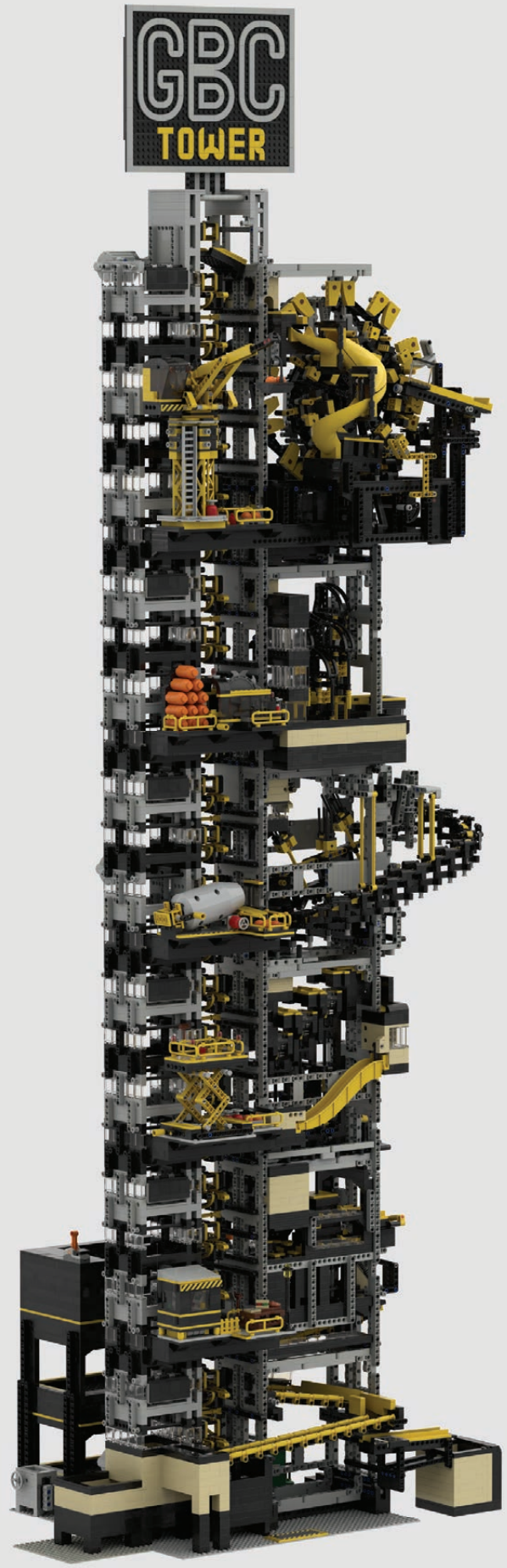
GBC

TOWER

Great Ball Contraption Tower



Great Ball Contraption Tower

The Great Ball Contraption Tower or “Akiyuki Tower” is an homage to the famous LEGO® great ball contraption master builder Akiyuki Kawaguchi. The tower uses six Akiyuki modules but instead of joining these in the customary horizontal sequence, the modules in the GBC Tower are stacked vertically on top of each other – resulting in a 14,500-brick LEGO® MOC that towers more than 6 feet in height!

The Modules

The first module in the tower is a *bucket-wheel module* that is used as the elevator, taking the balls from ground level (first floor) to a height of 65 inches. The balls are then delivered to the penthouse of the tower: the dazzling *cycloidal drive module*. The fifth floor of the tower houses a GBC fan favorite: the *catch and release module*. The fourth floor is occupied by the *fork to fork module* and the winding snake slide. The third floor has a simple but trustworthy *step module*. Finally, a short *spiral staircase module* resides on the second floor of the tower. It takes a ball three minutes to go through all six modules while traveling a total distance of about 24 feet.

Hardware and Software

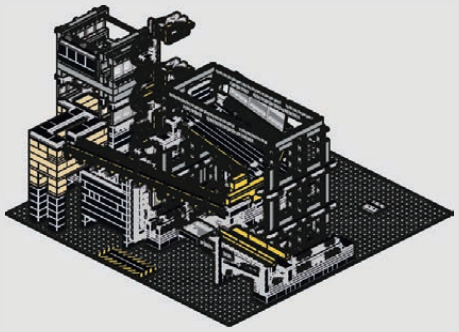
The six modules are driven by eight Power Functions motors, four XL and four M motors, which together are powered by two interfaces. The first three XL motors drive the bucket-wheel module and are powered by a 9v Train Speed Regulator. The last XL motor and the four M motors are powered by a DACTA Control Lab Serial Interface B. The two interfaces (Speed Regulator and Control Lab) are housed within a computer module at the back of the tower which also houses a miniature Intel Compute Stick CS125 computer connected to a 7-inch touch screen. The motors’ speeds are managed using custom software written for the GBC Tower that runs on Microsoft® Windows 10.

These instructions outline the final 84 steps connecting 38 sub-assemblies into the full GBC Tower. For folks adventurous enough to build this huge MOC, I wish you good luck! I hope you have as much fun as I did, creating, ideating, and learning about these amazing LEGO® machines!

For more detailed information about the GBC Tower visit www.gbctower.com or akiyuki.jp to learn about Akiyuki Kawaguchi’s amazing contraptions which inspired this MOC.

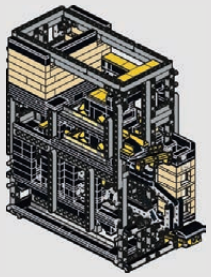
Sincerely,
Diego Baca

A



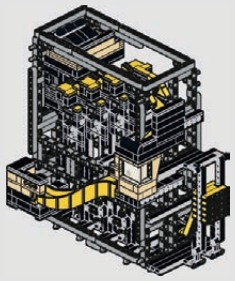
Level 1
Bucket-wheel
1474 pcs

B



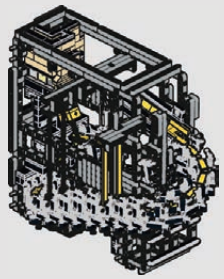
Level 2
Spiral Staircase
1205 pcs

C



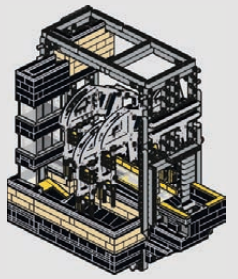
Level 3
Step
1062 pcs

D



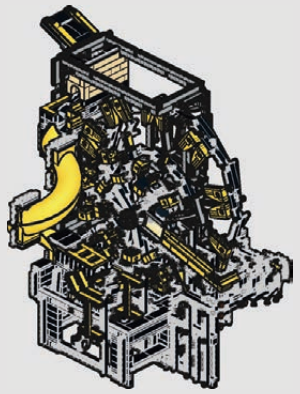
Level 4
Fork to Fork
1310 pcs

E



Level 5
Catch and Release
1146 pcs

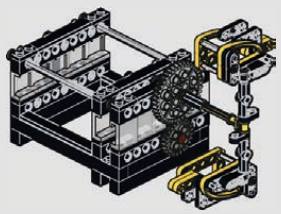
F



Level 6
Cycloidal Drive
2530 pcs

M

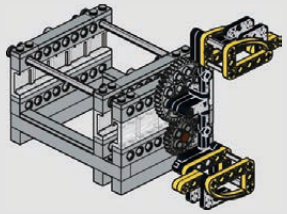
11x



Bucket-wheel
Long
113 pcs

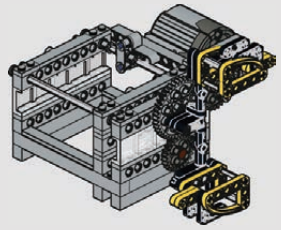
N

5x



Bucket-wheel
Short
115 pcs

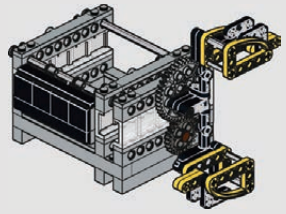
O



Bucket-wheel
Short Motor
143 pcs

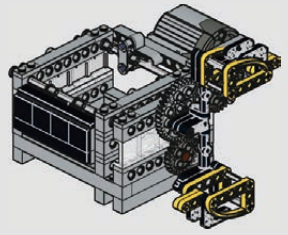
P

4x



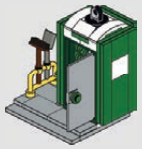
Bucket-wheel
Short Label
135 pcs

Q



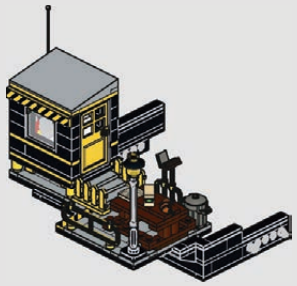
Bucket-wheel
Short Motor + Label
163 pcs

G



Level 1
Porta Potty
71 pcs

H



Level 2
Office
245 pcs

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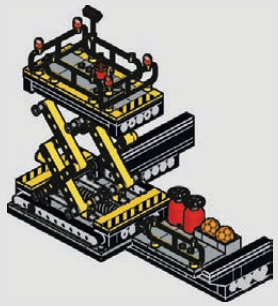
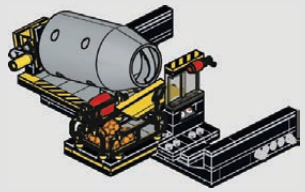


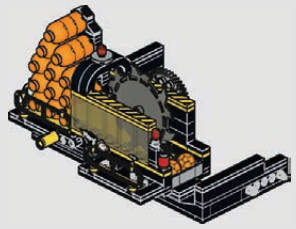
Level 3
Scissor Lift
229 pcs

J



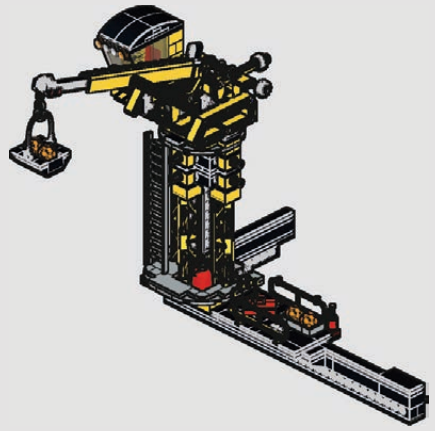
Level 4
Mixer
158 pcs

K



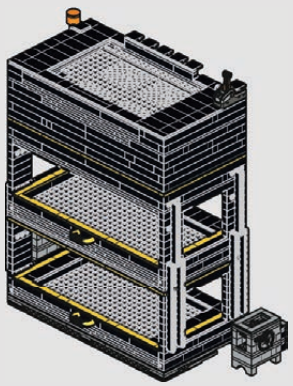
Level 5
Saw
252 pcs

L



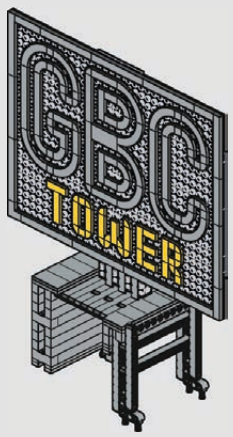
Level 6
Hook Crane
402 pcs

R



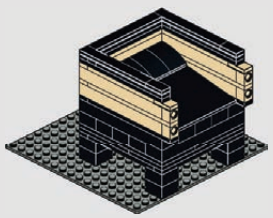
Computer
Module
1103 pcs

S



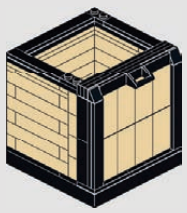
Top
Billboard
278 pcs

T

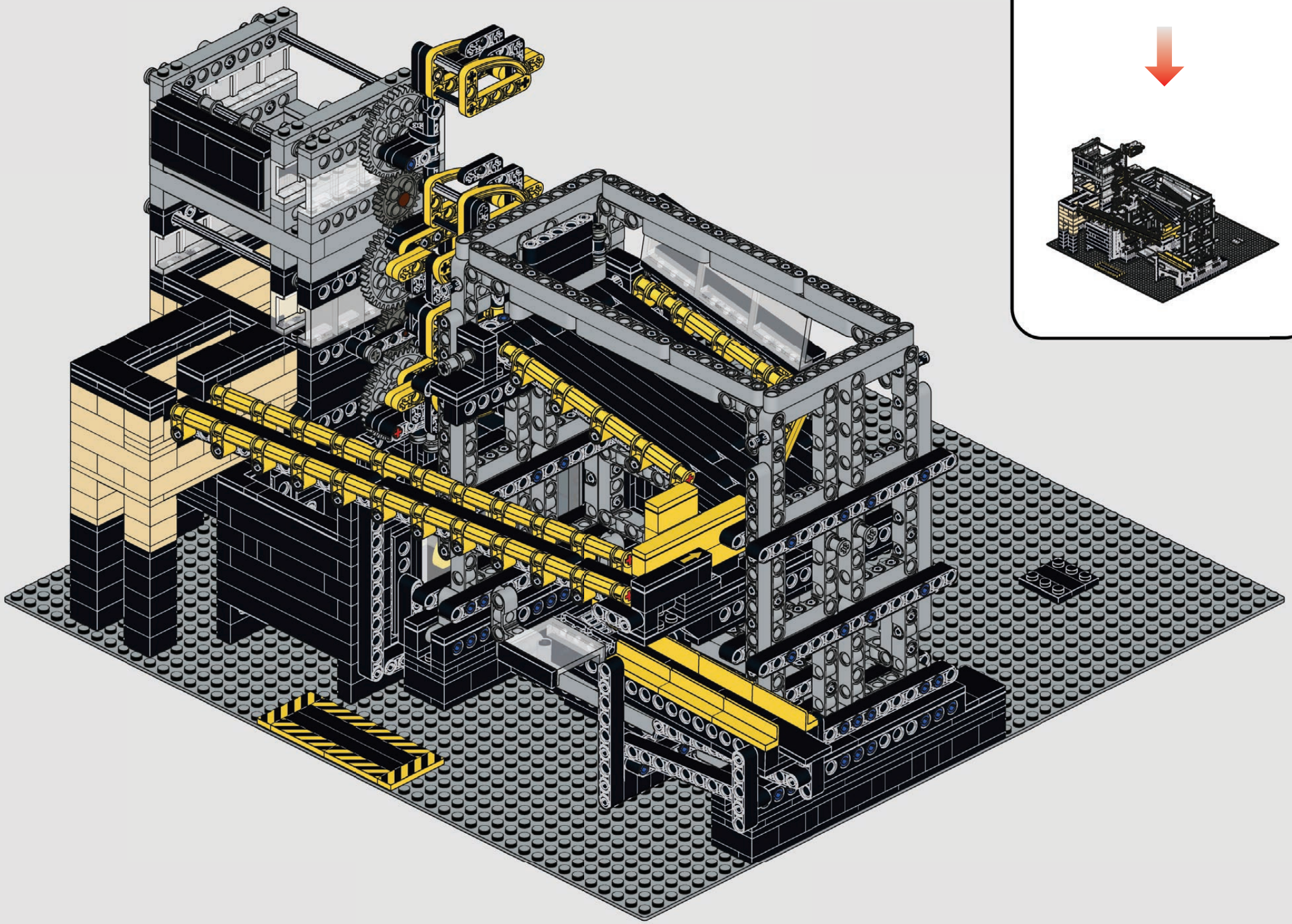


Entry
Bin
73 pcs

U



Exit
Bin
105 pcs



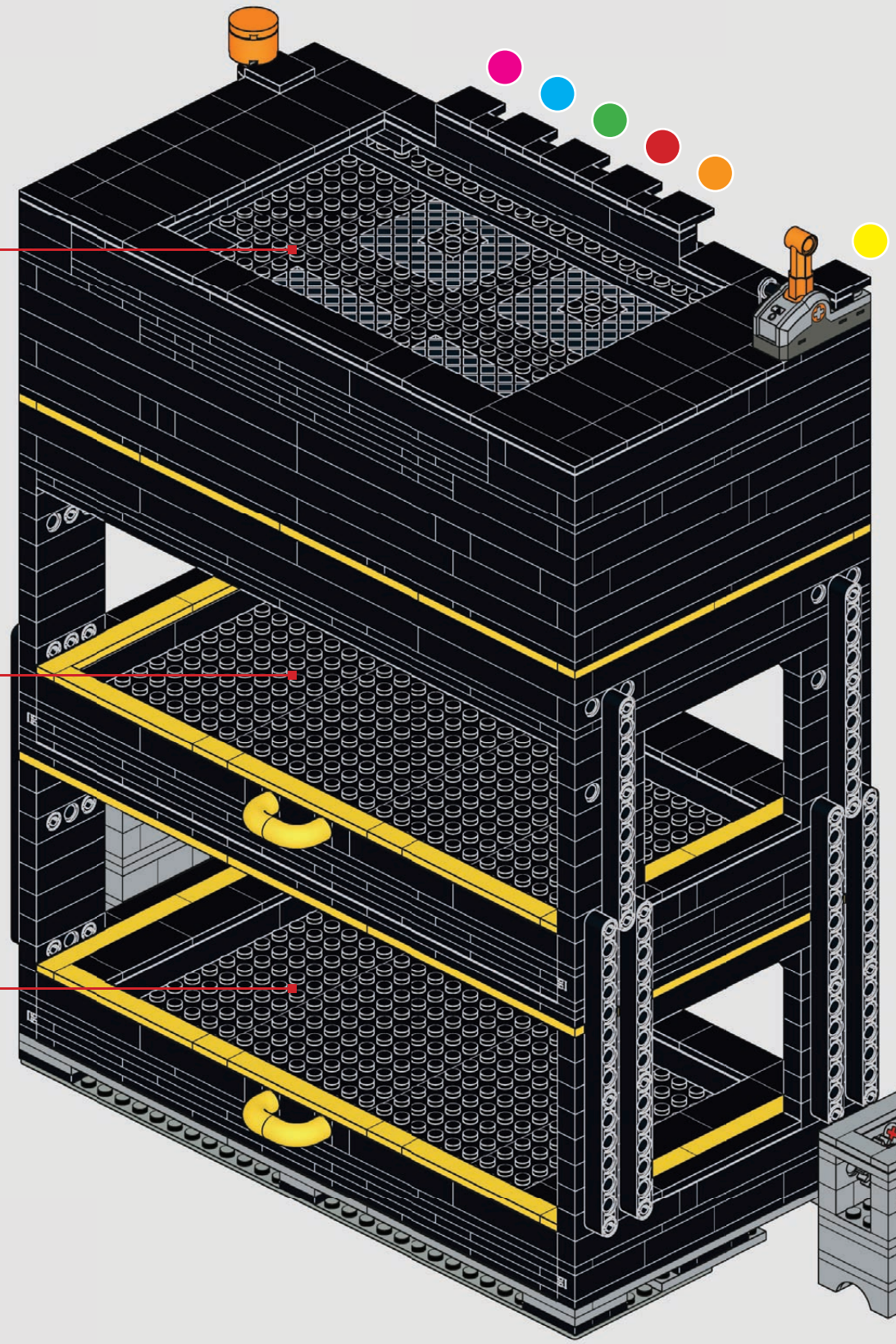
A

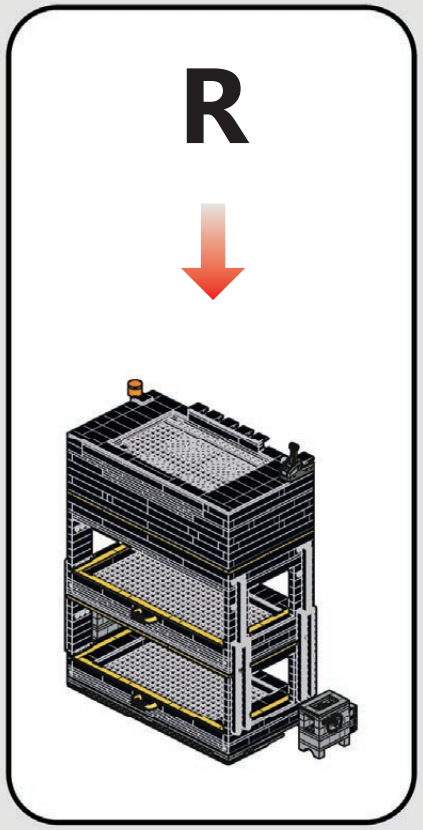
The Control Lab Serial Interface B is controlled by an Intel Compute Stick, inside Computer Module (R), and is attached using a IoGear USB Serial RS-232 Adapter. The Compute Stick is also attached to a 7 inch touch screen via HDMI.

To learn more visit: www.gbctower.com

Control Lab Serial Interface B (2954)

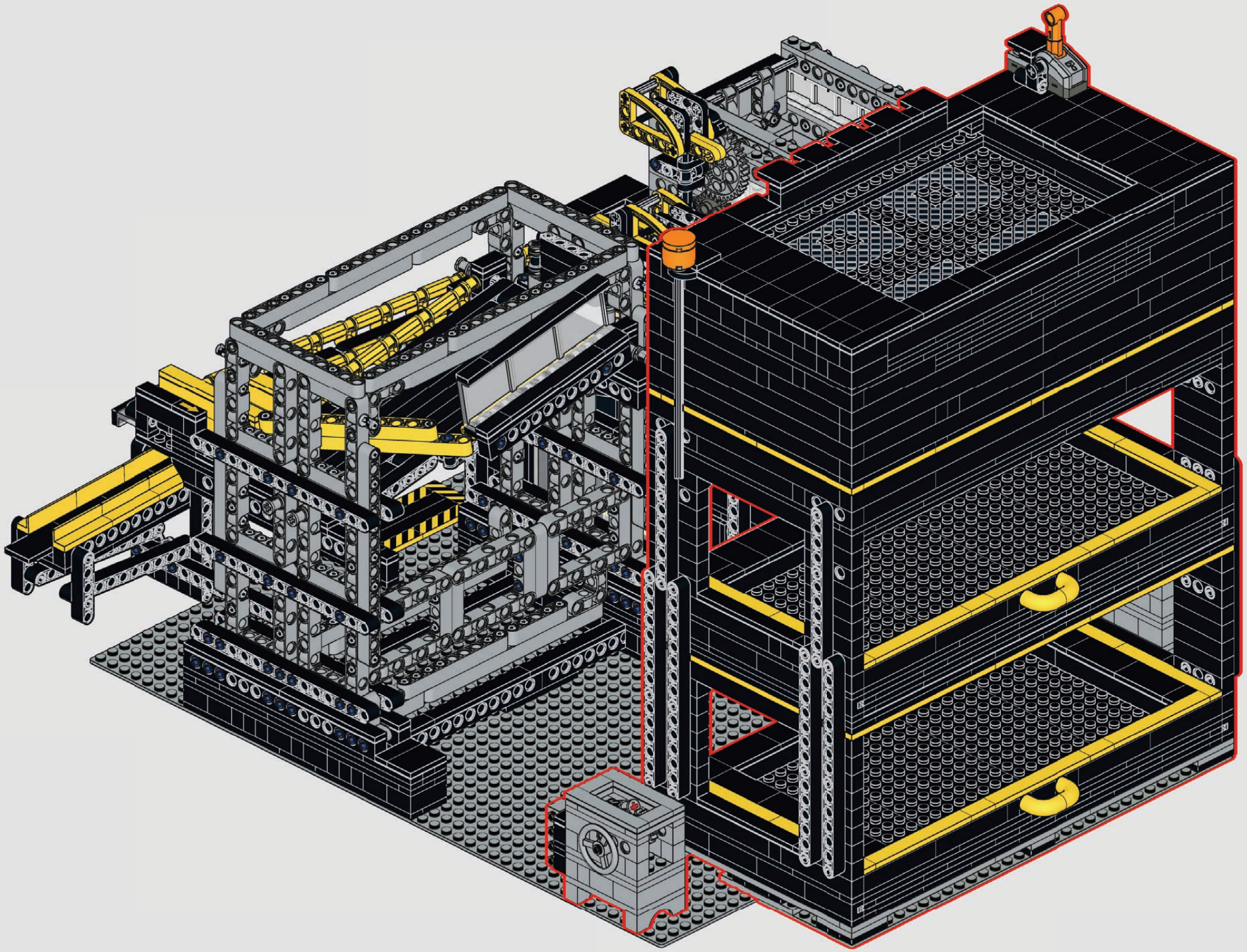
Train Speed Regulator 9V (2868b)

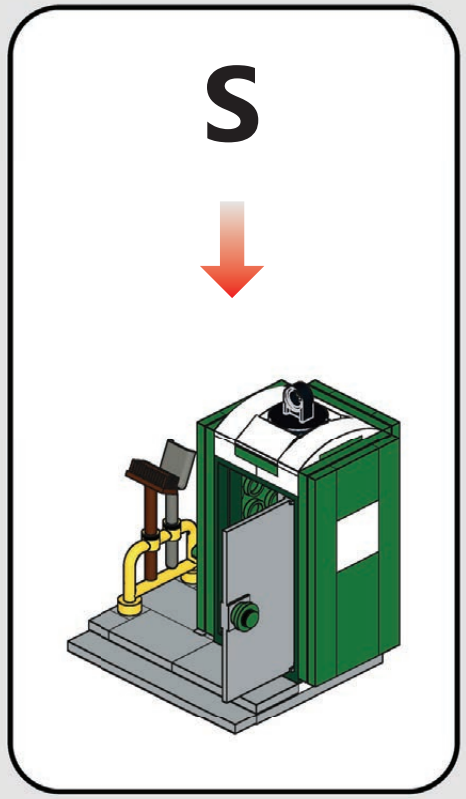




Anchors attach onto two points on the Great Ball Contraption Tower using string (see pages 76 and 90).

1

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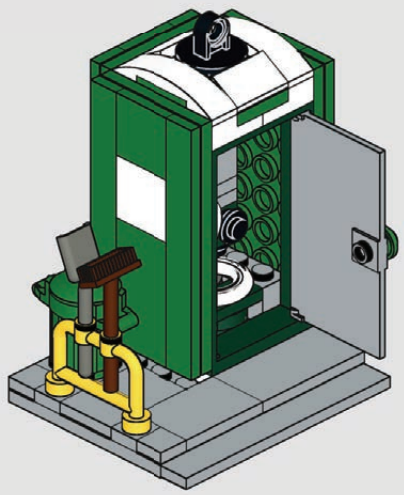

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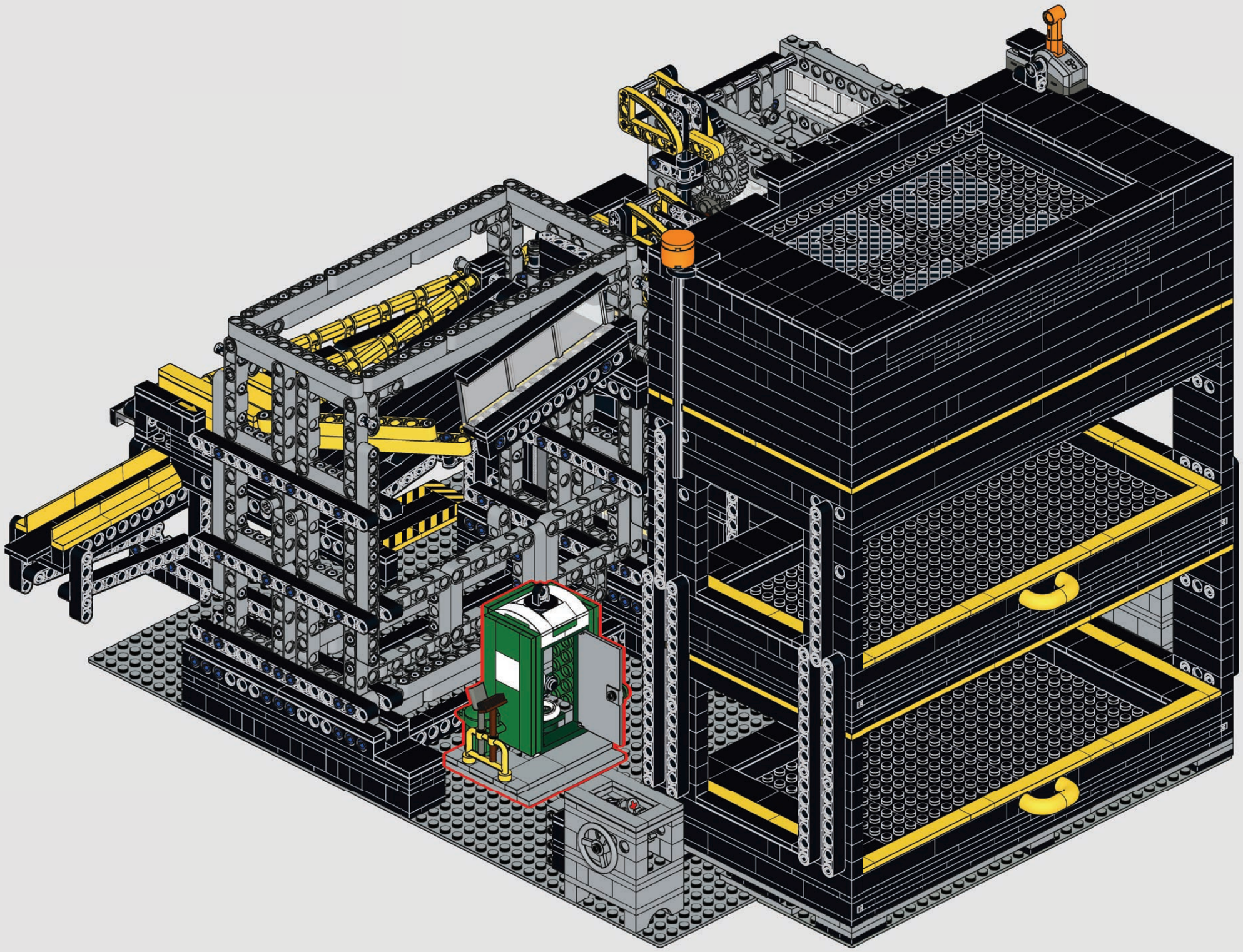

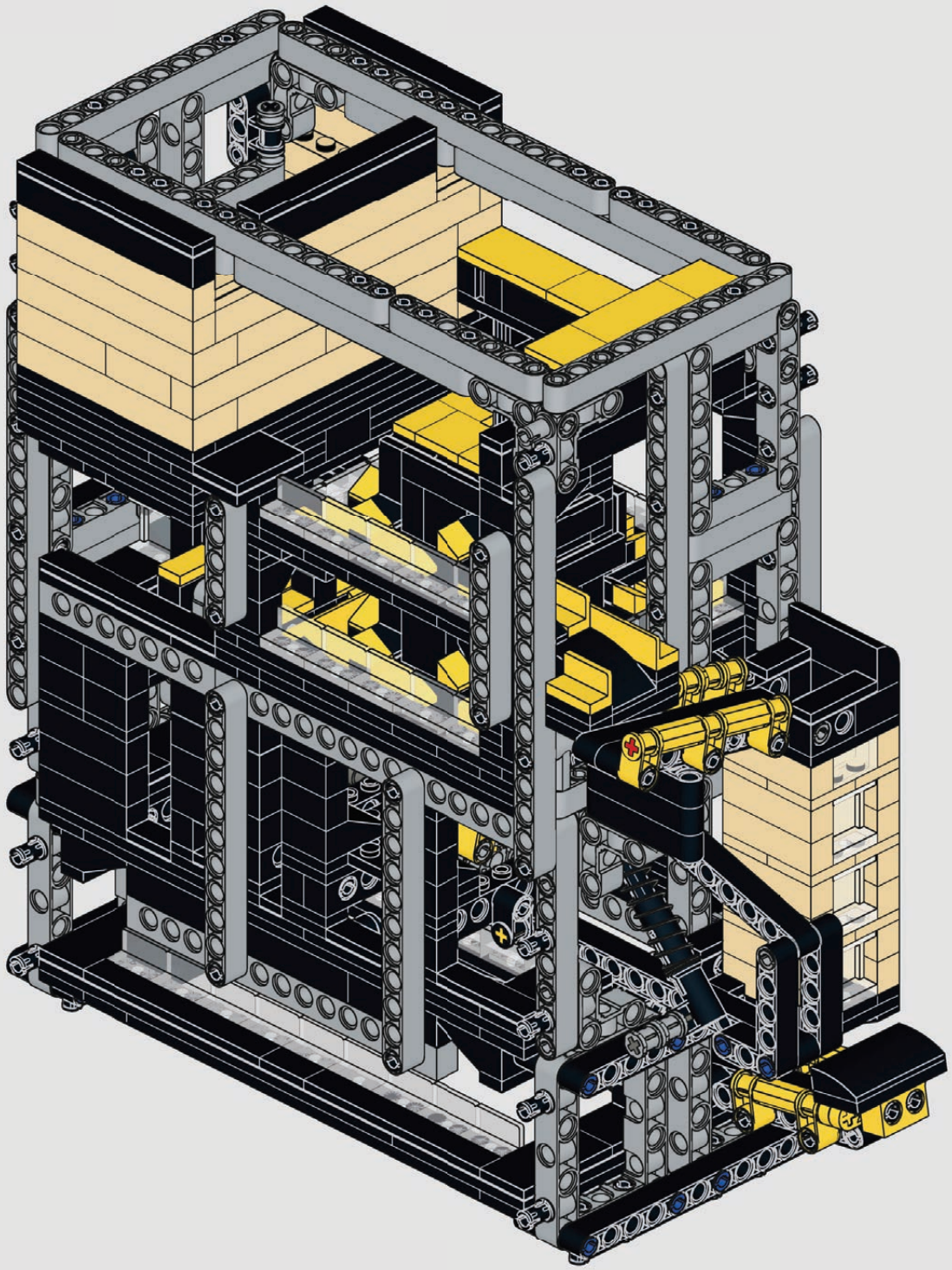

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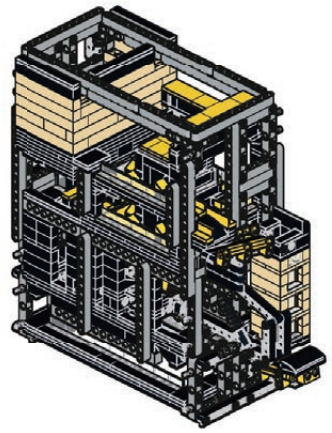

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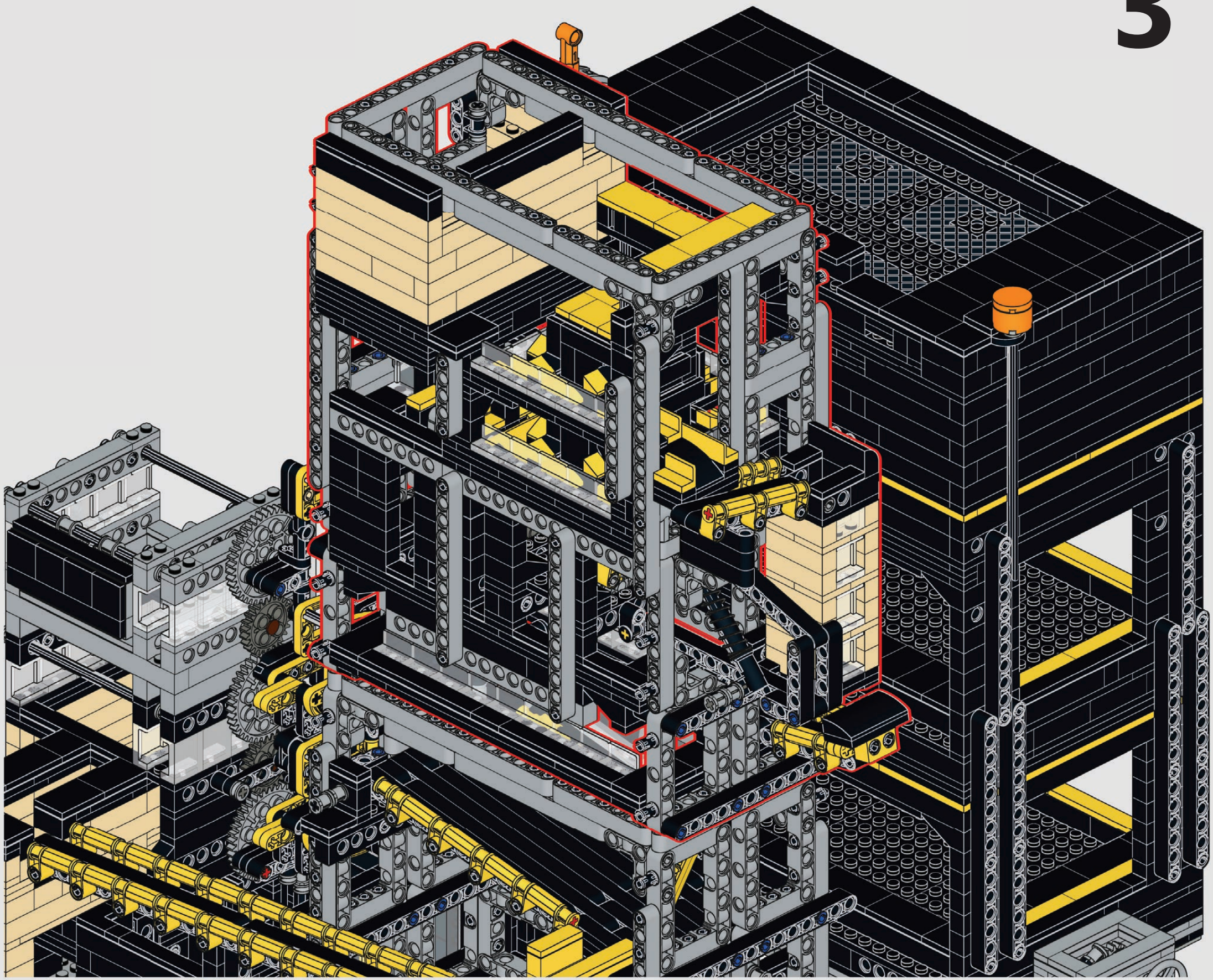

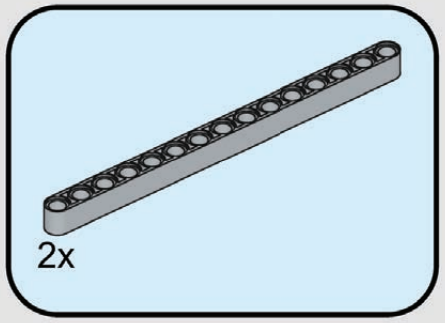
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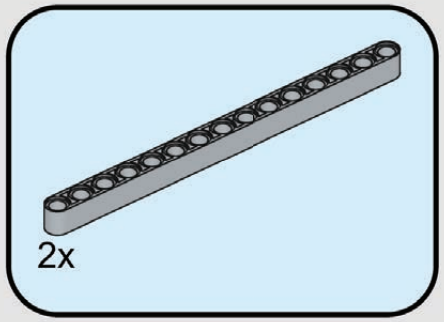
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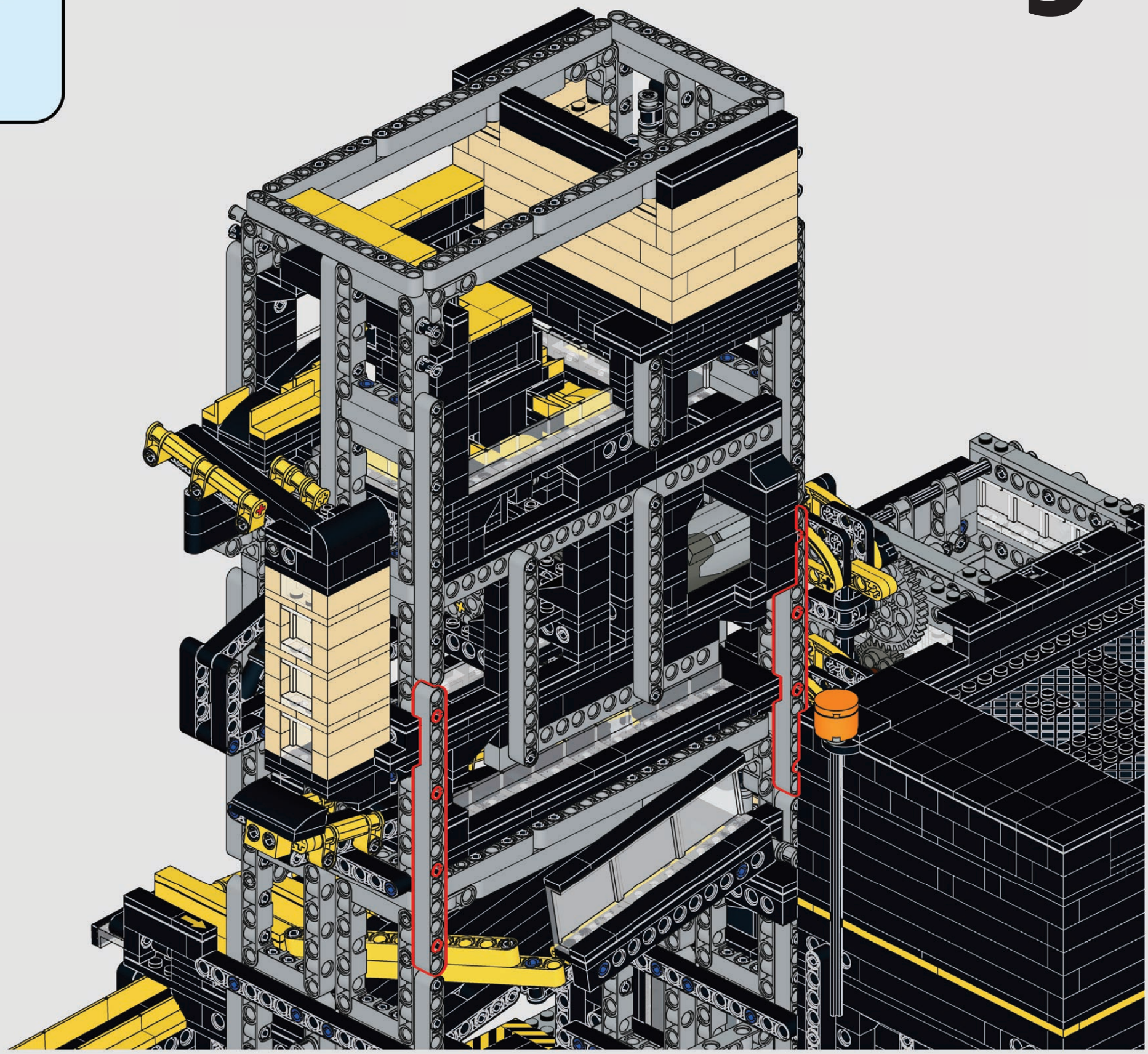

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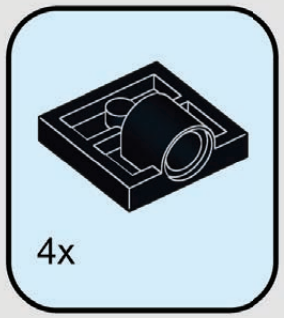
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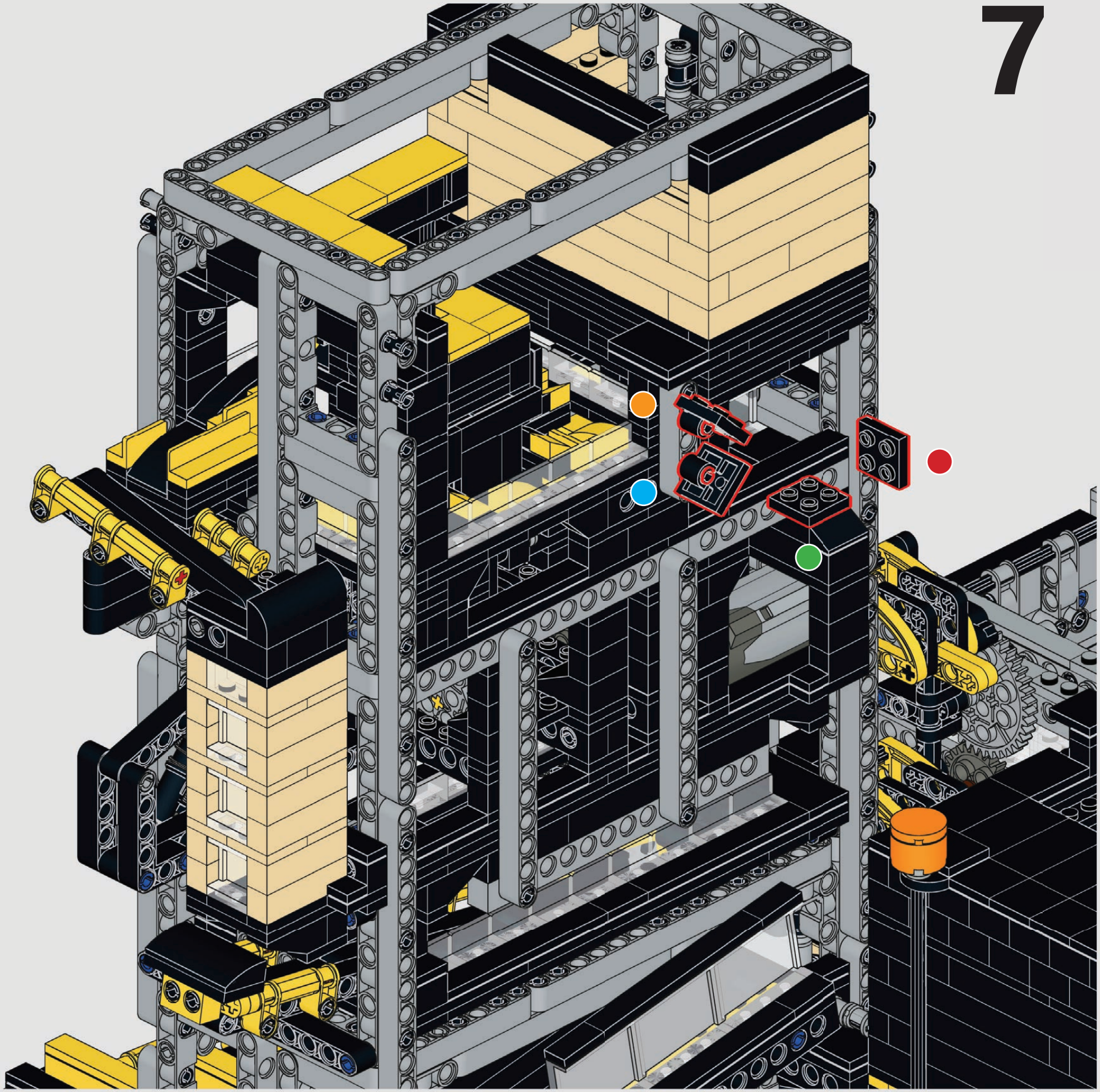

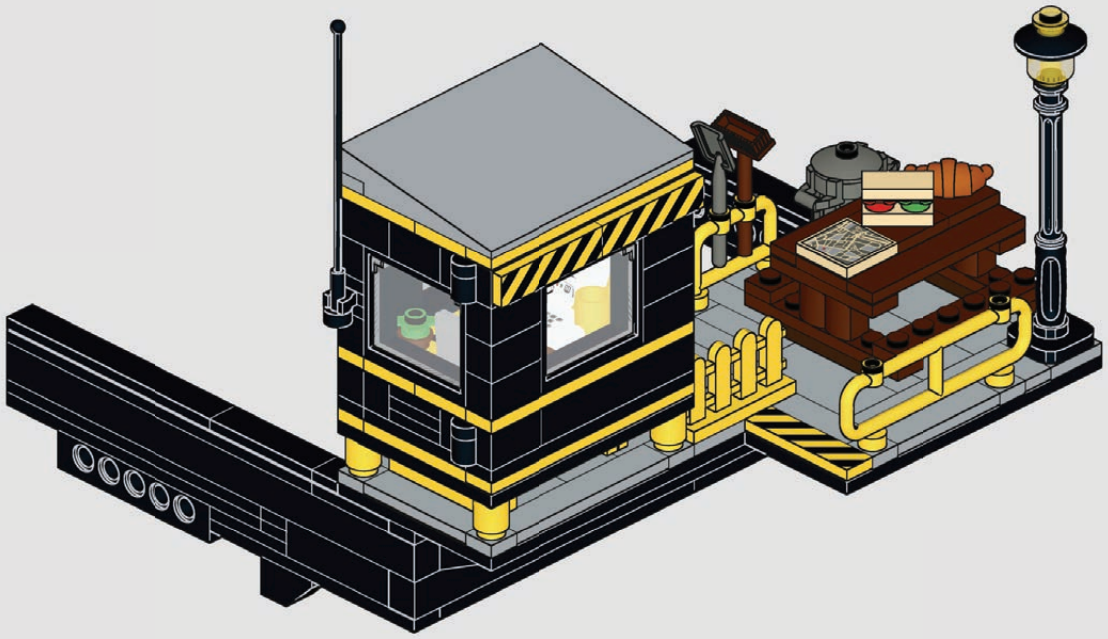

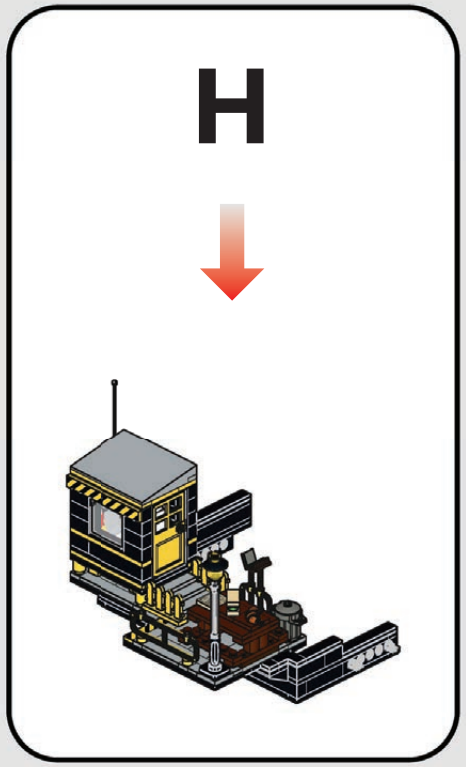
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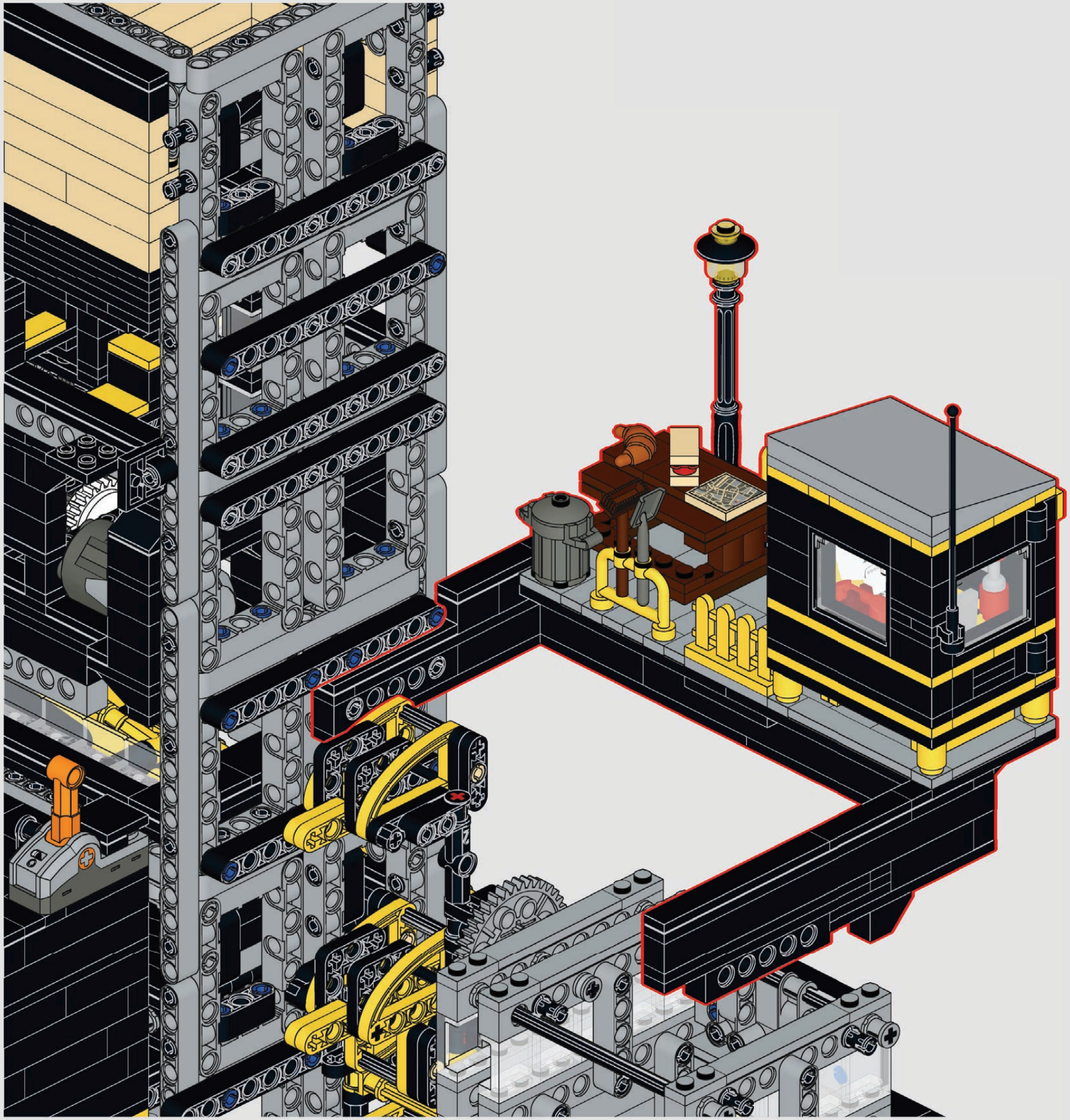

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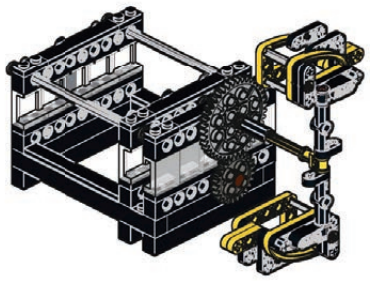

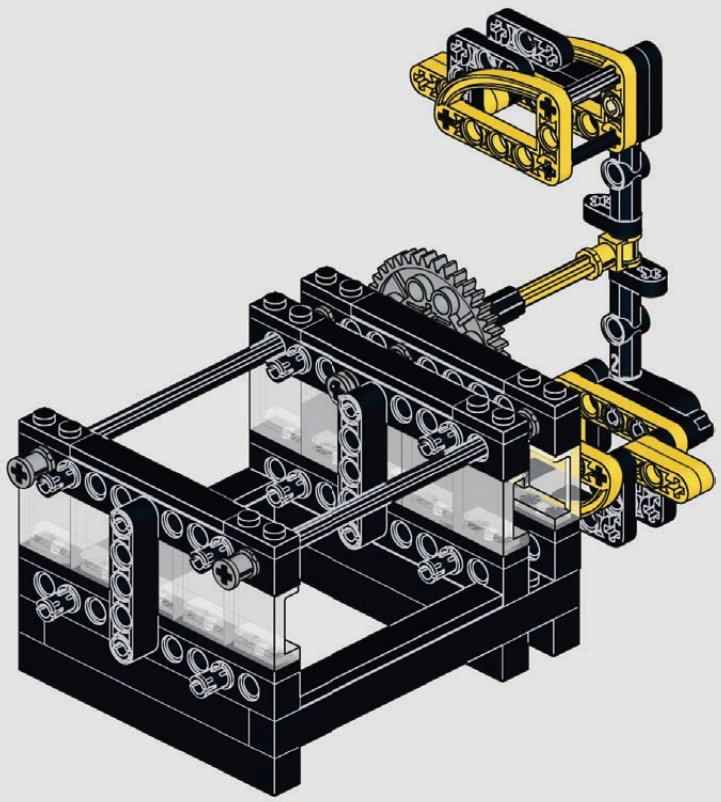

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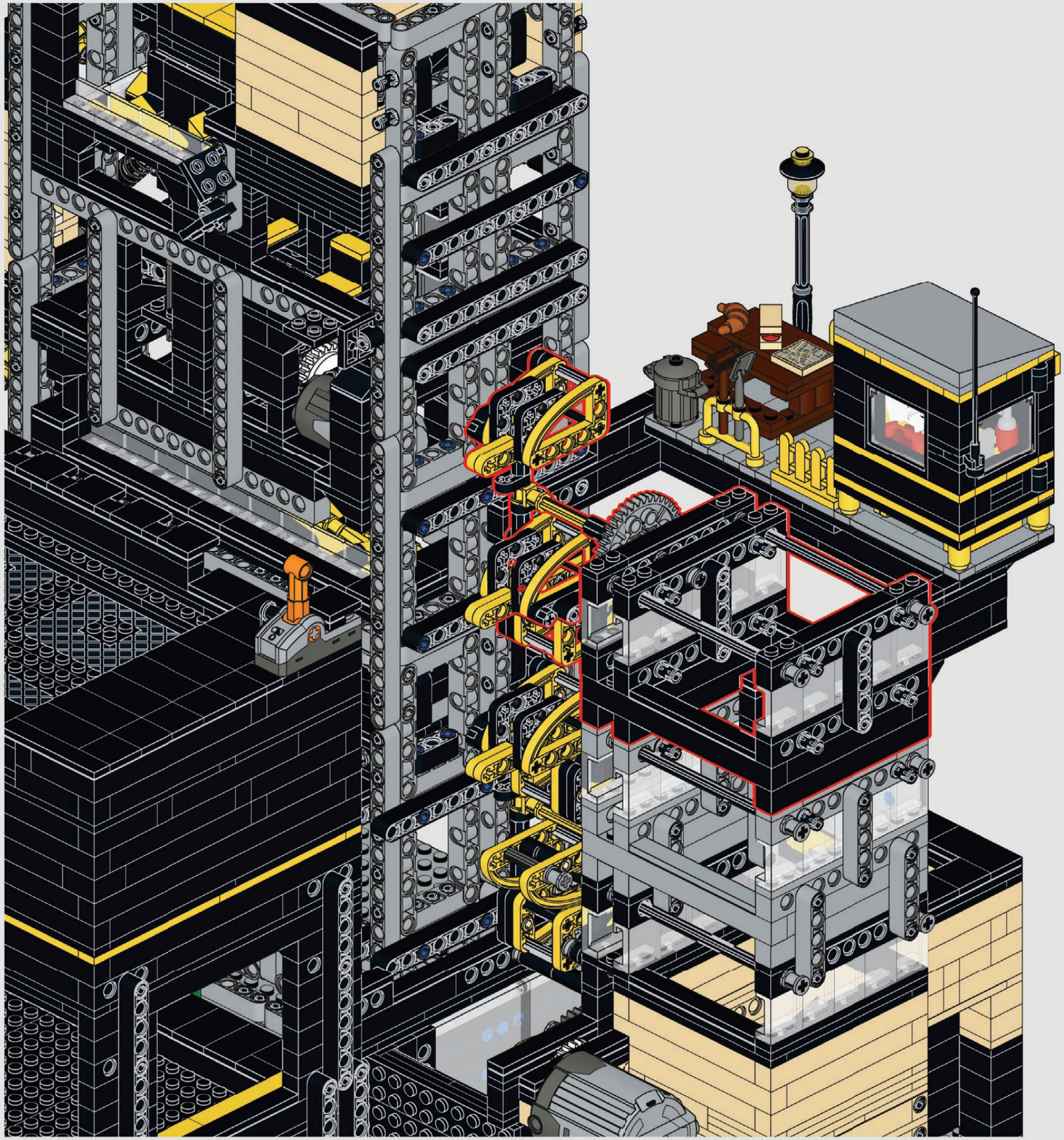

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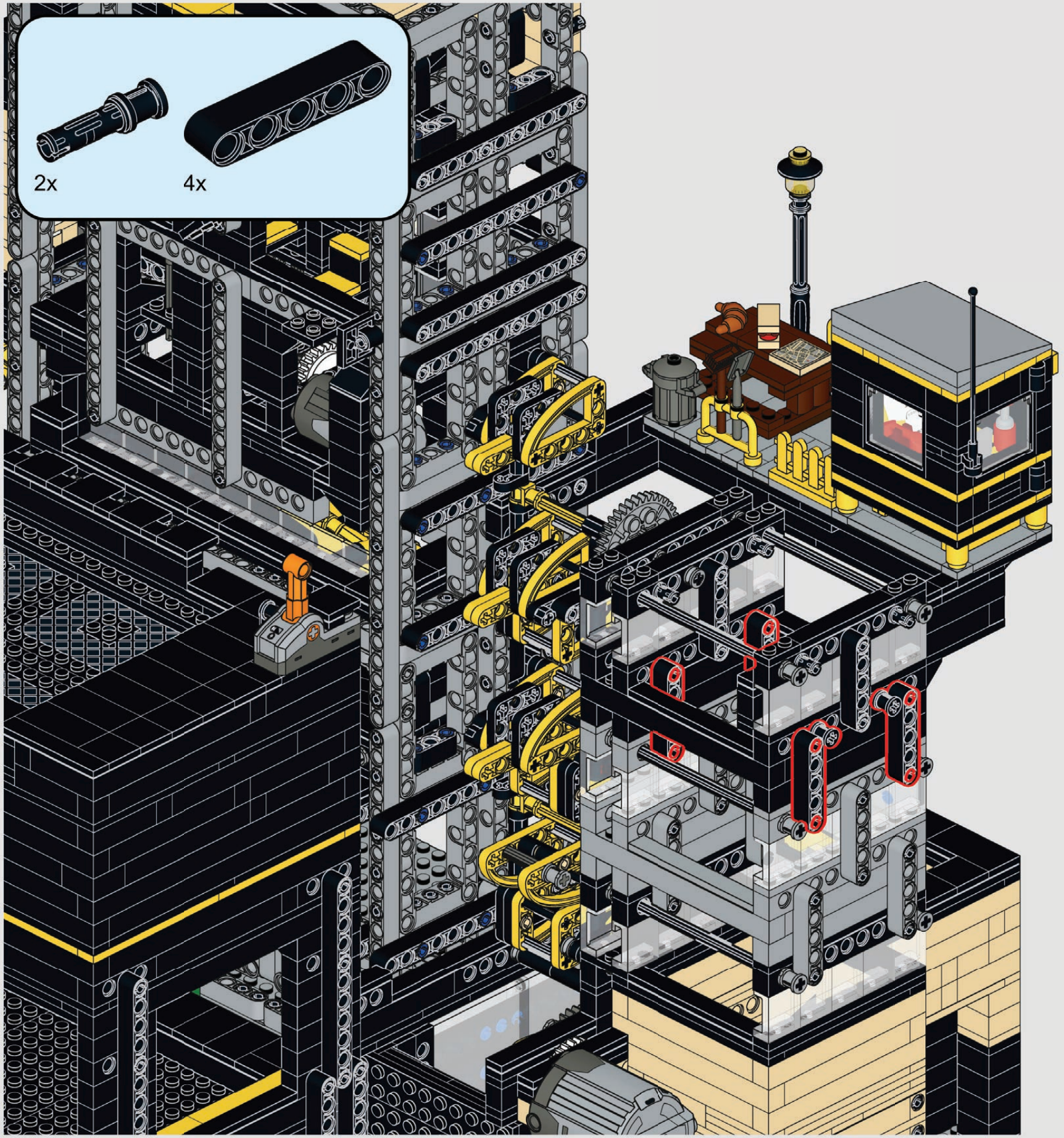

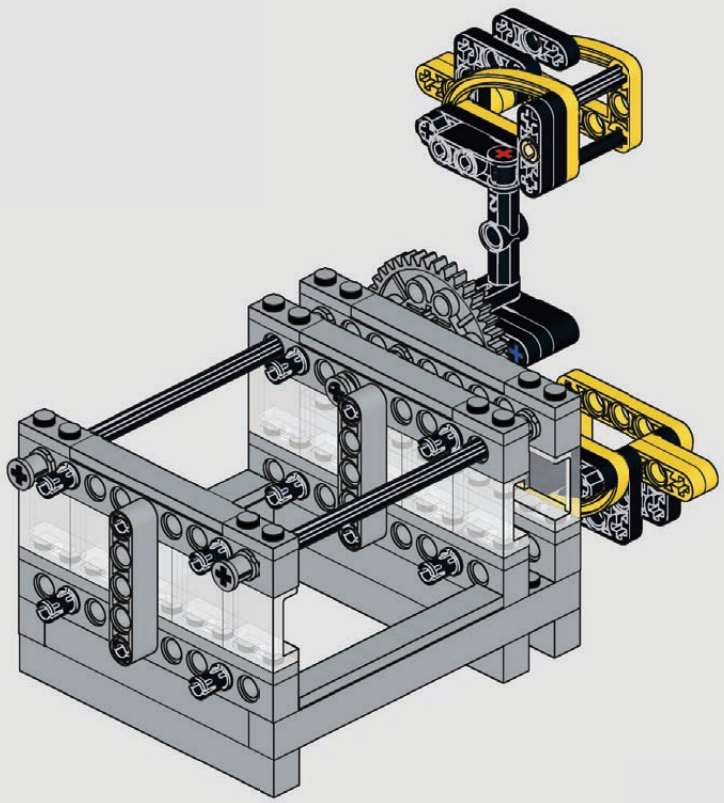

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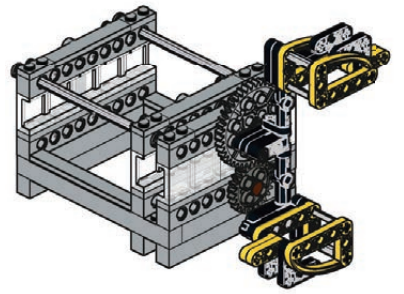

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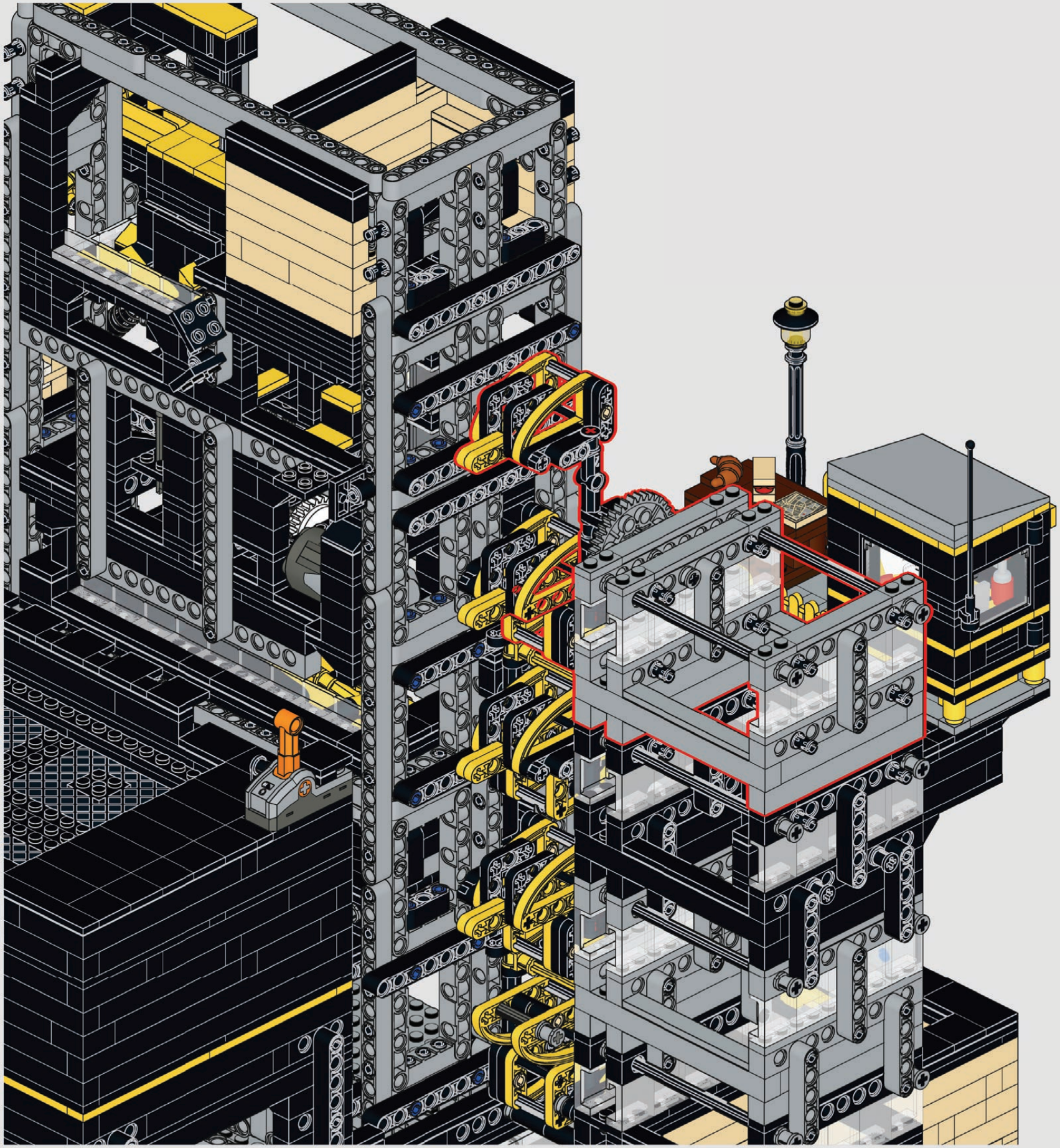

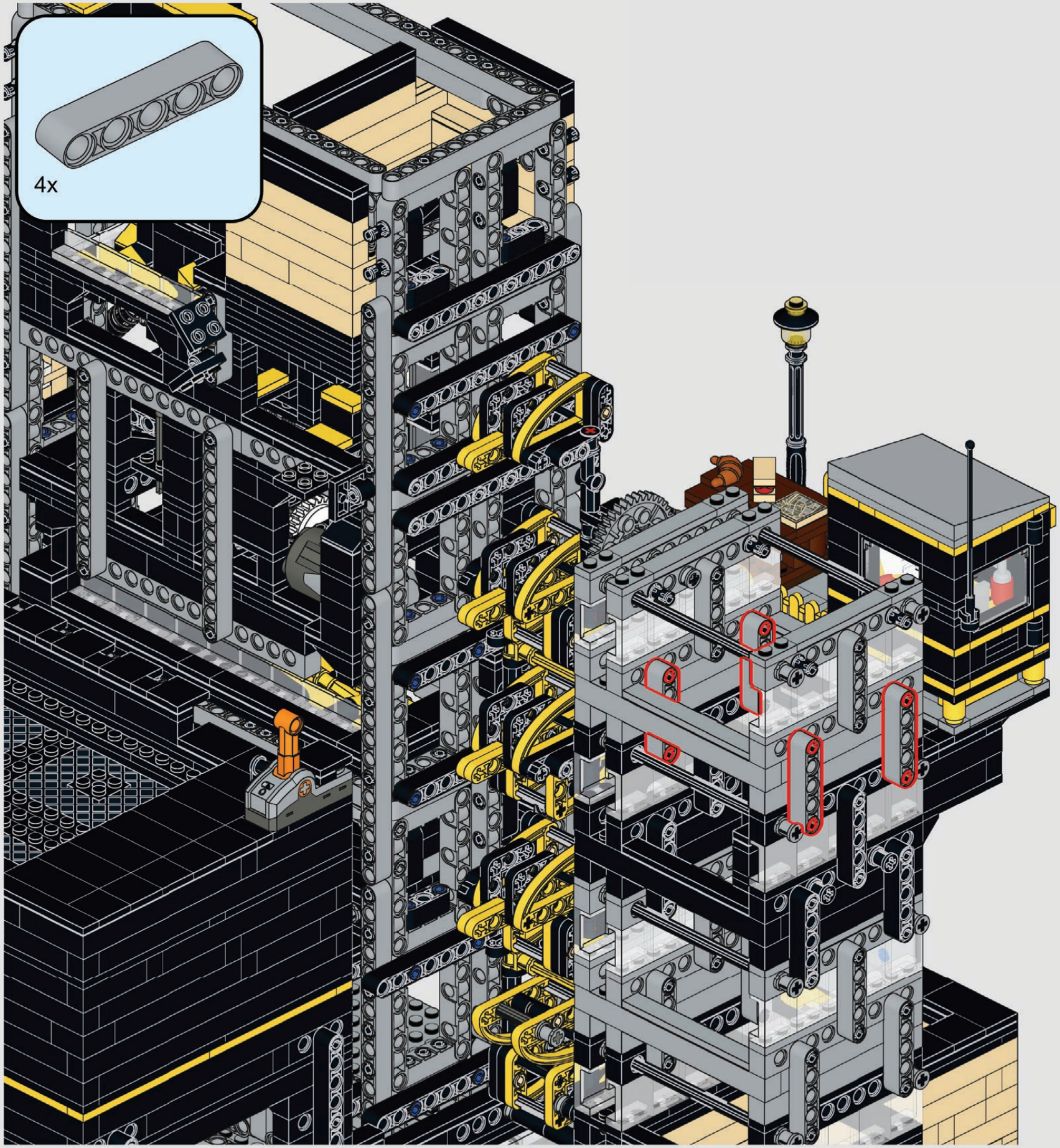
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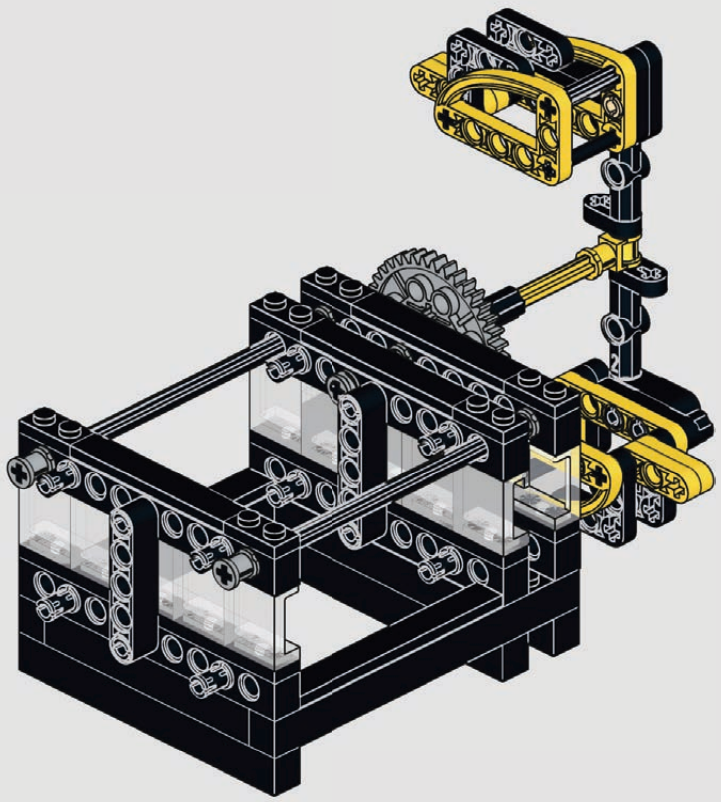

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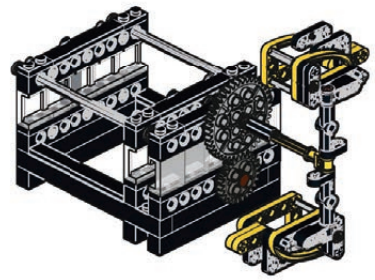

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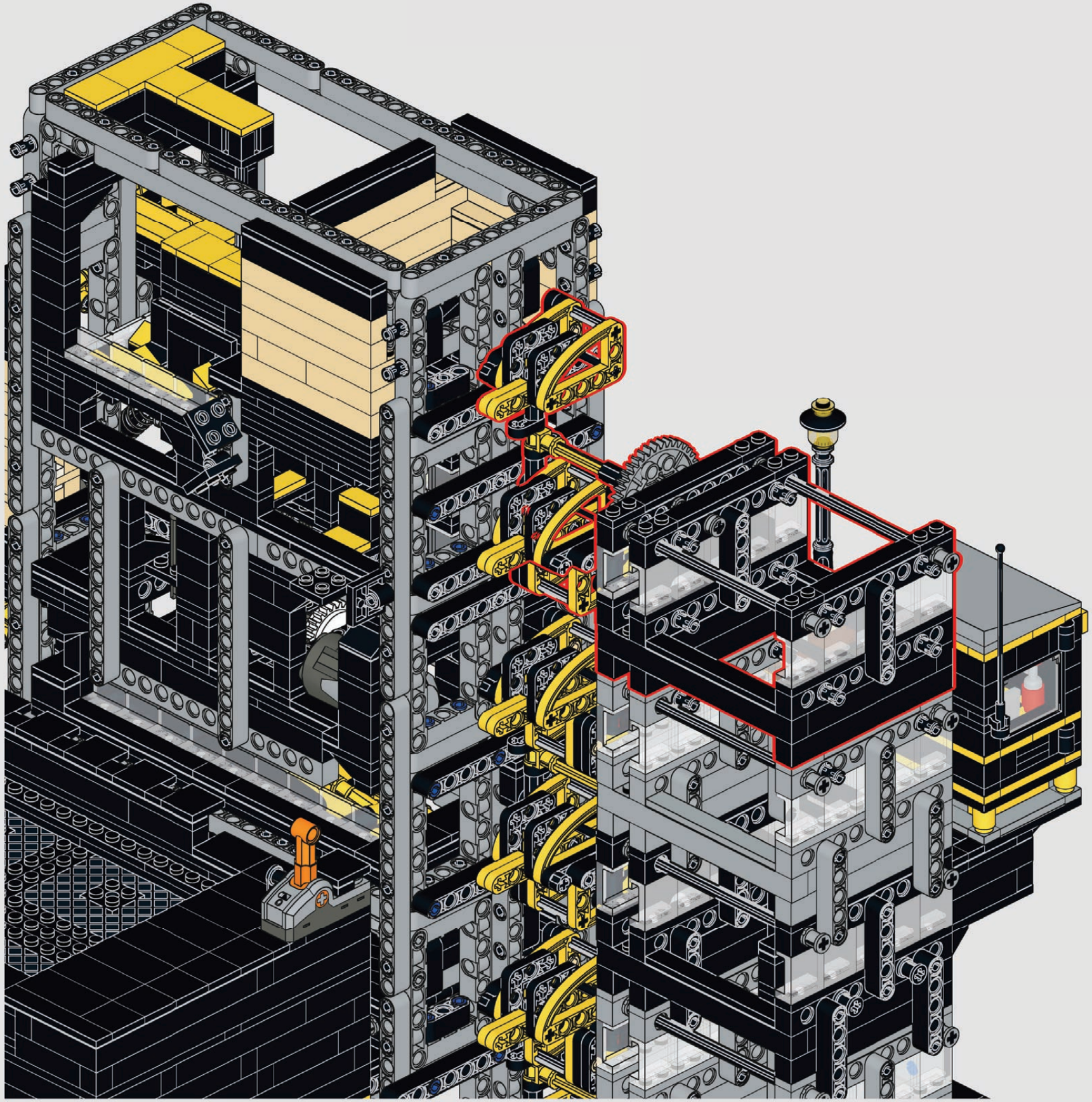

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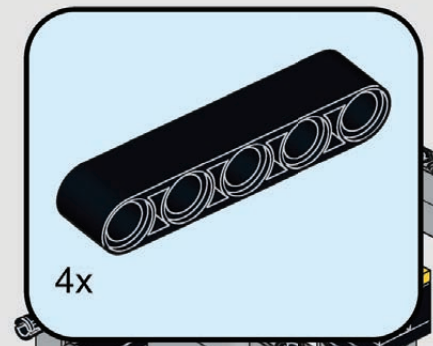

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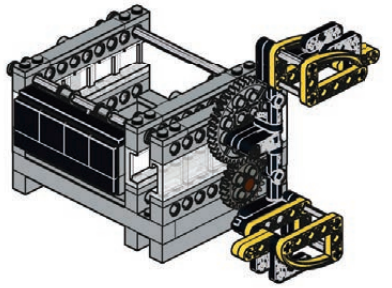

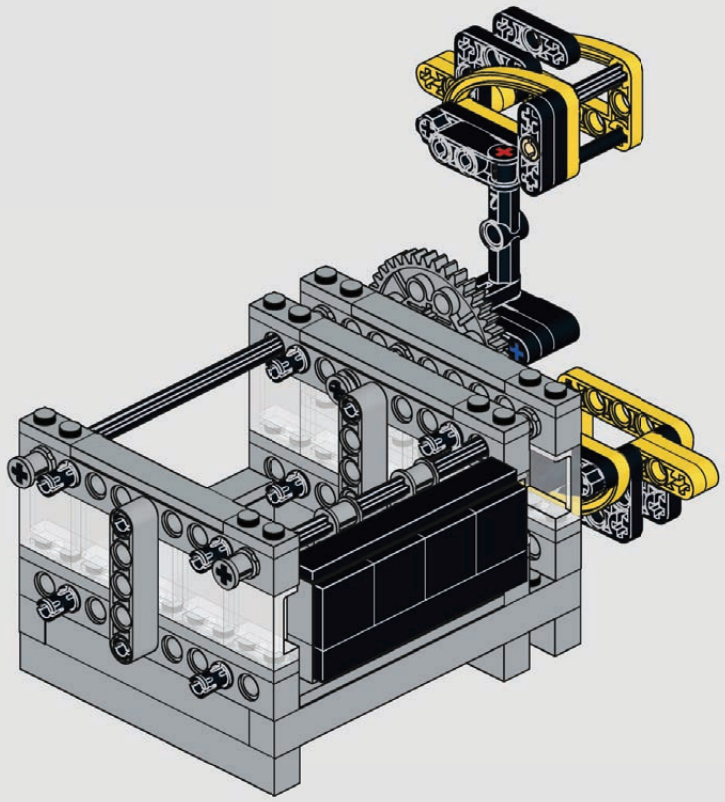

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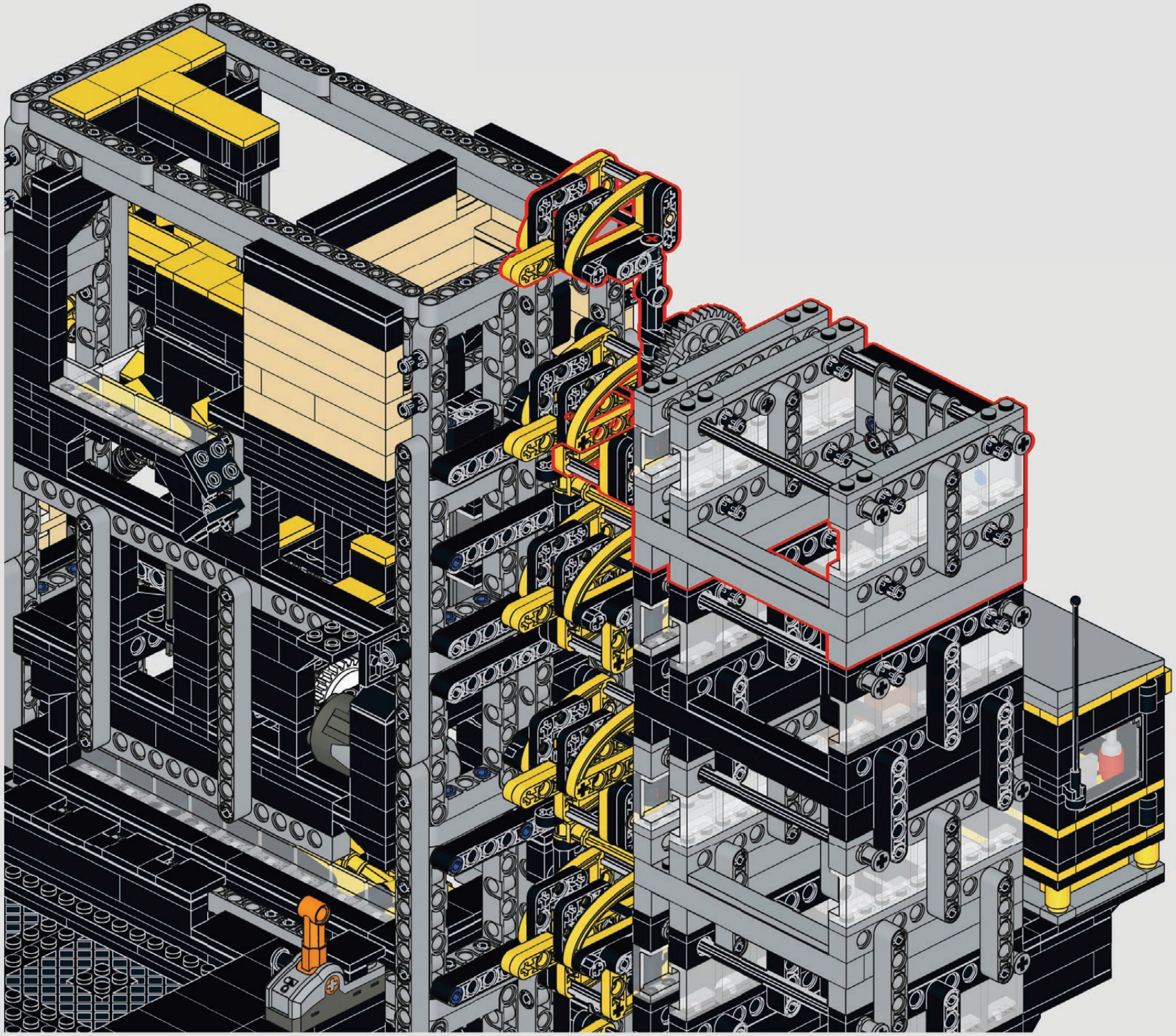

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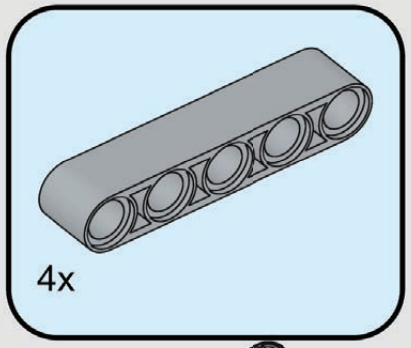

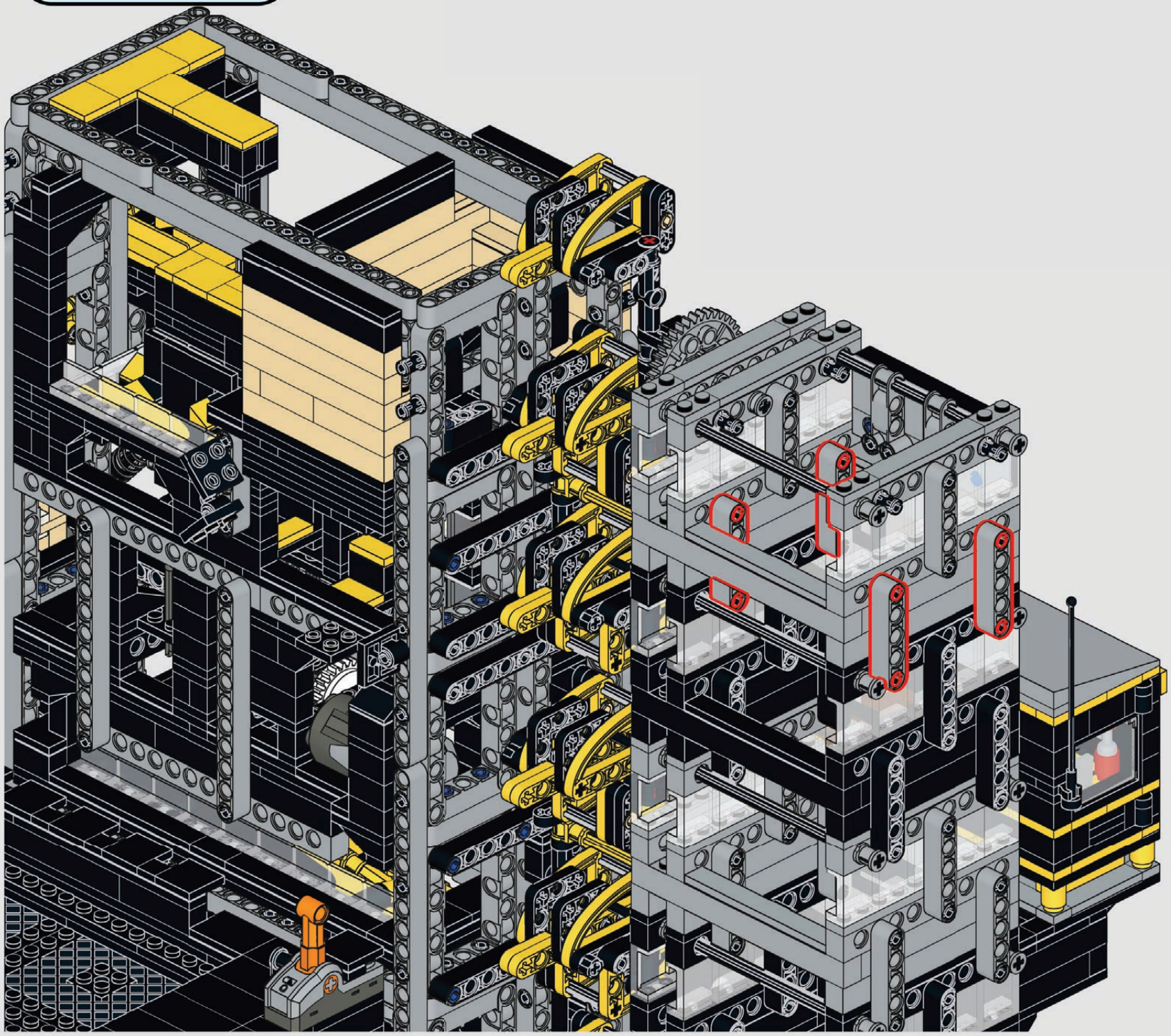

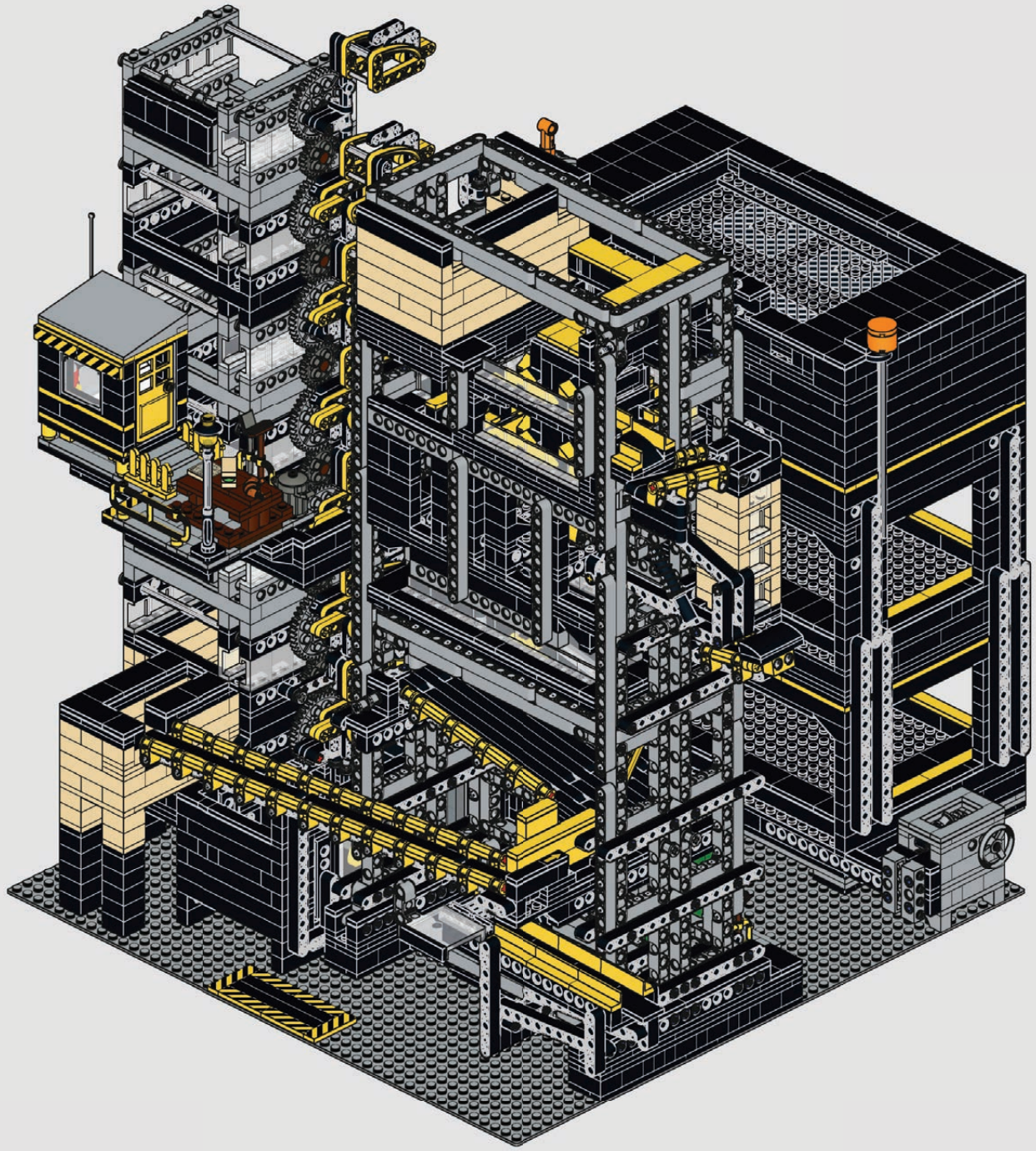

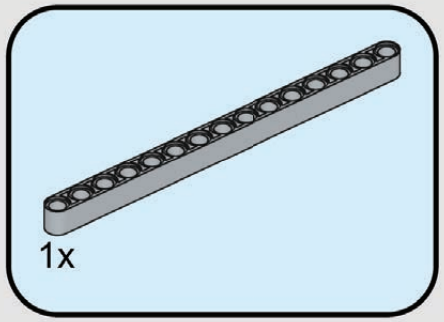
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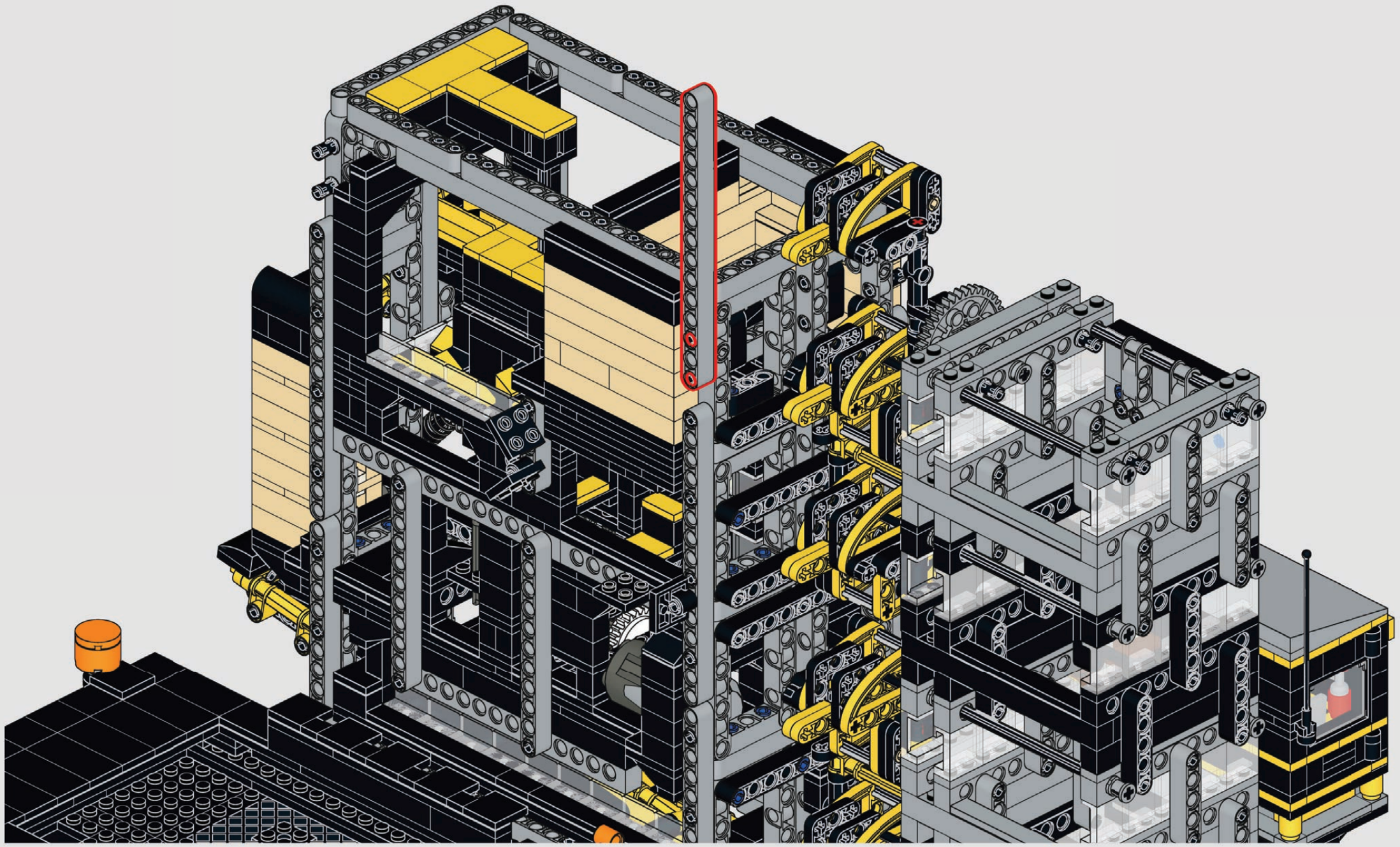

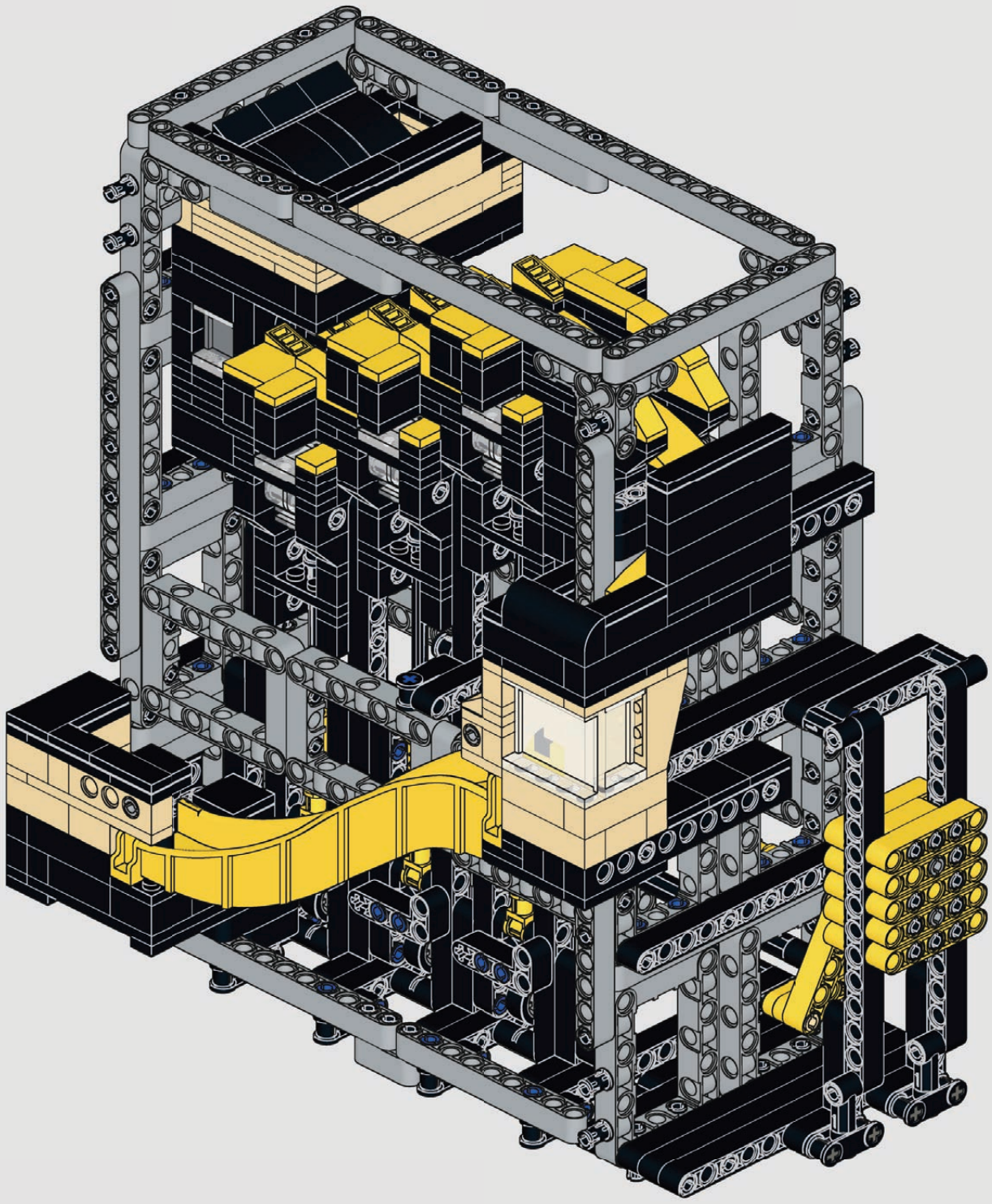

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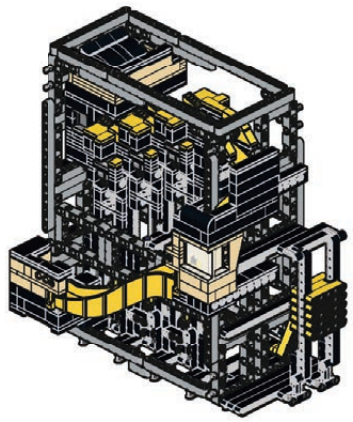

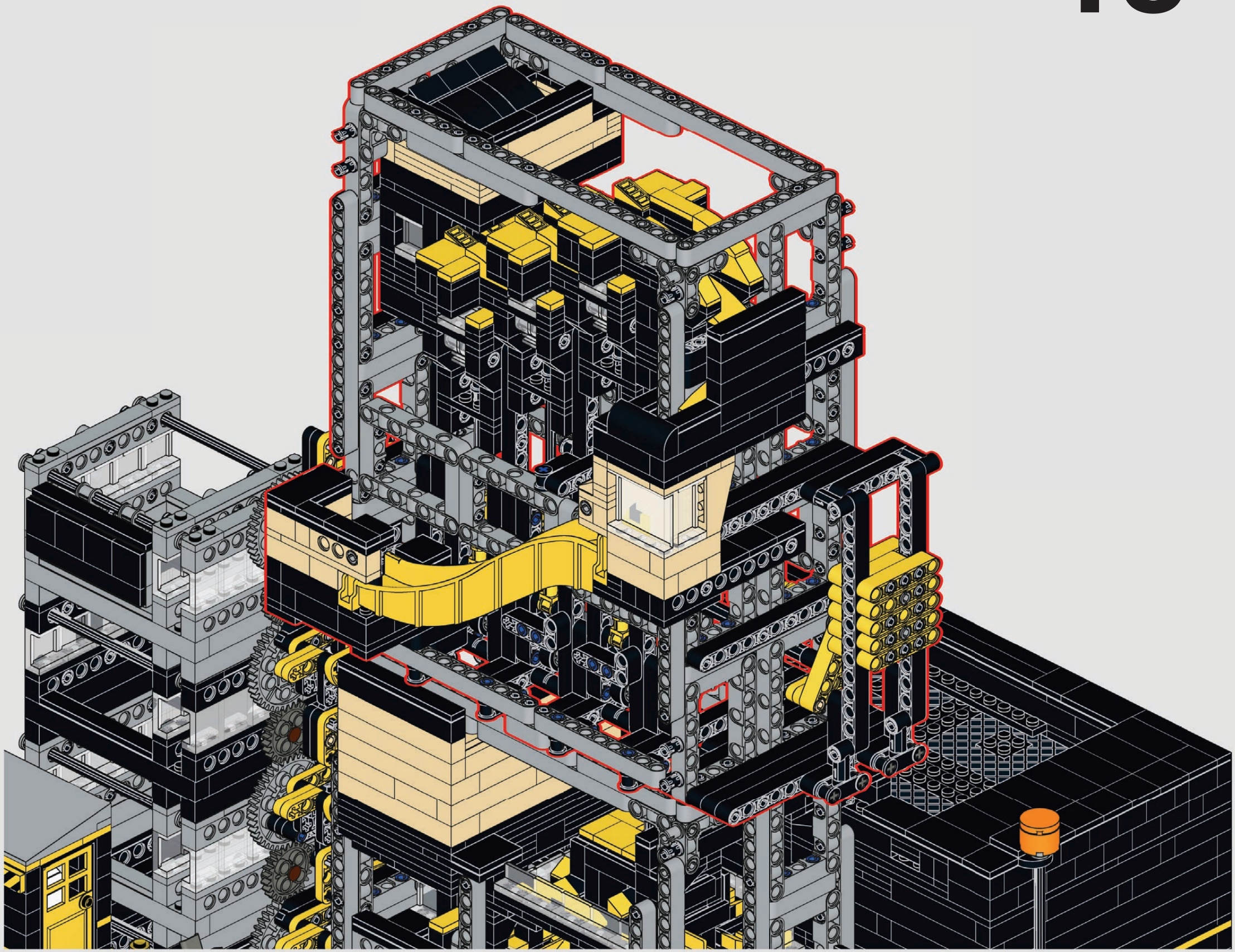

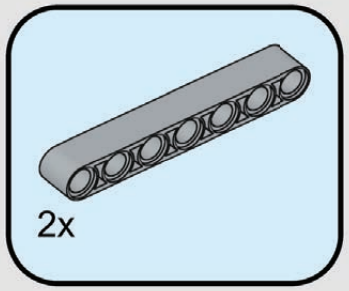
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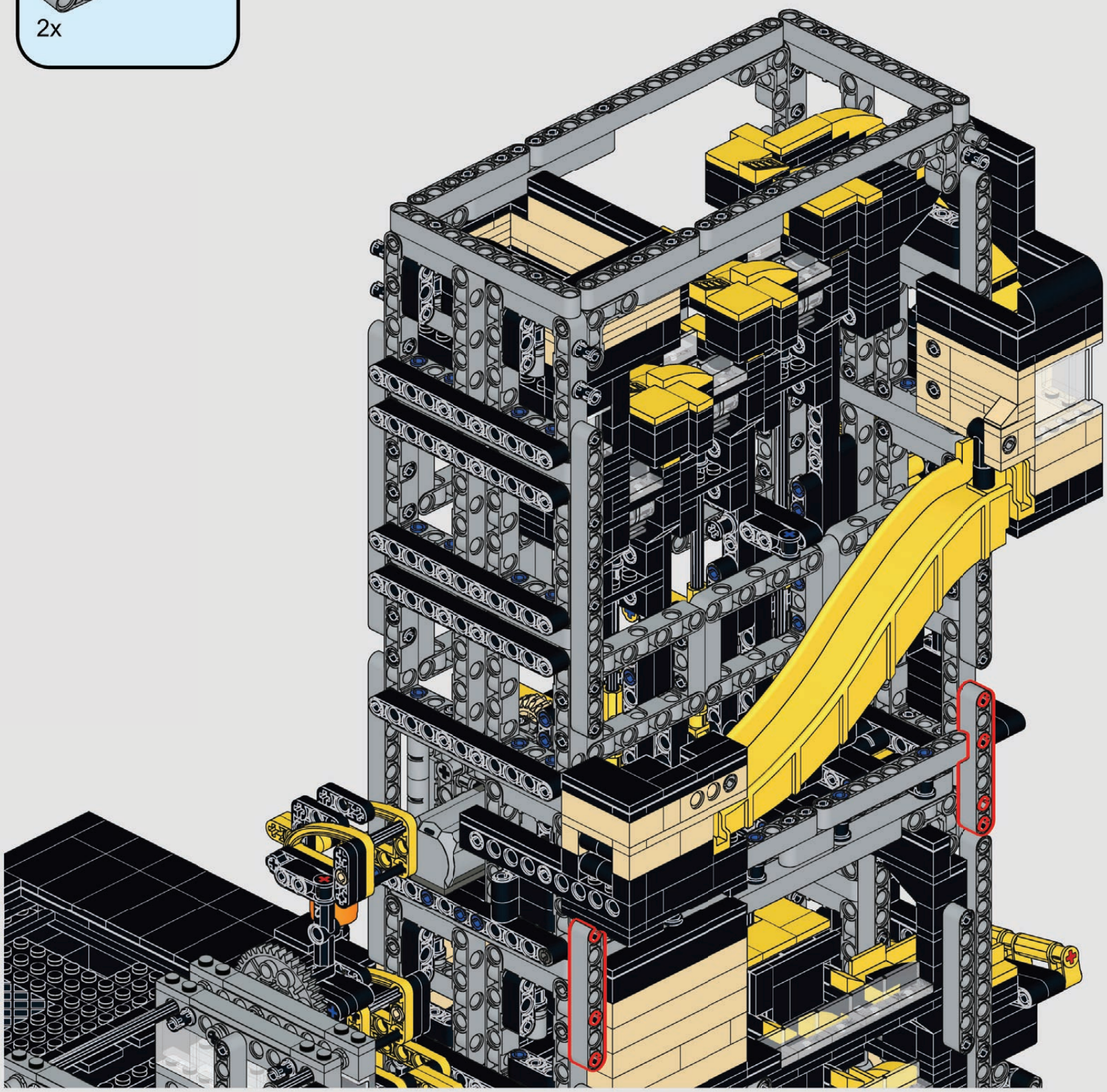

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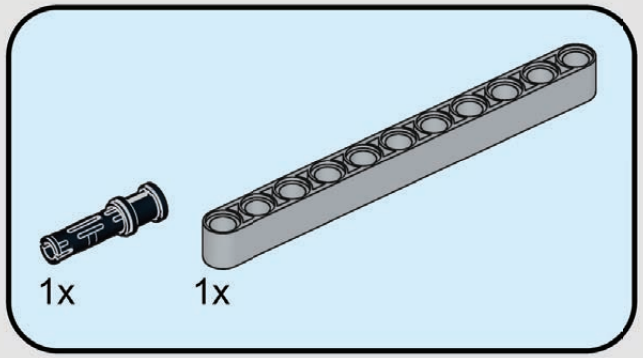

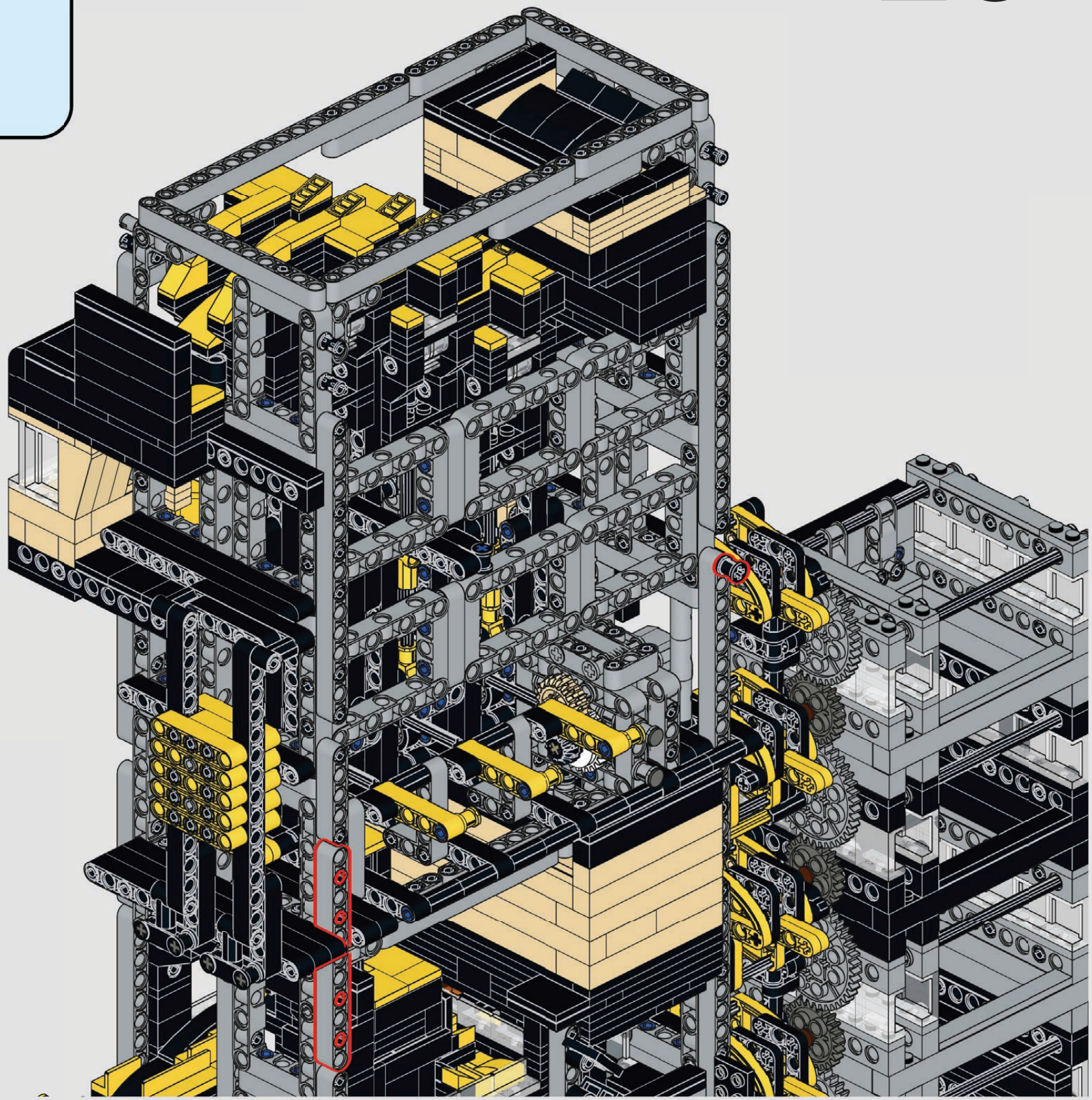

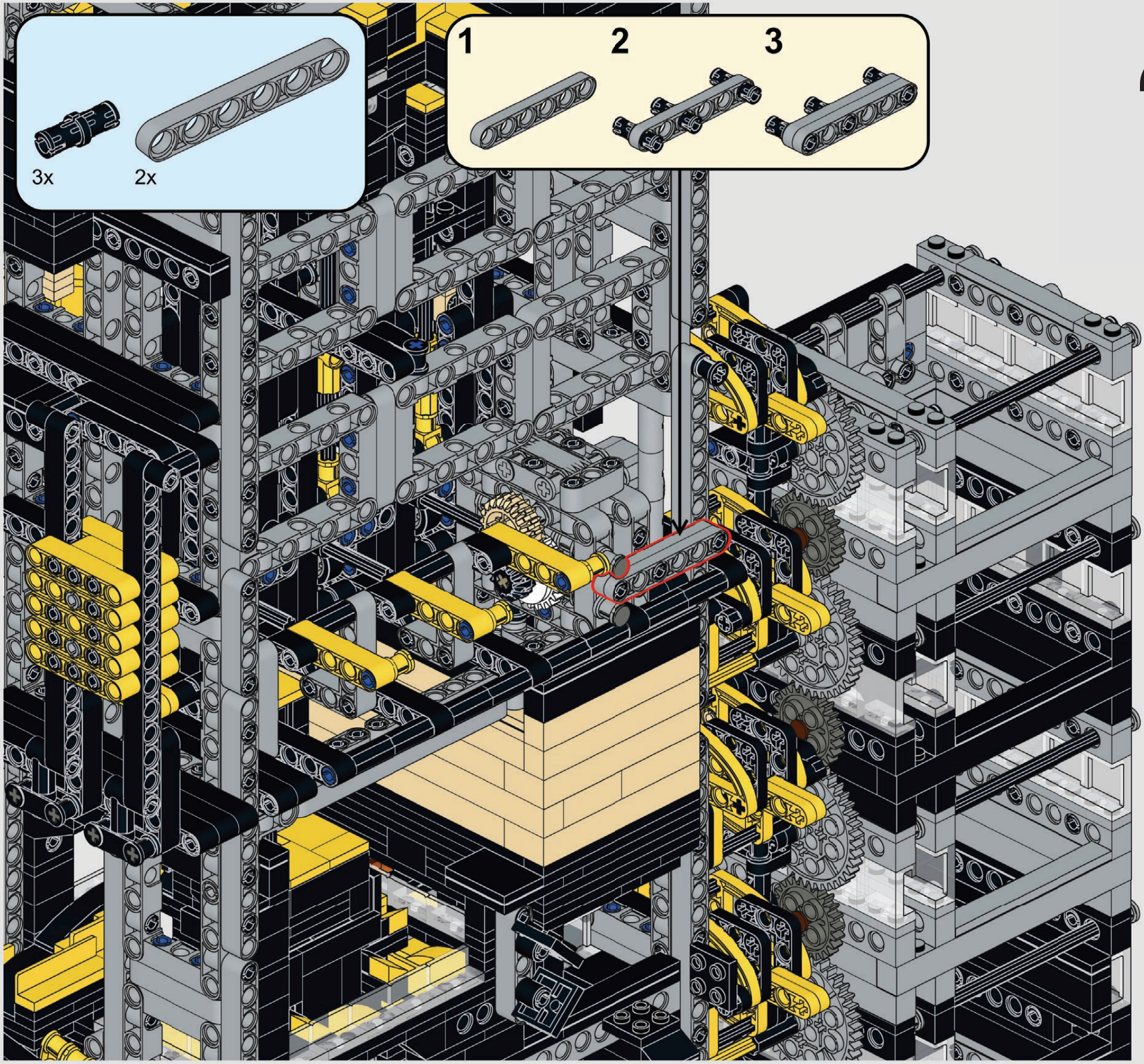
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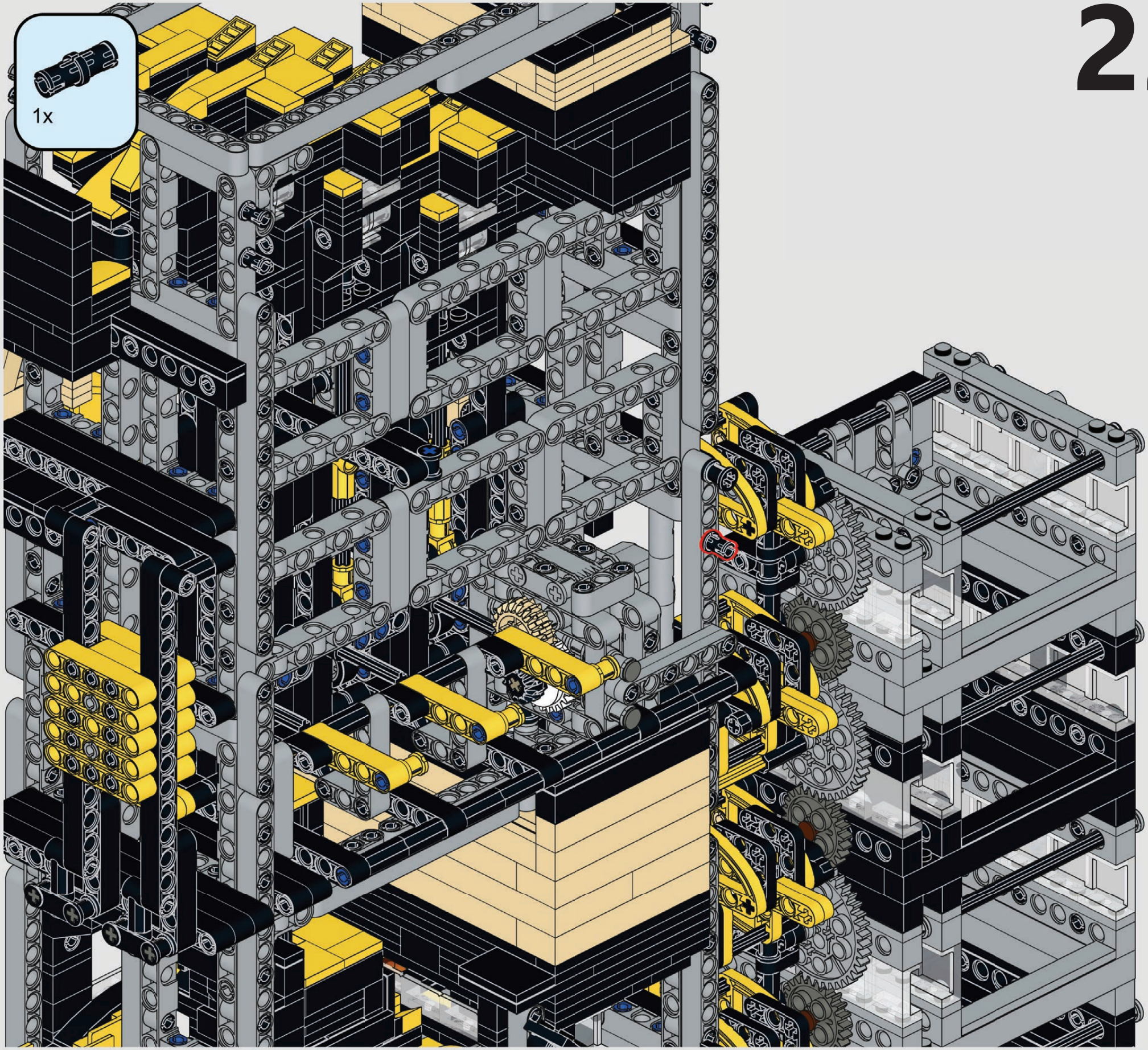

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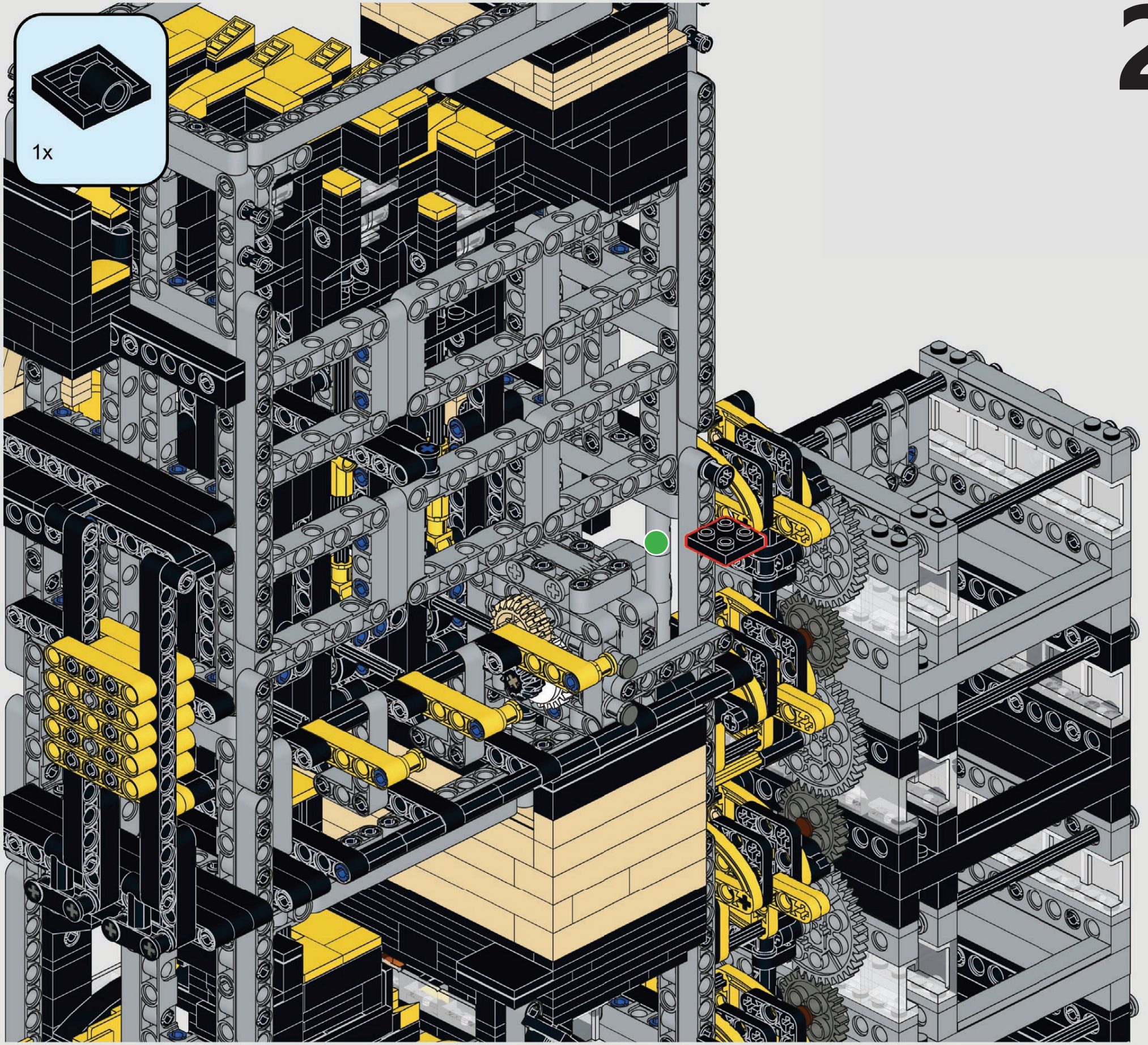

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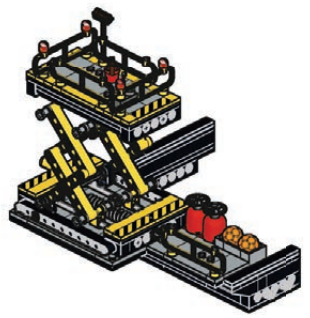

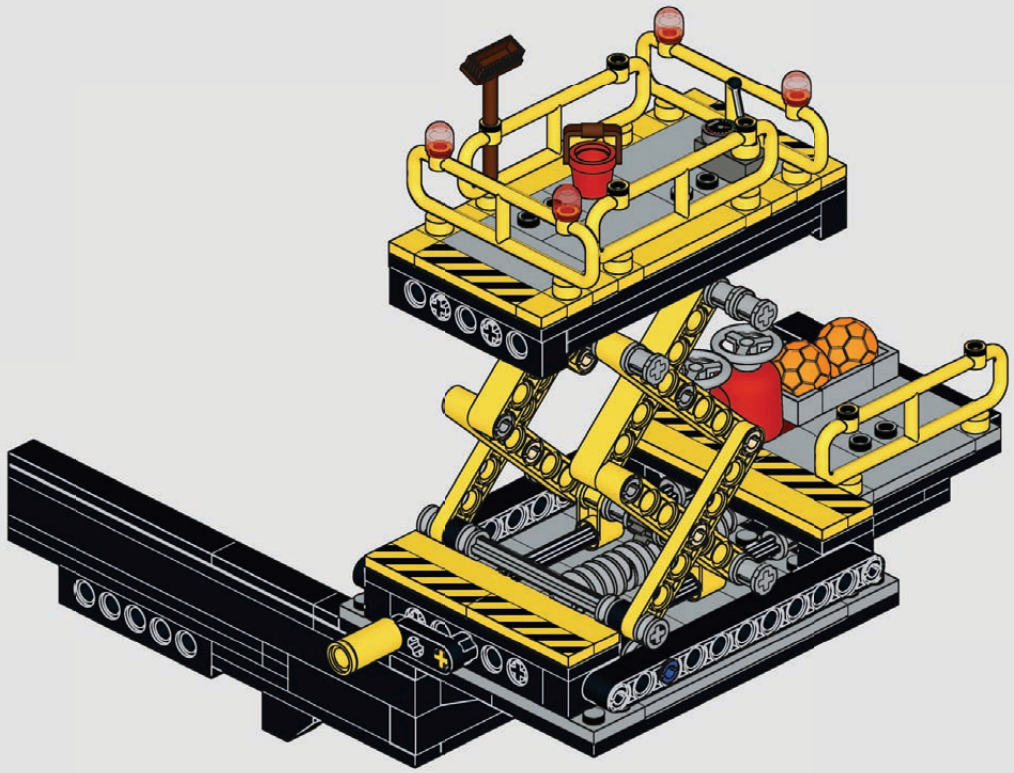

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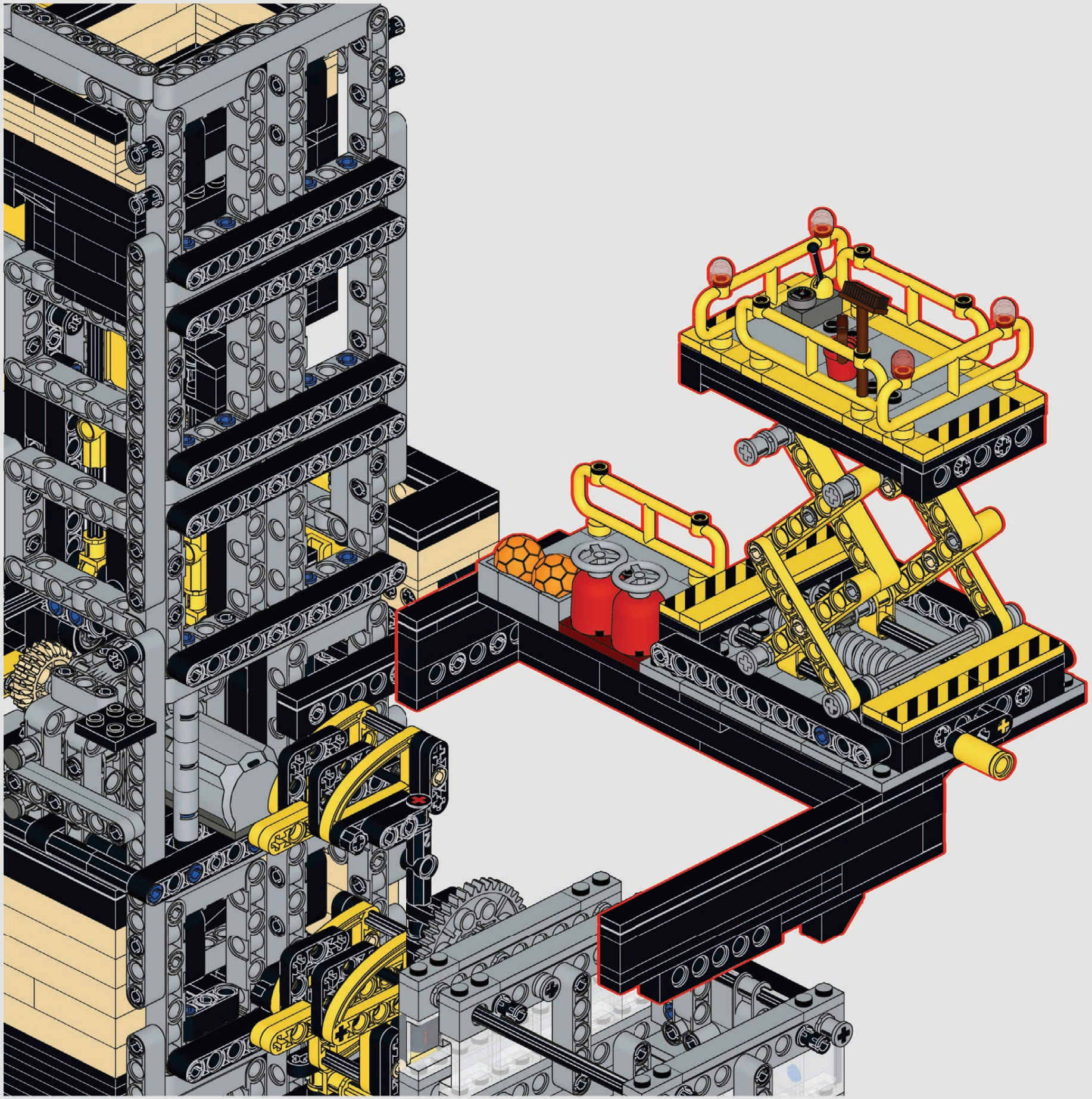

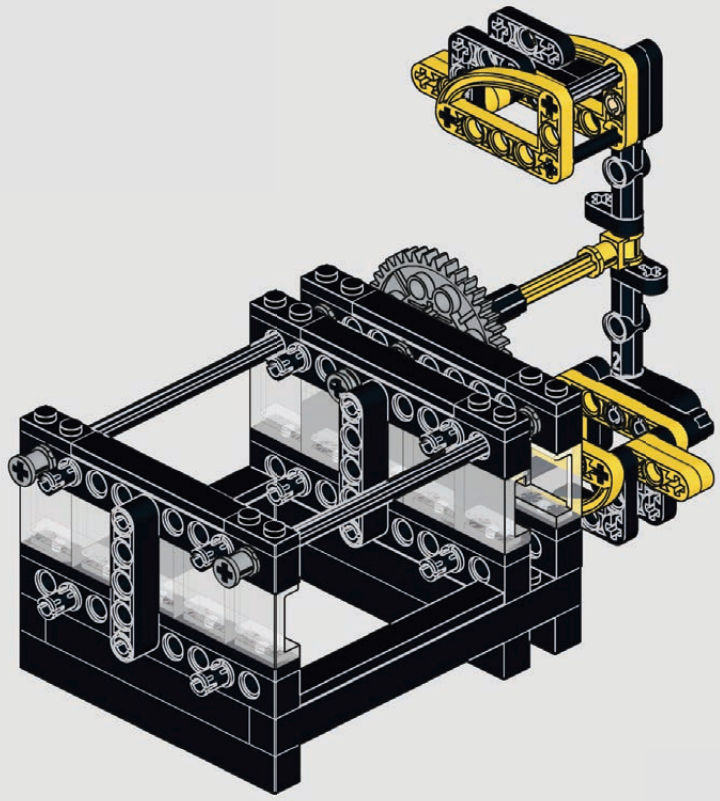

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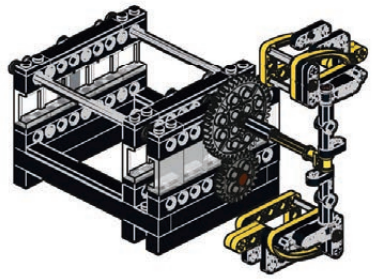

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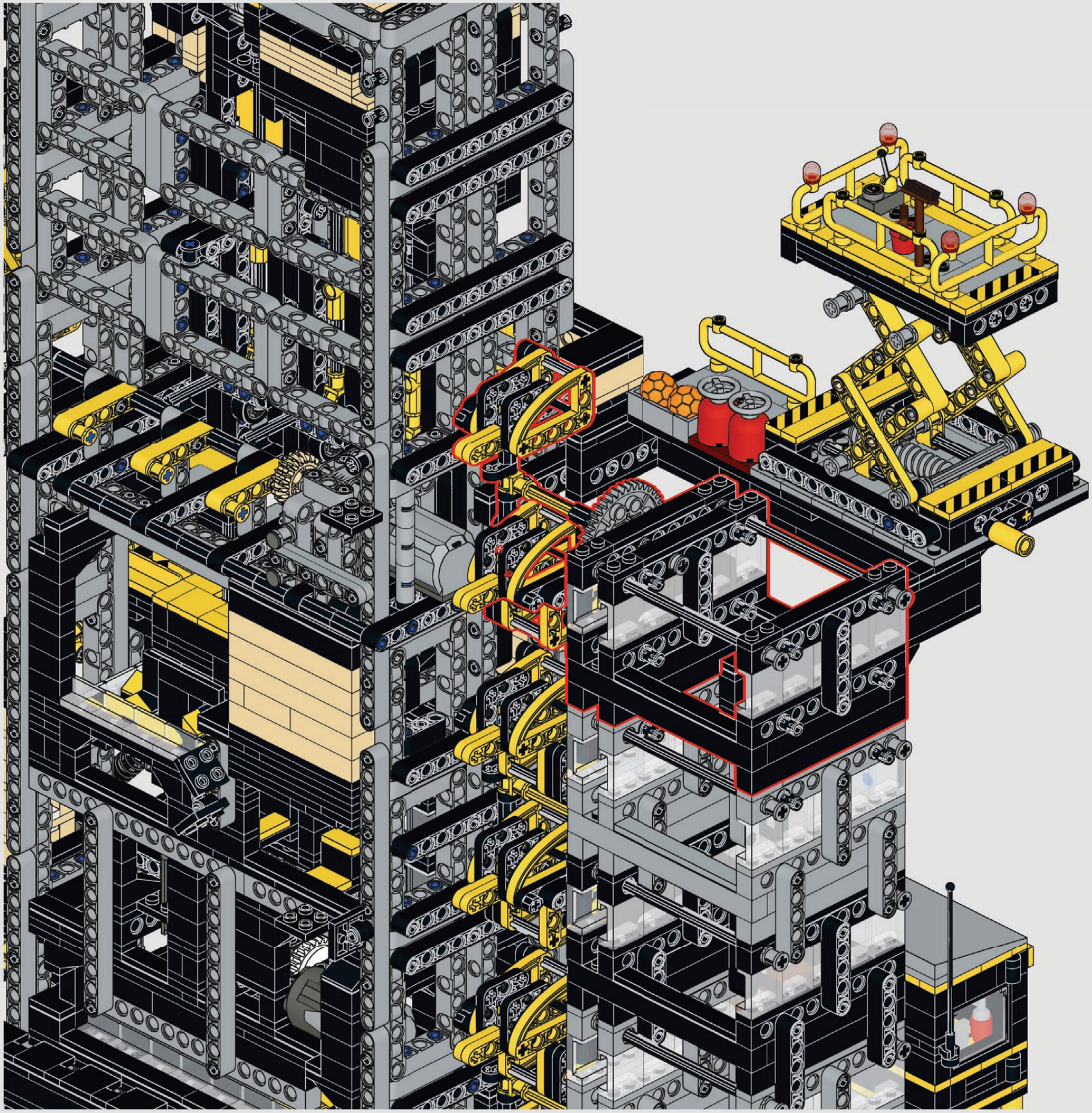

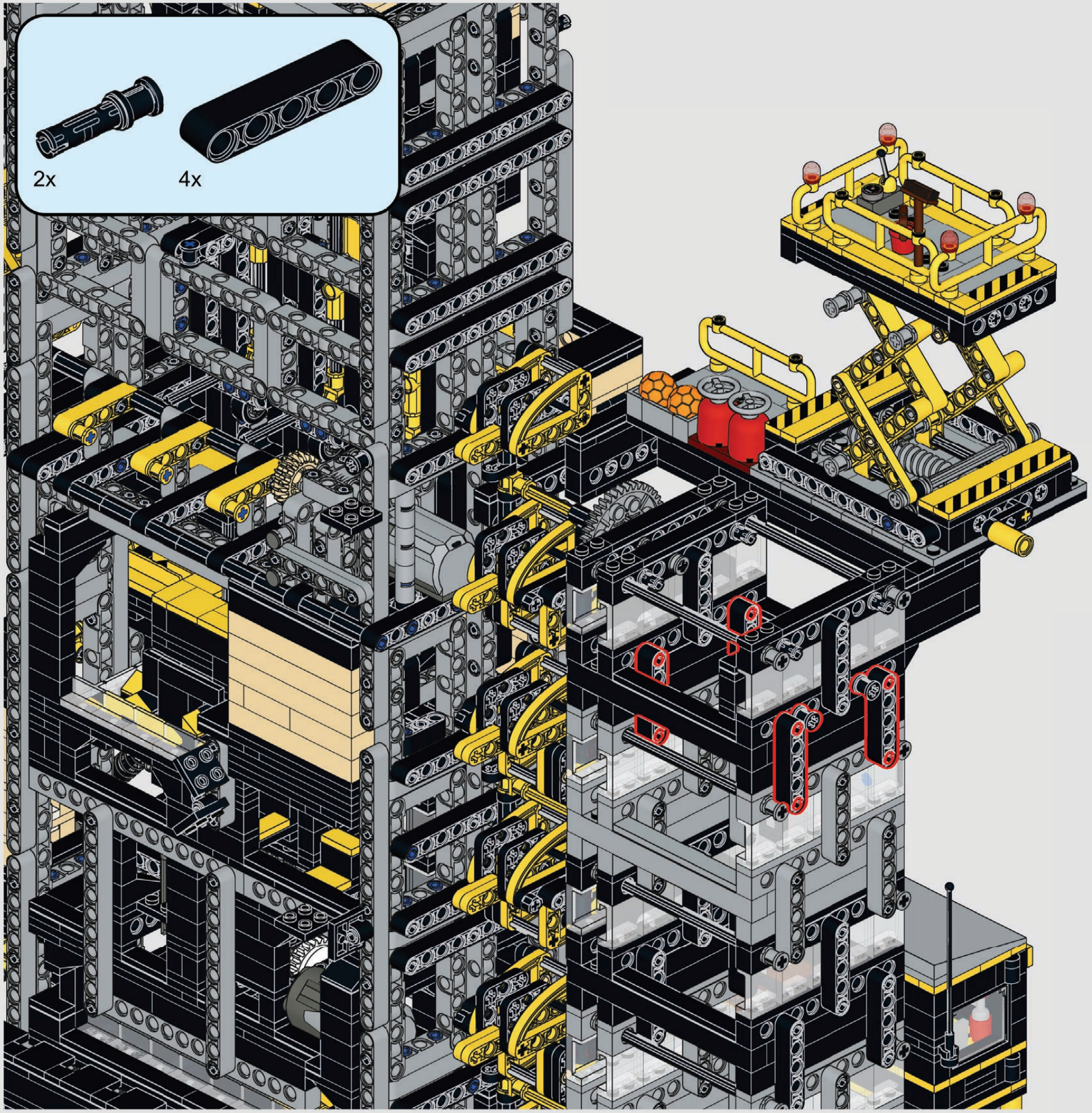
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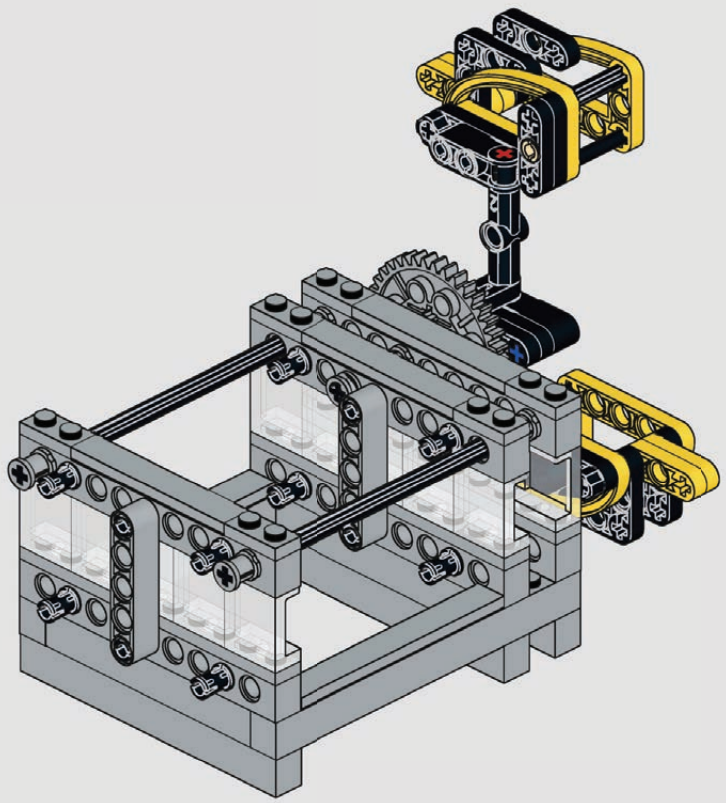

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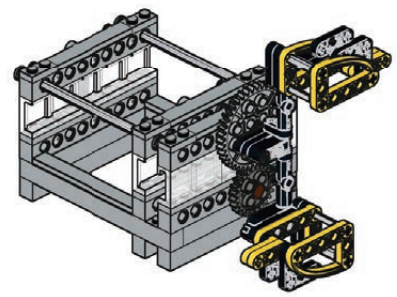

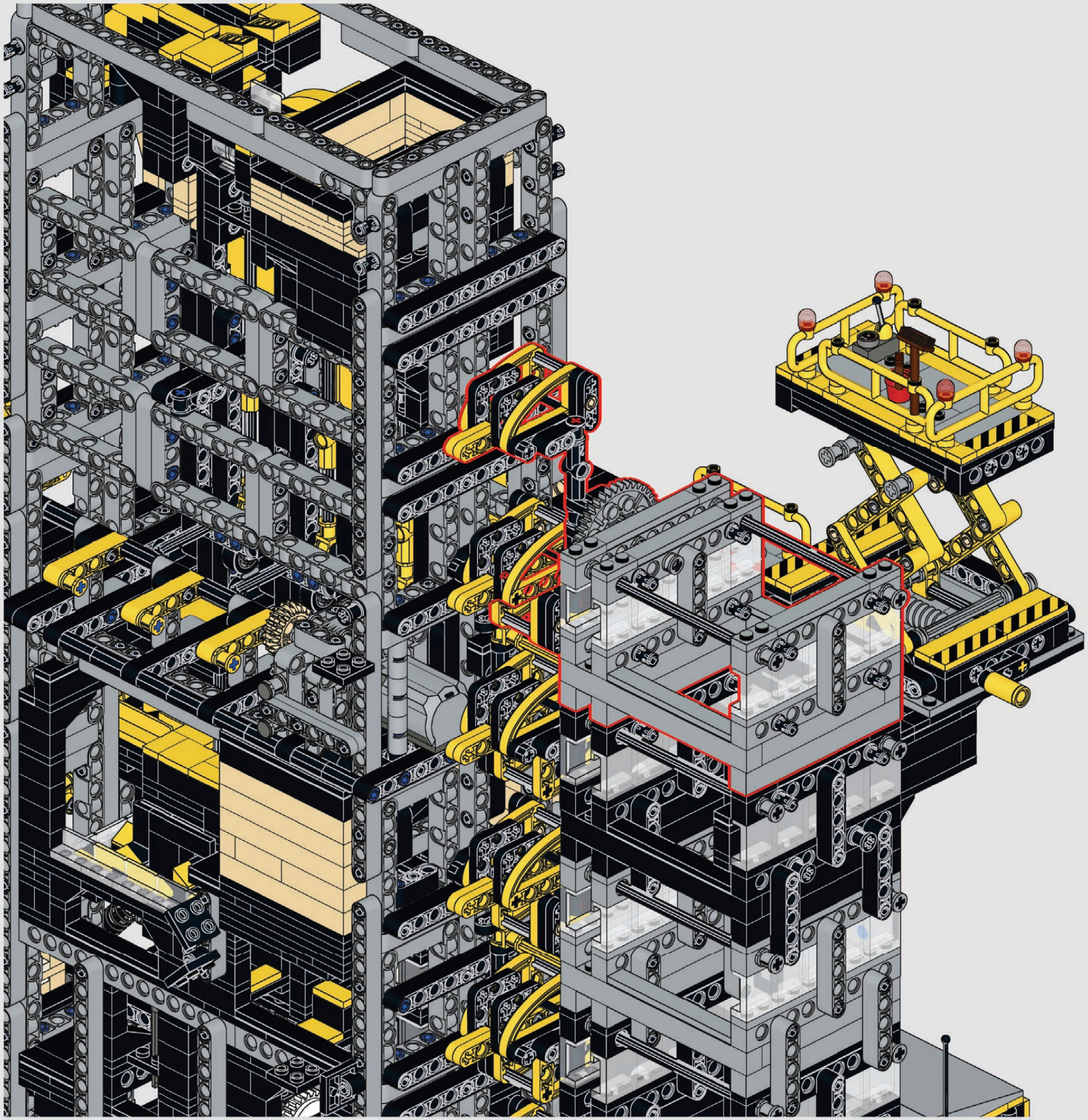

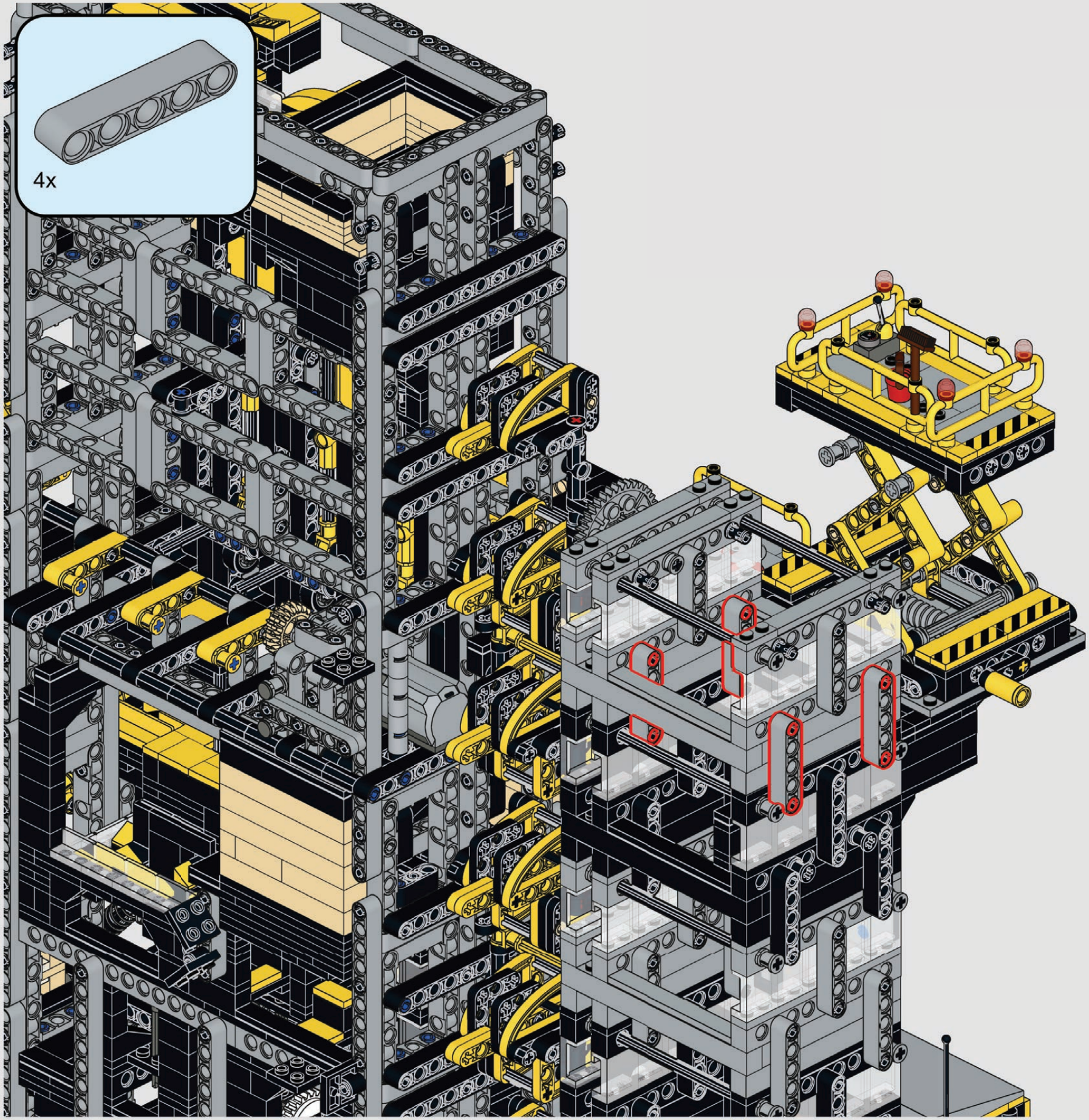
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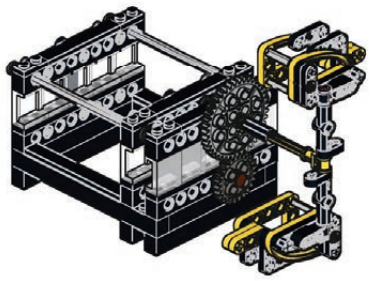

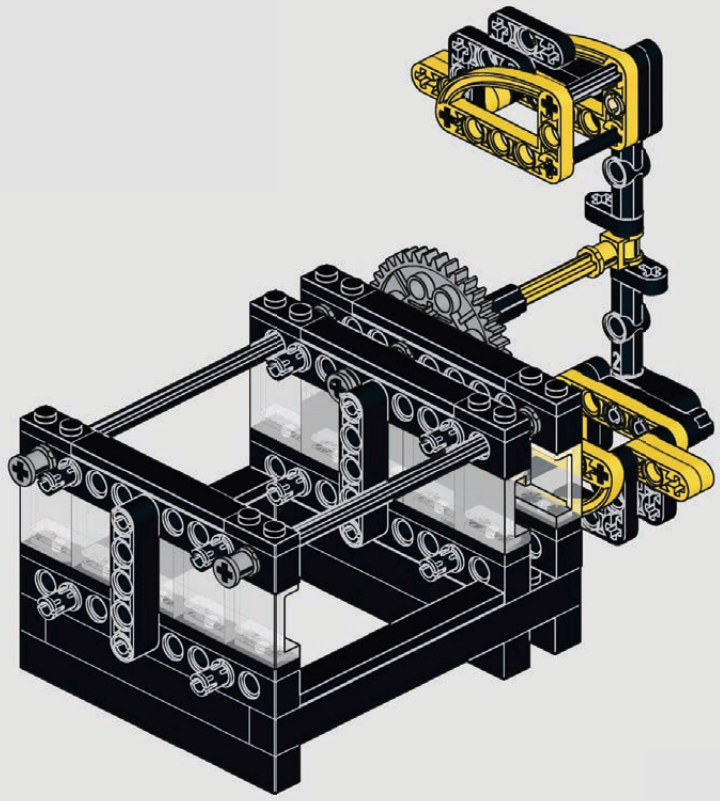

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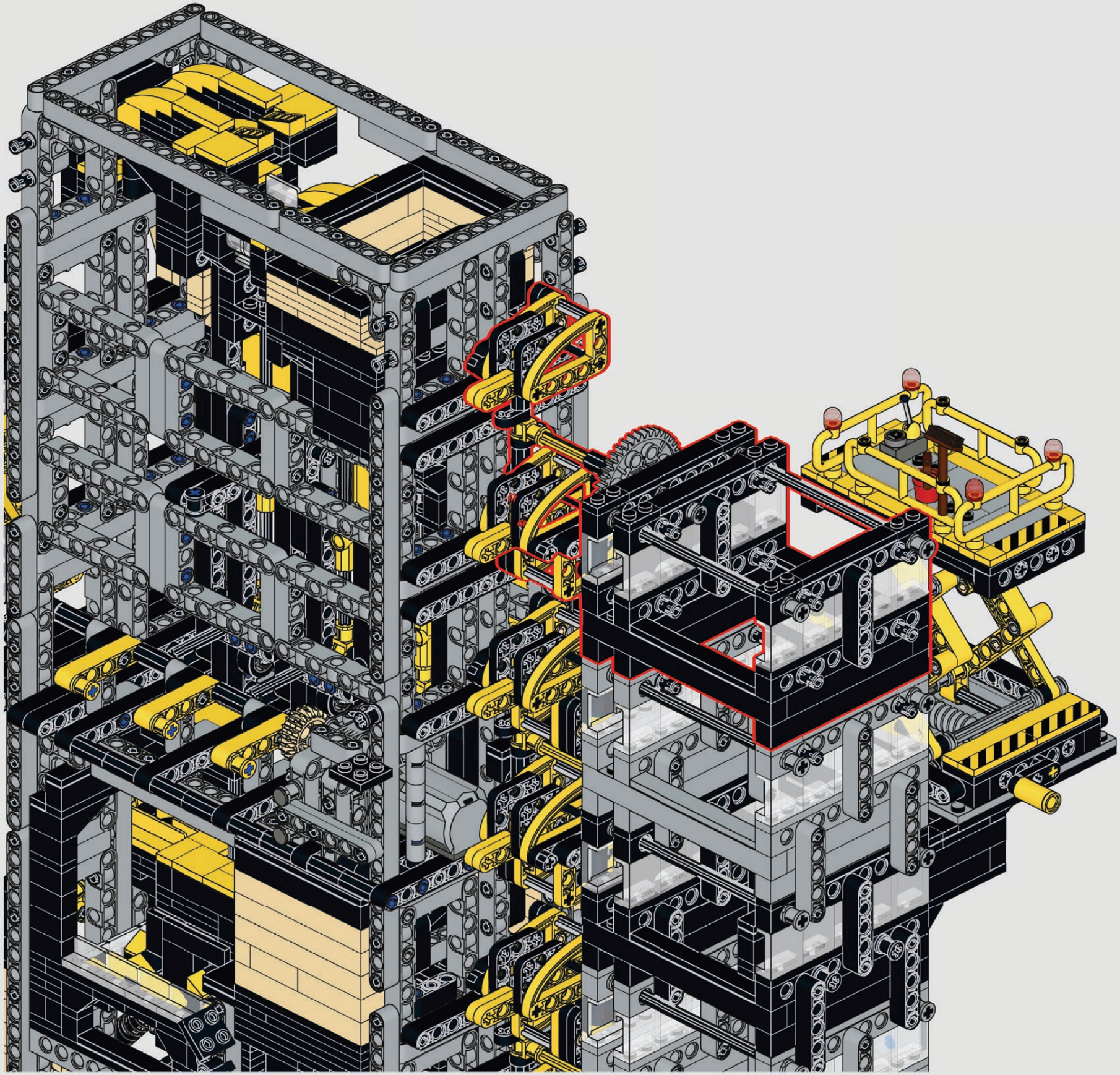

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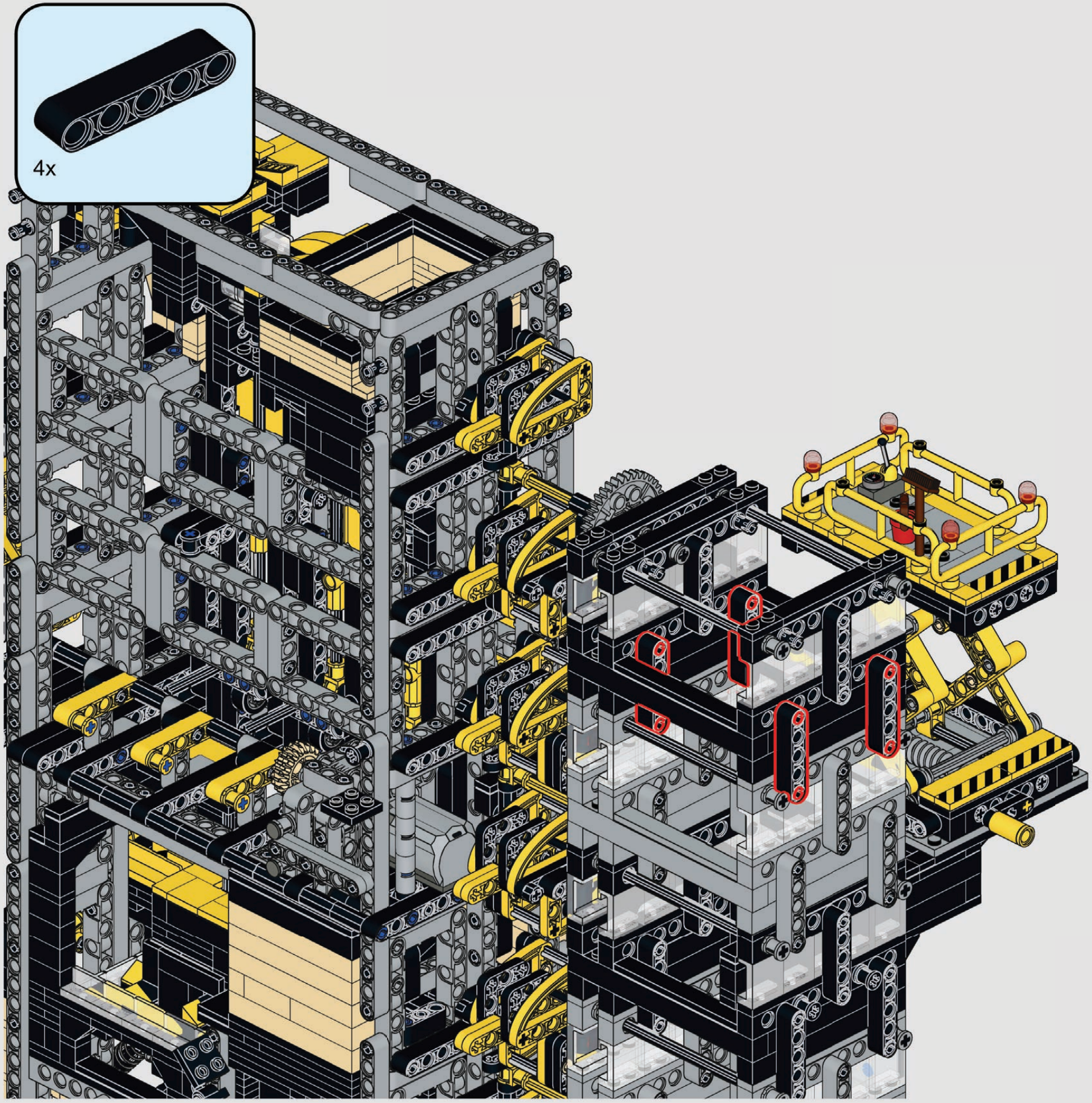

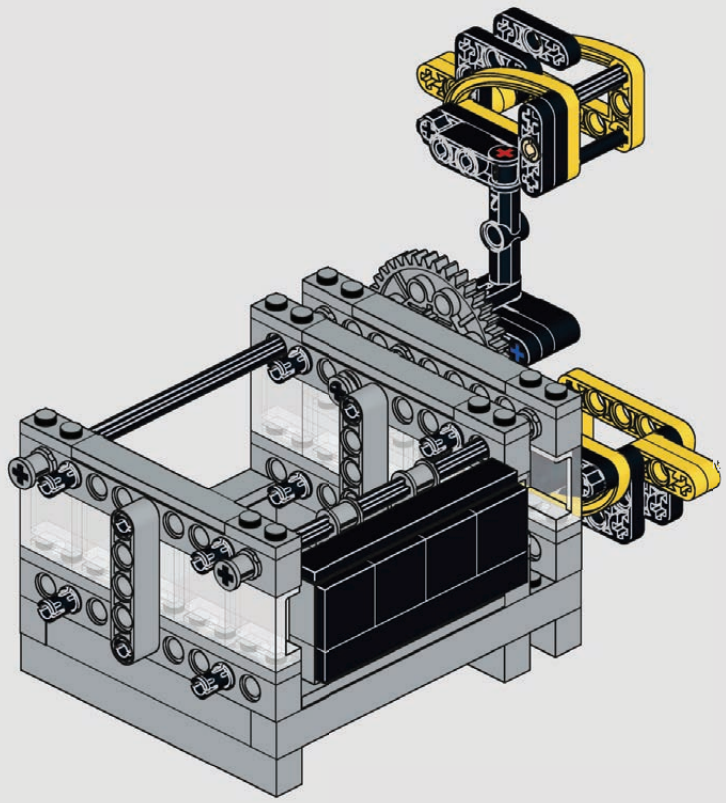

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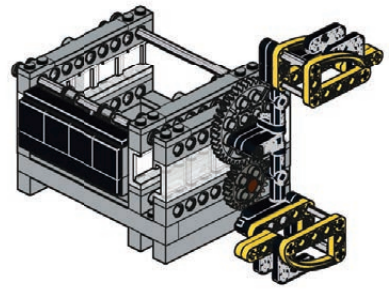

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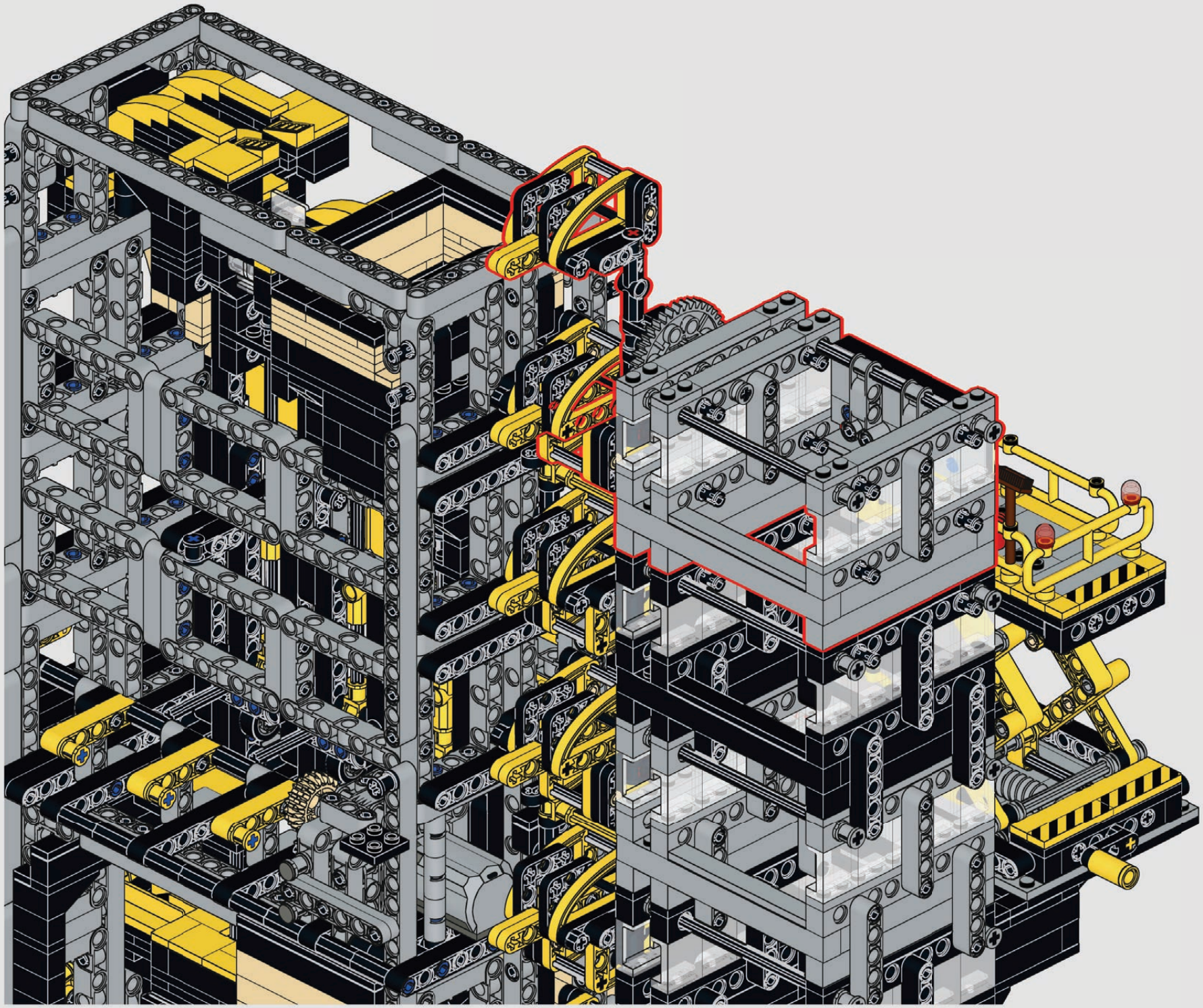

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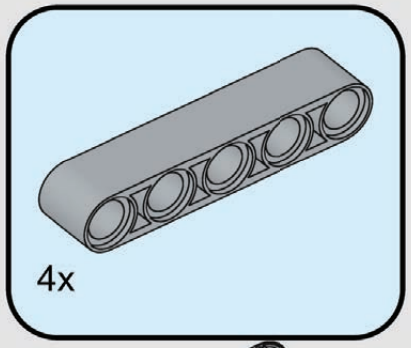

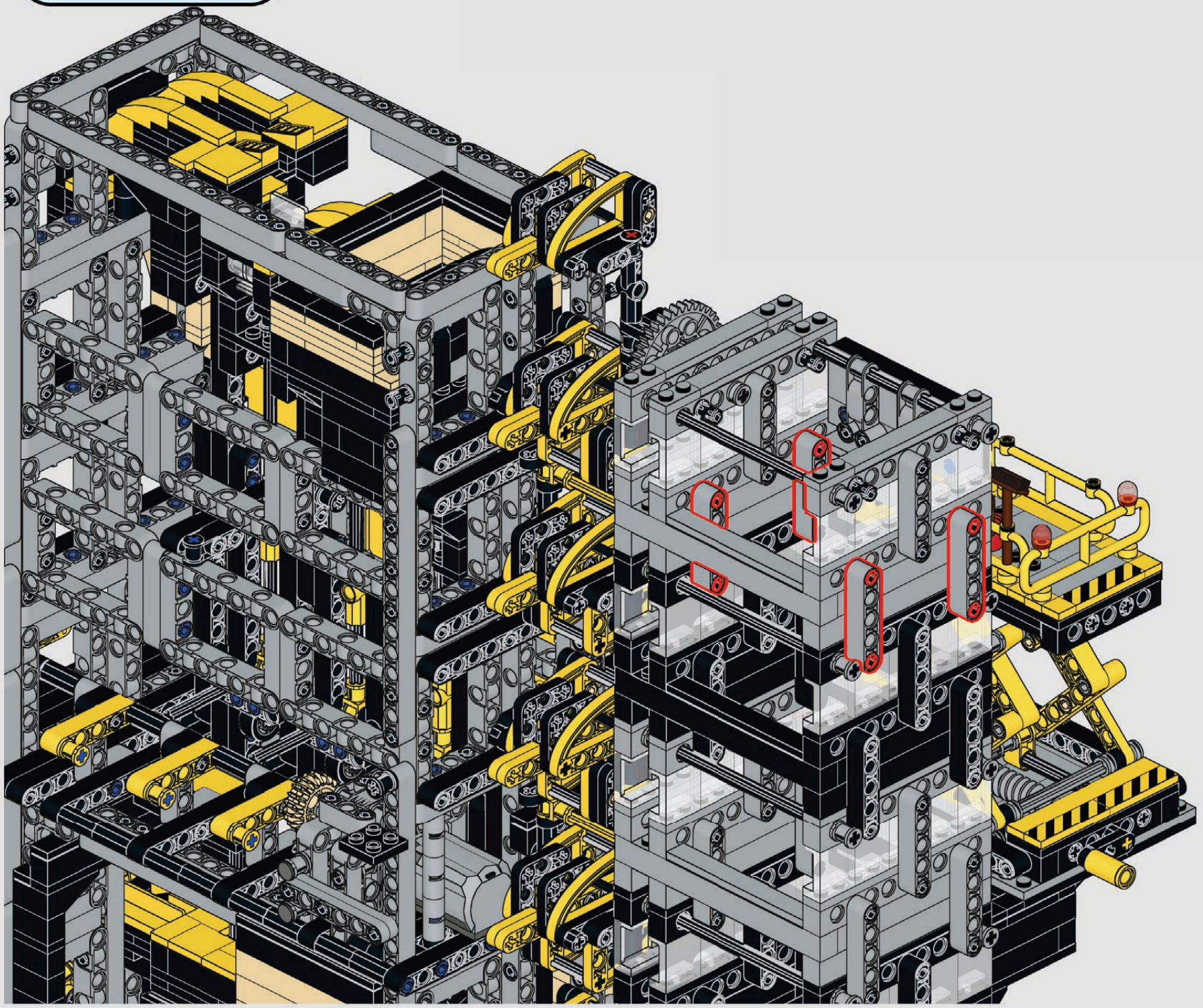

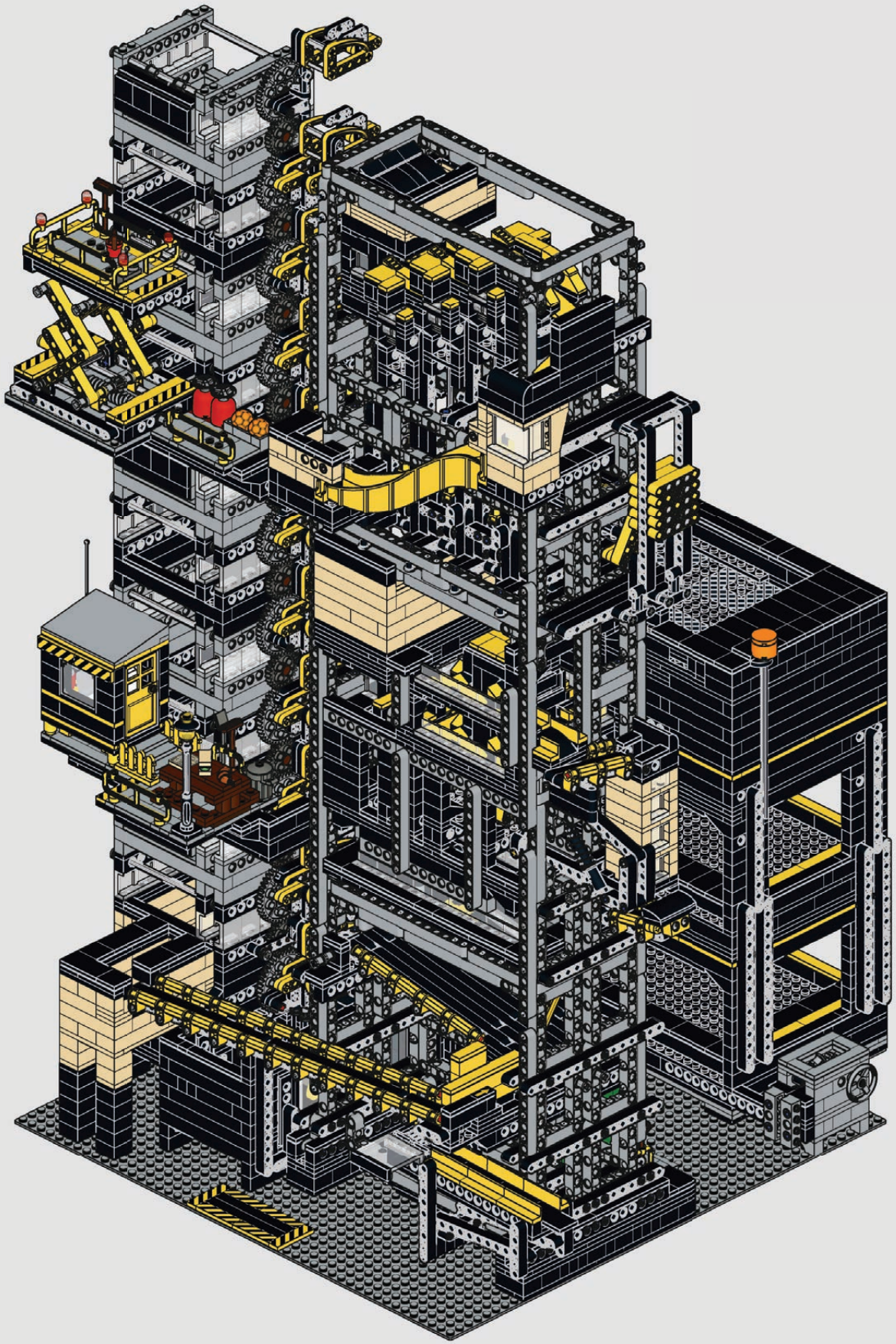

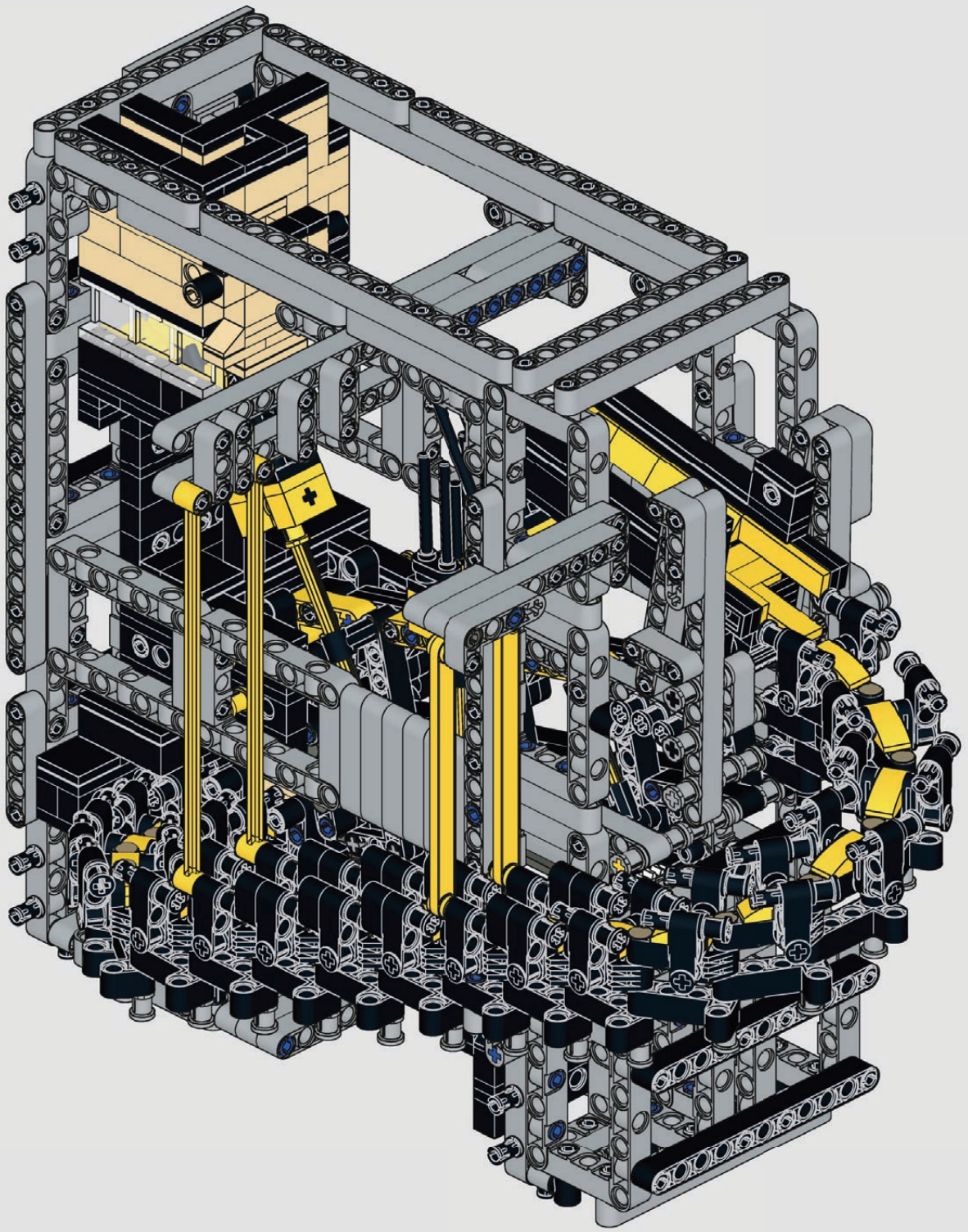

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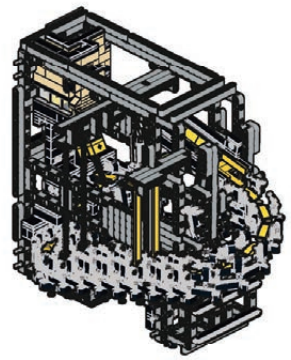

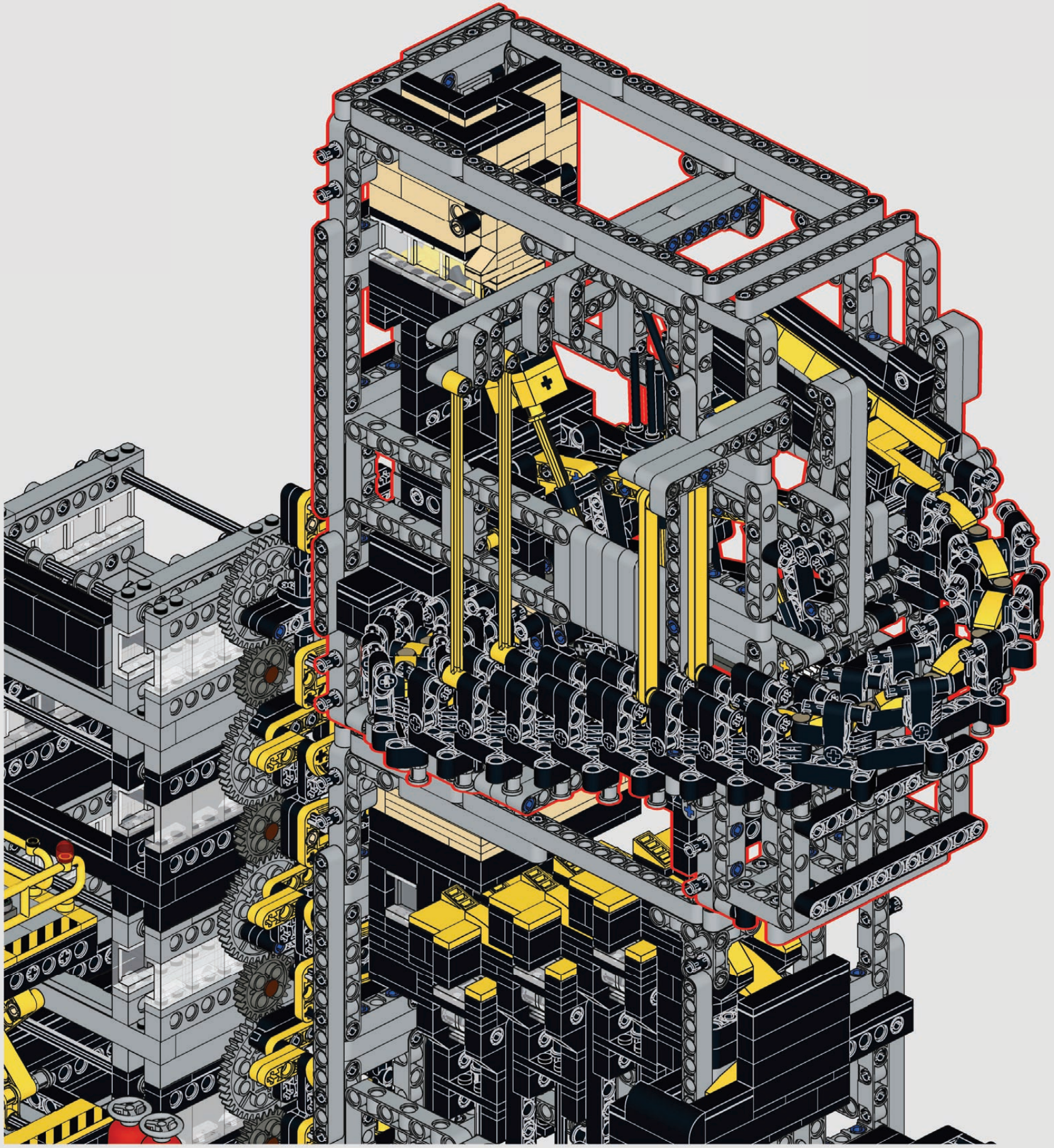

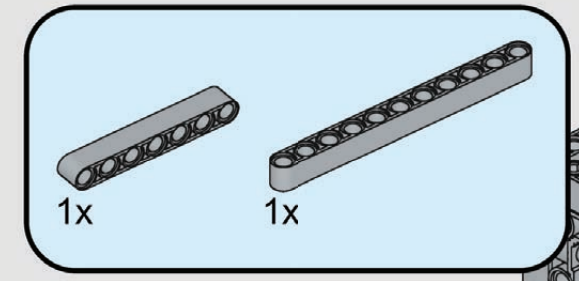
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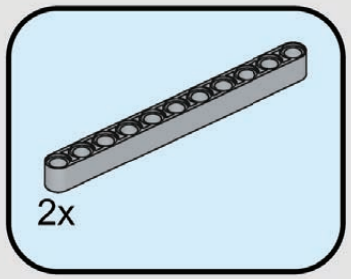
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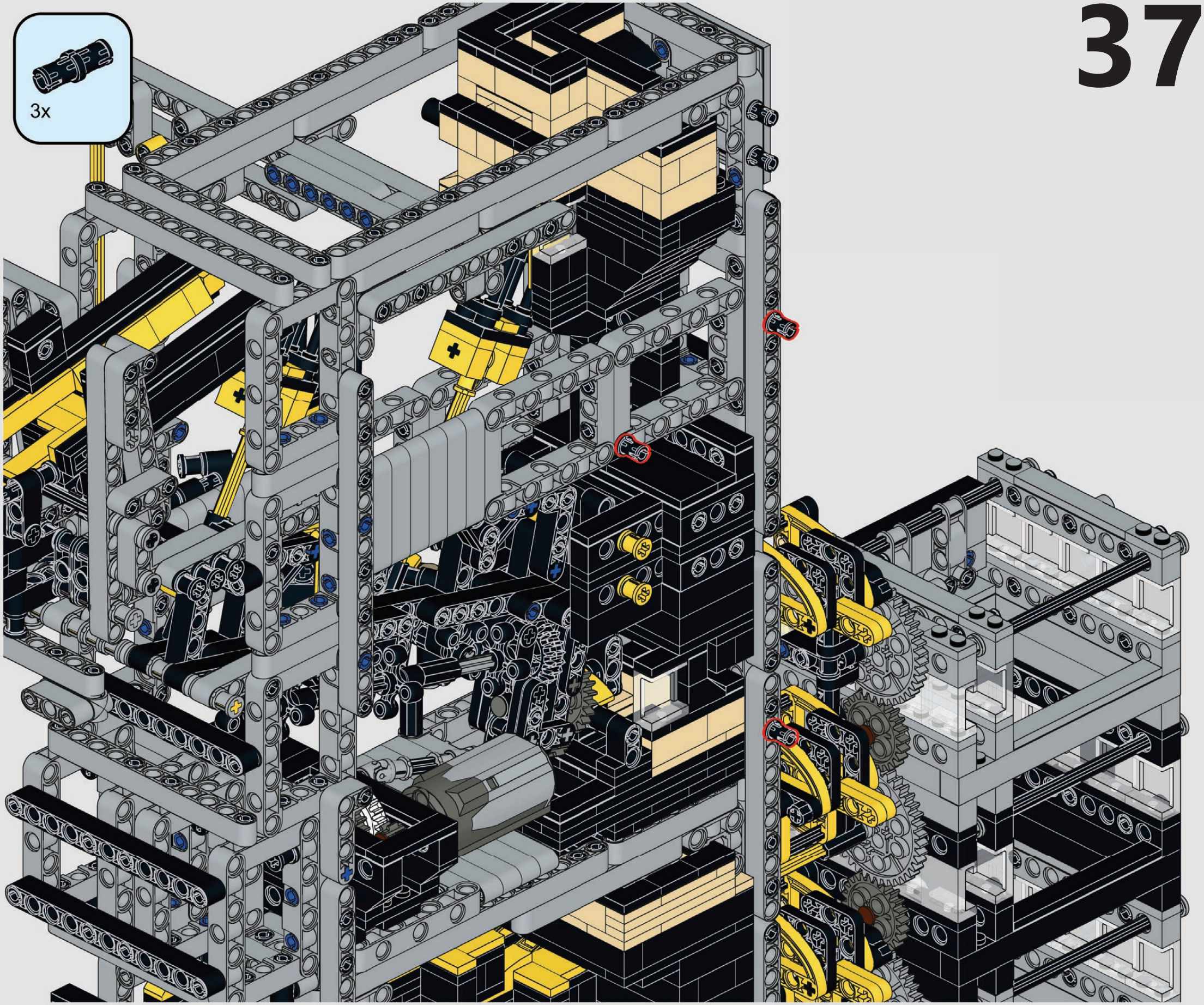
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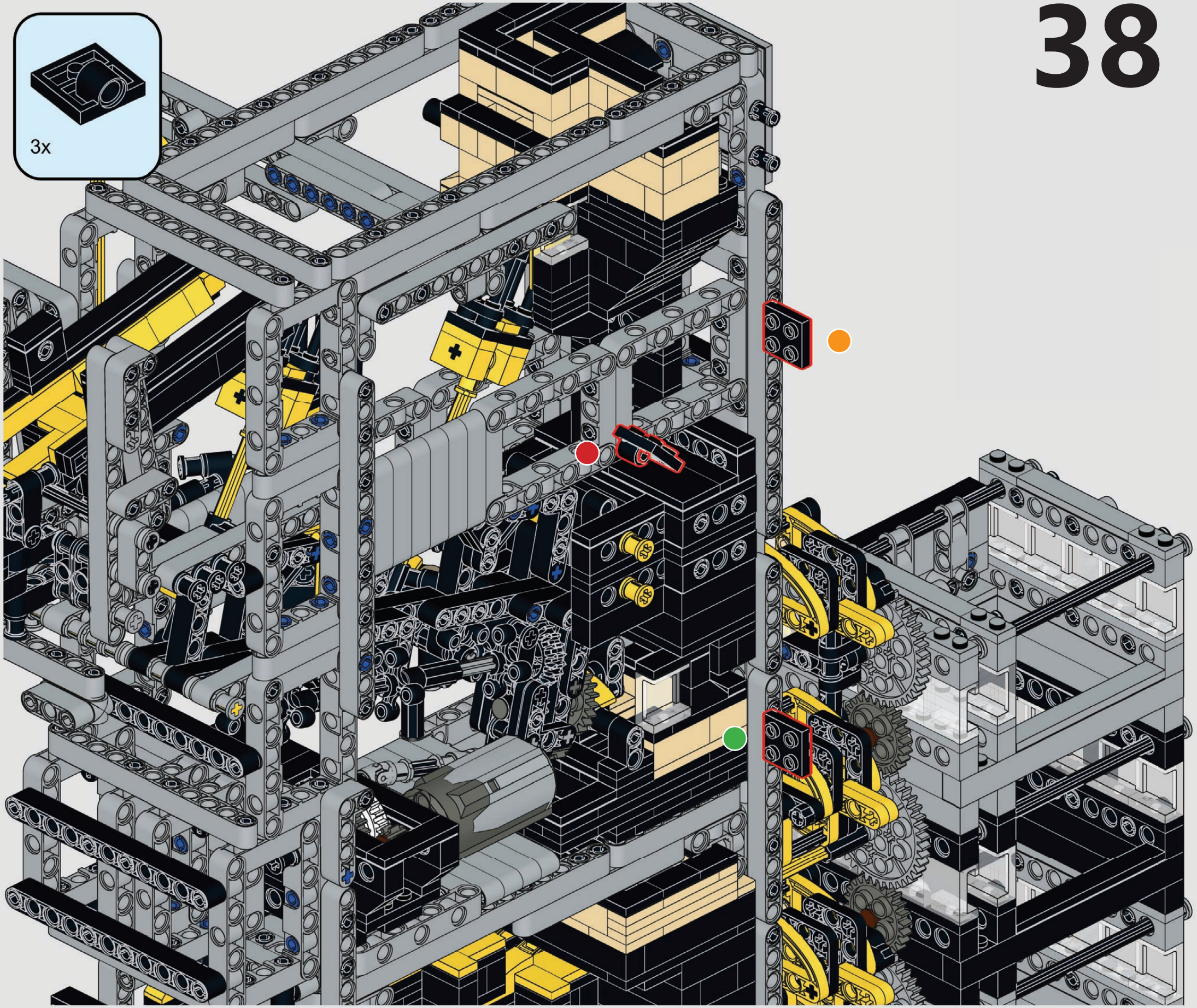
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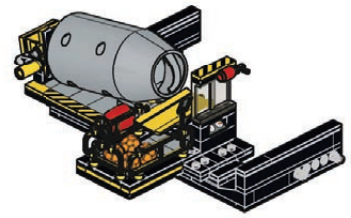

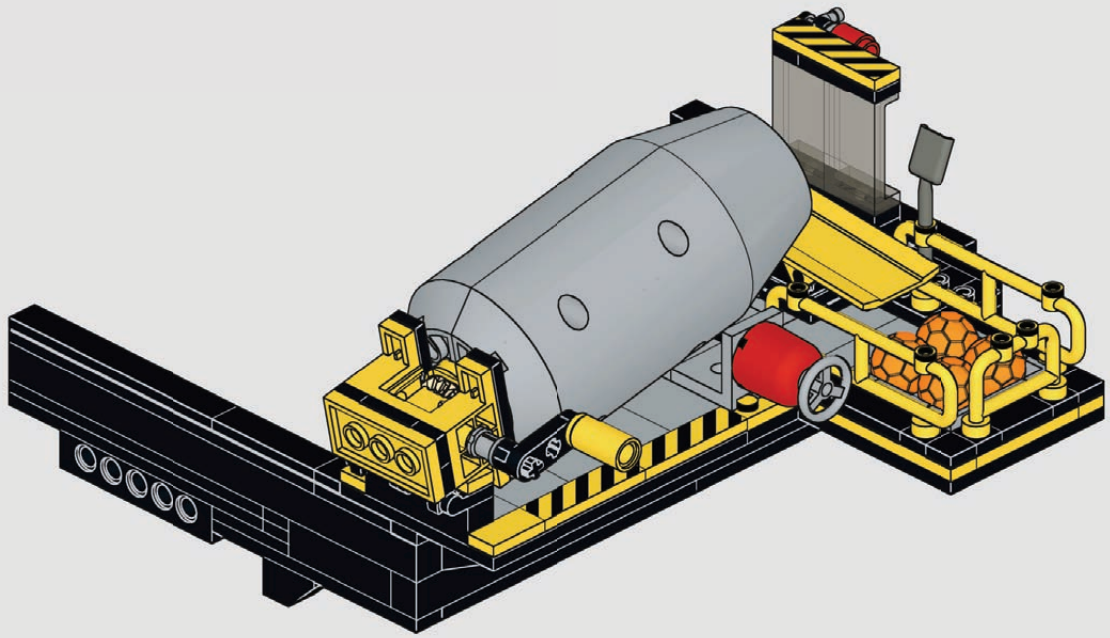

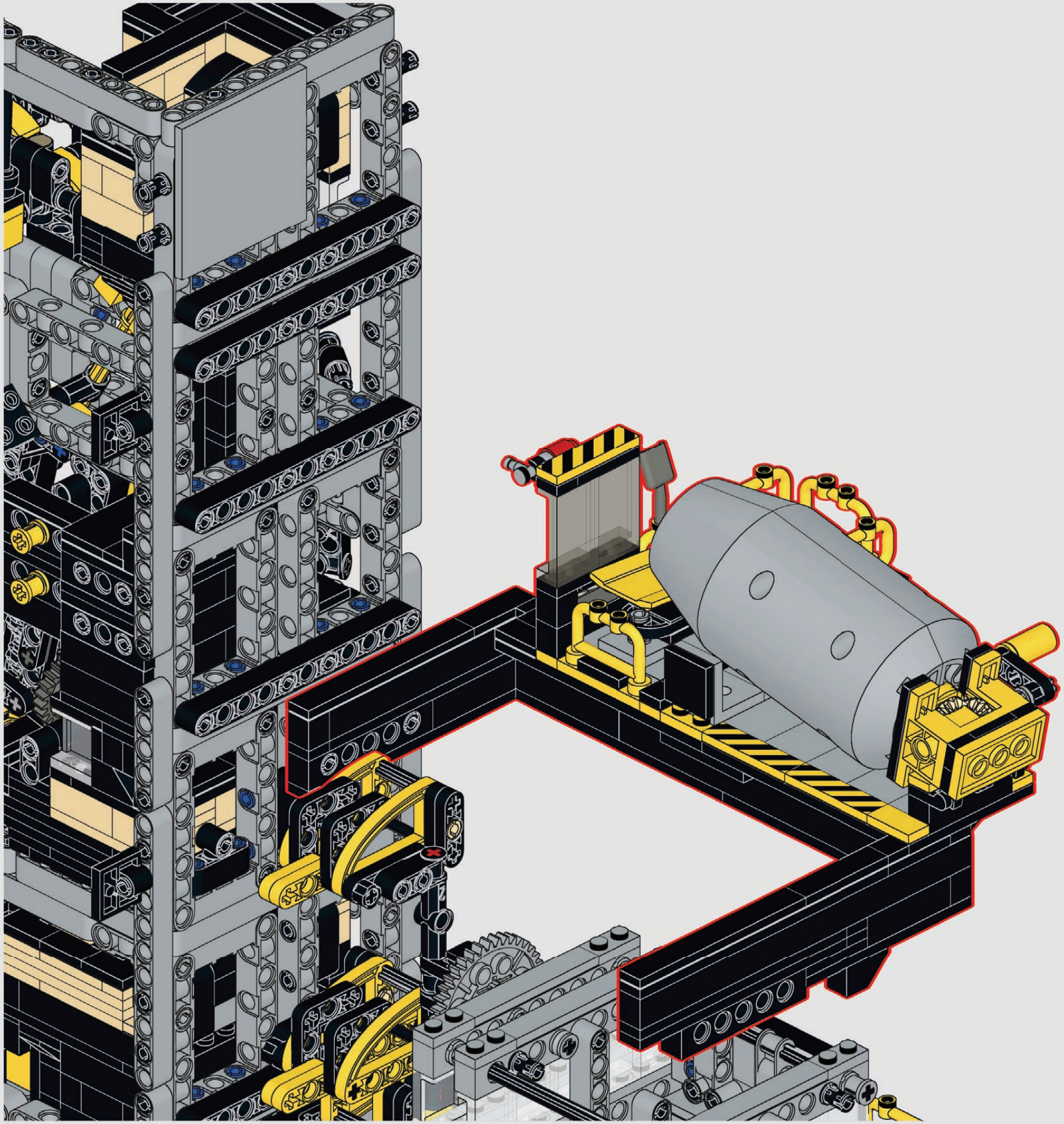

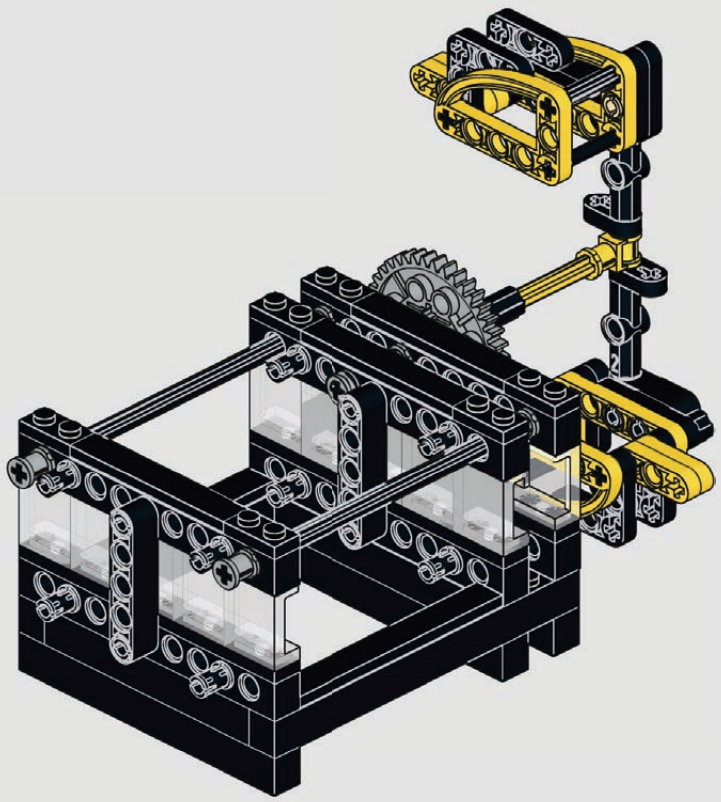

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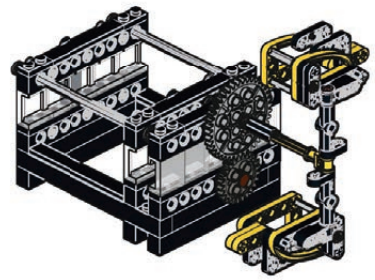

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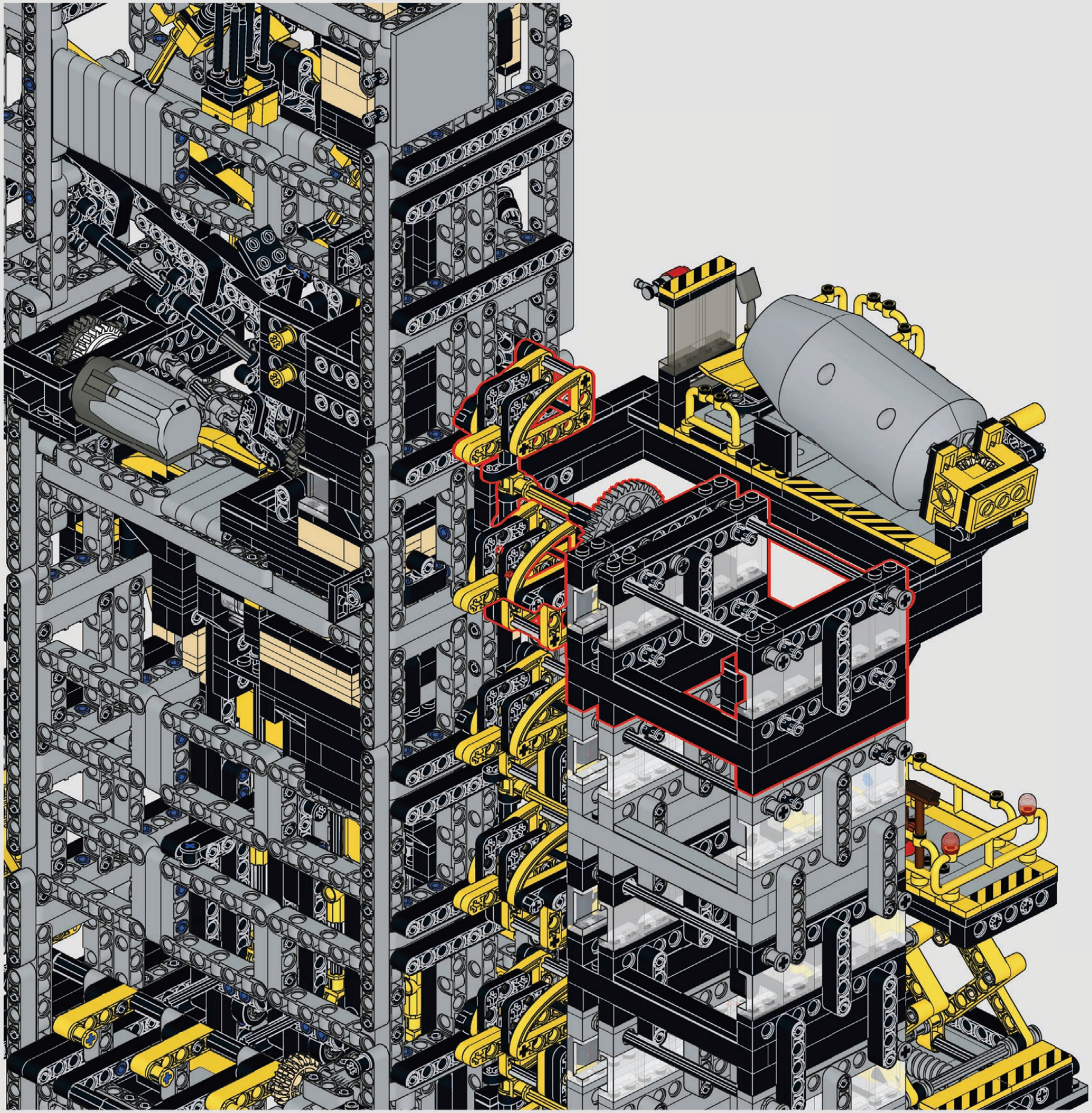

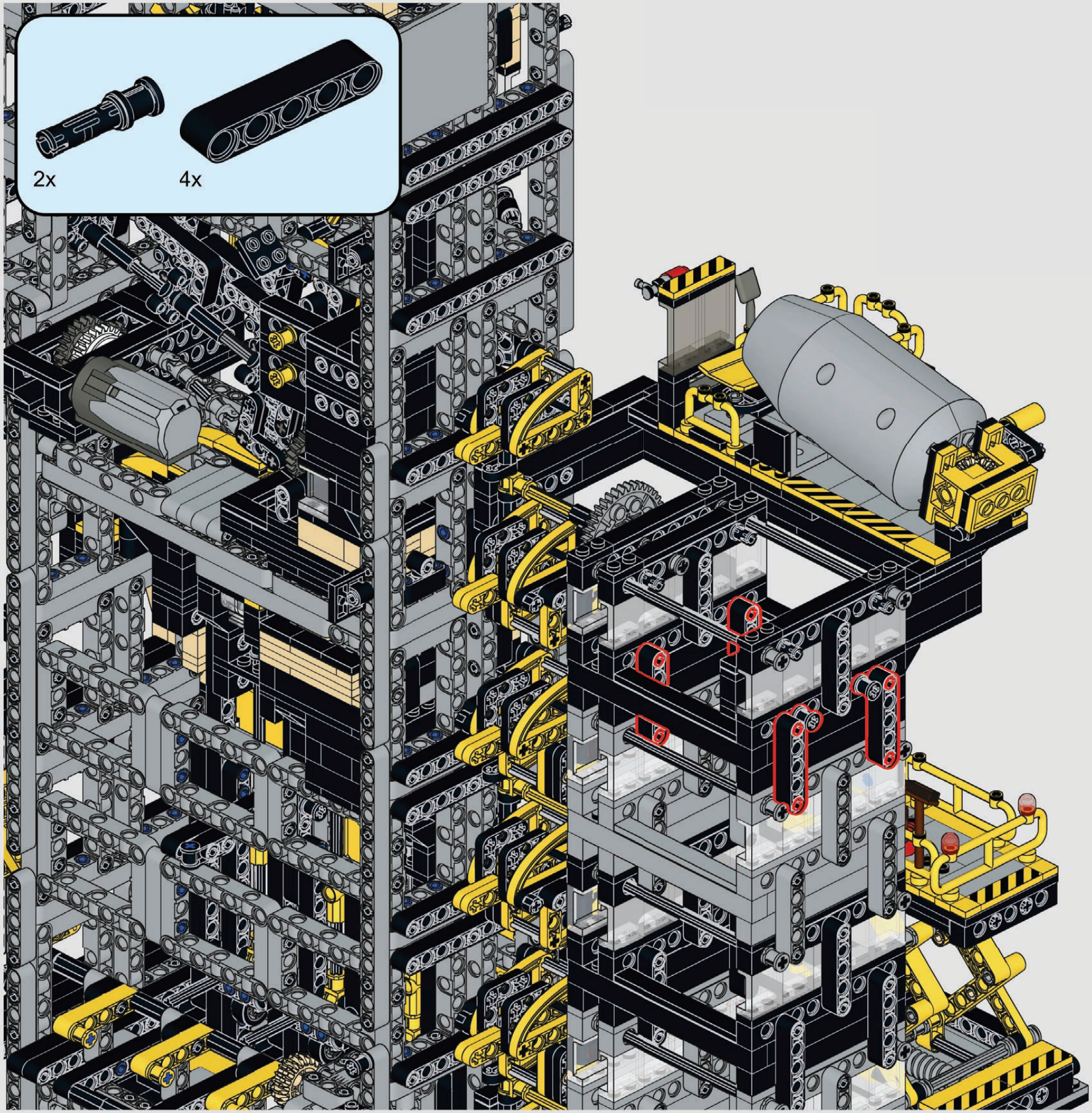
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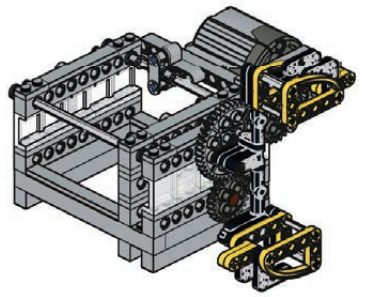

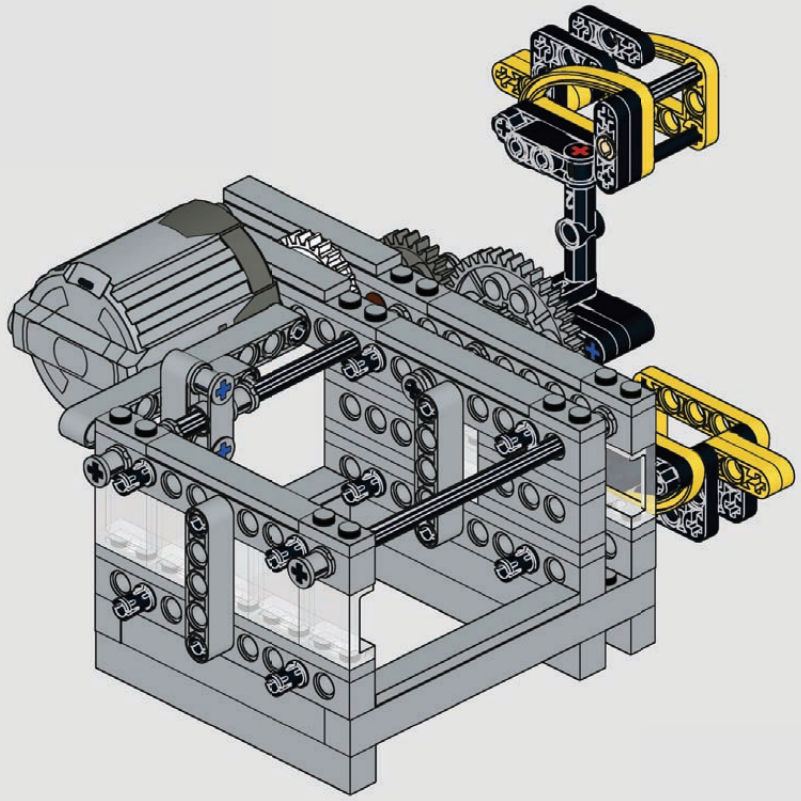

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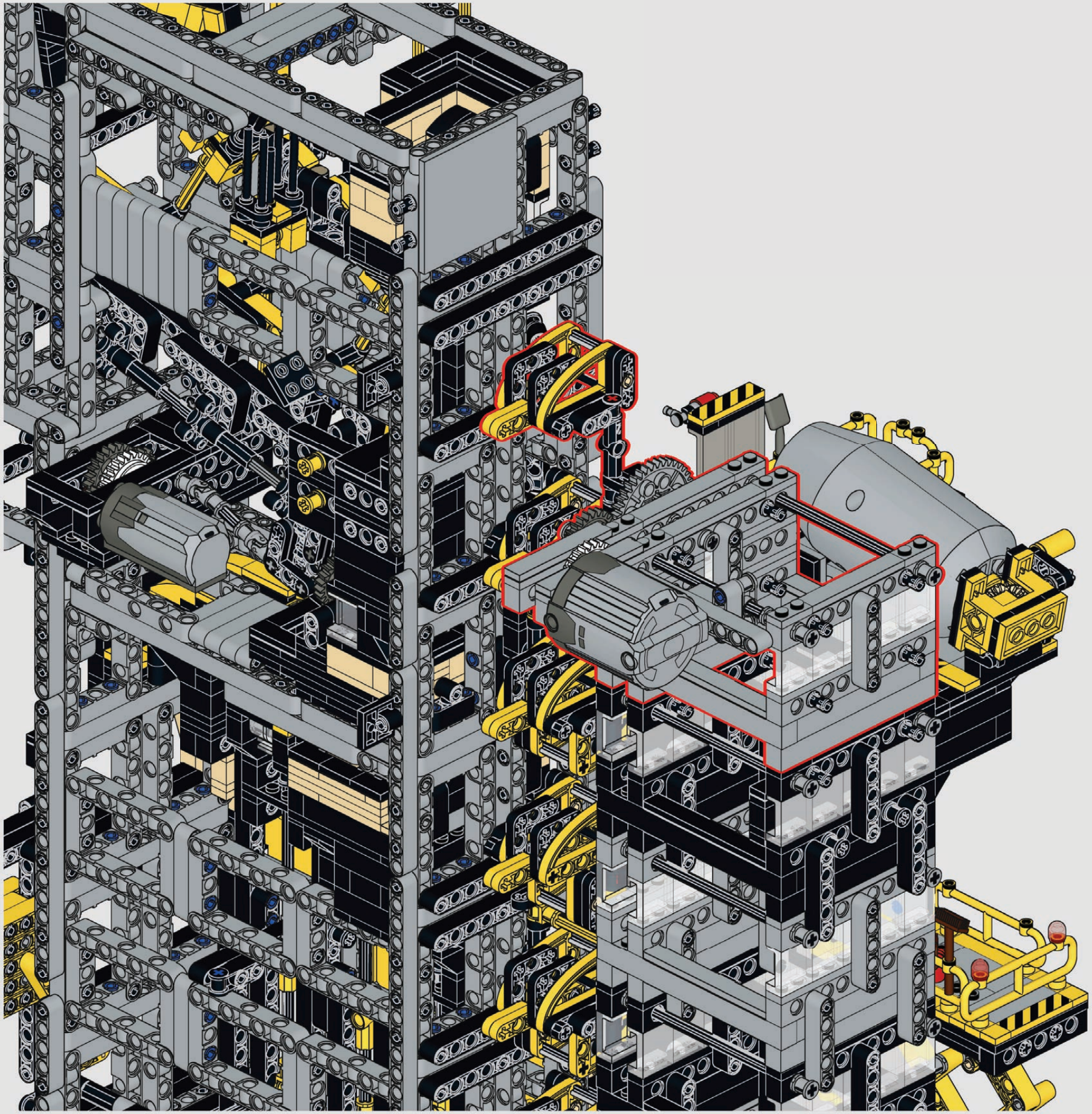

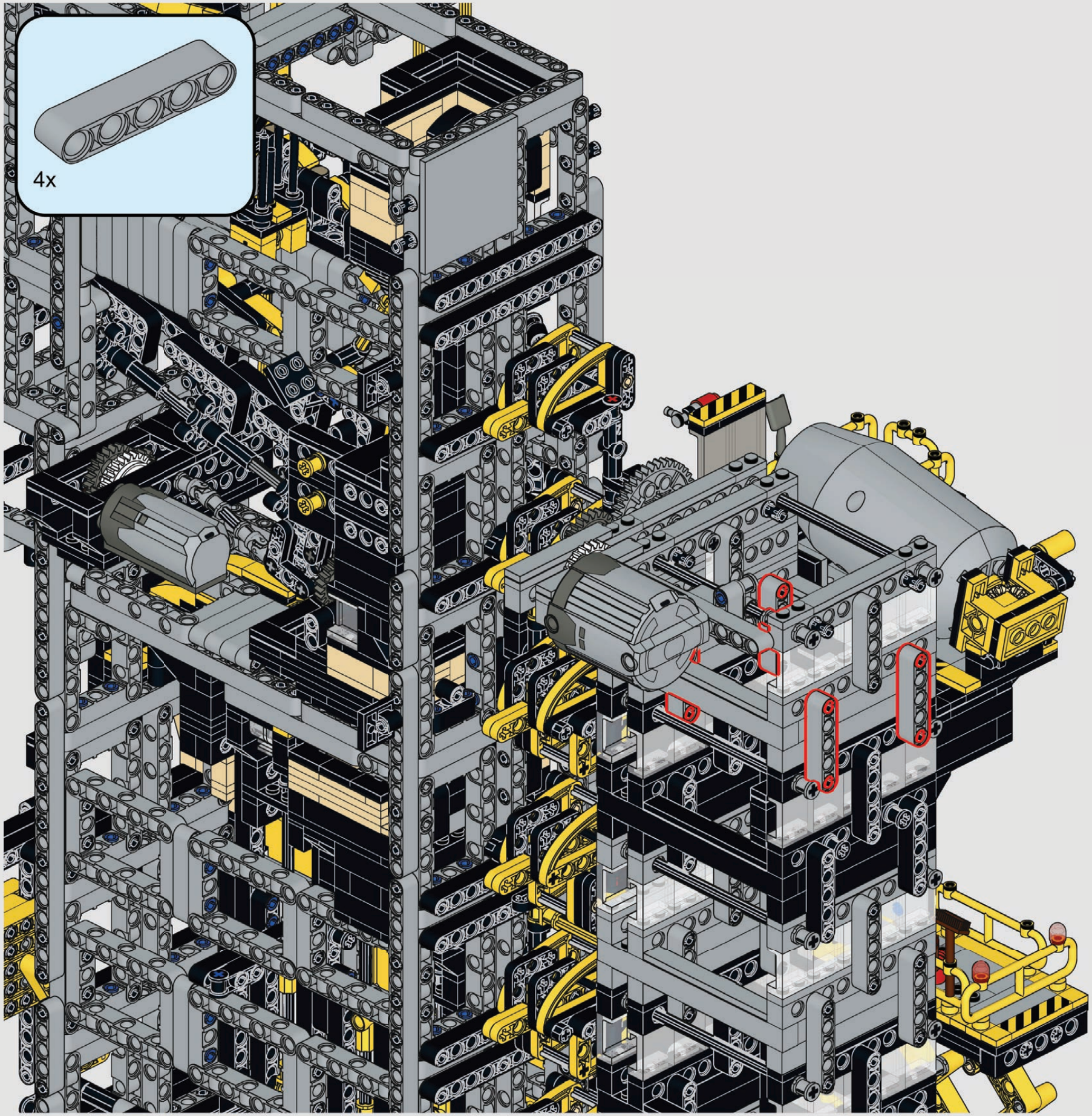
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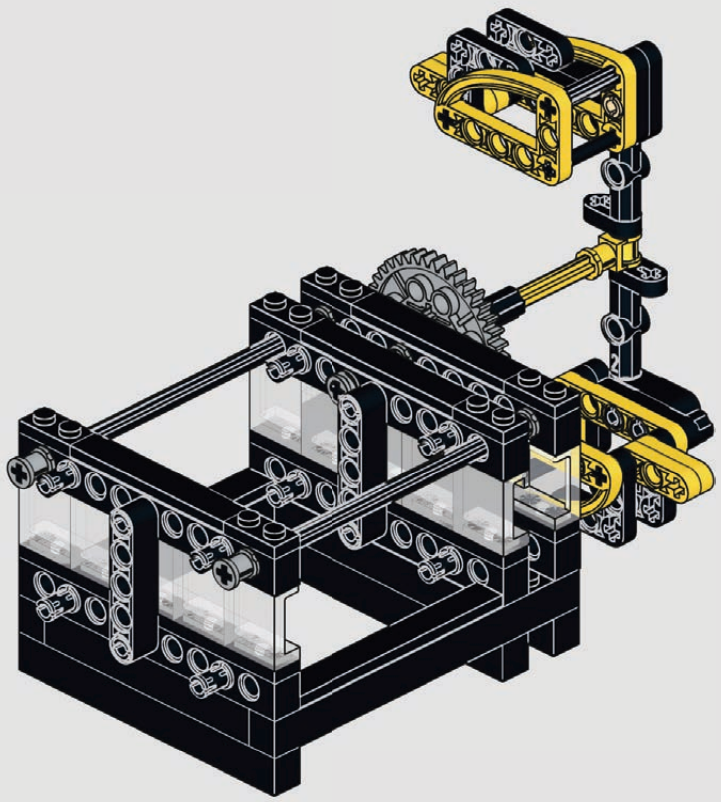

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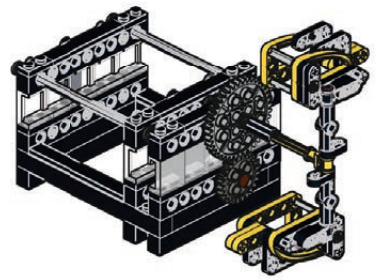

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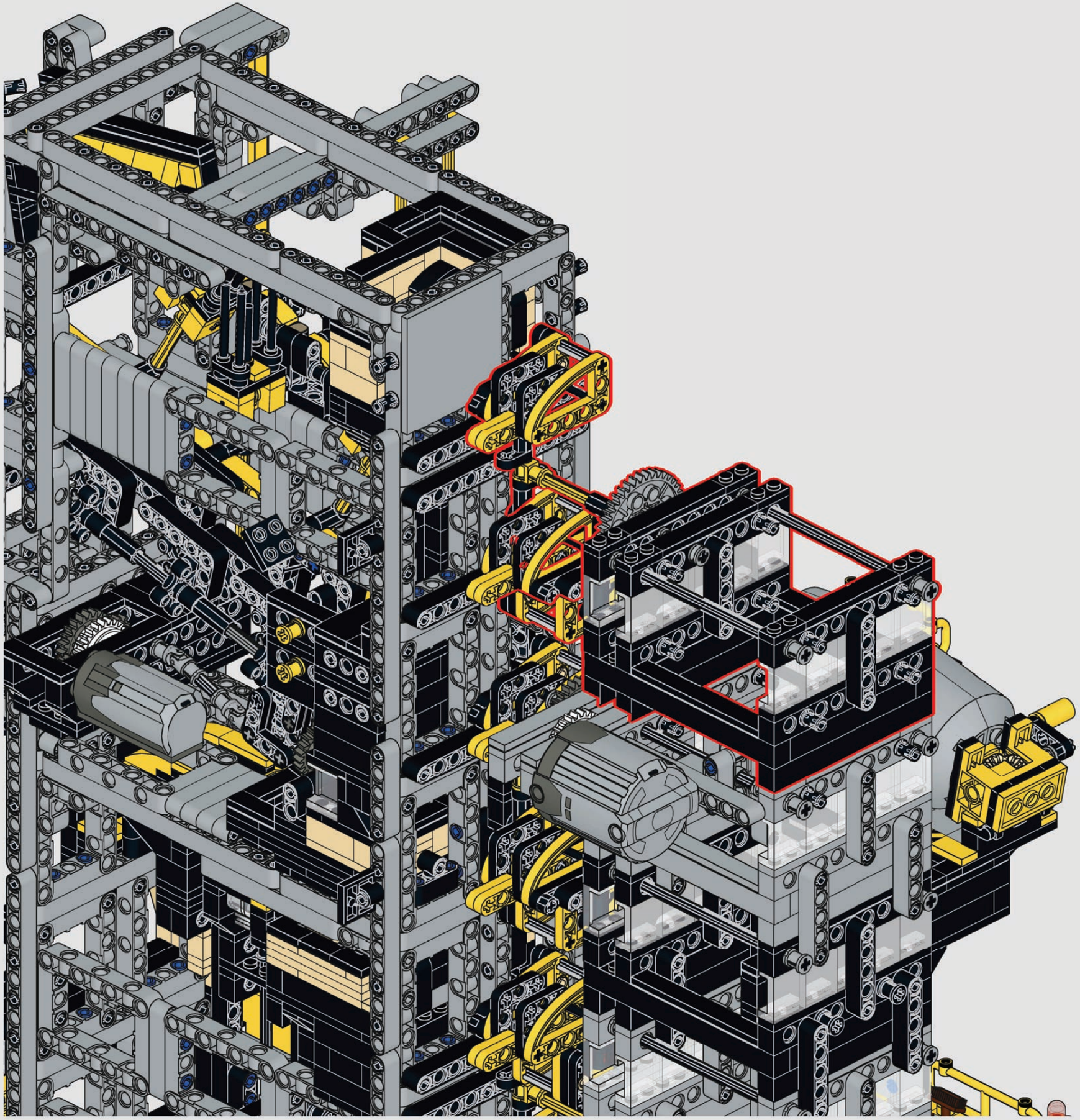

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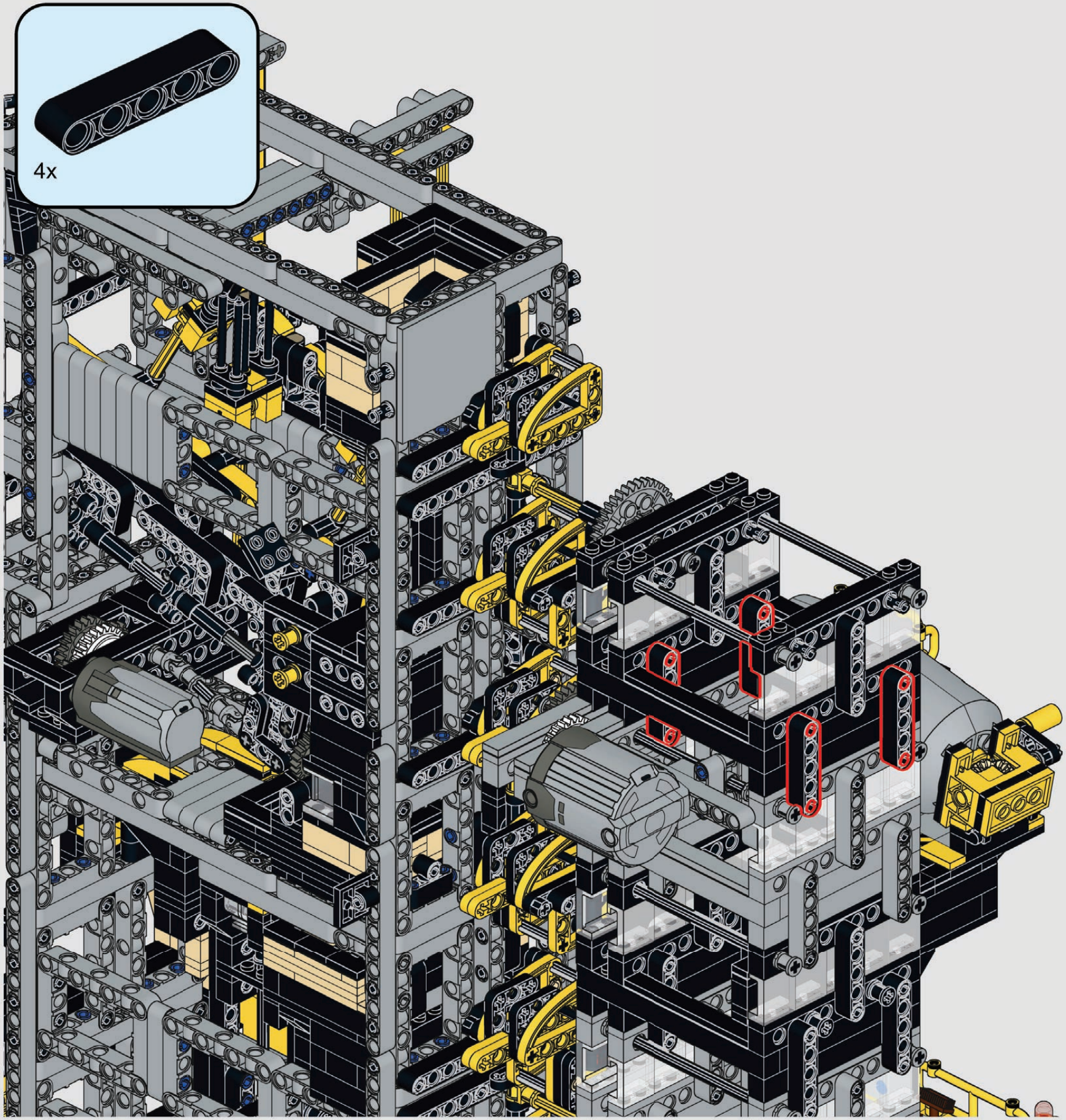

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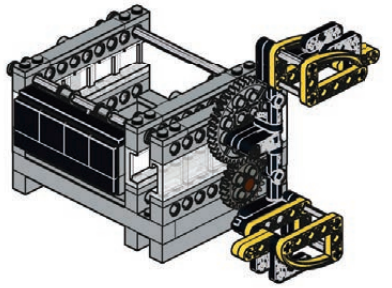

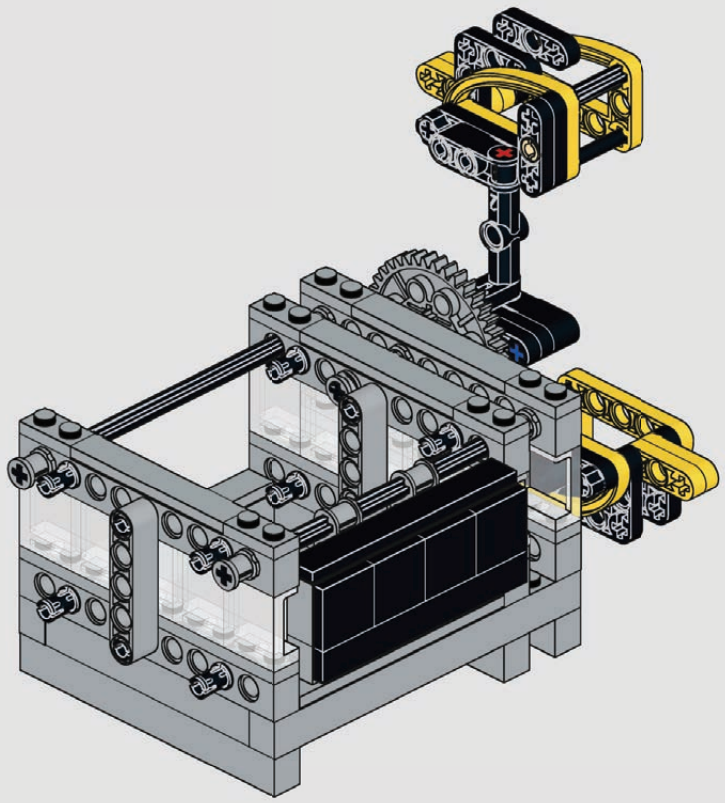

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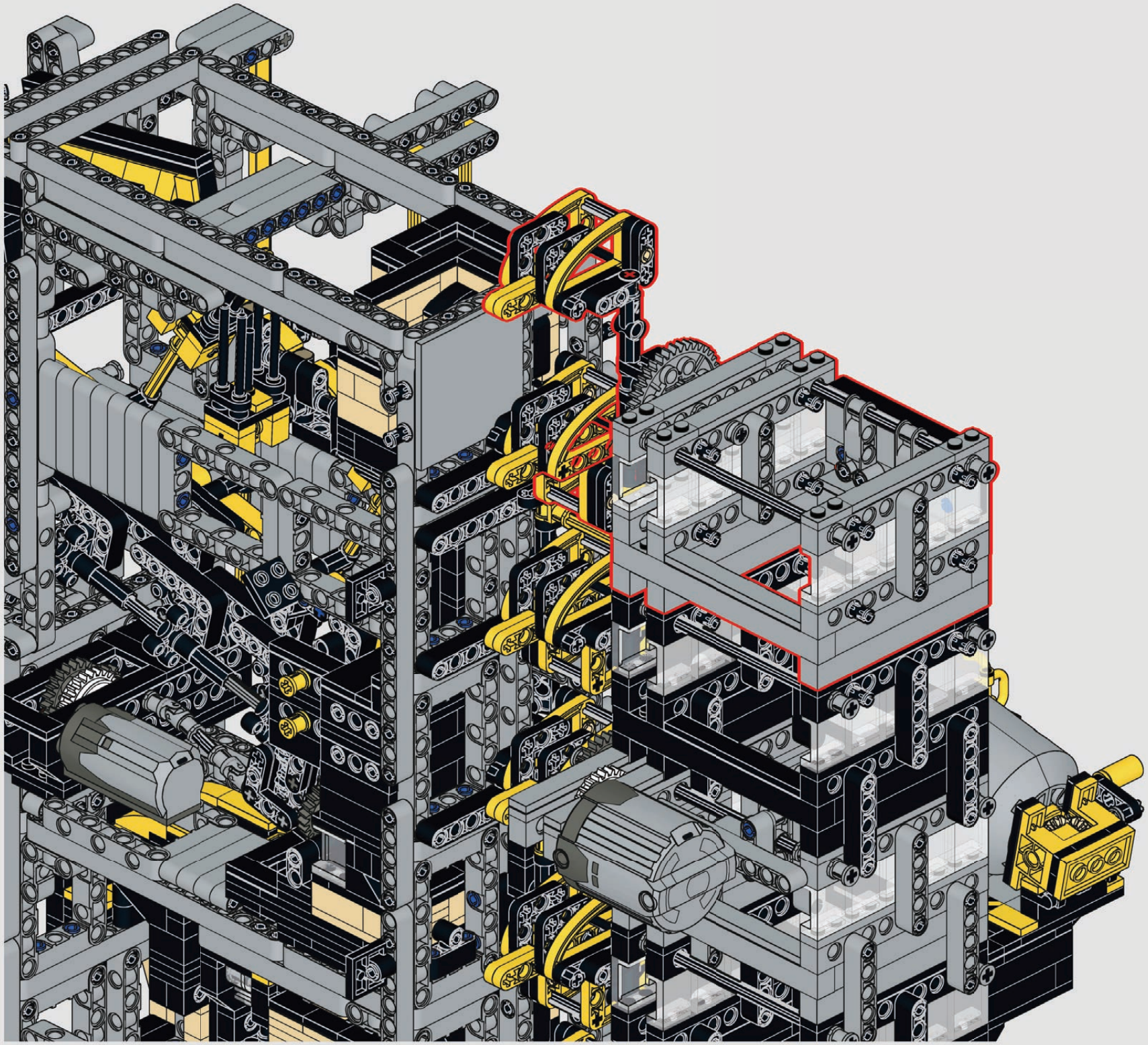

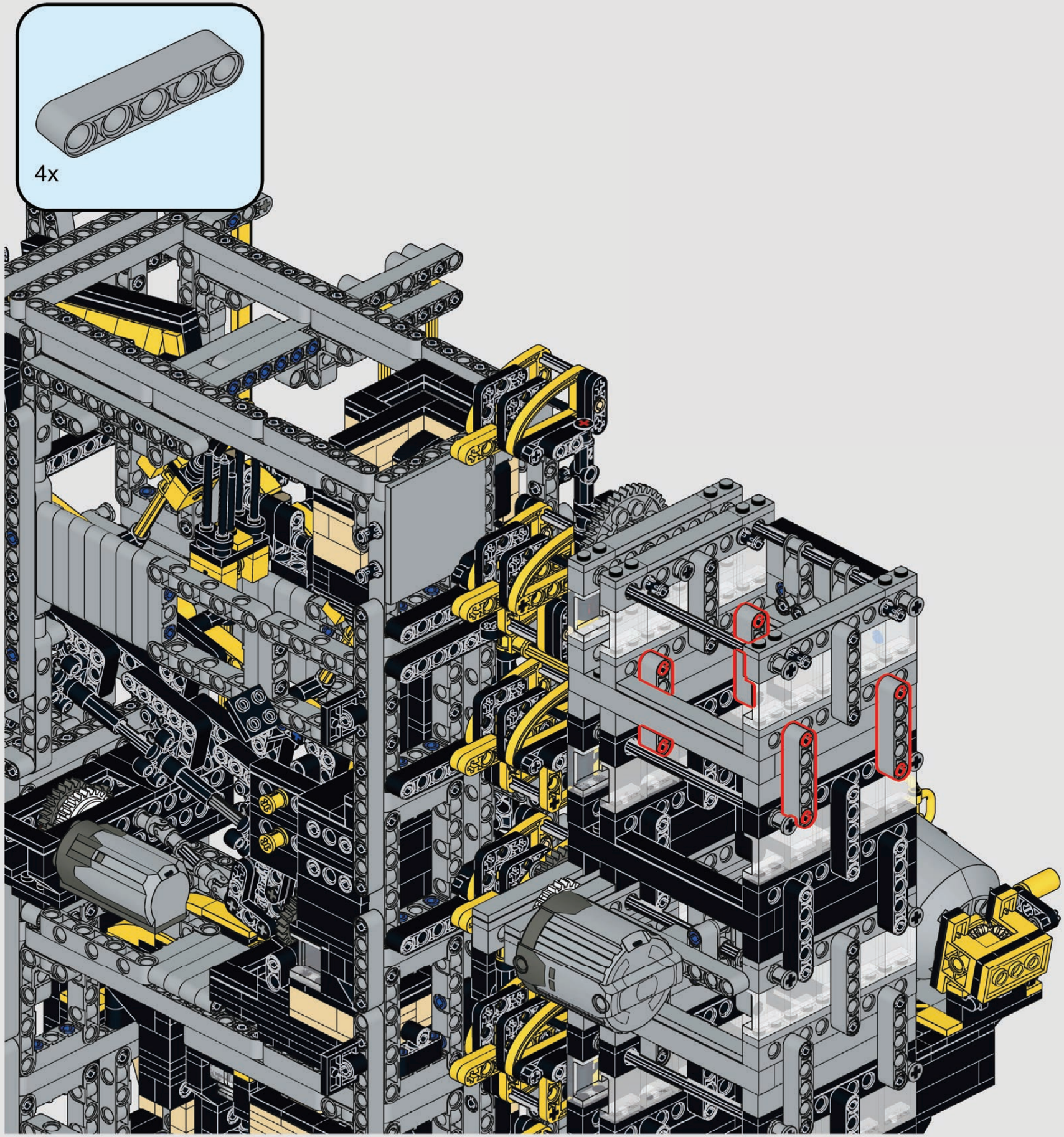
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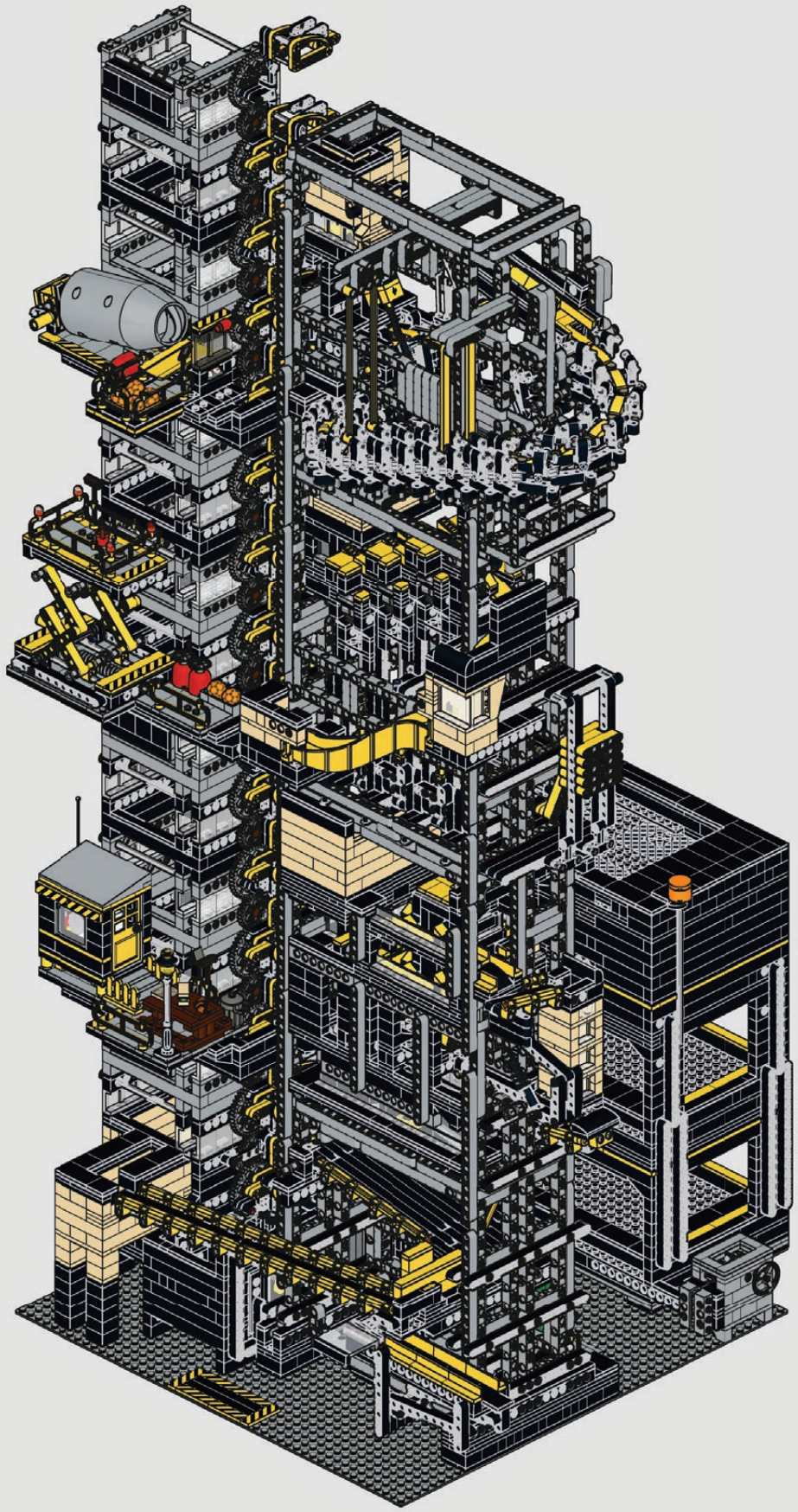

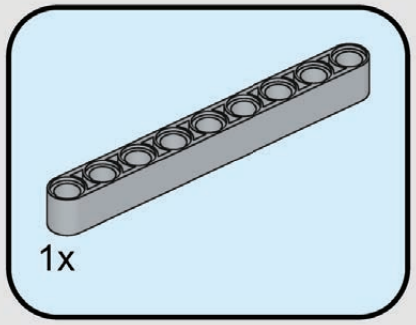
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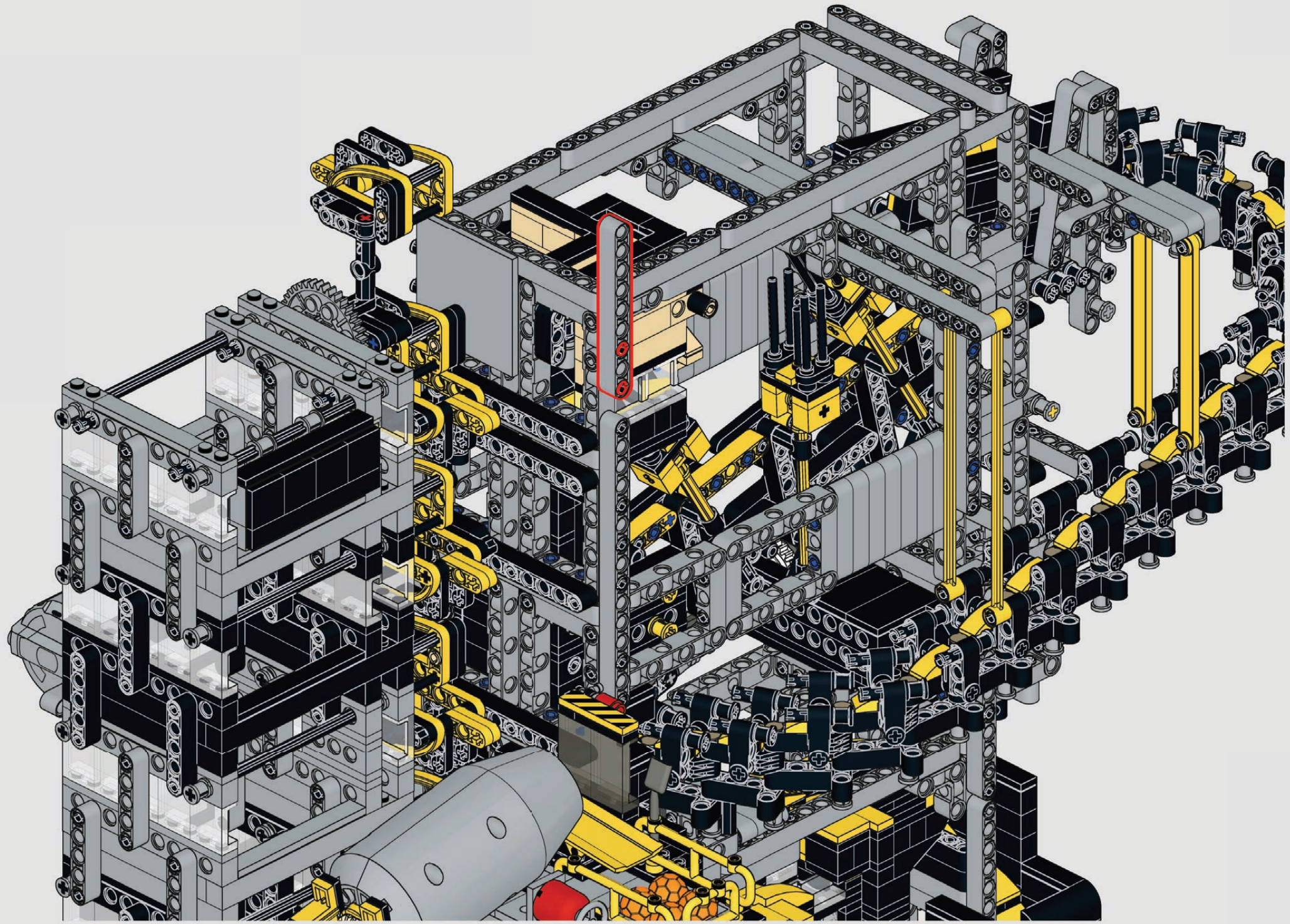

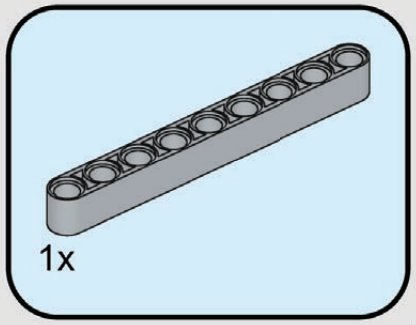
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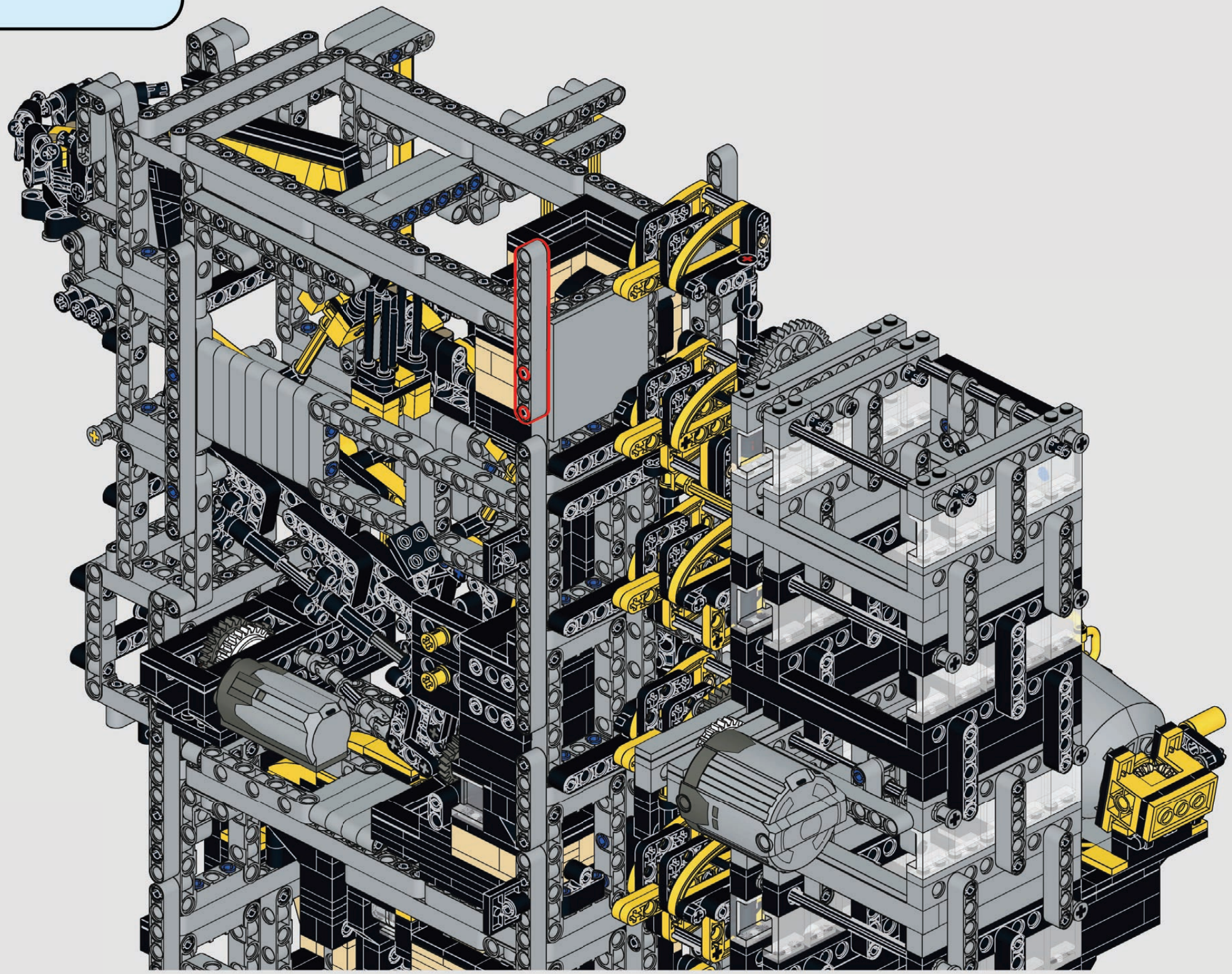

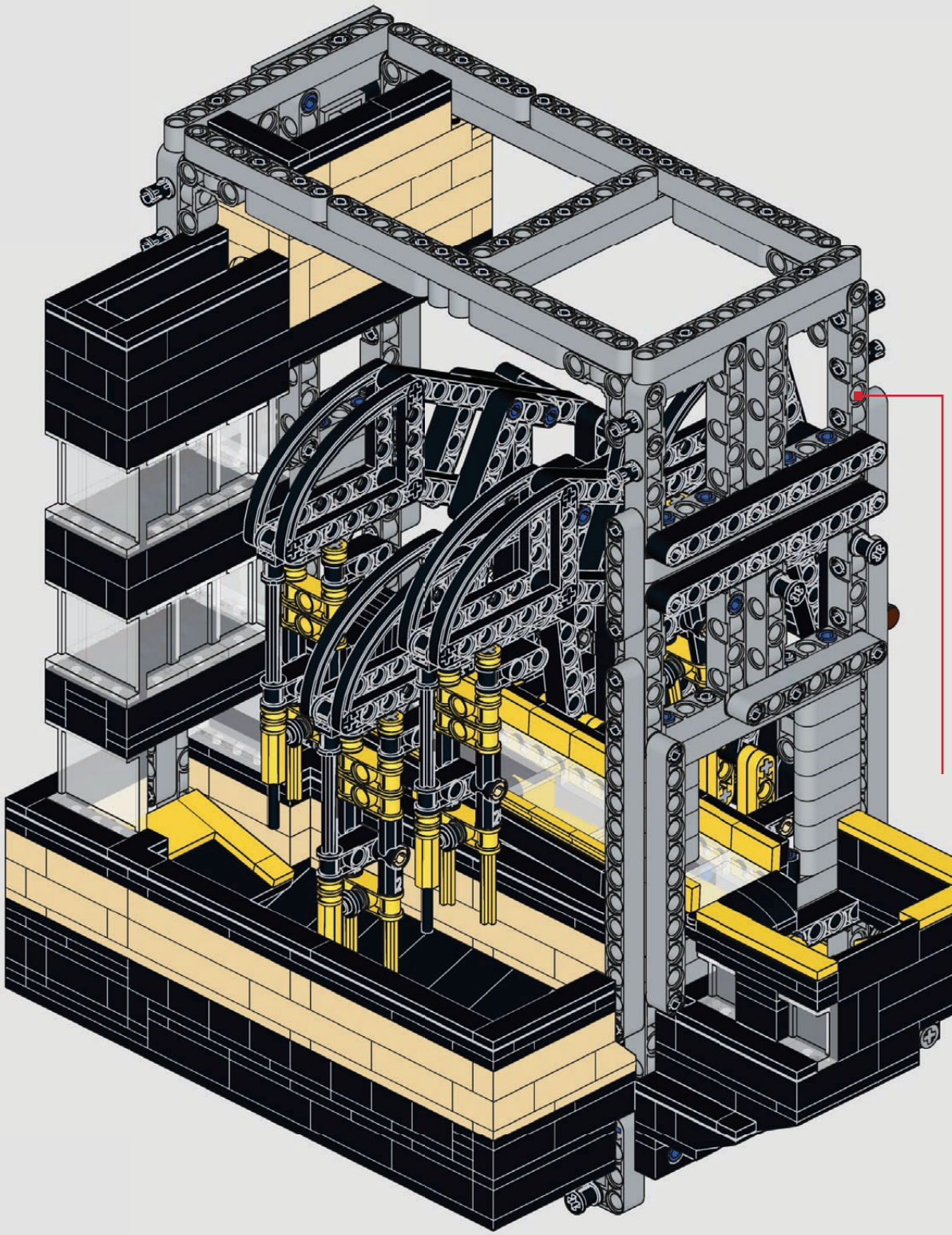

Attach right anchor string

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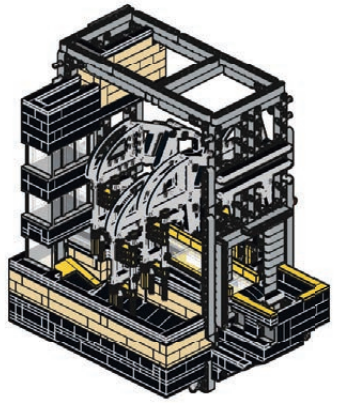

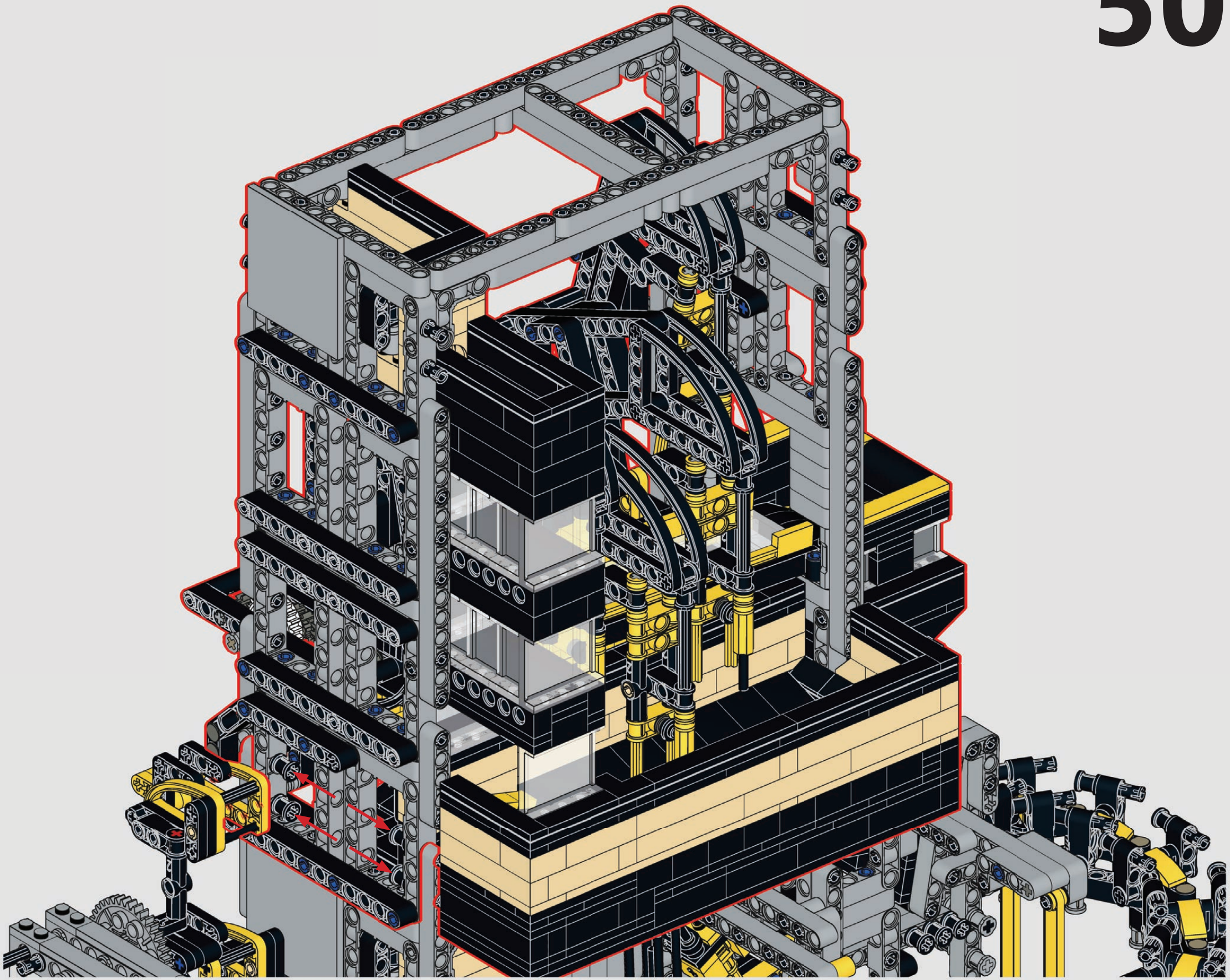

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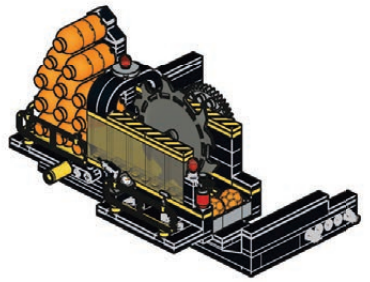

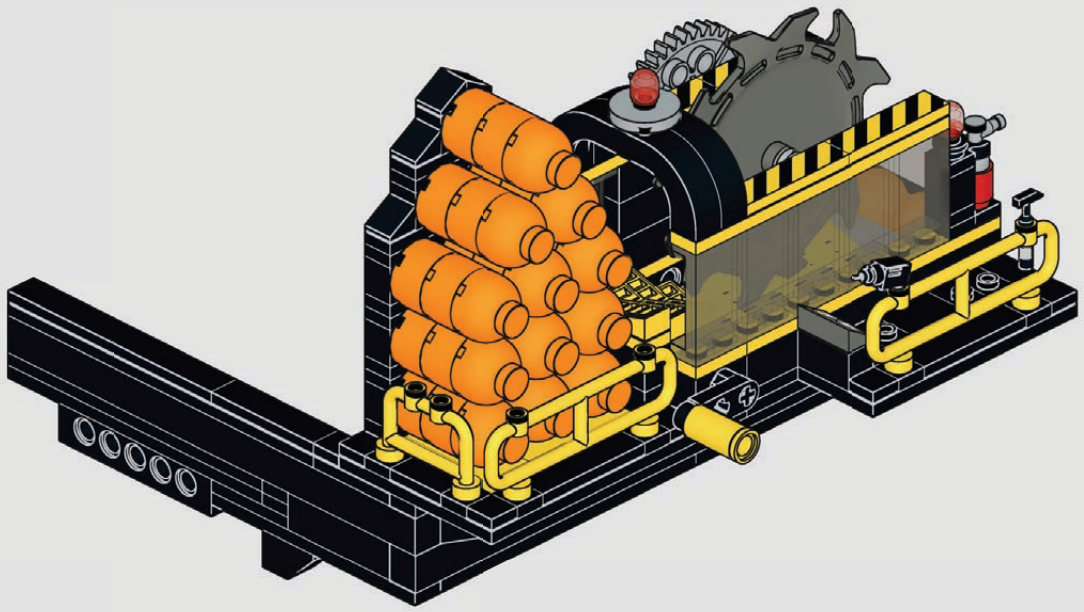

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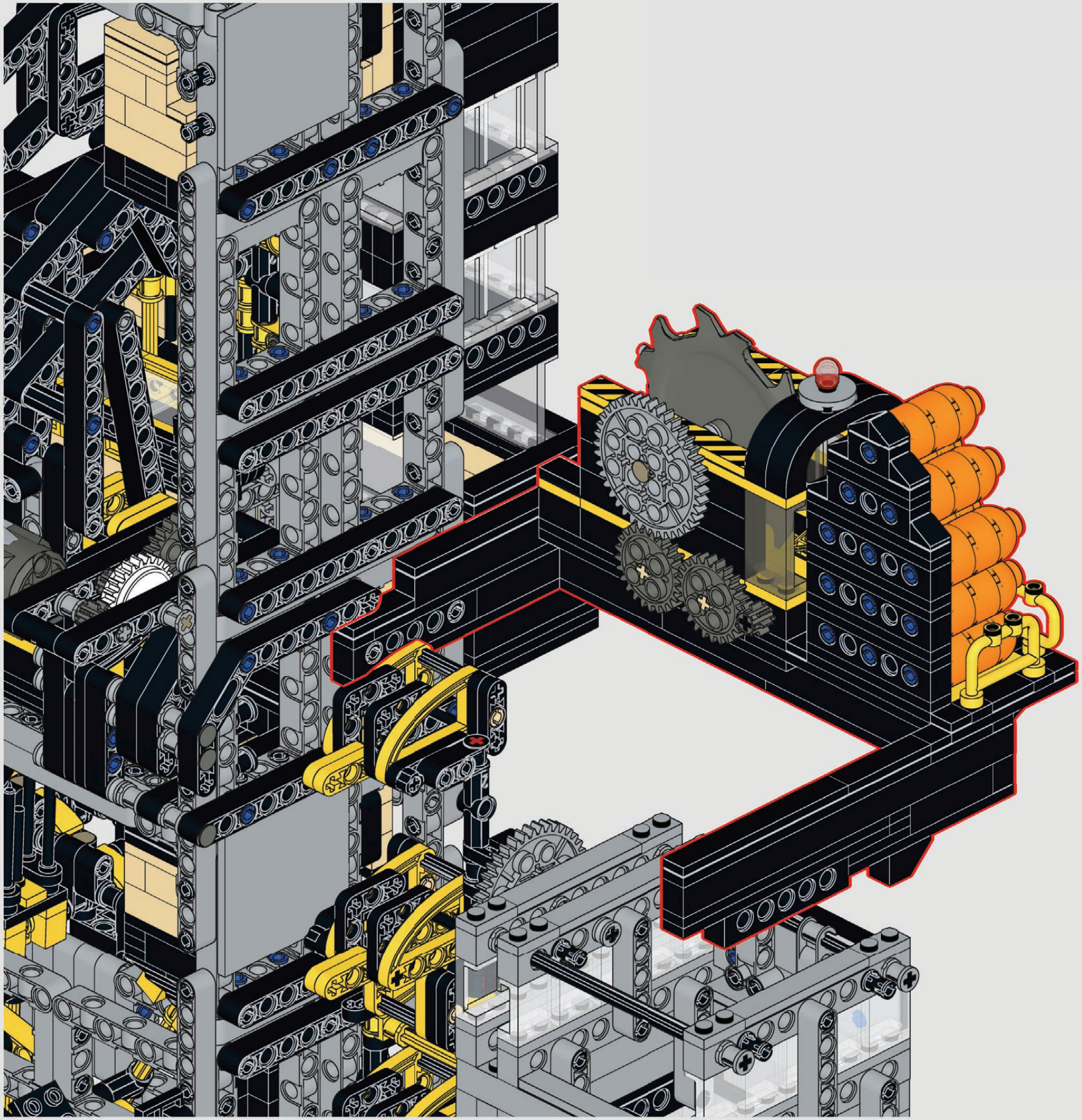

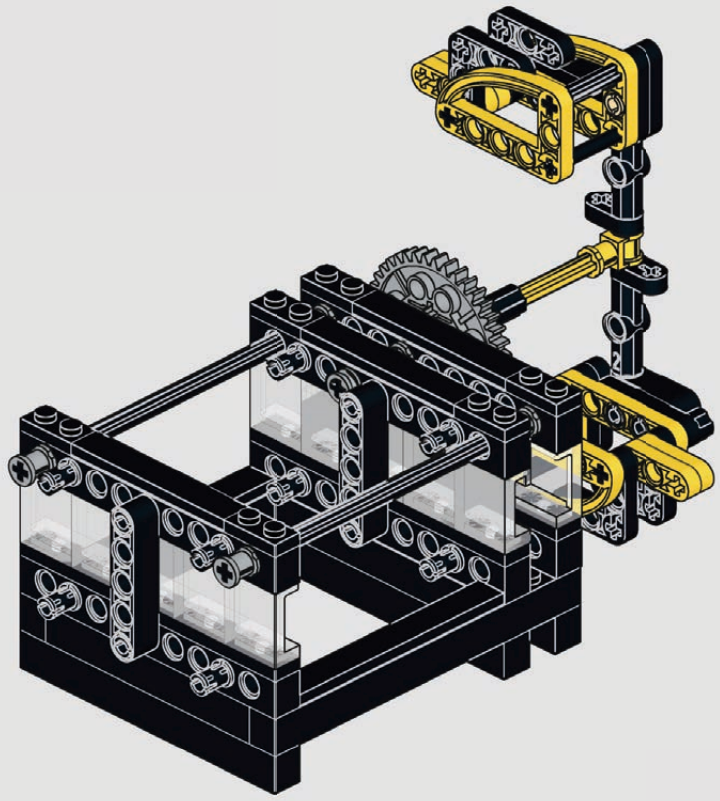

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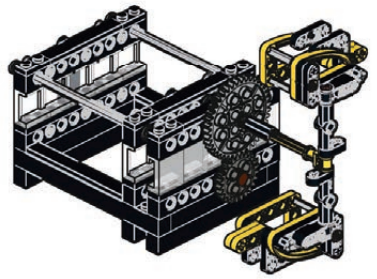

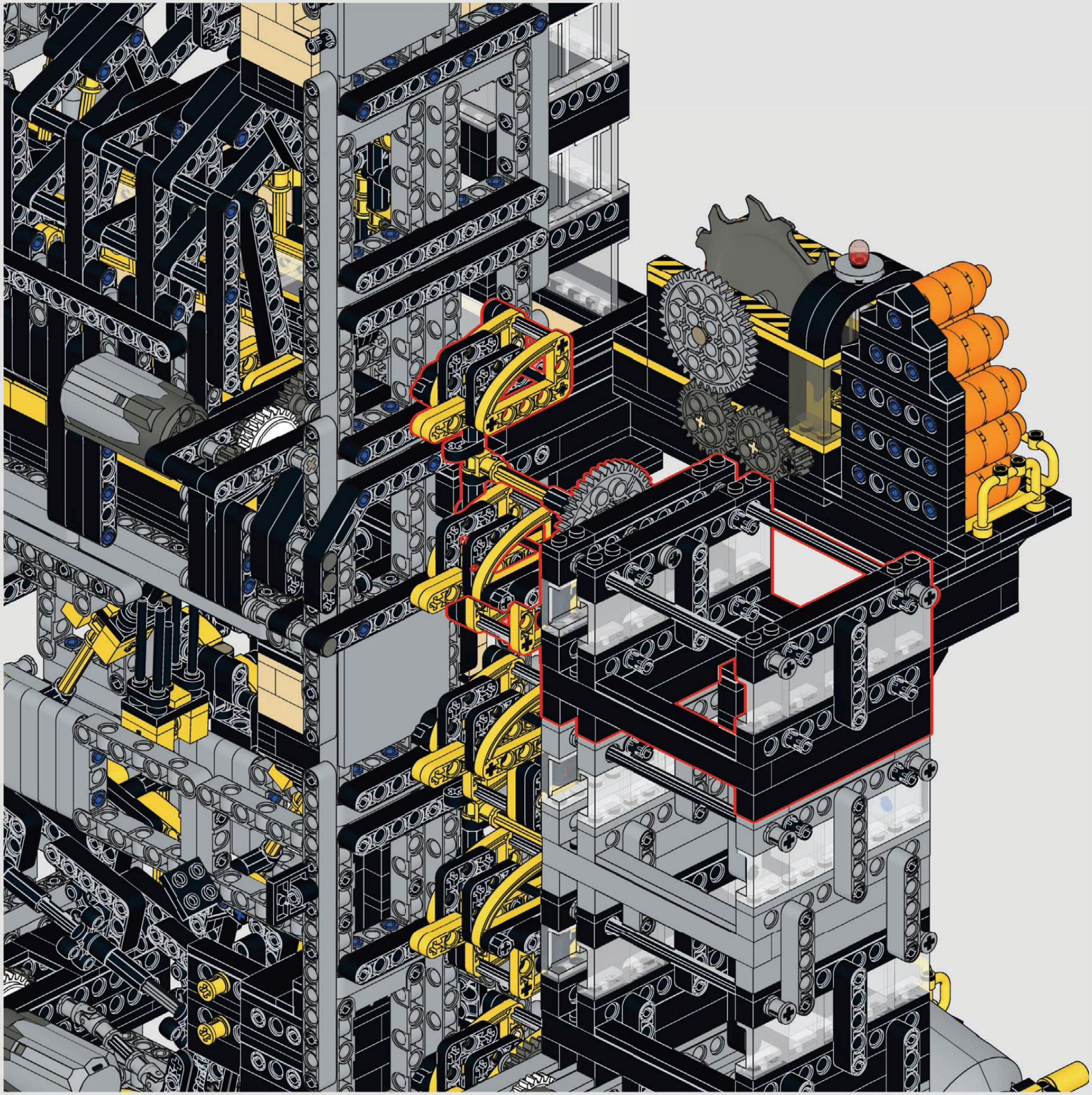

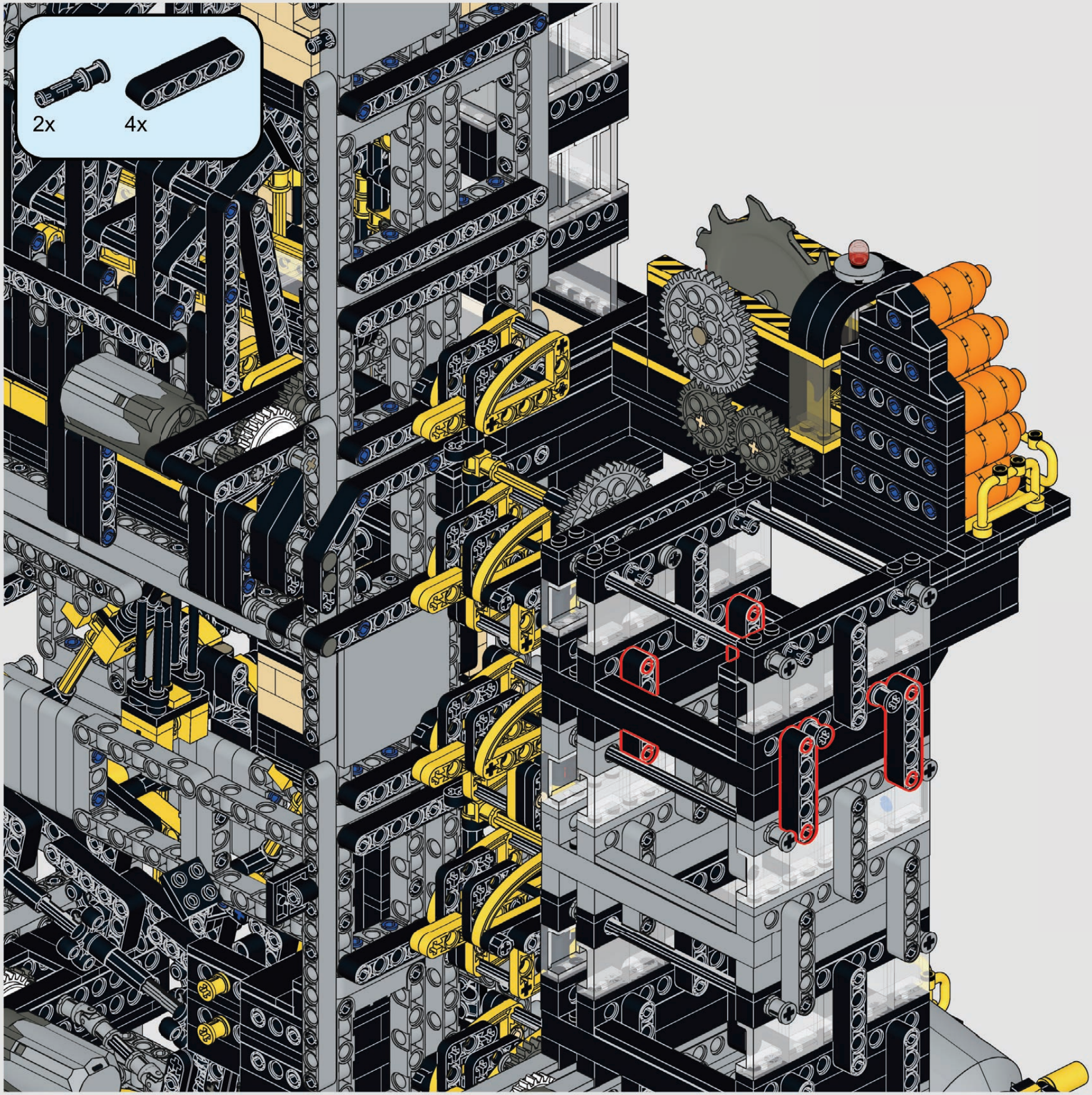
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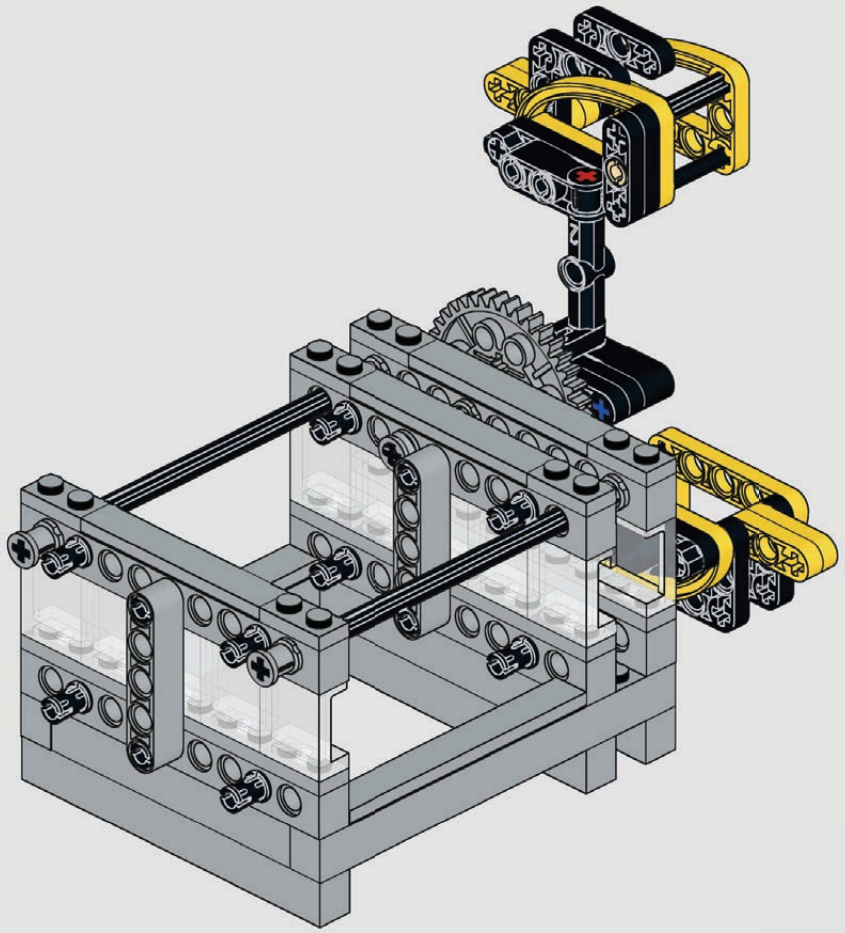

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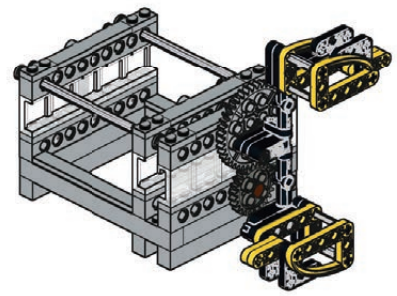

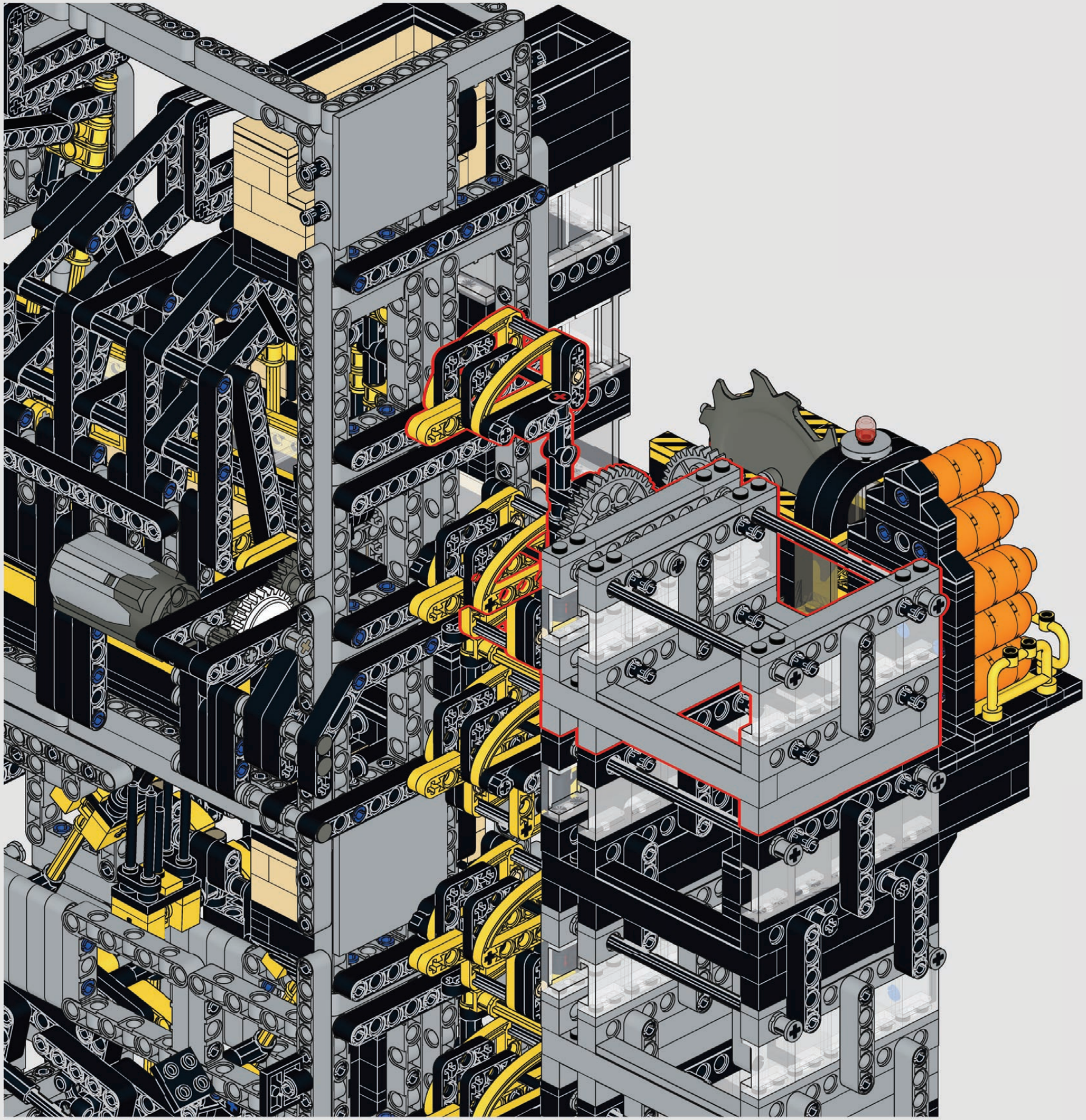

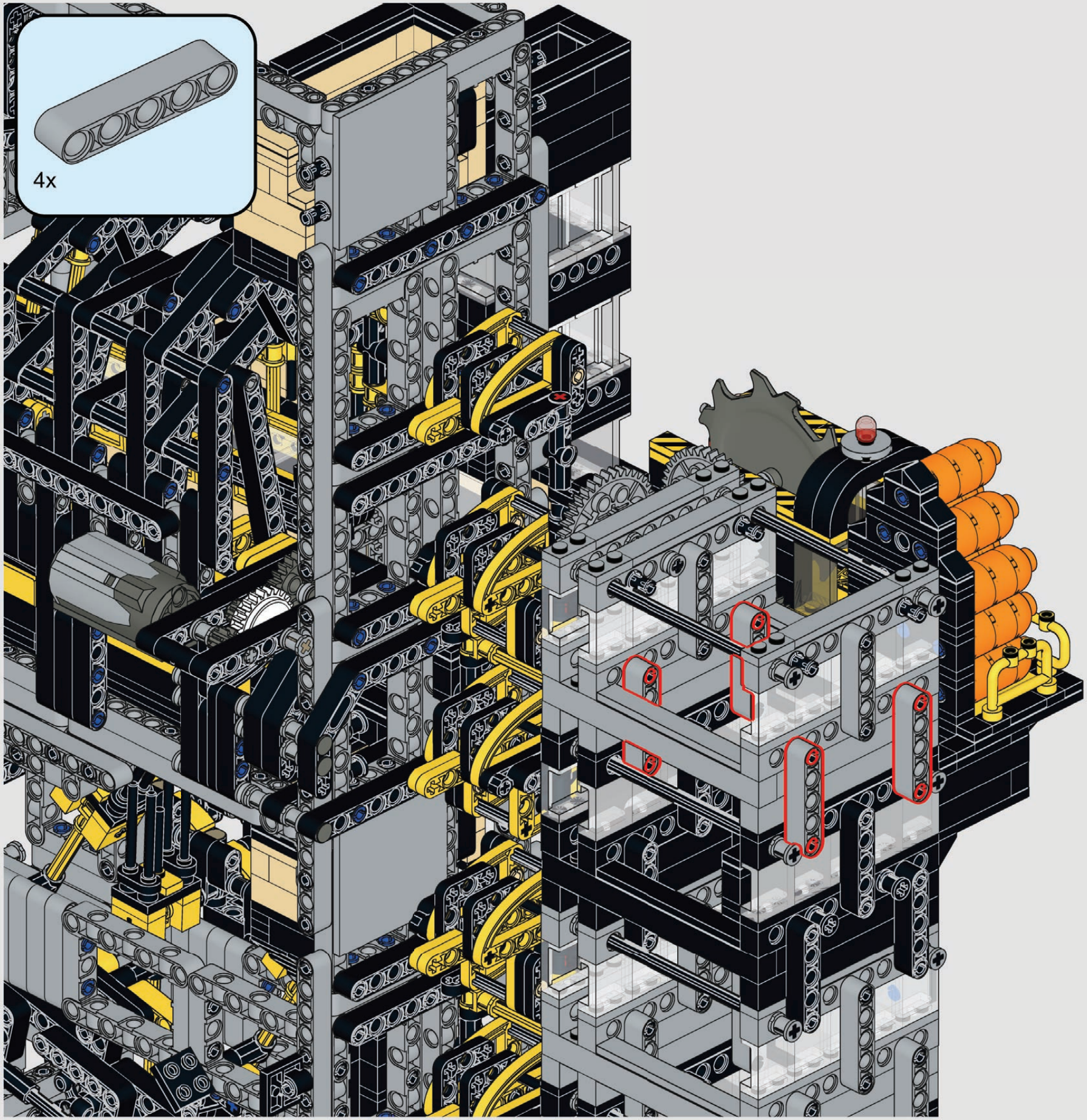
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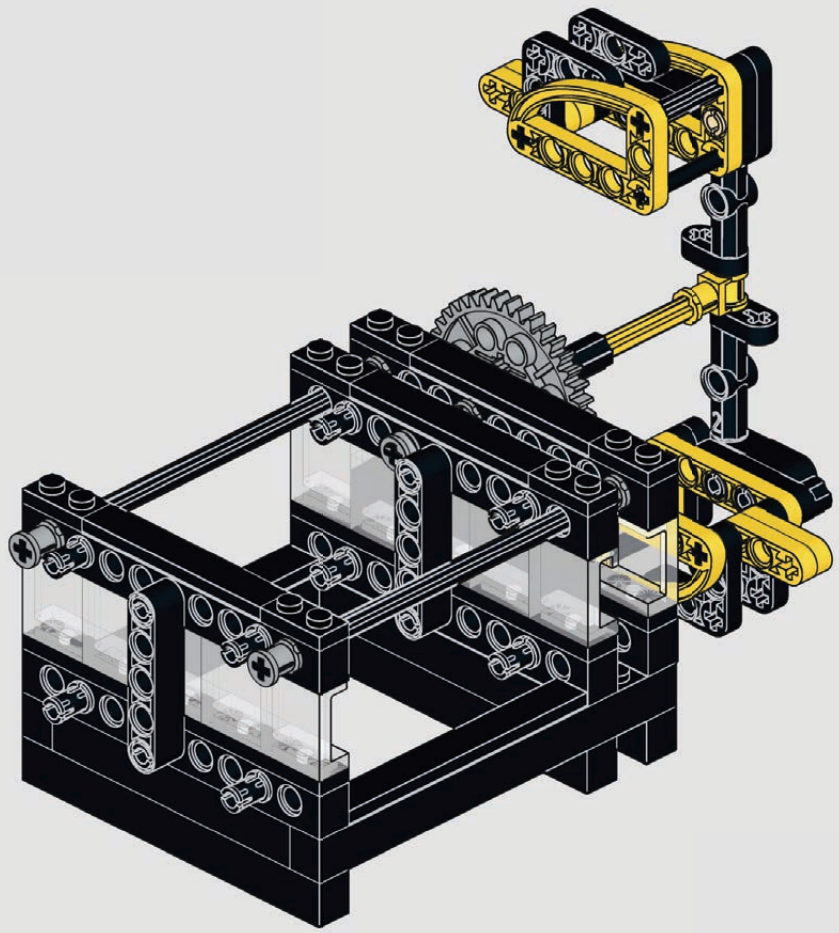

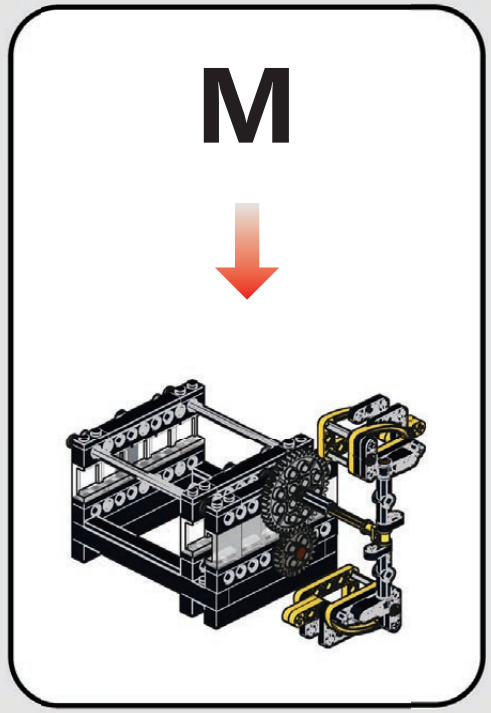
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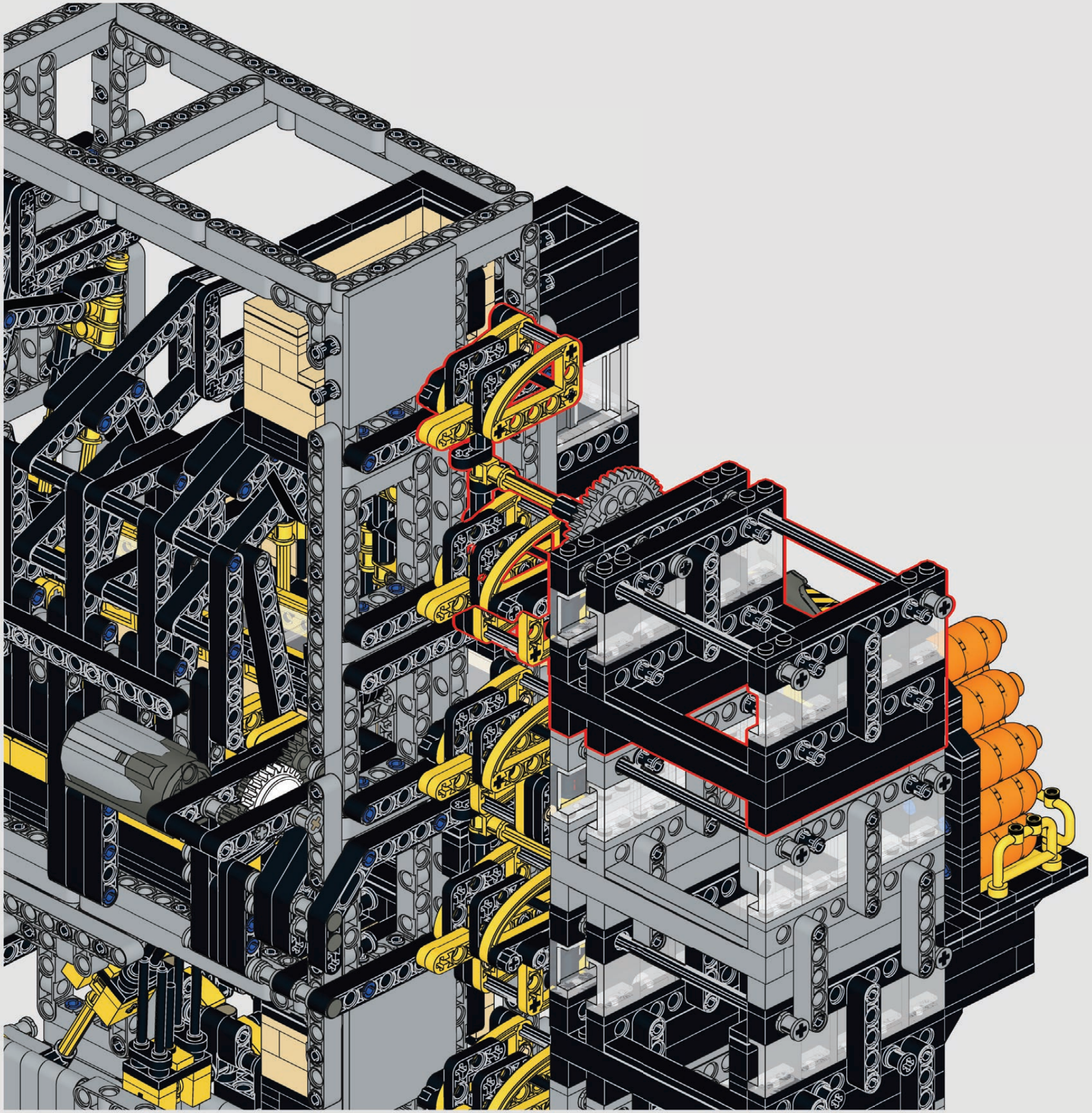

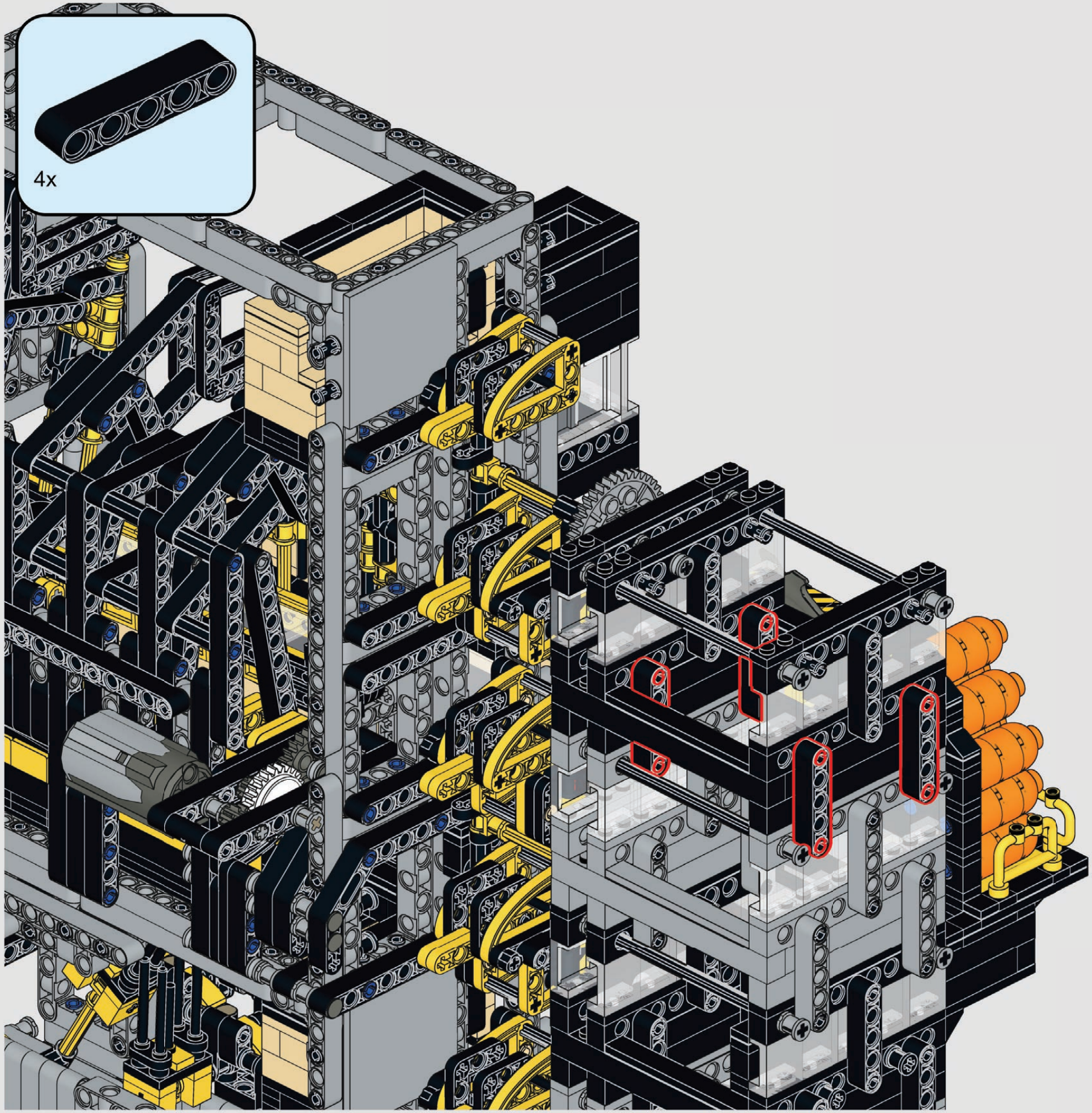
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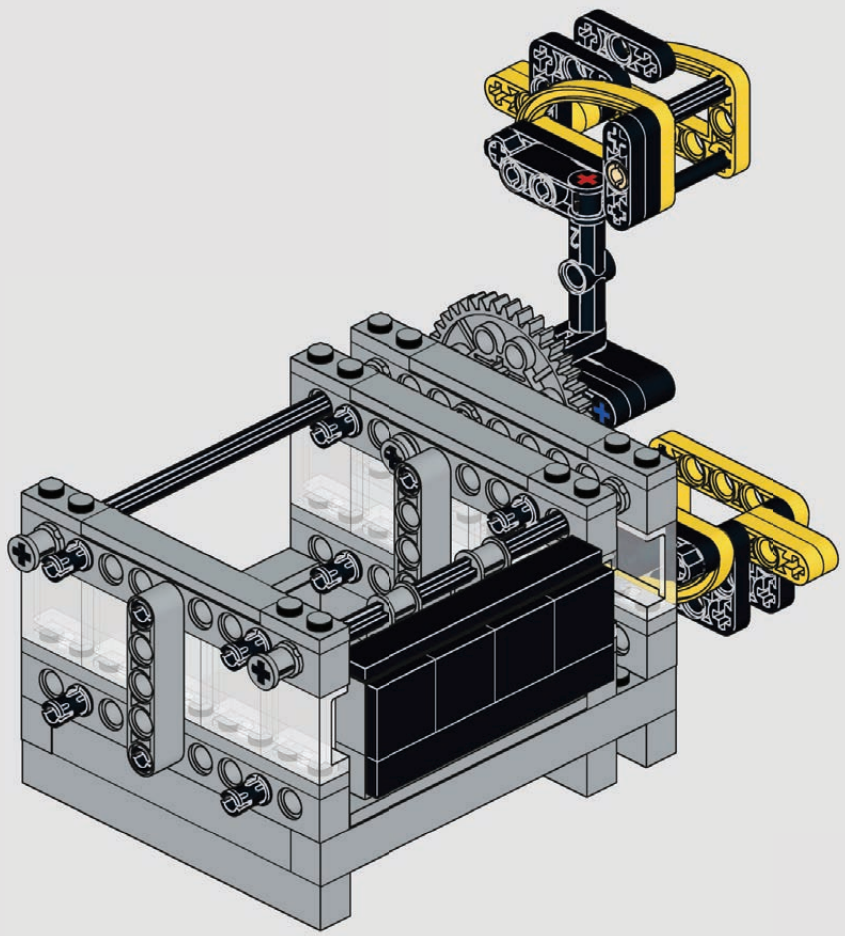

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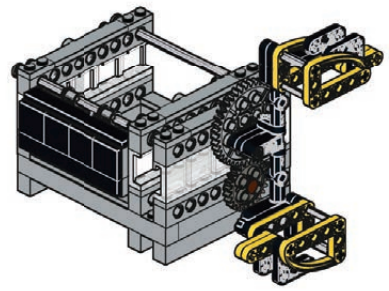

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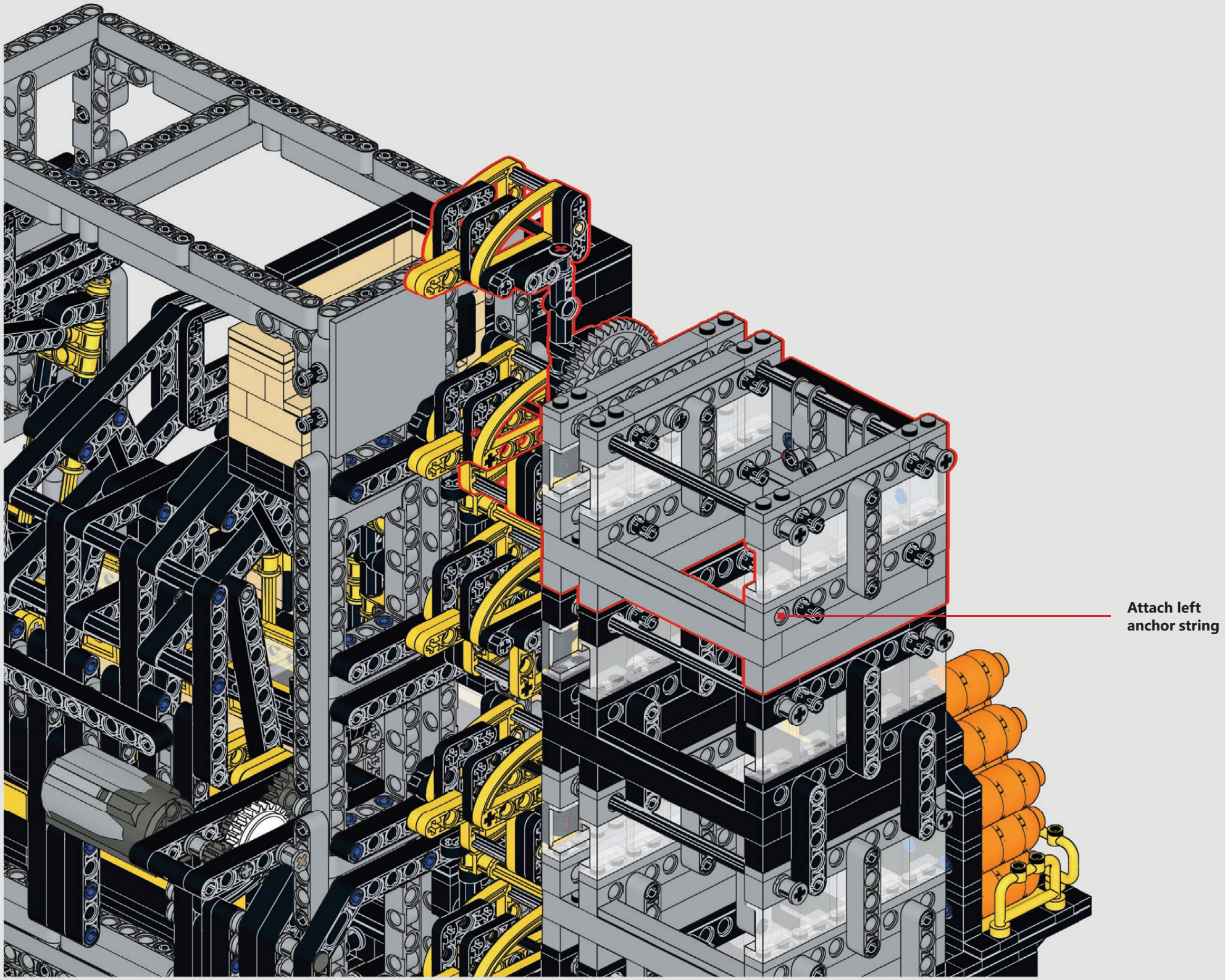

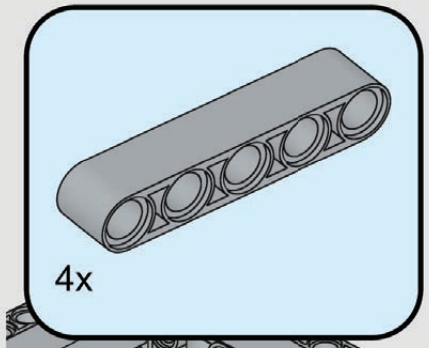
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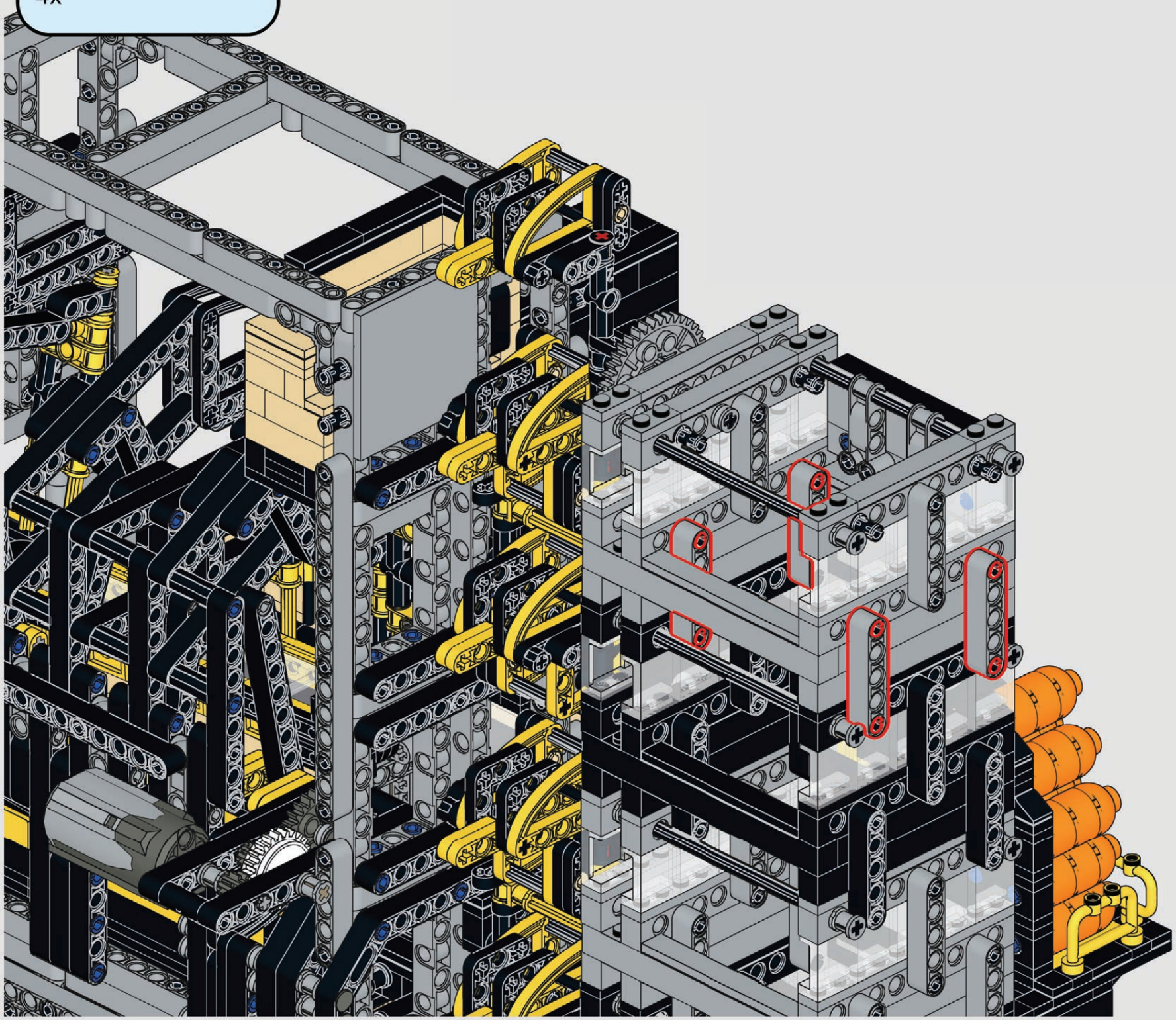

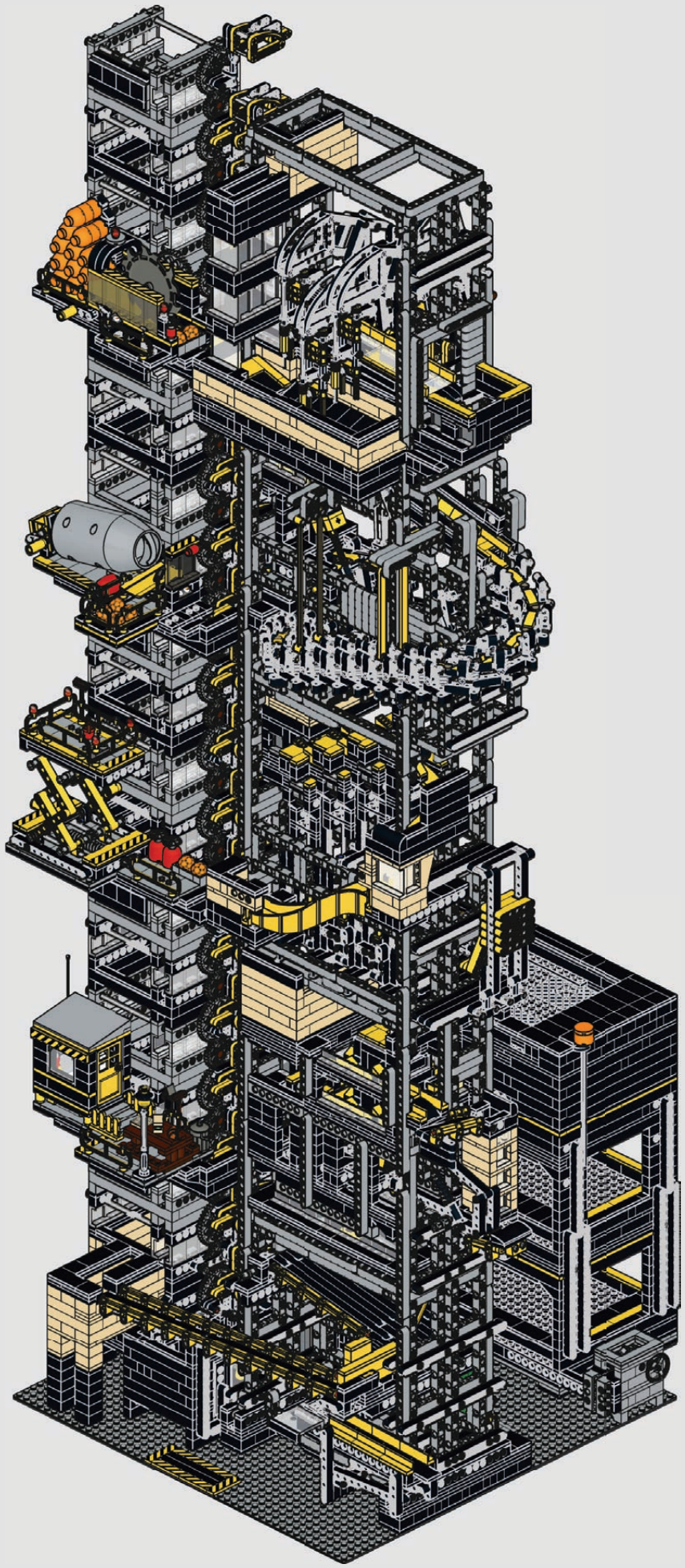

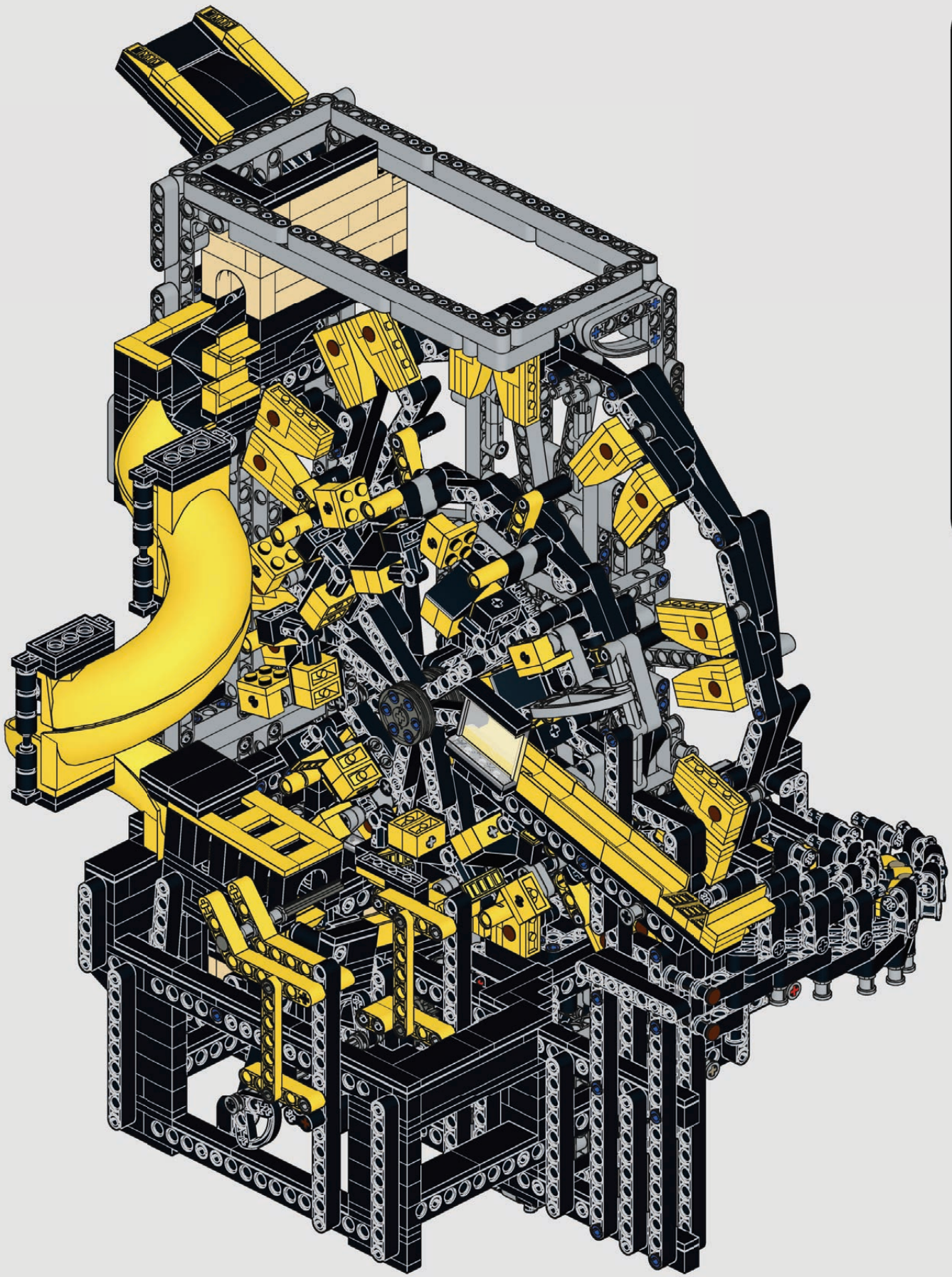

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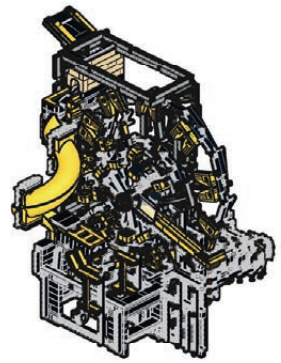

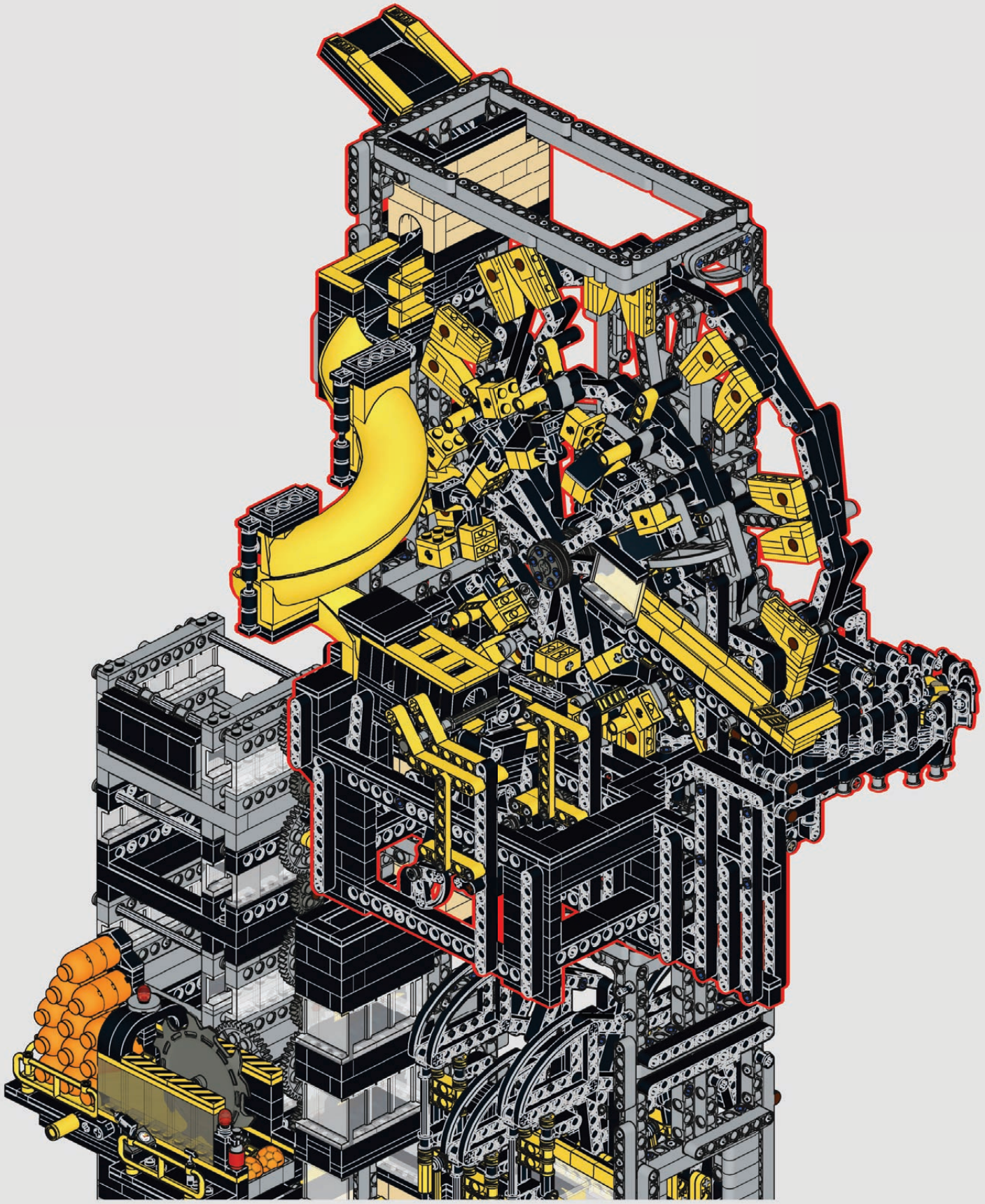

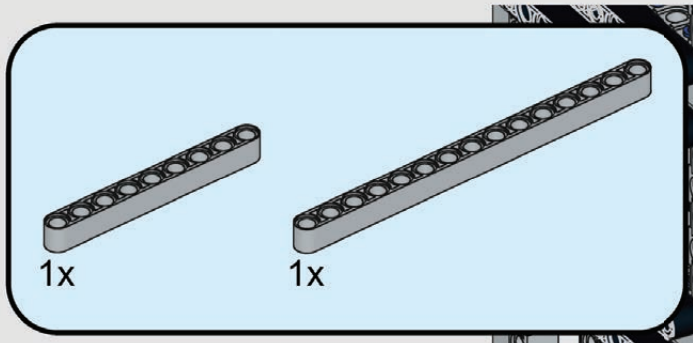
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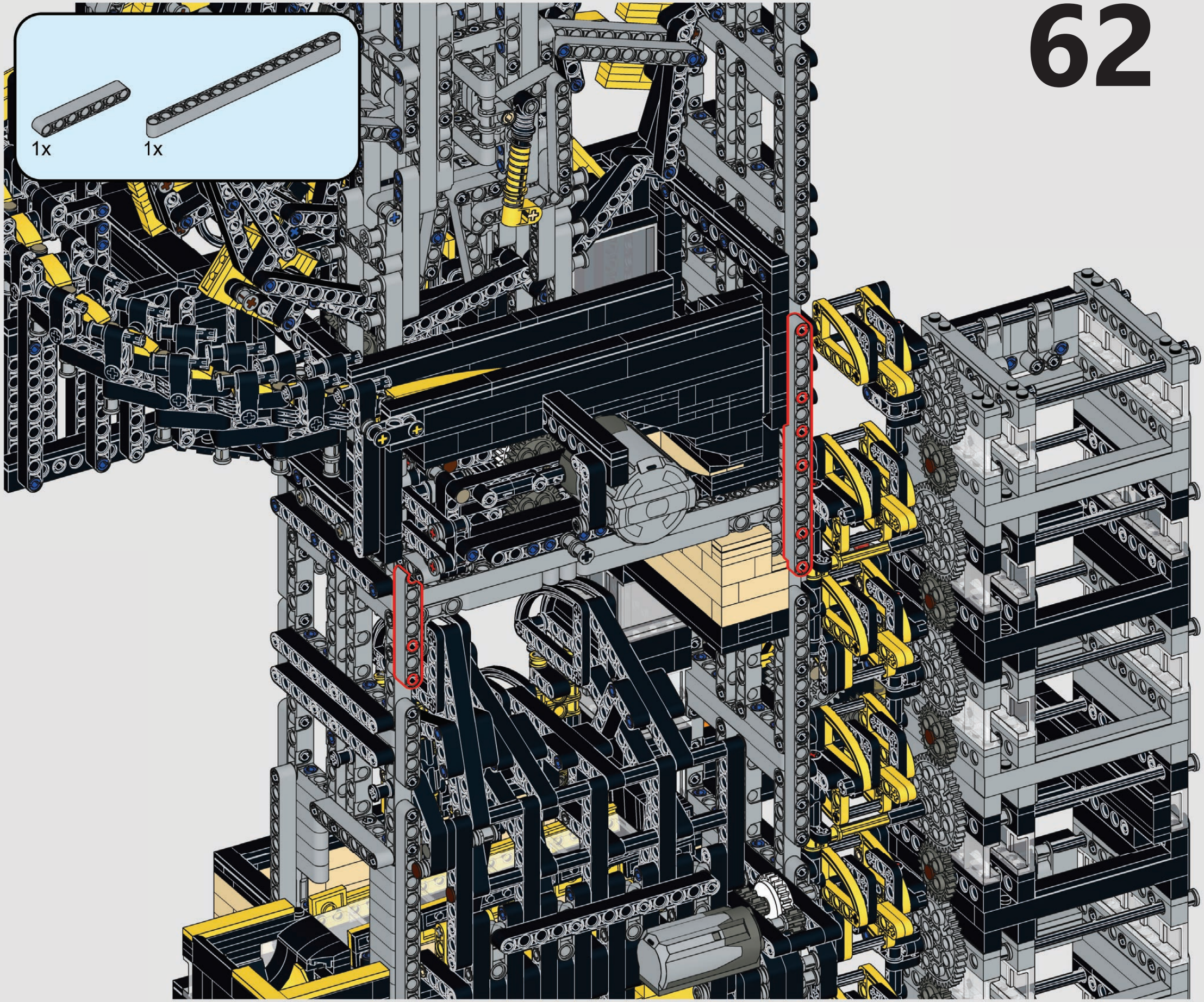
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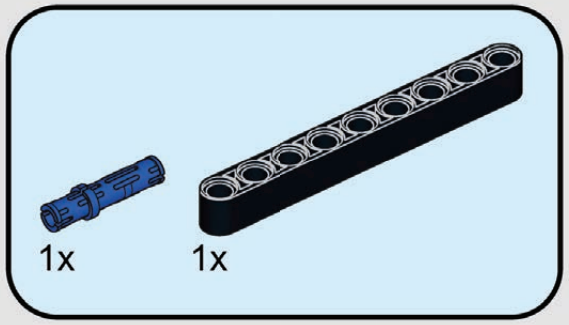
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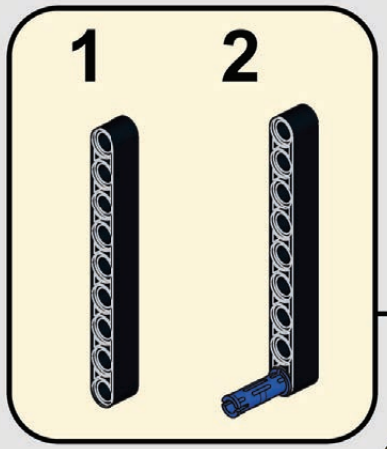
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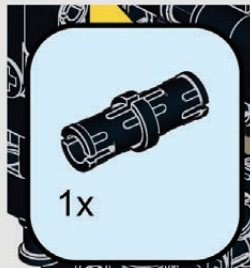

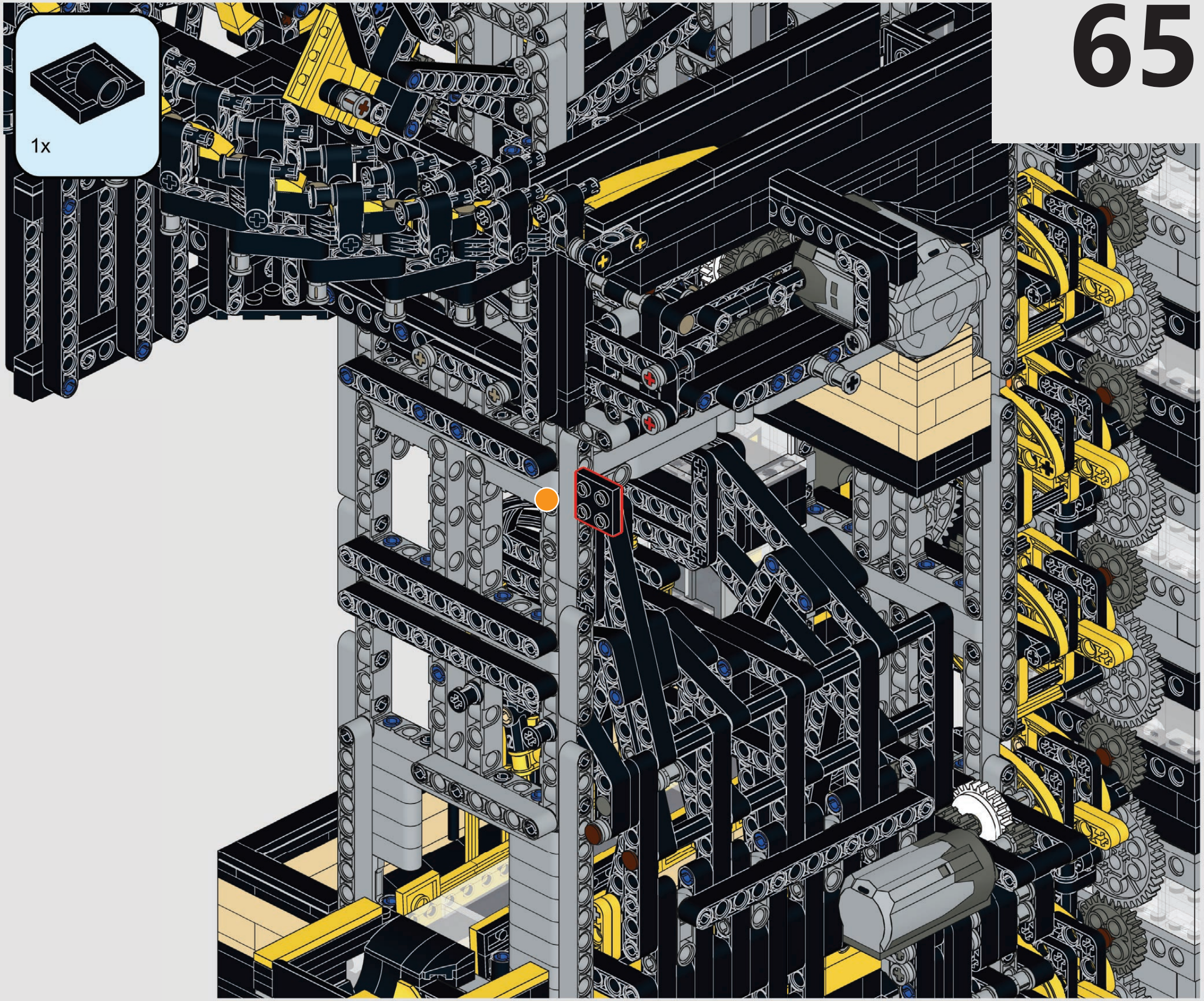
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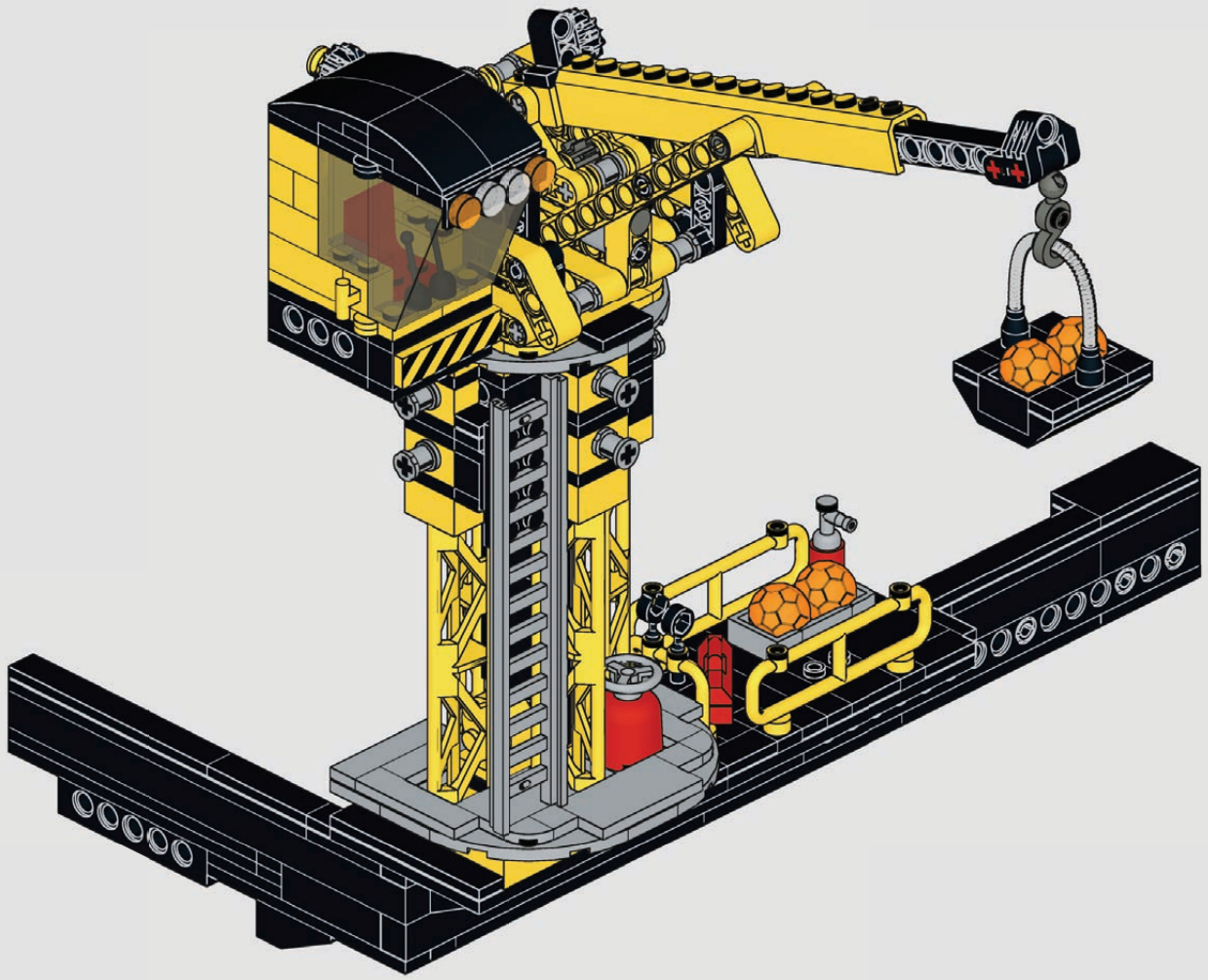

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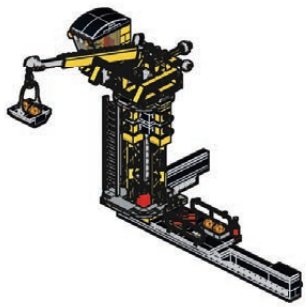

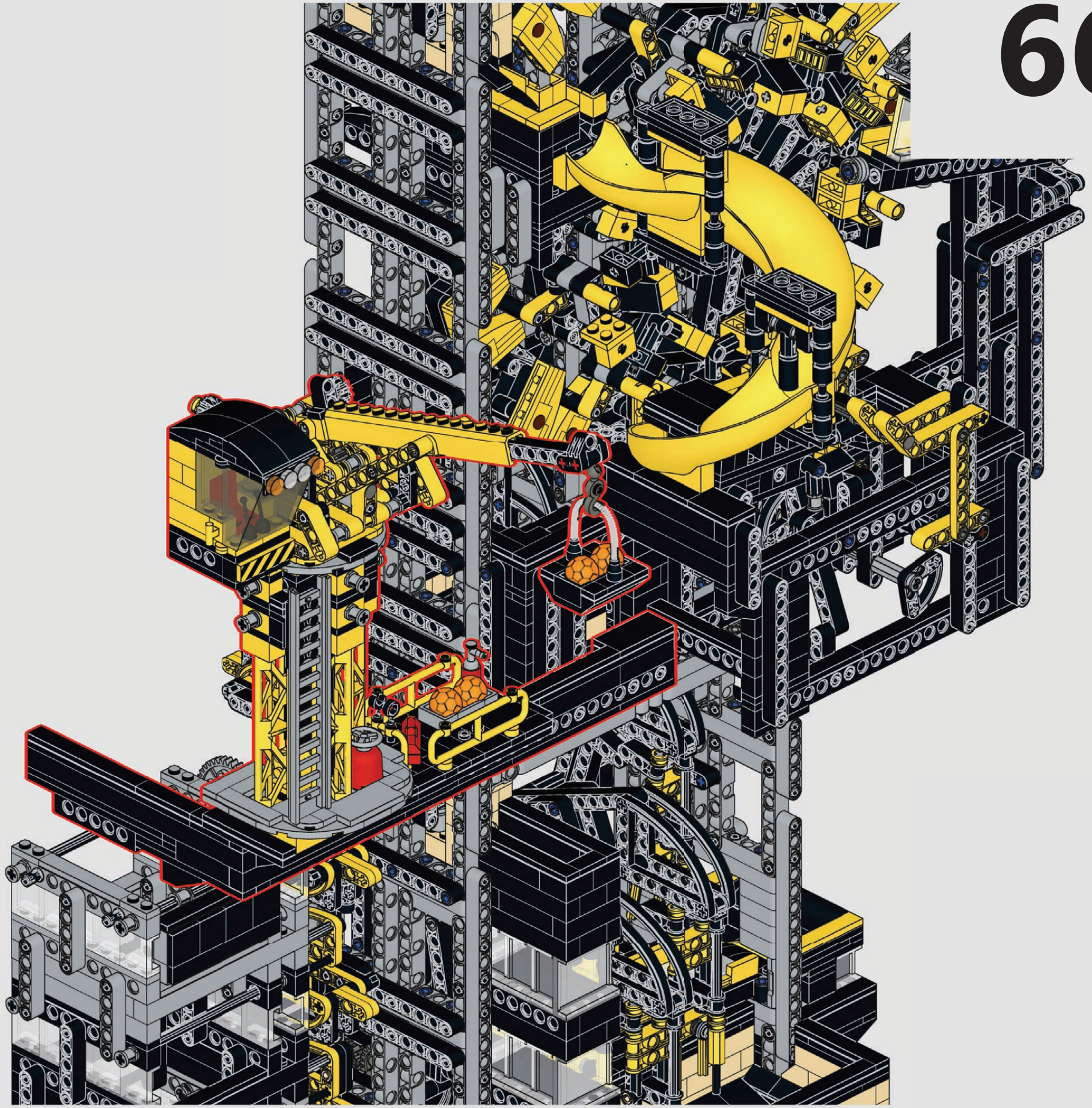

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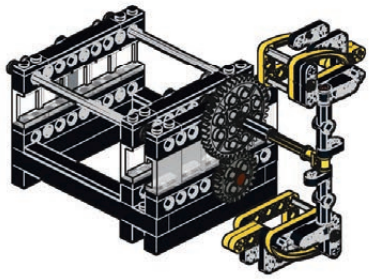

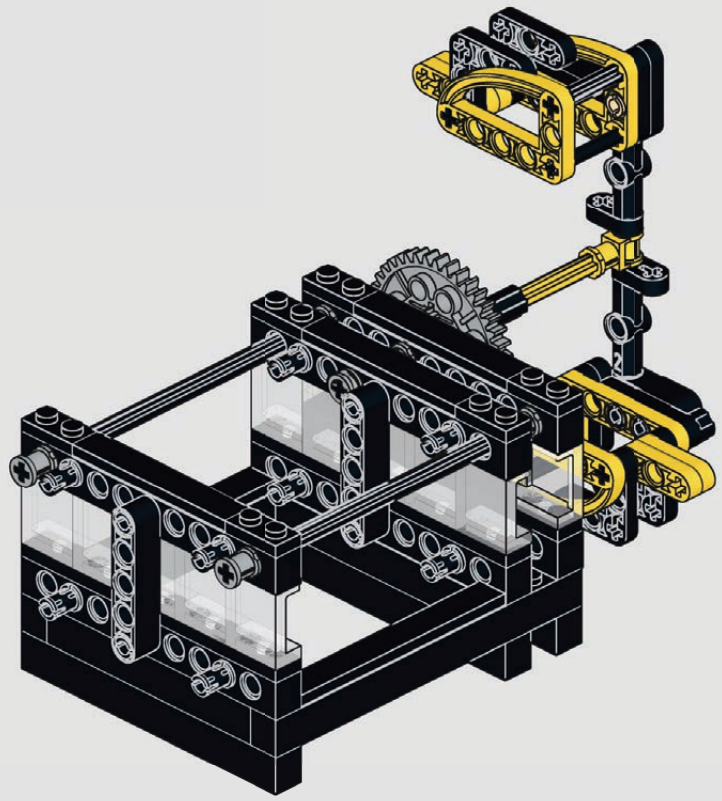

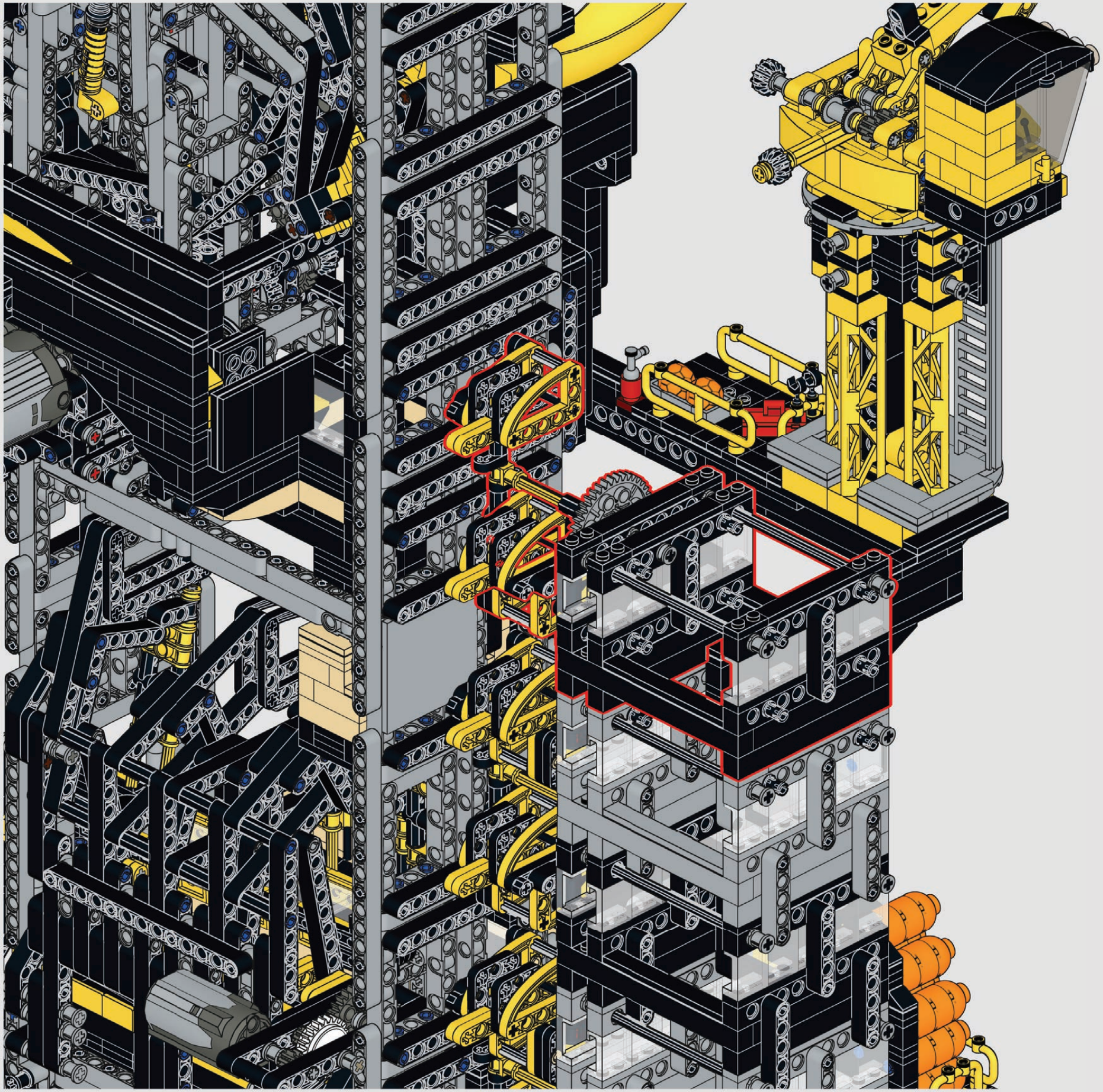

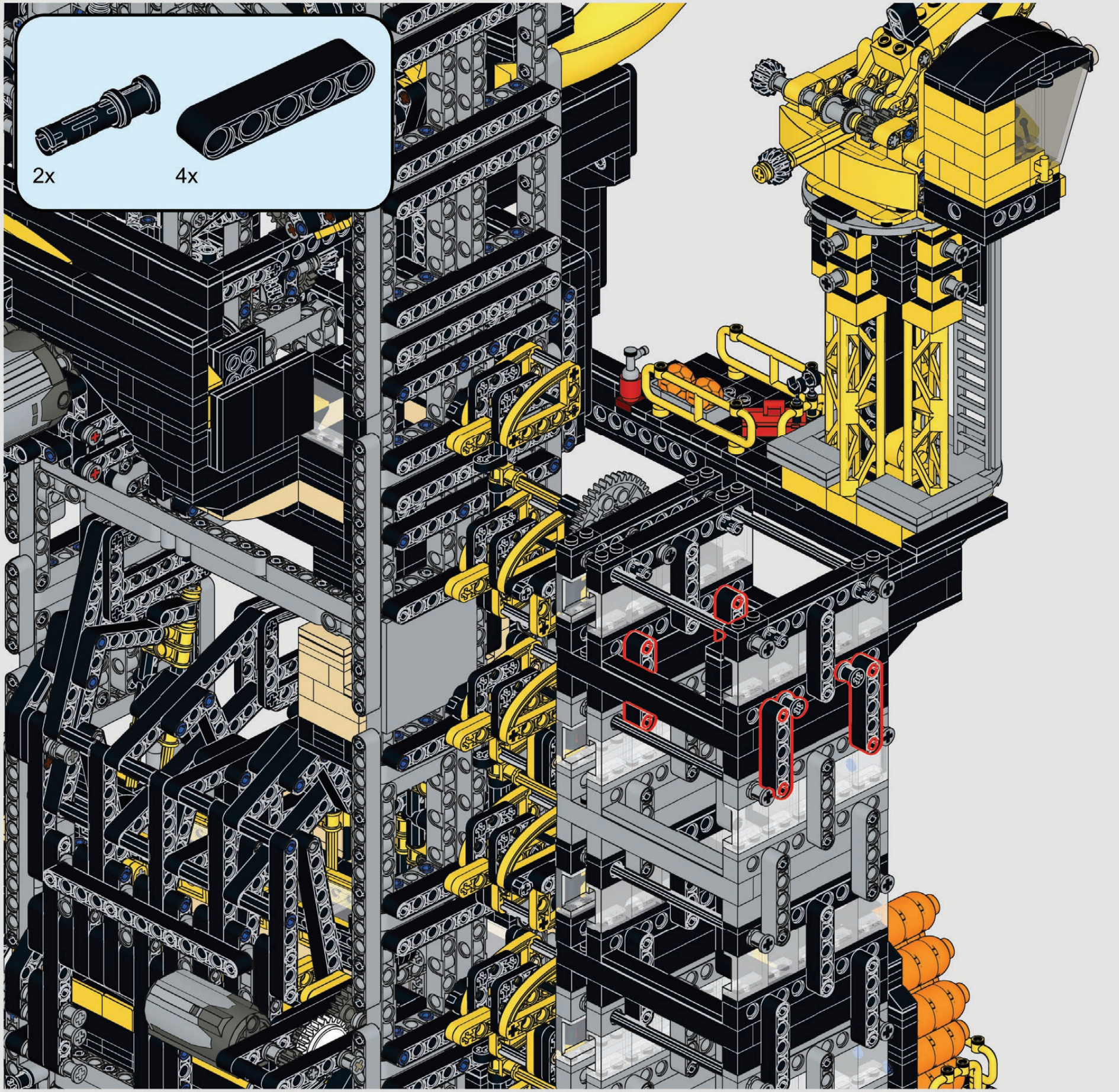
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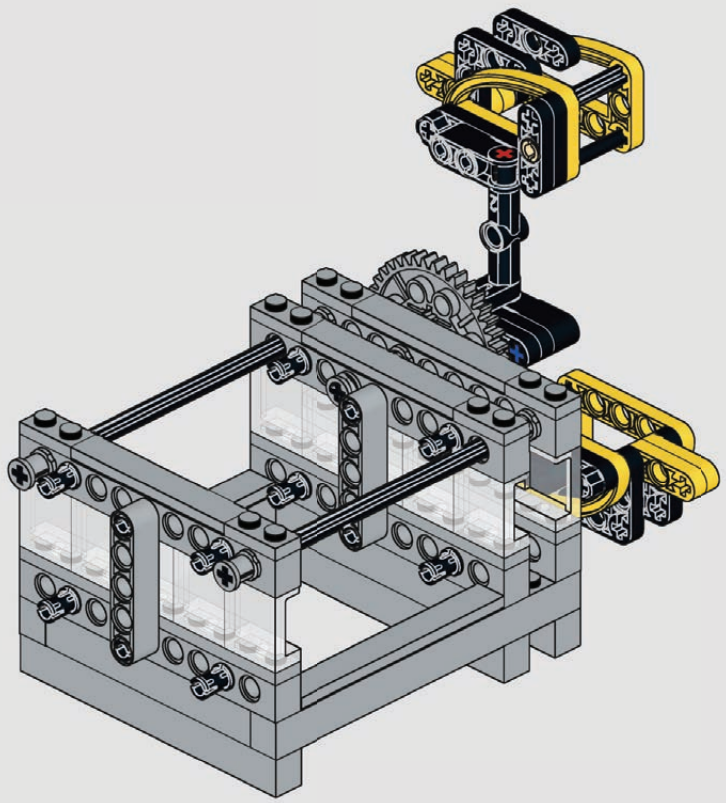

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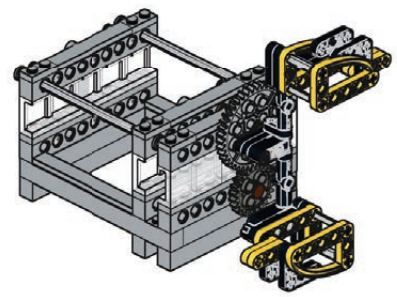

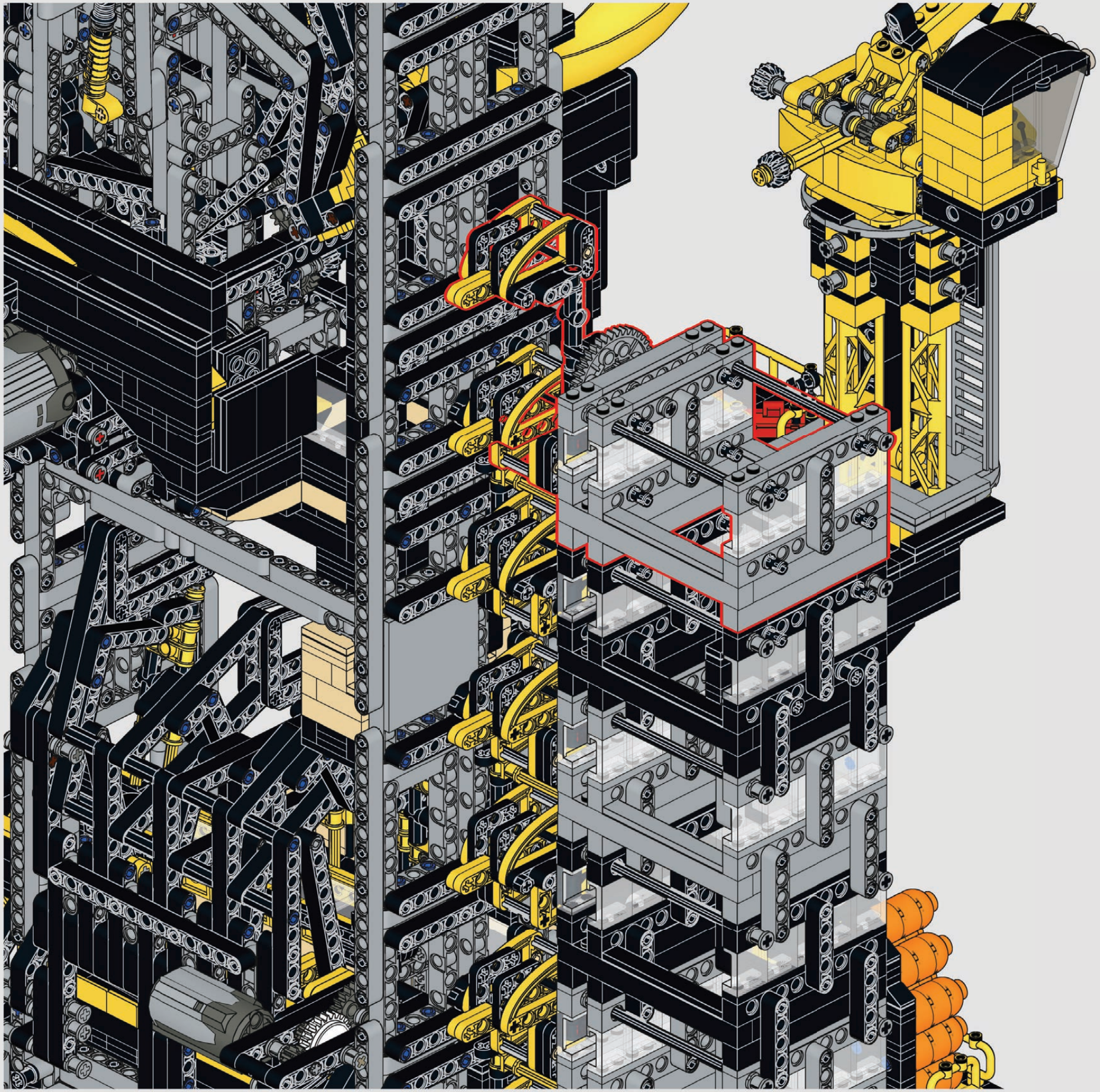

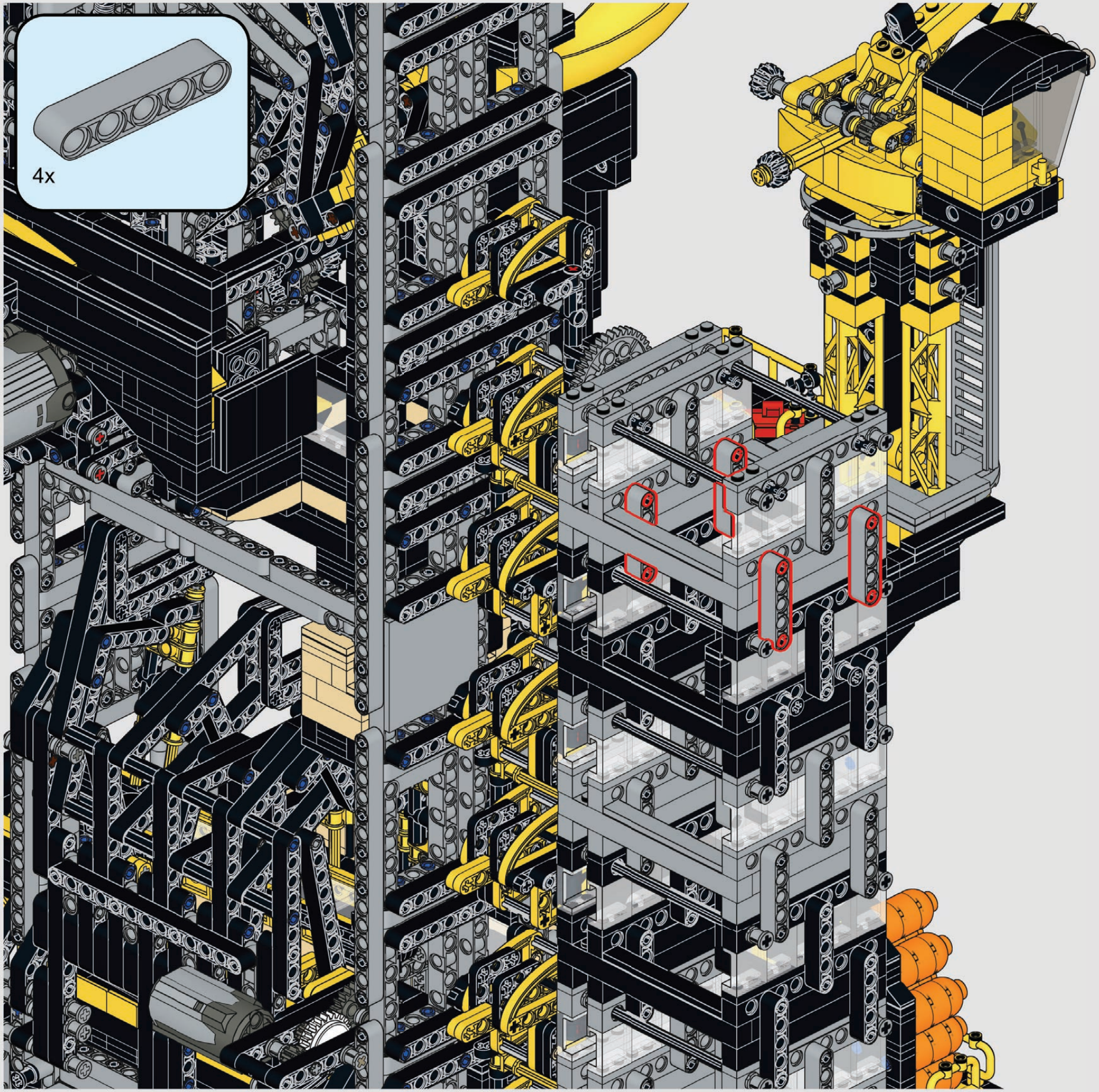
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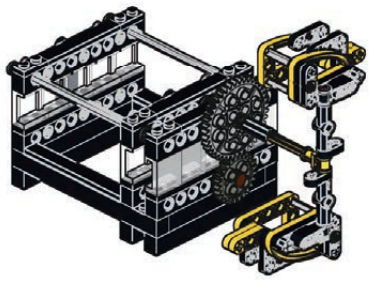

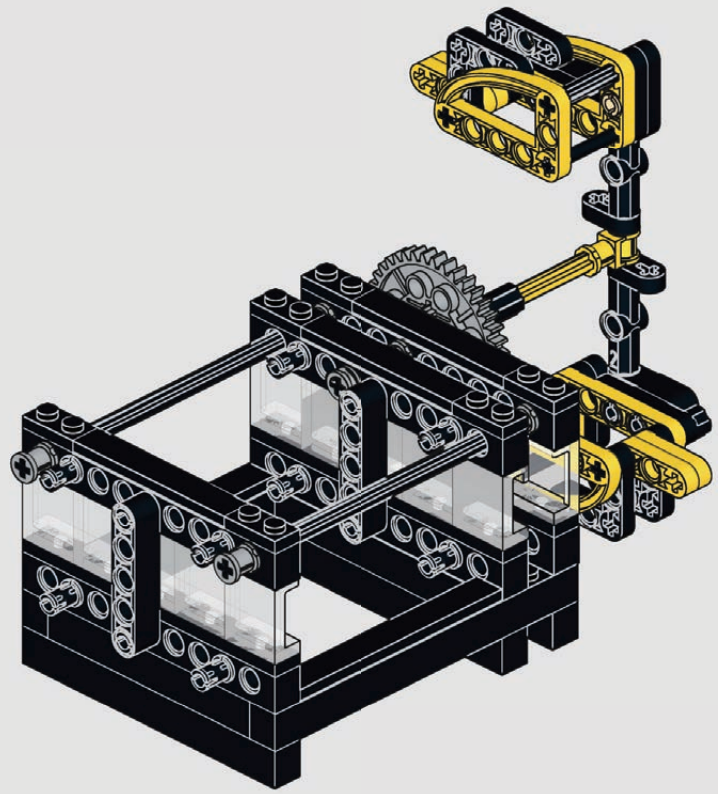

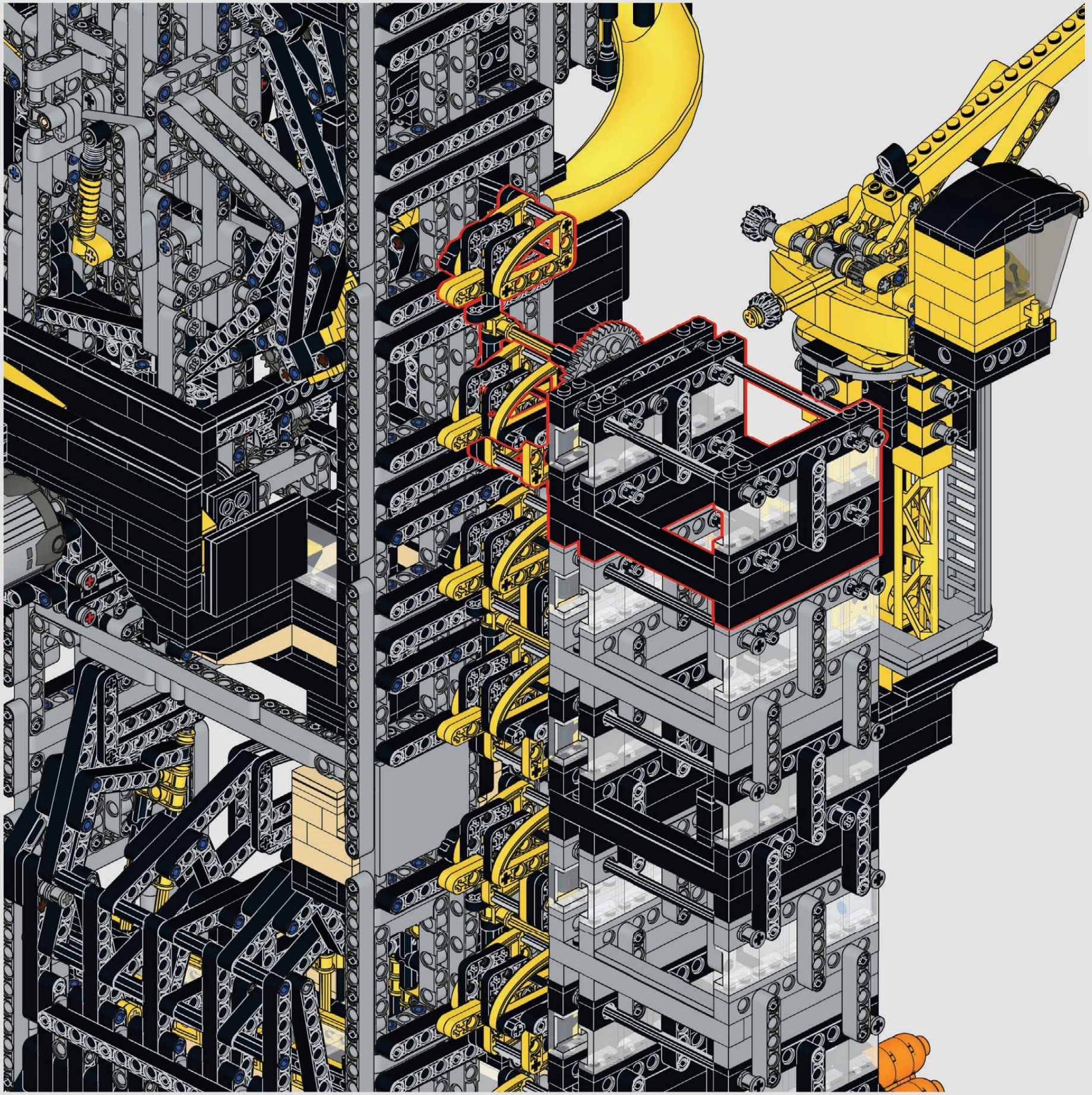

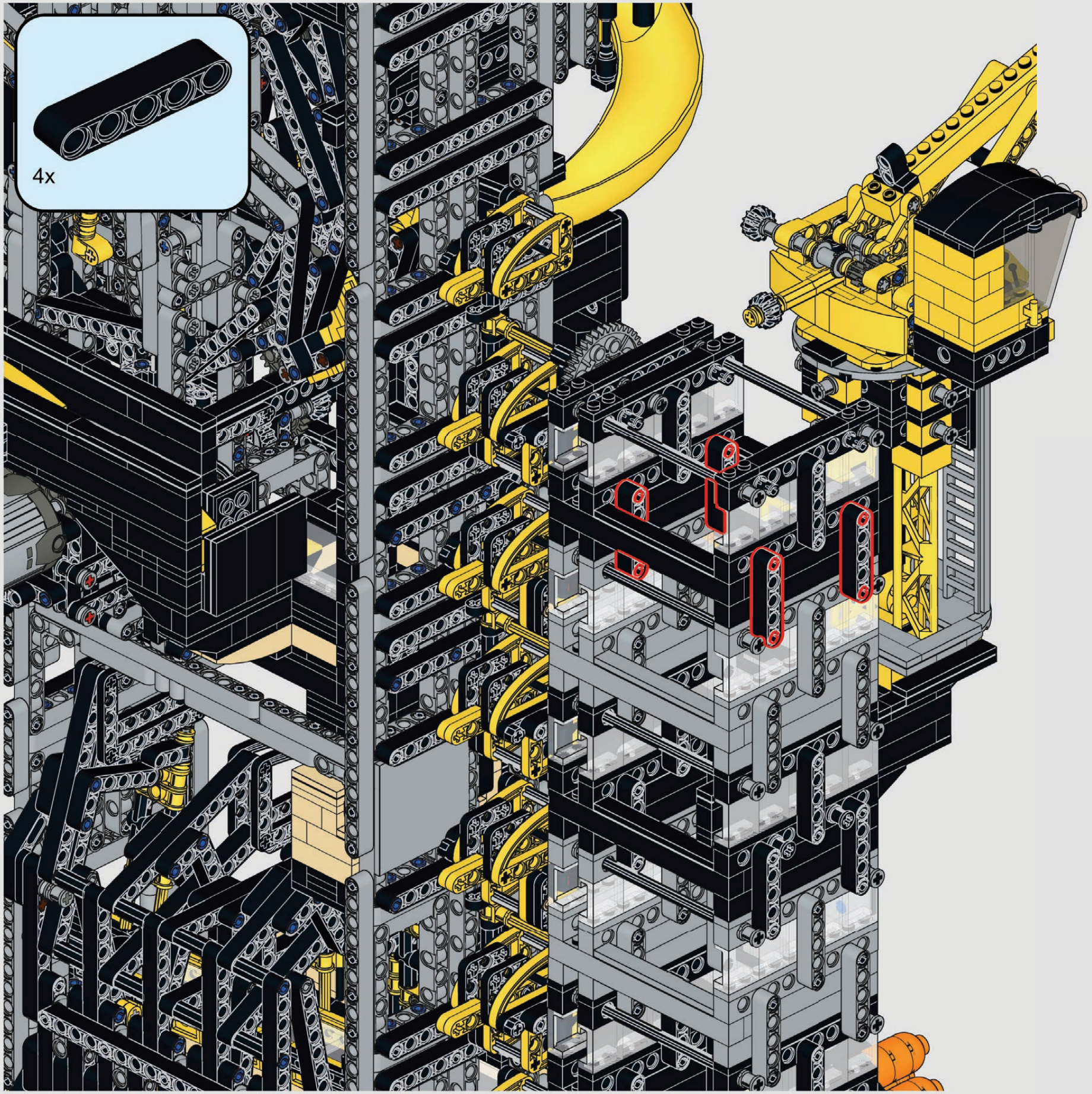
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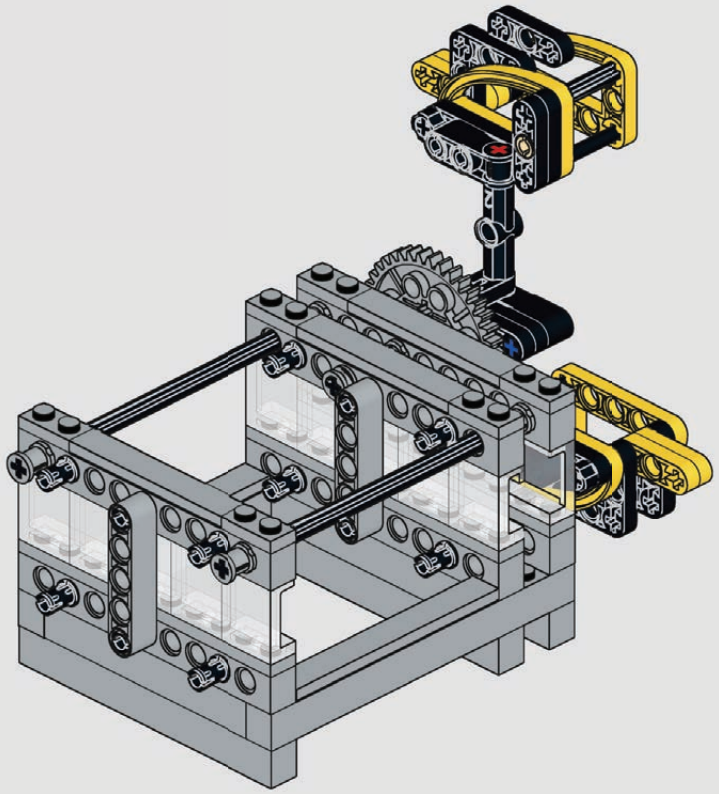

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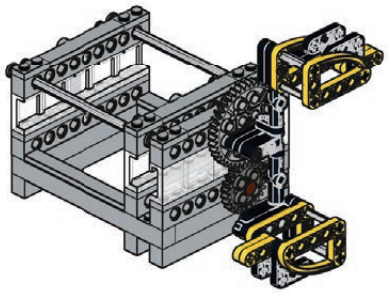

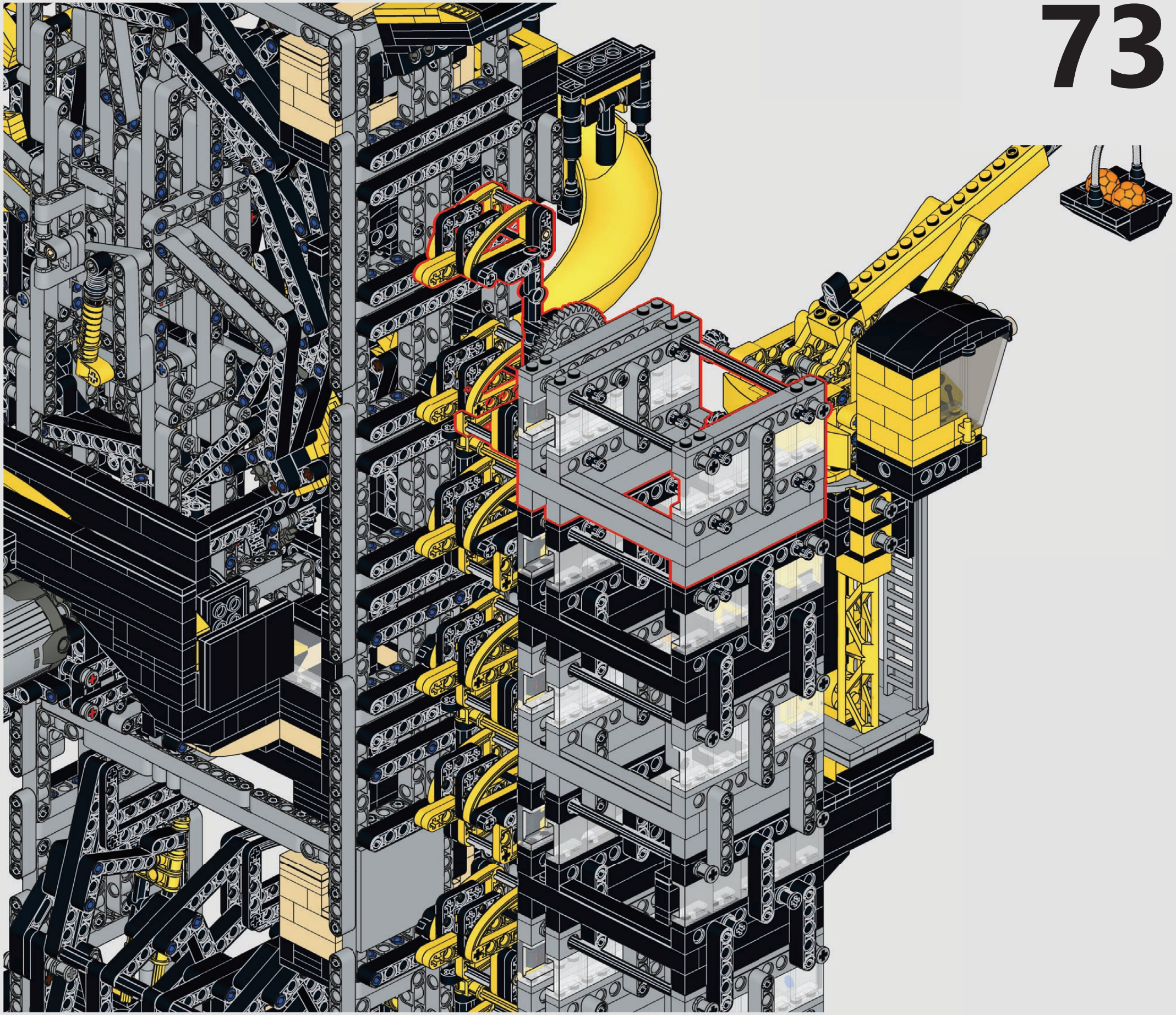

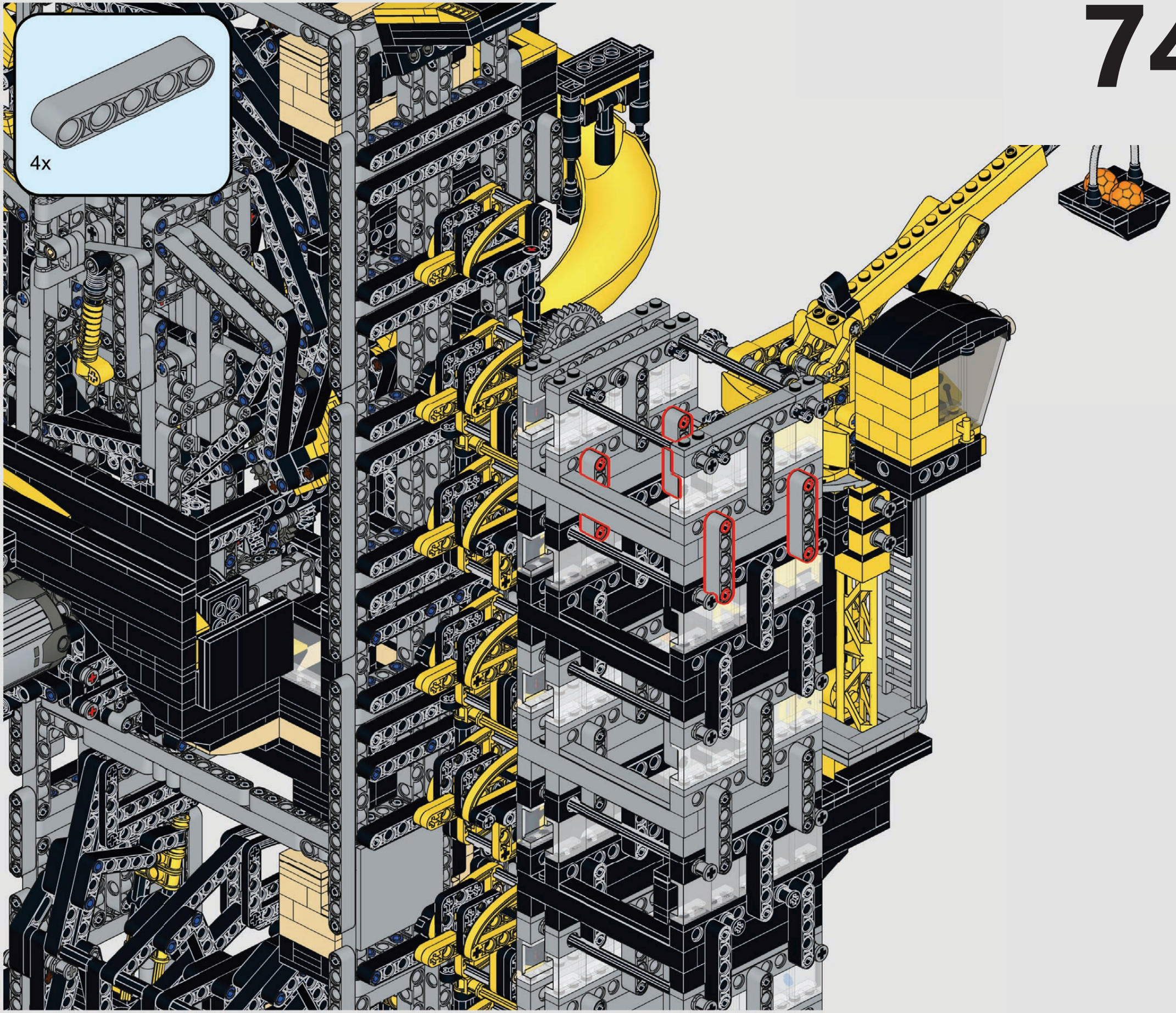
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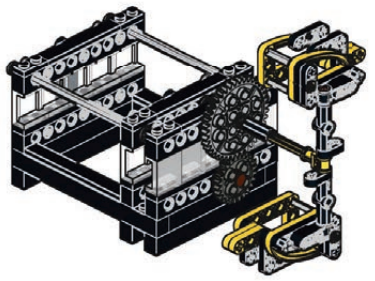

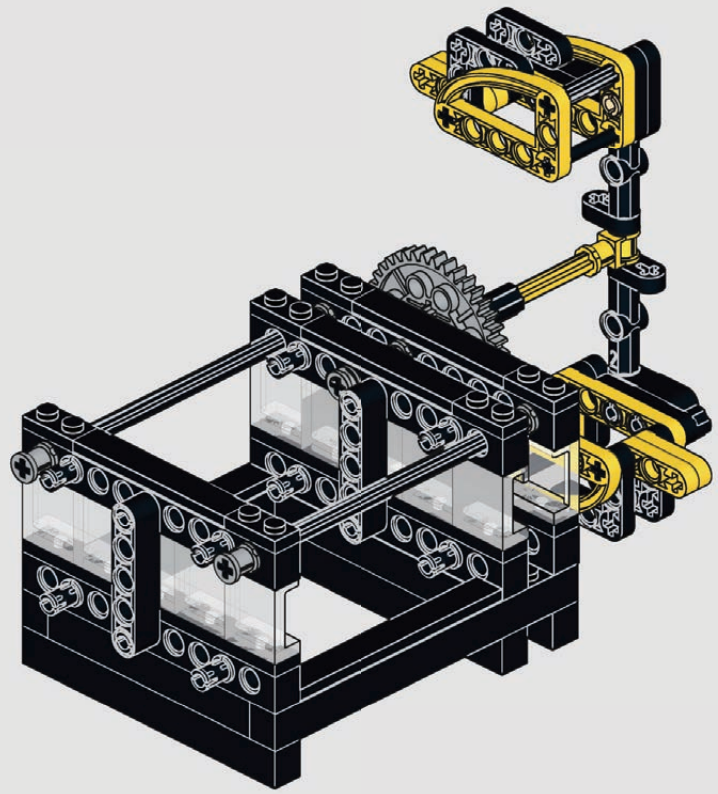

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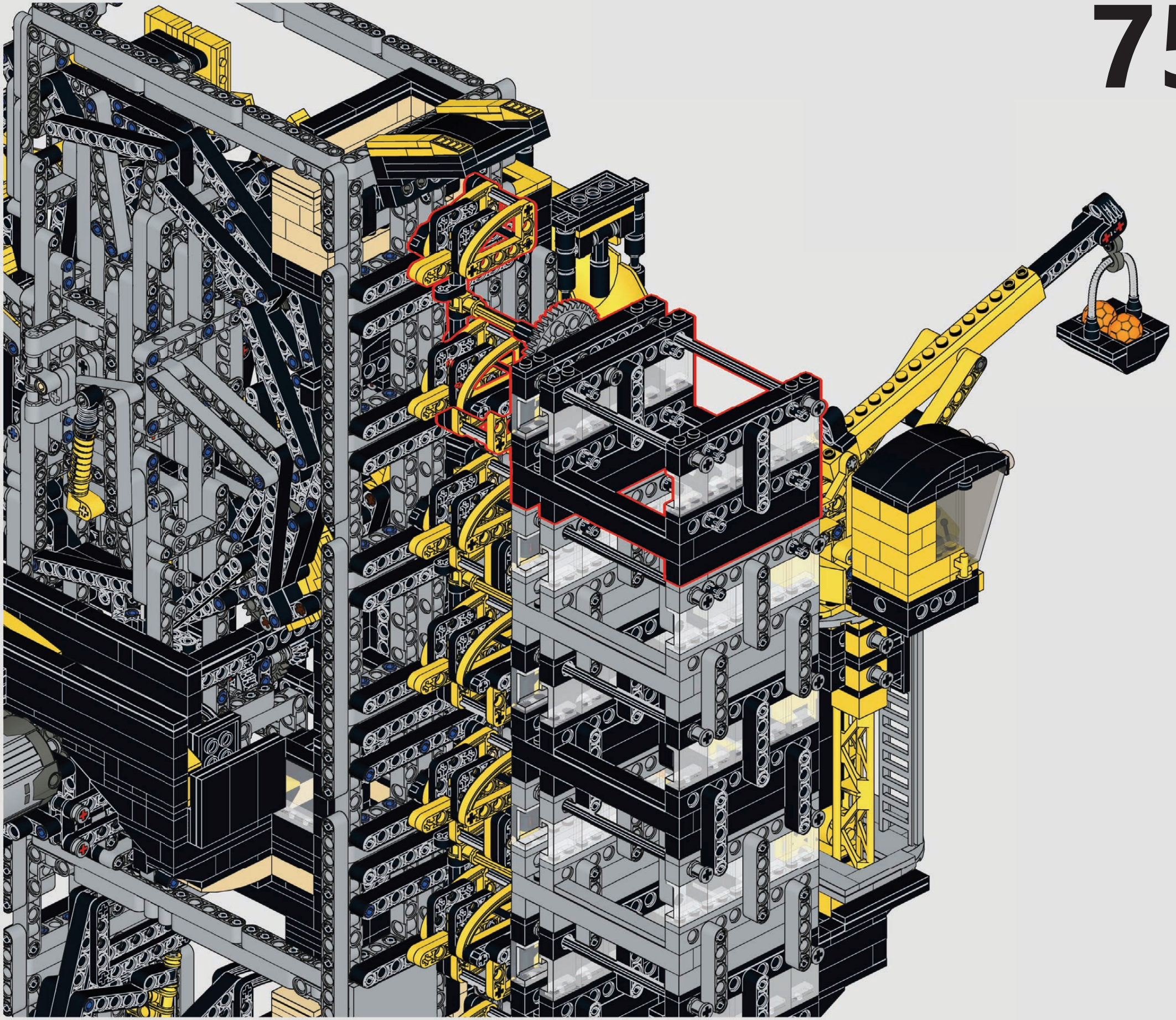

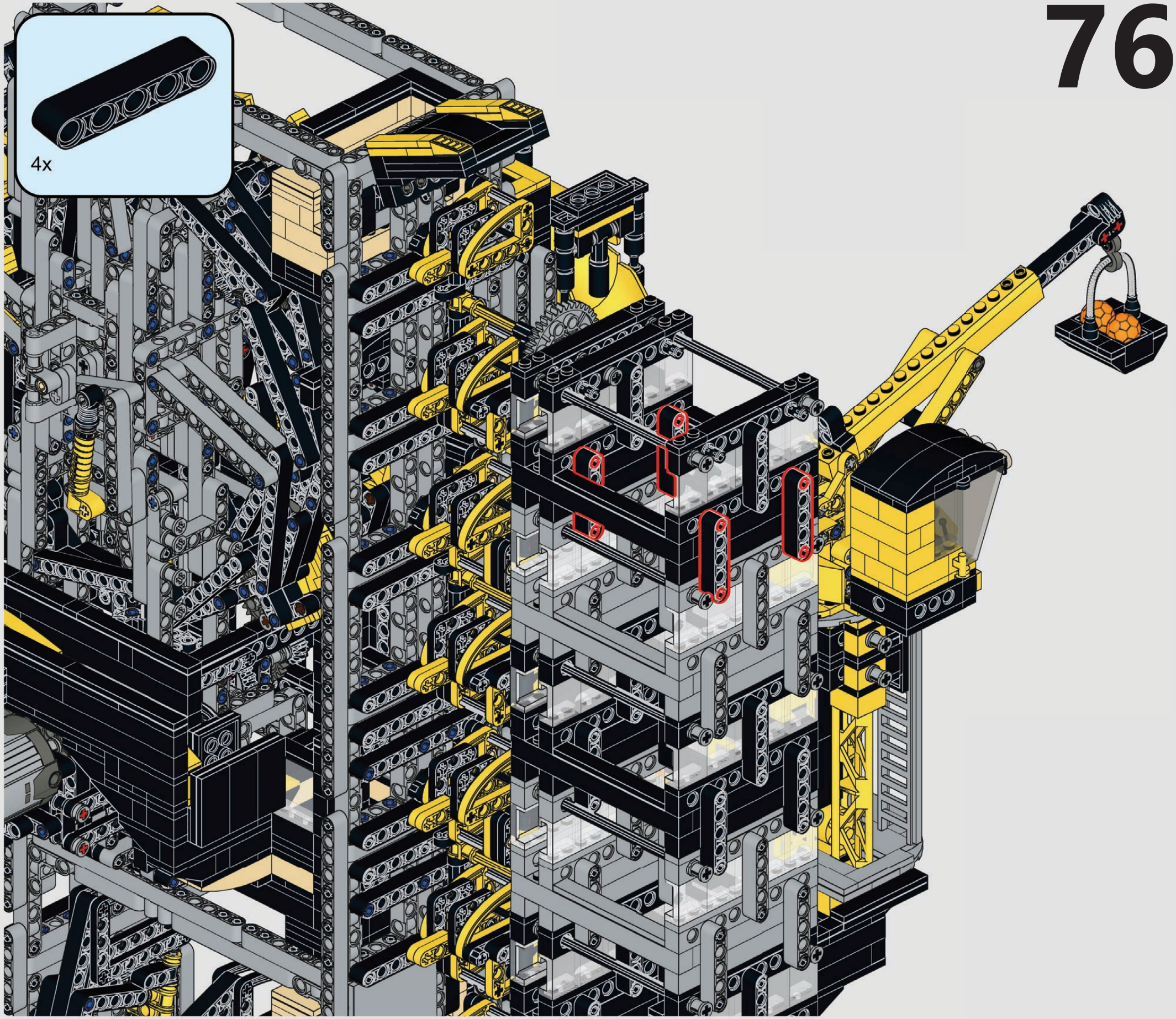
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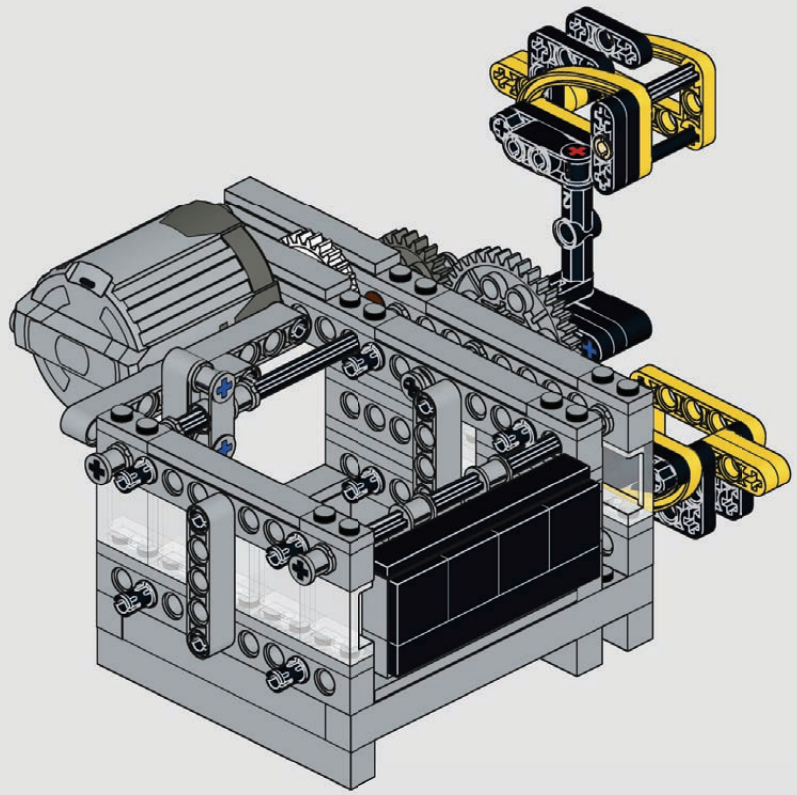

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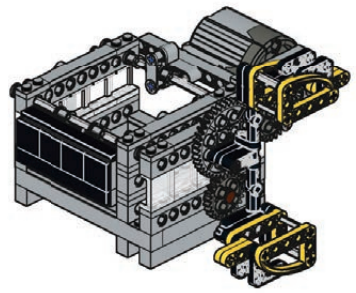

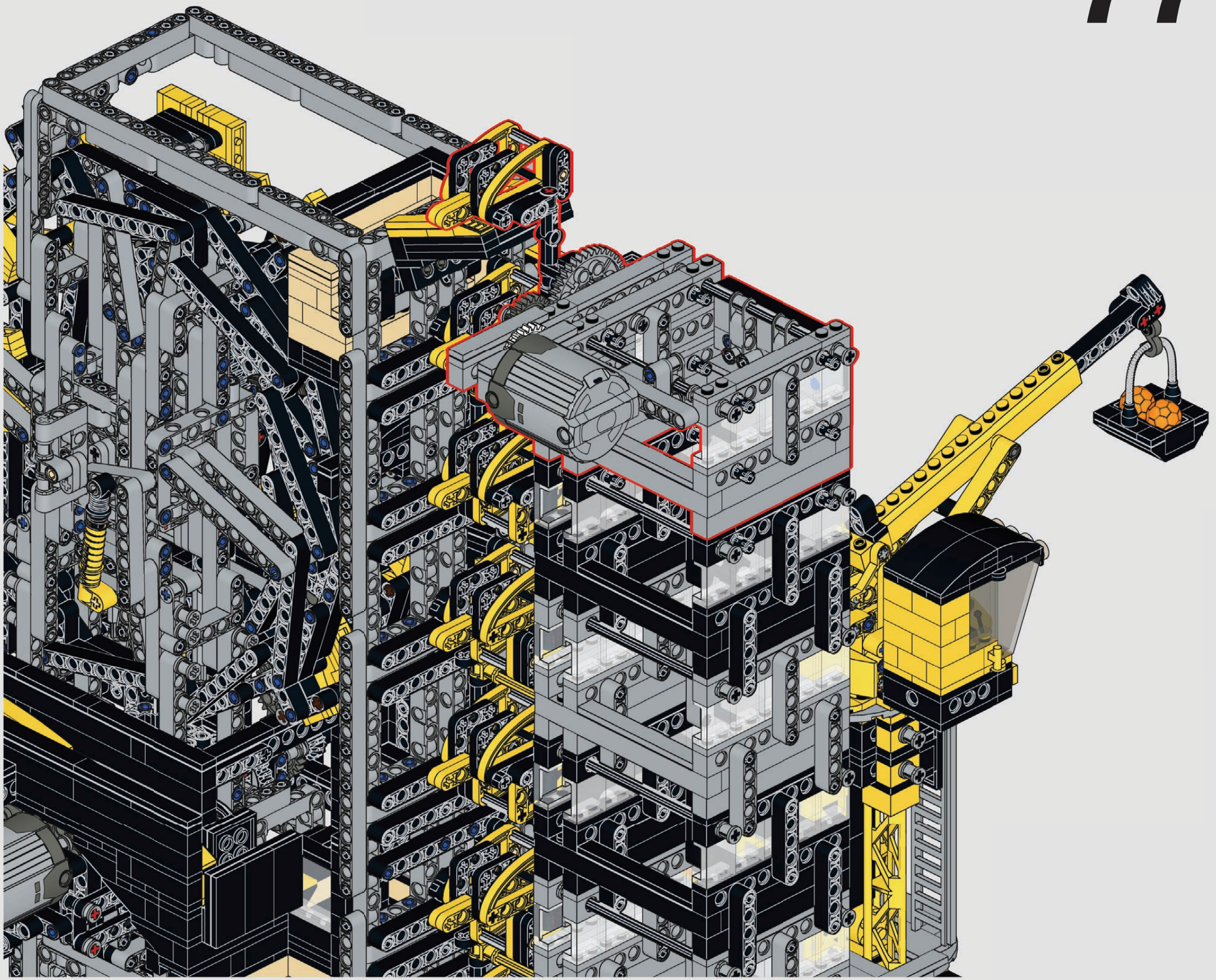

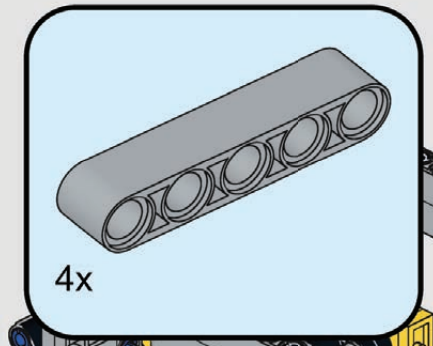
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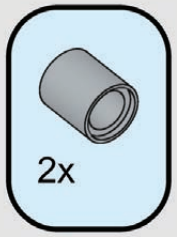
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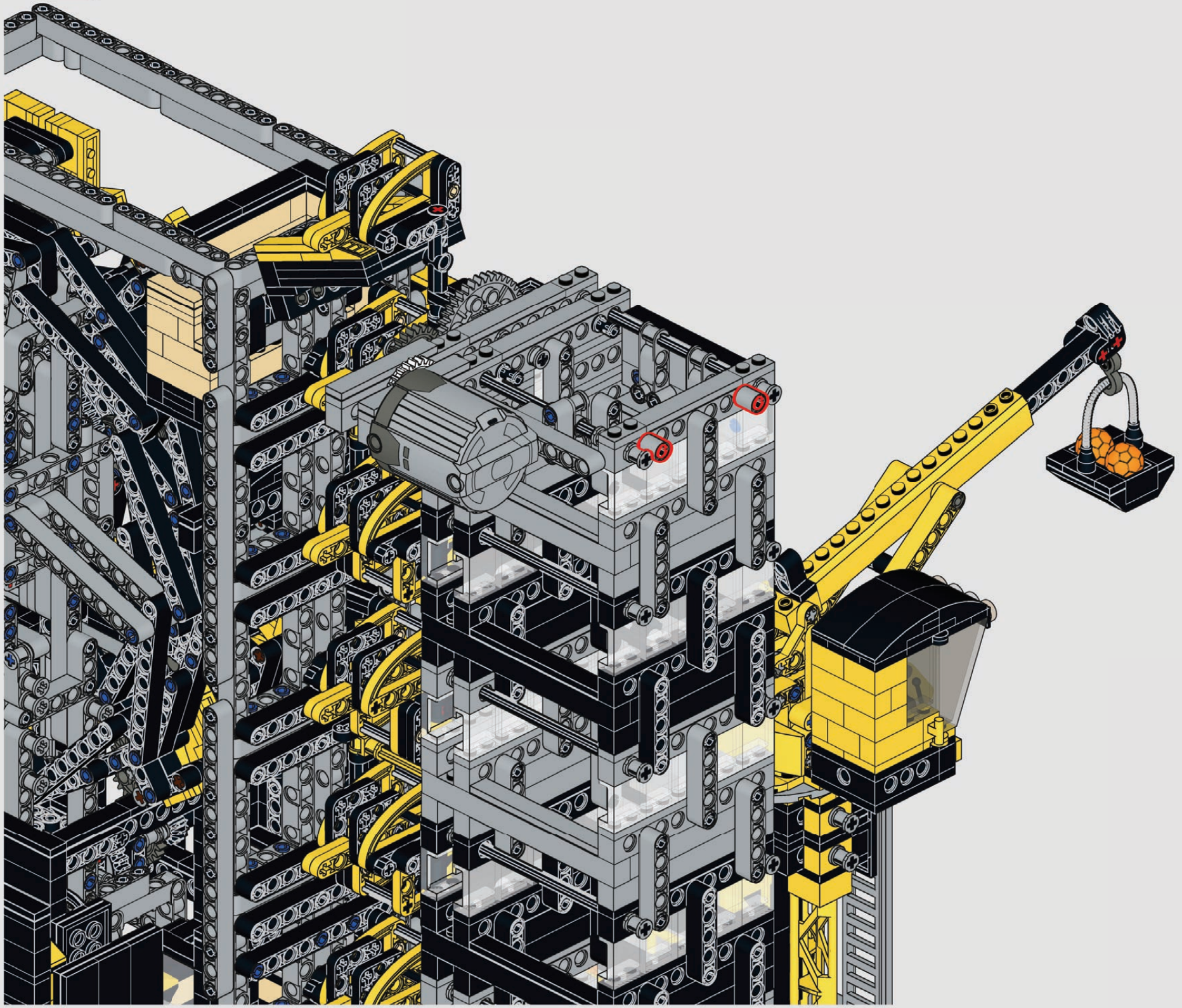

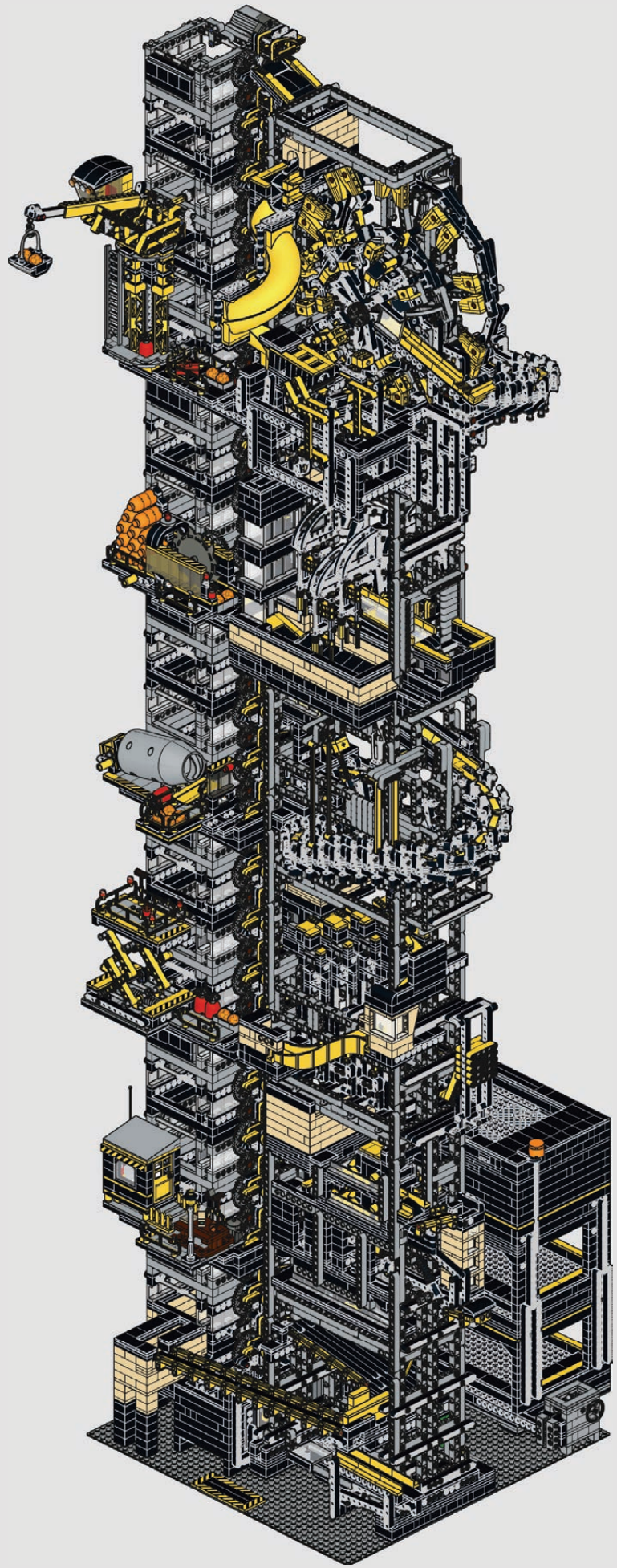

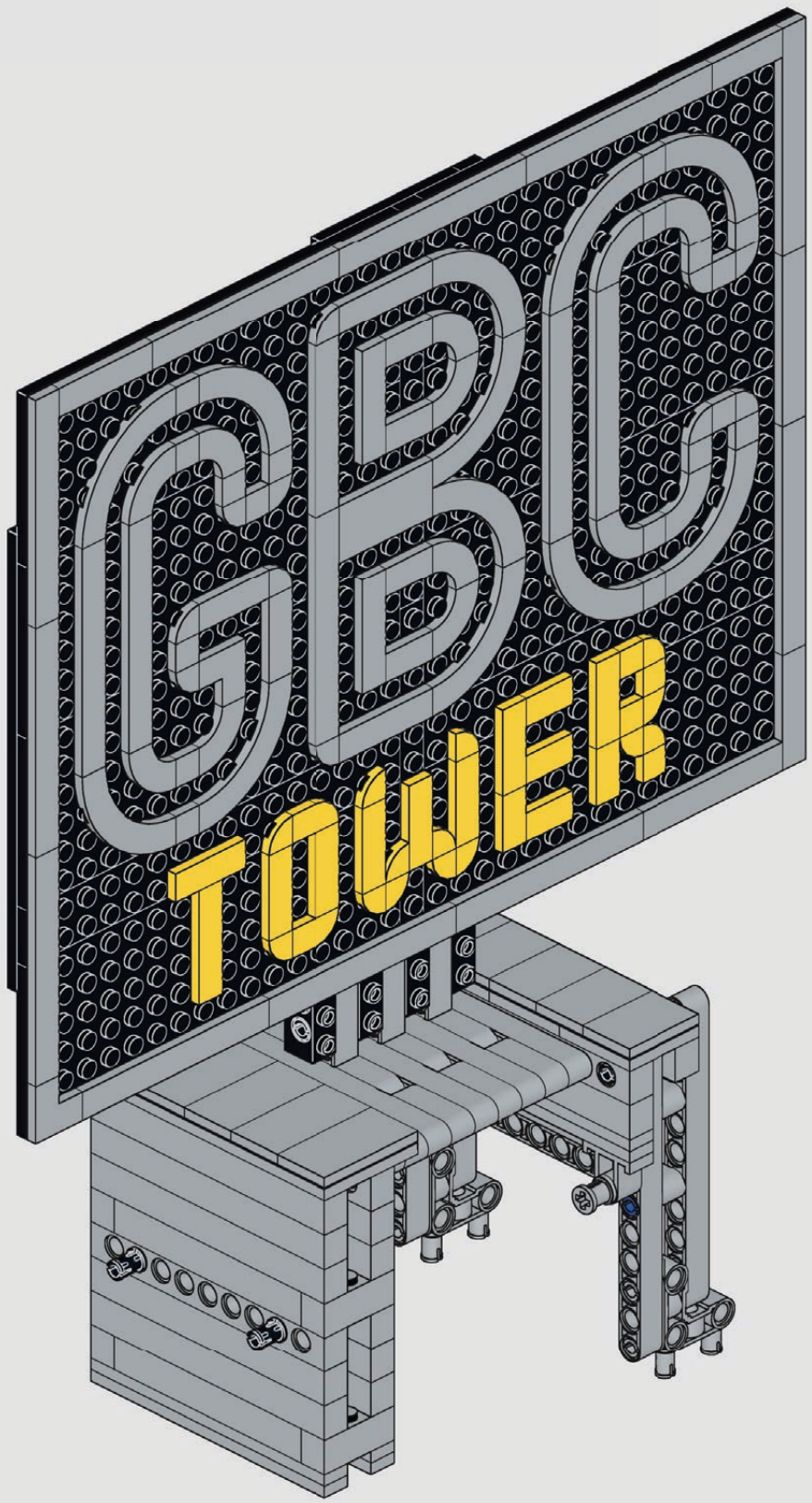

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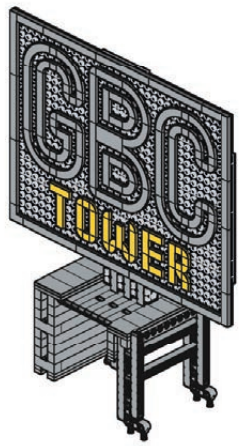
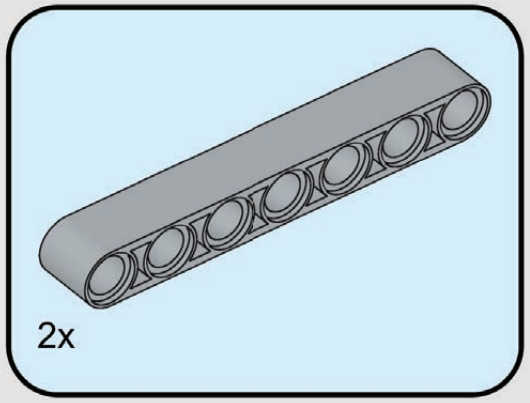



CBC
TOWER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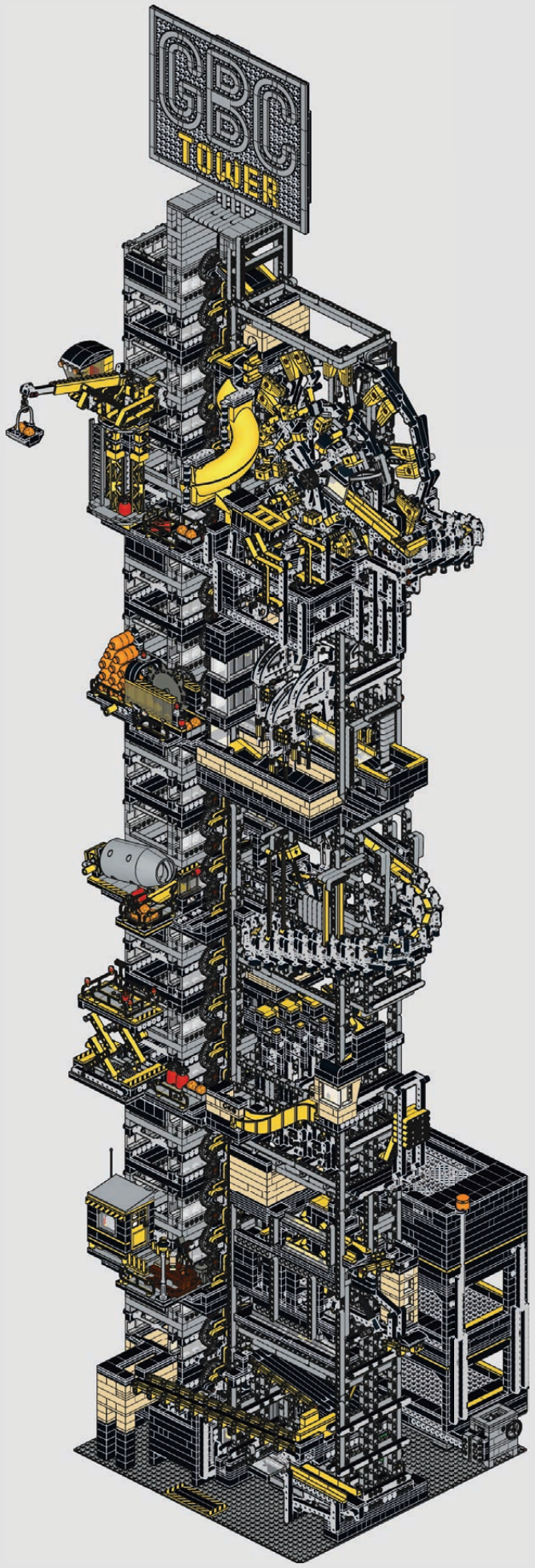
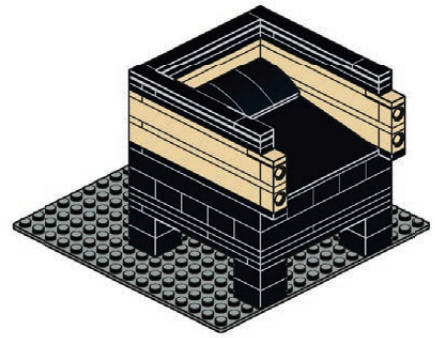
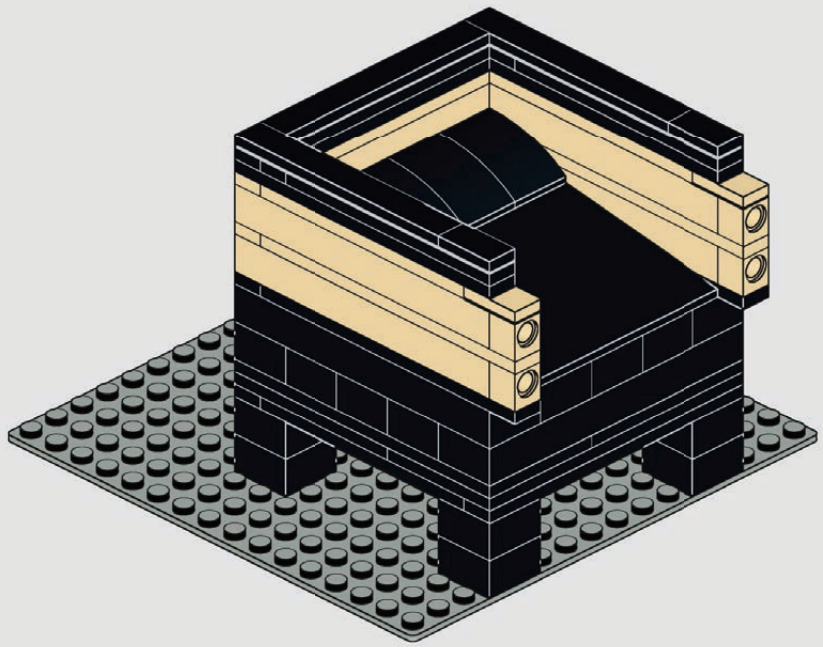
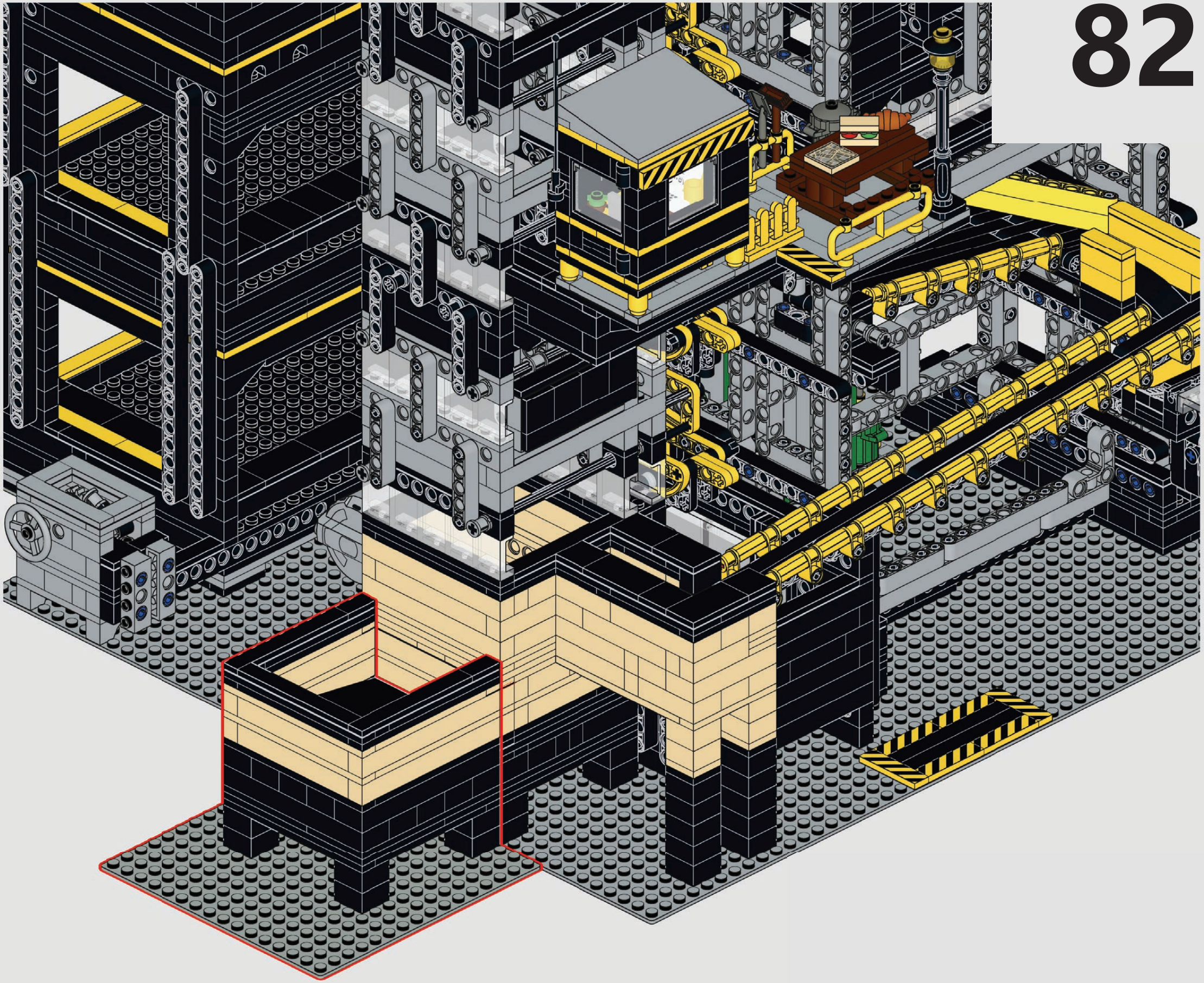
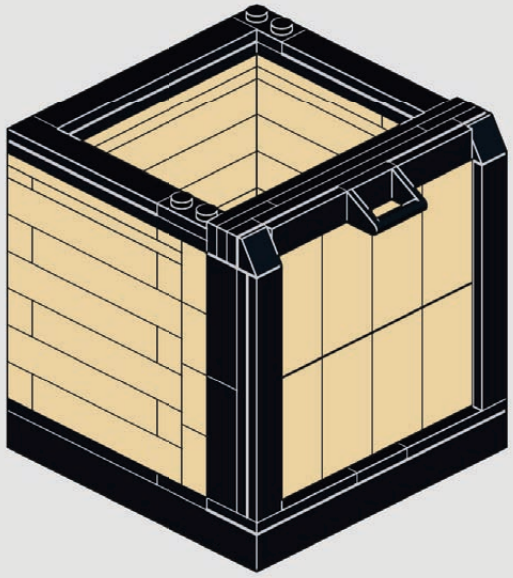

GBC
TOWER

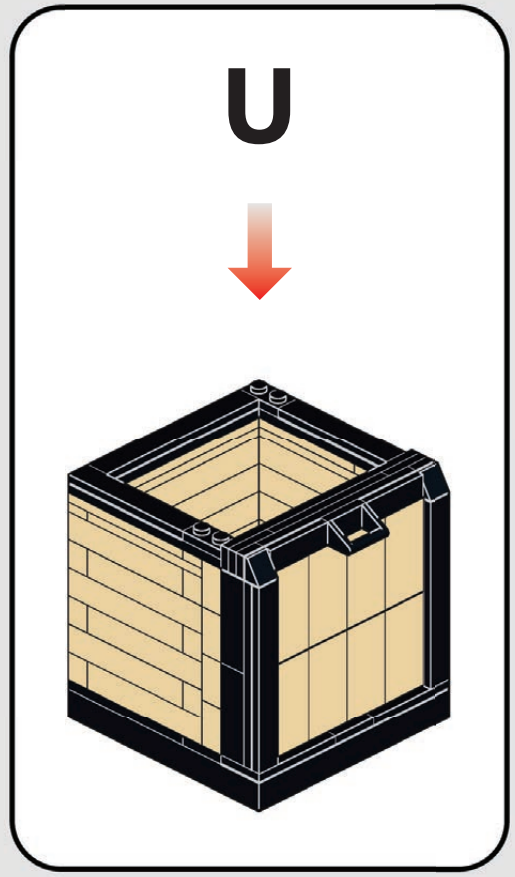
T







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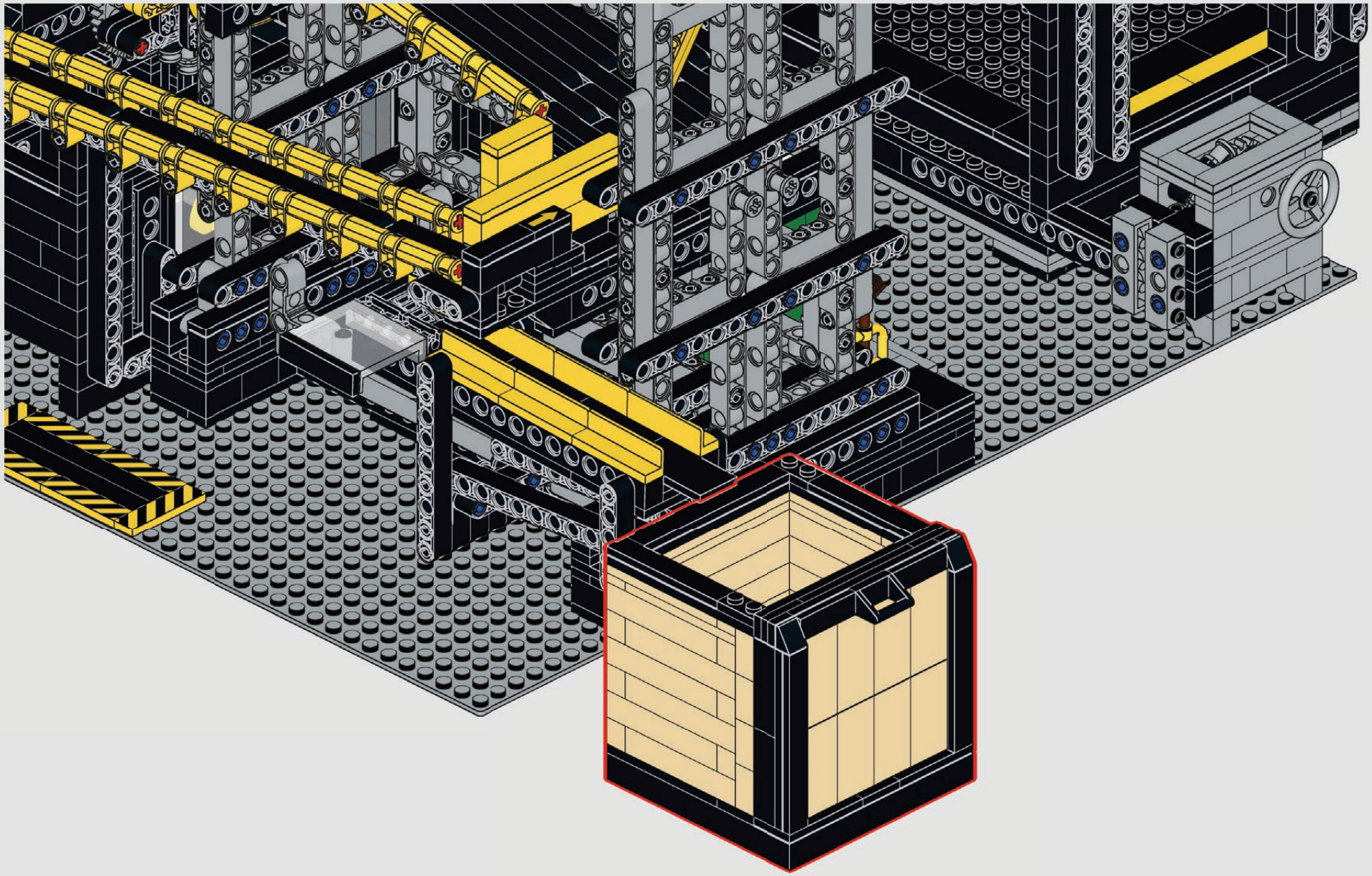
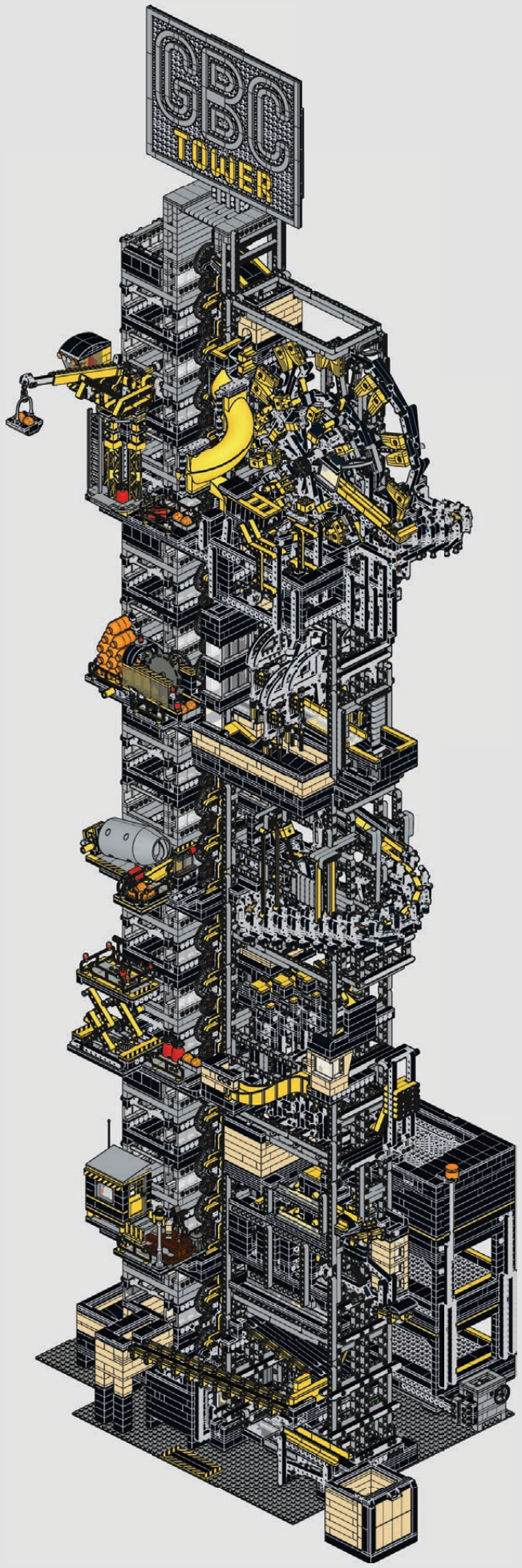



GBC
TOWER

Electric Components & Cable Management

Bill of materials:

1x	Control Lab Serial Interface B
1x	Train Speed Regulator 9V
1x	Power Functions Control Switch
4x	Power Functions XL Motor
4x	Power Functions M Motor
10x	Long Extension Cable
9x	Short Extension Cable

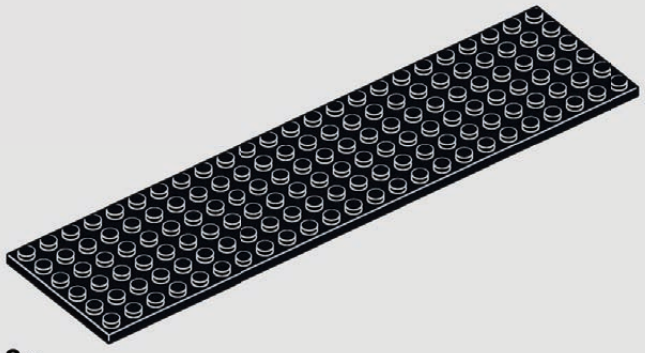
MOTOR

NODE

LONG EXTENSION (58118)

SHORT EXTENSION (60656)

CABLE PART OF BRICK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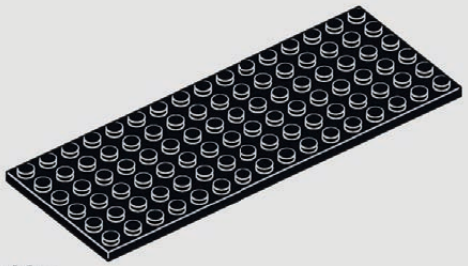
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52x

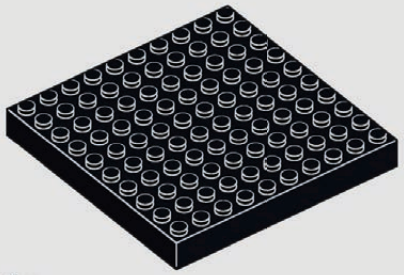

29x


56x


2x


1x


49x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10x


10x


1x


22x


3x


27x


34x

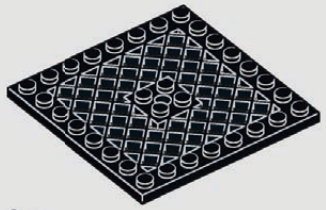

17x


84x


54x


18x


8x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81x


3x


11x


1x


20x


6x


9x


85x


8x


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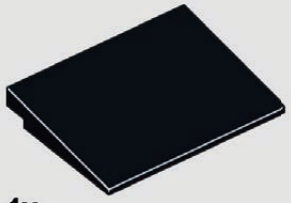
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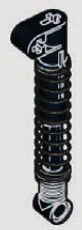
7x


6x


1x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1x


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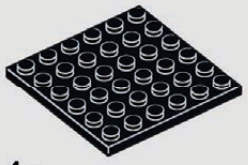
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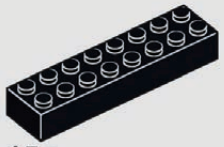
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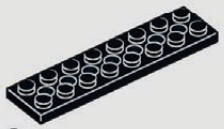
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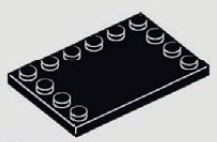
133x


11x


4x


2x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2x


2x


4x


1x


2x

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77x

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54x

1x

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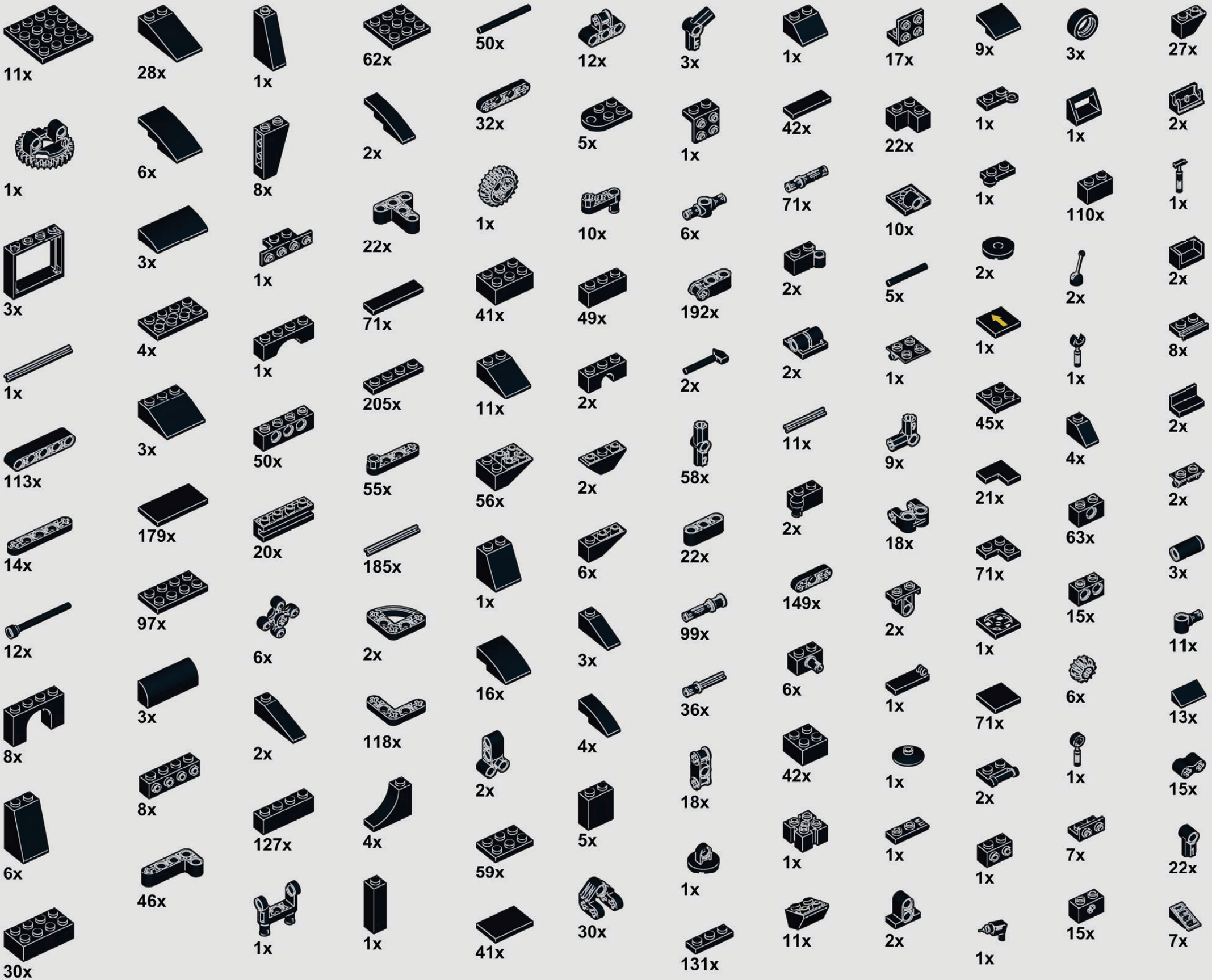
1x

6x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179x
97x
3x
8x
46x
1x
8x
1x
1x
50x
20x
6x
2x
127x
1x
62x
2x
22x
71x
205x
55x
185x
2x
118x
4x
1x
50x
32x
1x
41x
11x
56x
1x
16x
2x
59x
41x
12x
5x
10x
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2x
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71x
2x
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11x
2x
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6x

41x

8x

2x

18x

21x

27x

6x

13x

1x

1951x

1x

78x

343x

63x

43x

6x

3x

2x

19x

28x

90x

1x

18x

23x

19x

6x

3x

205x

69x

1x

8x

2x

3x

1x

38x

4x

1x

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2x

2x

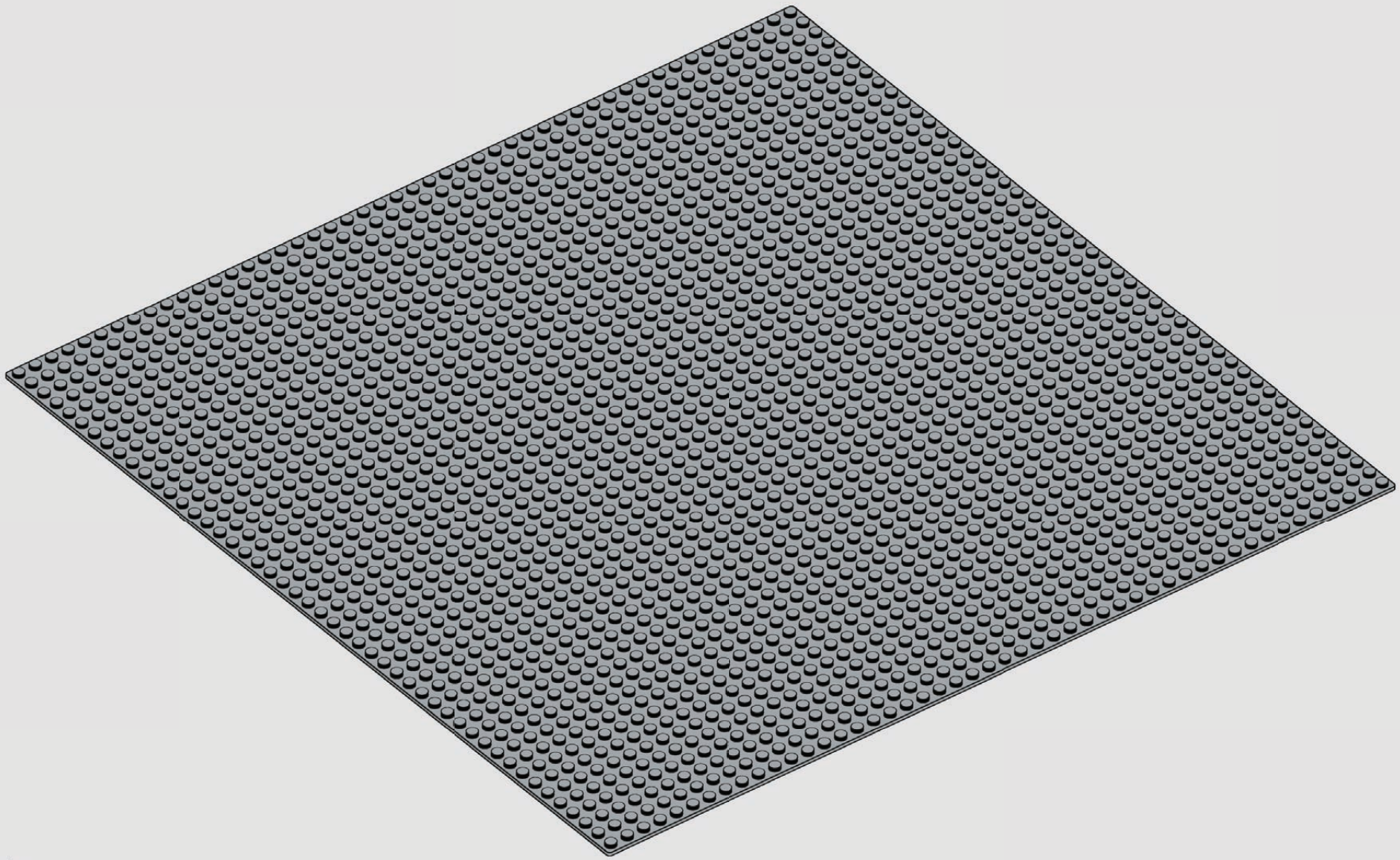
2x

22x

24x

1x

1x



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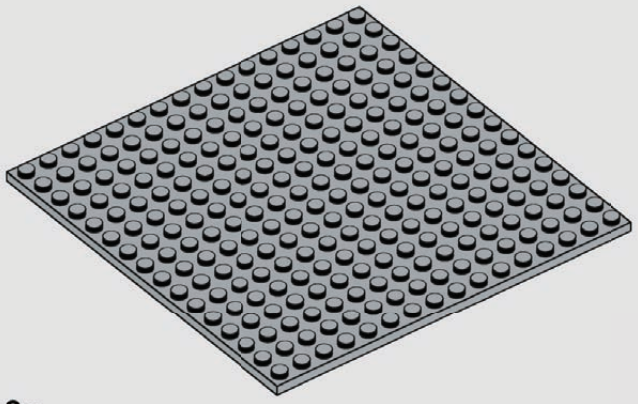

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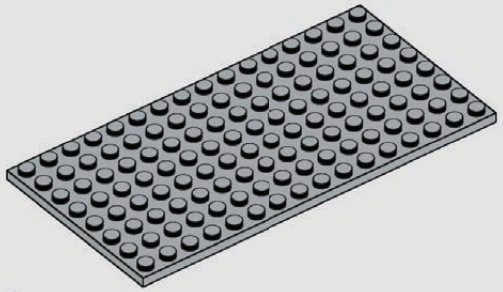
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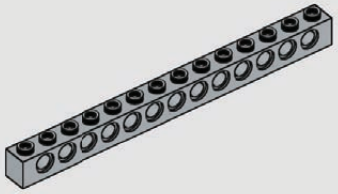
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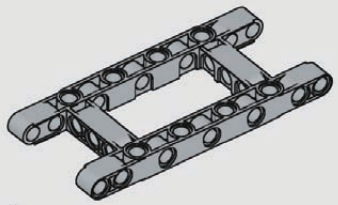
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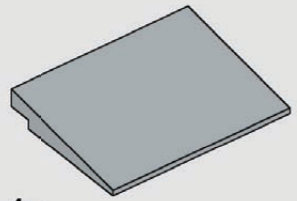
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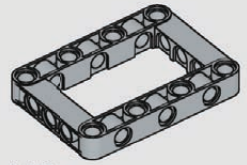
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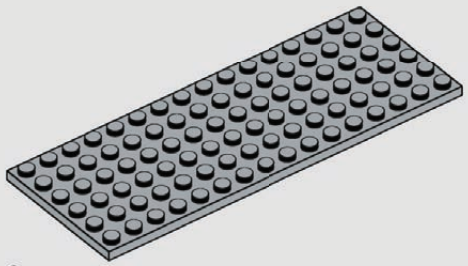
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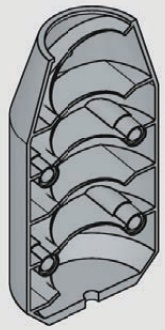
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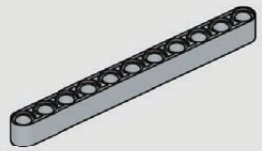
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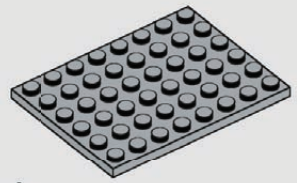
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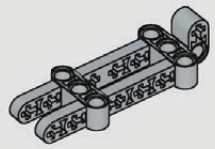
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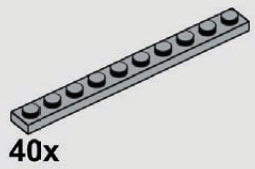
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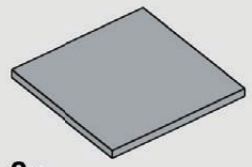
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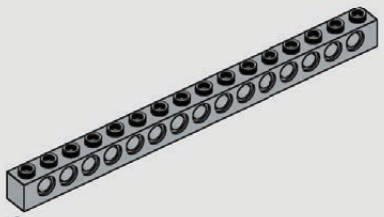
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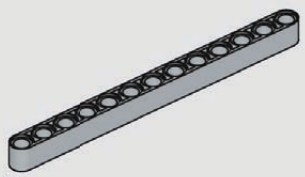
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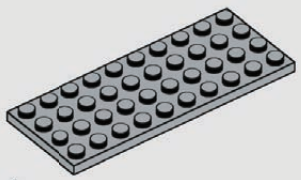
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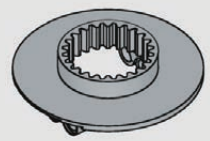
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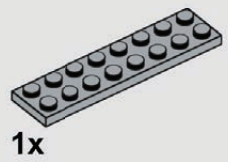
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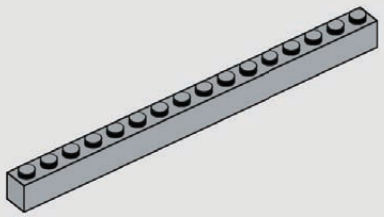
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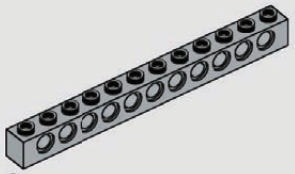
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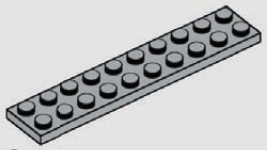
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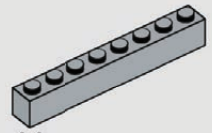
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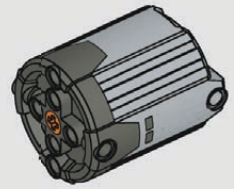
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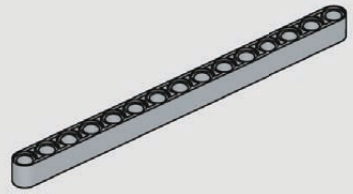
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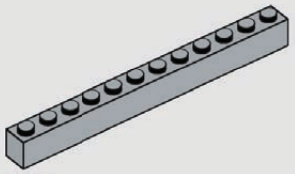
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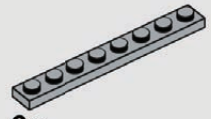
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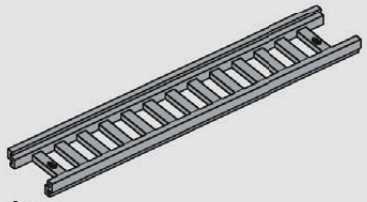
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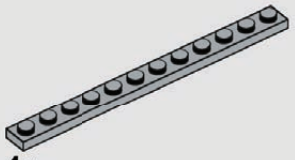
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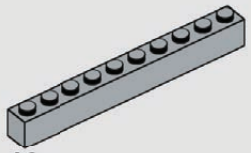
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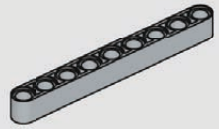
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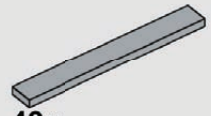
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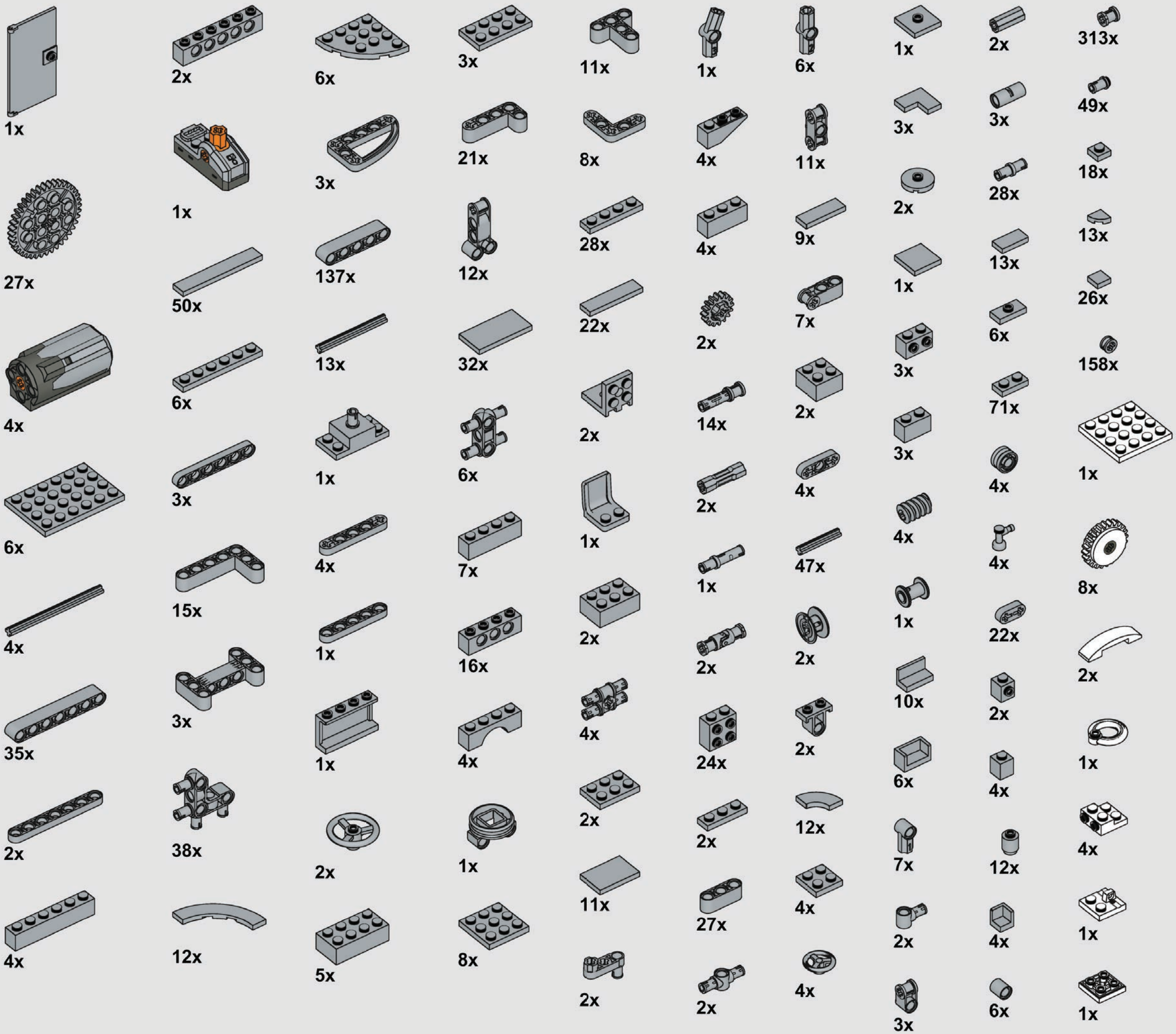

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1x
1x


1x

3x

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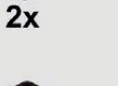
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3x

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2x

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1x

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1x

12x

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1x

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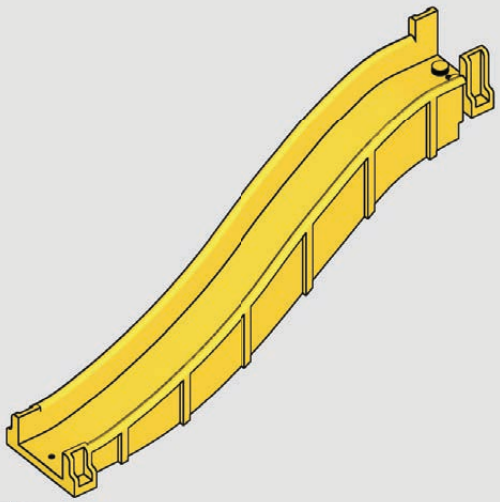
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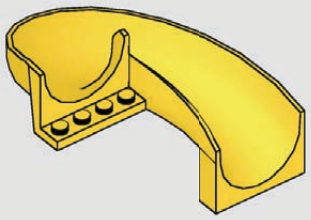
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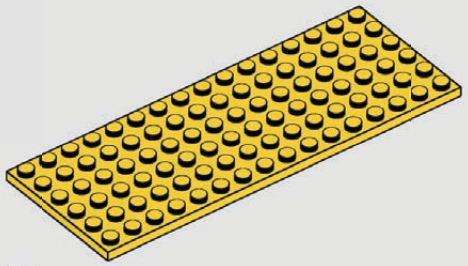
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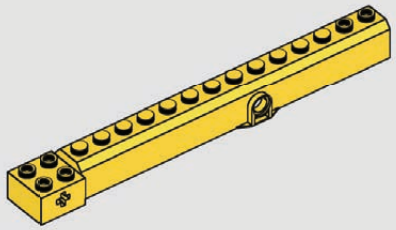
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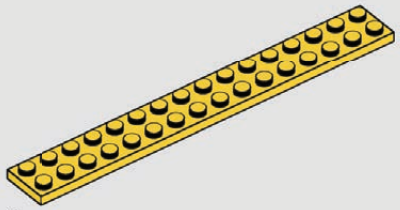
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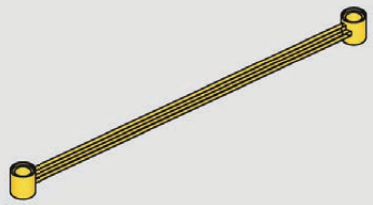
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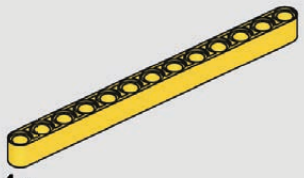
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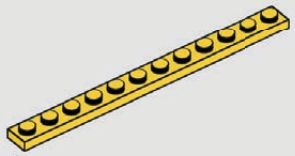
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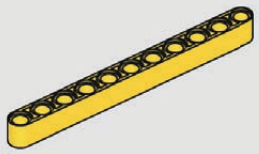
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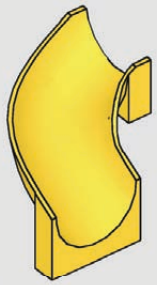
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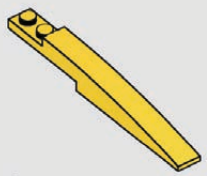
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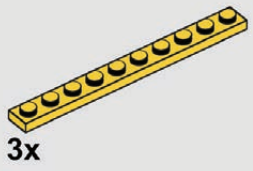
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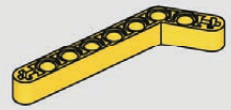
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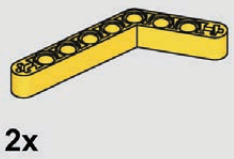
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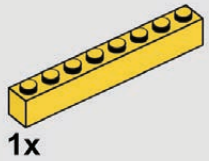
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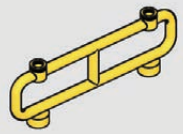
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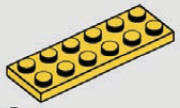
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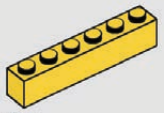
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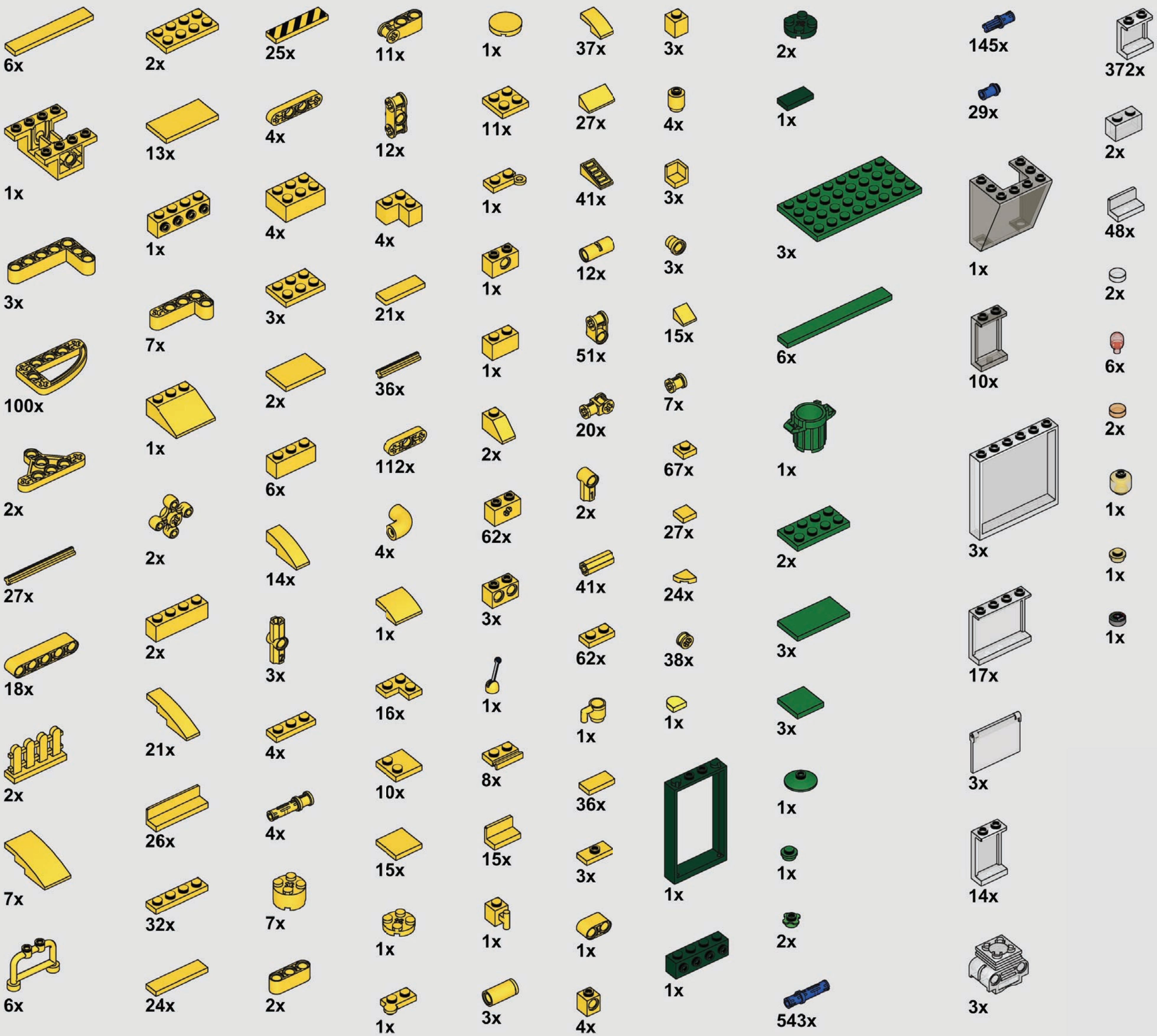
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3x
3x
1x
1x
2x
543x
145x
29x
1x
10x
3x
17x
3x
14x
3x
372x
2x
48x
2x
6x
2x
1x
1x
1x

Great Ball Contraption Tower

The Great Ball Contraption Tower or "Akiyuki Tower" is an homage to the famous LEGO® great ball contraption master builder Akiyuki Kawaguchi. The tower uses six Akiyuki modules but instead of joining these in the customary horizontal sequence, the modules in the GBC Tower are stacked vertically on top of each other – resulting in a 14,500-brick LEGO® MOC that towers more than 6 feet in height!