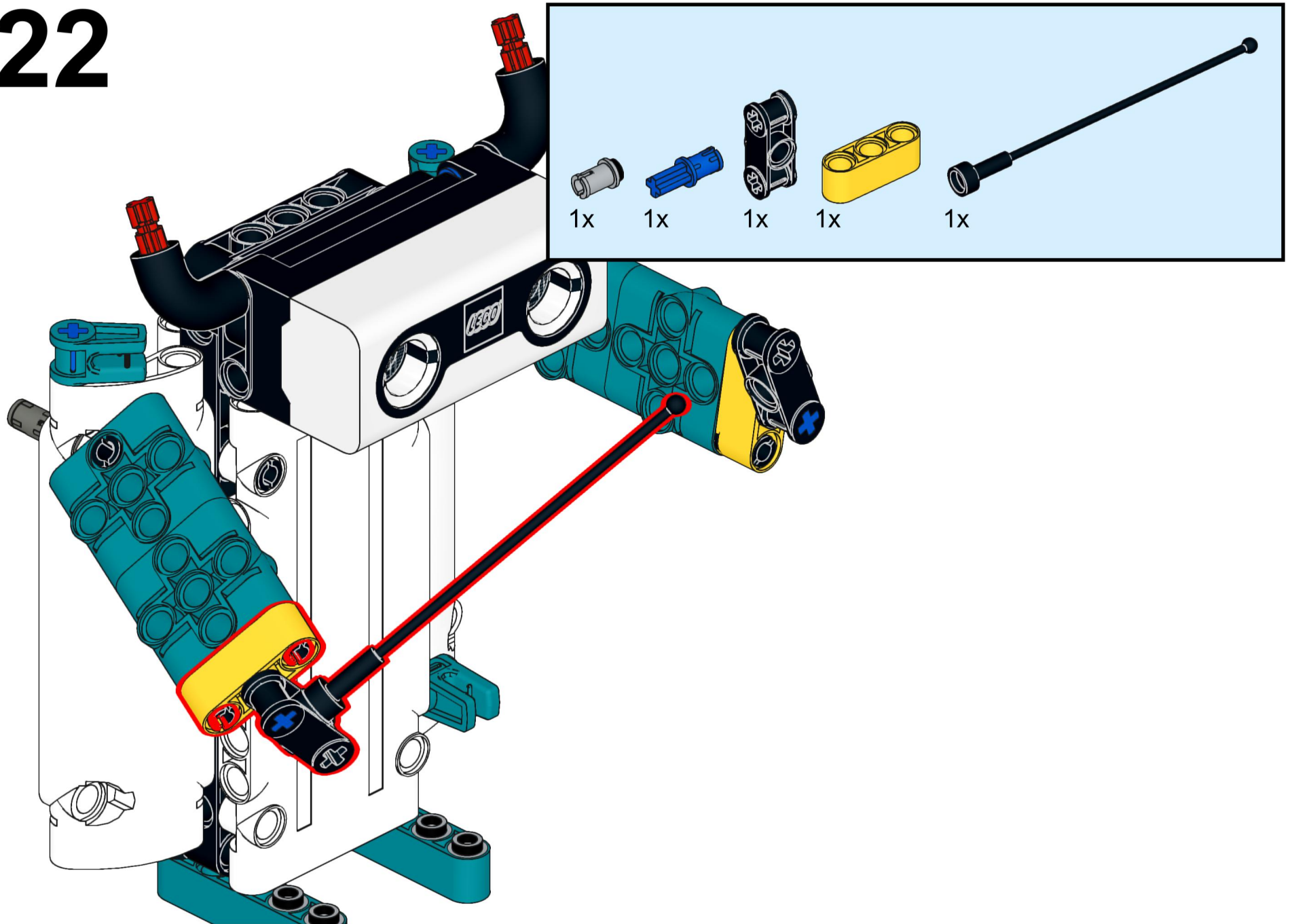
120



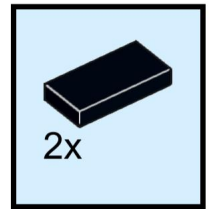
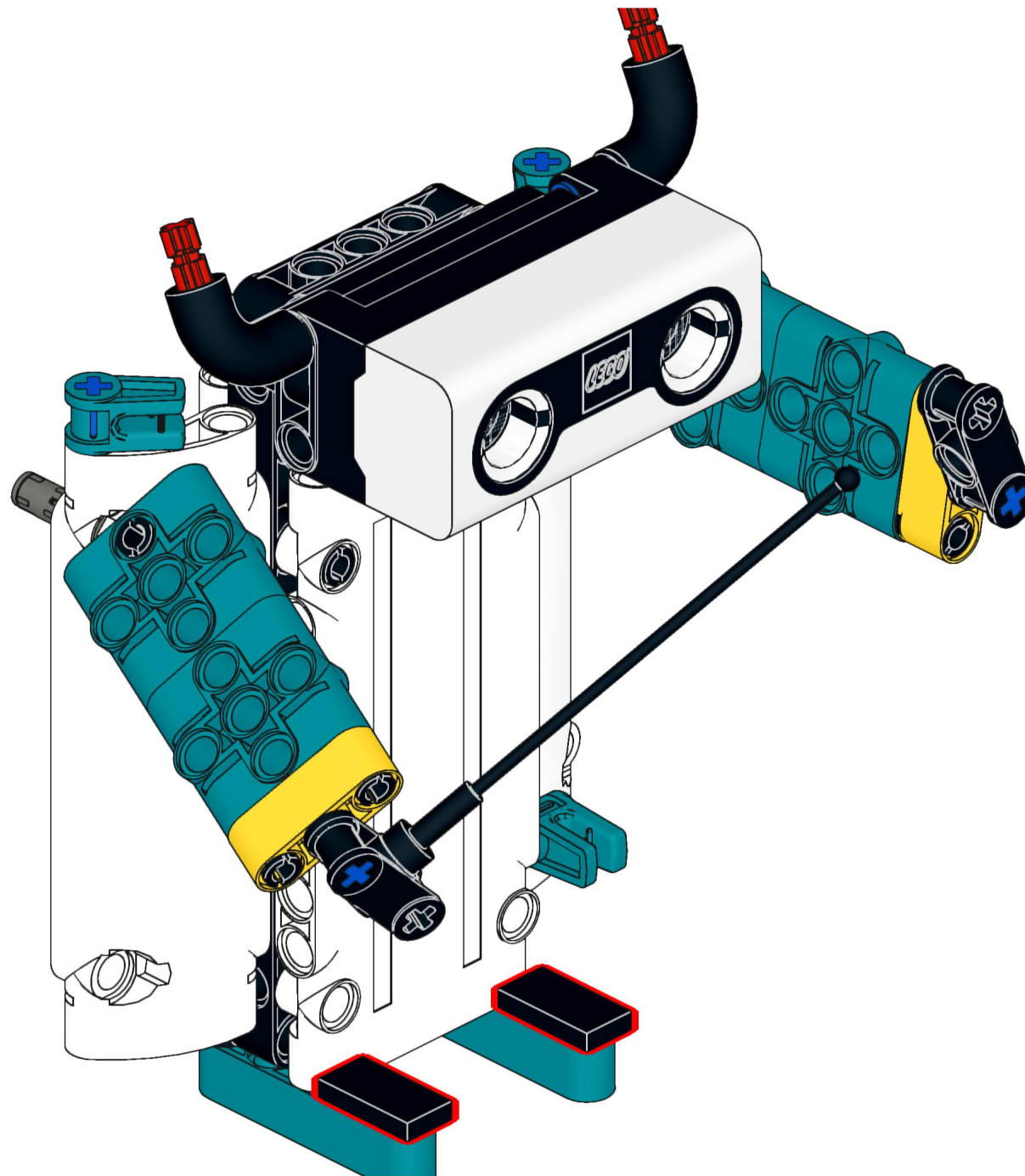
121



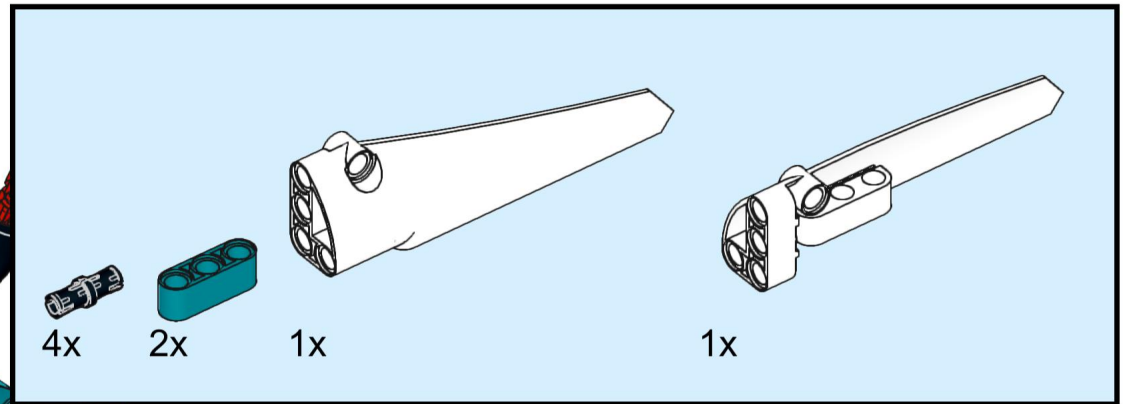
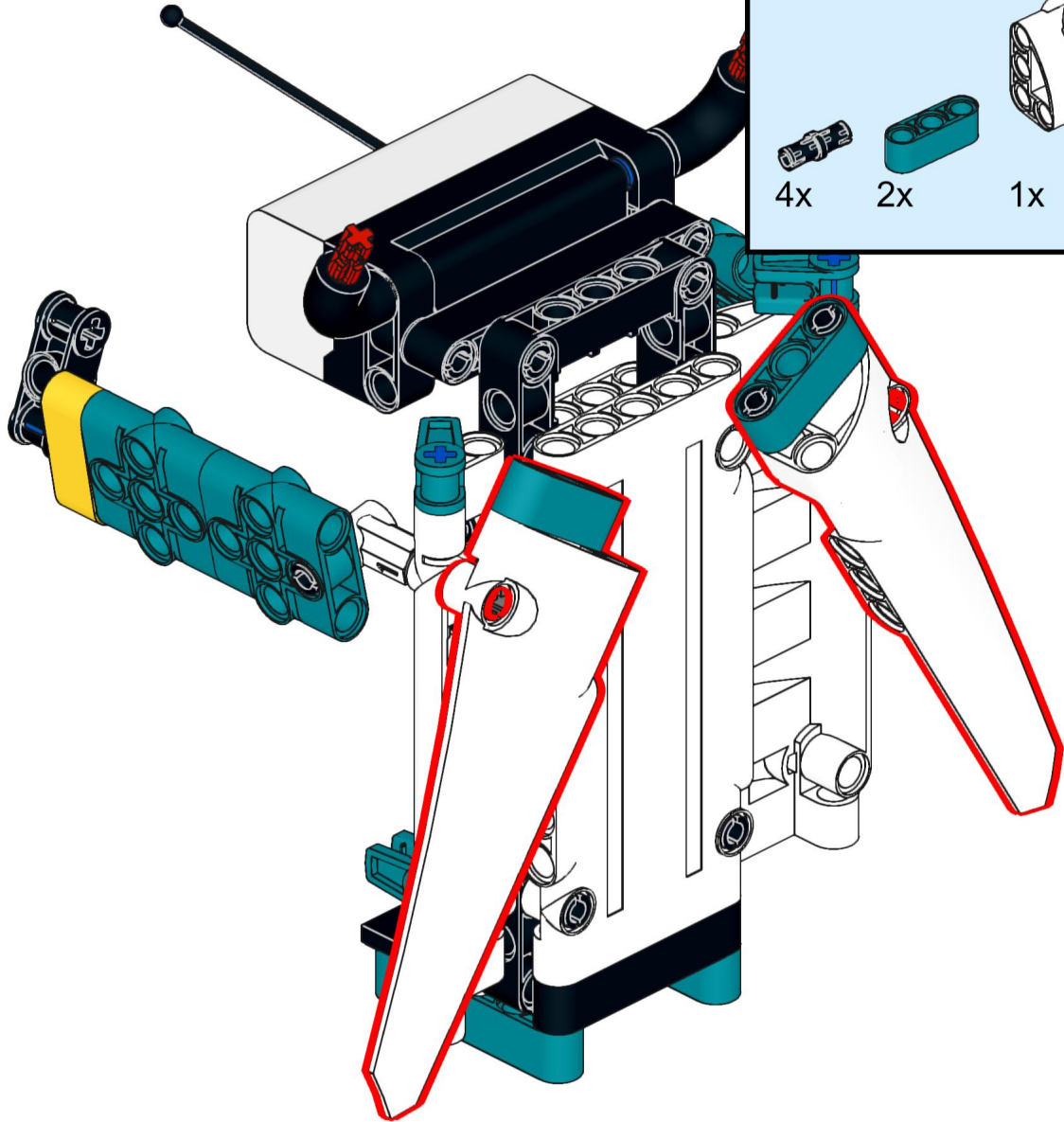
122



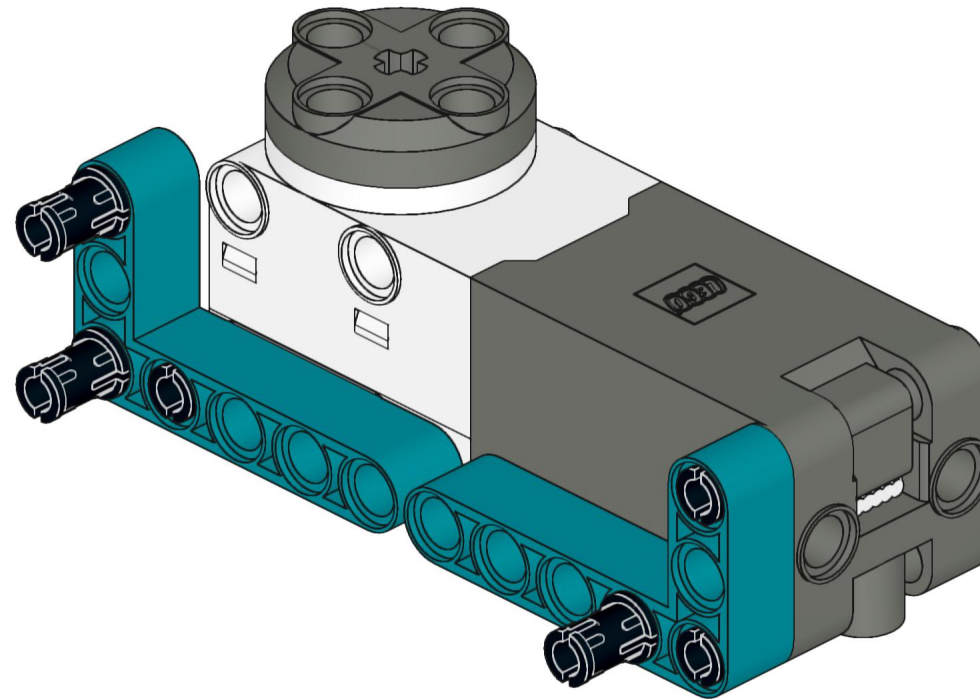
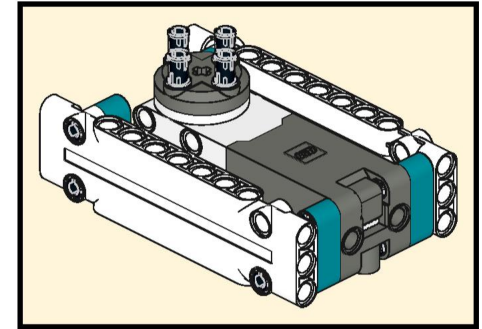
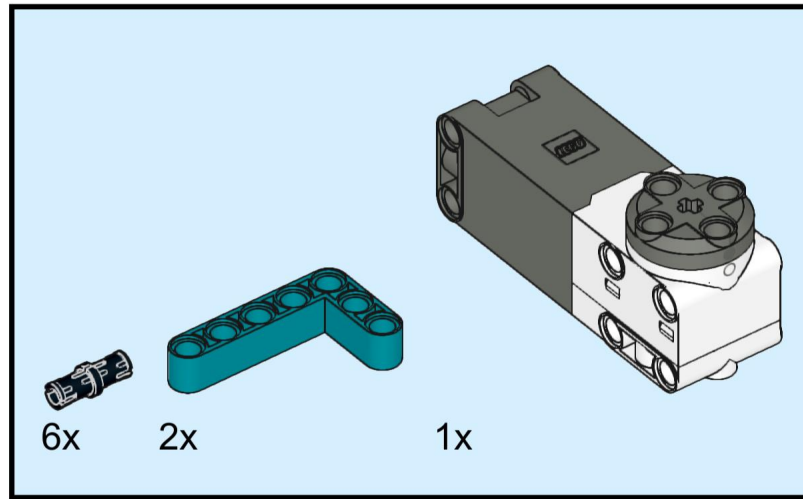
123



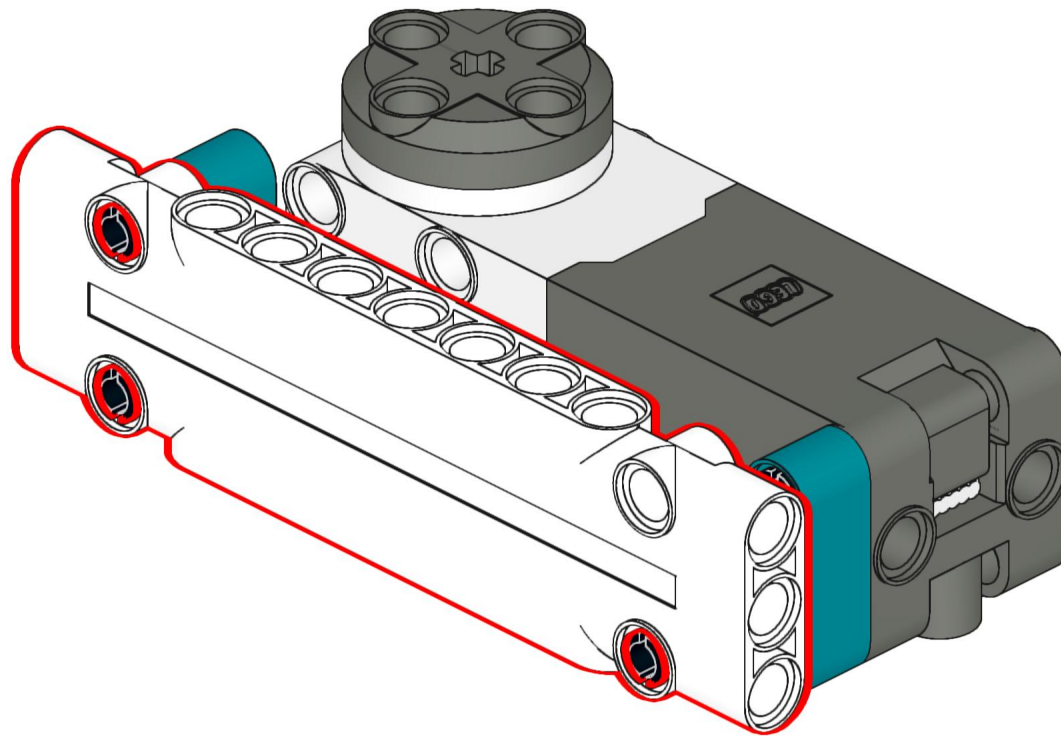
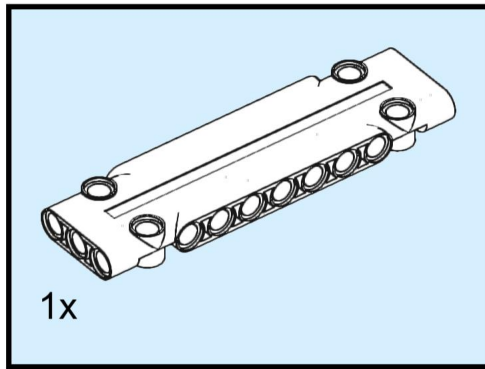
124



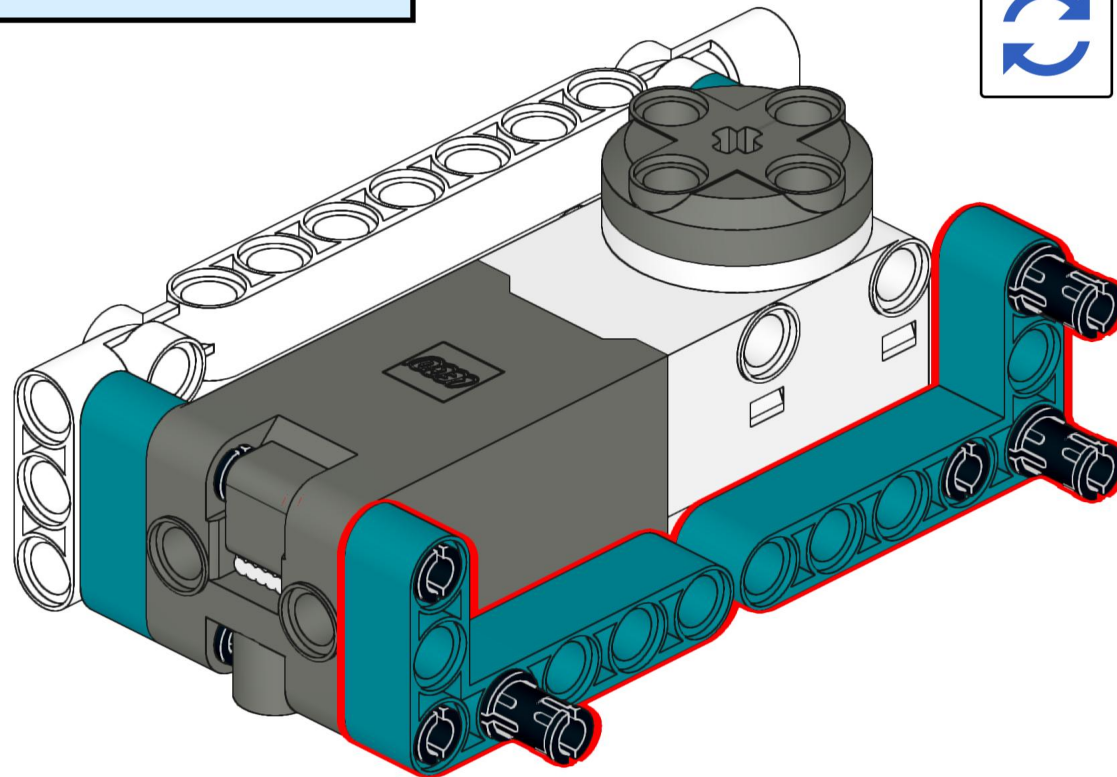
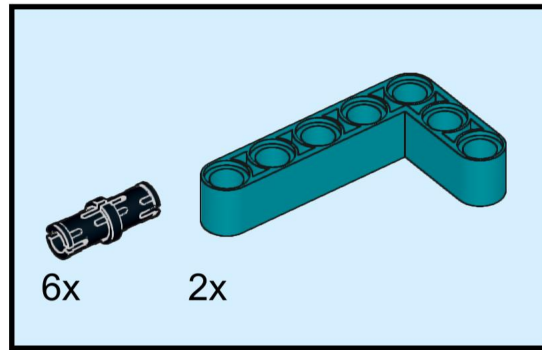
125



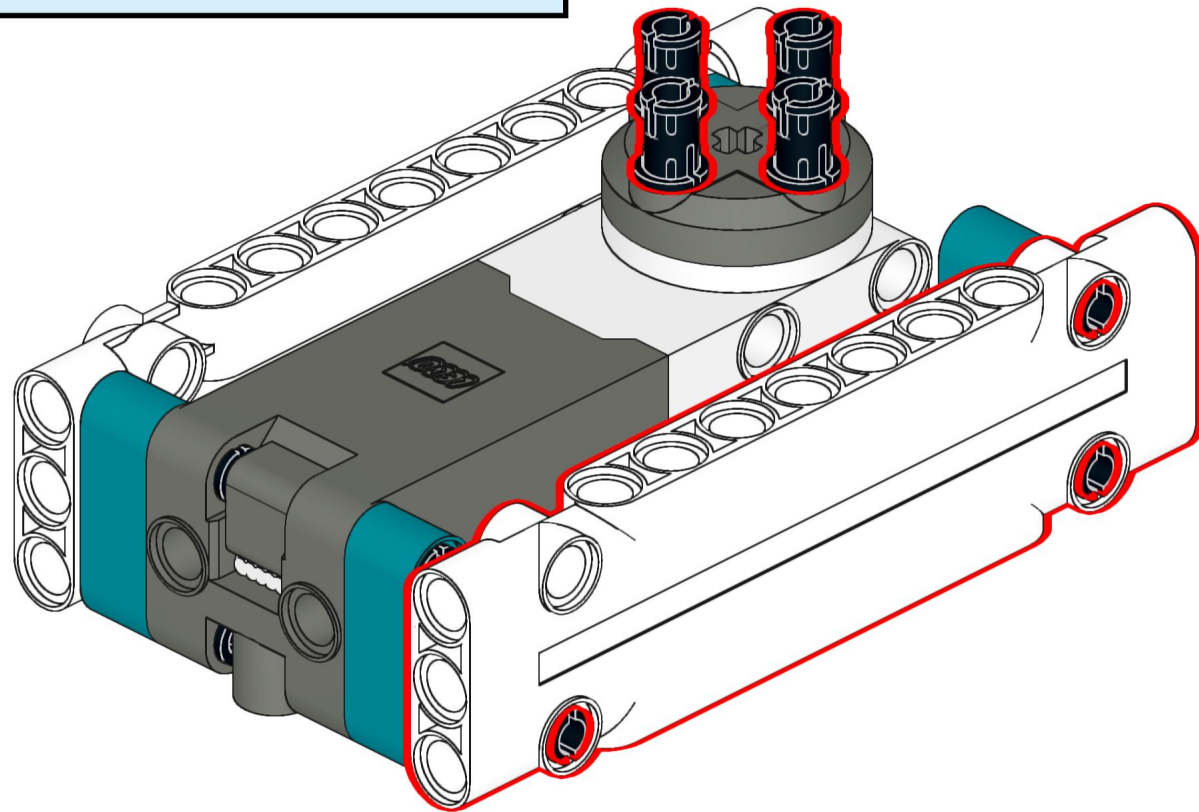
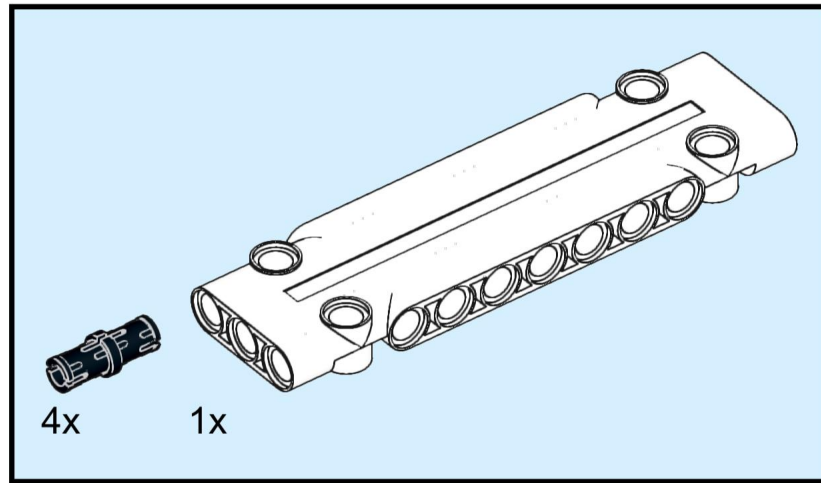
126



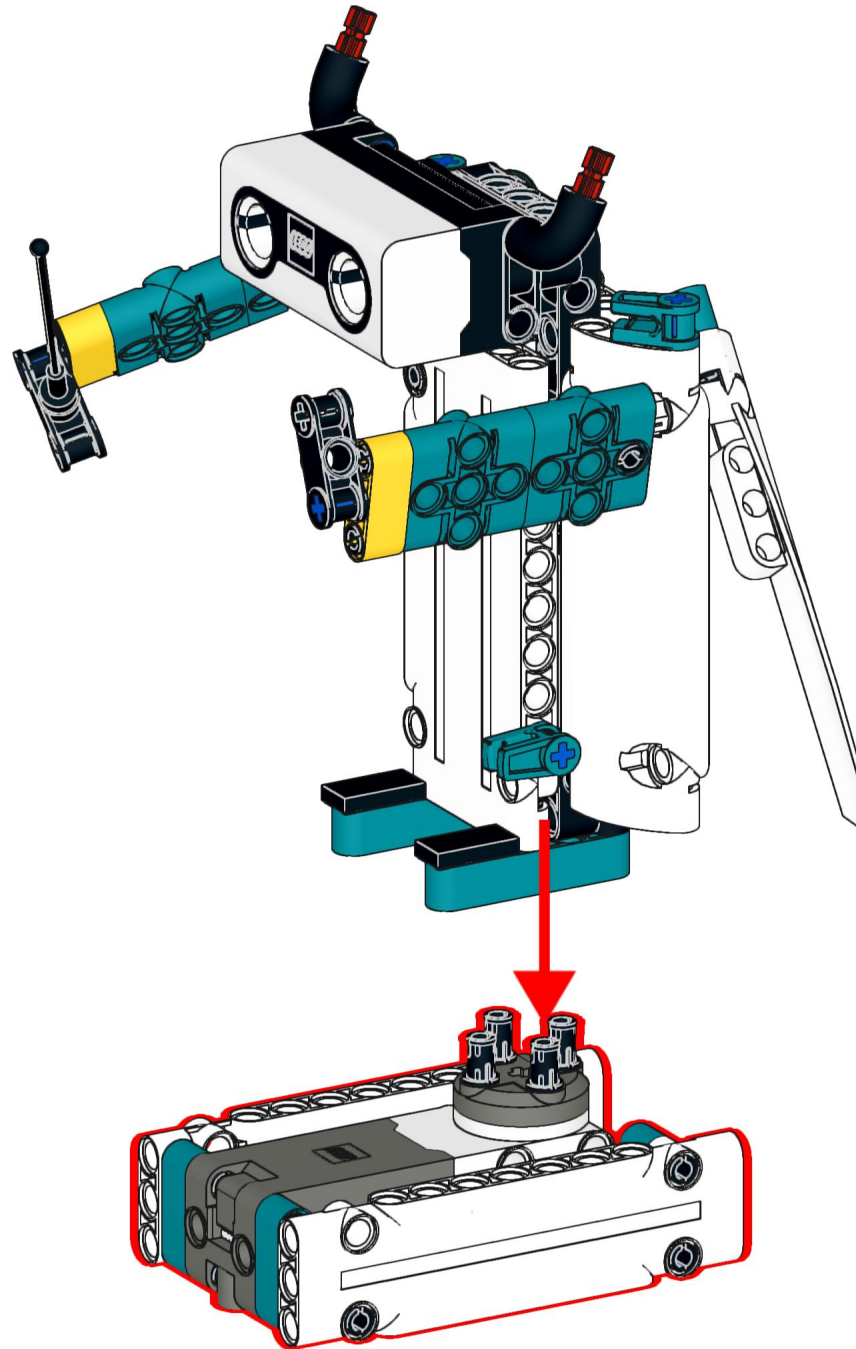
127



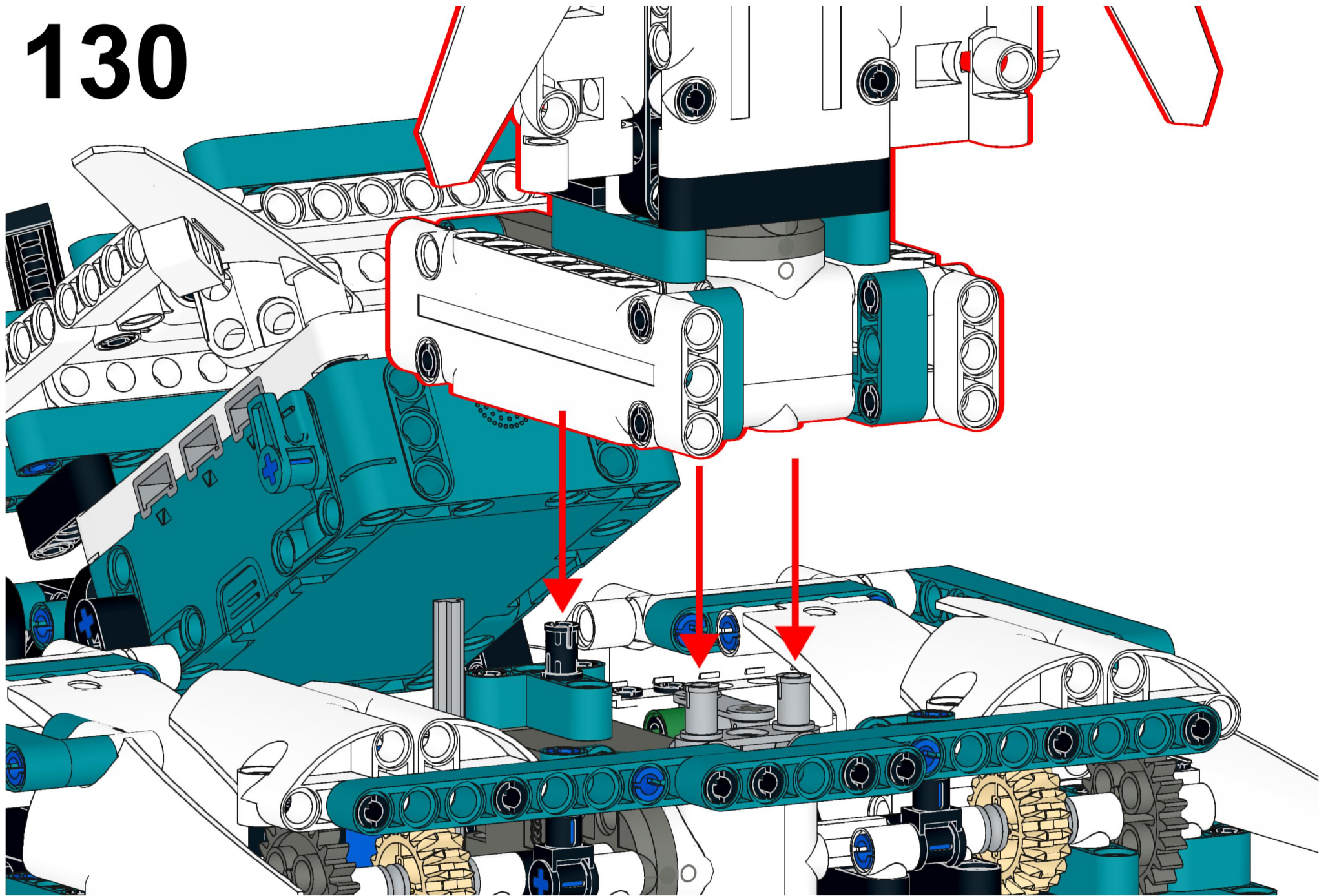
128



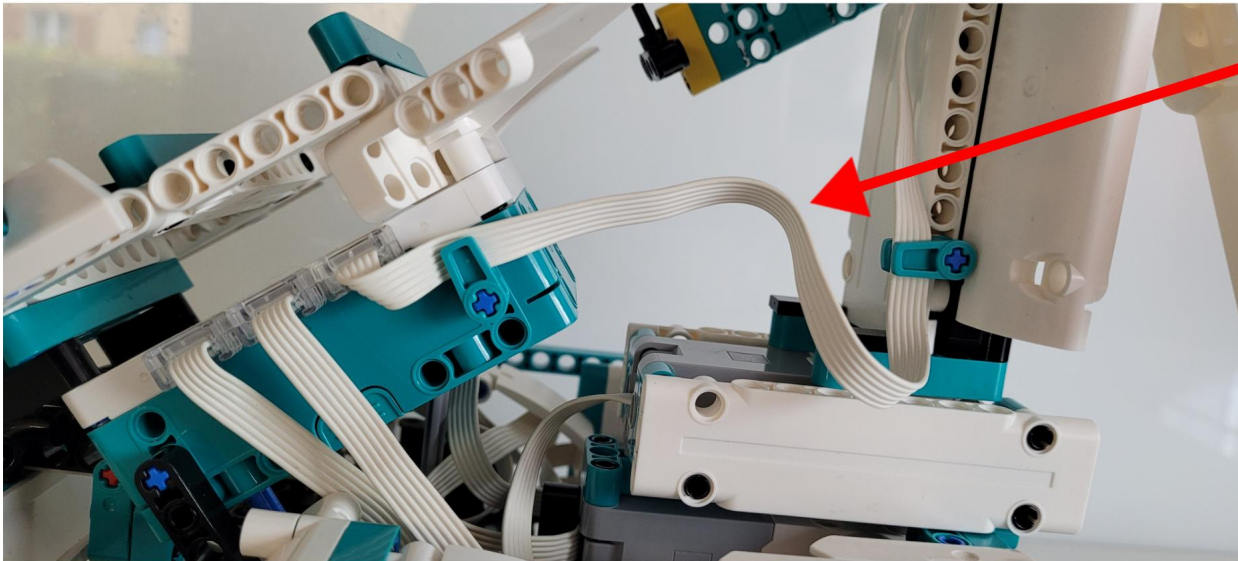
129



130



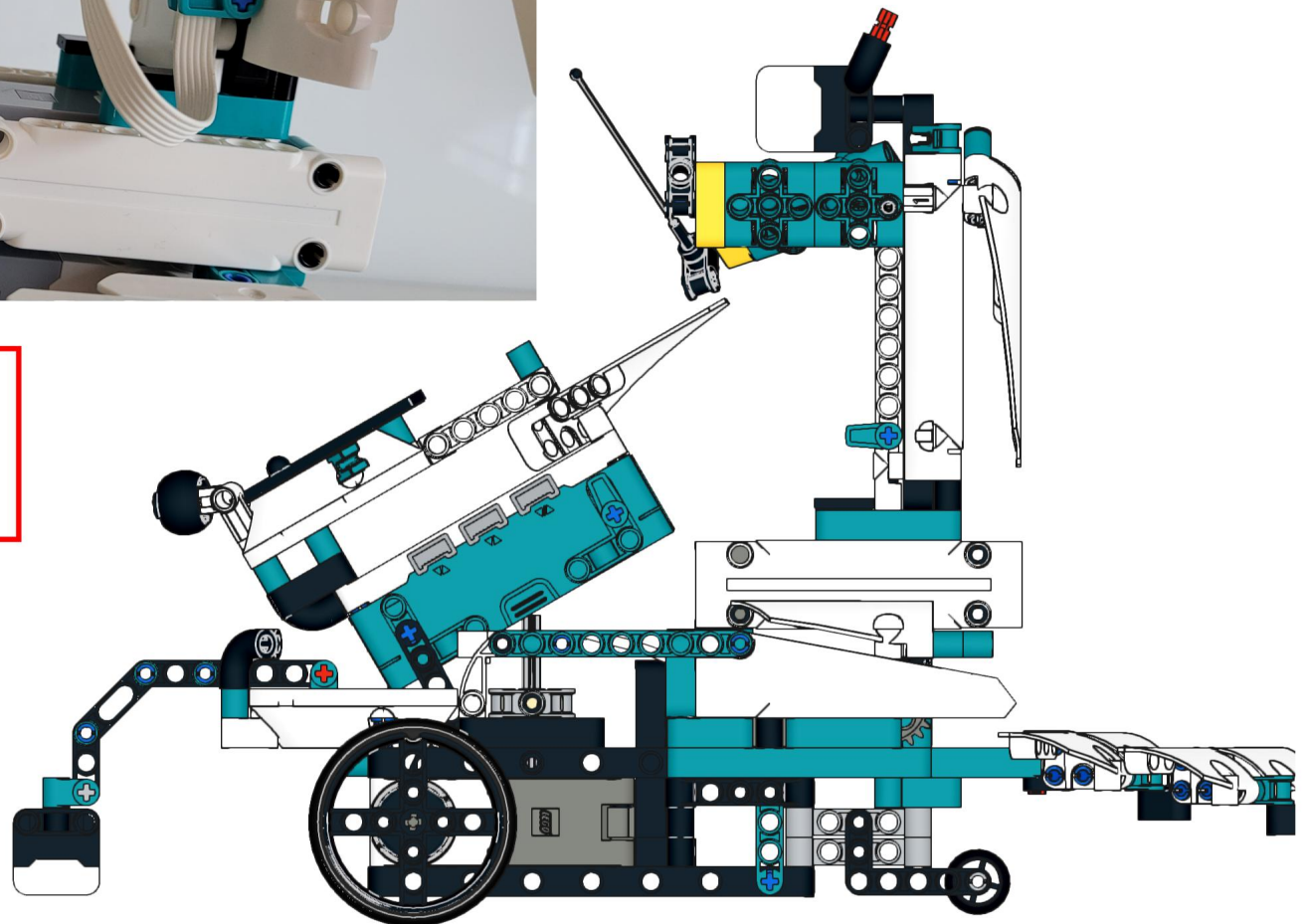
131



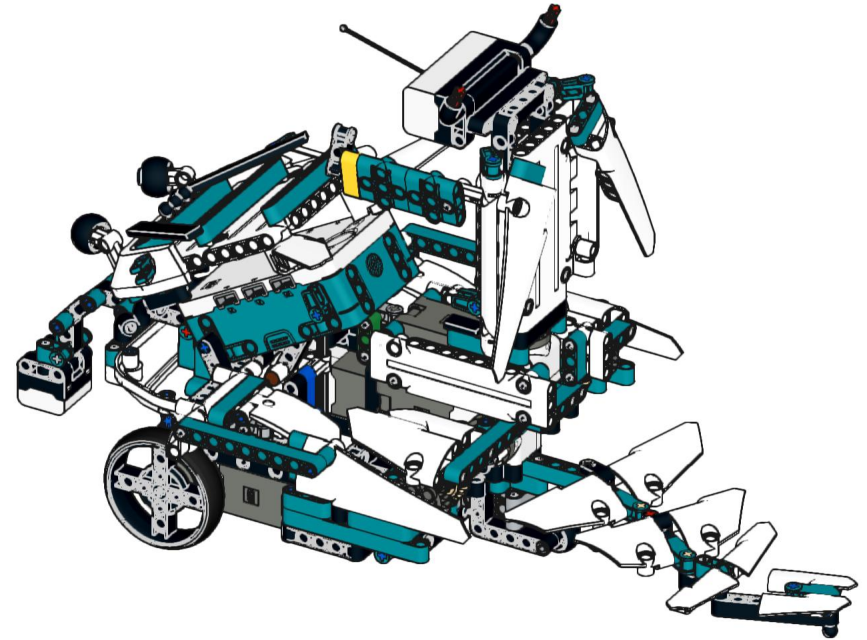
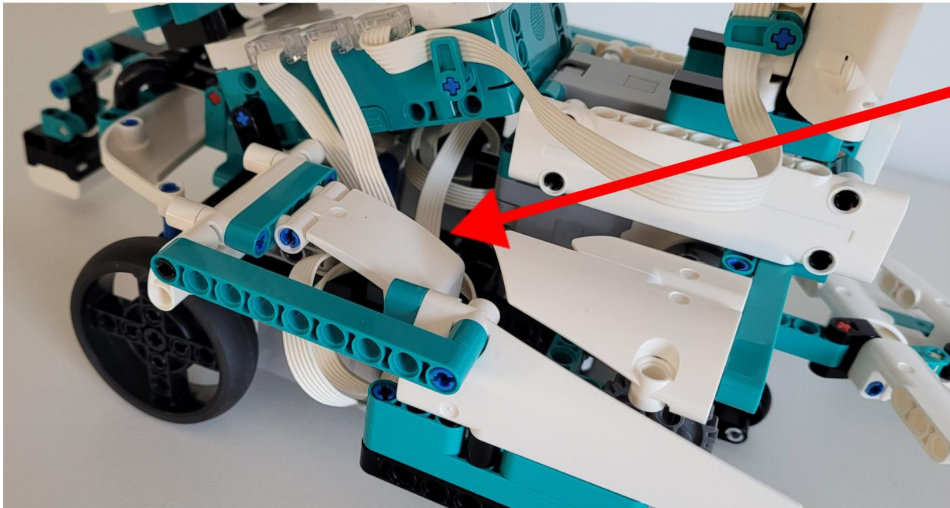
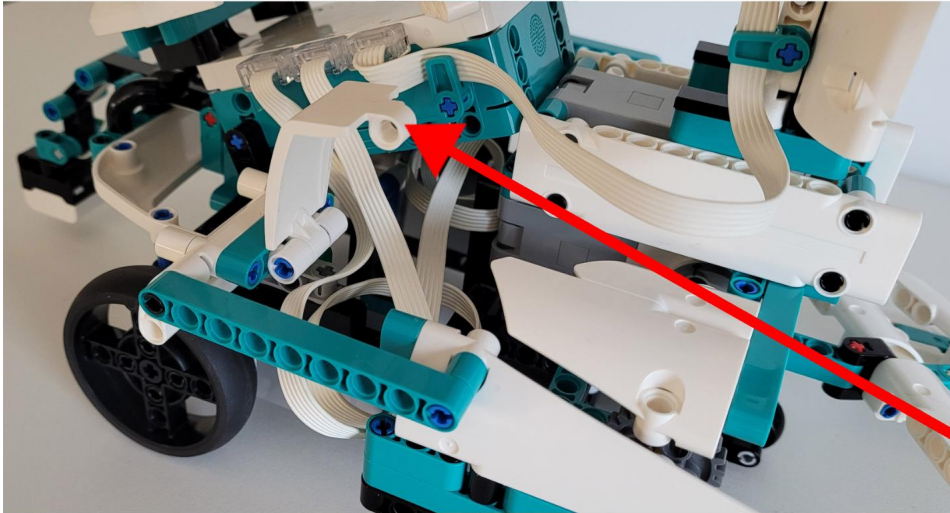
PAY ATTENTION TO THE
CABLE ROUTING!

CONNECT ULTRASONIC
SENSOR TO THE HUB ON
PORT E

CONNECT MOTOR OF THE
RIDER TO THE HUB ON
PORT A



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Lay the wires under the cover so they don't get in the way of the rubber bullets later.

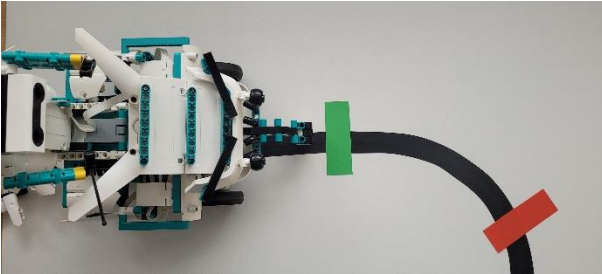
DOUBLE CHECK WIRING:
Port A: Motor rider
Port B: Light sensor
Port C: Motor left
Port D: Motor shooter
Port E: Ultrasonic sensor
Port F: Motor right

SOFTWARE AND OPERATING INSTRUCTIONS

You have received three programs with the building instructions that bring BUGRIDER to life:

Mode A

Line follower



This program lets BUGRIDER follow a black line. BUGRIDER performs various actions with the help of colored slips of paper:

Green: BUGRIDER shoots rubber bands

Red: BUGRIDER stops

Make sure the black line is at least 30mm wide.

The software includes a PID controller that controls the line follower. Feel free to adjust the PID controller to your needs or to extend the functionality of the color markers.

Mode B

Open space

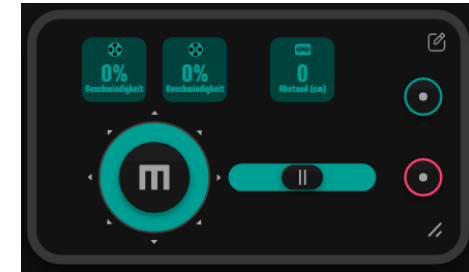


BUGRIDER moves freely in your home. Its rider scans the environment and tries to avoid obstacles.

If an obstacle approaches from the front, BUGRIDER automatically defends itself with sharp rubber bullets!

Mode C

Smartphone control

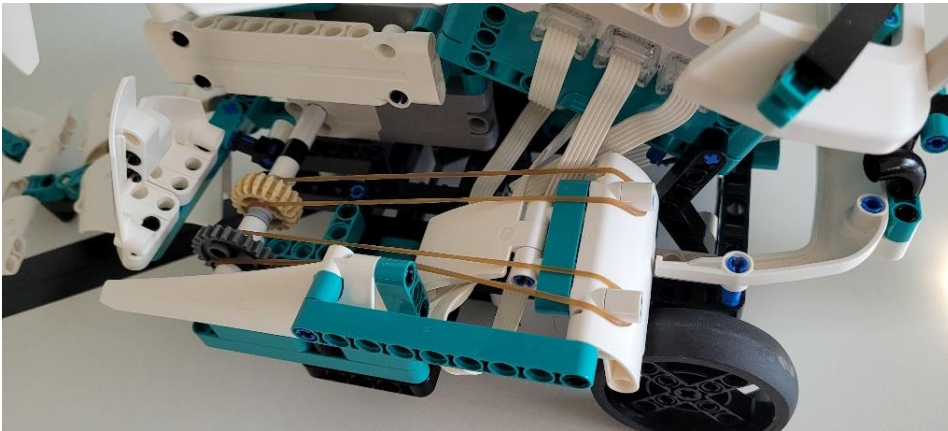


Control BUGRIDER with your smartphone. Use the left joystick to control the beast, while the right slider lets you rotate its rider and scan the environment.

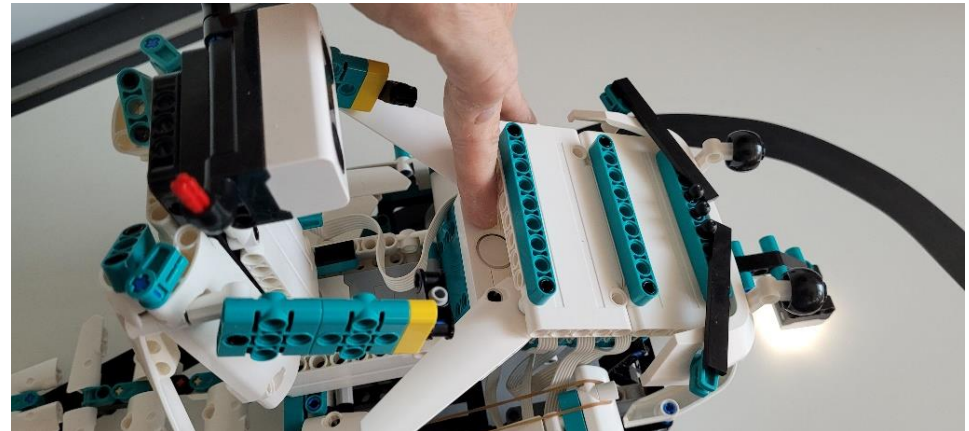
Press the green button to load the rubber band gun. Use the red button to shoot at your enemies!

Be sure to use the streaming mode of the Mindstorms app!

To load the launcher with rubber bands, first start one of the three BUGRIDER programs as described before. Then follow these steps:

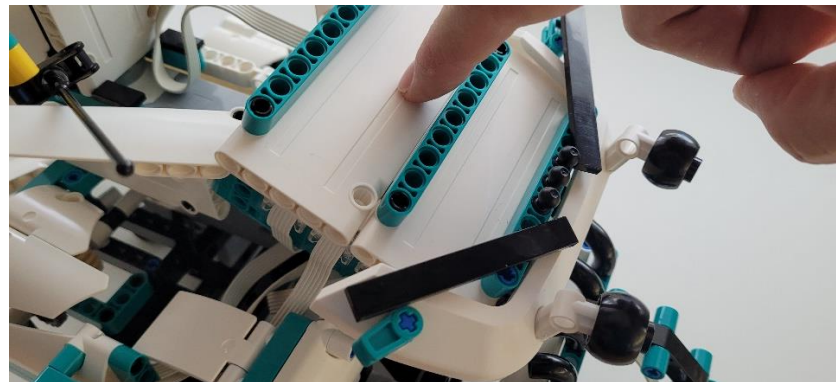


1. Open the flaps. Put a rubber band between the front and the gears. Don't use rubber bands that are too strong!



2. Press the left arrow key of the hub. This causes the gears to turn, thus tensioning the rubber band. Close the flaps.

To start or stop moving BUGRIDER in mode A or mode B, just tap the hub with your fingernail:



Watch also my YouTube channel for a demonstration of all functionalities of BUGRIDER!
<https://www.youtube.com/c/BingobricksSwitzerland>

TAKE A LOOK AT ALL MODELS FROM BINGOBRICKS!



PINGERBEE!

More than just ping pong!



PINGERBEE is the RI51515 Version of PONG3R. No additional parts are required! It shoots balls in different directions at various speed levels. Additionally, it has an extended ball basket for up to 12 balls and it comes with a lot of light and sound effects!

www.rebrickable.com/users/Bingobricks/mocs



BUGRIDER!

Beware of the beast!



BUGRIDER attacks everything that gets in front of his bared teeth. His rider recognizes all his enemies who approach him and his fearsome beast from the front or the side. BUGRIDER boldly finds its own way through your territory. If you want to make it a little easier for him, you can also let him follow a black line or control him directly with your smartphone. But beware of his most dangerous weapon: he can shoot his rubber bullets up to 10 meters in all directions!

www.rebrickable.com/users/Bingobricks/mocs



PONG3R!

The ultimate ping pong training machine!



PONG3R shoots table tennis balls in different directions at various speed levels. Choose one of many exciting shooting programs to train your trick shots. PONG3R recognizes the color of the balls and will shoot white balls flat and orange balls high!

www.rebrickable.com/users/Bingobricks/mocs

MULTIPLE HITS AT ONCE
SLING3R!
MADE OF LEGO MINDSTORMS



SLING3R!

Multiple hits at once!

EV3
(31313)

SLING3R attacks everything that comes before its eyes. With its tightly stretched rubber bands, it is able to hit several targets simultaneously from up to ten meters away! SLING3R comes in two versions: Standard version and smartphone version!

www.rebrickable.com/users/Bingobricks/mocs

EL3VATOR!
Let the marble race begin!



EL3VATOR!

Let the marble race begin!

Technic

EL3VATOR! is a lift you can use for marble races. This is a fan project of the original Marbula One by Jelle's Marble Runs.

www.rebrickable.com/users/Bingobricks/mocs



Check out my YouTube channel! www.youtube.com/c/BingobricksSwitzerland

BINGOBRICKS